



# The Influence of Board Heterogeneity on Decision Making Styles and Performance of Consumer Cooperatives in Ethiopia

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# **Doctoral Dissertation**

## **The Influence of Board Heterogeneity on Decision Making Styles and Performance of Consumer Cooperatives in Ethiopia**

エチオピアにおける消費者協同組合の意思決定スタイルとパフォーマンスに対する  
理事会の異質性の影響

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## **Abstract**

*Despite cooperatives being business entities guided by the same principles of the international cooperative alliance, there are more ambiguity and variation in institutional structure, legal boundaries, and managerial practices across countries. However, the voluntary and open membership principle unlocks the door for individuals with heterogeneous backgrounds to join cooperative membership that challenges the democratic decision-making process and the performance of cooperatives. This study aims to investigate the influence of board heterogeneity dimensions on decision-making styles and performance of consumer cooperative with hybrid organizational structure in Gambella, Ethiopia. Guided by the theories of team heterogeneity related to cognitive decision-making and social psychology, this study is grounded on cognitive resource diversity, information decision-making, similarity attraction, and social categorization theories. The study adopted mixed approach combining qualitative and quantitative methods, using sequential exploratory research design in which qualitative data collected in the first phase were analyzed using content analysis to inform quantitative study in the second phase. The initial phase covered qualitative case studies consisting of five cooperatives using semi-structured interviews. The quantitative phase was conducted through survey questionnaires from 293 participants and analyzed using hierarchical regression with the support of SPSS version 20.*

*The study found that both dimensions of board heterogeneity have different significant effects on various decision-making styles. Relations-oriented heterogeneity was found to have a significant positive influence on intuitive and avoidant decision-making styles, while task-oriented heterogeneity has a significant positive influence on all decision-making styles. In contrast, the interaction between relations and task-oriented heterogeneity was found to have a significant negative influence on the rational decision-making style. The study also finds that all decision-making styles significantly influence efficiency and market performance. Only rational decision style has a significant effect on financial performance. However, the interaction between rational and intuitive decision-making styles was found to significantly affect cooperatives' efficiency and market performance. Surprisingly, our empirical results found a significant positive influence of interacting dependent with rational and intuitive decision-making styles on efficiency and market performance. The positive influence of board heterogeneity on decision-making styles implies heterogeneity based on education, tenure, and functional backgrounds is more beneficial than heterogeneity based on age, gender, and ethnicity to make sound decisions. The findings also help heterogeneous boards to understand the choice of decision-making styles and the impact of certain combination on the performance of cooperatives.*

**Keywords:** Board heterogeneity, Diversity, Decision-Making Styles, Organizational Performance, Organizational Structure, Cooperative, Heterogeneity Theory, Ethiopia

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## List of Acronyms

|        |                                                                 |
|--------|-----------------------------------------------------------------|
| ADMS   | Avoidant Decision Making Style                                  |
| ANOVA  | Analysis of Variance                                            |
| ATA    | Agricultural Transformation Agency                              |
| CEO    | Chief Executive Officer                                         |
| CFA    | Confirmatory Factor Analysis                                    |
| DDMS   | Dependent Decision Making Style                                 |
| DF     | Degree of Freedom                                               |
| DMS    | Decision Making Style                                           |
| FCA    | Federal Cooperative Agency                                      |
| FDRE   | Federal Democratic Republic of Ethiopia                         |
| GDMS   | General Decision Making Styles                                  |
| ICA    | International Cooperative Alliance                              |
| IDMS   | Intuitive Decision Making Style                                 |
| IOF    | Investor Owned Firm                                             |
| KMO    | Keiser-Meyer-Olkin                                              |
| KSA    | Knowledge, Skills and Abilities                                 |
| MBM    | Managerial Board Member                                         |
| MoFED  | Ministry of Finance and Economic Development                    |
| NGO    | Non-Governmental Organization                                   |
| P&C    | Property and Causality                                          |
| PASDEP | Plan for Accelerated and Sustainable Development to End Poverty |
| PCA    | Principal Component Analysis                                    |
| QDA    | Qualitative Data Analysis                                       |
| RDMS   | Rational Decision Making Style                                  |
| ROH    | Relations Oriented Heterogeneity                                |
| RCA    | Rwanda Cooperative Agency                                       |
| SNNP   | Southern Nations, Nationalities and People                      |
| SPDMS  | Spontaneous Decision Making Style                               |
| SPSS   | Statistical Package for Social Sciences                         |
| SSA    | Sub-Saharan Africa                                              |
| TMT    | Top Management Team                                             |
| TOH    | Task Oriented Heterogeneity                                     |
| UK     | United Kingdom                                                  |
| USA    | United States of America                                        |
| VIF    | Variance Inflation Factor                                       |

# Chapter One: Introduction

## 1.1. Background and Justification

Despite the recognition given to cooperatives as business entities guided by the same principles of the international cooperative alliance (ICA), there is ambiguity and variation in the institutional structure, legal boundaries and governance practices across countries (Develtere & Papoutsis, 2021; Mikami, 2016; Wanyama, 2013; Emanu, 2009). The ICA defined cooperative as ‘an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise (Ortmann & King, 2007, p.41; Guzman et al., 2020, p.97) based on ‘the values of self-help, self-responsibility, democracy and equality and solidarity. To realize these values, the ICA provides seven principles as guidelines: voluntary and open membership, democratic member control, member economic participation, autonomy and independence, education, training, and information, cooperation among cooperatives, and concern for the community (Tefera et al., 2016; Bernard & Spielman, 2009; Zeuli & Cropp, 2004). However, the principle of voluntary and open membership unlocks the door for individuals with heterogeneous background to join cooperative membership.

According to Bijman et al. (2014), increased member heterogeneity presents a major challenge for the success of cooperatives. Members’ heterogeneity refers to the differences in composition of individuals’ demographic characteristics that are salient and symbolically meaningful in the relationships among team members (DiTomaso et al., 2007). Coupled with the principle of democratic decision-making process (Apparao et al., 2020), Bijman (2005) argued that increasing member heterogeneity engenders a loss of effectiveness of the social mechanisms and cause inefficient or even inferior decisions (Hansmann, 1988; 2013). Such inefficient decisions could fail to maximize the collective participation of members in performing the activities of their cooperatives (Cook & Iliopoulos, 2016). Cechin et al. (2013) and Pozzobon & Zylbersztajn (2013) also assumed heterogeneity to cause large costs for collective decision making and control may impact performance.

Although whether the decision-making process in cooperatives debated as less efficient or less effective (Pozzobon & Zylbersztajn, 2013; Kurimoto, 2008a; Kalogeras et al., 2013), it was viewed from the high involvement of all members in approving the final decision. Yet, prior studies ignored the styles of decision-making related to the heterogeneity of membership within cooperatives and their impact on performance. Thus, this study intended to address the impact of board heterogeneity on the decision-making styles and performance of cooperatives with special attention paid to the organizational structure of the cooperative model in Ethiopia. Based on the exploratory nature of the topic, the study adopts mixed approach (Cresswell et al., 2003), combining qualitative and quantitative methods, using sequential exploratory research design (Creswell & Tashakkori, 2007) in which priority given to qualitative data using content analysis to inform quantitative study in the second phase to analyze the types of board heterogeneity related to decision-making styles and performance of consumer cooperative in Ethiopia.

Viewing from psychological standpoint, Rowe & Boulgarides (1983) and Scott & Bruce (1995) defined decision-making style as a cognitive process, learned and habitual response pattern exhibited by an individual when confronted with a decision situation. The growing complexity of the business world due to changing institutional governance systems (Kakabadse & Kakabadse,

2007) and demographic characteristics (Carpenter & Fredrickson, 2001; Elliott et al., 2018) has made the decision-making roles of the management board crucial for the health performance and survival of organizations, including cooperatives. Even though countries may apply the same principles for cooperatives, the way in which the government sets up the institutional structure can vary (Mikami & Tanaka, 2008; Ojiagu & Onugu, 2015). For example, in the 1940s, colonial administration in Africa allowed for the formation of cooperatives to generate income for established tribal structures and produce benefits for the local population (Wanyama et al., 2009). However, when these cooperatives began to compete with private European businesses, the colonial administration restricted their activities to the social and agricultural sectors to protect European interests (Wanyama et al., 2009). Different countries have followed different paths, models or traditions in their approach to cooperatives, largely determined by their colonial history.

Ethiopia, an uncolonized African nation, introduced cooperatives through a legal framework in 1960 as a fully government controlled instrument to run its political agenda in agriculture (Tefera et al., 2017; Tesfamariam, 2015). However, the success of these cooperatives was limited. Following a regime change in 1974, the military government redesigned the cooperative institutional structure to use them for the same purpose as its predecessor, with different principles and approaches reflecting the political thinking and ideology of the regimes (Tefera et al., 2016). In 1991, another government change took place, and the new government designed its administrative structure based on its over 80 ethnicities or tribes (Abate et al., 2014; Ruben & Heras, 2012). The government initiated government-affiliated cooperatives through new legal frameworks known as Proclamation No. 147/1998 and 402/2004 based on ICA principles. However, these cooperatives were largely government-controlled and staffed, and were considered an extended arm of the public sector rather than autonomous institutions under such a hybrid organizational structure (Emana, 2009; Kyriakopoulos et al., 2004). These forms of Ethiopian cooperatives have been largely unsuccessful, and there is no evidence linking the lack of success to membership heterogeneity and decision-making styles in Ethiopian cooperatives.

Several studies have shown the benefits of hiring people with heterogeneous backgrounds and talents (Yadav & Lenka, 2020; Salau et al., 2018), but managing a heterogeneous team can be challenging due to differences in demographic characteristics and organizational setup. The impact of team heterogeneity on process and performance is a key research question and various theories have been developed to understand this impact. These theories include similarity attraction and social categorization (Byrne, 1997; Williams & O'Reilly, 1998) which suggest that heterogeneity is negatively associated with performance, and cognitive resource diversity grounded on information decision-making theories (Cox & Blake, 1991; Williams & O'Reilly, 1998) which suggest that heterogeneity is positively associated with group process and performance. Scholars of cooperatives have also argued that board heterogeneity dimensions in cooperative is a major challenge, because it can be difficult to identify which heterogeneity is beneficial, as not all forms of heterogeneity are applicable in every organization, and not every dimension of heterogeneity has a positive impact (Yadav & Lenka, 2020).

Regarding to Ethiopia, very few studies have covered the impact of membership heterogeneity on cooperatives and show variability across numerous institutional settings (Shumeta & D'Haese, 2016; Bernard et al., 2007; Gezahegn et al., 2020). Research has shown that the heterogeneous impact of coffee and cereal cooperative membership in Ethiopia can vary based on factors such as the age and education of members, farm size, location, and found that cooperatives with older and more educated members with larger farms are more effective (Shumeta & D'Haese, 2016).

However, research also found a negative effect of the interaction between heterogeneity and participation levels within cooperatives (Bernard et al., 2007), and a study of the technical efficiency of agricultural cooperatives in Ethiopia found that cooperatives with a high degree of heterogeneity in members' participation were 98% less efficient, while cooperatives with paid employees were 33% more efficient (Gezahegn et al., 2020). Another study of 511 agricultural cooperatives in northern Ethiopia, Sebhatu et al. (2021) found that cooperatives committees were highly heterogeneous with conflicting interests, consistent with previous studies that have shown member heterogeneity could lead to conflict and weaken organizational decision-making and contribute to a cooperative's decline (Höhler & Kühl, 2018). However, these studies do not specify which type of decision-making styles is more effective.

While many researchers previously written theoretically-based studies about the importance of membership heterogeneity in cooperatives (Höhler & Kühl, 2018; Apparao et al., 2020), empirical studies investigated the role of board heterogeneity on decision-making styles and performance of cooperatives in Ethiopia is largely missing. Therefore, based on the institutional setting of Ethiopian cooperative structure and dearth of empirical studies, we argue in this research that studying board heterogeneity is imperative and will significantly impact the decision-making and performance of cooperatives with focus on the dimensions of board heterogeneity and styles of decision-making in consumer cooperatives in Ethiopia.

## **1.2. Research Problem and Gap**

The study of decision-making and organizational performance is complex due to the variety of theoretical perspectives used to study the structure, composition, and impact of boards (Kiel & Nicholson, 2003; Fidanowski et al., 2014). Despite a significant amount of research on board heterogeneity, there are still areas where research is sparse and conflicting (Yadav & Lenka, 2020a). This has resulted in a lack of consensus regarding the effects of team heterogeneity on performance (Harrison & Klein, 2007; Van Knippenberg & Schippers, 2007). Theories such as similarity-attraction and social categorization (Byrne, 1997; Williams & O'Reilly, 1998) suggest that heterogeneity can have negative effects on the group, while cognitive resource diversity and information decision-making theories (Cox & Blake, 1991; Williams & O'Reilly, 1998) posit that heterogeneity has a positive impact on performance. However, the findings of studies on the heterogeneity of work groups or teams are mixed and based on different theories with opposing effects on outcomes. Yet, some report a non-significant relationship between team heterogeneity and performance (Sung & Choi, 2021; Green et al., 2005).

Despite numerous studies on the impact of team heterogeneity, findings have been mixed with reported positive, negative, or non-significant effects. Scholars have used different methods to operationalize heterogeneity constructs, such as measuring the heterogeneity index with all variables equally (Riordan & Shore, 1997; Tsui et al., 1992) and separately (e.g., van Knippenberg et al., 2011; Homberg & Bui, 2013). Studies have also varied in their measurement of performance outcomes of heterogeneity at different levels, such as group levels (van Knippenberg et al., 2011) and organizational levels (Ward, 2016; Riaz, 2015; Rehman et al., 2012). Yet, some used different measures of performance like decision-making performance (Zhang et al., 2021), task performance (Pelled et al., 1999) and financial performance (Ely, 2004; Simons et al., 1999). In spite of these various theories and dimensions, previous findings about the impact of heterogeneity on decision-making and performance still contradict.

While the effects of heterogeneity have been researched for decades, there is still a gap in understanding the relationship between team heterogeneity and decision-making styles in organizations. Studies have found positive relationship between team heterogeneity and decision-making performance, but there is a lack of understanding about the specific styles of decision-making used by these teams in their respective organizations. Research by Zhang et al. (2021) and Dokko et al. (2009) using survey data found positive results of team heterogeneity on team decision-making performance, while Cho et al. (1994) found negative impact on decision-making behavior among top management teams.

Researchers have studied the impact of membership heterogeneity in cooperative organizations across different sectors, but results are conflicting because of different dimensions (Iliopoulos & Valentinov, 2017; Höhler & Kühl, 2018; Apparao et al., 2020). However, no prior study examined how board heterogeneity affects the decision-making styles and performance in relation to institutional setup. There are inconsistent views in literature on the decision-making style that best enhances workgroup and organizational performance. Therefore, researchers posit that a one-size-fits-all solution does not exist, as there is no one unanimously accepted categorization of decision-making styles (Tatum et al., 2003; Oyewobi et al., 2016).

Ethiopia adopted the cooperative business model in 1960 to improve living conditions for its poor people (Tefera et al., 2017; Abate et al., 2014) but tailored the structure to fit its political ideology through government control from 1960 to 1991 (Sebhatu et al., 2021; Kodama, 2007). Since 1991, the government has introduced a hybrid of government and member-controlled cooperatives to enhance socio-economic status of the poor struggling in a free market policy (Tefera et al., 2017; Engdawork, 1995). Despite the government's efforts to establish new forms of cooperatives, there is skepticism about their ability to be successful in decision-making and performing their intended functions. There have been some attempts to study membership heterogeneity among cooperatives in Ethiopia, but these studies have focused on areas outside of the managerial board and used different dimensions to study the variety of membership heterogeneity. For example, Gezahegn et al. (2020) reported that cooperatives with a high degree of heterogeneity in members' participation were found to be 98% less efficient. Similarly, Sebhatu et al. (2020) revealed that larger cooperatives are more likely to experience heterogeneity because members are less likely to know each other well and have no social relationships that reinforce cooperation. Despite these attempts, there is a lack of empirical studies examining the impact of board heterogeneity and its relation to decision-making styles and performance in consumer cooperatives in general and Ethiopia in particular. One reason for is the differences in cooperative setups across countries (Mikami, 2016; Wanyama, 2013). Identifying membership heterogeneity for the attributes of cooperatives is fundamental for understanding cooperatives' decision-making structure since active members' involvement in decisions is essential for its functioning and viability.

The existing gap in research on the impact of board heterogeneity related to decision-making and performance in cooperative organization needs more studies and exploration. Furthermore, Höhler & Kühl (2018) recommended further investigation how different types of heterogeneity influence decision-making. Similarly, Yadav & Lenka (2020b) called future researchers to explore the combined effects of several dimensions of heterogeneity on performance outcomes. Thus, this study is a response to these calls and aims to investigate the impact of board heterogeneity in relation to decision-making styles and performance of consumer cooperatives in Ethiopia.

### 1.3. Study Approach in Addressing Heterogeneity

Against the concept of cooperatives as organizations of people with common problems, memberships are composed of individuals with heterogeneous demographic backgrounds (Birchall & Simmons, 2004a). Based on the literature reviewed on the dimensions of membership heterogeneity in cooperatives, Höhler & Kühl (2018) and Apparao et al. (2020) classified the main categories of heterogeneity and divided them into three: farm, product, and member level related heterogeneity. This research adopts the member level heterogeneity to inspect how board heterogeneity affects the decision-making styles and performance of consumer cooperatives. The reason is that scholars have thoroughly researched the issue of individuals' demographic heterogeneity (Yadav & Lenka, 2020a; Joshi & Roh, 2009), and build a stronger foundation to deal with its impact. Therefore, we found it imperative to address the issue based on Webber & Donahue (2001) classification of demographic dimensions into relations oriented heterogeneity (age, gender, ethnicity) and task-oriented heterogeneity (education, tenure and functional backgrounds) to understand the impact on decision-making styles and performance of the selected cooperatives.

### 1.4. Research Questions

Despite the fact that board heterogeneity has been studied based on competing theories that predict the outcomes as negative or positive (Williams & O'Reilly, 1998; Yadav & Lenka, 2020), deemed a double-edged sword, increasing the opportunity for creativity as well as the likelihood that group members will be dissatisfied and fail to identify with the group (Milliken & Martins, 1996, p.403). Although significant volume of research generated on board heterogeneity (Yadav & Lenka, 2020a; Williams & O'Reilly, 1998), there are several areas where the research remains sparse, if available, has conflicting results (Harrison & Klein, 2007; Van Knippenberg & Schippers, 2007) that do not provide a clear picture regarding the effects of board heterogeneity on the decision-making and outcomes. Specifically, the styles of decision-making in the context of cooperatives that has its own unique decision-making system (Apparao et al., 2020; Höhler & Kühl, 2018) and organizational structure (Ortmann & King, 2007; Shumeta, 2017).

Due to the recognized difficulty of some immeasurable number of attributes like gender and ethnicity and the research gap presented above, we relied on Webber & Donahue's (2001) classification of board demographic heterogeneity (such as relations-oriented and task-oriented) to address the research questions. Therefore, in light of the problems of heterogeneity in cooperative (Apparao et al., 2019; Höhler & Kühl, 2018), unique democratic decision-making system (Cechin et al., 2013; Hansmann, 2013) and hybrid organizational structure of Ethiopian cooperative sector (Tefera et al., 2017; Emana, 2009; Veerakumaran, 2007), this study tries to broadly address how board heterogeneity impact the decision-making styles and performance of cooperative union; and specifically proposed the following research questions:

1. *In what extent will board heterogeneity affect the decision-making styles in consumer cooperative with a hybrid organizational structure?*
2. *In what extent will the decision-making styles of the heterogeneous boards affect the performance of consumer cooperative with hybrid organizational structure?*

## 1.5. Research Aim and Objectives

Based on the identified research problem and questions, a comprehensive understanding of board heterogeneity dimensions, decision-making styles, and performance of cooperatives is required to help explain the impact in consumer cooperatives in Ethiopia. To understand the impact of heterogeneity, Webber & Donahue (2001) classified the demographic dimensions into relational and task-oriented heterogeneity. Hence, the main aim of this research is first; to explore and discuss the existing board heterogeneity in terms of relations-oriented and task-oriented heterogeneity; and how such dimensions of heterogeneity relate with the styles of decision-making applied by the heterogeneous board of cooperative. Secondly, to develop an integrated framework and extend the existing knowledge in order to enhance the understanding of board heterogeneity; and how such heterogeneity influence the decision-making styles and outcomes in the context of consumer cooperatives in Ethiopia. In doing so, the primary objective of the study is to explore the heterogeneity of managerial boards and the application of decision-making styles and their impact on the performance of cooperatives with hybrid organizational structure in Ethiopia. Therefore, this study is designed based on the following specific objectives:

1. *To investigate the effect of board heterogeneity on decision-making styles in consumer cooperative with a hybrid organizational structure in Ethiopia.*
2. *To investigate the influence of decision-making styles on performance of consumer cooperative with such hybrid organizational structure in Ethiopia.*

## 1.6. Significance of the Study

The findings of this study contribute in different ways. It has implications for theory, future research and the practice of decision-making among heterogeneous boards of consumer cooperatives, policy makers and future researchers. This study contributes to the collective understanding of board heterogeneity related to decision-making and performance from the perspectives of institutional structure of Ethiopian cooperative model framed within tribal based ethnic federalism structure of the country. Firstly, this study broadens the theoretical perspectives of how heterogeneous board members interact to achieve better group decision-making styles and performance of cooperatives in general and consumer cooperative in Ethiopia in particular. It contributes to the understanding of the role of heterogeneity dimensions in shaping board-level decision-making styles and is a response to Höhler & Kühl (2018) calls for more research in this area. It goes beyond solely demographic dimension by focusing on the relationships and task/job-oriented heterogeneity in relation to decision-making styles in consumer cooperative sector and similar organizations.

Secondly, the study contributes to the understanding of cooperatives in a hybrid institutional structure where it is difficult to abide by or challenge institutions position themselves to deal with the range of board compositions and institutional structure settings to remain viable. Thirdly, this study also expands the understanding of the board heterogeneity and decision-making styles of cooperatives in the context of a developing countries in Sub-Saharan Africa, specifically Ethiopia where tribal based ethnicity play significant role in the societies. The study also provides insights into the management of team heterogeneity for policymakers seeking to promote diversity in organizational development of cooperatives. It is expected that this study will also motivate future research studies in this area and cooperatives' managers to better understand the dimensions of board heterogeneity that lead to particular decision-making style and outcomes in a particular

institutional structure, thereby helping to promote viable performance of boards and further enhance the development of cooperatives.

Lastly, while Bruton et al. (2010) argue that when scholars only focus on single countries can be more difficult to judge the impact of institutions within the setting, studies have repeatedly demonstrated that difference in institutions can exist within a single country (e.g., Sung & Choi, 2021; van Knippenberg et al., 2011; Buyl et al., 2014; Zhang et al., 2021), especially one with diverse ethnics, cultures and regional regulatory arrangements like Ethiopia. Moreover, a single country case study will support and facilitate comprehension of phenomena that are not well understood (Mair & Marti, 2009). This suggests that focus on a single country to study the impact of institutions will allow researchers to closely view institutions in terms of their enabling and constraining nature to specify the conditions under which particular perspective of board heterogeneity and decision-making styles will cohere and be successfully employed for cooperative success. Given that Ethiopia is one of the most diverse countries with relative similarities to other Sub-Saharan Africa nations in terms of ethnic diversity and government policies focused on the development of cooperative (Wanyama, 2013), this study's findings could potentially be applied to other African countries.

## **1.7. Methodological Approach**

This study adopts the mixed method (Creswell, 2003), combining both qualitative and quantitative approaches. The use of mixed methods goes in hand with nature of this study where the research question is exploratory in nature (Tashakkori & Teddlie, 2010), the researcher develops and tests instruments (Johnson et al., 2007). In addition, this dissertation adopted a multi-paradigmatic stance (M. W. Lewis & Grimes, 1999) and pragmatic pluralism (Johnson & Onwuegbuzie, 2004) as the philosophical position due to its interdisciplinary nature. Within mixed method approach, this dissertation adopted the sequential exploratory strategy (Creswell, 2003; Saunders et al., 2015); a strategy in which priority was given to qualitative phase based on case studies consists of five cooperatives and then followed by quantitative phase that included the collection and analysis of survey distributed to managerial boards of the cooperative union in Gambella region in Ethiopia due to convenience to access data compared to other war-torn regions and analyzed the data using hierarchical regression model with the support of SPSS version 20.

## **1.8. Structure of the Dissertation**

This dissertation presented in six chapters. Chapter one provides an introduction to the study with specific focus on background of the study, the research problem and gap, research questions, research objectives, the significance of the study, methodological approach and structure of the dissertation. Chapter two presents a comprehensive review of extant research relating to institutional structure of cooperative sector development in Ethiopia, theoretical underpinning the study, dimensions of board heterogeneity, decision-making styles and organization performance as it applies to consumer cooperatives in Ethiopia. The review justifies the need for this study by pointing out the theoretical debate and conflicting findings of the previous empirical studies.

Chapter three discusses and reports the results of the qualitative data analysis based on nine interviews. It presents the research approach and design used, case selection criteria, data collection and analysis methods. The objective is to analyze the data of the cases to see if it provides evidence that supports the development of conceptual framework and the hypotheses. Chapter four introduced a conceptual framework and developed hypotheses including the different constructs

that comprise the framework. The chapter discusses the researcher's philosophical position, methodology that informs the procedures, research design which covers: research context, unit of analysis, methods of data collection and analysis used beside the criteria used to establish research findings quality, and it ends with operationalization of the adopted variables as well as model specification. It generally focused on the relation between board heterogeneity and decision-making styles.

Chapter five introduced a conceptual framework and developed hypotheses including the different constructs that comprise the framework. The chapter discusses the researcher's philosophical position, methodology that informs the procedures, research design which covers: research context, unit of analysis, methods of data collection and analysis used beside the criteria used to establish research findings quality, and it ends with operationalization of the adopted variables as well as model specification. It generally focused on the relation between decision-making styles and organizational performance of cooperatives. Chapter six summarized the findings of qualitative and the two quantitative studies together, and discusses implication, limitation, and contribution from the research findings. The methodological and theoretical contributions are discussed. Following this, managerial implications are presented, including an elaboration of the recommendations and strategies to enhance the heterogeneous board decision-making process and performance of cooperative. Finally, the limitations of the study are outlined and directions for future research proposed.

## **1.9. Chapter Summary**

In summary, this chapter presents general introductory information of the study and introduced background and justification of the study area. It also covered the research problem and gap, research questions and objectives. In addition, it also presents the significance of the study and methodological approach followed by this study. Finally, the chapter presents the structure of the dissertation.

## **Chapter Two: Literature Review**

### **2.1. Introduction**

This chapter presents a brief review of the literature about board heterogeneity in relation to their decision-making styles and effects on organizational performance and the underpinning theories of the research. First of all, the overview of cooperatives is presented. Then, the dimensions of board heterogeneity and decision-making styles related to performance are discussed from the previous literature. Anchoring on the theories of cognitive resource diversity theory and information decision-making theory to predict the relations and influence of board heterogeneity, the specific themes are considered.

### **2.2. Overview of Cooperative Sector in Ethiopia**

Cooperatives in most African countries have their origins in the colonial period (Wanyama, 2013). Although the ICA defined cooperative as an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise (Lyu & Kiminami, 2017; Mikami, 2016; Wanyama et al., 2008), the colonial governments used the formation of these cooperatives to achieve their interests rather than the interests of the colonized people in Africa (Develtere et al., 2008).

As the world went through socio-economic turmoil caused by industrialization and free markets in the 19<sup>th</sup>C (Fairbairn, 1994; Birchall, 2002) which resulted in high price and poor quality of foods (Balnave & Patmore, 2008) that impacted poor people, the first modern consumer cooperative known as the Rochdale Society of Equitable Pioneers was formed in 1844 in the United kingdom (UK) as a response to collectively encounter such problems to bring the price of consumer goods within the reach of financially struggling workers and to create an alternative to the company stores (Cook & Iliopoulos, 2016; Birchall, 2000; Cheong & Roberts, 2006; Bhuyan & Leistritz, 2001). Those consumer cooperatives were formed to make various products and services available to members at affordable prices (Bhuyan & Leistritz, 2001). However, it took a century to introduce such cooperative institutions in African countries including Ethiopia where the colonial governments directed the formation of cooperative organizational structures that enable them to implement their socio-economic policies with the intention to achieve their interest rather than the local communities (Wanyama, 2013). The colonial state subsequently provided the initial legal framework to spur cooperative development, which excluded African participation until after the Second World War (Wanyama et al., 2009; Develtere et al., 2008).

As one of the oldest uncolonized nations on the continent, Ethiopia formed its first hybrid form of cooperative organizations in 1960 as legal entities (Tefera et al., 2017; Tesfamariam, 2015). Since then, the cooperatives passed through various governments' structural adjustments and suffered institutional changes (Emana, 2009). The chronicles of cooperatives in Ethiopia are seen in three historical moments (Tefera et al., 2016; Tesfamariam, 2015) based on the laws designed to support government policies against the foundational principle of cooperatives that challenged their institutional success.

The first phase marked 1960-1974, known as the Imperial Period. The government recognized the role of cooperatives and made a deliberate effort to promote the same. However, the principles and

approaches followed were markedly different, reflecting the political thinking and ideology of the regimes (Tefera et al., 2016). The government fully controlled them and provided the first legal framework (the Farmer Workers Cooperative Decree No. 44/1960). The major mentioned causes for the establishment of a legal framework were an increased unemployment rate, rural to urban migration and challenges to government regarding land use policy (Mojo et al., 2018). The government tried to steadfastly use cooperatives as a tool to overcome the problems expanding modern farming systems, and putting individual land holdings under the control of cooperatives. Cooperatives were also primarily used as tools to overcome the shortage of foreign currencies by supporting the production and export of high value commercial crops, like coffee (Bernard et al., 2010). Membership consisted farmers with large landholdings that tended to exclude smallholders. The services of the cooperatives were also limited to richer farmers and to cash crop growing areas while the poor farmers and other areas were discriminated against (Mojo et al., 2018). To improve some of the problems observed during the first few years of implementation, the second Cooperative Societies Proclamation No. 241/1966 was introduced in 1966. Following this proclamation, five types of cooperatives (multipurpose, saving and credit, consumers, artisans and farm workers) were established. Though the legal framework was relatively comprehensive and contained most of the essential contents of the legal framework issued, success was limited due to the high political involvement (Tesfamariam, 2015; Kodama, 2007). Not only political involvement, but also failed because membership was neither open nor voluntary.

Following the regime change in 1974, the second phase known as the Derg regime came to power and gave special attention to cooperatives as instruments for mass movement, equitable resources mobilization and distribution (as part of land reform), for the purpose of constructing a particular brand of socialism in the countryside (Abebaw & Haile, 2013). In 1975, a new proclamation (Proclamation No. 71/1975) enacted targeting the establishment of producers' cooperatives and service cooperatives. Similar to the Imperial regime, the Derg also enacted different cooperative proclamations to realize its philosophy. Then, cooperatives were used to organize peasants, control the prices of commodities, levy taxes, and extend government control to the local level (Mojo et al., 2018). Under proclamation No.71/1975, only three types of rural associations were established. These are: (1) Peasant Associations - the lowest administrative structures where membership was obligatory for farmers; (2) Agricultural Producer Cooperatives - established to provide preferential treatment to smallholders; and (3) Service Cooperatives - marketing and purchasing cooperatives that handled modern inputs, credits, milling services, consumer goods and peasants' produce (Kodama, 2007). While the cooperative society's proclamation No. 138/1978 was introduced to replace proclamation No.71/1975, still government pursued the cooperative agenda more aggressively as key instrument to build a socialist economy (Abebaw & Haile, 2013). However, the movement of cooperatives during the Derg regime was characterized: as state driven, with mandatory membership, appointed (by the ruling party) boards of directors and managers (Birhanu, 2011). Thus, cooperatives of the Derg regime were not based on strong foundations, like the Imperial era, and as a result were not sustainable (Mojo et al., 2018; Royer et al., 2017).

After the down fall of the military regime in 1991 (Abate et al., 2014; Ruben & Heras, 2012), the third phase representing current government (known as post 1991) came to power in 1991. Similar to the past two regimes, the first cooperative society proclamation (No. 85/1994) was also only targeting the agricultural cooperatives and lacks sufficient details. Hence, the government enacted the second proclamation (No. 147/1998) in 1998. This proclamation outlined the layers of organizational structure of the cooperatives into primary cooperatives, unions, federations, and cooperative leagues that can foster broader growth of the movement (Tefera et al., 2017; Kodama,

2007). The proclamation also specified related organs of the cooperatives that include members, a general assembly, a special resolution, and a management committee with clear roles and responsibilities. In 2016, the federal Democratic Republic of Ethiopia known as FDRE's (2016) amended new cooperative societies proclamation no. 985/2016.

In the proclamation 985/2016, Article 2(1) defined cooperative as:

*“An autonomous association having legal personality and democratically controlled by persons united voluntarily to meet their common economic, social and cultural needs and other aspiration; which could not addressed individually, through an enterprise jointly owned and operated on the basis of cooperative principles.”*

The same proclamation article 5 sub-articles (1) and (2) stated that:

*“(1) cooperative societies shall be voluntary organizations open to all persons willing to use their services and able to accept the responsibilities of membership without discrimination on the basis of gender, special status, race, political ideological, disability or religion; and (2) “cooperative societies shall be democratic organizations controlled by their members who actively participate in setting their policies and making decisions; each member having equal voting right as well as one member having only one vote.”*

The amendment mostly aimed at strengthening membership incentives by improving their rights, for instance by allowing a cooperative society that faces shortage of capital to sell certain shares to a person who is not a member without contradicting the principle of the cooperative (Mojo et al., 2018). Following the legal framework and strong promotion, several cooperative societies were established both in rural and urban areas. As a result of the above proclamation, cooperatives guided by the seven principles of the ICA including: (a) open and voluntary membership and (b) member democratic controlled enterprise have been formed. These principles allowed individuals from heterogeneous background to join cooperative membership. Yet, cooperatives are government affiliated in the form of hybrid nature of both government and member controlled which contradicts the universally accepted autonomous of cooperatives (Emana, 2009). Besides the government structure that designed along diversity in all sectors including cooperative administration, the strong government involvement continues through political appointment from the ruling party at both federal and regional cooperative agencies though contrary to the philosophy of cooperatives (Kodama, 2007; Tesfamariam, 2015; Shumeta, 2017).

Against its article (5) sub-article (2), the government established an agency at both federal and regional levels with a mandate to (a) promote cooperatives, (b) oversee the appropriate implementation of legislation for cooperatives; (c) design cooperative policies and legal procedures consistent with the international conventions on cooperatives and, (d) ensuring policy coherence between cooperative policy and the broader policy environment (Alemu et al., 2003). The cooperatives' institutions suffer from frequent structural changes (Emana, 2009) due to the frequent changes in government structure.

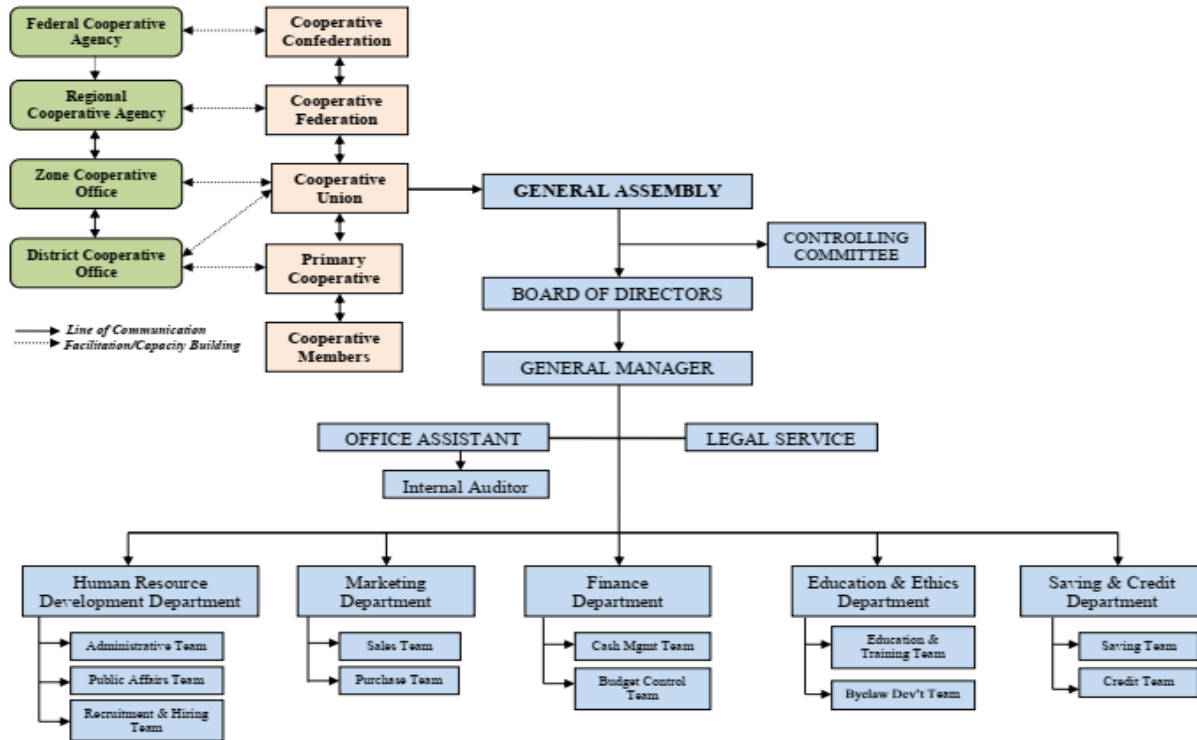
### **2.2.1. Organizational Structure of Ethiopian Cooperatives**

Based on the overview of cooperative development in Ethiopia presented above, it is clear that government have large influence in the administrative issues of cooperatives over the years. Since the 1960s, many Sub-Saharan African countries including Ethiopia, initiated cooperative development programs, often to facilitate the distribution of subsidized credit and inputs (Wanyama

et al., 2009). However, as cooperatives were largely government controlled and staffed, they were often considered as an extended arm of the public sector, rather than institutions or firms owned by the members (Tesfamariam, 2015). This form of cooperatives was rarely successful. Political patronage and interference generally resulted in poor performance, corruption and conflicts, which contributed to discredit the movement.

Since the mid-1990s, the government of Ethiopia developed a series of policies to promote cooperative development, with the implementation of the 1998's Proclamation being a milestone (Tefera et al., 2017). The institutional structure designed following the 1998 proclamation was not only mobilizing resource to organize cooperatives but also to support cooperatives at various levels. The figure below shows the relation between government and members' involvement in the administrative issues of cooperative including decision-making. The key areas of government involvement in cooperatives include: capacity building, mismanagement and audit service, development of cooperatives legislatives and decision-making on government subsidized consumption goods (Tefera et al., 2017). The Government established federal and regional cooperative institutions that facilitate the administration of cooperatives through the policies and strategies it designed. Such policies define the structure for organizing and supporting cooperatives. Though functionally they stand as independent institutions, cooperatives closely linked with government and its hierarchy varies across regions. The figure below shows the institutional setup of Ethiopian cooperatives.

Figure 2.1: Organizational Structure of Ethiopian Cooperative



Source: FCA (2022)

As it can be observed from the above figure 2.1, it is evident that government controlled the offices and officials who facilitate and build the capacity of members in cooperatives throughout the country. On the other hand, members controlled and manage their respected cooperatives through elected board or management committees. Government involves through facilitations within the framework of the cooperative societies proclamations. Normally, there are generally four organizational hierarchies of cooperatives in Ethiopia, namely: (1) confederation of cooperatives, (2) federation of cooperatives, (3) cooperative unions, and (4) primary cooperatives. However, only three of these hierarchies are currently functional. The confederation has yet to be established. The cooperative federations are established at regional levels and form the basis for establishment of the confederation.

Though the federal cooperative agency (FCA) intended to form national federations, regional governments also established regional cooperative federations. For example, in the Southern Nations, Nationalities and Peoples (SNNP) Region, the Southern Region Farmers Cooperatives Federation was established in February 2008 and serves as an apex cooperative body for the region (Emana, 2009). Such federations have been represented by the cooperative unions established in a country with the objective of achieving greater economies of scale through increasing the bargaining power of primary cooperatives. Cooperative unions that formed by primary cooperatives are a recent phenomenon in the history of cooperatives in Ethiopia. For instance, the Lume Adama Grain Farmers' Cooperative Union was the first cooperative union established in 1997, with the aim of increasing farmers' bargaining power in selling their grain. Since then, several unions have been established. According to the Plan for Accelerated and Sustainable Development to End Poverty (PASDEP: 2006-2010), the government planned to establish a cooperative union per district ministry of finance and economic development (MoFED, 2006). When a cooperative union is formed, it is closely worked with the district cooperative promotion office. However, the cooperative promotion office lacks technical capacity to support the unions (Tefera et al., 2017; Emana, 2009; Veerakumaran, 2007).

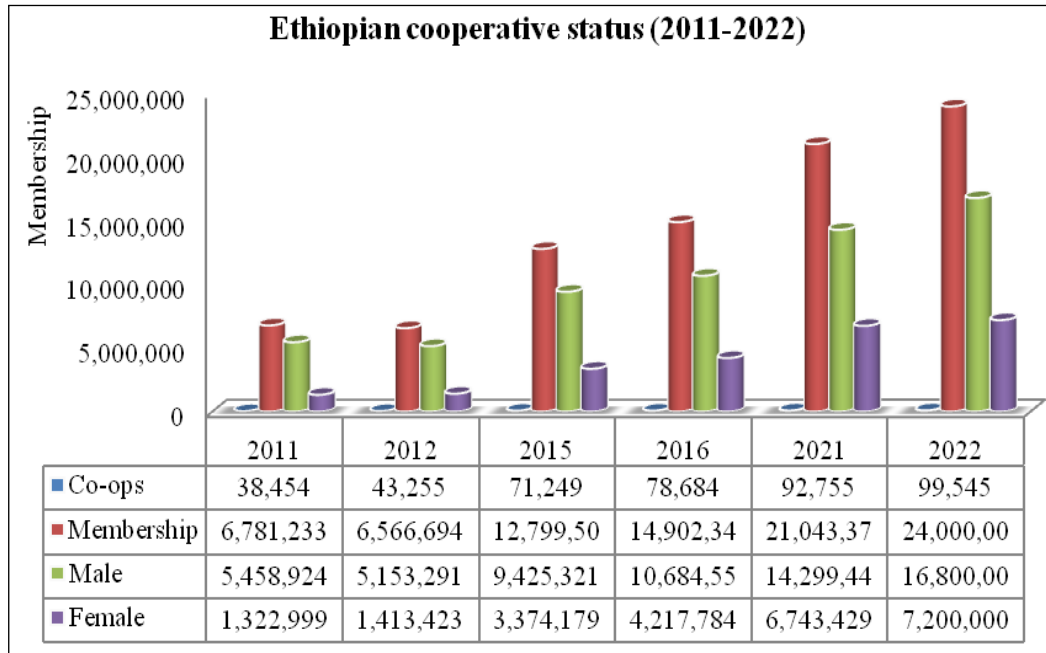
Despite the partial involvement of government, evidence shows that it failed to stabilize the major problem of the market, mainly the price fluctuation of products (Deres, 2017). Thus, the government paid great attention to establish strong consumer cooperatives. FDRE (2016) proclamation no. 985/2016 described consumer cooperatives as enterprises owned by consumers who collect their money, knowledge, and effort to afford the consumption cost by providing needed commodities within a reasonable price for the members and to build their economic capacity, and controlled by the active participation of all members to satisfy their members' requirements.

Based on the Ethiopian cooperative proclamation no. 985/2016, consumer cooperatives were mandated to perform the following functions:

- (a) The protection of members (consumers) from the exploitation of private businessmen: Protection of inferior quality products, avoiding overcharged prices, less weight and adulteration.
- (b) Freezing the price line at its level and selling goods at a very reasonable price to stabilize the market.
- (c) Ensuring the availability of the controlled goods in the market.
- (d) Supplying and selling pure and unadulterated goods desired by the members.
- (e) Distribution of goods on behalf of government (Deres, 2017; Tefera et al., 2017; Nilsson, 2001; Ekberg, 2008).

While the institutional embeddedness and the historical development of cooperatives in Ethiopia illustrate the slight progress in the growth of cooperatives, the question of board heterogeneity impact on decision-making styles and performance in such institutional setup remains to be answered in the context of consumer cooperatives (Shumeta & D'Haeseb, 2016; Sebhata et al., 2021).

Figure 2.2: Overall Trends and Progress of Ethiopian Cooperatives (2011-2022)



Source: Author's own analysis on data from FCA (2019) and ICA-Africa (2022)

### 2.2.2. Uniqueness of Cooperative versus Investor Owned Firms (IOFs)

Consumer cooperative unions are businesses that are established by consumers to execute the purpose of consumer cooperation and, as owners benefit through consumption of services, thereby they are typically geographically-bound organizations (Tuominen, 2012, p.26) – even to the extent that they have been depicted as captives of their regions (Jussila et al., 2007, p.38). Various streams of research on consumer cooperatives have made important remarks related to the purpose of cooperation that might also have implications on their management (Tuominen et al., 2014; Mills, 2008). First, it has been maintained that the purpose of a consumer cooperative is to serve the community in which it trades; more particularly its members by carrying on its chosen trade (Mills, 2008). Mills (2008) maintains that a cooperative is an association of persons whose trading relationship with their co-operative society is at the heart of and part of the purpose or reason for the existence of the (co-operative) society. According to Tuominen (2012), the tasks cooperatives carry out vary from procurement of essential commodities, consumer and production of goods for members to processing and marketing, granting credits, the general use of machines and facilities. A common feature of these organizations is that they are, in general, established to serve members' economic interests (p.17).

The increasing competition in many sectors of most modern economies forced the cooperatives to improve their performance to secure their survival (Notta & Vlachvei, 2007). The cooperative is an organization that is created historically for the benefit of the small and weak economic actors (Zeuli & Cropp, 2004), with property rights and control structure that is different from the investor-owned firm (Kispál-Vitai et al., 2019a). Most of the organizational economics literature considers the cooperative as an inherently less efficient form when compared with an IOF, mainly because of a number of property rights constraints (Cook, 1995; Fulton, 1995). An IOF's objective is the maximization of the firm's value, which means that firm will try to maximize its profitability at a given risk level (Copeland & Weston, 1983). On the other hand, cooperatives are expected to have a lower rate of return than IOFs, since profit maximization is not their primary aim (Fulton & Giannakas, 2013).

Cooperatives are a form of collective action in which individuals join together to accomplish what would be more costly or impossible to achieve individually (Zusman, 1988). Yet economists frequently view cooperatives simply as a variant of an investor-owned firm, modeling them with an objective function that reflects the specific features of cooperative organization (Staatz, 1987). Cooperatives also have been modeled as having a zero-profit objective and as maximizing average per unit surplus or price received by members (Parliament et al., 1990; Sexton, 1995).

Regarding the key differences, in cooperatives, the purpose is to serve the needs and aspirations of the membership. In IOFs, the reason for their existence is to maximize shareholder profits. Although cooperatives deploy economic tools such as private property, and operate in the market, according to McMurtry (2008), they do so in order to pursue social goals, which are embedded in the social dimension of the cooperatives, and not vice versa. This difference comes from the dual nature of cooperatives given that they incorporate both the associationism and the entrepreneurship dimensions (Adeler, 2013). According to Zamagni & Zamagni (2010), the first dimension refers to the social purpose of members freely associating in a venture that would enable them to achieve a specific goal, and the second dimension requires that the "method" used to achieve that goal be through an economic organization operating in the market (Adeler, 2013, p.20). The social dimension of a cooperative, based on a set of cooperative principles and values, allows the members to control the autonomous enterprise. In fact, those principles and values determine the "corporate" structure and the behavior of the organization because they insert the economic activity of the cooperative within a "social framework" that is different from the IOF model (McMurtry, 2008).

In a cooperative, the members exercise positive freedom to decide the destiny of the organization and achieve their common goals as opposed to negative freedom from embodied in a capitalist enterprise that implies a lack of constraints (Zamagni, 2012; Zamagni & Zamagni, 2010). Particularly in the case of worker cooperatives, the freedom to exercise full autonomy enables workers to see labor as an opportunity for self-realization and not just as an input or factor of production as occurs in the IOF (Adeler, 2013). Worker co-operatives and IOFs differ in the ends that they pursue and in the nature of their relationships. Typically the cooperative members will work together towards a common end, whereas IOFs manifest conflicting goals, particularly between the shareholders' desire for profit maximization and the employees' desire for wage betterment. A positive freedom approach to understanding labor-as-action and the inherent human development opportunity, particularly as manifested in worker cooperatives, is rarely mentioned in economic literature (Birchall, 2009; Zamagni & Zamagni, 2010).

Another key distinction is that the democratic structure of cooperatives allows members to elect a board of directors; each member of a cooperative has one vote because votes follow the individual and not the capital invested. Profits are reinvested in the cooperative or distributed to members and the community. For these reasons, cooperatives are said to embody economic democracy because they allow ordinary people to democratically and economically control their own destinies (Restakis, 2010). As principle-based organizations, cooperatives tend to internalize market externalities and promote social innovation and entrepreneurship (Novkovic, 2008). Cooperatives often remain in communities providing services even in the case of market failure, whereas IOFs leave communities if it is not economically profitable to remain (Fairbairn, 1994; Cechin et al., 2013). Guided by their principles, cooperative organizations internalize market externalities as they employ people with barriers to employment, undertake costly practices to care for the environment, provide higher food safety standards absorbing extra costs, and choose to offer affordable products to low-income communities (Novkovic, 2008). In this way, Novkovic (2008) points out that the supply decisions are fundamentally altered in light of cooperative social goals. As democratically controlled enterprises, their flat management structure, participative nature, and flexible work environments favor social innovation and social entrepreneurship (Adeler, 2013).

### **2.3. Theories Underpinning the Study**

Researchers have used a number of theories to explain the effects of heterogeneity on organizational decision process and performance (Williams & O'Reilly, 1998). Different theories often lead researchers to offer plausible but contradictory predictions of the effect of heterogeneity on groups and individuals (Joshi & Roh, 2009). A theory is defined as a set of interconnected concepts, explanations, and propositions that describe or forecast observable fact in focusing the association of the variables (Wicker et al., 2020; Kaczmarek, 2017). While work team heterogeneity shows interest among research communities, it is an important collective research phenomenon viewed from different aspects in terms of demographic, informational and cognitive diversity (Yadav & Lenka, 2020b). According to DiTomaso et al. (2007), team heterogeneity refers to the composition of work units in terms of demographic characteristics that are salient and symbolically meaningful in the relationships among group members.

Though many studies were conducted on the heterogeneity in various organizations, there still theoretical debate among scholars on how heterogeneity impact the decision making process and performance outcomes of group or organization (Yadav & Lenka, 2020; Homberg & Bui, 2013; Joshi & Roh, 2009; Williams & O'Reilly, 1998). Existing academic literature viewed team heterogeneity theory through the lens of upper echelon theory developed by (Hambrick & Mason., 1984) related to decision making and cognition, and social psychology theories such as social categorization and information decision-making theories (Dokko et al., 2009; Leslie, 2017; Leung & Wang, 2015; Joshi & Roh, 2009; Kirkman et al., 2004). In an extensive review of 40 years extant literature done by Williams & O'Reilly (1998), the literature show that there are two main competing theories of teamwork examining the relationship between team heterogeneity and performance: (1) the similarity-attraction paradigm (Byrne et al., 1971; Horwitz, 2005) from the field of social psychology and (2) the cognitive resource diversity theory from the field of management (Cox & Blake, 1991; Easely, 2001).

Although both theories predict performance that is based on team composition, their predictions are grounded in distinctively different assumptions (Horwitz, 2005). Similarity attraction theory (Dorm Byrne et al., 1971) build on the assumption that members' perceptions of others, as frequently

inferred on the basis of similarity in demographic attributes, lead to attraction among team members (Horwitz, 2005; O'Reilly et al., 1989; Wiersema & Bantel, 1992) and hypothesized to have negative association with team performance and social integration (Jackson et al., 1995; Milliken & Martins, 1996) because it lower team cohesion, inherent tensions and relational conflicts arising from member heterogeneity. In contrast, cognitive resource diversity theory (Cox & Blake, 1991) grounded in information decision making perspectives, argued that heterogeneous team are more likely to possess diverse knowledge bases and different perspectives that promote creativity and performance (Horwitz, 2005), that assumed to have positive effect on decision making and performance outcomes because of various skills and knowledge that promote creativity, innovation, problem solving and informed decision (Williams & O'Reilly, 1998). According to Horwitz (2005), variety of cognitive resources of each team member contributes to the overall success of the team performance. The underpinning assumptions of the identified theories are presented below.

### **2.3.1. Cognitive Resource Diversity Theory**

Using the theoretical argument of cognitive resource diversity, researchers in this area have argued that heterogeneity has a positive impact on performance because of unique cognitive resources that members bring to the team (Cox & Blake, 1991; Hambrick et al., 1996). The underlying assumption of value in diversity is that teams consisting of heterogeneous members promote creativity, innovation, and problem solving, hence generating more informed decisions (Horwitz, 2005). Cognitive team diversity considered to improve team performance and creativity based on the informational processing/diversity-cognitive resource perspective (Cox & Blake, 1991; Williams & O'Reilly, 1998), according to which heterogeneous groups possess diverse knowledge bases and different perspectives that are distinct and non-redundant (Chow, 2018). Among heterogeneous team or group, variety of cognitive resources of each team member contributes to the overall success of the team performance (Horwitz, 2005). Such team performance could be improved via information exchange, consideration of alternative solutions and analysis of varied perspective, which results in higher quality and better solutions as well as creativity (Chow, 2018). According to Chow (2018), team learning and inclusion in decision-making are key factors in facilitating the process of sharing variety of different perspectives. Accepting the differences and recognizing the value of uniqueness are vital to internalize the difference in cognitive diversity, which in turn further enhance team performance and creativity (Horwitz, 2005).

There is some empirical studies presented evidence supporting the proposition of cognitive resource diversity theory. For example, Nemeth (1986) found in her experimental study on differential contributions of majority and minority influence that heterogeneous teams that included minority members were more creative in generating ideas and nonobvious alternatives than homogeneous teams. Furthermore, the results indicated that the heterogeneous teams were more creative in problem solutions than the homogeneous teams when controlling for ability levels (Horwitz, 2005). In other study, Simons et al. (1999) in their investigated titled "Making use of difference: diversity, debate, and decision comprehensiveness in top management teams," they observed that member heterogeneity in education and company tenure influenced the quality of debates and, thus, positively impacted the decision-making process in a team of top managers. In sum, supporters of the cognitive diversity perspective suggest that heterogeneous individuals with varying experiential, cultural, and racial/ethnic backgrounds add more dimensions to problem-solving and decision-making processes while providing multiple perspectives on issues (Horwitz, 2005).

### **2.3.2. Information Decision-Making Theory**

Another theoretical perspective that explore how information and decision-making can be affected by variation in-group composition related to the influenced of heterogeneity on groups is information decision-making theory (Van Knippenberg & Schippers, 2007). For instance, given that there is propensity for individuals to communicate more with similar others, individuals in diverse groups may have greater access to informational networks outside their work team or group (Williams & O'Reilly, 1998). This added information may enhance group performance.

Information decision-making theory propose that variance in groups composition can be have a direct positive impact through the increase in the skills, abilities, information and knowledge that heterogeneity brings, independent of what happens in the group process (Cox & Blake, 1991). According to this theory, demographically diverse individuals are expected to have a broader range of knowledge and experience than homogeneous individuals (Williams & O'Reilly, 1998; Horwitz, 2005). For example, the proponents of immigration argue that diversity promotes creativity in the workplace. To confirm this, Lazear (1998) argued that new immigrants must have information that is relevant or useful, and must be able to communicate it to others. From this perspective, he stated that heterogeneity is valuable when it adds new information. Clearly, this positive impact of heterogeneity can be expected when the task can benefit from multiple perspective and diverse knowledge, such as innovations, complex problems, or product design (Williams & O'Reilly, 1998).

Researchers largely agree that functional background heterogeneity provides the range knowledge, skills, and contacts that enhance problem solving (e.g., Ancona & Caldwell, 1992; Bantel & Jackson, 1989; Pelled, 1996). For instance, Ancona & Caldwell (1992) stated that members who have entered the organization at different times know a different set of people and often have both different technical skills and different perspectives on the organization's history (p.325). According to Williams & O'Reilly (1998), little information and decision-making research has been conducted exploring the effects of visible demographic characteristics on group decision making. A few laboratory studies for example, Kirchmeyer & Cohen (1992), Kirchmeyer & Cohen (1992) and Watson et al. (1993) have suggested that gender and ethnic or nationality differences may have positive effects on group process by expanding the number of alternatives considered and the perspectives taken.

Furthermore, a survey data collected from 57 electronic component manufacturing firms, Simons et al. (1999) revealed that member heterogeneity in education and company tenure influenced the quality of debates and, thus, positively impacted the decision-making process in a team of top managers. Kor & Mesko (2013) finds that entrepreneurial teams with high cognitive ability could grasp the nature of the problem and make feasible decisions, which could be effectively executed and finally reach the strategic goal (Zhang et al., 2021). Only with sufficient resources and information, team can accurately make high-quality decisions and realize the growth (Kraiczy et al., 2015). Dokko et al. (2009) found that heterogeneity of career experience and work background of team members has a significant positive impact on team decision performance. Studies on knowledge heterogeneity show that the higher the knowledge heterogeneity of team members, the richer and more comprehensive information access channels will be available to the whole team, which will improve the effectiveness of the team in making relevant decisions (Bouncken, 2004). The assumption of informational decision-making theory shared the same view with cognitive resource diversity theory which stated that heterogeneous groups possess a broader range of task-relevant knowledge, skills, and abilities, and members with different opinions and perspectives

(Van Knippenberg & Schippers, 2007). Thus, high levels of team heterogeneity lead to broader perspectives and a greater amount of information shared, consequently enhancing decision quality and performance (Homberg & Bui, 2013).

So far, researchers have studied the importance of membership heterogeneity in cooperative organizations across different sectors. Although various authors studied heterogeneity conceptually that reported conflicting results in cooperatives (Iliopoulos, 2017; Iliopoulos & Valentinov, 2017; Höhler & Kühl, 2018; Apparao et al., 2020), cooperatives as an association or organization of individuals who come together to share their resources collectively to overcome problems that cannot be achieved individually (Tefera et al., 2016; Ruiz-Mier & Ginneken, 2006; Huang et al., 2013), we argued in this study that board heterogeneity positive improve the decision-making and performance of cooperative. Thus, the study relied on cognitive resource diversity theory grounded in information decision-making perspectives.

### **2.3.3. Similarities-Attraction Theory**

Other competing theory of team heterogeneity supporting the impact of heterogeneity on performance is the similarity-attraction theory or paradigm (Dorm Byrne et al., 1971) from the field of social psychology. Although heterogeneity theories predict performance of team composition based on different assumptions, like social categorization, similarity attraction paradigm argued that members' perceptions of others, as frequently inferred on the basis of similarity in demographic attributes, lead to attraction among team members (Horwitz, 2005; O'Reilly et al., 1989; Wiersema & Bantel, 1992) and hypothesized to have negative association with team performance and social integration (Jackson et al., 1995; Milliken & Martins, 1996) because of lower team cohesion, inherent tensions and relational conflicts arising from member heterogeneity. This theory viewed board or team heterogeneity holistically compared to social categorization theory that mainly focused on the relations oriented heterogeneity dimensions.

### **2.3.4. Social Categorization Theory**

The theory most often used by the demography researchers asserts that variation in the demographic composition of work groups or teams affects group process (e.g., conflict, cohesion, communication) and that this process, in turn, affects group performance (K. Y. Williams & O'Reilly, 1998). The majority of the research is predicated upon the logic of social categorization theory (Tajfel, 1981; Williams & O'Reilly, 1998). The basic element of this theory is that individuals assumed to have desires to maintain a high level of self-esteem. This is done through a process of social comparison with others where individuals classify themselves into social categories using salient characteristics such as age, gender and race/ethnicity (K. Y. Williams & O'Reilly, 1998). This process permits a person to define him/herself in terms of social identity (Tajfel & Turner, 1986) as a member of a social category compared to other members of a group (Tajfel & Turner, 1986). In heterogeneous groups, the effect of social categorization features has been shown to decrease satisfaction with the group, lowered levels of cohesiveness, reduced within group communication, decreased cooperation, and high levels of conflict (Yadav & Lenka, 2020b; Williams & O'Reilly, 1998; Joshi & Roh, 2009).

Although social categorization has been traditionally thought of as a theory of intergroup relations, most empirical research on diversity and demography has proceeded by noting how individuals within groups may differ from one another, sometimes referred to as "relational" demographic (K. Y. Williams & O'Reilly, 1998). Hence, heterogeneity can promote the creation

of in-group/out-group and other cognitive biases (Ely, 2004; Pelled, 1996; Riordan & Shore, 1997). The premise of this theory is individuals within a group can be linked or attracted by the similarity they have in terms of age, gender and ethnicity and assumed to have negative impact on the process and outcomes of the group or organization (K. Y. Williams & O'Reilly, 1998).

The consistent empirical findings of heterogeneity research typically claim that social category diversity is negatively associated with group processes and outcomes (Yadav & Lenka, 2020b). For instance, in a meta-analysis conducted on 8757 teams in 39 studies on the role of context in work team diversity in the USA using social categorization theory, Joshi & Roh (2009) found age, gender, and race to have a negative impact on team performance. Similarly, in a survey done on workgroup diversity in the USA using the social categorization theory from 92 teams in household goods, Jehn et al. (1999) found the negative result on workgroup performance. Using the same theory, Kirkman et al. (2004) found a non-significant impact of demographic heterogeneity of team leaders on team effectiveness based on a survey collected from 111 work teams in 4 different organizations in the USA.

So far, researchers have studied the importance of membership heterogeneity in cooperative organizations across different sectors. Although various authors studied heterogeneity conceptually that reported conflicting results in cooperatives (Iliopoulos, 2017; Iliopoulos & Valentinov, 2017; Höhler & Kühn, 2018; Apparao et al., 2020), cooperatives as an association or organization of individuals who come together to share their resources collectively to overcome problems that cannot be achieved individually (Tefera et al., 2016; Ruiz-Mier & Ginneken, 2006; Huang et al., 2013), we argued in this study that board heterogeneity will significantly influence the decision-making styles that further affect performance of cooperative in Ethiopia with hybrid organizational structure. Thus, this study relied on various heterogeneity theories in order to theorize the empirical findings of our study that summarized in the table 2.1 shown below.

Table 2.1: Summary of Heterogeneity Theories

| <b>Theory</b>                                                                            | <b>Focus &amp; Heterogeneity Dimensions</b>                                                                  | <b>Premise/Assumption</b>                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Similarity-Attraction Theory</b> (Dorm Byrne et al., 1971)                            | To inspect holistic team heterogeneity.                                                                      | <i>Members' perceptions frequently inferred on the basis of similarity in demographic attributes that lead to attraction among team members and hypothesized negative effect on performance and social integration because of lower team cohesion and relational conflicts.</i> |
| <b>Social Categorization Theory</b> (Tajfel, 1981; Williams & O'Reilly, 1998)            | To inspect relational heterogeneity. Relational oriented (Age, Gender & Ethnicity)                           | <i>Individuals can be linked or attracted by the similarity they have and assumed to have negative impact on the process and outcomes of the group or organization</i>                                                                                                          |
| <b>Cognitive Resource Diversity Theory</b> (Cox & Blake, 1991; Hambrick et al., 1996)    | To inspect holistic team heterogeneity.                                                                      | Teams consisting of heterogeneous members promote creativity, innovation, and problem solving & assumed heterogeneity to have positive impact on performance because of unique cognitive resources that members bring to the team                                               |
| <b>Information Decision-Making Theory</b> (Cox & Blake, 1991; Williams & O'Reilly, 1998) | To inspect task/job related heterogeneity.<br>Task/job oriented (Education, Functional background & Tenure). | <i>Heterogeneous groups possess a broader range of task-relevant knowledge, information, skills, and abilities that enhance problem-solving &amp; quality of decisions &amp; assumed to have positive impact.</i>                                                               |

Source: Adopted from (Williams & O'Reilly, 1998; Tajfel, 1981; Byrne et al., 1971; Cox & Blake, 1991; Hambrick et al., 1996)

## 2.4. Conceptualization of Heterogeneity

While changing demographics around the world have driven much interest in the areas of heterogeneity and heterogeneity management among scholars (Olsen & Martins, 2012), managing heterogeneity is an important organizational function that is described in various forms. Different authors defined heterogeneity, yet there is no single definition accepted globally. Heterogeneity is all about differences among people within a group or organization (Yadav & Lenka, 2020b). According to Williams & O'Reilly (1998, p.81), heterogeneity is defined as any attributes that people use to tell themselves that another person is different." On the other hand, Jackson et al. (2003) defined heterogeneity as the differences in personal attributes among individual members in the workgroup. Jackson et al (1995) also described heterogeneity as the degree to which members of a team as a whole are dissimilar or diverse with respect to individual-level attributes.

Although an organization claims to be relatively homogenous in terms of its objective and goal, its members vary with different dimensions in terms of demographic (e.g., age, gender, race/ethnicity, nationality, religion, tenure, educational background, functional background, knowledge) and preferences (Yadav & Lenka, 2020b; Weber et al., 2018). However, team heterogeneity research has primarily emphasized demographic characteristics (Yadav & Lenka, 2020b; Williams & O'Reilly, 1998). Demography defined as the composition of primary attributes such as age, gender, race/ethnicity, educational background, tenure, and functional background of the social entity under study (Milliken & Martins, 1996; Pelled, 1996; Pfeffer, 1983). To explain heterogeneity based on

the inconsistency of prior findings, scholars have been explained demographic heterogeneity with the help of various theories (Cox & Blake, 1991; Williams & O'Reilly, 1998). In this study, board heterogeneity is used based on the relational oriented and task oriented heterogeneity (Weber et al., 2018) to understand the impact on the outcomes of the decisions and performance.

## **2.5. The Concept of Board Heterogeneity**

Board heterogeneity is viewed as acknowledging, understanding, accepting, valuing, and celebrating differences among people with respect to age, class, ethnicity, gender, sexual orientation, spiritual practice, and public assistance status (Triana et al., 2010). Heterogeneity refers to a mosaic of people who bring a variety of backgrounds, perspectives, values, and benefits as assets to the groups and organizations with which they interact (Kassa, 2018). According to Dessler (2011), heterogeneity defined as the variety or multiplicity of demographic features that characterize a company's boards, particularly in terms of race, sex, culture, national origin, age, and religion. Although Janssens et al. (2003) described workplace heterogeneity as complex, controversial, and political phenomena, various researchers have been conceptualized it from several viewpoints.

For instance, Nkomo (1995) stated that several researchers have looked at board heterogeneity from a very narrow perspective while some from a broad view. While many scholars favorably disposed to a narrow definition arguing that the concept of heterogeneity should be restricted to specific cultural categories such as race and gender (Kassa, 2018), Nkomo (1995) opined that such heterogeneity based on race, ethnicity and gender cannot be understood in the same way as heterogeneity based on organizational functions, abilities or cognitive orientations. Though previous research explained various dimensions of heterogeneity in cooperatives, scholars in the field of cooperatives identified the prevailing variation as emanated from the dimensions such as member-level, farm-level, and product-level characteristics (e.g., Kyriakopoulos et al., 2004; Hanf & Schweickert, 2007; Cechin et al., 2013; Höhler & Kühn, 2018; Apparao et al., 2020) and the types of cooperatives (e.g., agricultural versus non-agricultural cooperatives).

According to Jackson et al. (2003), advocates of a broad definition of heterogeneity, argued that, heterogeneity encompasses all the possible ways people can differ. In this sense, individuals do not only differ because of their race, gender, age and other demographic categories but also because of their values, abilities, organizational function, tenure and personality. They contended that an individual has multiple identities and that the manifold dimensions cannot be isolated in an organizational setting. Jackson et al. (2003) further argued that apart from bringing their age, ethnicity, and gender, individuals also come with their particular knowledge gained from their educational background, personality and cognitive style to the work place. They pointed out that in order to understand the dynamics of heterogeneous boards, interactive effects of multi-dimensional diversity have to be addressed. McGrath et al. (1995) conceptualized board heterogeneity by way of developing a five cluster classification that is widely used and is as follows: demographic characteristic (age, ethnicity, gender and education), task related knowledge, skills and capacities (values, views and attitudes), personal, cognitive and attitudinal styles (status in the organization such as one's hierarchical position, professional domain, departmental affiliation and seniority).

This research proposed to adopt the narrow definition of heterogeneity so as to use the demographic categorization to assess the degree and types of board heterogeneity and its effect on decision-making styles and performance in consumer cooperatives. Six dimensions of board heterogeneity elements namely age, gender, ethnicity categorized as relations-oriented and educational

background, tenure and functional background categorized as task-oriented demographic heterogeneity shall be used for this study.

## **2.6. Board Heterogeneity and Decision Making**

### **2.6.1. Board Heterogeneity Dimensions**

Several researchers have proposed their own typology for categorizing heterogeneity attributes (Yadav & Lenka, 2020; Horwitz, 2005). For example, in study to understand the multiple effects of heterogeneity in organizational groups, Milliken & Martins (1996) differentiated heterogeneity between observable attributes (age, gender and race) and underlying attributes (education, functional background and tenure). Harrison et al. (1998) categorized them as surface-level heterogeneity and deep-level heterogeneity. Moreover, their categorization of diversity was similar but attributed with different names. Based on the existed classifications of heterogeneity dimensions drawing on the past research, Webber & Donahue (2001) classified group heterogeneity into two categories: relations-oriented (age, gender, racial/ethnic) and task-oriented (tenure, functional and educational background). To backup the heterogeneity variables and their inconsistent results in diversity research, several researchers have acknowledged different theoretical perspectives (Tajfel & Turner, 1979) Williams & O'Reilly, 1998). These underlying theories provide the conceptual understandings and logical reason behind the inconsistent findings. Thus, this study followed Webber & Donahue (2001) demographic heterogeneity classified as relations-oriented (age, gender, racial/ethnic) and task-oriented (tenure, functional and educational background).

#### **2.6.1.1. Relations Oriented Heterogeneity Dimensions**

##### **○ Age Heterogeneity**

Age heterogeneity is a highly recognized and explored dimension in the diversity management literature. Yadav & Lenka (2020) in their literature review reported that age heterogeneity varies in different nations where older employees have more experience in countries such as Japan, China and America. To understand age heterogeneity among employees, various studies have been conducted so far. Prior studies on age heterogeneity has been supported by social categorization (Joshi & Roh, 2009) and similarity attraction theory (Tsui & O'Reilly, 1989), which claims that age heterogeneity has an inconsistent effect on organizational outcomes. As such, these theoretical perspectives possibly influence workplace dynamics and may experience relatively negative outcomes for older employees in comparison to younger ones (Shore et al., 2009). For instance, one of the findings suggests that a group having more heterogeneity in terms of age are more likely to have high turnover rates (Susan E. Jackson et al., 1991). Likewise, finding from a meta-analysis of 39 studies by Joshi & Roh (2009) concluded that age heterogeneity was negatively associated with performance outcomes. Moreover, Williams & O'Reilly (1998) reported that groups with a high level of age heterogeneity have a slightly lower level of group process and performance.

The study of Ely (2004) also reported the negative relationship between age diversity and work outcome when the quality of the team process moderated the relationship because it suppresses the negative results and enhances the work outcome. But, Kearney & Gebert (2009) contended that age heterogeneity is negatively related to team performance because of low transformational leadership, but age heterogeneity was not related to team performance when transformational leadership was high. Empirical studies with positive result of age heterogeneity on decision-making were very limited. For example, a survey on 162 entrepreneurial teams from the China, Zhang et al. (2021)

found positive relation between age heterogeneity and team decision-making performance. Similarly, a multilevel analysis of the effects of human resource diversity management on employee knowledge sharing in China, Shen et al. (2014) reported positive relationship. Thus, the inconclusiveness of the results motivates the inclusion of age heterogeneity in the study.

### ○ Gender Heterogeneity

Gender heterogeneity in top management refers to the mix of both men and women in management teams or groups (Yadav & Lenka, 2020). Although gender research has been conducted for decades, there is a paucity of studies examining the specific effects of gender on team performance (Horwitz, 2005). Although studies prior to 1990 neglected gender heterogeneity issues in workplace, since 1990 several literatures have been conducted, especially on gender heterogeneity in management literature. A large body of studies has examined the impact of gender heterogeneity on performance (Gonzalez & DeNisi, 2009; Richard et al., 2004). For instance, study by Richard et al. (2004) on 535 bank presidents, they reported the non-linear relationship between gender heterogeneity and performance when moderated by high innovativeness and low risk-taking perspectives. However, in an experimental study, Cox & Blake (1991) indicated that diversity within workgroups increases their effectiveness by incorporating value-in-diversity perspectives.

Empirical studies about the impact of gender heterogeneity on performance show inconsistency findings. For example, a meta-analysis conducted in the USA on 8757 teams in 39 studies, Joshi & Roh (2009) found gender heterogeneity to have negative effects on work team performance. The same finding is true on performance outcomes by a survey study of Jehn & Bezrukova (2004) on 10,717 individuals from 1528 workgroups in large information processing companies in the USA. In contrary, Sung & Choi (2021) found positive result of gender heterogeneity on firm innovation based on survey data from 1851 private business organizations in South Korea and team creativity in Hong Kong (Leung & Wang, 2015). Besides both positive and negative results, some studies reported non-significant effects. For example, a research by Kirkman et al. (2004) on 111 work teams from four different organizations in the USA on the impact of demographic heterogeneity, they found gender heterogeneity has non-significant result on team effectiveness, and investment decision (Gambetti & Giusberti, 2019). The existing inconsistencies in the outcomes keep inspiring this study to investigate the impact of gender heterogeneity on team decision-making styles and performance in consumer cooperatives.

### ○ Ethnic Heterogeneity

Ethnicity is used in reference to groups that are characterized in terms of a common nationality, culture, or language (Loue, 2006; Zagefka, 2009). In other nations like Ethiopia, ethnicity is based along tribal line (Taye, 2017; Abbay, 2004). The study of Richard et al. (2004) on the effect of cultural diversity in management on performance, they reported a positive relationship between racial heterogeneity and firm productivity in a high innovativeness firm, while non-significant results were reported in the low innovativeness firms. Tsui et al. (1992) reported that individuals who were different from their group members in ethnic background tend to be less intent to stay, less psychologically committed with the organization and more likely to be absent in the group.

In an intensive review of literature, Joshi & Roh (2009) concluded an equal number of studies reporting positive and negative impacts of ethnic heterogeneity on the outcomes. For example, survey study using 92 work teams in household goods to investigate the effects of heterogeneity,

Jehn et al. (1999) found negative results on workgroup performance. Analyzing the impact of workgroup ethnic heterogeneity, Pelled et al. (1999) reported positive result on workgroup performance using a sample of 317 employees from 45 teams in electronics firms from the USA. However, a study conducted the impact of ethnic heterogeneity on team performance using a sample of 144 teams of graduate and undergraduate students in the USA, Harrison et al. (2002) reported non-significant result. Similarly, a meta-analysis of 24 studies reported that ethnic diversity had no relationship with cohesion and performance (Webber & Donahue, 2001b). The existing inconsistency caused by the different methodological approach and the theories studies anchored on. Although the results are inconsistent in the previous literature, it has been claimed that if ethnic heterogeneity is effectively managed, it may have a positive impact such as creativity and idea generation in the group (Yadav & Lenka, 2020).

### **2.6.1.2. Task Oriented Heterogeneity**

#### **○ Educational Heterogeneity**

Educational heterogeneity has frequently being considered as a job-related diversity because researchers perceive education as a set of experiences, information, and knowledge relevant to cognitive skills (Yadav & Lenka, 2020; Pelled, 1996). Educational heterogeneity has been measured by the level of education (Kearney & Gebert, 2009; Horwitz, 2005), i.e. degree of education levels such as under graduation, graduation, post- graduation and doctoral degree. The empirical findings of educational heterogeneity on performance were reported mixed (Yadav & Lenka, 2020). For instance, a study conducted in China using 162 entrepreneurial teams to investigate how entrepreneurial team heterogeneity impact decision-making performance, Zhang et al. (2021) found positive impact. Similarly, Simons et al. (1999) reported that educational heterogeneity positively impacted team quality decision-making debate among TMT of 57 electronic manufacturing firms in the USA.

In contrast, studying the influence of TMT heterogeneity, Knight et al. (1999) investigated the effect of educational heterogeneity with 83 high technology firms in the USA and Ireland and found it negatively affect strategic consensus. Similarly, Cho et al. (1994) reported that educational heterogeneity negatively impact competitive decision-making behavior TMT among 32 major US Airlines industries. Hence, to understand the clear picture of educational heterogeneity impact on decision-making and performance, there is a requirement for more research to be carried out, particularly in the context of consumer cooperatives.

#### **○ Functional Expertise Heterogeneity**

Functional expertise refers to an individual's work specialization and depth of relevant knowledge in which individuals of a group are specialized in as a result of their work experience and education in an organization (Van Der Vegt & Bunderson, 2005; Bunderson, 2003a). In reviewing the research on functional expertise heterogeneity, very few researchers have endeavored to determine the effects of functional expertise heterogeneity on various firm outcomes (Yadav & Lenka, 2020). The existence of different functional perspectives within a group can potentially lead to enhanced team functioning via knowledge sharing and information elaboration (Homan et al., 2007).

Empirical studies that have tested the effects of functional expertise heterogeneity on decision-making were very limited. In a meta-analysis of 39 studies, Joshi & Roh (2009) reported that functional background diversity was most positively related to team performance. For example, a

research conducted on how a career history affects job performance using 771 participants from US property and causality (P&C) insurance firms, Dokko et al. (2009) found positive impact of functional expertise heterogeneity on team decision-making performance. The same result reported by Zhang et al. (2021) based on survey data from 161 entrepreneurial teams in China. On the other side, negative findings reported. According to the study of Buyl et al. (2014) on TMT members decision with the data from 35 CEOs of Dutch and Belgian IT firms, they found that functional expertise heterogeneity is negatively impact decision-making influence. Knight et al. (1999) reported negative finding of functional expertise heterogeneity on strategic consensus in a study of TMT and strategic consensus using 83 high technology firms in the USA and Ireland based on upper echelon group process theory.

### ○ Tenure Heterogeneity

Tenure is defined as the number of years an individual has worked for the organization or in a certain position or group (Iaquinto & Fredrickson, 1997). Tenure potentially has the most significant theoretical bearing of all the demographic characteristics on decisions (Finkelstein & Hambrick, 1990). Group tenure is the length of time spent with group members in working together, whereas the whole length of duration used in an organization can be defined as organizational tenure (Knight et al., 1999). Empirical studies present contradictory findings. According to the study by Zhang et al. (2021) on the impact of team heterogeneity using 162 entrepreneurial teams from China, they found positive effects of tenure heterogeneity on decision-making performance. Similarly, Norburn & Birley (1988) found the same result on their study conducted in the USA using survey data collected from 771 top managers among the largest 150 companies with five US industries-dairy, footwear, tyres, mobile homes, and machine tools. A study by Tsui et al. (1992) reported that being different from the other members in terms of organizational tenure was positively associated with psychological commitment and intention to stay and negatively related to present in the organization. However, a research done on the impact of diversity of TMT, van Knippenberg et al. (2011) found that tenure heterogeneity have negative result on team performance among 42 TMT from UK manufacturing companies. But, Kirkman et al. (2004) on their side reported non-significant impact of tenure heterogeneity of TMT on team effectiveness among 111 intact work teams in 4 different organizations in the USA.

Table 2.2: Summary of Literatures Examining Team/Board Heterogeneity & Decision-Making

| <i>Author</i>               | <i>Scope</i>                    | <i>Dependent Variable</i>                   | <i>Heterogeneity Dimensions &amp; Findings</i>                                                  | <i>Sample</i>                                                                | <i>Methodology</i>                      | <i>Supporting Theory</i>          |
|-----------------------------|---------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-----------------------------------------|-----------------------------------|
| <i>Zhang et al. (2021)</i>  | <i>China</i>                    | <i>Decision-making performance</i>          | <i>Holistic team heterogeneity (+) (Age, Gender, Education, Functional background, Tenure )</i> | <i>500 entrepreneurs and their team members from 162 entrepreneur teams/</i> | <i>Survey /Regression</i>               | <i>Input-process-output model</i> |
| <i>Buyl et al. (2014)</i>   | <i>Belgium &amp; Netherland</i> | <i>Decision-making influence</i>            | <i>Functional background (-)</i>                                                                | <i>CEOs of 35 Dutch and Belgian IT firms/</i>                                | <i>Survey /OLS Regression</i>           | <i>-</i>                          |
| <i>Simons et al. (1999)</i> | <i>-</i>                        | <i>Decision-making quality</i>              | <i>Education (+), Tenure (+)</i>                                                                | <i>TMT of 57 electronic manufacturing firms</i>                              | <i>Survey/ Hierarchical regression/</i> | <i>TMT Diversity Theory</i>       |
| <i>Cho et al. (1994)</i>    | <i>USA</i>                      | <i>Competitive decision-making behavior</i> | <i>Education (-), Tenure (-)</i>                                                                | <i>TMT from 32 major US Airlines industries/</i>                             | <i>Survey/Regression/</i>               | <i>-</i>                          |

## **2.7. Board Heterogeneity and Organizational Performance**

Membership within a cooperative consists of individuals with different backgrounds, preferences and attitudes (Höhler & Kühl, 2018). According to Apparao et al. (2020), individuals choose to explore the possibility of organizing an activity collectively when they expect that it may increase their utility. However, heterogeneity of memberships in cooperatives has increased globally, and this increase is more evident in the agri-food sector (Bijman, 2005). According to Cook & Iliopoulos (2016), the degree of heterogeneity in membership in the scientific literature on cooperative activities is attentive that can contribute to conflicts (Bijman et al., 2014). Though, membership within a cooperative may differ in terms of personal characteristics, perception, contractual relationship (Höhler & Kühl, 2018; Apparao et al., 2020; Lööf, 2020), member heterogeneity was found to intensify collective action problems, such as collective decision-making constraints, by adding unproductive complexity (Höhler & Kühl, 2018; Lööf, 2020).

Researchers have investigated the effects of different types of heterogeneity variables on performance (Kirkman et al., 2004; Williams & O'Reilly, 1998). However, there are several dimensions of heterogeneity, which have been encountered in organizations, but their implementation is a major challenge. It is very difficult to identify which heterogeneity is more beneficial due to the fact that neither all forms of heterogeneity are applicable in each organization nor every dimension has a positive impact (Yadav & Lenka, 2020b). An extensive literature reviewed by Yadav & Lenka (2020) and Williams & O'Reilly (1998), previous studies justified the significance of two main perspectives in heterogeneity research and performance: relational-oriented (age, gender, and race) and task-oriented (educational background, tenure and functional background) heterogeneity.

### **2.7.1. Relations Oriented Heterogeneity**

Although there is evidence that age heterogeneity is associated with performance, there are considerable differences across countries (Yadav & Lenka, 2020b). Various scholars highly recognized and explored the impact of age in the diversity management literature to understand it. The empirical findings present conflicting arguments on how age affects the performance of groups or organizations. For example, a research conducted using 162 entrepreneurial teams to investigate how entrepreneurial team heterogeneity impacts decision-making performance in China, Zhang et al. (2021) found that age heterogeneity has a positive impact. Similarly, Harrison et al. (2002) reported the same result in the study done on 144 teams of graduate and undergraduate students in the USA. In contrast, a meta-analysis of 39 studies by Joshi & Roh (2009) concluded that age heterogeneity was negatively associated with performance outcomes. Moreover, in other research carried out by Lee & Kim (2020) on 189 South Korean manufacturing companies, their regression results showed that age heterogeneity negatively affects the firm financial performance. Again, Jehn & Bezrukova (2004) reported a negative effect of age heterogeneity on performance outcomes in a study conducted on 10,717 individuals from 1528 workgroups of large information processing companies in the USA. However, studies revealed non-significant results between age heterogeneity and performance. For instance, Sung & Choi (2021) found a non-significant effect of age heterogeneity on firm innovation based on survey data from 1851 private business organizations in South Korea. Green et al. (2005) and Kirkman et al. (2004) also found a non-significant result of age heterogeneity on organizational satisfaction and team effectiveness in the USA respectively.

Gender being categorized under relations-oriented heterogeneity, a large body of studies has examined the impact of gender heterogeneity on a firm's performance (Yadav & Lenka, 2020b). In several studies, researchers have shown the positive impact of gender diversity on the team and firm performance. For example, in studies conducted in the USA by Joshi et al. (2006) and Jackson & Joshi (2004) on sales teams and employees of large companies, their findings reported a positive impact of gender heterogeneity on sales performance. In another study, Harrison et al. (2002) found positive results of gender heterogeneity on team performance among students. In their work, Richard et al. (2013) investigated the impact of racial and gender diversity in management on financial performance; they reported a positive relationship between gender heterogeneity and firm financial performance of 535 banks in the USA. In opposite, some authors reported negative impacts. Study examining diversity faultlines and TMT performance from 42 TMT in the UK manufacturing companies, van Knippenberg et al. (2011) found that gender heterogeneity is negatively related to team performance. Jehn et al. (1999) also found the same findings in their study on workgroup performance in the USA. Similarly, in a study investigating the effects of group diversity on the performance of 1528 workgroups in the USA, Jehn & Bezrukova (2004) reported a negative result of age heterogeneity on financial performance. However, other scholars revealed non-significant. For instance, in a field study investigating the influence of group diversity on performance, Ely (2004) also reported a non-significant relationship between gender diversity and financial performance when the quality of the team process moderated the relationship. The same finding was reported by Green et al. (2005) on organizational commitment and satisfaction in the USA respectively. Research analyzing work group diversity, conflict, and performance from a survey of 317 employees from 45 teams in electronics firms, Pelled et al. (1999) reported that gender heterogeneity has a non-significant effect on task performance. Findings of the previous studies revealed contradictory results that keep the issue of gender heterogeneity open for further research. Specifically, a dearth of studies in the context of cooperatives motivated this research.

Regarding race/ethnicity, Richard et al. (2013), in their study on the impact of racial and gender diversity in management, reported a positive relationship between race heterogeneity and firm financial performance of 535 banks in the USA. Similarly, a meta-analysis of 39 studies by Joshi & Roh (2009) concluded that ethnic heterogeneity was negatively associated with team performance. In contrast, in a survey conducted to study a status-based multilevel model of ethnicity using 743 employees from 131 Korean bank branches, Leslie (2017) found that ethnicity negatively affects work unit performance. Likewise, Kirkman et al. (2004) and Jehn & Bezrukova (2004) reported the same negative results on team effectiveness and performance outcomes respectively. However, other scholars revealed non-significant. For instance, in a field study investigating the influence of group diversity on performance, Ely (2004) also reported a non-significant relationship between gender diversity and financial performance when the quality of the team process moderated the relationship. In another study conducted to analyze the impact of team diversity, Jackson & Joshi (2004) used 365 sales teams selected from 42 districts in the USA and found a non-significant effect on sales performance.

### **2.7.2. Task Oriented Heterogeneity**

Team educational background being considered a task/job heterogeneity dimension is perceived as a set of experiences, information, and knowledge relevant to cognitive skills (Yadav & Lenka, 2020b; Pelled et al., 1999). The empirical findings of educational diversity on organizational performance were mixed. For example, a research conducted using 162 entrepreneurial teams to investigate how entrepreneurial team heterogeneity impacts decision-making performance in China,

Zhang et al. (2021) found that education heterogeneity has a positive impact. Jehn et al. (1999) also found the same findings in their study on workgroup performance in the USA. Similarly, in other research carried out by Lee & Kim (2020) on 189 South Korean manufacturing companies, their regression results showed that educational heterogeneity positively affects the firm financial performance. However, some studies reported negative findings. For instance, a meta-analysis of 39 studies by Joshi & Roh (2009) revealed that educational heterogeneity was negatively associated with team performance. Other studies also reported findings of the negative influence of educational background heterogeneity on financial performance in the USA (Simons et al., 1999; Hambrick et al., 1996).

Another dimension of task-oriented heterogeneity is functional background. Empirical studies reported conflicting findings of functional heterogeneity on the various dimension of performance. For example, Zhang et al. (2021) found a positive impact of functional heterogeneity on decision-making performance and task performance (Pelled et al., 1999). In opposite, some authors reported negative results. Study examining diversity faultlines and TMT performance from 42 TMT in the UK manufacturing companies, van Knippenberg et al. (2011) and Joshi & Roh (2009) found that functional heterogeneity is negatively related to team performance. Similarly, in a survey carried out to investigate the role of social integration among TMT demographic and process of 230 responses from 53 high technology firms in the USA, Smith et al. (1994) found negative results on organizational performance.

While various authors reported a significant impact of tenure heterogeneity on performance, many findings were contradicted. Study investigating the effects of group diversity on the performance of 1528 workgroups in the USA, Jehn & Bezrukova (2004) reported a positive influence of tenure heterogeneity on financial performance. In another study conducted to analyze the impact of team diversity, Jackson & Joshi (2004) used 365 sales teams selected from 42 districts in the USA and found a positive effect of tenure heterogeneity on sales performance. Zhang et al. (2021) and Pelled et al. (1999) reported the same results of tenure heterogeneity on decision-making performance and task performance respectively. But, few studies revealed negative effects. For instance, in research examining diversity faultlines and TMT performance from 42 TMT in the UK manufacturing companies, van Knippenberg et al. (2011) found that tenure heterogeneity is negatively related to team performance. The same result was supported by Joshi & Roh (2009) in a meta-analysis of 39 studies. Still, some studies have negative results of tenure heterogeneity on performance. In their research, Kirkman et al. (2004) also reported a non-significant impact of TMT tenure heterogeneity on team effectiveness among 111 intact work teams in 4 different organizations in the USA.

Table 2.3: Taxonomy of Team Diversity

| <b>Taxonomy of Team Diversity</b>      | <b>Surface-level diversity</b>                                                    | <b>Deep-level diversity</b>                     |
|----------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------|
| ○ <b>Task-Oriented Attributes</b>      | Organizational and team tenure<br>Educational background<br>Functional background | Experience<br>Knowledge and skills<br>Abilities |
| ○ <b>Relations-Oriented Attributes</b> | Gender<br>Age<br>Ethnicity/ Race                                                  | Values<br>Personality<br>Social status          |

*Source: Adopted from Jackson & Joshi (2011, p.654) and Yadav & Lenka (2020a, p.905)*

Table 2.4: Summary of Literatures Examining Team/Board Heterogeneity on Performance

| Author                        | Country     | Dependent Variable                           | Heterogeneity Dimensions & Findings                                                           | Sample                                                                         | Methodology                      | Supporting Theory                                |
|-------------------------------|-------------|----------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------|
| Zhang et al. (2021)           | China       | Decision-making performance                  | Age (+), Education (+)<br>Functional background (+)<br>Tenure(+)                              | 162 Entrepreneurial team                                                       | Survey/Regression                | Theory of Input-Process-Output Model             |
| Sung & Choi (2021)            | South Korea | Firm Innovation                              | Age (N.S), Gender (+)                                                                         | 181 Private business organizations                                             | Survey/Hierarchical Regression   | Contingency Theory                               |
| Lee & Kim (2020)              | South Korea | Firm financial performance                   | Age (-), Education (+)                                                                        | 189 Korean manufacturing companies                                             | Survey/Hierarchical Regression   | Relational Coordination Theory                   |
| Leslie (2017)                 | USA         | Work unit performance                        | Race (-)                                                                                      | 743 employees from 131 bank branches                                           | Survey/Hierarchical Regression   | Blau Index & Social Identity Theory              |
| Leung & Wang (2015)           | Hong Kong   | Team creativity                              | Gender (+)                                                                                    |                                                                                | Review paper                     | Social categorization & Social identity theories |
| Richard et al.(2013)          | USA         | Financial performance                        | Gender (+), Race (+)                                                                          | 535 bank institutions                                                          | Survey/Logistic Regression       | -                                                |
| van Knippenberg et al. (2011) | UK          | Team performance                             | Gender (-), Education (-), Tenure (-)                                                         | 42 TMT form manufacturing companies                                            | Survey/Logistic Regression       | Faultline Theory                                 |
| Joshi & Roh (2009)            | USA         | Team performance                             | Age (-), Gender (-)<br>Ethnicity (-) Education (-)<br>Functional background (-)<br>Tenure (+) | 8757 teams from 39 studies                                                     | Meta-analysis                    | Social identity & Social categorization theories |
| Joshi et al. (2006)           | USA         | Sales performance                            | Gender (+), Race (+)                                                                          | 437 sales employee teams in 46 units of large firms                            | Survey/Hierarchical Regression   | Social identity theory                           |
| Green et al. (2005)           | USA         | Organizational commitment & Job satisfaction | Age (N.S), Gender (N.S)                                                                       | 279 HR professional employed in large USA manufacturer firm                    | Survey/ANOVA                     | Social Identity & self-categorization theory     |
| Kirkman et al. (2004)         | USA         | Team effectiveness                           | Age (N.S),, Gender (N.S), Race (-), Tenure (N.S),                                             | 111 intact teams in four organizations                                         | Survey/ Regression               | Social categorization & Social identity theories |
| Jehn & Bezrukova (2004)       | USA         | Performance outcomes                         | Age (-), Gender (-), Race(-), Education (-), Functional background (+), Tenure (+)            | 10,717 individuals in 1528 work groups in large information processing company | Survey/Hierarchical Regression   | -                                                |
| Jackson & Joshi (2004)        | USA         | Sales team performance                       | Gender (+), Ethnicity (N.S), Tenure (+)                                                       | 365 sales teams from 42 districts in the USA                                   | Survey/Hierarchical linear model | Blau Index & Social identity theory              |
| Ely (2004)                    | USA         | Financial performance                        | Age (-), Gender (N.S), Race (N.S), Tenure (-)                                                 | 7529 employees from 86 retail branches in banks                                | Survey/Hierarchical Regression   | -                                                |
| Harrison et al. (2002)        | USA         | Team performance                             | Age (+), Gender (+), Race(N.S)                                                                | 144 teams of graduate and undergraduate students                               | Survey/ Regression               | -                                                |
| Pelled et al. (1999)          | USA         | Task performance                             | Age (-), Gender (N.S), Race (+), Functional background (+), Tenure (+)                        | 317 employees sample from 45 teams in electronics firms                        | Survey/ Regression               | Intervening process theory                       |

*Continued...*

|                               |                |                              |                                                                 |                                                                                  |                                  |                                                |
|-------------------------------|----------------|------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------|------------------------------------------------|
| <i>Jehn et al. (1999)</i>     | USA            | Workgroup performance        | Gender (-), Race(-), Education (+),                             | 92 work teams in household goods                                                 | Survey/ Regression               | Social identity theory                         |
| <i>Simons et al. (1999)</i>   | USA            | Firm's financial performance | Age (N.S), Education (+), Functional background (+), Tenure (+) | TMT of 57 electronic manufacturing firms                                         | Survey/Hierarchical Regression   | -                                              |
| <i>Knight et al. (1999)</i>   | USA<br>Ireland | Strategic consensus          | Age (N.S), Education (+), Functional background (+), Tenure (+) | 83 high technology firms in the USA & a group of subsidiaries located in Ireland | Survey/Structural Equation Model | Upper echelon theory & Group processing theory |
| <i>Hambrick et al. (1996)</i> | USA            | Financial performance        | Education (+), Functional background (+), Tenure (N.S)          | 57 senior airline executives from 32 airlines                                    | Survey/ OLS Regression           | Behavioral theory                              |
| <i>Smith et al. (1994)</i>    | USA            | Organizational performance   | Education (+), Functional background (-), Tenure (+)            | 230 participants from 53 high technology firms                                   | Survey/ Regression               | Upper echelon theory                           |

## 2.8. Empirical Review of Heterogeneity in Cooperatives

The ability to successfully engage in collective action is often related to group heterogeneity (Ostrom, 2000). Considering the general applicability of the various theories and frameworks of collective action and management (Grashuis & Cook, 2021), the concept of group heterogeneity has also been studied in relation to farm producers who are organized to achieve some type of common goal and demographic (Markelova & Mwangi, 2010; Markelova & Mwangi, 2010).

A core feature of cooperatives is that it's characterized by collective decision making and self-governance (Apparao et al., 2019, p.45). As heterogeneity affects the feature of decision making, it significantly impacts cooperative performance. According to the argument of Hansmann (1999), a fundamental characteristic of cooperatives is that members have highly homogenous interests. However, members of cooperatives were individuals with heterogeneous demographic backgrounds in terms of age, gender, ethnicity/race, education, tenure and functional backgrounds; heterogeneity in terms of farm level such size and location (Höhler & Kühn, 2018). In cooperative as service-oriented organization, services must be provided to all members of the group if provided to any, which sets it apart from other forms of organization.

As an association of persons, cooperatives need to often handle the combined demands of meeting individual member needs while maintaining a balanced and consistent quality of services to all members (Apparao et al., 2019). At the same time, they also need to compete with firms that do not operate within a structure of member governance and consensus (Apparao et al., 2019). According to Reynolds (1997), this need for consistency in policy and procedure in the cooperative business model makes the handling of diverse member interests more challenging for cooperatives than for business entities where each transaction is private and distinct from all other individual deals they make. Furthermore, as membership becomes diverse in a cooperative, various and sometimes conflicting interests needs to be addressed by the cooperative (Iliopoulos & Cook, 1999).

Reynolds (1997) suggests that the pressures to consider diverse interests actually build new values and innovative ideas for co-operatives and hence heterogeneity could be beneficial to the cooperatives. However, in contrast, – as the control of cooperatives is structured democratically; heterogeneity is likely to generate transaction costs to co-operative decision-making. As argued by Hansmann (1999), an increase in these transaction costs results in higher decision making costs in cooperatives relative to IOF's. Similarly, according to (Daniela Maria Pozzobon et al., 2011), as a consequence of heterogeneity, decision making in traditional co-operatives is likely to be more costly than in investor owned firms. On the whole, conflicting preferences can generate problems in cooperatives (Kalogeras et al., 2009). For example, increasing heterogeneity could result in a decline in member commitment (Fulton & Giannakas, 2001) and a decrease in member willingness to supply equity capital (Van Bekkum, 2001; Cook, 1995), tedious decision making process (Hansmann, 1999) and lack of strategic focus (Hendrikse & Bijman, 2002). These in turn are likely to affect the performance of cooperatives. Therefore, identifying members preferences and the heterogeneity for the attributes is fundamental for understanding cooperatives structure and behavior (Kalogeras et al., 2009).

While some scholars have theoretically and conceptually highlighted the role, importance and impact of heterogeneity on cooperatives; empirical studies that examine heterogeneity and map out its expression are few in number. According to Kalogeras et al. (2009), the lack of empirical evidence, which can negatively affect the quality of decision-maker choice and researcher understanding of cooperative behavior, is due in part to data constraints as well as difficulties in

determining member preferences, which are not always directly observable, and in accounting for their heterogeneous nature (Apparao et al., 2019). Although few scholars specifically investigated membership heterogeneity in cooperative, there is lack of empirical studies in the context of developing countries in most Sub-Saharan Africa including Ethiopia. For example, in a study entitled “Members of Cooperatives: More Heterogeneous, Less Satisfied?”, Grashuis & Cook (2021) used data of 1,061 participants from members of an organic food and beverage marketing cooperative in the USA. They used member level heterogeneity variables including age, education, and product quality and farm size indicated by binary such as young/old, small/large, low-quality/high-quality that may not capture the full degree of heterogeneity. Accordingly, they found that member heterogeneity has negative relationship to membership satisfaction. Using 23 CEO of smallest dairy cooperatives from Sweden to study the effect of membership heterogeneity on cooperative choice of strategic decision, Lööf & Sigurd (2020) used age, farm size and investments and found that these dimensions have an impact on the members expressed support or opposition of the collective strategic decisions. However, these differences have only a minor influence on the actual strategic decisions, because the members at large have high level of trust in the board of directors. An empirical study on heterogeneity and commitment to collective action among 235 member farmers of New Zealand Dairy cooperatives, Apparao et al. (2020) found high level of heterogeneity in farmer-member (66%), farm-business (64%) and member-interest (83%). But, the results suggest that high heterogeneity does not lead to low commitment to collective action.

In a study conducted by Kalogeras et al. (2009) on understanding heterogeneous preferences of cooperative members in The Netherland using 120 cooperative members from agricultural co-op members of a Dutch marketing cooperatives, the study found that most members demonstrate rather similar preferences for strategic attributes but differ with respect to the intra-organizational attributes of control and management. The study also found that members’ preference structures are affected by business size and attitudes towards risk and identified a high degree of heterogeneity, which may be problematic for co-op governance and management initiatives. Because the efficiency of resources allocation is threatened as members’ heterogeneity increases (Kalogeras et al., 2009). In an exploratory case study done on member preference heterogeneity and system-lifeworld dichotomy in cooperatives, Iliopoulos & Valentinov (2017) conducted 22 interviews with 11 informants (Chairman, Board members, Managing director) from Greece and found that the sensitivity of cooperatives to the life world contexts of their members exacts the price in the form of the member preference heterogeneity problem. One of the studies conducted on the heterogeneous impact of cooperative membership on farmers’ welfare in Rwanda, Verhofstadt & Maertens (2015) used 263 cooperative member households, belonging to sixteen different cooperatives, and 138 control households and found that cooperative membership in general increases income and reduces poverty and that these effects are largest for larger farms and in more remote areas.

In Ethiopia, there were very limited studies conducted on cooperatives that indirectly included the effect of membership heterogeneity. For example, Gezahegn et al. (2021) investigated the structural and institutional heterogeneity among agricultural cooperatives in Ethiopia if it matters for farmers’ welfare measured by farm income. They used data from 509 farmers of 40 Irrigation cooperatives in Tigray, Northern Ethiopia to specifically estimate how cooperative characteristics influence members’ income and poverty level. The results found that farmers benefit more from membership in larger, younger, and bottom-up cooperatives initiated through grassroots collective action. In a study on the effect of conflict, fraud, and distrust in Ethiopian agricultural cooperatives, Sebhatu et al. (2020) used 511 agricultural cooperatives in 12 districts of Tigray,

Northern Ethiopia. Beside the fact that cooperative size does affect the occurrence of conflict, fraud, and trust, they also confirm that heterogeneity of member goals could affect cooperative. Large cooperatives have the highest perceived member heterogeneity of objectives such as service-orientation versus profit-orientation and induce bureaucracy, as it is difficult to monitor whether members receive services such as credit and training, understand their service needs and any specific issues they may have. Sebhatu et al. (2020) also revealed that a large cooperative size induces and more likely to experience heterogeneity because members are less likely to know each other well and have no social relationships that reinforce the spirit of cooperation and mutual support.

According to another study by Gezahegn et al. (2020) on how do bottom-up and independent agricultural cooperatives really perform better? An insights from a technical efficiency analysis in Ethiopia, they found that NGO and government-initiated cooperatives are less efficient than community- initiated ones where cooperatives with a high degree of heterogeneity in members' participation found to be about 98% less efficient. Finally, a study of Bernard & Spielman (2009) on reaching the rural poor through rural producer organizations through agricultural marketing cooperatives in Ethiopia, they used data from 7186 households randomly drawn from 293 Kebeles in four regions of a country (Amhara, Oromia, Tigray, and SNNP) and the study found a strong and negative effect of the interaction between the level of heterogeneity and the level of participation because a relatively low level of member participation in decision-making processes in cooperatives. In a similar vein, Bernard et al. (2007) registered a large heterogeneity amongst Ethiopian (cereal) cooperatives with respect to their marketing responses to price changes. Moreover, Shumeta & D'Haeseb (2016) used education and age along farm size to analyze the heterogeneous impact of coffee cooperative membership in Southwest Ethiopia and showed that the impact levels differed across cooperatives. Thus, they found older and educated household members with a larger coffee farm were more effective.

Despite the attempt to study membership heterogeneity among cooperatives, there was high heterogeneity in the dimensions used in various studies. Though majority of the priority studies were theoretically and conceptually based, most of them focused on agricultural related cooperatives that used heterogeneity in members' farm(land) size, product quality and quantity, members' goals, location, participation, few demographic factors, interest on membership satisfaction (Grashuis & Cook., 2021), collective decision-making (Löf & Sigurd., 2020), commitment to collective action (Apparao et al., 2020), members' preference (Kalogeras et al., 2009) and farm income and poverty (Verhofstadt & Maertens., 2015) respectively. Moreover, the only few studies that indirectly included membership heterogeneity from Ethiopia were still agricultural cooperatives tried to understand the effect of membership heterogeneity on welfare or farm income (Gezahegn et al., 2021), conflict, fraud and distrust (Sebhatu et al., 2020), technical efficiency (Gezahegn et al., 2020) and participation in decision-making (Bernard & Spielman, 2009) respectively.

One of the reasons for lack of empirical studies could be stemmed from differences in cooperatives setup across countries in terms of organizational structure, cooperative laws and the types of cooperatives and environmental factors across countries (Develtere & Papoutsis, 2021; Mikami, 2016; Wanyama, 2013; Emanu, 2009) and nature of membership heterogeneity (Höhler & Kühl, 2018; Apparao et al., 2020) comes along with the principle of voluntary and open membership. Though cooperative by principle is independent and free from external influence (Apparao et al., 2019; Höhler & Kühl, 2018; Iliopoulos & Valentinov, 2018), the reality is totally different in most Sub-Saharan Africa including Ethiopia where government interferes in the activities of cooperatives.

For example, in Rwanda, Rwandan Cooperative Agency (RCA) is a regulatory public institution in charge of regulation and promotion economic, social, and other activities of the general interest; with a core mandate of registration, regulation, promotion and capacity of cooperatives. Moreover, it implements government policy in matters related to cooperative organizations but not institutionalized its structure along ethnicity (Musahara, 2012; <https://www.rca.gov.rw>).

Similarly, Ethiopia has a hybrid or mixed organizational structure of cooperative where government interfere in the development of cooperative policy and legal system regulating cooperatives while members directly involve in the management of cooperatives though both interact in some aspects. Some of the main uniqueness of Ethiopia cooperative institutional structure is designed inline of ethnic diversity where ethnicity is based on tribal and language compared to other categorization of ethnicity in studies conducted in the USA. For example, in studies conducted by Leslie (2017), McLeod et al. (1996) and Jehn & Bezrukova (2004) mixed ethnicity in terms of color and geographic location. Cox & Blake (1991) categorized racioethnic into white and black. McLeod et al. (1996) and Kirkman et al. (2004) classified ethnicity using geographic as Anglo-American, Asian-American, African-American and Hispanic-American. Jehn & Bezrukova (2004) and Ely (2004) mixed ethnicity in to both color and geographic as White, Black, Asian/Pacific Islander, Hispanic and Native American. In contrary, Ethiopian ethnicity is classified based on tribal and languages (Habtu, 2004; Taye, 2017; Abbink, 2011).

There are over 80 different ethnicities in Ethiopia in which each speaks own language, own administrative authority and culture (Taye, 2017; Abbink, 2011; Balcha, 2008). According to Ethiopian cooperative society proclamation number 985/2016, primary cooperative society is organized and registered by the cooperative agency in which Article 7(2) stated that “the primary cooperative society shall be established: (a) by individuals who live or work or engaged in specific profession within a given area; and (b) by number of members not less than fifty”. Since the proclamation declared that same primary cooperative cannot be established in the same village or area, board members of primary cooperatives affiliated to the union come from individual heterogeneous background demographic characteristics such as age, gender, ethnicity, education, tenure and functional backgrounds. Based on the findings of the prior researches, there is lack of empirical study investigated the effect of board heterogeneity on decision-making styles and performance of cooperative in general and Ethiopia in particular. Thus, this study focused board heterogeneity and decision making of cooperative union in Ethiopian.

Table 2.5: Empirical Studies on Membership Heterogeneity in Cooperatives

| <i>Author &amp; Years</i> | <i>Topic/Title</i>                                                                                                                      | <i>Dependent Variable</i>       | <i>Independent Variables</i>                                                                                                                                                                 | <i>Sample</i>                                                                         | <i>Methodology</i>                                         | <i>Findings</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Grashuis & Cook (2021)    | Members of Cooperatives: More Heterogeneous, Less Satisfied? (USA)                                                                      | Membership Satisfaction         | Farm level heterogeneity (Farm Experience & Size)<br>Member level heterogeneity (Age, education & membership length in years)                                                                | 1,061 participants from members of an organic food and beverage marketing cooperative | Survey/Structural Equation Model                           | Member heterogeneity has a negative relationship to membership satisfaction. In prior studies with member-level data, member heterogeneity is often indicated by binary variables such as young/old, small/large, or low-quality/high-quality, but such approaches may not capture the full degree of heterogeneity.                                                                                                                                                                                                            |
| Löf & Sigurd (2020)       | Membership heterogeneity and the cooperative's choice of strategy - The case of Sweden's smallest dairy cooperative (Sweden)            | Collective Strategic Decision   | Member Level Heterogeneity (Age, Gender, Education, Future plan)<br>Farm Level Heterogeneity (Farm size, Investment, Employees)<br>Product Related Heterogeneity(Product quality & quantity) | 23 CEO of Dairy Cooperatives                                                          | Case Study/Qualitative                                     | The members differ considerably as concerns to age, farm size and investments. These dimensions have an impact on the members expressed support or opposition of the collective strategic decisions. However, these differences have only a minor influence on the actual strategic decisions, because the members at large have high level of trust in the board of directors.                                                                                                                                                 |
| Apparao et al. (2020)     | Heterogeneity and Commitment to Collective Action: An Empirical Study of a New Zealand Dairy Co-operative. (New Zealand)                | Commitment to Collective Action | Heterogeneity of Farmer Member, Farmer Business & Member Interest                                                                                                                            | 35 Member Farmers of Dairy Cooperatives                                               | Survey/ANOVA & Correlation                                 | High level of heterogeneity was found in all three dimensions - farmer- member (66%), farm-business (64%) and member-interest (83%). The study also found high level of commitment to collective action. Thus, it suggests that high heterogeneity does not lead to low commitment to collective action.                                                                                                                                                                                                                        |
| Apparao et al. (2019)     | Examining commitment, heterogeneity and social capital within the membership base of agricultural co-operatives—A conceptual framework. | Commitment to Social Capital    | Membership Heterogeneity                                                                                                                                                                     | -                                                                                     | Conceptual Paper                                           | This study used characteristics associated with the farmer-member and the farm-business to examine heterogeneity and suggested that the social capital paradigm is the common denominator for all explanations and theories on co-operative formation and development. Based on this theoretical underpinning, a Three Dimensional Conceptual Framework, that encapsulates commitment, heterogeneity and social capital is developed and described.                                                                             |
| Kalogeras et al. (2009)   | Understanding Heterogeneous Preferences of Cooperative Members (The Netherlands)                                                        | Members Preference              | Heterogeneity in Members' benefit,                                                                                                                                                           | 120 cooperative members from agricultural co-op members of a Dutch marketing co-op    | Survey/ Focus Groups & Member interviews, Regression Model | The study found that most members demonstrate rather similar preferences for strategic attributes but differ with respect to the intra- organizational attributes of control and management. Members' preference structures are affected by business size and attitudes towards risk. The study analysis identifies a high degree of heterogeneity, which may be problematic for co-op governance and management initiatives. Because the efficiency of resources allocation is threatened as members' heterogeneity increases. |

*Continued...*

| <i>Author &amp; Years</i>      | <i>Topic/Title</i>                                                                                                          | <i>Dependent Variable</i>                                     | <i>Independent Variables</i>                                                                                                                                            | <i>Sample</i>                                                                                                     | <i>Methodology</i>            | <i>Findings</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Höhler & Kühl (2018)           | Dimensions of Member Heterogeneity in Cooperatives and Their Impact on Organization – a Literature Review                   | <i>Organizational Performance (Monetary vs. Non-Monetary)</i> | <i>Heterogeneity of Farm Level (Farm size and Location); Member Level (Personal, Contractual, participator &amp; Motivational) and Product level (Type and Quality)</i> | -                                                                                                                 | <i>Literature Review</i>      | <i>Different dimensions of heterogeneity are identified and ways of measuring their impact on cooperative organization are proposed</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Iliopoulos & Valentinov (2018) | Member Heterogeneity in Agricultural Cooperatives : A Systems-Theoretic Perspective.                                        | -                                                             | <i>Member Heterogeneity</i>                                                                                                                                             | -                                                                                                                 | <i>Theoretical paper</i>      | <i>The paper views cooperatives as operationally closed systems maintaining a precarious relationship to their outer environment, which includes cooperative members. In view of their operational closure, cooperatives tend to overstrain the carrying capacity of their environment by being active in the areas marked by a limited extent of the true commonness of member interests. The fundamental solutions following from the system-environment paradigm require the adjustment of cooperative boundaries and goals in light of the evolving range of the true common interests of members.</i> |
| Iliopoulos & Valentinov (2017) | Member preference heterogeneity and system-lifeworld dichotomy in cooperatives An exploratory case study (Greece)           | -                                                             | <i>Member Preference Heterogeneity</i>                                                                                                                                  | <i>22 interviews with 11 informants (Chairman, Board members, Managing director) from Greece</i>                  | <i>Exploratory Case Study</i> | <i>The sensitivity of cooperatives to the life world contexts of their members exacts the price in the form of the member preference heterogeneity problem. If this sensitivity is taken to be the constitutive characteristic of cooperatives, then the proposed argument hammers home their fundamental ambivalence, as they are necessarily fraught with the potential for internal conflict.</i>                                                                                                                                                                                                       |
| Verhofstadt & Maertens (2015)  | Can Agricultural Cooperatives Reduce Poverty? Heterogeneous Impact of Cooperative Membership on Farmers ' Welfare in Rwanda | <i>Farm Income &amp; Poverty</i>                              | <i>Demographic Heterogeneity (age, education, household size &amp; Size of children), Land size and Distance</i>                                                        | <i>263 cooperative member households, belonging to sixteen different cooperatives, and 138 control households</i> | <i>Survey/Regression</i>      | <i>Cooperative membership in general increases income and reduces poverty and that these effects are largest for larger farms and in more remote areas. We find evidence of a negative selection because impact is largest for farmers with the lowest propensity to be a cooperative member.</i>                                                                                                                                                                                                                                                                                                          |

*Continued... (Ethiopian Co-ops Context)*

| <b>Author &amp; Years</b> | <b>Topic/Title</b>                                                                                                                       | <b>Dependent Variable</b>               | <b>Independent Variables</b>                                                                                                                                                                          | <b>Sample</b>                                                                                                   | <b>Methodology</b>                  | <b>Findings</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Gezahegn et al. (2021)    | Structural and institutional heterogeneity among agricultural cooperatives in Ethiopia: Does it matter for farmers' welfare?             | <i>Welfare Outcome (Farm Income)</i>    | <i>Institutional &amp; Structural Heterogeneity (Cooperative size, age, Water division Joint purchase Joint marketing)<br/>Human Capital Heterogeneity (Gender, Age, Education &amp; Family Size)</i> | 509 farmers from 40 Irrigation Cooperatives in Tigray, Northern Ethiopia                                        | Survey/Regression                   | The study specifically, estimates how cooperative characteristics influence members' income and poverty level. It found that stricter water use regulations have income-enhancing and poverty-reducing effects for farmers. It also found that farmers benefit more from membership in larger, younger, and bottom-up cooperatives initiated through grassroots collective action.                                                                                                                                                                                                                                                                                                                                                                                                        |
| Sebhatu et al. (2020)     | Conflict, fraud, and distrust in Ethiopian agricultural cooperatives.                                                                    | <i>Conflict, Fraud, Distrust</i>        | <i>Membership duration, Working experience, Cooperative age, Membership size, Heterogeneity of goals Heterogeneity of dividends Location</i>                                                          | 511 agricultural co-operatives in 12 districts of Tigray, Northern Ethiopia                                     | Survey/Probit Model                 | The study confirms that cooperative size does affect the occurrence of conflict, fraud, and trust. But, results also indicate that other influencing factors including heterogeneity of member goals could affect cooperative. Large cooperatives have the highest perceived member heterogeneity of objectives such as service-orientation versus profit-orientation and induce bureaucracy, as it is difficult to monitor whether members receive services such as credit and training, understand their service needs and any specific issues they may have. Such features are likely to lead to escalating conflicts.                                                                                                                                                                 |
| Gezahegn et al. (2020)    | Do bottom-up and independent agricultural cooperatives really perform better? Insights from a technical efficiency analysis in Ethiopia. | <i>Technical Efficiency</i>             | <i>Participation Heterogeneity (Among Member of NGO, Government and Community Initiated Cooperatives)</i>                                                                                             |                                                                                                                 | Survey/Stochastic Frontier Analysis | The results show that NGO and government-initiated cooperatives are less efficient than community- initiated ones. Cooperatives with a high degree of heterogeneity in members' participation are found to be about 98% less efficient, while cooperatives that have paid employees are 33% more efficient. Besides, results show that cooperatives in Ethiopia function more efficiently if they incentivize committee members through monetary compensation.                                                                                                                                                                                                                                                                                                                            |
| Bernard & Spielman (2009) | Reaching the rural poor through rural producer organizations? A study of agricultural marketing cooperatives in Ethiopia.                | <i>Participation in Decision-Making</i> | <i>Land holding Total membership Household education Household size</i>                                                                                                                               | 7186 households randomly drawn from 293 Kebeles in four regions of a country (Amhara, Oromia, Tigray, and SNNP) | Survey/Regression                   | The results suggest a relatively low level of member participation in decision-making processes in cooperatives. While this may be expected for everyday technical decisions, it is more surprising for the general decisions relating to the organization's size, activities and functioning where more than 40% of cooperatives do not let their simple members participate in any decision process. The study empirically investigate the decision-making process in Ethiopian cooperatives through participation indicators based on a series of questions meant to identify who the decision-makers are for a series of commonly-taken decisions. The study found a strong and negative effect of the interaction between the level of heterogeneity and the level of participation. |

## 2.9. Decision Making

Over the years, there has been much debate on how to accurately describe decision-making in general beyond an implicit agreement that decisions are made through some sort of chaotic process (Omotola et al., 2012; Adikaram & Kailasapathy, 2021). While scholars describe organizational decision-making as a complex, multifaceted and multidimensional process influenced by numerous factors, decision-making is considered the prime responsibility of a manager (Riaz, 2015), where his/her decision plays a vital role in the success or failure of an organization. According to Certo et al. (2008), managers' ability to make fast, smart, widely-supported, and effective decisions will largely shape the performance of the group or organization. As such, the quality of managers' decisions is a crucial determinant element of performance (Russ et al., 1996).

According to Cervone et al. (2005), decision-making is about deliberately choosing an option from two or more options in a proactive manner, under conditions of uncertainty, in order to reach a specific goal, objective or outcome with the least amount of risk. Decision-making is a choice that an individual or group make based several possibilities (Riaz et al., 2010; Akram & Siddiqui, 2019). Following Mintzberg et al. (1976), a decision is one that is important, in terms of the actions taken, the resources committed, or the precedents set. Such decisions influence the success or failure of organizations (Dean & Sharfman, 1996; Elbanna & Child, 2007b; Elbanna et al., 2020). Due to the importance of decision-making in organizations, Singh (1986) states that decision-making is the total task of a manager. Hence, it is important to understand why various managers approach the decision-making process differently (Pennino, 2002). One related area is the decision-making style, i.e. how managers approach, perceive and process the information associated with decision-making (Verma & Rangnekar, 2015).

## 2.10. Decision Making Process in Cooperatives

Cooperatives are democratic organizations controlled by their members who actively follow the principle of one member-one vote rather than the one share-one vote rule in their decision-making (Birchall, 2002; Mikami, 2016). For instance, according to the Ethiopian FDRE (2016) cooperative societies proclamation no.985/2016, article 5(2):

Article 5(2): *“Cooperative societies shall be democratic organizations controlled by their members who actively participate in setting their policies and making decisions; each member having equal voting right as well as one member having one vote.”*

Article 31: *“The supreme organ of any cooperative society shall be the general assembly that elects managerial board”*

Article 32(11): *“General assembly decides, in accordance with the powers vested in it by the by-law, on any issue submitted to it by the management committee or managerial board.”*

For such principles, cooperatives have long-been criticized for their inefficient decision-making process (Cook, 1995; Kurimoto, 2008a; Kalogeras et al., 2013; Kispál-Vitai et al., 2019a) due to high involvement of all members known as general assembly, where as the literature neglected the styles of decision used and heterogeneity of membership. Democratic decision-making processes in cooperative assumed to profit from the members' commonality of members' interests (Höhler & Kühl, 2018). However, the combination of high complexity in the cooperative firm with a heterogeneous membership leads to paralysis in the board and thus to a de facto shift of decision-

making power (Bijman et al., 2013). It may cause large costs for collective decision-making, influence as well as control and may negatively impact performance (Pozzobon et al., 2012; Cechin et al., 2013; Hansmann, 2013). Similarly, Benos (2016), stated that the decision-making in traditionally organized cooperatives is more time consuming than in other organizational forms. Few empirical studies confirm the challenges of decision-making process in cooperatives. For example, the study of Araya & Chung (2015) on the commercialization role of agricultural cooperatives in Ethiopia, the Agricultural Transformation Agency (ATA) data showed that only 17.8 percent of the members took part in most decisions meeting, while more than 54 percent attended none of the cooperatives meeting in 2011. Likewise, the extent of member's involvement in decision-making as well as their interest to engage in decision-making within the cooperatives is found to be much lower. Nearly, 50 percent of the respondents felt excluded from decision-making (Araya & Chung, 2015). In a large survey of smallholder agricultural marketing cooperatives in Ethiopia using participation indicators (Bernard & Spielman., 2009), they found that member farmers are often excluded from decision-making processes where only 10 percent participate in all decisions. This suggested a relatively low level of member participation in decision-making processes in cooperatives.

Participants in the Dunn et al. (2002) study, which included cooperative managers and directors, voiced concern that owner-directors too often make decisions based on internal politics rather than on sound economics. These participants believed that, on occasion, cooperative directors may be motivated to make decisions that benefit the individual at the expense of the cooperative (Bond, 2008). Forces outside the cooperative can also exert control through their ability to limit its decision-making (Dunn et al., 2002). For example, the choices available to a cooperative are constrained by environmental regulations or tax laws (Kurimoto, 2018). Moreover, cooperative laws may impact the decision-making of cooperative. For instance, cooperative act of many countries of both developed and developing, limit the operating boundaries (Mikami, 2016; Abate et al., 2014; Kurimoto, 2004). In Ethiopia, operating areas are restricted by the Cooperative Societies Proclamation No. 985/2016 (FDRE, 2016).

According to Kispál-Vitai et al. (2019), the study conducted in three countries (such as Hungary, Canada and France) revealed that decisions were made slowly in the cooperative due to the difficulty of convincing large and diverse ownership when all owners follow the principle of one vote. Analysis of performance data from 52 cooperatives in the Netherlands, found that deviation from the traditional one-member one-vote system, had a negative relationship to performance (Kyriakopoulos et al., 2004). Birchall & Simmons (2004) confirmed that member participation in decision does carry costs either because of the need to provide incentives to members to become interested or because they bring different, potentially conflicting interests to the decision-making process (Daniela M. Pozzobon et al., 2012). However, the interferences of the government and other development partners in decision-making on matters of cooperatives and the use of cooperatives for political purposes by local governments have been identified as serious threats to the cooperative development in Ethiopia (Tefera et al., 2017; Mojo et al., 2018). According to Bernard et al. (2008), most cooperatives in Ethiopia were initiated under the influence of an external partner: 63% were created by government institutions, 11% by donor agency or NGOs, and only 26% by members themselves. Moreover, the appointment of cooperatives heads for cooperative agencies across Ethiopia were political oriented where the head were assigned by the ruling political party. Though the problem of decision-making in cooperatives discussed in various studies, empirical evidences on how board heterogeneity impacts the decision-making styles and performance in consumer cooperatives is missing.

## 2.11. Decision-Making Styles and Organizational Performance

Decades of research on decision-making styles shared valuable insights that help draw and understand a broader picture about the nature, forms, functions, and outcomes of decision-making styles (Riaz, 2015). While a lot of work has been done in various contexts to study decision-making styles from both the pragmatic and intellectual points of view (Thunholm, 2004; Bovol'ár & Orosová, 2015), there is still inconsistent views in literature on the decision-making style that best enhance workgroup and organizational performance. The decision-making style is an individual's typical interpretation and response to decision-making tasks (Harren, 1979). Driver (1991) defined decision-making style as a learned habit and propounded that the key differences among styles are due to the amount of information considered during a decision process and the number of alternatives identified when reaching a decision. Literature has identified different types of decision-making styles (Harren, 1979; Phillips et al., 1984) to look for the best outcome while making decisions (Parker et al., 2007).

Rowe & Boulgarides (1983) viewed decision-making styles from a psychological viewpoint and contend that it is a cognitive process that characterizes how an individual solves a problem and makes use of available information to formulate decisions. According to Porac et al. (1995) and Thunholm (2004), cognitive viewpoint considers organizations and their external environment to be interrelated. The cognitive process allows an individual to adopt analogous postures and behaviors in different spheres of influence (Raffaldi et al., 2012). Decision-making styles expressed as habitual response patterns shown by individuals when confronted with a specific decision situation (Scott & Bruce, 1995; Thunholm, 2004). There is emerging body of knowledge devoted to define the individual decision-making styles (Rehman et al., 2012; Verma & Rangnekar, 2015), and group decision rules that have a significant inferences for organizations (Rehman et al., 2012). Although decision-making styles have been discussed in the literature from various viewpoints, researchers posit that a one-size-fits-all solution does not exist, as there is no one unanimously accepted categorization of decision-making styles (Tatum et al., 2003; Leykin & DeRubeis, 2010; Allwood & Salo, 2012; Dewberry et al., 2013).

An attempt to understand, interpret and identify different decision-making styles, Rowe & Boulgarides' (1983) and Scott & Bruce' (1995) proposed styles that gained much recognition and popularity. Through their cognitive-contingency decision style model, Rowe & Boulgarides (1983) defined decision-making style as the way a person visualizes, thinks and reacts to choices and situations when making a decision and proposed four styles including *behavioral* "friendly and sociable", *conceptual* "insightful, flexible, intuitive, adaptive and elastic", *analytical* "control-oriented, intellectual, rational, logical, and consistent", and *directive* "power-oriented, practical, realistic, and authoritarian" (Siev et al., 2019; Geisler & Allwood, 2018; Bovol'ár & Orosová, 2015). However, Scott & Bruce (1995) suggested that decision-making styles has broader spectrum than a simple cognitive style. Scott & Bruce (1995) defined decision-making style as "the learned, habitual response pattern exhibited by an individual when confronted with a decision situation" and presented five different decision-making styles in their General Decision Making Styles (GDMS) model: rational "done through a thorough information search and the logical evaluation of alternatives", intuitive "done through a reliance on gut feelings and hunches", dependent "done through advice-seeking and reliance on others", avoidant "a tendency to escape and avoid decision-making situations" and spontaneous "a tendency to make fast and speedy decisions" (Siev et al., 2019; Curşeu & Schruijer, 2012; Moghadam et al., 2011; Thunholm, 2004). Nevertheless, both

models agree that individuals would have one or more dominant styles with one or more back-up styles.

So far, studies of decision-making process in cooperatives focused on the effect of voting principles and high involvement of the general assembly that deemed ineffective due to high transaction cost and time consuming (e.g., Cook, 1995; Kurimoto, 2008a; Kalogeras et al., 2013; Kispál-Vitai et al., 2019a), neglecting to examine what decision-making styles practiced in cooperatives and how they may affect the performance of the decision makers. Cooperative as a members' organization with collective responsibility of all members in making decision, should be viewed from a broader perspective of a groups characteristics as against individually learned or acquired habits of solving problems (Oyewobi et al., 2016). Thus, due to lack of empirical studies investigated the influence of decision-making on performance (Höhler & Kühl, 2018), there is less understanding regarding decision-making styles in relation to performance of cooperatives. Hence, this study approaches the decision-making styles of managerial board members in cooperative from the group or team view point.

Findings from previous literature indicate that different decision-making styles exhibit different impacts on performance (group or organizational), which may be positive or negative (Rehman et al., 2012; Amzat & Idris, 2012). Though Russ et al (1996) contend that decision-making styles appears to be related to performance, it remains unclear which style(s) relates to increasing organizational performance during both the short term and long term (Shepherd et al., 2015). Given the varying nature of the different decision-making styles, results of empirical studies relied on the Scott & Bruce (1995) general decision-making styles revealed conflicting findings.

### **2.11.1. Types of Decision Making Styles**

#### **2.11.1.1. Rational Decision Making Style**

Rational decisions are connected with objectives in a logical manner based on the deliberate analysis and evaluation of alternatives to reach at an ideal goal through most effective means (Akram & Siddiqui, 2019). According to Dean & Sharfm (1993), rationality defined as the extent to which the decision-making process involves the collection of information relevant to the decision, and the reliance upon analysis of this information in making the choice. Decision rationality refers to the extent to which they use a systematic and analytical approach to make general decisions (Kandemir & Acur, 2012; Zhang et al., 2020). Solutions obtained from rational analysis follow a sensible sequence for the decision maker. A rational style symbolizes planning the important decisions carefully and making decisions in a logical and systematic way (Scott & Bruce, 1995). Individuals with high decision rationality will likely make decisions based on searching for and cognitively evaluating all alternatives (Verma & Rangnekar, 2015). They systematically gather and process information (Thunholm, 2004). They analyze a number of possible alternatives from different scenarios before making a choice and choose the best-expected scenario (Oliveira, 2007). Rational decision makers approach decision-making objectively, unemotionally, analytically and thoroughly (Phillips et al., 1984).

Numerous researchers (e.g., Yadav & Lenka, 2020; Riaz et al., 2014; Spicer & Sadler-Smith, 2005; Mau, 1995) suggested that managers opt various styles while making organizational decisions that linked with numerous individual, group, and organizational outcomes. Although many prior studies reflect conflicting findings of different decision-making styles, most of empirical results support the

positive impact of rational on performance (such as workgroup or organization). According to the study investigating the decision-making styles of managers among bank and insurance firms in Italy, Gambetti & Giusberti (2019) found the regressed result of rational decision-making style positively influence investment decisions. Similarly, in a study examining how decision-making styles affect performance, Riaz (2015) found different relationships between decision-making styles and organizational performance. Applying purposive sampling to survey 300 employees from organizations that he described non-profit service providing organizations (hospitals, banks and universities) in Pakistan, he measured performance using Likert-scales and found that rational decision-making style have a positive impact on both job performance of employees and organizational performance of non-profits service providing organizations. The same finding was found by Rehman et al. (2012) on organizational performance of bank sector in Pakistan using structural equation model. Yet, Ward (2016) studied the relationship between decision-making styles of entrepreneurs and organizational performance across various countries and found positive results. On the other hand, in a survey research using 538 participants and their superiors to examine the leaders' decision-making styles of sales managers in the USA, Russ et al. (1996) revealed positive influence of rational decision-making style on sales managers' performance.

#### **2.11.1.2. Intuitive Decision Making Style**

An intuitive decision-making style primarily relies on one's instincts to determine what one feels is right (Verma & Rangnekar, 2015). This is in direct contrast to having a rationale for making a decision (Scott & Bruce, 1995). Intuition in decision-making may be sourced from implicit knowledge (a positive or negative valence depending on the outcome of previous decisions) and then used for explicit decisions (Bierman et al., 2005). In view of Klaczynski (2001) and Stanovich & West (2000), the intuitive decision-making style approaches the task personally, drawing on one's feelings. People who employ an intuitive decision-making style do not consciously weigh multiple alternatives and possible outcomes but maybe fast at making decisions (Schunk & Betsch, 2006; Betsch, 2011).

Although there were researchers who empirically investigate the role of intuitive decision-making style on performance, their studies reflect conflicting findings. For instant, Ward (2016) in her study on the relationship between decision-making styles of entrepreneurs and organizational performance across various countries, her regression results using a sample of 269 entrepreneurs of small business owners revealed positive effect of intuitive decision-making style on organizational performance. Riaz (2015) in his thesis investigating the influence of leaders' decision-making styles, he found positive impact of intuitive decision-making style on both job performance of leaders and organizational performance of the selected service providing organizations in Pakistan. However, non-significant results were found among other studies. A research investigating the decision-making styles of managers among bank and insurance firms in Italy, Gambetti & Giusberti (2019) used 362 participants and their regression result found that intuitive decision-making style was non-significant influence on investment decisions. The same results was found by Rehman et al. (2012) on organizational performance of bank sector in Pakistan using structural equation model from a sample of 187 employees. Russ et al. (1996) also found that intuitive has non-significant result on sales managers' performance in their survey with a sample of 538 participants and superiors in the USA. The conflicting findings may results from the lack and inconsistent information (Shiloh & Shenhav-Sheffer, 2004) that may invite further studies in various organizational sectors in different context.

#### **2.11.1.3. Dependent Decision Making Style**

Dependent decision-making style refers to reliance upon the direction and support of others (Scott & Bruce, 1995). Decision makers in this style always search for advice and guidance from others before making important decisions (Thunholm, 2004), rarely do they make important decisions without consulting others (Scott & Bruce, 1995). They find it easier to be guided by others in the right direction (Thunholm, 2004). Dependent decision makers are unwilling and lacks in ability to take personal responsibility of a decision. Contrary, they act upon the opinions, expectations, and desires of their peers and authority in order to overcome the fear of failure and rejection (Riaz, 2015). Phillips et al (2001) and Singh & Greenhaus (2004) stated that too much reliance of dependent decision-making style results in decreased validity of the information, decline in accuracy of awareness, and the less effective their decision than some other ways of involving and consulting other people. As the dependent decision maker transfers the responsibility of choice to external events or other people, such a decision-makers are considered passive, compliant, and influenced by others' expectations (Harren, 1979; Verma & Rangnekar, 2015).

While investigating the impact of decision-making styles, previous studies reported conflicting findings of dependent decision-making style on performance (Yadav & Lenka, 2020b). Considering the positive impact, authors measure performance differently. Ward (2016) in her study on the relationship between decision-making styles of entrepreneurs and organizational performance using 269 entrepreneurs of small business owners, she found positive result between dependent decision-making style and organizational performance. Riaz (2015) and Rehman et al. (2012) supported the same result based on their studies conducted on bank sectors and service providing sectors in Pakistan. Moreover, a research investigating the decision-making styles of managers among bank and insurance firms in Italy, Gambetti & Giusberti (2019) used 362 participants and their regression result found that dependent decision-making style was positively influenced investment decisions. However, Riaz (2015) in his thesis investigating the influence of leaders' decision-making styles, he found positive impact of dependent decision-making style on job performance of leaders from the selected service providing organizations in Pakistan. Russ et al. (1996) also found that dependent has non-significant result on sales managers' performance in their survey with a sample of 538 participants and superiors in the USA.

#### **2.11.1.4. Avoidant Decision Making Style**

Avoidant decision-making style is defined as an attempt to avoid or postpone decisions as long as possible (Scott & Bruce, 1995). It involves indecisiveness, deferring, evading, postponing decisions, and keeping oneself from decision scenarios. This type of decision-maker avoids making decisions until the pressure is on, procrastinates, and delays decisions until the last minute (Spicer & Sadler-Smith, 2005). This decision-making style was found to be related to an avoidant style of conflict management (Thunholm, 2004). Hablemitoglu & Yildirim (2008) argued that a person with an avoidant decision-making style would make every effort to avoid making a decision. Therefore, this style is considered ineffective as long as the decision-maker does not justify avoidance.

According to the findings of the previous empirical studies of decision-making styles on performance, the following authors reported negative result of avoidant decision-making style on performances. Ward (2016) in her study on the relationship between decision-making styles of entrepreneurs and organizational performance, she found positive result between avoidant decision-making style of entrepreneurs and organizational performance. Riaz (2015) and Rehman et al.

(2012) supported the same negative result based on their studies conducted on bank sectors and service providing sectors in Pakistan. Riaz (2015) also found negative result on job performance in the same study. Similarly, a research investigating the decision-making styles of managers among bank and insurance firms in Italy, Gambetti & Giusberti (2019) used 362 participants and their regression result found that avoidant decision-making style was negatively influence investment decisions. Moreover, while investigating the impact of decision-making styles on performance, Russ et al. (1996) found that avoidant decision-making style has negative impact on sales managers' performance in their survey with a sample of 538 participants and superiors in the USA. de Bruin et al (2007) also reported that avoidant decision-making is negatively connected with decision making competence, satisfactory decision outcomes, and decision making planning.

#### **2.11.1.5. Spontaneous Decision Making Style**

Spontaneous decision-making style is defined in terms of emergency, and aspiration to complete decisional process in speedy manner (Scott & Bruce, 1995). It involves 'thought chunking' and the concentration is focused on the information as a whole instead of analyzing the information in parts (Riaz, 2015). Spontaneous decision makers often make decisions on the spur of the moment and on the basis of what seems natural at the moment (Verma & Rangnekar, 2015; Thunholm, 2004). This style is characterized by a feeling of immediacy and desire to come through as quickly as possible (Spicer & Sadler-Smith, 2005).

While research suggests that the quick, intuitive decision-making style may benefit organizational performance (Riaz, 2015), hastily making decisions using a spontaneous decision-making style seems to be detrimental to performance (Geisler & Allwood, 2018). In a survey study conducted on the individual differences in adult decision-making competence of participants comprised of 65.5% (white), African American (28.2%) and 6.3% (other racial groups) from social service organizations and community groups in the Pittsburgh metropolitan area of the USA, Parker et al (2007) found that spontaneous decision-making style negatively predicted decision outcomes for people that varied in their level of education and socio-economic status. Using a psychometric evaluation of Scott & Bruce (1995) measure of decision-making styles, Loo (2000) conducted in-class surveys with 223 management undergraduates; and the results of correlation analyses showed that the spontaneous decision-making style negatively correlated to final course percentages ( $r = -.16$ ), indicating that high scores on spontaneous decision-making style related to lower course performance. Similarly, de Bruin et al (2007) found spontaneous decision-making style negatively related to competence in decision making and satisfactory decision outcomes as well as decision planning (Galotti et al., 2006). Moreover, Ward (2016) in her study on the relationship between decision-making styles of entrepreneurs and organizational performance, she found negative result between spontaneous decision-making style of entrepreneurs and organizational performance. Russ et al. (1996) also found that spontaneous decision-making style has negative impact on sales managers' performance in their survey with a sample of 538 participants and superiors in the USA.

Although some studies reported negative findings, in contrary, some found positive impact on performance. For example, Riaz (2015) and Rehman et al. (2012) supported the same positive result of spontaneous decision-making styles on organizational performance based on their studies conducted on banking and service providing sectors in Pakistan. Riaz (2015) also found positive finding from the same study on job performance. However, while investigating the influence of decision-making styles of managers among bank and insurance firms in Italy, Gambetti &

Giusberti (2019) used 362 participants and their regression result found non-significant impact of spontaneous decision-making style on investment decision.

Even if findings from previous literature indicate that different decision-making styles exhibit different impacts on performance which may be positive or negative (Rehman et al., 2012; Amzat & Idris, 2012), the inconsistent occurred based on how performance measured either as group or organizational level make it debatable to which decision-making style relates to increasing performance during both the short term and long term (Shepherd et al., 2015). Given the varying nature of the different decision-making styles, there is dearth of empirical evidence on decision-making styles and performance in the context of consumer cooperatives (Höhler & Kühn, 2018). Hence, this study relies on the Scott & Bruce (1995) general decision-making styles validated in many studies (Spicer & Sadler-Smith, 2005; Verma & Rangnekar, 2015) in various countries to study how the heterogeneity of board influence on the decision-making styles and performance of consumer cooperatives in the context of Ethiopia.

Table 2.6: Summary of Decision-Making Styles (Scott & Bruce, 1995)

| <b>Decision-Style</b>               | <b>Description</b>                                                                                 |
|-------------------------------------|----------------------------------------------------------------------------------------------------|
| ○ Rational Decision-Making Style    | – A decision done through a thorough information search and the logical evaluation of alternatives |
| ○ Intuitive Decision-Making Style   | – A decision done through a reliance on gut feelings and hunches                                   |
| ○ Dependent Decision-Making Style   | – A decision style done through advice-seeking and reliance on others                              |
| ○ Avoidant Decision-Making Style    | – A decision characterized by a tendency to escape and avoid decision-making situations            |
| ○ Spontaneous Decision-Making Style | – A decision characterized by a tendency to make fast and speedy decisions                         |

*Sources: Adikaram & Kailasapathy (2021); Allwood & Salo (2012); Bovol'ár & Orosová (2015); Dewberry et al. (2013); Scott & Bruce (1995); Spicer & Sadler-Smith (2005); Verma & Rangnekar (2015);*

### 2.11.2. When to Use a Particular Decision Making Styles in Cooperative

Despite being association established to serve the interest of its members, cooperatives in Ethiopia is formed by at least 50 individuals with heterogeneous backgrounds. These heterogeneous members varies in their objectives (Sebhatu et al., 2020), participation (Gezahegn et al., 2020) and decision-making process (Bernard & Spielman, 2009). Such high heterogeneity among individual or board members, leads to different views and ways of approaching the decision-making styles. Since consumer cooperative unions in Ethiopia were mainly established to serve the members and communities by providing consumer products at affordable prices, they engage in various marketing activities that involve several stakeholders in the activities related to decision-making related to cooperatives. Under those conditions, heterogeneous board and stakeholder apply different decision-making styles to be able to make sound decision in the interest of the board and the general members.

According to Tatum et al. (2003) and Oyewobi et al. (2016), a one-size-fits-all solution does not exist, as there is no one unanimously accepted categorization of decision-making styles. Depends on the business environment, organizational size, locations of the decision-makers from the cooperative organization might require the use of various decision-making styles. Although Adikaram & Kailasapathy (2021) found human resource professionals to generally adopt combinations of decision-making styles, with one or two styles being dominant while one or two were used as back-up styles, our case study revealed that heterogeneous board of consumer cooperatives in Ethiopia adopt the use of all decision-making styles despite rational, intuitive and dependent being the dominants. One of the reasons is the hybrid nature of cooperative organizational structure that allow government to involve in the activities of cooperative and other regulations set in the cooperative societies proclamation number 985/2016. The conditions in which board members of cooperative union use a particular decision-making style are discussed as follow:

**Rational decision-making style:** As a step-by-step decision model that helps individuals or decision-makers to identify a problem, pick a solution between multiple alternatives, and find an answer, the Ethiopian cooperative societies proclamation no.985/2016, Article 5(2) and Article 32(11) regulated board members to actively participate in making decisions; each member having equal voting rights through one member-one vote in accordance with the powers vested by the bylaws. They mainly make decision on products in the best interest of the general members related to price, quantity, quality and timely delivery. Since the board of cooperative union represented by heterogeneous individuals of the affiliated primary cooperative who were restricted by the proclamation to come from specific operating areas, they deeply involved in the search for information about product from various sources throughout the country including suppliers and systematically analyze the entire alternatives based on the information to make sound decision.

**Intuitive decision-making style:** Consumer cooperative union as organization mainly established with the purpose to stabilize the market for members from affiliated primary cooperatives, facing challenges of stiff competition, market instability and unpredictable inflations. When time is critical and information is scarce, board members of cooperative lean to the use of intuitive based on experience to decide what feels right and appropriate for immediate needs and demands of the members. For instance, when the prices of one type of grain show unpredicted increase after planned budget year, cooperative's board make intuitive decision to substitute what grains missed in the market with the available one to bridge the gap.

**Dependent decision-making style:** According to the existing hybrid organizational structure of Ethiopian cooperative model, the involvement of government in certain areas of cooperative activities permit the interdependence of cooperative to seek assistant and support from the external individuals or organizations to make certain decisions. There are specific articles of Ethiopian cooperative society's proclamation that government directly interact with cooperatives. Article 2(20) stated "cooperative agency established to execute the cooperative societies proclamation, lead and regulate the cooperative sector". Article 21(3/c) stated "cooperative union shall provide advisory service to member primary cooperative societies". Article 50(1) and 52(2), "Cooperative agency shall audit the accounts of any cooperative and make an inspection of cooperative society" Consumer cooperatives in Ethiopia were not in a position to produce and process manufacturing products. They used but goods from the suppliers and the government through cooperative agency to obtain scarce products due strong competition from private owned firms. For example, construction product such as cement, steels and consumer products such as cooking oil, sugar, etc

were obtain through the support of government sold by the prices fixed by the government. Since, they receive products in bulk, they use profit margin selling such products. However, cooperative were restricted by the proclamation to use avoidant decision-making style.

**Avoidant decision-making style:** Despite the use of the above mentioned styles, there are internal and external factors that force board members of cooperative to avoid decision. For example, Article 29(1) stated “Decisions of any cooperative society shall be passed by majority vote (50+1), where the issues need special resolutions must pass by two third members vote”. Any number of board members below the specified shall lead to the avoidant of decision. Avoidant decision making styles also works well when conditions are highly uncertain and the benefits of taking action are unclear for the board members.

**Spontaneous decision-making style:** A decision made quickly because it feels right on time when conditions change easily. For instance, when there are lacks of products highly demanded by the members in the case of consumer products or food items mention above, board members of cooperative take risk to spontaneously make decision to obtain the products when imported and immediately distributed to the communities on behalf of cooperatives. In addition, scarce resource that obtained on behalf of other organizations such as cooperative agency and bureau of trade and industry, encourage the use of spontaneous decision.

Table 2.7: Summary of Literatures Examining Decision-Making Styles and Performance

| <i>Author</i>                          | <i>Scope</i>    | <i>Dependent Variable</i>                                       | <i>Decision-making styles &amp; Findings</i>                                                                                                                               | <i>Sample</i>                                                                                         | <i>Methodology</i>                                          | <i>Supporting Theory</i>                              |
|----------------------------------------|-----------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------|
| <i>Gambetti &amp; Giusberti (2019)</i> | <i>Italy</i>    | <i>Investment decision</i>                                      | <i>Rational (+), Intuitive (N.S), Dependent (+), Avoidant (-), Spontaneous (N.S)</i>                                                                                       | <i>362 participants from bank or insurance company</i>                                                | <i>Survey/Logistic &amp; OLS Regression</i>                 | <i>-</i>                                              |
| <i>Ward (2016)</i>                     | <i>USA</i>      | <i>Organizational performance (Net profit)</i>                  | <i>Rational (+), Intuitive (+), Dependent (+), Avoidant (-), Spontaneous (-)</i>                                                                                           | <i>269 entrepreneurs of small business owners</i>                                                     | <i>Survey /Hierarchical Regression</i>                      | <i>Five Factor Theory<br/>Regulatory focus theory</i> |
| <i>Riaz (2015)</i>                     | <i>Pakistan</i> | <i>Organizational performance</i><br><br><i>Job performance</i> | <i>Rational (+), Intuitive (+), Dependent (+), Avoidant (-), Spontaneous (+)</i><br><br><i>Rational (+), Intuitive (+), Dependent (N.S), Avoidant (-), Spontaneous (+)</i> | <i>300 employees of non-profits service providing organizations (Hospital, Bank and Universities)</i> | <i>Survey/Multiple regression</i>                           | <i>-</i>                                              |
| <i>Rehman et al. (2012)</i>            | <i>Pakistan</i> | <i>Organizational performance</i>                               | <i>Rational (+), Intuitive (N.S), Dependent (+), Avoidant (-), Spontaneous (+)</i>                                                                                         | <i>187 employees from bank sector/</i>                                                                | <i>Survey/Regression &amp; Structural Equation Modeling</i> | <i>-</i>                                              |
| <i>Russ et al. (1996)</i>              | <i>USA</i>      | <i>Sale managers' performance</i>                               | <i>Rational (+), Intuitive (N.S), Dependent (N.S), Avoidant (-), Spontaneous (-)</i>                                                                                       | <i>538 sales managers and their superior</i>                                                          | <i>Survey /Hierarchical Regression</i>                      | <i>Bass' Transformational leadership theory</i>       |

## 2.12. Organizational Performance

While performance measurement is perceived to be a critical management tool that can help determine success or a failure in both organizational and functional performance (Phusavat et al., 2009; Putu et al., 2007), Laitinen (2002) suggests that performance is the ability of an object to produce results in a dimension determined in relation to the target. Many scholars have questioned extensive reliance on financial performance indicators (Nandakumar et al., 2010; Hillman & Keim, 2001). According to Rauch et al. (2009), there are two types of firm performance: perceived organizational performance and archival data. Archival data involve aspects of organizational performance especially related to financial measured from secondary sources kept in a company, while perceived organizational performance involves the use of owners/managers' perceptions about the company's performance. Newbert (2008) similarly posits that there are three types of performance measures which are regularly employed in the strategy literature, namely; objective financial performance, subjective financial performance and objective non-financial performance. However, O'Shannassy (2008) simply categorized the organization performance in the strategy literature into two measures, namely; strategic (for example sales growth, market share, customer satisfaction, quality) and financial objectives (for example return on asset, return on equity, return on sales).

According to Cheah et al. (2007), performance is often measured by the business volume including sales and profit. Profitability has been used as the indicator for business performance as well. Although the measurement of organizational performance traditionally uses financial metrics (V. Cheng et al., 2010), businesses have recognized that a dynamic business environment requires the use of a broader set of measures (Nandakumar et al., 2010). Improvements in areas such as quality, customer and employee satisfaction are not fully captured using financial measures (V. Cheng et al., 2010). While some researchers have argued that archival data are more ideal and less biased, Zhang (2008) posits that perceptual performance is preferred by respondents since objective measures such as profit or revenue are seen as confidential. Use of multi-dimensional measures based on perceptual firm performance further facilitates comparison across firms and contexts (Song et al., 2005). Chandler & Hanks (1994) further affirmed that earlier studies have indicated that perceptual measures tend to be highly correlated with objective indicators which support their validity.

While performance defined as the 'progress toward achieving pre-determined objectives' (Bourne et al., 2003: p.6), is not an easy concept to grasp in cooperatives as the relationship between the 'firm' and its objectives is not accurately defined (Soboh et al., 2009). Since cooperatives are in essence hybrid institutions characterized by member ownership, member control, and member benefits (Ménard, 2004), the benefits members get arguably depend on the performance at both collective and member level. As such, members will benefit from the way cooperatives function (Nilsson, 2001). These particular cooperative features complicate the measurement of performance of cooperatives. Moreover, as cooperatives are complex organizations that may serve a variety of purposes and perform a wide variety of functions, there may be no single objective that is generally accepted by all members to measure sound performance (Royer, 2014).

Field experience from the studies shows a wide variability in performance across Ethiopian cooperatives (Sebhatu et al., 2021). Though they share the key member-owned and member-controlled characteristic, cooperatives widely differ in function, structure and management support (Sebhatu et al., 2021). Also the organizational forms are highly diverse, which makes a comparative analysis of the performance of cooperatives particularly challenging (Soboh et al., 2009). Moreover,

cooperatives have a dual purpose of economic and social objectives at both member and cooperative levels (Feng & Hendrikse, 2012). Yet, there is lack of evidence and insights on how the way cooperative make decisions related to their functions and the impact on outcomes. Although commonly used measures of performance in empirical studies on cooperatives are financial such as profitability, return on assets and growth in sales (Sebhatu et al., 2021; Phusavat et al., 2009), there were few authors who applied non-financial measurement using efficiency indicators (Hailu et al., 2005; Guzman & Arcas, 2008; Sexton & Iskow, 1988), overall satisfaction with cooperative (Bhuyan & Leistriz, 2001; Akter et al., 2017), and task performance (Akram & Siddiqui, 2019; Koopmans et al., 2011).

Furthermore, as this study sought to understand how heterogeneous boards apply the decision-making styles in relation to performance as an outcome of the decision made, it important to focus on managers' perception and perceived indicators as being crucial for this study. For this reasons, this study found perceived measures of firm performance to be appropriate indicators (Luo & Park, 2001). Based on their dual nature of economic and service to members, the indicators selected include efficiency (Pollanen et al., 2017; Hailu et al., 2005; Guzman & Arcas, 2008; Sexton & Iskow, 1988) and market performance (De Toni et al., 2021; Pino et al., 2016) and financial performance (Amhalhal et al., 2022; Elbanna & Naguib, 2009; Kalogeras et al., 2013; Brah & Chong, 2004).

### **2.12.1. Efficiency**

Cooperatives are organizations that have a great importance within their sector of the economy in which the measurement of their efficiency has become an area of investigation which attracts great interest (Guzman & Arcas, 2008). While the term efficiency is generally used to describe the level of performance that can be reached by an economic unit in accordance with its production possibilities, according to Farrell (1957) cited in Hailu et al. (2005), is commonly used in a variety of settings. In the context of cooperative as a service oriented than profit, we operationalized efficiency following the work of other authors (Pollanen et al., 2017; Cavalluzzo & Ittner, 2004; Wu et al., 2003; Sethi & King, 1994) using perceptual measures such as substantial improved quantity and quality of products and services provided, efficient use of allocated budget, reduced operating cost of general management as well as cost of interacting and coordinating c activities with suppliers, customers and business partners.

### **2.12.2. Market performance**

While performance considers several dimensions (Nandakumar et al., 2011), market performance measurement could be seen from financial and nonfinancial metrics (De Toni et al., 2021). The most common metrics adopted were profit, sales, market share and cash flow (Ittner et al., 2003). Pino et al. (2016) stated that market performance can reflect itself through sales, customer satisfaction, and market share. For the purpose of this study, we used market performance in terms of increased sales volume of cooperative's products, market share of the products, profitability and number of customers that cooperatives are able to acquire and retained (Wu et al., 2003; Nandakumar et al., 2011; Pino et al., 2016; De Toni et al., 2021; Dadzie et al., 2012; Morgan et al., 2009).

### **2.12.3. Financial Performance**

Although financial performance is measured using objective data, according to Jarad et al. (2010), obtaining such financial performance information from the firms has always been a difficult exercise. In the absence of the objective data, Dess & Robinson (1984) suggested that self-reported measures could serve as appropriate and reliable alternatives. Thus, due to lack of archival information from the selected cooperatives, we measure financial performance subjectively using self-reported measures based on increased return on asset, return on sales and return on equity of the cooperatives (Sarah et al., 2009; Brah & Chong, 2004; Elbanna & Naguib, 2009; Kalogeras et al., 2013b; Amhalhal et al., 2022). Summary of empirical literature reviewed presented under appendices.

### **2.13. Organizational Characteristics (Control Variables)**

#### **2.13.1. Organizational Size**

Organizational size is usually considered as a control variable in the studies relating to the performance (M. J. Ali et al., 2016). Organizational size identified as a critical contingency variable with a variety of criteria for defining it. For example, organizational size defined in terms of total assets, total investment, net worth of the organization, and number of employees (Askarany and Smith, 2008). Forsaith and Fuller (1995) suggest that enterprises are most frequently classified by size according to the number of people they employ. Small firms and large firms differ in competitive behavior (Chen and Hambrick, 1995). According to Ali et al. (2016) and Dean et al. (1998), smaller firms have advantages built upon speed, flexibility, and niche-filling capabilities, while large firms have advantages based on ‘deep pocket’ to exert bargaining power over suppliers and customers, and to compete on broad-based strategies and reputation. Over the years, organizational size as a moderator has gained the attention of many strategic management researchers (e.g., Gopalakrishnan and Bierly, 2006; Corsino et al., 2011; and Varum and Rocha, 2012).

We focus on organizational size as a contingency factor in this paper based on the following arguments. First, organizational size may moderate the underlying mechanism between board diversity and performance. Diverse boards bring more creativity (Hillman et al., 2007) and multi-perspectives for board’s decision making (Gul et al., 2011) and make problem solving more effective (Cohen & Levinthal, 2003; Horwitz & Horwitz, 2007), which can be beneficial for firm performance. However, organizational size may facilitate or constrain organizations’ activities, such as decision making, group information-processing and firm innovation (Damanpour, 2010; Zona et al., 2013). Larger organizations generally have larger inertia forces (Xie, 2014) and more hierarchical structures (Nahavandi & Malekzadeh, 1993; Nelson, 2009), which may cause wider distribution of power and less discretion (Nahavandi & Malekzadeh, 1993; Papadakis, 2006) and thus reduce the impact of board diversity on organization’s decision making and management. In contrast, smaller firms are more likely and quicker to implement creativity and innovation, and ultimately promote decision making and problem solving (Gong et al., 2013; Tripsas & Gavetti, 2000; Li & Chen, 2018).

Second, organizational size is an important determinant of composition of the board (Arnegger et al., 2014; Saeed et al., 2016) alongside corporate governance and its related activities (Gong et al., 2013; Green & Peloza, 2014; Xie, 2014). An increase in organizational size generates structural differentiation in the organization (Blau, 1970) and environmental complexity (Lawrence & Lorsch, 1967), creating a demand for administrative inputs and more intensive monitoring (Arnegger et al.,

2014; Lawrence & Lorsch, 1967). In general, increasing organizational size will imply a larger benefit of occupational and diversity on the board (Hillman et al., 2007). Moreover, prior studies provide evidences of the contingency effects of organizational size in corporate governance and its related activities, such as decision making (Hannan & Freeman, 1984; Tripsas & Gavetti, 2000), creativity (Gong et al., 2013; Zona et al., 2013), ownership mode choice (Xie, 2014).

Therefore, we argue that firm size would influence board diversity as well as decision-making and its related activities, and ultimately impact firm performance (Li & Chen, 2018). Previous studies do not take into consideration the moderating role of organizational size in determining the relationship between board heterogeneity and firm performance. Different from previous studies, we are particularly interested in the moderating role of organizational size in determining the relationship between board heterogeneity and decision-making style as well as organizational performance. Although Li & Chen (2018) analyzed the interaction effect of board gender diversity and firm size on firm performance, we believe to our best knowledge that this study the one to analyze the interaction effect of board heterogeneity dimensions and organizational size to provide whether organizational size alters the relationships between board heterogeneity and decision-making styles as well as decision-making styles and organizational performance of consumer cooperative.

### **2.13.2. Organizational Years**

Organizational year is deemed to be important as older organizations are expected to become more inert over time (Doorn et al., 2013); hence, a measure for organizational years in terms of the natural logarithm for the number of years since the organization was founded or established (Z. J. Xu et al., 2017). Organizational years are the number of years since the company was legally formed (Ling et al., 2007). For example, organizational year is perceived as an indication of external legitimacy of the existence of interfirm relationships or of the pervasiveness of internal routines (BarNir et al., 2003). In the case of this study, organizational years are measured using the number of years since cooperatives were established and registered as a legal entity and expected to have influence on the decision-making styles and performance of cooperative union.

### **2.13.3. Board Size**

Board size is one of the most important demographic attributes of board composition (Balta, 2009). However, it receives considerable attention in board composition studies due to board functioning role. Board size can range from very small: 5 or 6 to very large: 30 plus (Balta, 2009). On the contrary, a smaller board has the ability to adopt and exercise a controlling role (Chaganti & Sambharya, 1987).

Several studies have documented the effects of board size as a governance mechanism on the performance of firms. It's the duty of Board of directors to ensure that the organization is taking full advantage of the opportunities and that market value of the firm is increasing (Uwuigbe & Fakile, 2012). A board can be effective if its decision power and influence on is very strong (Uwuigbe & Fakile, 2012). The effectiveness of the board of directors and effect on performance of the firms has been studied widely (S. Cheng, 2008). Chaganti, Mahajan & Sharma (1985) argued that board size is a significant board attribute and affects board functions and eventually corporate performance. Lipton & Lorsch (1992) and Jensen (1993) asserted that large boards could be less effective than small boards. Increase in board's size, occurs with increase in agency problems (such as director free-riding) within the board and the board becomes less effective. Jensen (1993) also supported the theory of Lorsch (1992) and further added that the decision-making power of the

board becomes slower with the involvement of more people. Yermack (1996) also conducted his study on 452 US firms between 1984 and 1991 and documented an inverse association between board size and firm value. He asserted that the fraction of lost value occurs more when size of firm is increasing from small to medium (for example from 6-12) as compare to the firm whose board size is increasing from medium to big (say 12-24). Eisenberg et al. (1998) documented a similar pattern for a sample of small and mid-size Finnish firms. Their study also revealed that board size and firm value are negatively correlated. Bennedsen et al (2004) studied the relationship between board size and performance of 500 Danish firms. Their study also supported a negative relationship between the two.

However, authors also observed that board size below six has no effect on performance. It's viable for only large size board (more than seven). Diwedi & Jain (2002), conducted a study on 340 large, listed Indian firms for the period 1997- 2001. This study found a weak positive relation between board size and performance of the firm. But a study conducted in Nigeria, Sanda et al. (2003) found that, firm performance is positively related with small, as opposed to large board size. Similarly, Kajola (2008) also observed that there is a strong positive relationship between board size and financial performance of particular companies studied in Nigeria. While board size was falling in the 1990s, mainly for large firms (Linck et al., 2008), in cooperative union that represented by the managerial board of the cooperatives affiliated to it, there is large number of boards with heterogeneous backgrounds.

According to case study conducted as part of this research, the union investigated is represented by 298 board members from 32 affiliated primary cooperatives that have say in making decision. This is a very large number to handle in terms of profit oriented organization. Since Ethiopian cooperative proclamation stated “each member, each vote” as part of their democratic member decision-making principle, is implemented by the cooperatives in a country. Hence, board size is likely to influence measures of demographic and cognitive heterogeneity, since large groups have more potential for dissimilarity (Wiersema & Bantel, 1992). However, as the group dynamics literature has suggested, when boards get too large, effective debate and discussion may be limited, low motivation and problems with coordination, consensus and organization may appear (Treichler, 1995; Judge & Zeithaml, 1992). Therefore, the larger a board, the lower the interaction between individual members (Judge & Zeithaml, 1992) and thus, the lower the positive effects of the heterogeneity of board members on decision-making styles and performance.

#### **2.13.4. Organizational Location**

As organizational characteristics, location used in many academic researches as control variable based on the distance between the organization and the individual employees, managerial board or decision-makers. According to Pioch & Byrom (2004) the role and importance of location is critical success factor to the organization. Organizational location has the vital importance with regard to the success of managements as one of the most important variable factors affecting performance of the management (Erbıyık et al., 2012). The mantra “location”, stresses the importance of place and has been long applied in the field of retailing (Pioch & Byrom, 2004, p. 222). While arguable, there has been the emergence of a range of largely conceptual research concerning location and decision making that has aided our understanding within the internal decision making of the firm (Clarke & Mackaness, 2001; Hernandez et al., 1998).

Cooperative as an autonomous organization of people with common economic and social problem (Mikami, 2016; Wanyama et al., 2008), Ethiopian cooperative societies proclamation number 985/2016 restricted primary cooperatives affiliated to the cooperative union to certain area or location of operation. Then, union is formed in one place that can be far away with many affiliated member cooperatives. For example, the cooperative union of this study is formed by 32 primary cooperatives that located in 32 different areas or places. The nature of location might intuitively be expected to favor the use of particular decision techniques undertaken (Hernández & Bennison, 2000). According to the nature of cooperative decision-making among board as prescribed in Ethiopian cooperative laws, each and every individual board member must present in person to cast a vote that required at least 2/3 of the general boards. Thus, to attend meeting in person, some board members from these 32 primary cooperatives have to travel hours from their location to center of the union. In that case, every issue that required decision required by the bylaw to announce 15 days ahead and some may find it difficult to access transportation due to poor infrastructure and the capability of the cooperative to union to cover the cost. Hence, location measured as dummy variable play role that affect the decision-making styles of heterogeneous board of cooperative from different areas.

## **2.14. Conceptualization of Study's Framework**

A conceptual model is a diagrammatical representation of theorized relationships between constructs under investigation (Wand & Weber, 2002). Based on the purpose and nature of the construct and variables, the conceptual model developed for each part of the quantitative studies. The conceptual models for the study include the establishment of hypothetical ideas to establish and determine the relationship and influence of the independent on dependent. For instance, the first quantitative study entitled “The influence of board heterogeneity on decision-making styles.” Although heterogeneity was assessed based on the board demographic heterogeneity such as age, gender, ethnicity, education, functional background and tenure to have general understanding for the development of conceptual framework for quantitative study, we followed Webber & Donahue's (2001) classification such as relations-oriented (age, gender, racial/ethnic) and task-oriented (educational, tenure and functional background), to investigate how relations based heterogeneity and task based heterogeneity relate and affect and decision-making styles such as rational, intuitive, dependent, avoidant and spontaneous (Scott & Bruce, 1995) by integrating them in one framework recommended by Höhler & Kühl (2018) to be bale explain the effect of the perceived heterogeneity dimensions.

Then, it further links the decision-making styles Scott & Bruce (1995) of heterogeneous boards with performance indicators such as efficiency, market performance and financial performance (Pollanen et al., 2017; Kandemir et al., 2006; De Toni et al., 2021; Sarah et al., 2009; Brah & Chong, 2004; Kalogeras et al., 2013b) to address the second quantitative study entitled “The influence of decision-making styles on the performance of cooperative.” The proposed conceptual framework based on the two dimensions of board heterogeneity (Webber & Donahue, 2001), five decision-making styles (Scott & Bruce, 1995) and three performance indicators (e.g., Pollanen et al., 2017; Nandakumar et al., 2011; De Toni et al., 2021). In addition to main variables, we included organizational size as control variable of the study. Thus, each conceptual framework and hypotheses presented under each study in chapter four and chapter five.

## **2.15. Chapter Summary**

This chapter has attempted to introduce the concept of Boards of Directors and examined its conceptual elements and provided the theoretical platform of the research carried out and documented in this thesis. It identified the main theories of the team heterogeneity that guide the study. The main body of the literature review focuses on board heterogeneity, decision-making styles and performance of cooperatives measured using various indicators. The chapter also presented the unique organizational structure of Ethiopian cooperative model and the development of cooperative sector. Moreover, it introduced the conceptualization of study's framework based on the heterogeneity dimensions, decision-making styles and performance of cooperatives within the respected organizational structure in Ethiopia.

## Chapter Three: Case Study

### 3.1. Introduction

This chapter presents the qualitative phase including research design, data collection methods, data analysis techniques and results of the study. Findings from the qualitative study which involved interviews with managerial board members consist of chairpersons and vice chairpersons of consumer cooperatives selected from Ethiopia. The data were collected from five different cooperatives from three regions (namely: SNNP, Addis Ababa and Gambella) widely known for their diversity against the rest of the regions. The qualitative study explores the dimensions of board heterogeneity, practice of decision-making styles among heterogeneous boards and the impact on performance of cooperative with a hybrid organizational structure. The objective of study in this phase is:

- *How can board heterogeneity affect the decision-making styles and performance indicators of consumer cooperatives with hybrid organizational structure in Ethiopia?*

### 3.2. Research Approach and Design

Each research approach is characterized not only by the researcher's position on the research paradigm but also by the strategies applied and the methods of data collection employed (Creswell, 2013), since particular paradigms, strategies, and methods tend to be related to specific approaches (Saunders et al., 2009; Zikmund, 2013). In choosing a design, a researcher must consider her/his ability to build a comprehensive case for the phenomena studied (Trumbull et al., 2005). Case refers to an event, problem, process, activity, a single person, or several people activities (Elkatawneh, 2016).

The nature of this study's first phase is exploratory that tries to get a better understanding of how the variables (board heterogeneity, decision-making styles, and performance) relate to each other in the form of rich framework. In doing so, we are not aiming at testing a theory in this stage (Weick, 1995). Following Yin (2003), who argued that the questions of "how" imply the use of case study, and Creswell (2003) who mentions that case study method gives the room for detailed observations which can unveil various nuances and subtleties of behavior that other empirical methods might miss, this paper started its exploration by employing the case study method using multiple cases since they are often considered more compelling and results can be more persuasive (Voss et al., 2002; Beverland & Lindgreen, 2010; Sharp et al., 2012). The case study method is chosen for two reasons. The first reason is related to the explorative nature of the research question and the dearth of empirical research on heterogeneity of board members in consumer cooperatives in Ethiopia. The second reason arises out of the present paper's interest in the intra-cooperative decision-making styles. As Flyvbjerg (2006) explained, case studies often contain a substantial element of narrative. Good narratives typically approach the complexities and contradictions in real life (Iliopoulos, 2017).

The goal of qualitative study at this phase is to explore the existing board heterogeneity dimensions and how heterogeneity affects the decision-making styles in relation to performance of consumer cooperatives. The case study is recommended by researchers when; the focus of the study is on contemporary phenomena within real life context and previous work has not been conducted, the

researcher has little control over the events (Creswell, 2003) and wishes to gain a deep insight and inspection of how the fit among the variables works.

### **3.3. Case Selection Criteria**

The semi-structured interviews which comprised the qualitative data set were conducted with purposefully selected consumer cooperatives in Ethiopia. The general process adopted by many researchers for selecting interview participants from small organizations is based on a number of dimensions including geography, industry type, firm size, age, gender, business orientation and market orientation (Bates & Robb, 2014).

This study selected the participants primarily based on geography and longevity of business operation of consumer cooperatives. Before targeting cooperatives, Ethiopia was selected purposively for two reasons: First, there was no empirical study conducted on the same topic, secondly, government of Ethiopia gave priority for the development of cooperatives though few studies reported less success of general cooperatives in a country because of membership heterogeneity. Considering the selection of appropriate cooperatives for the study, multiple stages of selection were utilized. Prior to make choice, the cooperative commissions were requested for the list of participant cooperatives to help with sample selection. Once the information obtained, first, non-probability, purposive sampling technique was adopted based on its suitability for qualitative study where the researcher is interested in sectors and informants who relate to the research topic (Creswell, 2013). The general process adopted by many researchers using purposive sampling is based on a number of dimensions including convenience, sector type, firm size and duration (Biru, 2018).

At this stage, cooperatives were selected based on some criterion. First, considering the appropriateness of research tools in Sub-Saharan African countries (an important consideration given the context of this study), Marschan-Piekkari & Welch (2004) noted that lack of secondary data to support random samples, lack of familiarity of respondents with questionnaires, and applying these tools within cultures that place importance on social relationships and face-to-face communication, are compelling arguments for the selection of cases to be used in a qualitative approach in the Ethiopian contexts (Biru, 2018). Their argument is supported by Thai & Chong (2008), in their justification for the qualitative research they conducted using interviews in Vietnam.

Secondly, the issue of convenience in terms of easy access and heterogeneous membership from three regions (Addis Ababa, Gambella and Southern Nations, nationalities and People “SNNP”) with mixed ethnic backgrounds (Vaughan, 2004; Abbink, 2006; Taye, 2017) and relative stability in terms of insecurity in many parts of Ethiopia. Thirdly, chairpersons/vice chairpersons who have more than 2 years experience in the managerial board of their cooperatives were selected as participants in this study since they considered knowledgeable informants (Lincoln & Guba, 1994; Elkatawneh, 2016). Since the goal of the study is to explore the role of board heterogeneity in relation to decision-making styles and cooperative performance, it is important that participants had worked for at least 3 years in cooperatives. The experiences that participants had during this study gave them a basis from which to compare the decisions made with their outcomes. Regarding the number of cases, following Johnson et al. (2007), who suggested that the appropriate number of cases should fall between five and seven, this study selected five consumer cooperatives from three different regions.

### **3.4. Data Collection Method**

The qualitative data collection of the study was conducted through involving mail questionnaire and face-to-face interviews, each ranging from 90 minutes to two hours for interview. The data collection procedure followed different collection techniques to allow triangulation (Voss et al., 2002; Piekkari et al., 2010). Creswell & Miller (2000) defined triangulation as a validity procedure where researchers search for convergence among multiple and various sources of information to form themes or categories in a study or convergence of evidence on one meaning (Bonoma, 1985). The interview was done in the following consequence: first, we collected general information about the background of the cooperatives and their current objectives and goals. Then, the use of semi-structured questionnaire as an interview discussion device and a mail questionnaire interview, two separate contacts with the participants of every cooperative were conducted.

Prior to every meeting, each interviewee was asked about their willingness to participate in the study's interview. Then, the first meeting was carried to brief the objective of the study and handling over the semi-structured questionnaires before the actual interview. The mail questionnaire interview respondents were contacted first using phone calls and then sent the questionnaires to the participants. Only three respondents have participated in mail questionnaire interviews. Six of them have participated in face-to-face interviews. Three people with Master's Degree were nominated for three regions to conduct the interviews. Once both mail and face-to-face interviews were done, the finalized answers were sent to the participants for confirmation and their feedbacks were received and acknowledged.

### **3.5. Data Analysis Method**

Qualitative data analysis requires a dynamic, spontaneous and creative process of inductive reasoning, thinking and theorizing (John W. Creswell et al., 2007). Ritchie et al (2013) noted that the objective of qualitative data analysis is to determine the assumptions, categories and relationships that inform the participants' view of the topic in particular and the world in general. It is through this analysis that researchers can gain a deeper understanding of what they have studied and hence consistently upgrade their interpretations (Srivastava & Thomson, 2009). Exploratory analysis, then, involves a process of constantly re-evaluating how one's initial problem is posed. The initial analysis of the interview data was carried out using an open coding system. This process helped in understanding and unfolding the essence of the consumer cooperatives' board heterogeneity and how they practice their decision-making styles and why they adopt a particular style to better improve the performance of their cooperatives. Relevant concepts from the interviews were identified and grouped into categories based on the content (Maanen, 1979).

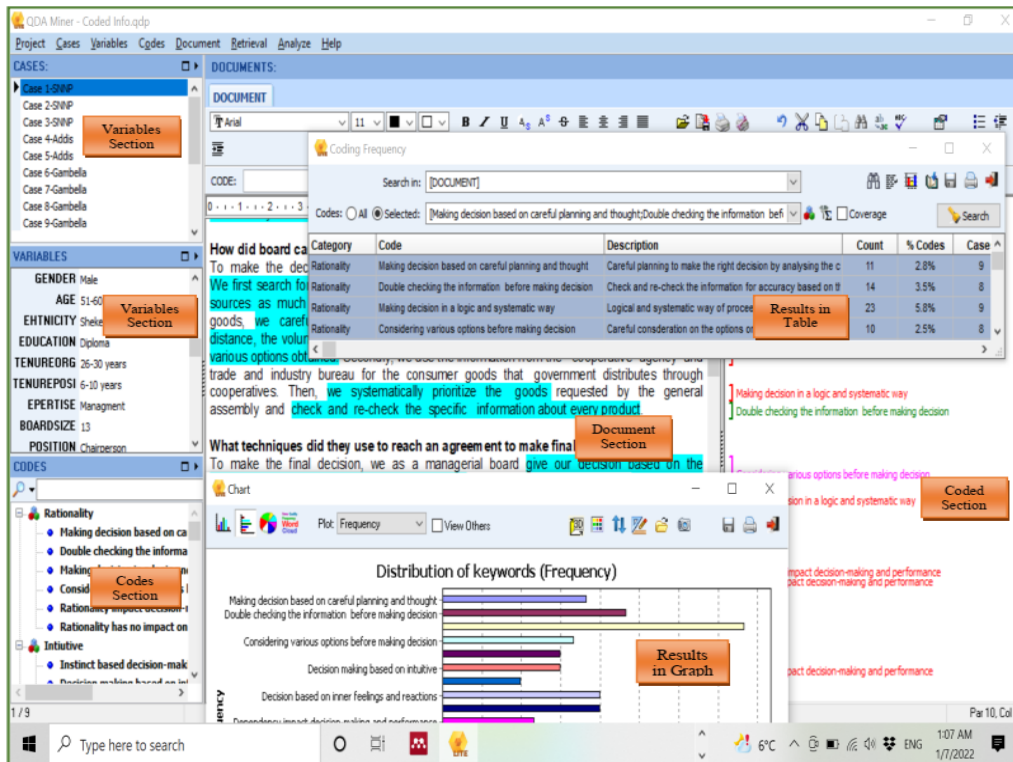
Prior to analysis, the data were classified into three categories based on the keywords: board heterogeneity, decision-making styles and performance. For instance, firstly, members were asked to give their honest perception on heterogeneity among their boards and how that board heterogeneity affects the decision-making styles in the cooperatives. In doing so, the six demographic dimensions divided into relational-oriented (age, gender & ethnicity) and task-oriented (education, functional background and tenure) interpreted under board heterogeneity. Then, the same process was done for the decision-making styles and performance.

To run the analysis, qualitative data analysis software known as qualitative data analysis (QDA) miner lite developed by Provalis Research (a Canadian company) was utilized. QDA Miner is an software intended for organizing, managing, coding and analyzing contextual data (LaPan, 2013). It also identify patterns in code and relationships between assigned codes and other numerical or categorical properties (R. B. Lewis & Maas, 2007). The software's primary function is content analysis, but it also offers a range of advanced features that allow for frequency and statistical analyses of text content (Derobertmeasure & Robertson, 2014). A word frequency analysis may be useful to identify themes as well as associated terms that may later be used to retrieve segments related to those themes. QDA Miner has many new features that are somewhat unfamiliar to qualitative data analysis, including the option to create and assign variables and perform various statistical analyses allowing an individual to view displayed cases, variables, codes, responses within the document and heightened colors for codes on the same working screen (Cuva, 2014). The ability of its working environment that provides numerous tools to manage, view, edit, and code documents that gives access to a variety of retrieval and analysis tools (Provalis, 2020), the integration of statistical and visualization tools that can quickly identify patterns and trends, explore patterns in coding, as well as describe and compare without the need to even leave the software is one of the reasons why QDA Miner is considered by many as true mixed methods qualitative software that suits qualitative study (Cuva, 2014).

In this study, first, the results of both mail and face-to-face interviews was transcribed in textual form and converted to portable document format (PDF) that made it easy to import to QDA Miner software. After importing the documents of cases, the second step beside demographic variable (known as board heterogeneity dimensions), codes assigning was made for decision-making styles (Scott & Bruce, 1995) and performance (Chomchaiya & Esichaikul, 2016) based on the questions developed for each. During coding stage, the responses from the participants (description) under every question were assigned to their related codes where such codes grouped again to larger category (Tomažević, 2019). Codes assigned using a distinct color for each to make it easier to identify when displayed on the working screen. Once the coding procedure was completed and checked, the documents were sent to two independent individuals with the background knowledge of QDA miner software analysis to reduce the problems associated with being biased. After the verified results from both were received, the analysis was done in the form of coding frequencies that allows one to obtain a list of all codes along with their description and various statistics such as their frequency (number of times this code has been used), code percentage (number of times this code has been used), cases (the number of cases in which the codes appear), and case percentage (Percentage of cases containing this code) (Provalis, 2020). Then, coding frequency was re-run to produce graphs with labels for underlying data to makes the values easier to read and interpret.

In the informed coding analysis, the aim is to check the informed codes and constructs by linking the interview statements, data from the documents and answers from the discussion of the semi-structured questionnaires with the constructs, and indicators (Miles et al., 1994). They defined this style as "coding analysis". Following the results retrieved from QDA software, the information or statements obtained from the interview about board decision-making styles of cooperatives were summarized under their main content based on coding frequency displayed in the form of table and graph. Finally, to ensure the reliability of the coding and interpretation process and the validity, interviewees and interviewers who participated in the study were approached to comment on the final results. The figure 3.3 below shows the working screen used for coding and analysis of the data.

Figure 3.3 Working screen of QDA Miner Lite – Coding Information



Source: Field Data (2022)

### 3.6. Reliability and Validity

Many scholars argued on the criteria to establish the quality of the case studies. Accordingly, Lincoln & Guba (1994; Yin (2003) and Creswell et al (2007) among others identified conformability, credibility and transferability as criteria to enhance the quality of case study research. *Confirmability*: implies the certainty that what is being observed is supported by the data and that the arguments are logical, also the use of multiple sources of data (Thomas & Magilvy, 2011). In this case, multiple interviews with different interviewees were conducted. Also an outside interviewees were participated and the results checked by the supervisor for being free from prejudice. *Credibility*: is defined as the extent to which the data and it analysis is believable and trustworthy (Gustafsson, 2017). One useful approach is to submit the interpretation to the scrutiny of those individuals upon whom it is based and seek their response as to its authenticity (Gergen & Gergen, 2000). In this study, the data were collected from the leaders of cooperatives with the help of external interviewees and the findings were shared with the study's participants. *Transferability*: refers to establishing the domain to which a study's findings can be generalized. Generalizability refers to the extent to which one can extend his findings to other contexts or settings (Maxwell, 2008), this can be achieved through a robust theoretical support and by replication or multi-case studies (Yin, 2003). This condition is the approach that was used here through multiple cases.

### 3.7. Results and Discussion

This section presents findings from the qualitative study which involved interviews with managerial board members consist of chairpersons and vice chairpersons of the selected consumer cooperatives. The data were collected from five different cooperatives from three regions (namely: SNNP, Addis Ababa and Gambella) widely known for their diversity against the rest of the regions.

As noted under methodological part, the data was collected separately through personal interviews and mailed interview questionnaires using the same interview guide. Based on the Scott & Bruce's (1995) general decision-making styles, a thematic analysis (Braun & Clarke, 2006) was used for coding and categorizing, focusing on how the decision-making is practiced among heterogeneous managerial board members in consumer cooperatives and explored how the decisions making process is affected by the heterogeneity of board. The impact of heterogeneity on both decision-making styles and performance; and how decision-making styles affect the performance were assessed based on the perception of the managerial boards of cooperatives. The initial codes were thus identified based on the managerial board's specific thoughts and actions such as searching for more information and their perceptions of heterogeneity's effect on the decision effectiveness and overall performance of cooperatives. These initial codes were then collated into broader categories and mapped to prior codes identified, based on heterogeneity dimensions and general decision-making styles. In this phase, a discussion of the qualitative findings is provided following the interview analysis, aimed at addressing the research questions

#### 3.7.1. Background Information of Cooperatives

This section briefly discusses the general background information about the consumer cooperatives selected for the qualitative stage of this study. The data for the study were collected from five different consumer cooperatives from three different regions. Due to the fact that the chosen cooperatives were under similar sector engaging in retailing businesses, the information was gathered using the same guidelines. Two consumer cooperatives from each SNNP and Gambella regions and one from Addis Ababa were included. The selected cooperatives were established within the year from 2007 to 2015. According to FDRE's (2016) cooperative societies proclamation no. 985/2016, the following articles stated that:

Article 2(15), defined management committee which referred as board in this study as “*a body elected and empowered by the general assembly with the responsibility to manage the activities of cooperative society.*” Page 9440

Article 34(1), “*Any cooperative society shall have a management committee which are loyal to and respectful and also can overcome their responsibility and accountable to the general assembly and whose members and manner of election to be determined in the by-law of the cooperative society.*” Page 9472

Article 34(7), “*Where there is possible number of female at least 30% of any cooperative society shall be held by female members.*” Page 9466

The data obtained show that the selected cooperatives have a managerial board size ranged from 9 to 20 with an average size of 13.6 where male dominated the board membership. All boards in the selected cooperatives comprise of members from heterogeneous ethnic background. At least, the minimum ethnic backgrounds include 6 diverse ethnics with a maximum of 10 in other cooperative. The table 3.1 below presents the general background information of the consumer cooperatives under study.

Table 3.1 Background Information of Consumer Cooperatives

| S/N | Co-op<br>Name | Region      | Year<br>Established | Board<br>Size | Male | Female | Ethnicity |
|-----|---------------|-------------|---------------------|---------------|------|--------|-----------|
| 1   | Coop1         | SNNP        | 2007                | 13            | 9    | 4      | 7         |
| 2   | Coop2         | SNNP        | 2011                | 11            | 7    | 4      | 9         |
| 3   | Coop3         | Addis Ababa | 2010                | 15            | 10   | 5      | 9         |
| 4   | Coop4         | Gambella    | 2011                | 9             | 5    | 4      | 6         |
| 5   | Coop5         | Gambella    | 2015                | 20            | 14   | 6      | 10        |

**Board size:** Minimum=9 Maximum=20, Average=13.6; **Male:** Minimum=5 Maximum=14, Average=9; **Female:** Minimum=4, Maximum=6, Average=4.6; **Ethnicities:** Minimum=6, Maximum=10, Average=7.8

Source: Field Data (2022)

### 3.7.2. Demographic Characteristics of Participants

A total of nine respondents (including five chairpersons and four vice chair persons) participated in the interviews— three from SNNP, two from Addis Ababa and four from Gambella regions. The information provided in this section is drawn from the demographic component of the qualitative interviews conducted with the participants. Of the 9 managerial board members, 6 were males and 3 were females. The age of the participants ranged from 27 to 62 years old with an average age of 43. The educational qualifications of the participants ranged from vocational certificate level to master degree with various fields of expertise or specializations.

Participants' tenure was classified in to two: general organizational tenure and position tenure. General organizational tenure including the previous organizations of the participants ranged from 5 to 30 years with an average of 15.5 years. For position tenure, it ranged only from 2 to 7 years with an average of 4.25 years respectively. Participants of this study held the positions of chairperson and vice chairperson in their respective consumer cooperatives. The following table 3.2 details the demographic characteristics of participant managerial board members.

Table 3.2: Demographic Information of participants

| S/No. | Gender | Age | Education   | Field of<br>Expertise | Tenure<br>(Total ) | Tenure<br>(Position) | Position      | Region      |
|-------|--------|-----|-------------|-----------------------|--------------------|----------------------|---------------|-------------|
| MBM1  | Male   | 56  | Diploma     | Management            | 29                 | 7                    | Chairperson   | SNNP        |
| MBM2  | Male   | 29  | Master      | Accounting            | 5                  | 2                    | V/Chairperson | SNNP        |
| MBM3  | Female | 47  | Diploma     | HRM                   | 19                 | 4                    | Chairperson   | SNNP        |
| MBM4  | Male   | 62  | Diploma     | Management            | 30                 | 6                    | Chairperson   | Addis Ababa |
| MBM5  | Female | 36  | Bachelor    | Economics             | 10                 | 3                    | V/Chairperson | Addis Ababa |
| MBM6  | Female | 49  | Certificate | Management            | 17                 | 5                    | Chairperson   | Gambella    |
| MBM7  | Male   | 27  | Diploma     | Cooperative           | 6                  | 3                    | V/Chairperson | Gambella    |
| MBM8  | Male   | 34  | Bachelor    | Agro-Economics        | 10                 | 4                    | Chairperson   | Gambella    |
| MBM9  | Male   | 47  | Master      | Engineering           | 22                 | 2                    | V/Chairperson | Gambella    |

⇒ **Gender:** Male=6(66.7%) and Female:3(33.3%); **Age:** Minimum=27, Maximum=62, Average=43; **Organizational tenure:** Minimum=5, Maximum=30, Average=15.5; **Positional tenure:** Minimum=2, Maximum=7, Average=4.25;

Source: Source: Field Data (2022)

### 3.7.3. Findings of Qualitative Study

Over the course of the nine interviews, which conducted under different time frames between 90 minutes and two hours in length for personal interview, a number of core statements and concepts re-occurred across multiple participants; these were collected together and interpreted under their main categories such as board heterogeneity dimensions, decision-making styles and performance using QDA Miner Lite software.

#### 3.7.3.1. Perception on the Effects of Board Heterogeneity

Organizational decision-making as a complex and multidimensional process, is influenced by numerous factors (Riaz, 2015; Abubakar et al., 2019). Rowe & Boulgarides (1983) explained that the decision maker is influenced by personal characteristics (e.g., Ali, 1989; Boeker, 1997; Horwitz, 2005; Nielsen, 2010) and organizational characteristics. Other scholars identified heterogeneity (e.g., Horwitz & Horwitz, 2007; Höhler & Kühl, 2018; Apparao et al., 2020) as factors influencing decision-making. Although heterogeneity expressed in various ways in cooperatives, this study approached heterogeneity through membership demographic characteristics identified in the work of prior authors (Yadav & Lenka, 2020b; Williams & O'Reilly, 1998; Webber & Donahue, 2001; Horwitz, 2005; Österber & Nilsson, 2009; Höhler & Kühl, 2018; Apparao et al., 2020), since the focus is on the effect of managerial board heterogeneity on decision-making and performance.

In the interviews, participants from the selected cooperative were asked about their honest perception on the heterogeneity of gender, age, ethnicity, education, functional expertise and tenure; and how they view the impact of the heterogeneity on their decision-making styles and performance. Thus, based on their responses, the results were briefly categorized under the relational and task-oriented heterogeneities and described here below.

#### ○ Relational-Oriented Heterogeneity Dimensions

##### ➤ Gender Heterogeneity

Gender Mainstreaming as an issue of growing concern in the world community, has already become a reality that impacting the social, cultural, political, and economic fabric (Bacchhi & Eveline, 2009). Despite the limited improvements made by very few countries, Ethiopian government has set and enacted various legal and policy frameworks to ensure gender equality in general and women specific problems in particular (Bishaw, 2015). However, gender inequalities of women representation and inclusion of their perspectives and experiences into the decision-making processes are on the increase in Ethiopia (Okumo & Asfaw, 2014).

In this study, findings of the interviews in the table 5.2 above showed that women were far less (only 33.3%) represented in managerial boards of the selected cooperatives than their men (66.7%) counterparts. Despite low representation of women, managerial board members reflected opposing views on the effect of gender heterogeneity in the decision-making and performance of their respected cooperatives.

For example, Participants MBM3 said:

*“As chairperson who is female, I do believe that women representation in managerial board plays positive role and create trust among the members of cooperatives. This is because; women are believed to be more honest than men not only in cooperative, but also among the general assembly. But, I often feel discouraged due to the negative stereotype*

*portrayed towards women. Sometimes, members lean towards men's opinion during decision-making simply for being men."*

Similarly, participants MBM8 said:

*"In our cooperatives, women were less motivated to take part in the decision-making because of the perception that women were inferior to men though some have all the capacities. MBM6 added that "one woman from our board resigned last year because of mistreatment. Not only resigning from her position, she withdrew from membership and joined an only women's cooperative initiated by the NGO in a region."*

According to Riaz et al. (2010), women were generally thought to be more intuitive and empathetic than their men counterparts who are seen as analytical and logical problem solvers in the workplace (Loden, 1985). Despite this, women are often under-represented in management, where the use of an intuitive decision-making style is thought to be effective (Agor, 1989). The dominant nature of men in decision-making makes them to feel more rational when involved in searching for more information prior to decision. As participant MBM5 noted:

*"To be honest, there is a time that I use to refrain myself from making any decision when there is high disagreement. I feel like men were attacking us because we were women."*

Despite the conflicting views of the effect of gender differences among members of managerial boards of the selected cooperatives from the three regions, majority of the study's participants think that women's representation is very essential in improving the decision-making and performance because of their honest characters. To some extent, they believe that gender differences affect the decision-making among cooperatives board arise from disagreements and stereotype towards women.

### ➤ **Age Heterogeneity**

Various scholars considered age as an indicator of experience and a signal of a person's propensity for risk-taking and change (Wiersema & Bantel, 1992; Guthrie & Datta, 1997). According to Wiersema & Bantel (1992), an individual's age is expected to influence perceptions and choices of individual as age increases, flexibility and resistance to change decrease.

The age among the participants of the study ranged from 27 to 62 with an average of 43. 55% of the respondents' ages were older than the mean of 43 and the remaining 45% were younger. The existing age differences among managerial board members in cooperatives believed to have effect on the decision-making process which further impact performance. For instance, participant MBM1 stated:

*"There is huge age gap among our managerial board members. The same is true for general assembly members. For example, I am 56 years old and my vice chairperson is 29. Age gap causes lots of disagreement in our decision-making process. This is because; younger board members were better educated than older members. So, younger try to analyze every decision in detail to the level that our older members get tired of attending meetings."*

Participant MBM5 on their parts shared the same reflection on how age cause conflicts of ideas that they explained:

*“The age differences among board members come with lots of conflicting ideas or opinion in making decision. During decision-making, younger members were more risk taker even if there was no enough information in hands to pass decision. In contrast, older members were more conservatives and tended to be more cautious in their way of decision-making. On the other hand, older members often use their experience to make decision than younger who wants to analyze the issue from various angles.”*

However, the way older members try to be more conservative in decision-making and the way younger members try to be more risk taker, cause discrepancy that affect decision-making process. Moreover, as participant MBM2 added:

*“The type of disagreement arises from age differences affecting decision and the efficiency tasks”. Other shared the same views. For example, MBM9 further added that “there was time that younger members kept silent during decision-making process when they disagreed with what presented by the older members. They do this by respecting the elderly emanated from the existing societal norms.”*

Thus, the interviewees suggested that younger members seem to be more rational during decision-making while older members are intuitive or judgmental. In addition, the time other members refrained from making decisions would also imply the practice of avoidant style.

### ➤ **Ethnic Heterogeneity**

According to Horwitz (2005), studies on team interaction in multi-ethnic groups show that such teams have the potential to perform well and often generate more diverse criteria for evaluating alternatives than homogeneous groups. Ethnicity is used in reference to groups that are characterized in terms of a common nationality, culture, or language (Loue, 2006; Zagefka, 2009). Like other Sub-Saharan African countries, Ethiopia is home to many ethnic groups. In its multi-ethnic, heterogeneity has been a serious obstacle to development in various sectors (Abbay, 2004). As the FDRE's (2016) cooperative societies proclamation no. 985/2016, declared in article 5(1):

*“Cooperative societies shall be voluntary organizations open to all persons willing to use their services and able to accept the responsibilities of membership without discrimination on the basis of ...race...”*

This study found that managerial boards of consumer cooperatives comprised of individuals with heterogeneous ethnic backgrounds. Results of the interview show that managerial board has minimum and maximum heterogeneous ethnics of 6 and 10 respectively, with an average of almost 8. It also found that ethnicity has roles in government offices including cooperative agencies. For example, in Gambella, the appointment of regional cooperative agency director made based on ethnic line. Participants have different views about the presence of various ethnic backgrounds among the board member as well as the general assembly.

As participants MBM2 mentioned:

*“The existence of people with different ethnic backgrounds in our board member brings good opportunities to learn lessons from various angles. MBM4 added that “for us to make*

*decision, we have to search for information from many suppliers across the country. In such case, people from different ethnicities make it easy to expand the scope of communication that could help in making decision. Not only expanding contacts, it helps to learn living in harmony by respecting other view in the decision-making process.”*

Participant MBM1 further noted:

*“I believe that diverse ethnic background cause lots of disagreements that amount to conflict during making decision. But, I don’t think the presence of ethnic heterogeneity affect our board decision-making process.”*

However, although some participants were optimistic about heterogeneous ethnic backgrounds among decision-makers in their cooperatives’ boards, others were reflected opposing views. Especially in regions where ethnic-based violence is common, participants have negative beliefs on the effect of ethnic heterogeneity on decision-making and performance. For example, participant MBM9 said:

*“We believe that the representation of board members from different ethnic backgrounds influences our cooperative activities, including decision-making and other activities. This is because ethnic violence between the two large groups has already become a norm that every time it happens, nobody goes to the other side where his or her ethnic group doesn’t belong.”*

Participant MBM6 surprisingly said:

*“The perception that people have about ethnic identity and representation, no two individuals from the same ethnic background will be appointed at both chairperson and vice-chairperson regardless of the capacity, knowledge, experience, etc. We believe it has an impact on the decision-making and the efficiency of board cooperatives.”*

## ○ Task-Oriented Heterogeneity

### ➤ Educational Heterogeneity

According to Hambrick & Mason (1984), educational level is viewed as an indicator of executives’ knowledge, cognitive orientation and skill base. A person’s educational background considered to have a significant indicator of their knowledge, skills, and capability (Horwitz, 2005). The educational backgrounds of the participants in this study various from certificate obtained from vocational training to master degree. The finding shows that majority (45%) of the respondents had college diploma followed by 22% for each bachelor degree and master degree respectively. The remaining 11% was participants with vocational certificate.

From the interviews, all participants believed that different educational background impact the decision-making process that further affects cooperative performance. But, they express their perceptions in different ways. For example, MBM1 said:

*“Different educational levels of the decision-makers are very important to have improved and fruitful decision in the board. This is because they have different knowledge level, skills and expertise that solve problems from various perspectives.”*

MBM5 added that:

*“Educated people gather more information and deeply analyze them that take more time to come to final decision. On the other hand, less educated people tend to depend on their experience and they were very quick to make decision. Sometimes, highly educated members try to convince other board members simply because of their educational level even though they lack information or experience.”*

However, as mentioned by MBM2:

*“The problems we are experiencing in terms of the educational gap on our decision-making process from our board members are: educated individuals try to feel more proud and considered themselves right in every decision and hurt the feeling of those with less educational background. During that situation, we always face disagreements that end in conflict.”*

Thus, many of the participants believe that higher level of education is very important in terms of knowledge and skills that help making good decision. But, due to the conflict that emanated from differences in opinions may affect the quality of the decision and also impact the effectiveness of cooperatives.

### ➤ **Functional Expertise Heterogeneity**

Functional expertise refers to an individuals' work specialization and depth of relevant knowledge (e.g., management, marketing etc.) in an organization (Bunderson, 2003b). As an indicator of cognitive diversity in teams, individual's functional expertise is deemed efficient because organizations frequently structure functional groupings to carry out their business operations (Horwitz, 2005). Individuals often develop in-depth subject-matter knowledge in functional areas of their choice and then are grouped with others of varying functional specializations. Consequently, functional heterogeneity provides teams with direct access to a variety of expertise, information bases, and resources that are not readily available if all members are from the same functional areas.

The results from the interview revealed that all participants had seven heterogeneous areas of functional expertise such as accounting, agro-economics, cooperatives, economics, engineering and management. Participants reflected opposing views on the importance of heterogeneous expertise on decision-making and performance of cooperatives. Many participants had positive perception on the contribution of heterogeneous functional expertise on decision-making. For example, MBP7 said:

*“Members of our managerial board comprised of individuals with heterogeneous expertise. The existence of expertise or specializations enriches decision-making quality when different individuals share their knowledge and skills from various perspectives. For instance, participant MBM2 added that during decision-making in our cooperatives, to look at the cost of commodities, people with financial knowledge had a high contribution to minimizing the cost of purchase based on the information obtained from the market. Similarly, MBM9 from Gambella added that facilitate the ease of decision-making to reach to a final decision quickly.”*

However, in contrast to the positive contribution of diverse functional expertise of the managerial boards of cooperatives, other participants viewed it negatively. This happens when different members raise opposing views while making decisions because of their differences in their areas of expertise. For example, participants MBM6 stated:

*“Debating the problems during decision-making among members with diverse functional expertise always consumes time and invites conflicts based on different ideas.”*

MBM2 further said:

*“As a member with a master degree in accounting and finance, other members always connect my ideas from the financial point like I want more profits than serving members. When I strongly push back supporting my ideas, they feel like I was disrespecting due the societal norm that younger should always obey the elders, though it was professional work.”*

Based on this study, it is observed from the interview that participants have multiple functional expertise in their respected cooperatives. The results revealed that functional expert plays a unique role in the decision-making process that enhances the efficiency of cooperatives. Individuals with expertise or specializations in various fields help the team with skills and help organizations cope with the uncertainties. However, heterogeneous functional expertise among decision-makers may also increase conflict, complicate internal communication, and hamper coordination within teams (Ancona & Caldwell, 1992; Jehn & Bezrukova, 2004). Thus, teams consisting of individuals from different functional areas may find it challenging to develop a shared understanding of tasks (Dougherty, 1992).

### ➤ **Tenure Heterogeneity**

Scholars defined tenure as the number of years of employment in the firm of TMT members' years (Finkelstein & Hambrick, 1990). Managerial tenure has been considered in various ways: tenure in the position (e.g., Hambrick & Fukutomi, 1991; Miller, 1991) and tenure in the organization (e.g., Thomas et al., 1991; Jehn & Bezrukova, 2004). According to the results of interviews, it is observed that participants have different tenures both in cooperatives, including previous experiences in other organizations and the current positions in boards. Managerial board members of the selected cooperatives have a minimum and maximum of 5 and 30 years of general experiences with an average of 15.5 years in organizations. Similarly, they have a minimum and maximum of 2 and 7 years in the current board positions, respectively.

From the above information, we can notice that members of boards have different tenures in both cooperatives and their current positions in boards. According to the findings of the interviews, participants reflected conflicting views on the importance of tenure heterogeneity on decision-making in cooperatives. For example, majority of participants said:

*“We are having multiple tenures or experiences among boards' members for both in cooperatives and in the current positions. Many obtained organizational tenures from their previous employment.”*

Participant MBM1 noted:

*“To be honest, we have huge differences in our tenures. For example, I have a total experience of 29 years with 7 years in a current position as a chairperson. Our vice-chairperson has a total of 5 years with 2 years in the current position.”*

Similarly, participant MBM4 said:

*“I have general organizational tenure of 30 years including other previous organizations with 6 years as chairperson; whereas our chairperson has 10 years total organizational experience with 3 years in her current position respectively.”*

All participants believe that long tenure in the organization, including the current positions, makes decisions easy when there is lack of market information. The same is true for managerial boards of cooperatives from the Gambella region. But, some raised their concern on the problems of long tenure. For example, participant MBM3 and MBM8 shared different views. MBM3 said:

*“The different tenures we have among our board members cause a lot of disagreements during decision-making that leads to conflict. Those who have long tenure tend to use intuitive and personal judgment based on previous experiences even if the situation is not the same as the previous. In contrast, MBM8 added, even if diverse tenures initiate disagreements, I still believe that it backup the decision-making process by saving time and enhancing the effectiveness of cooperatives.”*

### **3.7.3.2. Perception on the Practice of Decision-Making Styles**

Generally, the FDRE's (2016) cooperative societies proclamation no. 985/2016 determined the decision-making process in cooperatives to take place at two stages. First, the decision on a certain issue has to be made by the managerial board at board level as per the by-laws of each cooperative. Then the decision should be taken to the general assembly for general approval. Normally, decision-makers would make decisions in different ways (Adikaram & Kailasapathy, 2021). The same is true for cooperative's managerial board members as per the responsibility granted to them on behalf of the general assembly (Apparao et al., 2020) to apply various way of getting information on the problem requires decision.

While the managerial board's authorized to make decisions and the kind of decisions they made differed, depending on several factors such as individual factors i.e. personal characteristics of the decision-makers (Iliopoulos & Valentinov, 2017) and regulations of the cooperative regarding the decision to enhance the efficiency of cooperatives, all board members in the study had made various decisions in varying ways. These board members adopted different decision-making styles in resolving the problems of running cooperative activities. Overall, Scott & Bruce's (1995) five decision-making styles were identified to be utilized: (1) rational, (2) intuitive, (3) dependent, (4) avoidant and (5) spontaneous. The board members generally appear to adopt one or two dominant styles with one or more back-up styles. The dominant decision-making styles adopted by the boards were rational and intuitive. While dependent style was also seen to be dominant style, it was usually adopted as back-up style. In instances where the boards adopted two dominant styles, the most common combinations were rational and intuitive, and rational and dependent.

The avoidant and the spontaneous styles were sometimes applied and in other instances used as back-ups, but these were not very common. The boards also appeared to be flexible in terms of the decision-making style they adopted, depending on what tasks, products and services demanded by the members and market situation, the level of authority they had, the experience the boards had in dealing with the situations and procedures of the cooperatives. The use of a dominant style and a back-up style at different stages in the decision-making process for the same issue was also observed. The boards' use of these different styles in different situations is explained in detail in the following section.

### ○ Rational Decision-Making style

A rational style symbolizes planning the important decisions carefully and making decisions logically and systematically (Scott & Bruce, 1995). In rational decision-making, individuals anticipate the need to make a decision and prepare for it by seeking related information about themselves and their environment (Omotola et al., 2012). Although individuals systematically gather and process information (Thunholm, 2004), they also analyze several possible alternatives from different scenarios before making a choice. Weighing by probabilities, the decision-makers determine the expected scenarios for each option and they choose the best-expected scenario (Oliveira, 2007).

Findings of the interviews suggested that many board members were dominantly rational decision-makers when resolving issues of their cooperatives. Even when they adopted some other dominant style of decision-making, they would often use the rational style at least as a back-up style. Hence, in using the rational style (Scott & Bruce, 1995), the boards were very systematic, always looking for more information and analyzing every detail very carefully when identifying the different options, from the moment they faced the problem or issue to deciding the action to be taken. They would only process decisions if sufficient information was found to support the decisions about the products or service demanded. If not, they would consider the alternatives based on the interest of the general assembly. As MBM9 stated:

*“Following the objectives and procedures stated in our by-laws, the required products and services should be the request of the general members. Then, after confirming that it is what needed, we will start considering how to get these products and services, what will be the cost of purchasing them, the quality and quantity, and the time needed to deliver them to members before making decision.”*

Because of the very nature of changing market, boards would carry out a thorough search before deciding whether the identified products matched the demands of members or not. Participant MBM7 stated that:

*“Based on the responsibility given to us by the general assembly, after confirming the products, we will search for information to get the right products from different sources available. Once we get what we need, we discuss the type of products, the place where it found, the cost including transportation and the quality and quantity prior to decisions. Then, after evaluating all the alternatives, we make decision as a board and call meeting of the general assembly to notify our decision for approval.”*

Though the pros and cons discussed at board level, the general assembly will discuss them again as they are the supreme organ of any cooperative society prescribed in FDRE's (2016) cooperative

societies proclamation no. 985/2016, article (31). During the discussion between managerial board and general assembly, the boards would carefully convey the available alternatives and the actions that cooperative could take. Despite all the procedure described in the by-laws as part of democratic nature of cooperative to make decision, board members reflected different views on how the rational decision-making style enhance the effectiveness of the decision of their cooperatives. As participant MBM4 from Addis Ababa noted:

*“To be honest, even if the procedure of decision-making process stated in the by-law of our cooperative make the process transparent, it sometimes affects the quality of the decision. Because, the involvement of every member to take part in the decision consume times to approve final decision. Due to the existence of many private competitors for limited products, we twice miss significant purchase while waiting for the general assembly meeting to convene.”*

Furthermore, participant MBM9 added:

*“I remember the day when the decision that we already made as board was cancelled because the number of the general assembly who came to approve what presented by the board fall below two-third (2/3).”*

Similarly, participant MBM5 said:

*“Sometimes, the democratic nature of decision-making procedures of cooperatives discouraged board members who were serving on voluntary basis. In the year 2020, few board members resigned from their position because of the disagreements between board members and the general assembly during meetings. Especially, when other members reflect their own interest that go against what our cooperatives established for.”*

However, there are members of managerial board who trusted the procedure determined in the proclamation and their specific by-laws. For example, participant MBM6 stated:

*“I am optimistic with the democratic nature of the decision-making in our cooperatives. This is because when every member takes part in decision, he or she will feel that they were part of what decided even if their views were not what to be implemented. I also believe that the time it takes to process the information following all the steps, will improve the quality of information as it gives everyone time to prepare and collect all the information needed for to provide good decision.”*

Although, rational decision-making is one of the dominant styles in the selected cooperatives, it is difficult to confirm whether rational decisions ensure fairness, given the fact that it is not always easy to find the exact information about the products and the changing prices in the market. Participant MBM2 from SNNP said:

*“Because of our different ways of perceiving and understanding of the same information, I sometimes felt like we were wasting time to be more rational through the gathering of information and the logical analysis of every detail in order to carefully arrive at a solution...where at the end of meeting, we ended up with conflict of ideas and failed to make the final decision.”*

Participants MBM3 added that:

*“Even though it is good to use rational decision-making style, our diverse backgrounds make it difficult to come to conclusion as a result of various experiences and knowledge levels that we have among our board members.”*

Despite the fact that various board members shared different views on the effectiveness of applying rational decision-making style, it is interesting to note that in many situations, the boards initially adopted a rational style of decision-making backed up with either intuition or dependent styles to make final decision in their cooperatives.

### ○ Intuitive Decision-Making Style

An intuitive style primarily relies on one’s instincts (Verma & Rangnekar, 2015). Intuitive decision-makers tend to rely on intuition (insight) to determine what they feel is right (Scott & Bruce, 1995). According to Bierman et al. (2005), intuition in decision-making may be sourced from implicit knowledge (a positive or negative valence depending on previous decisions) and then used for explicit decisions. In view of Klaczynski (2001) and Stanovich & West (2000), intuitive decision-makers approach the task personally, drawing on one’s feelings. Intuitive people have affective reactions to their choices, and such people may be fast at making decisions (Betsch, 2011).

In contrast to rational decision-making style, some board members dominantly used intuition to make decisions regarding their particular cooperatives' activities related to products and services. While a few board members in this study opted for intuition in instances where they did not have sufficient information about the products or issue required a decision, in some cases, they would also consciously or unconsciously use their experiences to prove decisions based on their initial feelings, hunches, and judgments.

Indeed, board members sometimes used their knowledge of personal experience of the situation that occurred and drew on their feelings when making intuitive and judgmental decisions. Participant MBM7 stated:

*“Intuition is one of the dominant decision-making styles we utilize based on our personal experience, especially when the decision is related to what we went through in the past though we shared different experience.”*

MBM5 added that:

*“These who believed to have good experience dominate this style of decision-making by expressing what he or she been through and how he or she overcame the situations. They sometimes made the challenging situation easy to deal with. But, there was a time that those who witnessed to have experience tried to convince the other board members with the situation that is not related with the current condition.”*

Similarly, participant MBM8 also said:

*“Though making intuitive decision using one’s own personal experience to judge the situation is important to make quick decision with no further search for information, it often gets worse in a high dynamic environment due to the unpredictability. Especially in consumer market where the prices of products are increasing from time to time. For example, in May of 2020, we made decision to purchase quintals of maize based on the previous year. But, when we went on the actual purchase, the price per quintal was increased and cancelled the decision.”*

It is clear that members have heterogeneous backgrounds and experiences in their current positions and the previous organizations they had been to. Interviews suggested that the more experienced board members would resort to intuition and judgment more as a back-up style (mostly together with rational) through their experience and the confidence they had gained through the years. As MBM3 noted:

*“I always worry that convincing other members within board is very challenging when they don’t feel the same experience. One of our board member always tied his decision to financial gain which not the objective our cooperative established for. He used to back up his argument with how other cooperatives experienced loss in their financial position due to his financial background that had no acceptance from the rest of members.”*

While intuition can lead to quick decision-making, especially about product such as consumable that provided by the government on behalf of cooperatives, the facts will not always be available in a changing situations and biases of the people involved can impair the effectiveness of these decisions. Besides, when board members take intuitive and judgmental decisions in some instances, it would be difficult to be fair and appear fair to others, which could spoil the boards’ image in the eyes of the general assembly.

### ○ Dependent Decision-Making Style

Dependent decision-making style reflects that the decision maker needs assistance of other people while making important decisions (Verma & Rangnekar, 2015); rarely do they make important decisions without consulting others. Decision makers with the dependent style would ask for other people’s input and instructions on what decision should be made (Scott & Bruce, 1995). In this study, the dependent style of decision-making was frequently seen as a dominant style adopted as a back-up style by the boards because of less experience or lack of information about the products demanded by members of cooperatives. When the dependent style was adopted as a back-up style, the rational style was often seen as the dominant style, where the MBMs mainly wanted advice or assistance on what decision to take against when the decision was proved.

While board members’ commonly relied on individuals and organizations such as regional cooperative agency and trade and industry bureau, their dependency was contingent on factors such as the experience and lack of information. For instance, participants from cooperatives agreed that they often use dependent style from the mentioned government organizations (regional cooperative agency, trade and industry bureau) to be certain about the consumable products supplied by the government to stabilize the market against greedy private traders. Not only have they depended on the above government organizations, new board members also depend on senior of their own cooperatives and other successful cooperatives. It was found that when junior board members

depend on their senior colleagues, it was as a dominant style, to ensure that they were following the right procedure of their by-laws since they lacked experience and authority in handling these decisions.

For example, MBM9 said that:

*“As a vice chairperson of the managerial board, I always consult the chairperson who is senior when there is something I feel better to do for further decision. Not only for being senior, but, because the decision-making in cooperatives is a collective action.”*

Besides seeking for assistance or support of by vice chairperson from their seniors, managerial boards often consult the general assembly of their cooperatives. Similarly, they also ask for advice from the external individuals or organizations both government and non-governmental organizations. For instance, when cooperatives received consumer products supplied by government, they depend on the prices determined by the government to maintain fair prices for the members and non-members. All participants from all cooperatives in three regions noted:

*“Since we don’t produce manufacturing products and running our cooperatives in the form of retailing, we consult both regional cooperative agency and trade and industry bureau to obtain products such as edible cooking oil, sugar and some construction material in large volume because we were limited by the FDRE’s (2016) cooperative societies proclamation no. 985/2016 to operate in a specific area and run the wholesale service.”*

Similarly, all participants stated that:

*“We sometimes depend on other successful cooperatives that went through dealing contractual agreement with suppliers, especially, when we wanted to use the economy of scales to make purchase in large volume at a minimum costs.”*

Participant MBM3 said:

*“There is also a time that we depend on NGOs such as PACT Ethiopia that engaged in capacity building of cooperatives in the country to give awareness creation training to our members.”*

In other instances, MBMs adopt the dependent style to ensure that they have the backing of the management in case the decision taken should lead to any negative consequence. As MBM5 said:

*“I always consult the right people before I initiate making a final decision. But, one of the problems about depending on others to assist in decision-making is that the person himself/herself may reflect his/her own interest which may not contribute to the effectiveness of the decision.”*

There were also a few circumstances where the MBMs had depended entirely on others to handle the whole decisions. For example, as MBM4 from Addis Ababa stated:

*“We sometimes gave the decision to general assembly to handle in form of approval. We made our decision and told them that we tried to look at different alternatives, but we couldn’t be able to come up with any decision. So, we give it to make final decision. After that, it makes it easy to go for implementation by the board members.”*

However, even though dependency supported the decision-making process and made it easy for the managerial board, few participants expressed their negative view toward dependent style in a way that the general assembly may lose confidence in the board. But, it is good to communicate with people that improve the interaction among the decision-makers and the concerned partners.

### ○ Avoidant Decision-Making Style

The avoidant decision-making style refers to postponing decisions as long as possible (Verma & Rangnekar, 2015). According to Scott & Bruce (1995), this type of decision-maker avoids making decisions until the pressure is on, procrastinates, and delays decisions until the last minute. This decision style was found to be related to an avoidant style of conflict management (Thunholm, 2004). Hablemitoglu & Yildirim (2008) argued that a person with an avoidant decision-making style would make every effort to avoid making a decision. Thus, this style is considered ineffective if the decision-maker does not have a justifiable reason for avoidance (Verma & Rangnekar, 2015).

In this study, there were board members who resorted to the avoidant style of decision-making by ignoring the issue. This was mainly seen to decision being a back-up style, adopted when the information about the product were not clear. For example, MBM8 described how they avoided taking any action on prices when there were little or no alternatives to get the products from the market. He said,

*“We have had an instance, a couple of instances where we didn’t take any action to decide the price of consumable good (e.g., cooking oil and sugar) because we received these products from the government to be used by both members and non-members when the government want to stabilize the market at a fair price by eliminating the middlemen or brokers. In such conditions, the government fixes the prices for the products, and we have nothing to discuss but to implement such decision because we were also in need of them.”*

In avoidant decision-making style, some MBMs also seemed to place the burden of proving the issue on the general assembly. For example, MBM1 described how he received a complaint from few members of the cooperatives, alleging that board was ineffective in negotiating with the government during the time when products were supplied by the government in less quantity:

*“When there is shortage of the products in the market where we only obtain them from the government, avoid making any decision because the government already decided what quantity should be provided to cooperatives throughout the regions.”*

In addition to avoid making any decision on products and prices from the government, many managerial board members postpone the implementations of some decision made at board level. As MBM4 noted:

*“There were instances when we postponed the decisions that we made as board because of being not accepted by the general assembly. We also used to postpone the decision to be made due to less number of decision-makers that fall below what is prescribed in the by-laws. The same is true at the general assembly level when the case presented to them for approval.”*

Similarly, MBM2 added:

*“I always initiate the postponement of the decision-making when there is no adequate information on hand. Not only lack of information, but also when there is not enough time or under pressure to avoid regretting from the mistake or issues that are based on the personal interest of few members that were not aligned with cooperative objectives.”*

Although avoiding or postponing decision might affect the efficiency of cooperatives, board members interviewed reflected opposing views on the significance of avoidant style. Some said avoiding decision when decision-makers lacked understanding of the products and prices in the market minimize the possibilities of making managerial mistakes that cause distrust among board members and the general assembly as well. Others stated that avoiding or postponing decision due to fear of making mistake affect the activities of cooperatives. This is because MBM7 from Gambella believed that:

*“Managerial board should take the risk even if it ends in failure since risk is part of running business in any organization including cooperatives.”*

### ○ Spontaneous Decision-Making Style

Spontaneous decision-makers often make decisions on the spur of the moment and based on what seems natural at the moment (Scott & Bruce, 1995). This style is characterized by a feeling of immediacy and desire to come through as quickly as possible (Spicer & Sadler-Smith, 2005).

Majority of participants in this study agree that they rarely utilize spontaneous decision-making style in emergency situations. For example, MBM3 said:

*“As elected body by the general assembly mandated with decision-making responsibilities, it is uncommon to make quick or snap decision because it takes time to call upon the general members to discuss and approve issue forwarded for further decision. The democratic principle of decision and transparency will be violated when we decide without the knowledge of the majority. But, the only exceptional case that we make a snap or quick decisions was when we received an unexpected call from the government body to get scarce goods demanded by the members at a fair price.”*

There is also a time that managerial board of cooperatives makes a spontaneous decision where there is only a short period to search for information about the goods needed for cooperatives. Spontaneous style is used combined with intuition relying on the previous related experience. Some board members suggested that though it is a rarely activities, it is fair to use spontaneous style. However, in contrast MBM6 said:

*“For me as chairperson, making quick decision creates distrust between board members and the general assembly of our cooperatives when members feel like their contributions or inputs as a supreme organ were neglected or ignored. In such situation, I personally believe it may affect the effectiveness of decision and cooperative in a negative way resulted from lack of trust.”*

### 3.7.3.3. Participants' Response on the Performance of Cooperatives

Measuring performance considered complex because different stakeholders have different interests and needs that they want to be satisfied by the organization (Daft, 2015). Robbins (1996) defined performance as producing precisely the result that was intended. While performance described as the 'progress toward achieving pre-determined objectives' (Bourne et al., 2003: p.6), is not an easy concept to grasp in cooperatives as the relationship between the 'firm' and its objectives is not accurately defined (Soboh et al., 2009). Thus, for the purpose of the study, participants were asked to give their honest perception about the impact of board heterogeneity on decision-making styles and performance. Here performance is measured through perceived non-financial tasks based on the main functions performed in the cooperatives as described in the FDRE's (2016) cooperative societies proclamation no. 985/2016.

Based on the response about the decisions made so far in the cooperatives, we explored performance based on the objective achievement of the marketing tasks (Akram & Siddiqui, 2019; Koopmans et al., 2011; Oyewobi et al., 2016), satisfaction with the pricing and quality of products/service, (Gunasekaran et al., 2009; Elbanna & Naguib, 2009; Chomchaiya & Esichaikul, 2016) and timely delivery of goods to members (Acur et al., 2012; Deresa, 2017). The information collected during the interviews from the participants revealed different results regarding the cooperatives' performance. For example, all participants of cooperatives' board from the three regions believed that the existing board heterogeneity presented both negative and positive views on the performance.

For example, participants MBM1 from Gambella said:

*"As decision-makers in our management board, we are confident that we have been providing good quality products to our members at affordable prices and transparent enough to every action towards members. When the members get their demands, we see our cooperative performing well"*

However, although some share the same view on being effective about the provision of quality products or services, participant MBM5 said:

*"Our delivery system is ineffective because of two reasons. The first one is difficult to get the volume of goods or products needed by the members. Secondly, we sometimes fail to deliver on time to the general members of our cooperatives. The problems of inefficient time delivery are often caused by transportation service and collection of the goods or products from different sources of suppliers. There was also a time that our decision was impacted by external factors like inflation and other government policies after we made the decision."*

Thus, in terms of achieving objectives and satisfaction in the quality of goods or products, the data suggested that cooperatives were fairly performing well, though not entirely successful. Moreover, pricing is also not satisfactory though better than competitors. Therefore, board members have opposing views on the performance of cooperatives that need further investigation in the form of quantitative to clearly understand the impact of heterogeneity and decision-making styles on performance.

### 3.8. Discussion of the Results

Though performance is considered complex to achieve predetermine objectives and goals of the organization (Daft, 2015), its measurement is difficult in cooperatives due to the dual nature of social and economic factors. To ensure better performance, the characteristics of decision-makers (Hambrick et al., 1996) and the styles of decision-making play significant roles (Adikaram & Kailasapathy, 2021).

In this study, we described cooperative performance as the degree to which cooperatives achieve the intended objective and goals (Zheng et al., 2010; Daft, 2015) that measured through objective achievement of the marketing tasks (Daft, 2015; Oyewobi et al., 2016), satisfaction toward the quality of products/service received, and timely delivery of goods to members (Acur et al., 2012; Deresa, 2017). In fact, the handling of organizational decision-making is a complex and multidimensional process influenced by team heterogeneity (Riaz et al., 2010). Hence, enhancing decision-making effectiveness in cooperatives with the heterogeneous board is challenging, complex, and can always be subject to criticism and backlash, whichever decision-making style is used. Nevertheless, making effective decisions under these heterogeneities is critical in improving cooperative performance.

Our findings indicated that managerial board members of the selected consumer cooperatives in Ethiopia were highly heterogeneous in their demographic characteristics such as age, gender, ethnicity, education, functional expertise and tenure (Horwitz, 2005; Höhler & Kühn, 2018; Apparao et al., 2020). The general decision-making process that involves both the managerial board and the general assembly allowed the participation of people with multi-heterogeneity dimensions. These dimensions came with lots of disagreements and conflicts while making a decision using various styles. In reality, handling the delivery of quality products and services might be subjective (Rosenbaum, 2006).

The results show that managerial boards used multiple styles of decision-making, with the most common and dominant styles being rational and intuitive. These imply that board members plan their decisions carefully in a logic and systematic way to be able to analyze and evaluate the available alternatives to reach at appropriate decision. Through rational style, boards also involve in the collection of thorough information relevant to the decision to be made (Scott & Bruce, 1995). Besides rational style, boards also relied on one's instincts to determine what one feels is right (Verma & Rangnekar, 2015). Many believed in making decision based on their experience and guts to make decision. They also seek for information and support from others to make the best decisions than deciding based on personal feelings. Intuitive decision-makers are faster than rational decision-makers. Yet, it is difficult to identify one particular decision-making style that assists managerial boards in making the best decision about providing quality products and services to members within heterogeneous backgrounds as well as the delivery of such products. While on the surface, it appears that the rational style is most effective as it follows careful planning of important decisions, logical and systematic ways of processing all the information collected and considering all the options available, decision-makers are sometimes biased or take sides.

On the other hand, even though some have been rational decision-makers by being logical and rational, they have not necessarily followed the proper procedure. Thus they have not been consistent and accurate in their decision-making. Moreover, the fact that many decision-makers with the rational decision-making style have not been successful with the actions taken indicates

that the process involved disagreement and conflicts of ideas due to the existing heterogeneity among the board members and the changing situations. For example, results suggested that educated individuals tend to be more analytical than less educated. The same is true for younger managers than the older ones. When the decision-makers depend solely on logic, rationale, and evidence, they might not always make the most effective decision. Besides, it is said that the analytical decision-making style might not be effective when complete information is not available (Orlandi & Pierce, 2020). Even if there is evidence that the rational style can be used, there is still no guarantee that the most effective decisions would be made since human subjectivity and biases can still play a role (Adikaram & Kailasapathy, 2021). Although the rational style is dominant, it has its own drawback when managerial boards lack adequate information, the nature of board heterogeneity, and a short time to make the decision. Hence, a combination of rational and other decision-making styles like intuition and dependence could be used as a backup.

The intuitive decision-making style is said to be more effective when complete information and tools are not available (Orlandi & Pierce, 2020). As such, the intuitive style would be more efficient in making decision on issues which lack evidence. The intuitive decision-making style is also said to be effective when used with information processing skills, and as a back-up style to the rational style (Okoli & Watt, 2018). At the same time, as Keen (1973) suggested, decision-makers can be both intuitive and rational by being feeling-information-evaluators, whereby they bring their intuition to the analysis of the evidence without forgoing the rational decision-making style. From the results of this study, we found that managerial board members of cooperatives dominantly use intuitive decision-making styles relying on their personal judgment and experience. Members who had a long tenure in cooperatives and current positions tend to use a more intuitive style in combination with others. For example, they combine intuition and rational or intuition and dependent styles as a backup when there is no information on hand to make decision. Intuitive as a style characterized by reliance upon hunches and feelings (Scott & Bruce, 1995), it was found that women were more intuitive and empathetic than their male counterparts (Riaz et al., 2010).

Similarly, the study also found that older board members tend to use intuitive more than other styles. Despite this, women are often under-represented in the managerial board, where the use of an intuitive decision-making style is thought to be effective (Riaz et al., 2010). Although intuition helps to make a quick decision when there is a lack of information, it sometimes turns out worse because of the changing environment. In addition, others inserted personal interest while making an intuitive decision. Less-educated also applies intuition when they feel it right to make such a decision. The existing heterogeneity also impacts the effectiveness of decisions and performance caused by various intuition perceptions due to the different experiences.

Another style that would complement the rational or intuition that can be used effectively on its own in deciding the provision of goods and other services to members is the dependent decision-making style. A dependent decision-making style is characterized by support from others (Scott & Bruce, 1995). The choice is based on the expectations or advice of others (Hablemitoglu & Yildirim, 2008). While the dependent style would not be a good decision-making style in general, it would be better to depend on a specialist in the area to make the right decision than to decide without a proper knowledge of the phenomenon (Adikaram & Kailasapathy, 2021). This study found that decision-makers in cooperatives use a dependent style, especially when there is high competition for products or goods in the markets or adequate information is lacking. In those situations, it would be more effective to use a dependent style during decision-making, or it may be used as a backup style in deciding the outcome. For instance, when cooperatives were not in a position to compete on

scarce resources, they depended on the regional cooperative agencies and regional trade and industry bureaus. Sometimes, even when the decision-makers are uncertain of the issue, it would still be good to adopt the dependent style to be more certain and effective in their decision. Not only are external people or organizations used as the dependent source for decision-making, but board members depend on each other based on the heterogeneous skills and experiences.

This study found board members who resorted to the avoidant decision-making style. This was mainly seen when the decision-makers were below the two-third determined in the by-laws, uncertainty on the issue, and fear of making mistakes. Although it is rarely used, avoidant style might affect the effectiveness of decisions and cooperatives. Another style that infrequently used as a backup is spontaneous decision-making. Spontaneous style is often used on the spur of the moment and based on what seems natural at the moment (Scott & Bruce, 1995). This style is characterized by a feeling of immediacy and desire to come through as quickly as possible (Spicer & Sadler-Smith, 2005). The majority of participants in this study agreed that they rarely utilize a spontaneous decision-making style in emergencies when there is only a short time to search for information about the goods needed for consumer cooperatives. Spontaneous is usually combined with intuition relying on the previous related experience.

With these various possibilities and combinations of styles that would make a decision effective, one needs to be aware of the pitfalls of using these styles and how the existing heterogeneity among board members impacts the effectiveness and efficiency of decision in consumer cooperatives. As the results indicate, regardless of their heterogeneity, decision-makers can rely on concepts and prior perceptions to filter data or focus on the details of the situation, independent of their perceptions (Scott & Bruce, 1995). When managerial boards lack fundamental knowledge about the heterogeneity of boards regarding decision-making about quality products and services of consumer cooperatives, it will lead to unfair decisions, especially when they follow a style such as intuitive based on experience and personal judgment. The lack of prior knowledge can lead them to adopt the avoidance style. They can even impact analytical decision-making, though perhaps not to the extent that it would with certain other styles.

Thus, all in all, managerial boards used certain styles or a combination of styles that would be more effective than others. For instance, a different combination of styles such as rational and intuitive, rational and dependent, and intuitive and dependent mostly used among the decision-making styles that were discussed. Certain styles such as avoidant and spontaneous should be backed up with other styles such as rational, intuitive, and dependent.

### **3.9. Chapter Summary**

This chapter presented the summary of the findings and analytical method of the qualitative study. It used interviews in two different ways with nine managerial board members (chairpersons/vice chairpersons) from five consumer cooperatives from three different regions in Ethiopia. The study was aimed to explore the influence of board heterogeneity on the decision-making styles and performance and how the decision-making styles relate to performance of consumer cooperatives in Ethiopia. The concept of heterogeneity is commonly accepted as complex and ambiguous with many unresolved areas, making it difficult to identify whether a single or multi-dimensions enhance the quality of decision and performance (Höhler & Kühl, 2018). In fact, the handling of issue of

heterogeneity is identified as one of the most difficult and daunting tasks of decision-makers (Thunholm, 2004; Bovol'ár & Orosová, 2015).

Numerous and often contradictory views impinge on the board's decision-making process. These factors resulted from heterogeneity nature based on different demographic variables of the managerial board members. Although it has been shown that people tend to get along better with others who are seemingly alike, their heterogeneity impact their decision-making styles. By finding differences and similarities during the decision-making process of board members in cooperatives, it may be possible to better understand the variance in decision processes among them apart from the analytical and information-based decision process. The study identified six dimensions divided into relation-oriented and task-oriented heterogeneity (Webber & Donahue, 2001). The findings showed that the board heterogeneity settings affect the decision-making styles and performance of consumer cooperatives. Yet it is difficult to identify one particular decision-making style or styles that will assist board managers to make effective decisions in heterogeneous membership. This findings indicated that board use multiple styles, with the most common and dominant style being the rational and intuitive styles. The dominance of rational and intuitive styles imply that board lean more on collecting information regarding the source and logical and systematically make final decision. They also think carefully and consider various options prior to making decisions. At the same time, boards make decision based on their own instinct and personal experience or sometimes what feels right for them.

It is very interesting to note that the findings of this study point to an understanding that board heterogeneity is substantially affect not only decision-making styles, but the performance of consumer cooperatives. However, managerial board members of the consumer cooperatives have opposing views about the effects of board heterogeneity on decision-making styles and performance. Thus, irrespective of the choice of decision-making styles, many board members ignore the issues of heterogeneity in making decisions. Various dimensions of board heterogeneity could impact the decision-making styles and the performance of cooperative in different ways. With different possibilities and combinations of styles that would make better decision, it is imperative to consider the heterogeneity among board members while making the decision in cooperatives. Hence, it can be understood that there would not be one best decision-making style in cooperatives with heterogeneous board members (Höhler & Kühl, 2018). Certain styles would be more effective than others in producing effective decisions. At this stage, we were not in a position to test the significant effect of heterogeneity on decision-making styles and performance of consumer cooperatives. Thus, the next chapter presents the quantitative analysis conducted to show the extent to which board heterogeneity dimensions influence the decision-making styles of heterogeneous board and further study the effect of decision-making styles on the performance of cooperative within hybrid organizational structure model in Ethiopia.

## Chapter Four: The Influence of Board Heterogeneity on Decision Making Styles

### 4.1. Introduction

In order to prove the exploratory findings in the case studies, a second stage is to use quantitative data with the primary purpose of investigating and validating the proposed model while simultaneously testing and validating the proposed hypotheses that could help generalize the study findings. Thus, building from the qualitative exploratory results, a self-rating survey was developed to collect the data necessary to answer the research questions. This data collection method is commonly used in social sciences studies (O'Regan & Ghobadian, 2004; Avolio et al., 1991). Though the process of having respondents self-rate may appear overly subjective, previous studies have highlighted that even the most objective measures contain subjective elements (Boyd et al., 1993; Biru, 2018). Subjectivity is particularly common amongst secondary data sources – the creation of which requires judgments on the researcher's part and contains several sources of error (Biru, 2018). The survey data collection involved three steps: (i) developing a reliable and valid survey instrument, (ii) selecting an appropriate sample (sampling size), and (iii) conducting the survey with the selected cooperatives in Ethiopia. Thus, this study primarily addressed the following research question:

- *To investigate the effect of board heterogeneity on decision-making styles in cooperative with a hybrid organizational structure in Ethiopia.*

### 4.2. Conceptual Model and Hypotheses Development

#### 4.2.1. Conceptual Model

A conceptual model is a diagrammatical representation of theorized relationships between constructs under investigation (Wand & Weber, 2002). This section presents the conceptual model for this study that provides the hypothetical ideas on how board heterogeneity relates and influence the decision-making styles in cooperative with hybrid organizational structure. Following the model, each hypothesized relationship within the framework is given thorough substantiation based on the literature reviewed. The main purpose is to present a brief overview of how the framework is developed as well as the direction constructed for variables to hypothesize their relations and effect based on the theories, previous empirical studies and results of the qualitative study conducted in the first phase.

Conceptual framework as a virtual or written product that explains either graphically or in narrative forms (Mathieson et al., 2001), explores the relationship between independent variables and dependent variables (Nandakumar et al., 2010; Elbanna et al., 2014). According to Ocholla & Le Roux (2011), conceptual framework forms the rationale for a study that helps a reader make logical sense of relationships between variables relevant to a problem and the theorized relationship between them. Based on the prior empirical findings, theories from the literatures and conflicting views of the participant contacted during qualitative study, we proposed the conceptual framework to investigate how board heterogeneity dimensions (Webber & Donahue, 2001) relate to decision-making styles (Scott & Bruce, 1995) of heterogeneous board in cooperative with hybrid organizational structure. Regarding the purpose of this study, board heterogeneity are categorized based on the work of Webber & Donahue (2001) who classified it relations and task heterogeneity

and Scott & Bruce (1995) general decision-making styles known as rational, intuitive, dependent, avoidant and spontaneous.

Following the unique organizational structure of Ethiopian cooperatives as presented in chapter two, individuals form primary cooperatives within bounded geographical area to overcome their own common social and economic problems: specifically market stability (Tefera et al., 2017; Emanu, 2009; Veerakumaran, 2007). Such primary cooperatives run by few managerial boards with members from 5 to 15 depend on membership size. Based on the findings of exploratory study, we found that there exists heterogeneity among boards of cooperatives with different perceptions on the importance of board heterogeneity when approaching the decision-making styles. Since, various cooperatives by default differs in their objectives and purpose for their establishment, we focused our study on cooperative union that formed by 32 affiliated primary cooperatives with the same goals and objectives as per the cooperative society proclamation or law (FDRE, 2016). In this study, cooperative union is selected as it represented by many affiliated primary cooperatives to serve wide geographical coverage in the area of suppliers and receivers of products to and from member cooperatives.

Hence, as the aim of this study is to have a comprehensive understanding on how board heterogeneity relate and affect the decision-making styles, we proposed our study conceptual framework and developed hypotheses following board heterogeneity theories adapted from psychological theories such Cognitive resource diversity theory (Cox & Blake, 1991) grounded in information decision making perspectives (Cox & Blake, 1991; Williams & O'Reilly, 1998; Van Knippenberg et al., 2004) and similarity attraction theory (Dorm Byrne et al., 1971) that shares the same assumption with social categorization theory (Tajfel & Turner, 1986; Williams & O'Reilly, 1998). Since the selected theories argued the double sword nature of heterogeneity that assumed to promote creativity and generation of ideas that positively enhance decision-making quality and performance according to theories of cognitive resource diversity (Cox & Blake, 1991) and information decision-making (Williams & O'Reilly, 1998; Van Knippenberg et al., 2004) because of various skills and knowledge that promote creativity, innovation, problem solving and informed decision while on the other, assumed to have negative association with team performance and social integration that directly affect performance based on the theories of similarity attraction (Dorm Byrne et al., 1971) and social categorization (Tajfel, 1981; Williams & O'Reilly, 1998) because of lower team cohesion, inherent tensions and relational conflicts arising from member heterogeneity as individuals in group or team linked up by the similarities among them, expected to significantly impact the decision-making styles and performance of cooperative under study.

Considering the fact that cooperative is an organization of individuals who pooled their resources collectively (Fulton & Giannakas, 2013; Gezahegn et al., 2020), Ethiopian cooperative society proclamation number 985/2016, Article 2(1) defined “cooperative as an autonomous association having legal personality and democratically controlled by persons united voluntarily to meet their common economic, social and cultural needs and other aspirations, which could not addressed individually, through an enterprise jointly owned and operated on the basis cooperative principles”. Sub-article 2(2) defined “cooperative union as secondary level cooperative society having similar objective with a minimum number of members as prescribed in this proclamation to produce, provide service or to engage in both activities that are beyond the capacity of primary cooperative societies”. While members share the same objective, they come with heterogeneous background in terms of demographic characteristics. Although heterogeneity was assessed based on the board demographic heterogeneity such as age, gender, ethnicity, education, functional background and

tenure to have general understanding for the development of conceptual framework for quantitative study, we followed Webber & Donahue's (2001) category of board heterogeneity: relations-oriented (age, gender, racial/ethnic) and task-oriented (educational, tenure and functional background), to investigate how relations and task oriented heterogeneity relate and affect the decision-making styles such as rational, intuitive, dependent, avoidant and spontaneous (Scott & Bruce, 1995; Verma & Rangnekar, 2015; Rehman et al., 2012) by integrating them into one framework recommended by Höhler & Kühl (2018) to be able explain the relations and effect of the perceived heterogeneity dimensions. Therefore, the proposed conceptual framework based on the two dimensions of board heterogeneity (Webber & Donahue, 2001) and five decision-making styles (Scott & Bruce, 1995), controlled by organizational size (Xu et al., 2006; Fredrickson, 1984; Papadakis, 1998; Alkaraan & Northcott, 2013; Xu et al., 2017) presented in the figure below.

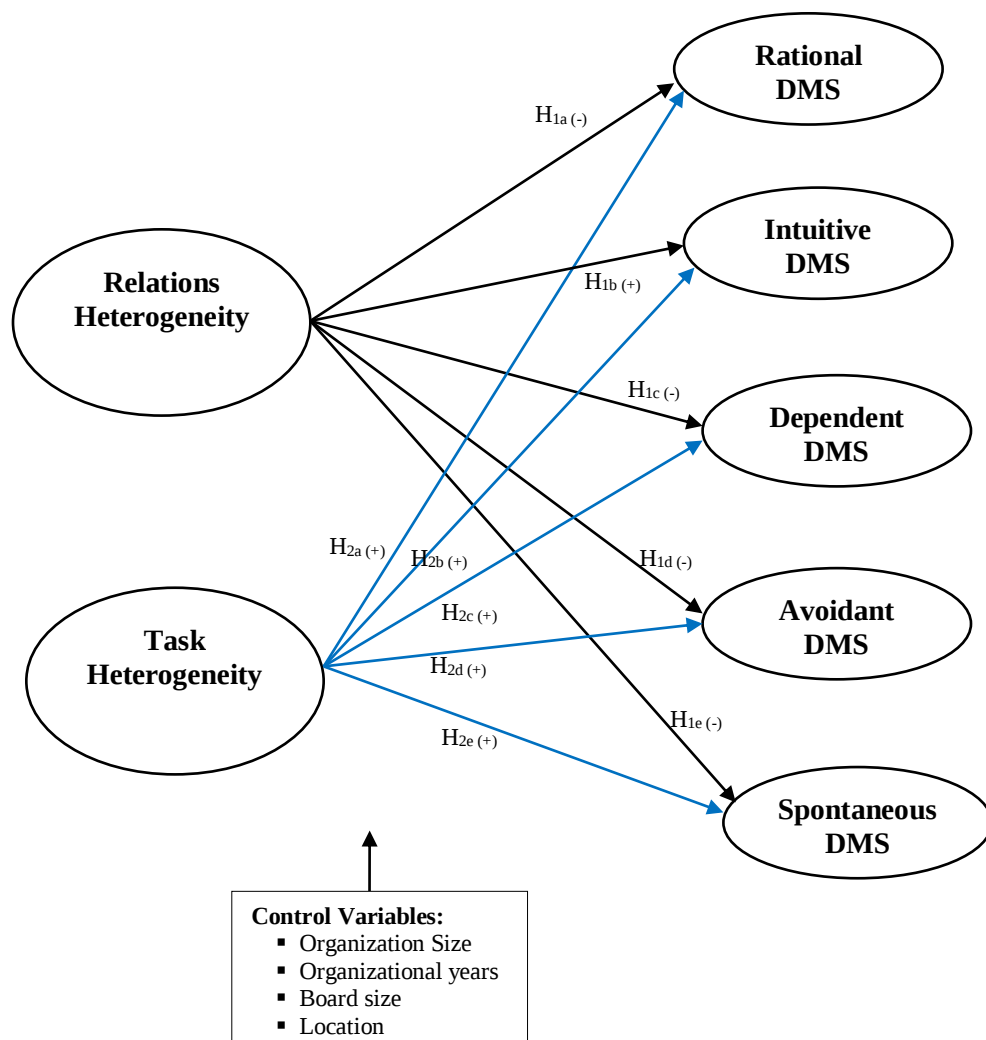


Figure 4.1: Conceptual Framework of the Study (2022)

These dimensions have been conceptually adopted by the previous scholars such as Horwitz & Horwitz (2007), Höhler & Kühl (2018; Apparao et al. (2019), Williams & O'Reilly (1998), Yadav & Lenka (2020b) to provide theoretical underpinning of board heterogeneity on decision-making and performance. However, the interplay between the relations and task oriented board heterogeneity dimensions and decision-making styles has not been adequately assessed in general and cooperative in particular in the context of Ethiopia. The hypotheses for the study will be developed on the basis of the relationship among the constructs shown in the framework. Thus, the following section discusses the hypotheses developed for this study.

#### **4.2.2. Development of Hypothesis**

One of the key arguments underlying the research on the effect of group or team member heterogeneity is that the variety of perspectives and experiences represented on heterogeneous teams contributes to the production of high-quality ideas (McLeod et al., 1996). Moreover, the variety of perspectives can stimulate further idea production by group members. There are consistent empirical support for this argument (Jackson, 1992; McGrath, 1984). For instance, a study conducted on the quality and acceptance of problem solutions by members of homogeneous and heterogeneous groups in the USA, Hoffman & Maier (1961) found groups that were heterogeneous in personality and gender produced higher quality problem solutions on several problems types than did homogenous groups.

Several studies have shown that groups whose membership changes overtime, thus maintaining heterogeneity, are more creative and innovative than groups with fixed membership (King & Anderson, 1990; McLeod et al., 1996). In a field study that spanned several industries, Murray (1989) found that firms with heterogeneous TMT (on the variables: age, education, organizational tenure and functional area) were more adaptive than were firms homogeneous TMT. In another field study using similar measures of heterogeneity, Bantel & Jackson (1989) also found that heterogeneity of TMT in a sample of banks was positively associated with innovativeness. Furthermore, previous studies have shown that heterogeneity among groups members with respect to age, tenure, education, gender, ethnicity and functional area is related to group and organizational creativity, adaptability and innovation (McLeod et al., 1996). Jackson (1992) and Cox & Blake (1991) suggested that diversity may be related to increase to organizational creativity and flexibility. Cox & Blake (1991) further argued that the insight and sensitivities brought by people from various backgrounds may help companies to reach a wider variety of markets. However, Zenger & Lawrence (1989) noted that the influence exerted by various dimensions of demographic heterogeneity may not be equivalent. Furthermore, cognitive resource diversity (Cox & Blake, 1991) and similarity attraction (Dorm Byrne et al., 1971) theories broadly focused on holistic heterogeneity of board while social categorization theory (Tajfel & Turner, 1986; Williams & O'Reilly, 1998) specifically focused on relation-oriented heterogeneity dimensions such as age, gender and ethnicity and information decision-making theory (Williams & O'Reilly, 1998; Van Knippenberg et al., 2004) focused on task-oriented heterogeneity dimensions such as education, tenure and functional backgrounds of the individuals respectively.

The current study is motivated in part by an interest in testing whether heterogeneity of boards based on relations-oriented and task-oriented would determine the group decision-making styles that further impact organizational performance. Following the above arguments, we expected that board heterogeneity with respect to relations-oriented (age, gender and ethnicity) and task-oriented (education, tenure and functional background) would affect decision making quality of the heterogeneous boards of cooperative. Thus, the theoretical bases for this study are: (1)

heterogeneity of board members' characteristics has variety of perspectives associated with variety of decision-making styles.

Based on the results of the case study conducted prior to this study, the cooperative union studied has heterogeneous board in their demographic characteristics. For instance, results from the case study found that 33.3% of the board members were female and 66.7% of them were male respectively. Similarly, there is high heterogeneity in terms of ethnicity board with minimum number of heterogeneous ethics was 6 and maximum of 10 with the average number of 7 from five cooperatives respectively. Furthermore, high heterogeneity in tenure was found where 6 and 30 were the minimum and maximum experience of the boards respectively. The study also found high heterogeneity in other demographic characteristics. This study used of the perceptions of managerial boards of cooperative union under study to describe the board heterogeneity dimensions based on the work of Webber & Donahue (2001) rather than utilizing limited archived data to predict the relationship and impact on the practice of decision-making styles (Scott & Bruce, 1995) in the context of cooperative with hybrid organizational structure of Ethiopia. Thus, the developed hypotheses for this study were presented in the section below.

#### **4.2.2.1. Board Heterogeneity and Rational Decision-Making Style**

Rational decision-making style as a process that require information to carefully, logically and systematically explore and consider various options before making decision on specific goals and objective of the cooperative (Scott & Bruce, 1995), is a big challenged to double check the information and make the right decision when boards are demographically heterogeneous. As proposed by the social categorization theory (Tajfel & Turner, 1986; Williams & O'Reilly, 1998) that various individuals within the same group or organization could form sub-group based on certain similarities in terms of age, gender and ethnicity classified as relation-oriented heterogeneity dimensions by Webber & Donahue (2001) negatively impact the decision-making and performance of the group or organization, since it lowered levels of cohesiveness, reduced within group communication, decreased cooperation and high levels of conflict (Yadav & Lenka, 2020b; Williams & O'Reilly, 1998; Joshi & Roh, 2009). Managerial boards of cooperative in Ethiopia from the case study showed high heterogeneity in terms of demographic characteristics. Not only demographic characteristics, there various organizational factors that t affect the decision-making process of the heterogeneous boards. For instance, board members representing cooperative union were individuals come from different place where other came from primary cooperatives with small or large board size, organizational size and others like organization years.

There were previous empirical studies supporting the negative effect of relations-oriented heterogeneity dimension on the group process and performance. For example, a meta-analysis conducted in the USA on 8757 teams in 39 studies, Joshi & Roh (2009) found gender heterogeneity to have negative effects on work team performance. The same finding is true on performance outcomes by a survey study of Jehn & Bezrukova (2004) on 10,717 individuals from 1528 workgroups in large information processing companies in the USA. Regarding age, Kearney & Gebert (2009) found that age heterogeneity negatively related to team performance because of low transformational leadership, but age heterogeneity was not related to team performance when transformational leadership was high. Likewise, finding from a meta-analysis of 39 studies by Joshi & Roh (2009) concluded that age heterogeneity was negatively associated with performance outcomes. Moreover, Williams & O'Reilly (1998) reported that groups with a high level of age heterogeneity have a slightly lower level of group process and performance.

On the other hand, cognitive resource diversity and social categorization theories (Cox & Blake, 1991; Hambrick et al., 1996) argued that board or team demographic characteristics such as education, tenure and functional background known as task-oriented heterogeneity by Webber & Donahue (2001) has a positive impact on group performance because of unique cognitive resources that members bring to the team (Cox & Blake, 1991; Hambrick et al., 1996). The underlying assumption of value in diversity is that teams consisting of heterogeneous members promote creativity, innovation, and problem solving, hence generating more informed decisions (Horwitz, 2005). This is because heterogeneous groups possess diverse knowledge bases and different perspectives that are distinct and non-redundant (Chow, 2018). According to Horwitz (2005), variety of cognitive resources of each team member among heterogeneous group contributes to the overall success of the team performance.

There is some empirical studies presented evidence supporting the proposition of cognitive resource diversity theory. For instance, a study conducted in China using 162 entrepreneurial teams to investigate how entrepreneurial team heterogeneity impact decision-making performance, Zhang et al. (2021) found positive impact. Similarly, Simons et al. (1999) reported that educational heterogeneity positively impacted team quality decision-making debate among TMT of 57 electronic manufacturing firms in the USA. A study by Tsui et al. (1992) reported that being different from the other members in terms of organizational tenure was positively associated with commitment and intention to stay and negatively related to present in the organization. A research conducted on how a career history affects job performance using 771 participants from US property and causality (P&C) insurance firms, Dokko et al. (2009) found positive impact of functional expertise heterogeneity on team decision-making performance. Since the managerial board of cooperative represented by individual from different operating areas with heterogeneous demographic backgrounds, relations-oriented heterogeneity dimension expected to have negative relations with relationship with rational decision-making style when such board link themselves based on ethnicity related to speaking the same language, gender since some boards of primary cooperatives are full women based and differences in age. However, as a cognitive process, rational decision-making style require individual members of board who are knowledgeable, skilled and informed resulted from education, tenure and functional background in terms of specialization to make sound decision that enhance the performance of cooperatives. Therefore, on the basis of the above theoretical and empirical backgrounds, we developed the following hypotheses:

**(H1a):** *Relations-oriented heterogeneity has negative and significant influence on rational decision-making style in cooperative with hybrid organizational structure in Ethiopia.*

**(H2a):** *Task-oriented heterogeneity has positive and significant influence on rational decision-making style in cooperative with hybrid organizational structure in Ethiopia.*

#### **4.2.2.2. Board Heterogeneity and Intuitive Decision-Making Style**

Intuitive decision-making style as a process in which individuals or groups pass decision relying upon one's own intuitive, what feels important and right to make the best decision (Scott & Bruce, 1995), prior experience play great role to make the best decision for the organization, especially when the decision-makers of the board or organization have diverse experience. Though, the social categorization theory assumed relations oriented heterogeneity to have negative impact the group process and performance outcome (Cox & Blake, 1991), in the context of cooperative organization like Ethiopia that institutions were organized along diversity in which heterogeneous boards or

decision-makers can create linkage with their own ethnics as well peoples with various group can also create expected to assist good decision regarding cooperatives. For example, a survey conducted on 162 entrepreneurial teams in China, Zhang et al. (2021) found positive relation between age heterogeneity and team decision-making performance. Similarly, a multilevel analysis of the effects of human resource diversity management on employee knowledge sharing in China, Shen et al. (2014) reported positive relationship. In another study, Sung & Choi (2021) found positive result of gender heterogeneity on firm innovation based on survey data from 1851 private business organizations in South Korea and team creativity in Hong Kong (Leung & Wang, 2015). The study of Richard et al. (2004) on the effect of cultural diversity in management on performance, they reported a positive relationship between racial heterogeneity and firm productivity in a high innovativeness firm, while non-significant results were reported in the low innovativeness firms.

On the other hand, using the theoretical argument of cognitive resource diversity, researchers in this area have argued that heterogeneity has a positive impact on performance because of unique cognitive resources that members bring to the team (Cox & Blake, 1991; Hambrick et al., 1996). Cognitive team diversity believed to improve team performance and creativity based on the diversity-cognitive resources and information processing perspective (Cox & Blake, 1991; Williams & O'Reilly, 1998) as heterogeneous groups possess diverse knowledge bases and different perspectives that are distinct and non-redundant (Chow, 2018).

There is some empirical studies presented evidence supporting the proposition of cognitive resource diversity theory. For example, Nemeth (1986) found in her experimental study on differential contributions of majority and minority influence that heterogeneous teams that included minority members were more creative in generating ideas and nonobvious alternatives than homogeneous teams. Furthermore, the results indicated that the heterogeneous teams were more creative in problem solutions than the homogeneous teams when controlling for ability levels (Horwitz, 2005). In other study, Simons et al. (1999) in their investigation titled "making use of difference: diversity, debate, and decision comprehensiveness in top management teams," they observed that member heterogeneity in education and company tenure influenced the quality of debates and, thus, positively impacted the decision-making process in a team of top managers. According to Scott & Bruce (1995), rational decision-making style defined as a logical and systematic way of exploring the information sources for decision-making that required careful thought, consideration of various options and double checking the information sources before final decision (Verma & Rangnekar., 2015; Curşeu & Schruijer, 2012).

Though relations-oriented heterogeneity assumed to have negative relation with group process and performance, in terms of Ethiopian cooperative union that established to stabilize market through the provision of products and service, the existence heterogeneous among board members in terms of age, gender and ethnicities help cooperative to good relations with peoples from diverse areas to provide information and shared experiences that may bring good decision. As democratic organizations controlled by their members who actively follow the principle of one member-one, each having equal voting right in their decision-making (Birchall, 2002; Mikami, 2016), the presence of heterogeneity among group bring diverse resources, information, experiences and skills that improve the decision-making quality of boards and we expected heterogeneous boards to improve the quality of decisions (Thunholm, 2004). Therefore, the proposed were described as follow:

*(H1b): Relations-oriented heterogeneity has positive and significant influence on intuitive decision-making style in cooperative with hybrid organizational structure in Ethiopia.*

*(H2b): Task-oriented heterogeneity has positive and significant influence on intuitive decision-making style in cooperative with hybrid organizational structure in Ethiopia.*

#### **4.2.2.3. Board Heterogeneity and Dependent Decision-Making Style**

As a decision-making style, dependent explained as style of decision in which the decision-makers or board in the case of cooperative seek assistance or support of the external individuals or organizations through consultations to make it easier to select the right and important decision (Scott & Bruce., 1995). Based on the objectives and purpose of cooperative in Ethiopia where the formation of cooperatives is supported by government, NGO and other interested organization, heterogeneity of board could affect the use of dependent decision-making style. As stated in the cooperative societies proclamation number 985/2016 Article 2(1) that cooperative are autonomous association free from external interference, contradicted by the hybrid organizational structure that allowed government to involve the development of cooperative policies and provision of imported products including fixing the prices to cooperatives. In such situations, there is several board members felt that their independence was betrayed while supported collaboration with such external organizations. Then members who shared the same interest started to link up themselves either ethnically or along gender line that directly affected the dependency of decision-making since there were affiliated cooperative that fully same gender controlled or same ethnicity depends on the areas of operating. The time it takes to seek advice or support for decision could also affect the decision. According to Tefera et al. (2017) and Mojo et al. (2018), the interferences of the government and other development partners in decision-making on matters of cooperatives and the use of cooperatives by local governments have been identified as serious threats to the cooperative development in Ethiopia (Tefera et al., 2017; Mojo et al., 2018). However, participants of case study revealed that depending on other external bodies including government, benefitted cooperative to acquire product that could have not achieved by competing with other competitors. According to Bernard et al. (2008), most cooperatives in Ethiopia were initiated under the influence of an external partner: 63% were created by government institutions, 11% by donor agency or NGOs, and only 26% by members themselves. Therefore, relying on the perception of heterogeneous managerial who presented conflicting views regarding dependent decision-making styles, we proposed the following hypotheses:

*(H1c): Relations-oriented heterogeneity has negative and significant influence on dependent decision-making style in cooperative with hybrid organizational structure in Ethiopia.*

*(H2c): Task-oriented heterogeneity has positive and significant influence on dependent decision-making style in cooperative with hybrid organizational structure in Ethiopia.*

#### **4.2.2.4. Board Heterogeneity and Avoidant Decision-Making Style**

Though many studies were conducted on the heterogeneity in various organizations (Yadav & Lenka, 2020; Homberg & Bui, 2013; Joshi & Roh, 2009), there still lack of empirical study specifically investigated the effect heterogeneity on avoiding decision in an organization. According to Scott & Bruce (1995), avoidant decision-making style is as a type decision-making in which an individual or group postpone or totally avoid making such important decision if not considered to have immediate needs. According to the Ethiopian cooperative society's proclamation no.985/2016, the decision could be avoided because of two main perspectives (FDRE, 2016). First, when the

number of board or members fall below two-third prescribed in their bylaws, and second, when the decision of board is not supported by the majority of the general assembly.

Although no prior empirical studies investigated the effect of heterogeneity on avoidant decision-making style, having teams with variety of cognitive resources believed to contribute to the overall success of the team by avoiding unnecessary decision (Horwitz, 2005; Chow, 2018). Mostly, since the objective and purpose of cooperative is serving members at affordable prices that satisfied their interest, avoiding decision that has not immediate importance could enhance board performance of cooperatives. Thus, we proposed that heterogeneous board with individuals who stick to their objective by following the bylaws of cooperative and possess diverse knowledge bases and information (Cox & Blake, 1991) improve the performance of group in making decision. In such situation, heterogeneous board expected to have positive impact on avoiding decision and the following hypotheses were proposed:

*(H1d): Relations-oriented heterogeneity has negative and significant influence on avoidant decision-making style in cooperative with hybrid organizational structure in Ethiopia.*

*(H2d): Task-oriented heterogeneity has positive and significant influence on avoidant decision-making style in cooperative with hybrid organizational structure in Ethiopia.*

#### **4.2.2.5. Board Heterogeneity and Spontaneous Decision-Making Style**

Regarding spontaneous decision-making style, Scott & Bruce (1995) defined it as a decision type where a person or group make a snap, quick or impulsive decision on the spur of the moment when it seems natural. Despite the fact that hybrid organizational structure of Ethiopian cooperative and cooperative society's proclamation dictated the decision-making process through one member one vote, it is serious problem related to spontaneity of the decision. According to the proclamation number 985/2016 Article 29(1) "Decision of any cooperative society shall be passed by majority vote (50+1), where issues need special resolutions must pass by two third (2/3) of members vote". Sub-article 2 of article 29, "Any member shall, regardless of the number of shares he has, have only one vote at the meeting of the cooperative society". Since board members representing cooperative union lives in different operating areas from on specific communities, it takes time for them to call and make spontaneous decision at the spur of time. In such case, heterogeneity of board negatively influences the decision-making style till members fully share the information. However, when the demanded products are obtained from the government, decide in advance to act immediately when cooperative received call from the government organizations in a position to distribute products. For example, cooperatives mainly obtain scarce products such as sugar, cooking oil and other that government partially imported. Since such products are demanded by the entire community including cooperative, quick decision is very important to successfully fulfill the demand of members. Thus, relation-oriented heterogeneity dimension might not pay role enhancing decision while access to information based the existing knowledge and diverse sources related to task-oriented heterogeneity could improve the making of snap decision. Therefore, we proposed the following hypothesis:

*(H1e): Relations-oriented heterogeneity has negative and significant influence on spontaneous decision-making style in cooperative with hybrid organizational structure in Ethiopia.*

*(H2e): Task-oriented heterogeneity has positive and significant influence on spontaneous decision-making style in cooperative with hybrid organizational structure in Ethiopia.*

#### **4.2.2.6. Testing the Correlation between the Heterogeneity Dimensions and Interaction Effects**

Although academic literatures categorized team or board demographic heterogeneity dimensions based on attributes such as age gender, ethnicity, education, tenure and functional backgrounds (e.g., Zhang et al., 2021; Yadav & Lenka, 2020; Joshi & Roh, 2009; Horwitz, 2005), many previous studies directly investigated heterogeneity using single attribute or variable. There was also studies examined board heterogeneity holistically using two or more variables. For example, Simons et al. (1999) found that team heterogeneity using education and tenure positively influence the decision-making quality of TMT of 57 electronic manufacturing firms. In contrary, Cho et al. (1994) using the same dimensions of team heterogeneity such as education and tenure, found negative effect on competitive decision-making behavior of the TMT from 32 major US Airlines industries. Buyl et al. (2014) using functional background to measure the effect of team heterogeneity of CEOs from 35 Dutch and Belgian IT firms, found negative influence on their Decision-making influence. Although, Zhang et al. (2021) study on how entrepreneurial team heterogeneity impacts decision-making performance of 162 Entrepreneurial team in China found positive impact using five dimensions (age, education, functional background and tenure), other researchers found negative results on the other hand. For example, Joshi & Roh (2009) found negative effect of team heterogeneity on team performance of 8757 teams from 39 studies of meta-analysis using dimensions such age, gender, ethnicity, education, functional background. Similarly, Jehn & Bezrukova (2004) found negative effect of team heterogeneity on performance outcomes using dimensions such as age, gender, race, Education from 10,717 individuals in 1528 work groups in USA large information processing company. Using Gender, Education and Tenure, van Knippenberg et al. (2011) found negative result of team heterogeneity on team performance of 42 TMT from UK manufacturing companies.

Cooperative as an association of individuals with heterogeneous backgrounds based on a democratic decision-making process that rests upon collective participation, cohesion among members, and balance of countervailing powers (Hendrikse & Bijman, 2002), members differ in their individual commitment to participate in the cooperative activities including decision-making (Cechin et al., 2013a; Apparao et al., 2020). According to Bijman et al. (2013), the combination of high complexity in the cooperative firm with a heterogeneous membership leads to paralysis in the board and thus to a de facto shift of decision-making power. It may cause large costs for collective decision-making, influence as well as control and may negatively impact performance (Pozzobon et al., 2012; Cechin et al., 2013; Hansmann, 2013). Similarly, Benos (2016), stated that the decision-making in traditionally organized cooperatives is more time consuming than in other organizational forms due to the different organizational factors. According to Ethiopian cooperative societies proclamation number 985/2016, Article 14(1), cooperative union is a secondary level established by two or more affiliate primary cooperatives having similar objective with a minimum number of members. Article 7(2) stated such affiliated primary cooperatives to be established by individuals who live or work within a given areas by a number of members not less than fifty. The same laws restricted the formation of same primary cooperatives to be established in the same area. This confirms that board members of the union under study formed by cooperatives from different locations that add the challenges of decision-making in addition to the existing heterogeneity among board members.

According to Araya & Chung (2015), the Agricultural Transformation Agency (ATA) data showed that only 17.8 percent of the members took part in most decisions meeting, while more than 54 percent attended none of the cooperatives meeting. Likewise, the extent of member's involvement in decision-making as well as their interest to engage in decision-making within the cooperatives is found to be much lower. Nearly, 50 percent of the respondents felt excluded from decision-making (Araya & Chung, 2015). Although cooperative society's proclamation number 985/2016, Article 36 forced cooperative to elect control committee who follow up the decision of the managerial board, there exists high demographic heterogeneity among board members elected under cooperative study. Considering the findings of our prior study, we believed that board heterogeneity challenge the decision-making styles in the cooperative union under study.

In line with the above overlapping demographic heterogeneity dimensions drawn from the works of Webber & Donahue (2001) that classified as relations-oriented (age, gender, racial/ethnic) and task-oriented (educational, tenure and functional backgrounds) heterogeneity that found on every individual member of board, could determine the influence on decision-making styles and performance of consumer cooperatives. Members of every particular board affiliated to the union live in a separate location restricted by the proclamation number 985/2016. Based on the findings of the case study conducted prior to empirical study, it was found that the decision made by board members based on relationship among them, could be influenced by the existing task oriented heterogeneity dimensions such as education level, experience and functional expertise or specialization. Following the theoretical assumption of similarity-attraction and social categorization theories (Byrne et al., 1971; Williams & O'Reilly, 1998) that relations-oriented heterogeneity negatively affect team process and performance while cognitive resource diversity and information decision-making theories (Cox & Blake, 1991; Williams & O'Reilly, 1998) that assumed task-oriented heterogeneity to positively influence team process and performance, the relations and task-oriented heterogeneity dimensions found to interact during the decision-making process using different styles.

Hence, we created the interaction between the relations and task-oriented heterogeneity to test and determine the effects on the decision-making styles since they revealed different significant effect separately. For the case of interaction effects, a multiplicative term was formed (Relations\*Task), which is said to encompass the interaction effect (Jaccard et al., 1990). The interaction effect in this context means that the effect of relation-oriented heterogeneity dimensions being contingent on the level of task-oriented heterogeneity. If an interaction effect is present, then the difference between the regression coefficients in equations should be statistically significant (Jaccard et al., 1990). It also help to determine the relative importance of main effects and interaction by examining the coefficients (Allison, 1977). Here, as the two main heterogeneity dimensions reflect the board holistically, the interaction between relations-oriented and task-oriented heterogeneity believed to have significant effects on the decision-making styles of the heterogeneous board in consumer cooperative studied.

Thus, we created the interaction term between relations and task-oriented heterogeneity dimensions to reflect and determine their influence on decision-making styles representing board holistically. Hence, we there proposed the following hypotheses:

**(H3a):** *The interaction between relations and task-oriented heterogeneity will have negative and significant effect on rational decision-making style of the heterogeneous board of cooperative in Ethiopia.* **(H3b):** *The interaction between relations and task-oriented heterogeneity will have negative and significant effect on intuitive decision-making style.*

*(H3c): The interaction between relations and task-oriented heterogeneity will have negative and significant effect on dependent decision-making style. (H3d): The interaction between relations and task-oriented heterogeneity will have negative and significant effect on avoidant decision-making style, and (H3e): The interaction between relations and task-oriented heterogeneity will have negative and significant effect on spontaneous decision-making style of the heterogeneous board of cooperative in Ethiopia.*

### **4.3. Research Approach and Design**

Research design is the strategy or plan, which is used to acquire participants, and how to collect data from them, in order to arrive at conclusions about a research question (Zikmund, 2013). A cross-sectional descriptive survey was used in this study. According to Kothari (2004), the design was appropriate since it involves data collection at a point in time related to two or more variables in an effort to determine associations between the variables after the data was analyzed. The chosen design therefore, offered the researcher an opportunity to assess the effects of heterogeneity and decision-making on the relation between board heterogeneity dimensions and decision-making styles of cooperative under study (Mkalama & Machuki, 2019). The study was also a correlational research conducted in the natural environment of the organizations in the context of cooperative with no interference and manipulation of research variables by the researcher. Such a setting helps the research assess relationships between variables (Kinuu, 2014).

### **4.4. Sampling and Data Collection Method**

The selection of sample size is a statistical concept that involves determining the number of observations or replicates included in a statistical sample. It is an essential aspect of any empirical study requiring inferences about a population based on a sample (Atkinson & Flint, 2001). This research is interested in study the consumer cooperatives in Ethiopia. To survey all regions in Ethiopia, is a huge challenge due to lack of access to published information on the current status of cooperatives and the insecurities in a country. Hence, this study purposively selected Gambella region of Ethiopia because of its convenience to obtain data as per the reasons mentioned earlier (Biernacki & Waldorf, 1981).

As of June 2016, there were 78,684 primary cooperatives with 370 Cooperative Unions published in the website of Ethiopian Cooperative Agency (<http://www.fca.gov.et/>). Although over 200 of the 370 cooperative unions in a country (Ethiopia) were agricultural related, there were only 31 consumer cooperative unions with 495 member primary cooperatives affiliated to them. Based on the nature of the study topic to understand the heterogeneity of managerial board in relation to decision-making, the organizations to be investigated considered having the same objective. According to the nature of Ethiopian cooperative structure, the union is formed by primary cooperatives whose board members are the decision-maker of the union due to the nature of their affiliation (Tefera et al., 2017; Kaleb Kelemu et al., 2014). Based on the information obtained from the regional cooperative agency, this study selected the largest union with more affiliated member primary cooperatives from the established 3 unions in Gambella region. The selected cooperative union has 32 member primary cooperatives with 8502 individual members and 298 board members of the 32 primary cooperatives comprised of 222 males and 76 females listed in the table presented in below. Therefore, due to the small size of the population, a census survey was done to include all

managerial board members. But, because of the inconvenience of 5 individual from board members, the data was collected from the 293 (98.3%) individual board members.

To collect the data, the decision to apply the author's network of professionals who work in the targeted areas and mainly in the field of cooperative and marketing was made as an appropriate method to reach a bigger population. Thus, data collection method (questionnaires) was administered by a number of research assistants, who personally delivered and collected the questionnaires to and from respondents in order to ensure a high response rate. Data was collected using a semi-structured questionnaire as shown in Appendix section. The questionnaire was divided into four parts namely cooperatives' background, participants' demographic characteristics, and board heterogeneity dimension and decision-making styles. This study adopted research instruments from various researches carried out on team heterogeneity through the lens of upper echelon theory developed by (Hambrick & Mason., 1984) related to decision-making and cognition, and social psychology theories such as cognitive resource diversity and information decision-making theories (Dokko et al., 2009; Leslie, 2017; Leung & Wang, 2015; Joshi & Roh, 2009; Kirkman et al., 2004).

The research instrument was obtained from the published academic literatures and journals. The researcher and research assistants made an initial contact with the cooperative organizations with the help of regional cooperative agency and written letters requesting the participants' willingness. A protocol was developed to guide and thoroughly brief the research assistants about data collection process. Each respondent was provided with a survey package which included a survey questionnaire and a cover letter to formally invite the cooperatives to participate in the survey and to explain the objectives of the survey, as well as confirming respondent anonymity.

Once contact was established, the research purpose was explained and assured the respondents that their confidentiality and anonymity would be preserved. By sharing the research proposal with the respondents, the researcher was able to gain the respondents' confidence as it clearly showed the questionnaire fully embedded in the proposal. Then, the collection of data was carried out through self-rating questionnaires with close contact for clarity. A summary of study's population including the overall membership size of the union and members of each primary cooperative affiliated to the union together with board size was listed in the table 4.1 below.

Table 4.1: Cooperative Union and Affiliated Member Primary Cooperatives

| <i>District</i> | <i>Name</i>    | <i>Year<br/>Established</i> | <i>Members</i> | <i>Managerial Board</i> |             |               |
|-----------------|----------------|-----------------------------|----------------|-------------------------|-------------|---------------|
|                 |                |                             |                | <i>Total</i>            | <i>Male</i> | <i>Female</i> |
| Gambella        | Cooperative-01 | 2017                        | 252            | 7                       | 0           | 7             |
|                 | Cooperative-02 | 2008                        | 136            | 7                       | 1           | 6             |
|                 | Cooperative-03 | 2011                        | 197            | 9                       | 7           | 2             |
|                 | Cooperative-04 | 2004                        | 115            | 7                       | 5           | 2             |
|                 | Cooperative-05 | 2007                        | 128            | 9                       | 6           | 3             |
|                 | Cooperative-06 | 2013                        | 108            | 7                       | 6           | 1             |
|                 | Cooperative-07 | 2002                        | 87             | 5                       | 4           | 1             |
|                 | Cooperative-08 | 2016                        | 230            | 9                       | 7           | 2             |
|                 | Cooperative-09 | 2005                        | 142            | 7                       | 3           | 4             |
|                 | Cooperative-10 | 2013                        | 260            | 9                       | 6           | 3             |
| Godere          | Cooperative-11 | 2001                        | 426            | 11                      | 8           | 3             |
|                 | Cooperative-12 | 2009                        | 370            | 11                      | 10          | 1             |
|                 | Cooperative-13 | 2015                        | 289            | 9                       | 5           | 4             |
|                 | Cooperative-14 | 2004                        | 318            | 9                       | 6           | 3             |
|                 | Cooperative-15 | 2012                        | 211            | 7                       | 6           | 1             |
|                 | Cooperative-16 | 2006                        | 483            | 15                      | 13          | 2             |
|                 | Cooperative-17 | 2013                        | 367            | 11                      | 9           | 2             |
|                 | Cooperative-18 | 2003                        | 449            | 13                      | 10          | 3             |
|                 | Cooperative-19 | 2016                        | 165            | 9                       | 7           | 2             |
|                 | Cooperative-20 | 2002                        | 140            | 7                       | 5           | 2             |
|                 | Cooperative-21 | 2002                        | 123            | 5                       | 4           | 1             |
|                 | Cooperative-22 | 2009                        | 268            | 9                       | 8           | 1             |
|                 | Cooperative-23 | 2005                        | 454            | 13                      | 9           | 4             |
|                 | Cooperative-24 | 2014                        | 176            | 7                       | 6           | 1             |
|                 | Cooperative-25 | 2007                        | 160            | 9                       | 7           | 2             |
|                 | Cooperative-26 | 2009                        | 420            | 13                      | 11          | 2             |
|                 | Cooperative-27 | 2001                        | 528            | 15                      | 13          | 2             |
|                 | Cooperative-28 | 2004                        | 575            | 15                      | 12          | 3             |
|                 | Cooperative-29 | 2011                        | 185            | 7                       | 6           | 1             |
|                 | Cooperative-30 | 2004                        | 201            | 7                       | 5           | 2             |
|                 | Cooperative-31 | 2010                        | 350            | 11                      | 8           | 3             |
|                 | Cooperative-32 | 2006                        | 189            | 9                       | 9           | 0             |
| <b>Total</b>    |                | -                           | 8502           | 298                     | 222         | 76            |

Source: Field Data (2022)

#### **4.5. Pilot Study Procedure**

To test the validity of the questionnaire used for this study, the researcher pilot-tested the questionnaire. According to Pertusa-Ortega et al. (2009), pilot test is necessary for the validity of a study. Liozu & Hinterhuber (2014) posits that a pilot study is necessary for testing the reliability of data collection instruments. The data collection in this study was spread over two stages where a pilot study was conducted in the first stage before the actual survey with the respondents. The pilot study was conducted to refine the questionnaire, identify loopholes in the questionnaire and anticipate any logistical problems during the actual survey. This was done by administering the questionnaires to identified pilot unit. Initial reliability and validity testing of the measures also took place during the pilot testing process (LoBiondo-Wood & Haber, 2014).

Unfortunately, there is no consensus in the extant literature on determining appropriate sample sizes for pilot studies (Charan & Biswas, 2013). For example, Hill (1998) suggested 10 to 30 participants for pilots in survey research. Hertzog (2008) made several different recommendations for sample size depending on the pilot study's purpose in her recent and comprehensive article. Depending on the purpose of the pilot study, Johanson & Brooks (2010) suggested that 30 representative participants from the population of interest is a reasonable minimum recommendation for a pilot study where the purpose is preliminary survey or scale development. Prior to main survey, pilot test was done with the results from 57 participants of cooperatives affiliated to the union. Appropriate corrections were then made based on the results of the pilot study. For instance, some of the managers expressed concern about the confidentiality of their information but their concerns were allayed after they were explained the steps taken to protect their information. Similarly, the managers were hesitant to give factual information about their performance in terms of sales and profit. This prompted the researcher to change the firm performance measure to perceived financial performance measure.

#### **4.6. Reliability and Validity**

##### **4.6.1. Reliability**

Regardless of the research procedure used and the method employed, researchers need to critically assess to what extent it is likely to consistently measure what it ought to accurately (O'Regan & Ghobadian, 2004). A fundamental requirement of any instrument design is to ensure that it measures what intended to measure (Batterton & Hale, 2017). To ensure this, construct and content validation were conducted on this study's questionnaire following its initial construction.

According to Hair et al. (2010a) and Nagel & Cilliers (1990), reliability refers to the extent to which a scale produces consistent results over time and an accurate representation of the total population under study is said to be reliable, if the measurements are repeated a number of times under a similar methodology. Data reliability was measured using Cronbach's alpha method. The coefficient alpha is an appropriate measure of variance attributable to subjects and variance attributable to the interaction between subjects and items. The rule of thumb for item reliability is to have a cut-off value of 0.7 (Tenenhaus et al., 2005). However, Hair et al. (2019) recommends a Cronbach's  $\alpha$  value of 0.6 is sufficient to recognize construct reliability. Therefore, all items with lower loading than 0.6 are deleted after checking that other measures had high loadings. Cronbach's alpha quantifies how well a set of indicators measures unidimensional latent construct" (Götz et al., 2010, p.695) will be checked. Cronbach's alpha (Cronbach, 1951) is defined as:

$$\text{Cronbach } \alpha = \frac{N}{N-1} * (1 - \frac{\sum \delta^2}{\delta^2})$$

Where;

“N” is the number of indicators and “ $\delta$ ” reflects indicators variance.

#### 4.6.2. Validity

Another way of conducting reliability is dealing with validity, which refers to the extent indicators would represent the concept of interest (Hair et al., 2019) and it do combine two types; convergent and discriminant validity. Convergent validity examines if indicators represents one and the same underlying construct. A common method to measure convergent validity is Average Variance Extracted (AVE) (Lambert & Larcker, 1987) which is defined as:

$$AVE = \frac{\sum \lambda^2 I}{\sum \lambda^2 I + \sum VAR(\epsilon AF)}$$

The convergent validity of a construct with reflective indicators is evaluated by Average Variance Extracted (AVE) for all items on each construct (Fornell & Larcker, 1981). The AVE value should be equal to 0.5 or more. An AVE value of 0.5 or more means that the construct can explain 50% or more of the variance of the item (Sarstedt et al., 2017; Wong, 2013). During questionnaire development, researchers should conduct various validity checks to ensure the instrument measured what it was supposed to measure (Nagel & Cilliers., 1990). According to Hair et al. (2017), validity is the extent to which a construct measures what it is supposed to measure. According to the existing literature, there are three important approaches to assessing measurement validity: content validity (also referred to as face validity), construct validity, and criterion validity (Higgins & Straub, 2006; Heale & Twycross, 2015; Golafshani, 2003). The current study utilized content and construct validities.

##### ○ Content Validity

Content validity is the most important validity test (Hair et al., 2020). It is based on the extent to which a measurement reflects the specific intended domain of content. Validity is not quantified using statistical methods, meaning that validity is a qualitative measure. To ensure content validity, the questionnaires formulated were adapted from the prior empirical studies that tested in various fields. For example, questionnaires for the dimensions of board heterogeneity were borrowed from the previous published works (Zhang et al., 2021; Su et al., 2021; Doorn et al., 2013; Campion & Medsker, 2001; Heyden et al., 2013; Kim & Rasheed, 2014). Questionnaires for decision-making styles borrowed from that proposed by Scott & Bruce (1995) tested by Verma & Rangnekar (2015) in India. The indicators for organizational performance were taken from various authors (e.g., Pollanen et al., 2017; Wu et al., 2003; Nandakumar et al., 2011; De Toni et al., 2021; Brah & Chong, 2004; Elbanna & Naguib, 2009; Kalogeras et al., 2013b).

##### ○ Construct Validity

According to Golafshani (2003), construct validity refers to how well you translated or transformed a concept, idea, or behavior—that is a construct— into a functioning and operating reality, the

operationalization. It assesses what the construct or scale is in fact measuring (Heale & Twycross, 2015; Atikiya, 2015). Construct validity was maintained through anchoring of the constructs to the theory from which they were derived.

#### **4.7. Data Analysis Methods and Model Specification**

For the analysis to begin, the data collected was first cleaned and assessed for completeness. There was no missing information found and the questionnaires were deemed complete for further steps. Data was then coded in readiness for entry into the statistical analysis software. For example, the first items 1 to 3 in the questionnaire that define variable relational oriented heterogeneity were coded ROH1, ROH2 and ROH3 respectively. Codes DDMS1 to DDMS5 were used to represent items 11-15 for dependent decision-making style in the cooperatives and the same is true for other styles. The last codes used for control variables were COY, COS and CBS representing organizations' years, organizational size and board size respectively.

Since the unit of analysis in this study was a single cooperative union formed by affiliated member primary cooperatives, board heterogeneity dimensions, decision-making styles were obtained for board level analysis. The Statistical Package for Social Sciences (SPSS) version 20 used for the facilitation of the data analysis. In order to ensure the suitability of variables for analysis, several tests were carried on the data prior to commencing any data analysis. These tests were reliability and validity tests, tests of normality, multicollinearity tests and Kaiser-Meyer-Olkin and Bartlett's Test (Senaviratna & Cooray, 2019; Lin, 2008; Zenger & Lawrence, 1989; Myers, 2004; Hair et al., 2020). The data analysis gave both descriptive and inferential statistics in order to summarize data in an understandable way and infer characteristics of the population, respectively. Descriptive statistics entailed measures of mean and dispersion.

In line with other studies (Mueller et al., 2007; Smith et al., 1994; Straub, 1989), Confirmatory Factor Analysis (CFAs) was done to ascertain that the respondents reported board heterogeneity dimensions and the decision-making styles were distinct constructs. Correlation analysis was done to determine the coefficient of correlation between variables and coefficient of determination to test for goodness of fit of the models. Regression is used to examine the relationship between variables especially the extent to which a dependent variable is a function of one or more independent variables. It is used to analyze the relationship between a single dependent variable and several independent variables (Hair et al., 2021; Hinds et al., 2000). The values of one are used to predict the values of others (Robson, 2002).

Multiple regression analysis was used to examine the proposed research hypotheses. In this study we used hierarchical multiple regressions since we attempted to predict an outcome from various predictors (Field, 2005). The use of hierarchical regression analysis displays the results of analysis of variance (ANOVA) that help to understand the variance among variables (Stahle & Wold, 1989; Tukey, 1977; Rutherford, 2013) and empowers researchers to explore the potential interesting relationships of the data as well as confirming factor analysis (Rutherford, 2013). Usually, the investigator seeks to ascertain the causal effect of one variable upon another. Hierarchical Multiple Regression models were used to examine the relationship among the independent, dependent and control variables (Xu et al., 2017; Kelley & Bolin, 2013; Myers, 2004).

The regression line is described algebraically by the multiple regression equation that expresses the relationship between two or more variables. In fact the straight line is defined by (1) the slope or

gradient (usually denoted by  $\beta_1$ ) and (2) the point at which the line crosses the vertical axis of the graph (known as the intercept of the line  $\beta_0$ ). The general model can be expressed in the regression equation below:  $Y_i = (\beta_0 + \beta_1 X_i) + \epsilon_i$ , where  $Y_i$  is the outcome,  $X_i$  the participants' score on the predictor variable,  $\beta_1$  is the gradient of the straight line fitted to the data and  $\beta_0$  the intercept of that line,  $\beta_0$  and  $\beta_1$  are regression coefficients and finally,  $\epsilon_i$  represents the standard errors or difference between the scores (Xu et al., 2006; Hinds et al., 2000). The multiple regression equation model formulated for this study was:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_n X_n + \dots + \epsilon_i$$

**Where,**

$Y_i$  = is the dependent variable,  $\beta_0$  = y intercept/constant,  $\beta_1$ - $\beta_n$  = regression coefficients,  $X_1$ - $X_n$  = Independent Variables and  $\epsilon_i$  = error term/random variation due to other unmeasured variables (Myers, 2004; Ghani & Ahmad, 2010; Kelley & Bolin, 2013; Xu et al., 2017).

A series of three hierarchical regression modeling was used to enhance the regression analysis framework, as it show if variables of interest explain a statistically significant amount of variance in the dependent variable after accounting for all other variables (Elbanna & Fadol, 2016; Myers, 2004; Kirkman et al., 2004; Amason et al., 2006). The fundamental tests of the underlying assumptions for multiple regression analysis were conducted in order to ensure that the data were conducive to such analyses. For example, the relationships between the independent variables as well as the relationships between the dependent and independent variables were analyzed using correlation coefficients for every potential pair of variables used in the study (Schober et al., 2018; Akoglu, 2018; Robson, 2002). Multicollinearity tests were developed using variance inflation factors (VIF) to test for the presence of multicollinearity between each of the independent variables. The results of the tests for multicollinearity depended upon the values of the VIFs for all independent variables. A summary tables of variables (independent, dependent and control variables) and the research objectives as well as multiple regression analytical methods are shown in the table 4.2 below.

#### **4.7.1. Descriptive Statistics**

Descriptive statistics are the kind of information presented in just a few words to describe the basic features of the data in a study such as the mean standard deviation, frequency and percent (Mishra et al., 2019). Descriptive analysis describes, show or summarize data points in a constructive way consists frequency tables and diagrams (Bryman, 2006). For this study purpose, we used descriptive statistics to summarize the results in the form of tables using SPSS.

#### **4.7.2. Cronbach's Alpha**

Cronbach's alpha reliability (Cronbach, 1951; Cronbach & Meehl, 1955) is one of the most widely used measures of reliability in the social and organizational sciences. It is the most commonly applied estimate of a multiple-item scale's reliability. The Cronbach's alpha coefficient ranges from zero, meaning no consistency, to one meaning complete consistency (Zikmund-Fisher et al., 2012; Purwanto & Sudargini, 2021). When the measurements represent multiple questionnaire/test items, which is the most common application, Cronbach's alpha is referred to as a measure of "internal consistency" reliability (Bonett & Wright, 2015, p.3).

There is consensus among researchers that for a scale to be valid and possess practical utility, it must be reliable (Peterson, 1994). However, the author further observes that there is little guidance in the literature as to what constitutes acceptable reliability for research. Different research authors used different cut-off points of the Cronbach's alpha coefficient. The most threshold valued suggested and judged for acceptable Cronbach's alpha in this study was 0.7 (Purwanto & Sudargini, 2021; Hair et al., 2019). Validity, on the other hand, is the accuracy of a measure or the extent to which a score truthfully represents a concept (Zikmund-Fisher et al., 2012). There are normally four ways of establishing validity namely; face validity, content validity, criterion validity and construct validity. This study adopted research instruments validated in various researches. The research instrument was further enhanced from expert opinions received during the study process.

#### **4.7.3. Correlation Analysis**

Correlation examines the relationships between variables describing the direction and degree of association between them. A correlation matrix includes the values of the correlation coefficients for the variables involved (Robson, 2002). A correlation is very low if the coefficient has a value under 0.20, low between 0.21 and 0.40, moderate between 0.41 and 0.70, high between 0.71 and 0.91 and very high if it is over 0.91 (Pfeifer & Carraway, 2000). Pearson product-moment correlation coefficient was used in order to examine the strength of a correlation and whether is appropriate to proceed toward subsequent analysis.

#### **4.7.4. Factor Analysis**

Factor analysis is one of several multivariate techniques. Factor analysis is used in order to discern the underlying dimensions or regularity in phenomena. In effect, it summarizes the information contained in a large number of variables into a smaller number of factors (Rummel, 1967). Factor analysis was used to inform the reduction of items to a more manageable number (Gerbing & Anderson, 1988). This technique attempts to determine the number and nature of the underlying factors affecting the relationship between a set of variables (Watkins, 2018). A factor matrix is a table of coefficients that expresses the relationships between the variables and the underlying factors. The elements in the factor matrix are referred to as "factor loadings". Factor analysis is a statistical technique used for a large number of variables to establish interrelationships between variables. It is often used with multiple-indicator measures to see if the indicator tends to cluster one or more groups of indicators. This group of indicators are called factors (Bryman & Bell, 2007). Principal component analysis with varimax rotation was used in order to reduce the number of variables (Kanyongo & Schreiber, 2009; Wood et al., 1996).

#### **4.7.5. Test of Normality**

Usually, there are assumptions that are made about variables during statistical tests. One of the main assumptions is that data follows a normal distribution (Zikmund, 2013). Statistical procedures used in analyses may however have some errors and therefore need to be tested. This is to ensure that the findings are worth using in decision making. Testing for assumptions is beneficial because it ensures that analysis meets associated assumptions and helps avoid Type I and Type II errors (Osborne, 2001). This study therefore carried out test of normality. Since statistical errors are common in scientific literature, many of the statistical procedures including correlation, regression, t-tests are based on the assumption that the data follows a normal distribution (Ghasemi & Zahediasl, 2012). Normality is important because if the assumptions do not hold, it is impossible to draw accurate and reliable conclusions about reality (Bonett & Seier, 2002; Royston, 1982). Since

the assumptions are not always the case, the test of normality is usually carried out to assess the extent to which the variables of interest assume a normal probability distribution.

In the event that normality is not achieved for some of the variables, then these variables would end up depicting the wrong picture of the relationships between the variables (Jarque & Bera, 1987). In addition, the inferential statistics were used to test the null hypothesis for possible rejection or acceptance. In this study, the 5% level of significance was taken as the level of decision criteria whereby the null hypothesis could be rejected if the p-value was less than 0.05 and accepted if otherwise (Ghasemi & Zahediasl, 2012). The main test for the assessment of normality is the Shapiro-Wilk test. If Shapiro-Wilk test is less than 0.5 then the data significantly deviates from a normal distribution (Ghasemi & Zahediasl, 2012).

#### **4.7.6. Multicollinearity Analysis**

The phenomenon of multicollinearity exists when there is a strong correlation between two or more predictors in a regression model (Hair et al., 2011). The case of multicollinearity exists in multiple regression models when there is more than one predictor. One of the common approaches to detect multicollinearity is to execute a correlation matrix of all predictors and identify if they are highly correlated (above .80 or .90) (Field, 2005). For the purpose of the study a more scientific approach has been implemented. Multicollinearity is detected by the variance inflation factor (VIF) scores and the tolerance values of the independent variables (De Toni et al., 2017; Papadakis et al., 1998). An acceptable threshold level of a VIF is to be less than 10 and a tolerance value greater than 0.10 (Myers, 1990; Hair et al., 2011).

#### **4.7.7. Multiple Regression Analysis**

Regression is used to examine the relationship between variables especially the extent to which a dependent variable is a function of one or more independent variables. It is used to analyze the relationship between a single dependent variable and several independent variables (Hair et al., 2011; Sarstedt et al., 2014). The values of one are used to predict the values of others (Robson, 2002). Multiple regression analysis was used to examine the proposed research hypotheses. In this study we used multiple regressions since we attempted to predict an outcome from various predictors (Field, 2005). Usually, the investigator seeks to ascertain the causal effect of one variable upon another. The regression line is described algebraically by the regression equation that expresses the relationship between two variables. In fact the straight line is defined by (1) the slope or gradient (usually denoted by  $b_1$ ) and (2) the point at which the line crosses the vertical axis of the graph (known as the intercept of the line  $b_0$ ). The regression line is described algebraically by the regression equation that expresses the relationship between two variables. In fact the straight line is defined by (1) the slope or gradient (usually denoted by  $b_1$ ) and (2) the point at which the line crosses the vertical axis of the graph (known as the intercept of the line  $b_0$ ). The general model can be expressed in the equation below:

$$Y_i = b_0 + b_1 X_i \dots + \varepsilon_i,$$

Where;

$Y_i$  is the outcome,

$X_i$  is the participants' score on the predictor variable,

$b_1$  is the gradient of the straight line fitted to the data and  $b_0$  is the intercept of that line,  $b_0$

and  $b_1$  are regression coefficients and finally,

$\varepsilon_i$  represents the difference between the scores.

T-statistic was used which is drawn from a t-distribution if the null hypothesis is true. This statistic can be positive or negative as the parameter estimate from which it is derived is greater or less than the hypothesized true value of the parameter. The researcher conducted fundamental tests of the underlying assumptions for multiple regression analysis in order to ensure that the data were conducive to such analyses. For example, the relationships between the independent variables as well as the relationships between the dependent and independent variables were analyzed using correlation coefficients for every potential pair of variables used in the study. Multicollinearity tests were developed using variance inflation factors (VIF) to test for the presence of multicollinearity between each of the independent variables. The results of the tests for multicollinearity depended upon the values of the VIFs for all independent variables.

#### **4.7.8. Measurement of Variables and Model Specification**

Summary tables of variables: independent, dependent and control variables as well as multiple regression analytical methods are shown in the tables below. The variables for relations-oriented heterogeneity, task-oriented heterogeneity, rational decision-making style, intuitive decision-making style, dependent decision-making style, avoidant decision-making style, spontaneous decision-making style, efficiency, market performance and financial performance were measured using five point Likert scales (1=strongly disagree, 5=strongly agree). Log was used to measure organizational size, board size and organizational years using number of individual members and years respectively. Dummy used for measuring location. Summary tables of variables: relations heterogeneity, task heterogeneity, rational DMS, intuitive DMS, dependent DMS, avoidant DMS, spontaneous DMS, and control variable as well as multiple regression analytical methods are shown in the tables below.

Table 4.2: Variables of the study

| Variable                          | Items (Indicators)                           | Code  | Sources (Reference)                                                                                                                                                                                                                                     |
|-----------------------------------|----------------------------------------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rations Oriented Heterogeneity    | Age Heterogeneity                            | ROH1  | Zhang et al. (2021), Su et al. (2021), Doorn et al. (2013), Campion & Medsker (2001), Heyden et al. (2013), Kim & Rasheed (2014), Webber & Donahue (2001) Yadav & Lenka (2020b) Williams & O'Reilly (1998) Joshi & Roh (2009), Horwitz & Horwitz (2007) |
|                                   | Gender Heterogeneity                         | ROH2  |                                                                                                                                                                                                                                                         |
|                                   | Ethnic Heterogeneity                         | ROH3  |                                                                                                                                                                                                                                                         |
| Task Oriented Heterogeneity       | Educational Heterogeneity                    | TOH1  |                                                                                                                                                                                                                                                         |
|                                   | Functional expertise Heterogeneity           | TOH2  |                                                                                                                                                                                                                                                         |
|                                   | Tenure Heterogeneity                         | TOH3  |                                                                                                                                                                                                                                                         |
| Rational Decision Making Style    | Carefully plan important decisions           | RDMS1 |                                                                                                                                                                                                                                                         |
|                                   | Double check information for right facts     | RDMS2 |                                                                                                                                                                                                                                                         |
|                                   | Logical systematic way                       | RDMS3 |                                                                                                                                                                                                                                                         |
|                                   | Decision making requires careful thought     | RDMS4 |                                                                                                                                                                                                                                                         |
|                                   | Consider options in terms of specific goal   | RDMS5 |                                                                                                                                                                                                                                                         |
| Intuitive Decision Making Style   | Rely upon instincts while making decision    | IDMS1 |                                                                                                                                                                                                                                                         |
|                                   | Tend to rely on intuition while deciding     | IDMS2 |                                                                                                                                                                                                                                                         |
|                                   | Decide which feels right                     | IDMS3 |                                                                                                                                                                                                                                                         |
|                                   | Important to feel right rather than rational | IDMS4 |                                                                                                                                                                                                                                                         |
|                                   | Trust inner feelings and reactions           | IDMS5 |                                                                                                                                                                                                                                                         |
| Dependent Decision Making Style   | Need assistant of others while deciding      | DDMS1 | Scott & Bruce (1995), Verma & Rangnekar (2015), Adikaram & Kailasapathy (2021), Spicer & Sadler-Smith (2005), Riaz, (2015), Ward (2016), Hablemitoglu & Yildirim (2008)                                                                                 |
|                                   | Rarely make decisions without consulting     | DDMS2 |                                                                                                                                                                                                                                                         |
|                                   | Support of others, makes decision easy       | DDMS3 |                                                                                                                                                                                                                                                         |
|                                   | Use advice of others to make decisions       | DDMS4 |                                                                                                                                                                                                                                                         |
|                                   | Like to have someone to steer in direction   | DDMS5 |                                                                                                                                                                                                                                                         |
| Avoidant Decision Making Style    | Avoid important decision until               | ADMS1 |                                                                                                                                                                                                                                                         |
|                                   | Postpone decision whenever possible          | ADMS2 |                                                                                                                                                                                                                                                         |
|                                   | Often procrastinate when have to decide      | ADMS3 |                                                                                                                                                                                                                                                         |
|                                   | Decide at last minute                        | ADMS4 |                                                                                                                                                                                                                                                         |
|                                   | Put off decisions because makes uneasy       | ADMS5 |                                                                                                                                                                                                                                                         |
| Spontaneous Decision Making Style | Generally make snap decisions                | SDMS1 |                                                                                                                                                                                                                                                         |
|                                   | Often decide at spur of the moment           | SDMS2 |                                                                                                                                                                                                                                                         |
|                                   | Make quick decisions                         | SDMS3 |                                                                                                                                                                                                                                                         |
|                                   | Often make impulsive                         | SDMS4 |                                                                                                                                                                                                                                                         |
|                                   | Decide what seems natural at the moment      | SDMS5 |                                                                                                                                                                                                                                                         |

*Continued...*

| Variables             | Items                                                                                                                         | Code        | Sources (Reference)                                                                                                                                                                                                                                                                                                                            |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Efficiency            | The quantity of products or services provided substantially improved                                                          | Efficiency1 | Pino et al. (2016), Pollanen et al. (2017), Cavalluzzo & Ittner (2004), Wu et al. (2003) Sethi & King (1994). (Kandemir et al., 2006), (Talke, 2007), (De Toni et al., 2021), (Dadzie et al., 2012), (Morgan et al., 2009), Sarah et al. (2009), Brah & Chong (2004), Elbanna & Naguib (2009), Kalogeras et al. (2013b) Amhalhal et al. (2022) |
|                       | The quality of products or services provided substantially improved                                                           | Efficiency2 |                                                                                                                                                                                                                                                                                                                                                |
|                       | Efficient use of allocated budget                                                                                             | Efficiency3 |                                                                                                                                                                                                                                                                                                                                                |
|                       | The operating or cost of general management activities efficiency substantially improved                                      | Efficiency4 |                                                                                                                                                                                                                                                                                                                                                |
|                       | Cost of interacting & coordinating activities with suppliers, customers and business partners have been substantially reduced | Efficiency5 |                                                                                                                                                                                                                                                                                                                                                |
| Market Performance    | The sales volume of our products has increased.                                                                               | MktPerform1 |                                                                                                                                                                                                                                                                                                                                                |
|                       | The market share of our products has increased.                                                                               | MktPerform2 |                                                                                                                                                                                                                                                                                                                                                |
|                       | Our profitability has increase                                                                                                | MktPerform3 |                                                                                                                                                                                                                                                                                                                                                |
|                       | The number of customers that we are able to acquire and retain has increased.                                                 | MktPerform4 |                                                                                                                                                                                                                                                                                                                                                |
|                       | We are able to achieve the target time-to-market                                                                              | MktPerform5 |                                                                                                                                                                                                                                                                                                                                                |
| Financial Performance | Return on assets (ROA) have increased                                                                                         | FinPerform1 |                                                                                                                                                                                                                                                                                                                                                |
|                       | Return on sales (ROS) have increased                                                                                          | FinPerform2 |                                                                                                                                                                                                                                                                                                                                                |
|                       | Return on equity (ROE) have increased                                                                                         | FinPerform3 |                                                                                                                                                                                                                                                                                                                                                |
| Organizational Size   | Number of people or individual members in cooperative                                                                         | OrganSize   | Xu et al. (2017), Tarus & Aime (2014), García-Ramos & García-Olalla (2011), Kiel & Nicholson (2003), Cheng (2008), Rashid & Islam (2013)                                                                                                                                                                                                       |
| Organizational Years  | Number of years since the cooperative established                                                                             | OrganYears  |                                                                                                                                                                                                                                                                                                                                                |
| Board Size            | Number of people or individual members representing boards of cooperative                                                     | Board Size  |                                                                                                                                                                                                                                                                                                                                                |
| Location              | The distance between the location of cooperative and the area an individual member of board live                              | Location    |                                                                                                                                                                                                                                                                                                                                                |

Table 4.3: Analytical Models

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**Development of Analytical Models**

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**Multiple Regression Analysis**

$$Y_{1-5} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon \quad \dots \quad (\text{Model-1})$$

$$Y_{1-5} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1 * X_2 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon \quad \dots \quad (\text{Model-2})$$

**Where,**

$Y_{1-5}$  = Dependent variables ( $Y_1$ =Rational,  $Y_2$ =Intuitive,  $Y_3$ =Dependent,  $Y_4$ =Avoidant,  $Y_5$ =Spontaneous),

$\beta_0$  = y intercept/constant,

$\beta_1$ - $\beta_6$  = regression coefficients,

$X_1$ - $X_2$  = Independent Variables ( $X_1$ ROH = Relations Oriented Heterogeneity and  $X_2$ TOH=Task Oriented Heterogeneity)

$X_3$ - $X_6$  = Control Variables ( $X_3$  = Organizational Size,  $X_4$  = Organizational Years, Board Size and Location)

$X_1 X_2$  = Interaction Term ( $X_1 X_2$  = ROH\*TOH)

$\varepsilon$  = error term/ random variation due to other unmeasured variables

**Thus, the Multiple Regression Analysis models using variables of the study are;**

$$DMS_{1-5} = \beta_0 + \beta_1 ROH + \beta_2 TOH + \beta_3 \log\_OrganSize + \beta_4 \log\_OrganYears + \beta_5 \log\_BoardSize + \beta_6 Location(Dummy) + \varepsilon$$

**(Model-1)**

$$DMS_{1-5} = \beta_0 + \beta_1 ROH + \beta_2 TOH + \beta_3 ROH * TOH + \beta_4 \log\_OrganSize + \beta_5 \log\_OrganYears + \beta_6 \log\_BoardSize + \beta_7 Location(Dummy) + \varepsilon$$

**(Model-2)**

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**Note:** ROH=Relational oriented Heterogeneity, TOH=Task oriented Heterogeneity, OrganSize=Organizational Size, OrganYears=Organizational Years

## **4.8. Pilot Study: Testing Results**

### **4.8.1. Introduction**

To test the validity of the questionnaire used for this study, the researcher pilot-tested the questionnaire (Ismail et al., 2018; Leon et al., 2011; Van Teijlingen et al., 2001). A pilot study employed before the actual data collection (Ismail et al., 2018; Leon et al., 2011). Researchers have used numerous procedures to pre-test a questionnaire. As recommended by Sproull (1995) and Oppenheim (1992), analysis was made with the goal to understand the costs and duration of the main study, the effectiveness of the study's organization, suitability of research methods and instruments, response rate, ascertain the degree of the survey population, discover weaknesses and limitations (Wilson et al., 1998; In, 2017). The test of reliability and validity to prove the suitability of variables for further analysis was done in the pilot study stage.

This pilot study was mainly focused on testing all components of the questionnaire including the wording and content of the questions, question sequence and the instructions intended to be provided to the participants (Malhotra et al., 2006; Zikmund-Fisher et al., 2012). As stated by LoBiondo-Wood & Haber (2014) that the initial reliability and validity testing of the measures should take place during the pilot study, we carried testing process to ensure the reliability and validity of survey instrument based on the following goals: (i) to ensure question completeness, efficiency, relevancy and format appropriateness, (ii) to ensure that the respondents understand the questionnaires, and (iii) to understand how variables measure the content they were intended to measure that assists researchers in interpreting variables, and the relationship between them in a more theoretical manner.

Content validity as an approach to validate if the items measure the content they were intended to measure (Creswell, 2003) has been established through the feedback of the respondents, and the final decision by an academic supervisor of the thesis was made. The pre-test stage proposed that the questionnaire was understood, easy to interpret, and catches the main items of board heterogeneity dimensions, decision-making styles and organizational performance indicators defined by the conceptual framework. Therefore it can be inferred that the questionnaire has adequate content validity. As for the construct validity—what constructs concepts the items measure is maintained because all measurements were obtained from empirically and theoretically tested studies during the extensive literature review stage. Results of the pilot study presented in the following section.

### **4.8.2. Background Information of Cooperative**

In this section, we present the overview of cooperative union with its affiliated member primary cooperatives. Since the establishment of the union with 5 primary cooperatives in 2010, the membership quickly grown and as per 2022, they reach 32. Based on the attention given by the government to re-establish cooperatives under new cooperative proclamation 147/1998, the first cooperatives to join the union membership as we can observe from the table below, was registered in 2001. Since 2010, 32 member primary cooperatives affiliated to the union with 8502 individual members and 298 board members with 222 males and 76 females' to date. Organizational years of the affiliated cooperatives ranges from 5 to 21 years, organizational size ranges from 87 to 575 and board sizes ranges from 5 to 15 individuals respectively.

#### 4.8.3. Descriptive Statistics of Cooperatives and Participants

This section presents the descriptive statistics of cooperatives and the demographic characteristics of the participants. For the purpose of pilot study, the information was collected from 57 participants of the 32 primary consumer cooperatives affiliated to consumer union. Regarding the organizations' years (duration) of cooperatives under the union, 12(37.5%) were between 16 and 20 years followed by 9(28.1%) and 8(25%) that were between 6 and 10 years and between 11 and 15 years respectively. the remaining 2(6.3%) and 1(3.1%) were cooperatives with years equal or greater than 21 and equal or less than 5 respectively. The average years since their establishment were 13.91 years with the standard deviation of 4.86 and a minimum and maximum of 5 and 21 years in business respectively.

Regarding organizational size, the union has 8502 individual members from the 32 primary cooperatives. Only 4(12.5%) of them have members equal or greater than 451. Majority of members in cooperatives 12(37.5%) were between 151 and 300 followed by 8(25.5%) each with members between 301 and 450 and equal or less than 150 respectively. In terms of board size, 20(62.5%) had 6-10 board members followed by 10(31.25%) and 2(6.25%) that had 11-15 and 1-5 respectively. The average board size of the sample 32 consumer cooperatives was 9.31 individuals with the standard deviation of 2.79 and a minimum and maximum of 5 and 15 individuals respectively. The table 6.1 below presents the duration and board size of the consumer cooperatives under study.

As shown in table below, the respondents were drawn from diverse ages, with reported ages in the range of 21 years to 64 years. The average age of the respondents was 37.6 with a standard deviation of 11.53 years. From the sample respondents, 19(33.3%) of them were within the age range of 18-30 years followed by 12(29.8%) within the age range of 31-40 years. 12(21.1%) were found within the range of 41-50 years old. The remaining 6(10.5%) and 3(5.3%) of the respondents were categorized under the age ranging from 51-60 and these equal or above 61 years respectively.

Regarding the gender of the respondents, the results presented in the table 6.3 showed that majority of respondents in the sample were 41(71.9%) male, while the remaining 16(28.1%) were female. Regarding the gender of the respondents, the results presented in the table showed that majority of respondents in the sample were 219(74.7%) male, while the remaining 74(25.3%) were female. In terms of the respondents' ethnicities in the managerial board of their respective cooperatives, majority of the respondents have an average of 6.94 individuals with heterogeneous ethnic backgrounds with standard deviation of 2.52 and a minimum and maximum of 3 and 12 respectively. The results reveal that 14(43.8%) of the respondents were in cooperatives with 4-6 heterogeneous ethnic backgrounds followed by 10(31.3%) with heterogeneous ethnics of 7-9. The remaining 6(18.8%) and 2(6.3%) of them were represented from these equal or greater than 10 and equal or less than 3 heterogeneous ethnic groups.

Pertaining to education, the results of the pilot study showed that the educational backgrounds held by respondents' ranges from high school up to doctoral degree. Majority consisted of 19(33.3%) were having bachelor degree followed by 18(31.6%) of these who have college diploma. 7(12.3%) were respondents with master degree and vocational certificate respectively. The remaining 5(8.8%) and 1(1.7%) of the respondents were individuals who completed high school and doctoral degree respectively.

With regard to functional expertise background, there is high variability among respondents. As shown in the same table, majority of 16(28.1%) and 12(21.1%) of the respondents have management and cooperative background followed by 6(10.5%) with accounting and finance, business administration and other fields respectively. 5(8.8%) of them have marketing background. The remaining 4(7%) and 2(3.5%) were respondents with natural sciences while the rest were having natural sciences and agricultural sciences backgrounds respectively.

In terms of tenure, it was categorized based overall or general organizational and positional. Regarding positional tenure, the results reveal that respondents have an average tenure of 4.05 years with a standard deviation of 1.59 and a minimum and maximum of 2 and 7 years respectively. As we can see from the results, 24(42.1%) of the respondents have a positional tenure between 3 and 4 years followed by 17(29.8%) of these who have tenure between 5 and 6 years. The remaining 11(19.3%) and 5(8.8%) were respondents with tenure of equal or less than 2 and equal or greater than 7 years respectively.

The results in showed that the overall organizational tenure of the respondents have an average 13 years with standard deviation of 10.2 and a minimum and maximum of 2 and 37 respectively. Majority consisted of 18(31.6%) were having equal or less than 5 years followed by 13(22.8%) of these who have tenure between 6 and 10 years. 8(14%) of them were having tenure between 11 and 15 years. While 6(10.5%) of them were respondents with tenure between 16 and 20 years. The remaining 5(8.8%) and 4(7%) were these with tenure between 16 and 20 and between 26 and 30 years followed by 3(5.3%) of the respondents with tenure between 21-25 years respectively. Results of the above discussion were summarized in the table below.

Table 4.4: Descriptive Statistics of Cooperatives and Participants

| <b>Study Variable</b>                     | <b>Frequency</b> | <b>Percent</b> | <b>Mean</b> | <b>Std.<br/>Deviation</b> | <b>Minimum</b> | <b>Maximum</b> |
|-------------------------------------------|------------------|----------------|-------------|---------------------------|----------------|----------------|
| <b><i>Organizational Years</i></b>        |                  |                | 13.91       | 4.86                      | 5              | 21             |
| Equal or less than 5 years                | 1                | 3.1            |             |                           |                |                |
| Between 6 and 10 years                    | 9                | 28.1           |             |                           |                |                |
| Between 11 and 15 years                   | 8                | 25.0           |             |                           |                |                |
| Between 16 and 20 years                   | 12               | 37.5           |             |                           |                |                |
| Equal or great than 21 years              | 2                | 6.3            |             |                           |                |                |
| Total                                     | 32               | 100.0          |             |                           |                |                |
| <b><i>Organizational Size</i></b>         |                  |                | 299.37      | 142.79                    | 87             | 575            |
| Equal or less than 150                    | 8                | 25.0           |             |                           |                |                |
| Between 151 and 300                       | 12               | 37.5           |             |                           |                |                |
| Between 301 and 450                       | 8                | 25.0           |             |                           |                |                |
| Equal or great than 451                   | 4                | 12.5           |             |                           |                |                |
| Total                                     | 32               | 100.0          |             |                           |                |                |
| <b><i>Board Size</i></b>                  |                  |                | 9.31        | 2.79                      | 5              | 15             |
| Equal or less than 5                      | 2                | 6.3            |             |                           |                |                |
| Between 6 and 10                          | 20               | 62.5           |             |                           |                |                |
| Between 11 and 15                         | 10               | 31.2           |             |                           |                |                |
| Total                                     | 32               | 100.0          |             |                           |                |                |
| <b><i>Age of participants</i></b>         |                  |                | 37.6        | 11.53                     | 21             | 64             |
| Between 18-30 years                       | 19               | 33.3           |             |                           |                |                |
| Between 31 and 40 years                   | 17               | 29.8           |             |                           |                |                |
| Between 41 and 50 years                   | 12               | 21.1           |             |                           |                |                |
| Between 51 and 60 years                   | 6                | 10.5           |             |                           |                |                |
| Equal or great than 61 years              | 3                | 5.3            |             |                           |                |                |
| Total                                     | 57               | 100.0          |             |                           |                |                |
| <b><i>Gender of participants</i></b>      |                  |                |             |                           |                |                |
| Male                                      | 41               | 71.9           |             |                           |                |                |
| Female                                    | 16               | 28.1           |             |                           |                |                |
| Total                                     | 57               | 100.0          |             |                           |                |                |
| <b><i>Ethnicities of participants</i></b> |                  |                | 6.94        | 2.52                      | 3              | 12             |
| Equal or less than 3                      | 2                | 6.3            |             |                           |                |                |
| Between 4 and 6                           | 14               | 43.8           |             |                           |                |                |
| Between 7and 9                            | 10               | 31.3           |             |                           |                |                |
| Equal or great than 10                    | 6                | 18.8           |             |                           |                |                |
| Total                                     | 32               | 100.0          |             |                           |                |                |

Source: Field Survey (2022)

Continued...

| <b>Study Variable</b>                   | <b>Frequency</b> | <b>Percent</b> | <b>Mean</b> | <b>Std.<br/>Deviation</b> | <b>Minimum</b> | <b>Maximum</b> |
|-----------------------------------------|------------------|----------------|-------------|---------------------------|----------------|----------------|
| <b><i>Educational Background</i></b>    | Frequency        | Percent        |             |                           |                |                |
| High School                             | 5                | 8.8            |             |                           |                |                |
| Vocational Certificate                  | 7                | 12.3           |             |                           |                |                |
| College Diploma                         | 18               | 31.6           |             |                           |                |                |
| Bachelor Degree                         | 19               | 33.3           |             |                           |                |                |
| Master Degree                           | 7                | 12.3           |             |                           |                |                |
| Doctoral Degree (PhD)                   | 1                | 1.7            |             |                           |                |                |
| Total                                   | 57               | 100.0          |             |                           |                |                |
| <b><i>Functional Background</i></b>     |                  |                |             |                           |                |                |
| Accounting & Finance                    | 6                | 10.5           |             |                           |                |                |
| Management                              | 16               | 28.1           |             |                           |                |                |
| Cooperative                             | 12               | 21.1           |             |                           |                |                |
| Business Administration                 | 6                | 10.5           |             |                           |                |                |
| Marketing                               | 5                | 8.8            |             |                           |                |                |
| Agricultural sciences                   | 2                | 3.5            |             |                           |                |                |
| Natural sciences                        | 4                | 7.0            |             |                           |                |                |
| Others                                  | 6                | 10.5           |             |                           |                |                |
| Total                                   | 57               | 100.0          |             |                           |                |                |
| <b><i>Tenure (of Positional)</i></b>    |                  |                | 4.05        | 1.59                      | 2              | 7              |
| Equal or less than 2                    | 11               | 19.3           |             |                           |                |                |
| Between 3 and 4                         | 24               | 42.1           |             |                           |                |                |
| Between 5 and 6                         | 17               | 29.8           |             |                           |                |                |
| Equal or greater than 7                 | 5                | 8.8            |             |                           |                |                |
| Total                                   | 57               | 100.0          |             |                           |                |                |
| <b><i>Tenure (any Organization)</i></b> |                  |                | 13          | 10.5                      | 2              | 37             |
| Equal or less than 3 years              | 18               | 31.6           |             |                           |                |                |
| Between 6 and 10 years                  | 13               | 22.8           |             |                           |                |                |
| Between 11 and 15 years                 | 8                | 14.0           |             |                           |                |                |
| Between 16 and 20 years                 | 5                | 8.8            |             |                           |                |                |
| Between 21 and 25 years                 | 3                | 5.3            |             |                           |                |                |
| Between 26 and 30 years                 | 4                | 7.0            |             |                           |                |                |
| Equal or great than 11 years            | 6                | 10.5           |             |                           |                |                |
| Total                                   | 57               | 100.0          |             |                           |                |                |

Source: Source: Field Data (2022)

#### **4.8.4. Reliability and Validity**

##### **4.8.4.1. Cronbach's Alpha and Average Variance Extracted (AVE)**

Reliability and validity test are the key indicators of the quality of the data collection instrument. A measure is reliable when different attempts at measuring something converge on the same result (Hair et al., 2014; Matzler et al., 2006). Impliedly, reliability is therefore an indicator of an instrument's internal consistency. Cronbach's alpha reliability (Cronbach, 1951; Cronbach & Meehl, 1955) is one of the most widely used measures of reliability in the social and organizational sciences. It is the most commonly applied estimate of a multiple-item scale's reliability. The Cronbach's alpha coefficient ranges from zero, meaning no consistency, to one meaning complete consistency (Zikmund-Fisher et al., 2012; Purwanto & Sudargini, 2021). When the measurements represent multiple questionnaire/test items, which is the most common application, Cronbach's alpha is referred to as a measure of "internal consistency" reliability (Bonett & Wright, 2015, p.3). There is consensus among researchers that for a scale to be valid and possess practical utility, it must be reliable (Peterson, 1994).

However, the author further observes that there is little guidance in the literature as to what constitutes acceptable reliability for research. Different research authors used different cut-off points of the Cronbach's alpha coefficient. The most threshold valued suggested and judged for acceptable Cronbach's alpha in this study was 0.7 (Purwanto & Sudargini, 2021; Hair et al., 2019). Validity, on the other hand, is the accuracy of a measure or the extent to which a score truthfully represents a concept (Zikmund-Fisher et al., 2012). There are normally four ways of establishing validity namely; face validity, content validity, criterion validity and construct validity. Another way of conducting reliability is through convergent Validity (using AVE): It measures the magnitude of the correlation between constructs and latent variables. It is determined based on the principle that the measures of a construct should be highly correlated (Purwanto & Sudargini, 2021). The convergent validity of a construct with reflective indicators is evaluated by Average Variance Extracted (AVE) for all items on each construct (Fornell & Larcker, 1981). The AVE value should be equal to 0.5 or more. An AVE value of 0.5 or more means that the construct can explain 50% or more of the variance of the item (Sarstedt et al., 2017; Wong, 2013).

This study adopted research instruments from previous studies that further enhanced from expert opinions received during the study process. The results of the Cronbach's alphas of the study's variables are shown in table below. Although the variable of Intuitive DMS had the highest value of 0.924, the results of the Cronbach alphas of all the study's variables included for the data analysis ranged from 0.845 to 0.924. Therefore, based on the acceptable threshold valued for Cronbach's alpha set to be greater than 0.7 (Purwanto & Sudargini, 2021; Hair et al., 2019), the constructs of this study were considered to indicate a sufficient level of construct validity and reliability. In terms of AVE, task oriented heterogeneity found to have the highest score of 0.844.

The results of the AVE for all the study's variables included for the data analysis ranged from 0.624 for efficiency to 0.844 for task oriented heterogeneity. Thus, all variables satisfied the threshold of 0.5. Since both CR and AVE exceed the critical thresholds values for all construct, this thesis conclude that the model passed the construct reliability test and that these reliabilities provide evidence of that constructs are suitable for further analysis (Wilson 2010).

Table 4.5: Extracted Factor Analysis

| <b>ROH</b>  |      | <b>DDMS</b> |      | <b>Efficiency</b>            |      |
|-------------|------|-------------|------|------------------------------|------|
| ROH1        | .847 | DDMS1       | .955 | Efficiency1                  | .967 |
| ROH1        | .855 | DDMS2       | .945 | Efficiency2                  | .691 |
| ROH1        | .931 | DDMS3       | .956 | Efficiency3                  | .766 |
| <b>TOH</b>  |      | DDMS4       | .855 | Efficiency4                  | .859 |
| TOH1        | .940 | DDMS5       | .729 | Efficiency5                  | .721 |
| TOH2        | .894 | <b>ADMS</b> |      | <b>Market Performance</b>    |      |
| TOH3        | .921 | ADMS1       | .824 | MktPerform1                  | .955 |
| <b>RDMS</b> |      | ADMS2       | .815 | MktPerform2                  | .945 |
| RDMS1       | .778 | ADMS3       | .768 | MktPerform3                  | .956 |
| RDMS2       | .704 | ADMS4       | .958 | MktPerform4                  | .930 |
| RDMS3       | .636 | ADMS5       | .816 | MktPerform5                  | .729 |
| RDMS4       | .967 | <b>SDMS</b> |      | <b>Financial Performance</b> |      |
| RDMS5       | .958 | SDMS1       | .871 | FinPerform1                  | .922 |
| <b>IDMS</b> |      | SDMS2       | .864 | FinPerform2                  | .805 |
| IDMS1       | .855 | SDMS3       | .672 | FinPerform3                  | .921 |
| IDMS2       | .936 | SDMS4       | .930 |                              |      |
| IDMS3       | .763 | SDMS5       | .835 |                              |      |
| IDMS4       | .733 |             |      |                              |      |
| IDMS5       | .958 |             |      |                              |      |

The table below presents the model statistics of Cronbach's alpha and the AVE for each construct that passed the construct reliability and validity test.

Table 4.6: Results of Cronbach's Alpha and AVE of the Study's Variables

| <b>Variables</b>      | Original<br>Items | After<br>Analysis | Cronbach's<br>Alpha | AVE   | Reliability |
|-----------------------|-------------------|-------------------|---------------------|-------|-------------|
| Relational OH         | 3                 | 3                 | 0.900               | 0.772 | Accepted    |
| Task OH               | 3                 | 3                 | 0.882               | 0.844 | Accepted    |
| Rational DMS          | 5                 | 4                 | 0.891               | 0.643 | Accepted    |
| Intuitive DMS         | 5                 | 5                 | 0.924               | 0.729 | Accepted    |
| Dependent DMS         | 5                 | 5                 | 0.850               | 0.796 | Accepted    |
| Avoidant DMS          | 5                 | 5                 | 0.910               | 0.704 | Accepted    |
| Spontaneous DMS       | 5                 | 4                 | 0.851               | 0.790 | Accepted    |
| Efficiency            | 5                 | 4                 | 0.845               | 0.624 | Accepted    |
| Market Performance    | 5                 | 5                 | 0.849               | 0.823 | Accepted    |
| Financial Performance | 3                 | 3                 | 0.862               | 0.782 | Accepted    |

Source: Fiend Data (2022)

#### **4.8.4.2. Correlation Matrix**

Correlation examined the relationships between variables describing the direction and degree of association between them. A correlation matrix included the values of the correlation coefficients for the variables involved (Robson, 2002). According to the literatures, correlation is said to be very weak if the coefficient has a value under 0.20, weak between 0.21 and 0.40, moderate between 0.41 and 0.69, strong between 0.70 and 0.89, very strong between 0.90 and 0.99 and perfect if 1 (Schober et al., 2018; Dancey & Reidy, 2020; Akoglu, 2018; Robson, 2002). Pearson product-moment correlation coefficient was used in order to examine the strength of a correlation and whether it was appropriate to proceed toward subsequent analysis. Results of the correlation analysis revealed that the variables in the study were variously correlated from weak to very strong but not perfectly related as presented in the table below. The strongest relationship among variables found between intuitive decision-making style and efficiency which is 0.953. Since the checked correlation coefficients found some values above 0.9, the results imply that the population data was not free from singularity. Thus, the variables needs further test for factor analysis to confirm the suitability of the variables.

Table 4.7: Correlations among Board Heterogeneity Dimensions, DMS, Indicators of OP and Control variables (N=57)

|                       | Relation<br>OH   | Task<br>OH       | Rational<br>DMS  | Intuitive<br>DMS | Dependent<br>DMS | Avoidant<br>DMS  | Spontaneous<br>DMS | Efficiency       | Market<br>Performance | Financial<br>Performance |
|-----------------------|------------------|------------------|------------------|------------------|------------------|------------------|--------------------|------------------|-----------------------|--------------------------|
| Relational OH         | <b>1</b>         |                  |                  |                  |                  |                  |                    |                  |                       |                          |
| Task OH               | .920**<br>(.000) | <b>1</b>         |                  |                  |                  |                  |                    |                  |                       |                          |
| Rational DMS          | .791**<br>(.000) | .822**<br>(.000) | <b>1</b>         |                  |                  |                  |                    |                  |                       |                          |
| Intuitive DMS         | .923**<br>(.000) | .904**<br>(.000) | .878**<br>(.000) | <b>1</b>         |                  |                  |                    |                  |                       |                          |
| Dependent DMS         | .702**<br>(.000) | .716**<br>(.000) | .783**<br>(.000) | .781**<br>(.000) | <b>1</b>         |                  |                    |                  |                       |                          |
| Avoidant DMS          | .923**<br>(.000) | .900**<br>(.000) | .852**<br>(.000) | .899**<br>(.000) | .734**<br>(.000) | <b>1</b>         |                    |                  |                       |                          |
| Spontaneous DMS       | .474**<br>(.000) | .482**<br>(.000) | .573**<br>(.000) | .505**<br>(.000) | .872**<br>(.000) | .522**<br>(.000) | <b>1</b>           |                  |                       |                          |
| Efficiency DMS        | .860**<br>(.000) | .898**<br>(.000) | .888**<br>(.000) | .953**<br>(.000) | .788**<br>(.000) | .866**<br>(.000) | .507**<br>(.000)   | <b>1</b>         |                       |                          |
| Market Performance    | .473**<br>(.000) | .481**<br>(.000) | .459**<br>(.000) | .500**<br>(.000) | .771**<br>(.000) | .507**<br>(.000) | .813**<br>(.000)   | .510**<br>(.000) | <b>1</b>              |                          |
| Financial Performance | .530**<br>(.000) | .527**<br>(.000) | .785**<br>(.000) | .593**<br>(.000) | .474**<br>(.000) | .597**<br>(.000) | .344**<br>(.009)   | .569**<br>(.000) | .216<br>(.107)        | <b>1</b>                 |

\*\*. Correlation is significant at the 0.01 level (2-tailed).

Source: Field Data (2022)

Note: OH=Oriented Heterogeneity & DMS= Decision-Making Style

#### 4.8.4.3. Factor Analysis

To understand the suitability of the population of data for further analysis, it is important to assess factor analysis in line with other researchers (Williams et al., 2012). Factor analysis as one of the several techniques, it was used in order to discern the number and nature of the underlying dimensions or regularity in phenomena factors affecting the relationship between a set of variables (Gerbing & Anderson, 1988). Since the checked correlation coefficients found some values above 0.9, it implies that the population data was not free from singularity. Factor analysis often used with multiple-indicator measures to see if the indicator tends to cluster one or more groups of indicators (Bryman & Bell, 2007). According to Hill (2011), one was to test the suitability of variable for analysis is Kaiser-Meyer-Olkin and Bartlett's Test of sphericity. To consider the suitability of factor analysis of the data, results of the KMO index must be greater than 0.5 and the Bartlett's test of sphericity is significant, that is  $p \leq 0.05$  (Williams et al., 2012; Shrestha, 2021). Based on the results of KMO and Bartlett's Test of sphericity employed in this study, the KMO measure of sampling adequacy was 0.825 and the Bartlett's test of sphericity was significant ( $\chi^2 = 921.327$  at 78 degrees of freedom (df) with  $p\text{-value} = 0.000$ ) as shown in table below. Since, the KMO index is greater than 0.5 and the Bartlett's test of sphericity is significant at  $\leq 0.05$ , the data is considered suitable for factor analysis (Williams et al., 2012; Shrestha, 2021).

Table 4.8: Kaiser-Meyer-Olkin and Bartlett's Test

| <b>KMO and Bartlett's Test</b>                   |                    |             |
|--------------------------------------------------|--------------------|-------------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                    | <b>.825</b> |
| Bartlett's Test of Sphericity                    | Approx. Chi-Square | 921.327     |
|                                                  | df                 | 78          |
|                                                  | Sig.               | .000        |

Source: Fiend Data (2022)

#### 4.8.5. Summary of Pilot Study

Based on the pilot study undertaken from 57 participants of the board members of affiliated primary cooperatives to analyzed and ensure the reliability and validity of data as well as suitability to further carry on the main study, the designed questionnaires were proved reliable and valid based the results of Cronbach's Alpha, correlations and factor. The results of Cronbach's Alpha found to be greater than the threshold set at 0.7 (Purwanto & Sudargini, 2021; Hair et al., 2019) and the result for factor analysis using KMO and Bartlett's Test of sphericity for measuring sampling adequacy found to 0.825 which is greater than 0.5 thresh hold (Williams et al., 2012; Shrestha, 2021). Thus, the data is considered suitable to carry on main study.

### 4.9. Main Study: Results and Discussion

#### 4.9.1. Introduction

This section provides the results of the study performed to test the conceptual model and research hypotheses. First, it presents the general background information of the cooperative and respondents including descriptive statistical analysis. Secondly, it introduces the evaluation procedures for reliability and validity of the survey constructs. Finally, it presents the results of statistical analysis to test the research hypotheses as well as presenting discussions of the results and implication arising from the findings.

#### **4.9.2. Response Rate**

Response rates are generally considered to be the most widely compared statistic for judging the quality of surveys (Johnson & Owen, 2003, p.127). According to Baruch (1999) and Baruch & Holtom (2008), response rate is the extent to which the final data sets include all sampled members and is calculated as the number of respondents with whom interviews are completed and divided by the total number of respondents of the entire sample including none respondents. In this study, the response rate consisted of 293 participants from 32 member primary cooperatives affiliated to the union under study. Because of the small size of the population, the study proposed census to cover all the 298 members of the boards. But, due to inconvenient circumstances, 5 people were not participated in the distributed questionnaires. Among the 298 questionnaires distributed, 293 were returned with the support of the research assistants during data collection. The overall response rate was 98.3%. According to Kothari (2004), a response rate of 50% is considered average, 60-70% is considered adequate while anything above 70% is considered to be excellent response rate. This response rate was, therefore, considered good representative of the respondents to provide information for analysis and derive conclusions.

#### **4.9.3. Descriptive Statistics of Cooperative and Participants**

This section presents the descriptive statistics of cooperatives and the demographic characteristics of the participants. The information was collected from 293 participants of the 32 primary consumer cooperatives affiliated to the cooperative union. Since the main study used the same cooperatives, the results about organizational years, organizational size and board size are the same with other described in the pilot study. Regarding the organizations' years (duration) of cooperatives under the union, 12(37.5%) were between 16 and 20 years followed by 9(28.1%) and 8(25%) that were between 6 and 10 years and between 11 and 15 years respectively. the remaining 2(6.3%) and 1(3.1%) were cooperatives with years equal or greater than 21 and equal or less than 5 respectively. The average years since their establishment were 13.91 years with the standard deviation of 4.86 and a minimum and maximum of 5 and 21 years in business respectively.

Regarding organizational size, the union has 8502 individual members from the 32 primary cooperatives. Only 4(12.5%) of them have members equal or greater than 451. Majority of members in cooperatives 12(37.5%) were between 151 and 300 followed by 8(25.5%) each with members between 301 and 450 and equal or less than 150 respectively. Organizational size has average members of 299.37 with the standard deviation of 142.79 and a minimum and maximum of 87 and 575. In terms of board size, 20(62.5%) had 6-10 board members followed by 10(31.25%) and 2(6.25%) that had 11-15 and 1-5 respectively. The average board size of the sample 32 consumer cooperatives was 9.31 individuals with the standard deviation of 2.79 and a minimum and maximum of 5 and 15 individuals respectively. The table below presents the duration and board size of the consumer cooperatives under study.

As shown in table below, the respondents were drawn from diverse ages ranged from 21 years to 68 years. The average age of the respondents was 39.23 with a standard deviation of 11.52 years. From the study respondents, majority of 122 (41.6%) of them were within the age range between 31 and 40 years followed by 61(20.8%) who were in the age range between 18 and 30 years. 54(18.1%) of the respondents were found with the age range of 41 and 50 years followed by 36(12.3%) and 21(7.2%) were belong to age range between 51 and 60 years and equal or greater than 61 years respectively.

Regarding the gender of the respondents, the results presented in the table showed that majority of respondents in the sample were 219(74.7%) male, while the remaining 74(25.3%) were female. In terms of the respondents' ethnicities in the managerial board of their respective cooperatives, majority of the respondents have an average of 6.94 individuals with heterogeneous ethnic backgrounds with standard deviation of 2.52 and a minimum and maximum of 3 and 12 respectively. The results reveal that 14(43.8%) of the respondents were in cooperatives with 4-6 heterogeneous ethnic backgrounds followed by 10(31.3%) with heterogeneous ethnics of 7-9. The remaining 6(18.8%) and 2(6.3%) of them were represented from these equal or greater than 10 and equal or less than 3 heterogeneous ethnic groups. Pertaining to the educational, the results showed that the educational backgrounds held by respondents' ranges from high school up to doctoral degree. Majority consisted of 132(45.1 %) were having diploma followed by 88(30.0%) of these who have bachelor degree. 35(11.9%) were respondents with vocational certificate. 21(7.2%) of them were with master degree and the remaining 16(5.5%) and 1(0.3%) were respondents with high school certificate and doctoral degree respectively.

With regard to functional expertise background, there is high variability among respondents. As shown in the same table, 12(4.1%), 29(9.9%) and 61(20.8%) were respondents with accounting and finance, management and cooperative functional backgrounds respectively. Other 9(3.1%), 78(26.6%), 30(10.2%) were with business administration, marketing and agricultural sciences backgrounds respectively while 21(7.2%) were respondents who had functional backgrounds from natural sciences and other fields. In terms of tenure, it was categorized based overall or general organizational and positional. Regarding positional tenure, the results reveal that respondents have an average tenure of 4.09 years with a standard deviation of 1.6 and a minimum and maximum of 2 and 7 years respectively. As we can see from the results, 111(37.9%) of the respondents have a positional tenure between 3 and 4 years followed by 96(32.8%) of these who have tenure between 5 and 6 years. The remaining 60(20.5%) and 26(8.9%) were respondents with tenure of equal or less than 2 and equal or greater than 7 years respectively.

The results in the same table showed that the overall organizational tenure of the respondents have an average 13.44 years with standard deviation of 10.33 and a minimum and maximum of 2 and 37 respectively. Majority consisted of 93(31.7%) were having equal or less than 5 years followed by 63(22.5%) of these who have tenure between 6 and 10 years. 38(13%) and 33(11.3%) were those with tenure between 11 and 15 years and those with tenure equal or greater than 11 years. The remaining 27(9.2%), 22(7.5%) and 17(5.8%) were respondents with tenures ranges between 16 and 20 years, between 26 and 30 years and between 21 and 25 years respectively. The overall results of the descriptive statistics discussed above were summarized in the table below.

Table 4.9: Descriptive Statistics of the Cooperatives and Participants

| <b>Variables</b>                          | <b>Frequency</b> | <b>Percent</b> | <b>Mean</b> | <b>Std.<br/>Deviation</b> | <b>Minimum</b> | <b>Maximum</b> |
|-------------------------------------------|------------------|----------------|-------------|---------------------------|----------------|----------------|
| <b><i>Organizational Years</i></b>        |                  |                | 13.91       | 4.86                      | 5              | 21             |
| Equal or less than 5 years                | 1                | 3.1            |             |                           |                |                |
| Between 6 and 10 years                    | 9                | 28.1           |             |                           |                |                |
| Between 11 and 15 years                   | 8                | 25.0           |             |                           |                |                |
| Between 16 and 15 years                   | 12               | 37.5           |             |                           |                |                |
| Equal or great than 21 years              | 2                | 6.3            |             |                           |                |                |
| Total                                     | 32               | 100.0          |             |                           |                |                |
| <b><i>Organizational Size</i></b>         |                  |                | 299.37      | 142.79                    | 87             | 575            |
| Equal or less than 150                    | 8                | 25.0           |             |                           |                |                |
| Between 151 and 300                       | 12               | 37.5           |             |                           |                |                |
| Between 301 and 450                       | 8                | 25.0           |             |                           |                |                |
| Equal or great than 451                   | 4                | 12.5           |             |                           |                |                |
| Total                                     | 32               | 100.0          |             |                           |                |                |
| <b><i>Board Size</i></b>                  | <b>Frequency</b> | <b>Percent</b> | 9.31        | 2.79                      | 5              | 15             |
| Equal or less than 5                      | 2                | 6.3            |             |                           |                |                |
| Between 6 and 10                          | 20               | 62.5           |             |                           |                |                |
| Between 11 and 15                         | 10               | 31.3           |             |                           |                |                |
| Total                                     | 32               | 100.0          |             |                           |                |                |
| <b><i>Age of participants</i></b>         | <b>Frequency</b> | <b>Percent</b> | 39.23       | 11.52                     | 21             | 68             |
| Between 18-30 years                       | 61               | 20.8           |             |                           |                |                |
| Between 31 and 40 years                   | 122              | 41.6           |             |                           |                |                |
| Between 41 and 50 years                   | 53               | 18.1           |             |                           |                |                |
| Between 51 and 60 years                   | 36               | 12.3           |             |                           |                |                |
| Equal or great than 61 years              | 21               | 7.2            |             |                           |                |                |
| Total                                     | 293              | 100.0          |             |                           |                |                |
| <b><i>Gender of participants</i></b>      | <b>Frequency</b> | <b>Percent</b> |             |                           |                |                |
| Male                                      | 219              | 74.7           |             |                           |                |                |
| Female                                    | 74               | 25.3           |             |                           |                |                |
| Total                                     | 293              | 100.0          |             |                           |                |                |
| <b><i>Ethnicities of participants</i></b> | <b>Frequency</b> | <b>Percent</b> | 6.94        | 2.52                      | 3              | 12             |
| Equal or less than 3                      | 2                | 6.3            |             |                           |                |                |
| Between 4 and 6                           | 14               | 43.8           |             |                           |                |                |
| Between 7and 9                            | 10               | 31.3           |             |                           |                |                |
| Equal or great than 10                    | 6                | 18.8           |             |                           |                |                |
| Total                                     | 32               | 100.0          |             |                           |                |                |

Source: Source: Field Data (2022)

*Continued...*

| <b>Variables</b>                       | <b>Frequency</b> | <b>Percent</b> | <b>Mean</b> | <b>Std.<br/>Deviation</b> | <b>Minimum</b> | <b>Maximum</b> |
|----------------------------------------|------------------|----------------|-------------|---------------------------|----------------|----------------|
| <b><i>Educational Background</i></b>   |                  |                |             |                           |                |                |
| High School                            | 16               | 5.5            |             |                           |                |                |
| Vocational Certificate                 | 35               | 11.9           |             |                           |                |                |
| College Diploma                        | 132              | 45.1           |             |                           |                |                |
| Bachelor Degree                        | 88               | 30.0           |             |                           |                |                |
| Master Degree                          | 21               | 7.2            |             |                           |                |                |
| Doctoral Degree (PhD)                  | 1                | .3             |             |                           |                |                |
| Total                                  | 293              | 100.0          |             |                           |                |                |
| <b><i>Functional Background</i></b>    |                  |                |             |                           |                |                |
|                                        | <b>Frequency</b> | <b>Percent</b> |             |                           |                |                |
| Accounting & Finance                   | 12               | 4.1            |             |                           |                |                |
| Management                             | 29               | 9.9            |             |                           |                |                |
| Cooperative                            | 61               | 20.8           |             |                           |                |                |
| Business Administration                | 9                | 3.1            |             |                           |                |                |
| Marketing                              | 78               | 26.6           |             |                           |                |                |
| Agricultural sciences                  | 30               | 10.2           |             |                           |                |                |
| Natural sciences                       | 21               | 7.2            |             |                           |                |                |
| Others                                 | 21               | 7.2            |             |                           |                |                |
| Total                                  | 293              | 100.0          |             |                           |                |                |
| <b><i>Tenure (in Positional)</i></b>   |                  |                |             |                           |                |                |
|                                        | <b>Frequency</b> | <b>Percent</b> |             |                           |                |                |
| Equal or less than 2                   | 60               | 20.5           | 4.09        | 1.60                      | 2              | 7              |
| Between 3 and 4                        | 111              | 37.9           |             |                           |                |                |
| Between 5 and 6                        | 96               | 32.8           |             |                           |                |                |
| Equal or greater than 7                | 26               | 8.9            |             |                           |                |                |
| Total                                  | 293              | 100.0          |             |                           |                |                |
| <b><i>Tenure (in Organization)</i></b> |                  |                |             |                           |                |                |
| Equal or less than 5 years             | 93               | 31.7           | 13.44       | 10.33                     | 2              | 37             |
| Between 6 and 10 years                 | 63               | 21.5           |             |                           |                |                |
| Between 11 and 15 years                | 38               | 13.0           |             |                           |                |                |
| Between 16 and 20 years                | 27               | 9.2            |             |                           |                |                |
| Between 21 and 25 years                | 17               | 5.8            |             |                           |                |                |
| Between 26 and 30 years                | 22               | 7.5            |             |                           |                |                |
| Equal or great than 11 years           | 33               | 11.3           |             |                           |                |                |
| Total                                  | 293              | 100.0          |             |                           |                |                |

*Source: Source: Field Data (2022)*

#### **4.9.4. Reliability and Validity**

##### **4.9.4.1. Cronbach's Alpha and Average Variance Extracted (AVE)**

Reliability and validity test are the key indicators of the quality of the data collection instrument. A measure is reliable when different attempts at measuring something converge on the same result (Hair et al., 2014; Matzler et al., 2006). Impliedly, reliability is therefore an indicator of an instrument's internal consistency. Cronbach's alpha reliability (Cronbach, 1951; Cronbach & Meehl, 1955) is one of the most widely used measures of reliability in the social and organizational sciences. It is the most commonly applied estimate of a multiple-item scale's reliability. The Cronbach's alpha coefficient ranges from zero, meaning no consistency, to one meaning complete consistency (Zikmund-Fisher et al., 2012; Purwanto & Sudargini, 2021). Another way of conducting reliability is through convergent Validity (using AVE): It measures the magnitude of the correlation between constructs and latent variables. It is determined based on the principle that the measures of a construct should be highly correlated (Purwanto & Sudargini, 2021). The convergent validity of a construct with reflective indicators is evaluated by Average Variance Extracted (AVE) for all items on each construct (Fornell & Larcker, 1981). The AVE value should be equal to 0.5 or more. An AVE value of 0.5 or more means that the construct can explain 50% or more of the variance of the item (Sarstedt et al., 2017; Wong, 2013).

Based on the most threshold valued recommended and judged for acceptable Cronbach's alpha, that is 0.7 (Purwanto & Sudargini, 2021; Hair et al., 2019), the results of the Cronbach's alphas of all the variables included for the data analysis ranged from 0.844 for dependent decision-making style to 0.913 for intuitive decision-making style. Therefore, based on the acceptable threshold valued for Cronbach's alpha to be greater than 0.7, the constructs of this study were sufficient to be deemed as reliable and valid since all of them are greater than 0.7 construct validity and reliability (Hair et al., 2019). The results were presented in the table below. Therefore, based on the acceptable threshold valued for Cronbach's alpha set to be greater than 0.7 (Purwanto & Sudargini, 2021; Hair et al., 2019), the constructs of this study were considered to indicate a sufficient level of construct validity and reliability. In terms of AVE, the results for all the study's variables included for the data analysis ranged from 0.643 for rational decision-making style to 0.844 for task oriented heterogeneity. Thus, all variables satisfied the threshold of 0.5. Since both CR and AVE exceed the critical thresholds values for all construct, this thesis conclude that the model passed the construct reliability test and that these reliabilities provide evidence of that constructs are suitable for further analysis (Wilson 2010).

Table 4.10: Extracted Factor Analysis

| <b>ROH</b>  |       | <b>DDMS</b> |       |
|-------------|-------|-------------|-------|
| ROH1        | 0.923 | DDMS1       | 0.954 |
| ROH1        | 0.837 | DDMS2       | 0.934 |
| ROH1        | 0.939 | DDMS3       | 0.933 |
| <b>TOH</b>  |       | DDMS4       | 0.883 |
| TOH1        | 0.946 | DDMS5       | 0.737 |
| TOH2        | 0.904 | <b>ADMS</b> |       |
| TOH3        | 0.927 | ADMS1       | 0.799 |
| <b>RDMS</b> |       | ADMS2       | 0.866 |
| RDMS1       | 0.712 | ADMS3       | 0.773 |
| RDMS2       | 0.743 | ADMS4       | 0.913 |
| RDMS3       | 0.526 | ADMS5       | 0.617 |
| RDMS4       | 0.929 | <b>SDMS</b> |       |
| RDMS5       | 0.913 | SDMS1       | 0.801 |
| <b>IDMS</b> |       | SDMS2       | 0.831 |
| IDMS1       | 0.837 | SDMS3       | 0.714 |
| IDMS2       | 0.746 | SDMS4       | 0.941 |
| IDMS3       | 0.827 | SDMS5       | 0.833 |
| IDMS4       | 0.813 |             |       |
| IDMS5       | 0.913 |             |       |

Source: Source: Field Data (2022)

Table 4.11: Results of Cronbach's Alpha and AVE of the Study's Variables

| Variables       | Original<br>Items | After<br>Analysis | Cronbach's<br>Alpha | AVE   | Reliability |
|-----------------|-------------------|-------------------|---------------------|-------|-------------|
| Relational OH   | 3                 | 4                 | 0.900               | 0.772 | Accepted    |
| Task OH         | 3                 | 4                 | 0.882               | 0.844 | Accepted    |
| Rational DMS    | 5                 | 4                 | 0.891               | 0.643 | Accepted    |
| Intuitive DMS   | 5                 | 5                 | 0.924               | 0.729 | Accepted    |
| Dependent DMS   | 5                 | 5                 | 0.850               | 0.796 | Accepted    |
| Avoidant DMS    | 5                 | 4                 | 0.910               | 0.704 | Accepted    |
| Spontaneous DMS | 5                 | 5                 | 0.851               | 0.790 | Accepted    |

Source: Source: Field Data (2022)

#### 4.9.4.2. Correlation Matrix

An examination of the relationships between variables describing the direction and degree of association between them were done through SPSS software version20. A correlation matrix included the values of the correlation coefficients for the variables involved (Robson, 2002). Following the literatures, correlation is said to be very weak if the coefficient has a value under 0.20, weak between 0.21 and 0.40, moderate between 0.41 and 0.69, strong between 0.70 and 0.89, very strong between 0.90 and 0.99 and perfect if 1 (Schober et al., 2018; Dancey & Reidy, 2020; Akoglu, 2018; Robson, 2002). Pearson product-moment correlation coefficient was done in order to examine the strength of a correlation and whether it was appropriate to proceed toward subsequent analysis. Results of the correlation matrix revealed that the variables in the study were differently correlated from very weak to very strong (>0.9) but not perfectly related as presented in the table below. According to Field (2005), the existence of strong relation between two or more predictors variables is an indication of substantial collinearity. Then, to assess the problem of multicollinearity, the use of variance inflation factor (VIF) was suggested with a threshold of VIF values less or equal to 10 for acceptance the appropriateness of the correlations (Hair et al., 2006; Mason & Perreault, 1991; Senaviratna & Cooray, 2019; Lin, 2008). Therefore, the collinearity issue is assessed under multicollinearity test.

Table 4.12: Results of Correlations Matrix among Variables (N=293)

| <b>Variables</b> | Relation OH      | Task OH          | Rational DMS     | Intuitive DMS    | Dependent DMS    | Avoidant DMS     | Spontaneous DMS |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----------------|
| Relation OH      | <b>1</b>         |                  |                  |                  |                  |                  |                 |
| Task OH          | .930**<br>(.000) | <b>1</b>         |                  |                  |                  |                  |                 |
| Rational DMS     | .733**<br>(.000) | .779**<br>(.000) | <b>1</b>         |                  |                  |                  |                 |
| Intuitive DMS    | .908**<br>(.000) | .880**<br>(.000) | .777**<br>(.000) | <b>1</b>         |                  |                  |                 |
| Dependent DMS    | .656**<br>(.000) | .686**<br>(.000) | .595**<br>(.000) | .700**<br>(.000) | <b>1</b>         |                  |                 |
| Avoidant DMS     | .920**<br>(.000) | .890**<br>(.000) | .745**<br>(.000) | .852**<br>(.000) | .661**<br>(.000) | <b>1</b>         |                 |
| Spontaneous DMS  | .390**<br>(.000) | .396**<br>(.000) | .437**<br>(.000) | .481**<br>(.000) | .836**<br>(.000) | .423**<br>(.000) | <b>1</b>        |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Field Data (2022)

Note: OH=Oriented Heterogeneity, DMS=Decision Making Style

#### 4.9.4.3. Test of Normality

Usually, there are assumptions that are made about variables during statistical tests. One of the main assumptions is that data follows a normal distribution (Zikmund, 2013). Statistical procedures used in analyses may however have some errors and therefore need to be tested. This is to ensure that the findings are worth using in decision making. Testing for assumptions is beneficial because it ensures that analysis meets associated assumptions and helps avoid Type I and Type II errors (Osborne, 2001). This study therefore carried out test of normality. Since statistical errors are common in scientific literature, many of the statistical procedures including correlation, regression, t-tests are based on the assumption that the data follows a normal distribution (Ghasemi & Zahediasl, 2012). Normality is important because if the assumptions do not hold, it is impossible to draw accurate and reliable conclusions about reality (Bonett & Seier, 2002; Royston, 1982). Since the assumptions are not always the case, the test of normality is usually carried out to assess the extent to which the variables of interest assume a normal probability distribution.

In the event that normality is not achieved for some of the variables, then these variables would end up depicting the wrong picture of the relationships between the variables (Jarque & Bera, 1987). In addition, the inferential statistics were used to test the null hypothesis for possible rejection or acceptance. In this study, the 5% level of significance was taken as the level of decision criteria whereby the null hypothesis could be rejected if the p-value was less than 0.05 and accepted if otherwise (Ghasemi & Zahediasl, 2012). The main test for the assessment of normality is the Shapiro-Wilk test. This test was used to test the data in this study (Martins & Lucato, 2018) to understand if the data deviate from the normal distribution. If Shapiro-Wilk test is less than 0.5 then the data significantly deviates from a normal distribution (Ghasemi & Zahediasl, 2012). The results of the test for normality were as represented in table below.

Table 4.13: Test of Normality

|                         | Shapiro-Wilk |     |      |
|-------------------------|--------------|-----|------|
|                         | Statistic    | df  | Sig. |
| Relations Heterogeneity | .848         | 293 | .000 |
| Task Heterogeneity      | .845         | 293 | .000 |
| Organizational Size     | .929         | 293 | .000 |
| Organizational Years    | .945         | 293 | .000 |
| Board Size              | .898         | 293 | .000 |
| Location                | .546         | 293 | .000 |
| Rational DMS            | .797         | 293 | .000 |
| Intuitive DMS           | .837         | 293 | .000 |
| Dependent DMS           | .783         | 293 | .000 |
| Avoidant DMS            | .856         | 293 | .000 |
| Spontaneous DMS         | .848         | 293 | .000 |

a. Lilliefors Significance Correction

Source: Field Data (2022)

The study's data set was subjected to a normality test and the results are as shown in table below. So a Shapiro-Wilk test was performed and showed that the distribution of variables departed significantly from normality ( $p\text{-value} \leq 0.05$ ). The normality of the variables was then done by

plotting a Quantile-Quantile (QQ) plot. Although Q-Q plots of the observed values were found to coalesce along the line of best fit, according to Shapiro-Wilk tests, the distributions were significantly non-normal for the variables ROH ( $W=0.848$ ,  $p<0.001$ ), TOH ( $W=0.845$ ,  $p<0.001$ ), Organizational Size ( $W=0.929$ ,  $p<0.001$ ), Organizational Years ( $W=0.945$ ,  $p<0.001$ ), Board Size ( $W=0.898$ ,  $p<0.001$ ), Location ( $W=0.9546$ ,  $p<0.001$ ), RDMS ( $W=0.797$ ,  $p<0.001$ ), IDMS ( $W=0.837$ ,  $p<0.001$ ), DDMS ( $W=0.783$ ,  $p<0.001$ ), ADMS ( $W=0.856$ ,  $p<0.01$ ) and SDMS ( $W=0.848$ ,  $p<0.01$ ). Therefore, the use of null hypotheses in this study are rejected (Ruxton et al., 2015; Bonett & Seier, 2002).

#### 4.9.4.4. Multicollinearity Test

Multicollinearity is a statistical phenomenon in which predictor variables in a logistic regression model are highly correlated (Midi et al., 2010, p.253). According to the literatures, multicollinearity is an undesirable situation where correlations among independent variables are very strong that can cause unstable estimates and inaccurate variances which affects confidence intervals and hypothesis tests (Lin, 2008; Mohammadi, 2022). The existence of collinearity inflates the variances of the parameter estimates, and consequently incorrect inferences about relationships between explanatory and response variables. To check for multicollinearity issues among the predictor variables, different methods were provided for examining whether there exist multicollinearity in the model or not (Hair et al., 2006). According to Hair et al. (2012) and Senaviratna & Cooray (2019), the most used methods to diagnose multicollinearity are tolerance and variance inflation factor (VIF). Mathematically, multicollinearity can mainly be detected with the help of tolerance and its reciprocal, called VIF (Midi et al., 2010). Tolerance defined as the percentage of the variance in a given predictor that cannot be explained by the other predictors (Senaviratna & Cooray., 2019). According to Belsley (1980), tolerance is the reciprocal of VIF with the range between 0 and 1. Tolerance for an independent variable is defined as:

$$\text{Tolerance} = 1 - R^2$$

Where;  $R^2$  is the coefficient of determination for the regression of that explanatory variable on all remaining independent variables. Tolerance close to 1 indicates that there is little multicollinearity, whereas a value close to zero suggests that multicollinearity may be a threat (Lin, 2008). There is no formal cutoff value to use with tolerance for determining presence of multicollinearity (Midi et al., 2010). A rule of thumb is that a tolerance value equal or less than 0.1 has a multicollinearity problem that concerns the study for further considerations (Senaviratna & Cooray., 2019; Lin, 2008; Mohammadi, 2022). On the other hand, Hair et al. (2011) set accepted tolerance at  $> 0.20$ .

Another method of diagnosing multicollinearity is VIF. According to Marquardt (1980), VIF is used to measure the inflation of the variances for the parameters above what is expected if there is no correlation among the independent variables. Mathematically, VIF is defined as:

$$\text{VIF} = \frac{1}{\text{Tolerance}} = \frac{1}{1 - R^2}$$

Where,  $R^2$  is the coefficient of determination that is obtained when  $x$  is regressed on all other independent variables in the model. From above formula, if  $R^2$  equal 0, then VIF will be 1. If  $R^2$  approaches 1, then VIF will approach infinity. Neter et al. (1996) and Marquardt (1980) suggested that a VIF greater than 10 indicates the presence of strong multicollinearity, which is arbitrary. Thus,

several authors suggested a threshold for VIF to be  $\leq 10$  (Senaviratna & Cooray., 2019; Lin, 2008; Mohammadi, 2022; Hair et al., 2006; Midi et al., 2010). But, Hair et al. (2011) set a strict rule of accepting VIF at  $< 5$ . Following the existing literature (e.g., Senaviratna & Cooray., 2019; Lin, 2008; Mohammadi, 2022; Midi et al., 2010), this study follow a threshold rule that there is multicollinearity if tolerance is  $< 0.1$  and VIF at  $\leq 10$ . The results of analysis are presented in the table below.

Table 4.14: Results of the Multicollinearity Test

| Coefficients <sup>a</sup>                                                                               |                                            | Collinearity Statistics |       |
|---------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------------|-------|
| Model                                                                                                   |                                            | Tolerance               | VIF   |
| 1                                                                                                       | (Constant)                                 |                         |       |
|                                                                                                         | Relations Heterogeneity                    | .131                    | 7.639 |
|                                                                                                         | Tasks Heterogeneity                        | .131                    | 7.607 |
|                                                                                                         | Organizational Size                        | .106                    | 9.425 |
|                                                                                                         | Organizational Years                       | .866                    | 1.155 |
|                                                                                                         | Board Size                                 | .116                    | 8.654 |
|                                                                                                         | Location                                   | .697                    | 1.435 |
| 2                                                                                                       | (Constant)                                 |                         |       |
|                                                                                                         | Relations OH                               | .125                    | 7.975 |
|                                                                                                         | Tasks OH                                   | .131                    | 7.631 |
|                                                                                                         | Relations Heterogeneity*Task Heterogeneity | .644                    | 1.552 |
|                                                                                                         | Organizational Size                        | .106                    | 9.475 |
|                                                                                                         | Organizational Years                       | .850                    | 1.176 |
|                                                                                                         | Board Size                                 | .114                    | 8.750 |
|                                                                                                         | Location                                   | .697                    | 1.435 |
| a. Dependent Variables: Rational, Intuitive, Dependent, Avoidant and Spontaneous Decision-Making Styles |                                            |                         |       |

Source: Field Data (2022)

Multicollinearity was tested using Variance Inflation Factors (VIF) which measures how much of the variance of the estimated coefficients are increased over the case of no correlation among the variables. If no two variables are correlated, then all the VIFs will be equal to one (Senaviratna & Cooray., 2019; Mohammadi, 2022; Midi et al., 2010). When the tolerance of one of the variables is equal or less than 0.1, then there exists collinearity. From the result of the correlation matrix, there were strong relationships among other variables. To avoid the problem of multicollinearity issues, we used a series of five hierarchical regression models treating control variables one by one together with the independent variables. As per results of multicollinearity test in the above table, the highest value for VIF is 9.425 and the lowest value for tolerance is 0.106. Since all the tolerance results were all greater than 0.1 and VIF were less than 10, then the assumption of nonexistence of multicollinearity was not violated.

#### 4.9.5. Results of Hierarchical Regression Analysis

The results section established examined the effect of board heterogeneity on the decision-making styles of heterogeneous boards in cooperatives under study. Since the aim is the integration of the predictor variables such as board heterogeneity dimensions with few controlled variables of

organizational characteristics into a single model rather than to examine the individual effect of each factor, multiple hierarchical regression analysis methods were used to analyze the relationship between each dependent variable and several independent variables. A potential problem associated with regression data is the problem of multicollinearity, indicated by the existence of large correlation coefficients between pairs of independent variables in the correlation matrix (Bryman & Cramer, 2002). Multicollinearity problems were certainly expected due to the rich various strong correlation coefficients among some variables. However, based on the outcomes of the performed multicollinearity test, the results suggested that problems of multicollinearity were unlikely to be serious problem. But, further analysis was using factor analysis for the suitability of study's variables and found them suitable for analysis.

To determine the individual significant of the study variables, multiple hierarchical regression analyses were performed with the decision-making styles (rational, intuitive, dependent, avoidant and spontaneous) as the dependent variables and board heterogeneity dimensions (relational and task oriented heterogeneity) being the independent variables controlled by the organizational years, organizational size and board size. Assessment of the overall robustness and significance of the regression models was done using the F-test and p-values. Pearson correlation coefficient,  $R^2$ , beta coefficients, and p-values were computed. The significance level for p-value was set at 0.05 or the 95% confidence interval (Nooraie, 2008; Hair et al., 2019).

Additionally, for each hypothesis, a model equation of the variables relationship was computed showing the magnitude and relationships of the independent variable(s) and dependent variable. The coefficients of the regression models indicated the degree of relationship between the dependent variable and each independent variable after the effects of all other variables had been accounted for. A hierarchical regression modeling was used to enhance the regression analysis, as it show if variables of interest explain a statistically significant amount of variance in the dependent variable after accounting for all other variables (Elbanna & Fadol, 2016; Myers, 2004; Kirkman et al., 2004; Amason et al., 2006). The models were also used to examine the relationship between two or more independent and dependent with control variable (Xu et al., 2017; Kelley & Bolin, 2013; Myers, 2004).

#### **4.9.5.1. Board Heterogeneity and Rational Decision Making Style**

This section presents the study's objective that was set to determine the effect of board heterogeneity dimensions, control variables and interaction terms on rational decision-making style in cooperative. The hypotheses were stated as:

***(H1a):** Relations-oriented heterogeneity has negative and significant influence on rational decision-making style in cooperative; and **(H2a):** Task-oriented heterogeneity has positive and significant influence on rational decision-making style in cooperative in Ethiopia.*

The study set out to establish the independent effect of board heterogeneity dimensions on the rational decision-making style in cooperative. Board heterogeneity was measured using Webber & Donahue (2001) dimensions such as relations-oriented and task oriented heterogeneities. In addition, decision-making styles were measured using Scott & Bruce's (1995) general decision-making styles consisted rational, intuitive, dependent, avoidant and spontaneous. As control variables,

organizational size, organizational years, board size and location were included in the model to understand the effect of board heterogeneity on rational decision-making style. Since heterogeneous board decision-making might be affected by the overlapping nature of the board heterogeneity dimensions, we created the interaction between relations and task oriented dimensions. Thus, the interaction between relations and task oriented heterogeneity was created to understand if there is effect on rational decision-making style.

The results of analysis were done using a series of two hierarchical regression models to determine the effect when there is change in models shown in the tables below. The results in Model 1 showed that relations-oriented heterogeneity, task oriented heterogeneity and organizational size, organizational years, board size and location explained 60.9% ( $R^2=60.9$ ) of rational decision-making style in cooperative with the remaining 39.1% being explained by other variables. Adding the interaction terms between relations oriented heterogeneity and task oriented heterogeneity in model 2 with all other variables, it explained 63.1% ( $R^2=63.1$ ) of rational decision-making style in cooperative with the remaining 36.9% being explained by other variables. Model 2 presented higher  $R^2$  than model 1. The F values for all models were significant at  $p < 0.001$ . For example, the F value for model 1 is 74.4 and  $p < 0.001$ . The F values for Model 2 is 69.7 with  $p < 0.001$  respectively.

Since the results of Shapiro-Wilk from the test of normality was less than 0.05 or significant at  $p < 0.001$ , the use of null hypotheses were rejected, meaning that independent, control and interaction terms expected to have significant relationship with the rational decision-making style in cooperative. Thus, the regression model was robust enough to explain the relationship between the explanatory and dependent variable. In order to test the hypotheses, we conducted hierarchical regression analysis.

In the model 1, we entered only the main independent effects and control variables. Then, add them in model 2 with other interaction terms. The analysis of the significance of board heterogeneity dimensions, control variables and interaction terms on rational decision-making style showed statistically significant results only for task-oriented heterogeneity and non-significant for relations-oriented heterogeneity and all control variables in model 1. In model 2, task oriented heterogeneity and the interaction term between relations and task heterogeneity found to have significant with the same non-significant effect for relation heterogeneity and control variables. Regression equation estimation model of board heterogeneity dimensions together with control variables and the interaction terms of variables on rational decision-making style are presented for each model during analysis. The results of our analysis show different level of relationship among the predictor variables with the way heterogeneous boards approach the styles of decision making in cooperatives. The findings of this study provide strong evidence of the importance of understanding board heterogeneity dimensions in predicting their effect on the rational decision-making style in cooperative.

In **Model 1**, the regression analysis results found a positive and statistically non-significant relationship between relations-oriented heterogeneity and rational decision-making style ( $\beta=0.03$ ,  $p=0.681$ ). In contrast, the results from the model 1 of the same table found that there is a positive and statistically significant relationship between task-oriented heterogeneity and rational decision-making style ( $\beta=0.58$ ,  $p=0.000$ ) in cooperative. Regarding control variables, the results found organizational size to have positive and non-significant effect ( $\beta=0.01$ ,  $p=0.933$ ) on rational decision-making style. The results also found organizational years to have positive and non-

significant effect ( $\beta=0.02$ ,  $p=0.669$ ). Similarly, board size has positive and non-significant effect ( $\beta=0.03$ ,  $p=0.761$ ) on rational decision-making style. In contrast, location of the decision-makers found to have negative and non-significant effect ( $\beta=-0.08$ ,  $p=0.340$ ) on rational decision-making style in their respective cooperative. The analytical model applied to test the results in model 1 is presented as follow:

$$\text{“RDMS} = \beta_0 + \beta_1\text{ROH} + \beta_2\text{TOH} + \beta_3\log\_OrganSize + \beta_4\log\_OrganYears + \beta_5\log\_BoardSize + \beta_6\text{Location (Dummy)} + \varepsilon \dots \text{(Model-1)}\text{”}$$

Regarding **Model 2**, we added the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity to predict the effect of board heterogeneity on the rational decision-making style in cooperative. Although the results showed similar significant levels as in the model 1 for the board heterogeneity dimensions and control variables, there is variations in the coefficients values of relations-oriented heterogeneity that found to be negative and non-significant ( $\beta=-0.03$ ,  $p=0.670$ ) on rational decision-making style. Task-oriented heterogeneity found to have positive and significant effect ( $\beta=0.56$ ,  $p=0.000$ ) on rational decision-making style.

In terms of the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity, the results showed that the interaction between relations and task oriented heterogeneity has negative and statistically significant effect ( $\beta=-0.10$ ,  $p=0.000$ ) on the rational decision-making style of the heterogeneous board in cooperative. Regarding control variables, the empirical results show different relationship among organizational size, organizational years, board size and location with rational decision-making style of the heterogeneous board. For instance, organizational size found to have positive and non-significant effect ( $\beta=0.02$ ,  $p=0.833$ ) on rational decision-making style. The same are true for organizational years ( $\beta=0.01$ ,  $p=0.328$ ) and board size ( $\beta=0.02$ ,  $p=0.460$ ) that have positive and non-significant effect on rational decision-making style. However, location found to have negative and non-significant effect ( $\beta=-0.09$ ,  $p=0.308$ ) on rational decision-making style of board with heterogeneous backgrounds in their respected cooperative. The analytical model applied to test results in model 2 is presented below and followed with the overall results for the two models in different tables.

$$\text{“RDMS} = \beta_0 + \beta_1\text{ROH} + \beta_2\text{TOH} + \beta_3\text{ROH*TOH} + \beta_4\log\_OrganSize + \beta_5\log\_OrganYears + \beta_6\log\_BoardSize + \beta_7\text{Location (Dummy)} + \varepsilon \dots \text{(Model-2)}\text{”}$$

Table 4.15: Board Heterogeneity and Rational DMS Model Summary

| <b>Model Summary<sup>c</sup></b> |                   |          |                   |                            |                   |          |     |     |               |
|----------------------------------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
| Model                            | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     |               |
|                                  |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 | Sig. F Change |
| 1                                | .781 <sup>a</sup> | .609     | .601              | .535                       | .609              | 74.371   | 6   | 286 | .000          |
| 2                                | .794 <sup>b</sup> | .631     | .622              | .521                       | .022              | 16.734   | 1   | 285 | .000          |

a. Predictors: (Constant), Relations Oh, Task Oh, Organizational Size, Organizational Years, Board Size, Location

b. Predictors: (Constant), Relations Oh, Task Oh, Relations HO\*Task OH, Organizational Size, Organizational Years, Board Size, Location

c. Dependent Variable: Rational Decision-Making Styles

Source: Field Data (2022)

Table 4.16: Board Heterogeneity and Rational DMS ANOVA

| <b>ANOVA<sup>a</sup></b> |            |                |     |             |        |                   |
|--------------------------|------------|----------------|-----|-------------|--------|-------------------|
| Model                    |            | Sum of Squares | df  | Mean Square | F      | Sig.              |
| 1                        | Regression | 127.647        | 6   | 21.275      | 74.371 | .000 <sup>b</sup> |
|                          | Residual   | 81.813         | 286 | .286        |        |                   |
|                          | Total      | 209.461        | 292 |             |        |                   |
| 2                        | Regression | 132.185        | 7   | 18.884      | 69.644 | .000 <sup>c</sup> |
|                          | Residual   | 77.276         | 285 | .271        |        |                   |
|                          | Total      | 209.461        | 292 |             |        |                   |

a. Dependent Variable: Rational DMS

b. Predictors: (Constant), Relations OH, Task OH, Organizational Size, Organizational Years, Board Size, Location

c. Predictors: (Constant), Relations Oh, Task Oh, Relations HO\*Task OH, Organizational Size, Organizational Years, Board Size, Location

Source: Field Data (2022)

Table 4.17: Regression Results of Board Heterogeneity and Rational DMS

| Variables                                  | Rational DMS      |                    |
|--------------------------------------------|-------------------|--------------------|
|                                            | Model 1           | Model 2            |
| (Intercept)                                | 1.68***<br>(0.20) | 1.99***<br>(0.21)  |
| Relations Heterogeneity                    | 0.03<br>(0.08)    | -0.03<br>(0.08)    |
| Task Heterogeneity                         | 0.58***<br>(0.08) | 0.56***<br>(0.08)  |
| Relations Heterogeneity*Task Heterogeneity |                   | -0.10***<br>(0.03) |
| Organizational Size                        | 0.01<br>(0.00)    | 0.02<br>(0.03)     |
| Organizational Years                       | 0.02<br>(0.01)    | 0.01<br>(0.01)     |
| Board Size                                 | 0.02<br>(0.03)    | 0.02<br>(0.03)     |
| Location                                   | -0.08<br>(0.09)   | -0.09<br>(0.08)    |
| R <sup>2</sup>                             | 0.609             | 0.631              |
| Adjusted R <sup>2</sup>                    | 0.601             | 0.622              |
| F-value                                    | 74.4***           | 69.7***            |
| df                                         | 6, 286            | 7, 285             |
| Number of obs.                             | 293               | 293                |

\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$ 

Source: Field Data (2022)

To understand the effect of board heterogeneity dimensions on the decision-making styles of heterogeneous boards in the context of organizational characteristics, we included four organizational characteristics deemed as control variables that might be related with heterogeneity and decision-making process. Therefore, we selected organizational size, organizational years, board size and location in terms of cooperative. Forsaith and Fuller (1995) suggested that enterprises are most frequently classified by size according to the number of people they employ. According to Damanpour, 2010; Zona et al. (2013), organizational size may facilitate or constrain organizations' activities, such as decision making, group information-processing and firm innovation. Larger organizations generally have larger inertia forces (Xie, 2014) and more hierarchical structures (Nahavandi & Malekzadeh, 1993; Nelson, 2009), which may cause wider distribution of power and less discretion (Nahavandi & Malekzadeh, 1993; Papadakis, 2006) and thus reduce the impact of board diversity on organization's decision making and management. In contrast, smaller firms are more likely and quicker to implement creativity and innovation, and ultimately promote decision making and problem solving (Gong et al., 2013; Tripsas & Gavetti, 2000; Li & Chen, 2018). In this study, we defined organizational size using the number of individual members registered by the cooperatives. To be able to explain the effects of board heterogeneity strength of relationship with decision-making styles in the context of organizational size of cooperative, we divide the size in to small and large by taking the median for the categorization of size. Thus, based on the analytical results of the organizational size, we

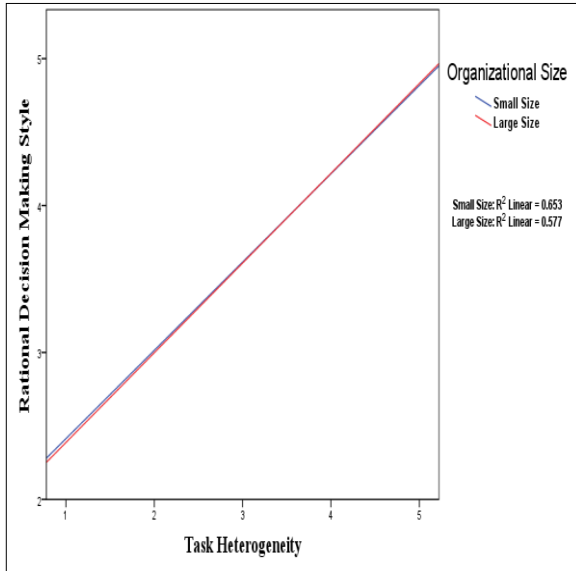
determined 268 to be the threshold for categorization of the size. If the organizational size is 268 and above, it is large size and otherwise small size respectively.

The second control variable is organizational years. Organizational year is perceived as an indication of external legitimacy of the existence of interfirm relationships or of the pervasiveness of internal routines (BarNir et al., 2003) and deemed to be important as older organizations are expected to become more inert over time (Doorn et al., 2013). In this study, we defined organizational years is factor measured using the number of years since cooperatives were established and registered as a legal entity. Based on the statistical results, we categorized the organizational years or age as older and younger based the years since their formation. Thus, if the cooperative years or age is 15 and above, it deemed as older, other was younger cooperatives.

The third control variable is board size. The effectiveness of the board of directors and effect on performance of the firms has been studied widely (S. Cheng, 2008). Chaganti, Mahajan & Sharma (1985) argued that board size is a significant board attribute and affects board functions and eventually corporate performance. Lipton & Lorsch (1992) and Jensen (1993) asserted that large boards could be less effective than small boards. Increase in board's size, occurs with increase in agency problems (such as director free-riding) within the board and the board becomes less effective. Jensen (1993) also supported the theory of Lorsch (1992) and further added that the decision-making power of the board becomes slower with the involvement of more people. Defining board size as the number of individuals elected in board to represent the union, categorized into small and large size. According to the statistical results, the median determined the threshold at 9. Primary cooperatives affiliated to the union deemed large board size if it has 9 or above members, otherwise small. Finally, we included location of the decision-makers or board members from the cooperative using the distance. Since, the affiliated primary cooperatives restricted to a certain operating areas, not all cooperative decision makers or board members representing union were living in the vicinity. Thus, we divided the distance as nearby or far away to understand the location issue.

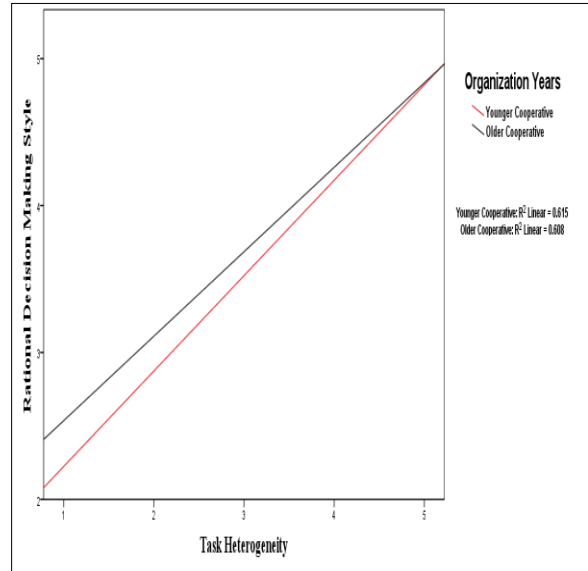
Therefore, using SPSS to analyze the effect of board heterogeneity dimension on decision-making styles in the context of organizational characteristics such as organizational size, organizational years, board size and location, we use graphical interaction to explain the cooperative organizational contextual factors presented under each analytical results of the regression. According to the analytical results regarding the organizational size, it was found that the effect of board heterogeneity using task oriented heterogeneity dimension on rational decision-making style is stronger in small organizational size ( $R^2=65.3\%$ ) than in large organizational size ( $R^2=57.7\%$ ) of the cooperative. In terms of organizational years, the results found that task oriented heterogeneity dimension has stronger influence on rational decision-making style in younger cooperative ( $R^2=61.5\%$ ) than in older cooperative ( $R^2=60.8\%$ ) respectively. Regarding board size, the task oriented heterogeneity dimension found to have stronger influence on rational decision-making style in small board size ( $R^2=69.8\%$ ) than in large board size ( $R^2=57.9\%$ ) in cooperative. Concerning location, the results found that task oriented heterogeneity has stronger influence on rational decision-making style of heterogeneous board living nearby the cooperative ( $R^2=63.3\%$ ) than board members who live far away from the cooperative ( $R^2=59.9\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how board heterogeneity predict the quality of rational decision-making style in terms of different organizational context. The graphical results of the study are presented in the figure below.

**Figure 4.2: Effect of TOH on RDMS in the Context of Organizational Size**



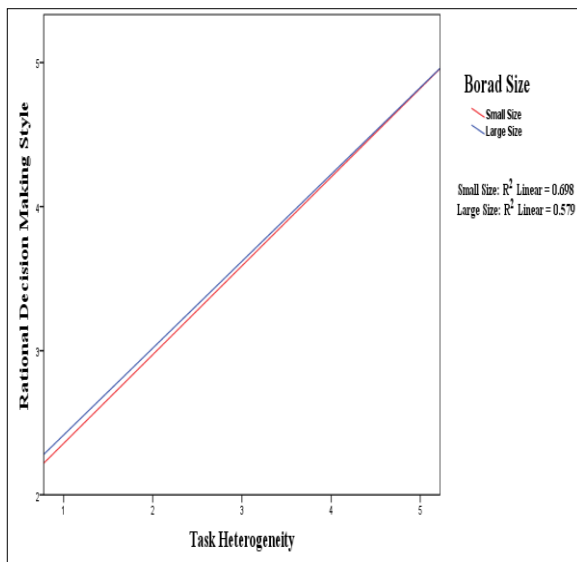
Source: Source: Field Data (2022)

**Figure 4.3: Effect of TOH on RDMS in the Context of Organizational Years**



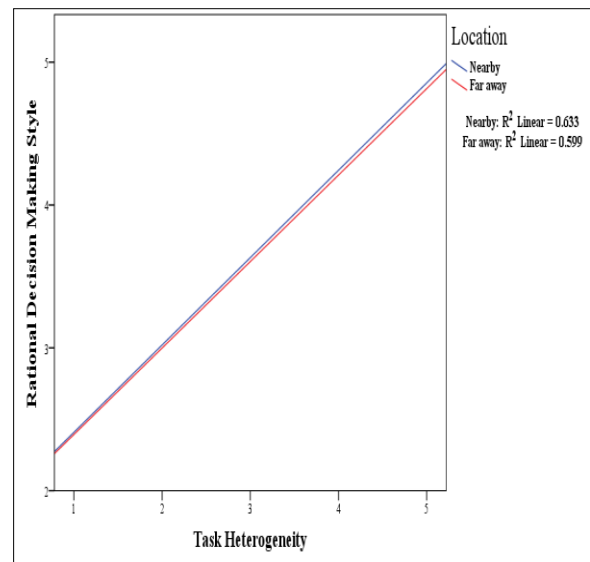
Source: Source: Field Data (2022)

**Figure 4.4: Effect of TOH on RDMS in the Context of Board Size**



Source: Source: Field Data (2022)

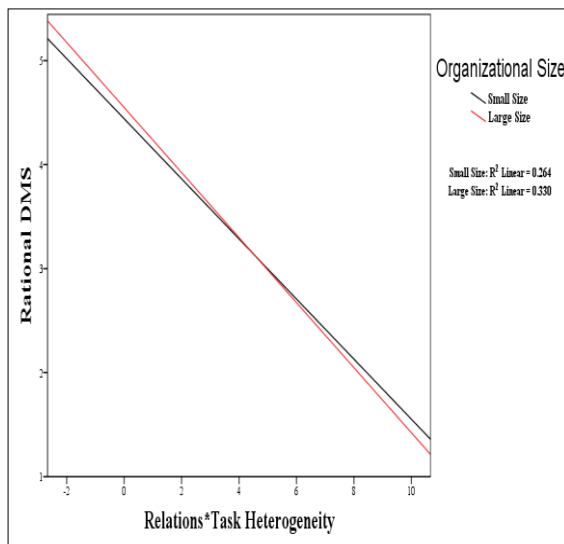
**Figure 4.5: Effect of TOH on RDMS in the Context of Location**



Source: Source: Field Data (2022)

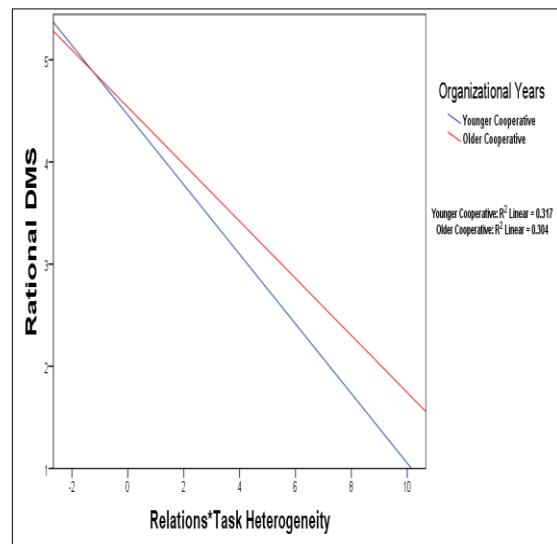
However, regarding the effect of interaction term between relations and task oriented heterogeneity on rational decision-making style in the context of organizational size, it was found that interaction between relations and task oriented heterogeneity has stronger negative effect in large organizational size ( $R^2=33\%$ ) than in small organizational size ( $R^2=26.4\%$ ) of the cooperative. In terms of organizational years, the results found that interaction between relations and task oriented heterogeneity has stronger negative influence on rational decision-making style in older cooperative ( $R^2=31.7\%$ ) than in younger cooperative ( $R^2=30.4\%$ ) respectively. Regarding board size, the interaction between relations and task oriented heterogeneity found to have stronger negative influence on rational decision-making style in small board size ( $R^2=32.3\%$ ) than in large board size ( $R^2=30\%$ ) of cooperative. Concerning location, the results found that the interaction between relations and task oriented heterogeneity has stronger influence on rational decision-making style of heterogeneous board living far away from the cooperative ( $R^2=31\%$ ) than board members who live nearby the cooperative ( $R^2=27.8\%$ ) respectively. The higher percent of  $R^2$  in negative results showed bad sign for predictive models on how board heterogeneity predict the quality of rational decision-making style in terms of different organizational context. The graphical results of the study are presented in the figure below.

**Figure 4.6: Effect of Interaction Term on RDMS in the Context of Organizational Size**



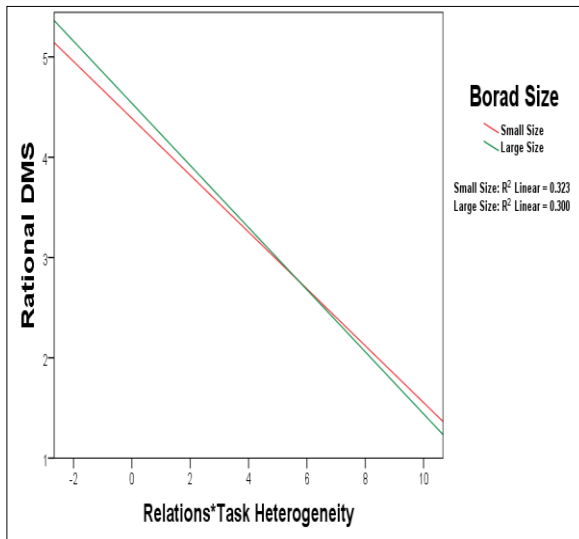
Source: Source: Field Data (2022)

**Figure 4.7: Effect of Interaction Term on RDMS in the Context of Organizational Years**



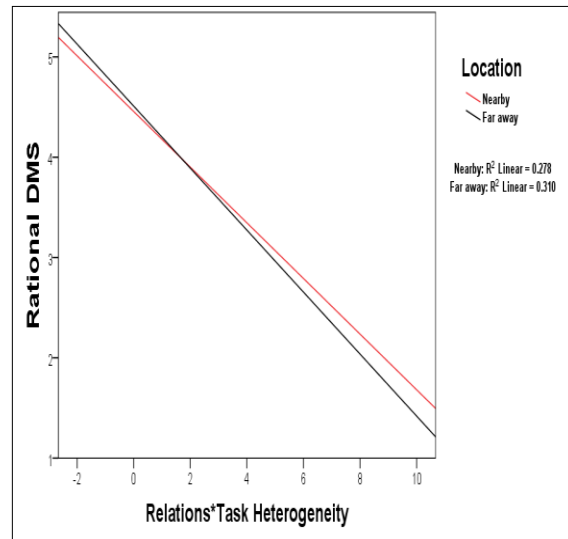
Source: Source: Field Data (2022)

**Figure 4.8: Effect of Interaction Term on RDMS in the Context of Board Size**



Source: Source: Field Data (2022)

**Figure 4.9: Effect of Interaction Term on RDMS in the Context of Location**



Source: Source: Field Data (2022)

#### 4.9.5.2. Board Heterogeneity and Intuitive Decision Making Style

This section presents the study's objective that was set to determine the effect of board heterogeneity dimensions and control variables on intuitive decision-making style in cooperative. The hypotheses were stated as:

**(H1b):** Relations-oriented heterogeneity has positive and significant influence on intuitive decision-making style in cooperative; and **(H2b):** Task-oriented heterogeneity has positive and significant influence on intuitive decision-making style in cooperative.

The study set out to establish the independent effect of board heterogeneity dimensions on the rational decision-making style in cooperative. Board heterogeneity was measured using Webber & Donahue (2001) dimensions such as relations-oriented and task oriented heterogeneities. In addition, decision-making styles were measured using Scott & Bruce's (1995) general decision-making styles consisted rational, intuitive, dependent, avoidant and spontaneous. As control variables, organizational size, organizational years, board size and location were included in the model to understand the effect of board heterogeneity on rational decision-making style. Since heterogeneous board decision-making might be affected by the overlapping nature of the board heterogeneity dimensions, we created the interaction between relations and task oriented dimensions. Thus, the interaction between relations and task oriented heterogeneity was created to understand if there is effect on intuitive decision-making style.

The results of analysis were done using a series of two hierarchical regression models to determine the effect when there is change in models shown in the tables below. The results in Model 1 showed

that relations-oriented heterogeneity, task oriented heterogeneity and organizational size, organizational years, board size and location explained 83.8% ( $R^2=83.8$ ) of intuitive decision-making style in cooperative with the remaining 16.2% being explained by other variables. Adding the interaction terms between relations oriented heterogeneity and task oriented heterogeneity in model 2 with all other variables, it explained 83.8% ( $R^2=83.8$ ) of intuitive decision-making style in cooperative with the remaining 16.2% being explained by other variables. Model 2 presented higher  $R^2$  than model 1. The F values for all models were significant at  $p < 0.001$ . For example, the F value for model 1 is 247.3 and  $p < 0.001$ . The F values for Model 2 is 211.4 with  $p < 0.001$  respectively.

Since the results of Shapiro-Wilk from the test of normality was less than 0.05 or significant at  $p < 0.001$ , the use of null hypotheses were rejected, meaning that independent, control and interaction terms expected to have significant relationship with the rational decision-making style in cooperative. Thus, the regression model was robust enough to explain the relationship between the explanatory and dependent variable. In order to test the hypotheses, we conducted hierarchical regression analysis. In the model 1, we entered only the main independent effects and control variables. Then, add them in model 2 with other interaction terms. The analysis of the significance of board heterogeneity dimensions, control variables and interaction terms on intuitive decision-making style showed statistically significant results for both relations and task-oriented heterogeneity. All control variables in model 1 found to have non-significant effect intuitive decision-making style in cooperative. In model 2, both relations and task oriented heterogeneity have positive and statistically significant effect on intuitive decision-making style. However, organizational size, organizational years, board size and location found to have non-significant effect on intuitive decision-making style respectively. Regression equation estimation model of board heterogeneity dimensions together with the interaction terms and control variables on rational decision-making style are presented for each model during analysis. The results of our analysis show different level of relationship among the predictor variables with the way heterogeneous boards approach the styles of decision making in cooperatives. The findings of this study provide strong evidence of the importance of understanding board heterogeneity dimensions in predicting their effect on intuitive decision-making style in cooperative.

In Model 1, the regression analysis results found a positive and statistically significant relationship between relations-oriented heterogeneity and intuitive decision-making style ( $\beta=0.64$ ,  $p=0.000$ ). Similarly, the results from the model 1 of the same table found a positive and statistically significant relationship between task-oriented heterogeneity and intuitive decision-making style ( $\beta=0.25$ ,  $p=0.000$ ) in cooperative. Regarding control variables, the results found organizational size to have positive and non-significant effect ( $\beta=0.03$ ,  $p=0.068$ ) on intuitive decision-making style. However, the results also found organizational years to have negative and non-significant effect ( $\beta=-0.02$ ,  $p=0.129$ ). Similarly, board size has negative and non-significant effect ( $\beta=-0.03$ ,  $p=0.287$ ) on intuitive decision-making style. Furthermore, location of the decision-makers found to have negative and non-significant effect ( $\beta=-0.06$ ,  $p=0.385$ ) on intuitive decision-making style in their respective cooperative. The analytical model applied to test the results in model 1 is presented as follow:

$$\text{“IDMS} = \beta_0 + \beta_1 \text{ROH} + \beta_2 \text{TOH} + \beta_3 \log\_OrganSize + \beta_4 \log\_OrganYears + \beta_5 \log\_BoardSize + \beta_6 \text{Location (Dummy)} + \varepsilon \dots \text{ (Model-1)”}$$

Regarding **Model 2**, we added the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity to predict the effect of board heterogeneity on the intuitive decision-

making style in cooperative. Although the results showed similar significant levels as in the model 1 for the board heterogeneity dimensions and control variables, there is variations in the coefficients values of relations-oriented heterogeneity that found have positive and statistically significant effect ( $\beta=0.63$ ,  $p=0.000$ ) on intuitive decision-making style. Similarly, task-oriented heterogeneity also found to have positive and statistically significant effect ( $\beta=0.25$ ,  $p=0.000$ ) on intuitive decision-making style.

In terms of the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity, the results showed that the interaction between relations and task oriented heterogeneity has negative and statistically non-significant effect ( $\beta=-0.07$ ,  $p=0.719$ ) on intuitive decision-making style of the heterogeneous board in cooperative. Regarding control variables, the empirical results show different relationship among organizational size, organizational years, board size and location with rational decision-making style of the heterogeneous board. For instance, organizational size found to have positive and non-significant effect ( $\beta=0.02$ ,  $p=0.073$ ) on intuitive decision-making style. In contrast, the organizational years ( $\beta=-0.01$ ,  $p=0.146$ ), board size ( $\beta=-0.03$ ,  $p=0.308$ ) and location ( $\beta=-0.07$ ,  $p=0.383$ ) that have negative and statistically non-significant effect on intuitive decision-making style in cooperative respectively. The analytical model applied to test results in model 2 is presented below and followed with the overall results for the two models in different tables.

$$IDMS = \beta_0 + \beta_1 ROH + \beta_2 TOH + \beta_3 ROH*TOH + \beta_4 \log\_OrganSize + \beta_5 \log\_OrganYears + \beta_6 \log\_BoardSize + \beta_7 Location (Dummy) + \varepsilon \dots (Model-2)''$$

Table 4.18: Board Heterogeneity and Intuitive DMS Model Summary

| <b>Model Summary<sup>c</sup></b> |                   |          |                   |                            |                   |          |     |     |               |
|----------------------------------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
| Model                            | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     |               |
|                                  |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 | Sig. F Change |
| 1                                | .916 <sup>a</sup> | .838     | .835              | .424                       | .838              | 247.290  | 6   | 286 | .000          |
| 2                                | .916 <sup>b</sup> | .838     | .835              | .425                       | .000              | .130     | 1   | 285 | .719          |

a. Predictors: (Constant), Relations Oh, Task Oh, Organizational Size, Organizational Years, Board Size, Location

b. Predictors: (Constant), Relations Oh, Task Oh, Relations HO\*Task OH, Organizational Size, Organizational Years, Board Size, Location

c. Dependent Variable: Intuitive Decision-Making Styles

Source: Field Data (2022)

Table 4.19: Board Heterogeneity and Intuitive DMS ANOVA

| ANOVA <sup>a</sup> |            |                |     |             |         |                   |
|--------------------|------------|----------------|-----|-------------|---------|-------------------|
| Model              |            | Sum of Squares | df  | Mean Square | F       | Sig.              |
| 1                  | Regression | 267.102        | 6   | 44.517      | 247.290 | .000 <sup>b</sup> |
|                    | Residual   | 51.485         | 286 | .180        |         |                   |
|                    | Total      | 318.587        | 292 |             |         |                   |
| 2                  | Regression | 267.125        | 7   | 38.161      | 211.337 | .000 <sup>c</sup> |
|                    | Residual   | 51.462         | 285 | .181        |         |                   |
|                    | Total      | 318.587        | 292 |             |         |                   |

a. Dependent Variable: Intuitive DMS

b. Predictors: (Constant), Relations Oh, Task Oh, Organizational Size, Organizational Years, Board Size, Location

c. Predictors: (Constant), Relations Oh, Task Oh, Relations HO\*Task OH, Organizational Size, Organizational Years, Board Size, Location

Source: Field Data (2022)

Table 4.20: Regression Results of Board Heterogeneity and Intuitive DMS

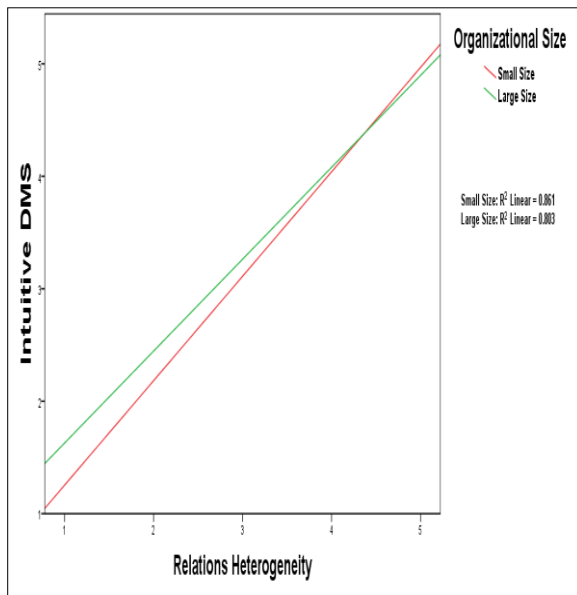
| Variables                                  | Intuitive DMS     |                   |
|--------------------------------------------|-------------------|-------------------|
|                                            | Model 1           | Model 2           |
| (Intercept)                                | 0.66***<br>(0.16) | 0.69***<br>(0.18) |
| Relations Heterogeneity                    | 0.64***<br>(0.06) | 0.63***<br>(0.06) |
| Task Heterogeneity                         | 0.25***<br>(0.06) | 0.25***<br>(0.06) |
| Relations Heterogeneity*Task Heterogeneity |                   | -0.07<br>(0.02)   |
| Organizational Size                        | 0.03<br>(0.03)    | 0.02<br>(0.01)    |
| Organizational Years                       | -0.02<br>(0.01)   | -0.01<br>(0.01)   |
| Board Size                                 | -0.03<br>(0.03)   | -0.03<br>(0.03)   |
| Location                                   | -0.06<br>(0.07)   | -0.07<br>(0.07)   |
| R <sup>2</sup>                             | 0.838             | 0.838             |
| Adjusted R <sup>2</sup>                    | 0.835             | 0.836             |
| F-value                                    | 247.3***          | 211.4***          |
| df                                         | 6, 286            | 7, 285            |
| Number of obs.                             | 293               | 293               |

\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$

Source: Field Data (2022)

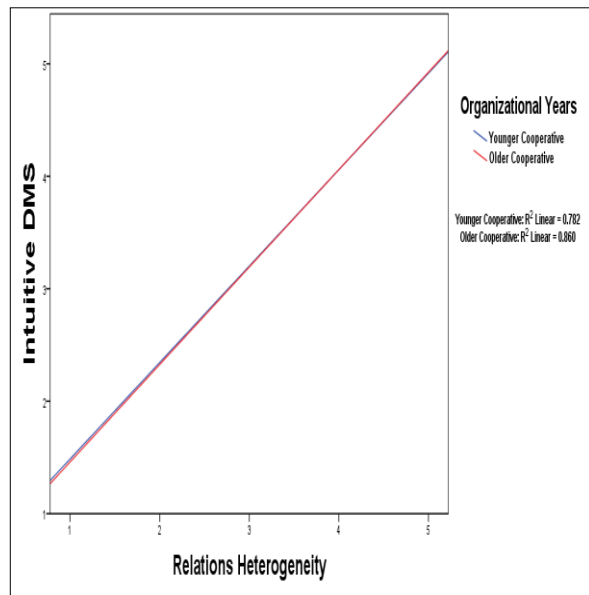
In order to explain the effect of board heterogeneity on intuitive decision-making style in the context of organizational characteristics, the results of regression presented in the graphical presentation below for both relations and task oriented heterogeneity dimensions. According to the analytical results regarding the organizational size, it was found that the effect of board heterogeneity using relations oriented heterogeneity dimension on intuitive decision-making style is stronger in small organizational size ( $R^2=85.5\%$ ) than in large organizational size ( $R^2=80.3\%$ ) of the cooperative. In terms of organizational years, the results found that relations oriented heterogeneity dimension has stronger influence on intuitive decision-making style in older cooperative ( $R^2=78.2\%$ ) than in younger cooperative ( $R^2=60.8\%$ ) respectively. Regarding board size, the relations oriented heterogeneity dimension found to have stronger influence on intuitive decision-making style in small board size ( $R^2=85.5\%$ ) than in large board size ( $R^2=81.5\%$ ) in cooperative. Concerning location, the results found that relations oriented heterogeneity has a little difference of influence on intuitive decision-making style for heterogeneous board living nearby the cooperative ( $R^2=82.2\%$ ) compared with board members who live far away from the cooperative ( $R^2=82.6\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how board heterogeneity predict the effect on intuitive decision-making style in terms of different organizational context. The graphical results of the study are presented in the figure below.

**Figure 4.10:** Effect of ROH on IDMS in the Context of Organizational Size



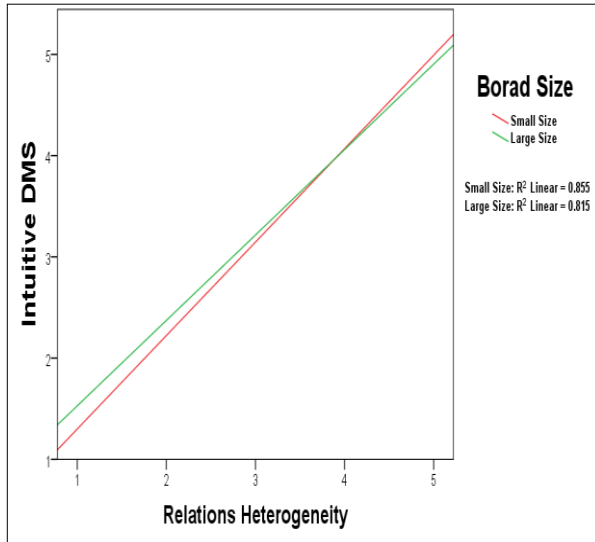
Source: Source: Field Data (2022)

**Figure 4.11:** Effect of ROH on IDMS in the Context of Organizational Years



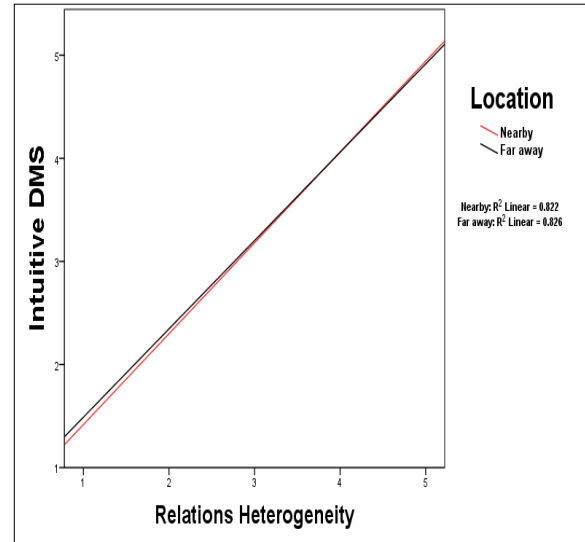
Source: Source: Field Data (2022)

**Figure 4.12:** Effect of ROH on IDMS in the Context of Board Size



Source: Source: Field Data (2022)

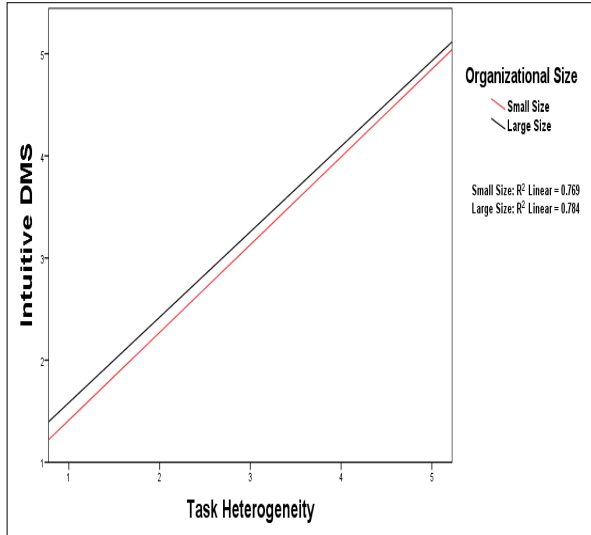
**Figure 4.13:** Effect of ROH on IDMS in the Context of Location



Source: Source: Field Data (2022)

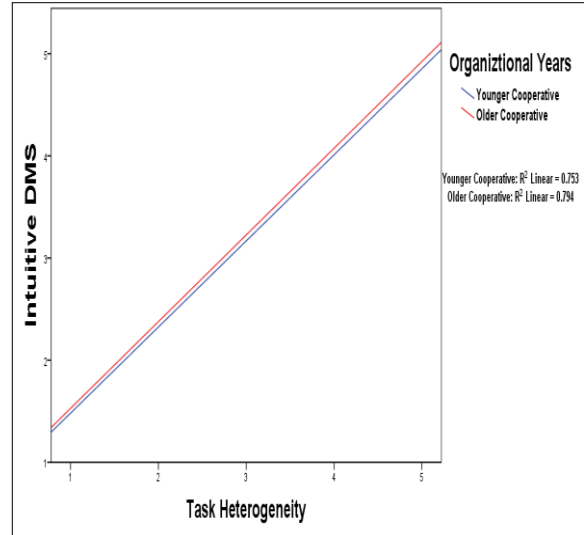
In relation to task oriented heterogeneity and intuitive decision-making style in terms of organizational size, the results found that the effect of board heterogeneity using task oriented heterogeneity dimension on intuitive decision-making style is stronger in large organizational size ( $R^2=78.4\%$ ) than in small organizational size ( $R^2=76.9\%$ ) of the cooperative. In terms of organizational years, the results found that task oriented heterogeneity dimension has stronger influence on intuitive decision-making style in older cooperative ( $R^2=79.4\%$ ) than in younger cooperative ( $R^2=75.3\%$ ) respectively. Regarding board size, the task oriented heterogeneity dimension found to have stronger influence on intuitive decision-making style in small board size ( $R^2=80.1\%$ ) than in large board size ( $R^2=76.7\%$ ) of cooperative. Concerning location, the results found that task oriented heterogeneity has stronger influence on intuitive decision-making style of heterogeneous board living far away from the cooperative ( $R^2=78.8\%$ ) than board members who live nearby the cooperative ( $R^2=73.6\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how board heterogeneity predict the effect on intuitive decision-making style in terms of different organizational context. The graphical results of the study are presented in the figure below.

**Figure 4.14:** Effect of TOH on IDMS in the Context of Organizational Size



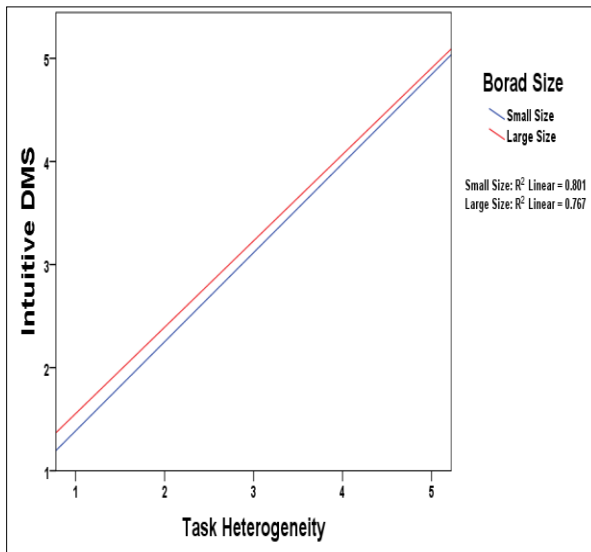
Source: Source: Field Data (2022)

**Figure 4.15:** Effect of TOH on IDMS in the Context of Organizational Years



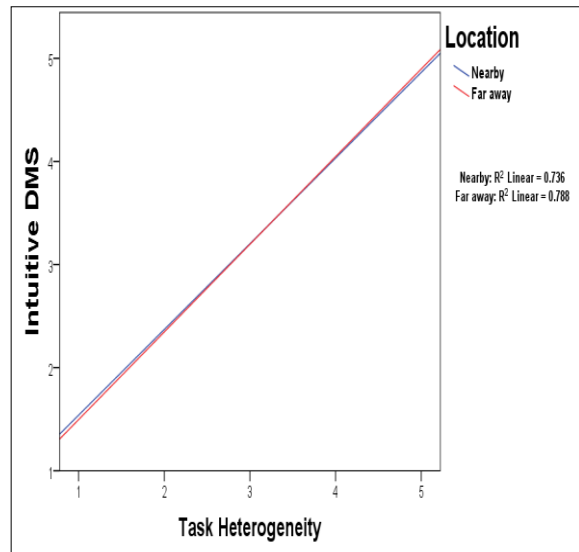
Source: Source: Field Data (2022)

**Figure 4.16:** Effect of TOH on IDMS in the Context of Board Size



Source: Source: Field Data (2022)

**Figure 4.17:** Effect of TOH on IDMS in the Context of Location



Source: Source: Field Data (2022)

#### 4.9.5.3. Board Heterogeneity and Dependent Decision Making Style

This section presents the study's objective that was set to determine the effect of board heterogeneity dimensions and control variables on dependent decision-making style in cooperative. The hypotheses were stated as:

*(H1c): Relations-oriented heterogeneity has negative and significant influence on dependent decision-making style in cooperative; and (H2c): Task-oriented heterogeneity has positive significant influence on dependent decision-making style in cooperative in Ethiopia.*

The study set out to establish the independent effect of board heterogeneity dimensions on the rational decision-making style in cooperative. Board heterogeneity was measured using Webber & Donahue (2001) dimensions such as relations-oriented and task oriented heterogeneities. In addition, decision-making styles were measured using Scott & Bruce's (1995) general decision-making styles consisted rational, intuitive, dependent, avoidant and spontaneous. As control variables, organizational size, organizational years, board size and location were included in the model to understand the effect of board heterogeneity on rational decision-making style. Since heterogeneous board decision-making might be affected by the overlapping nature of the board heterogeneity dimensions, we created the interaction between relations and task oriented dimensions. Thus, the interaction between relations and task oriented heterogeneity was created to understand if there is effect on dependent decision-making style.

The results of analysis were done using a series of two hierarchical regression models to determine the effect when there is change in models shown in the tables below. The results in Model 1 showed that relations-oriented heterogeneity, task oriented heterogeneity and organizational size, organizational years, board size and location explained 48.3% ( $R^2=48.3$ ) of dependent decision-making style in cooperative with the remaining 51.7% being explained by other variables. Adding the interaction terms between relations oriented heterogeneity and task oriented heterogeneity in model 2 with all other variables, it explained 48.3% ( $R^2=48.3$ ) of dependent decision-making style in cooperative with the remaining 51.7% being explained by other variables. Model 2 presented the same  $R^2$  as model 1. The F values for all models were significant at  $p < 0.001$ . For example, the F value for model 1 is 44.6 and  $p < 0.001$ . The F values for Model 2 is 38.1 with  $p < 0.001$  respectively.

Since the results of Shapiro-Wilk from the test of normality was less than 0.05 or significant at  $p < 0.001$ , the use of null hypotheses were rejected, meaning that independent, control and interaction terms expected to have significant relationship with the dependent decision-making style in cooperative. Thus, the regression model was robust enough to explain the relationship between the explanatory and dependent variable. In order to test the hypotheses, we conducted hierarchical regression analysis.

In the model 1, we entered only the main independent effects and control variables. Then, added them in model 2 with other interaction terms. The analysis of the significance of board heterogeneity dimensions, control variables and interaction terms on dependent decision-making style showed statistically significant results only for task-oriented heterogeneity and non-significant for relations-oriented heterogeneity and all control variables in model 1. In model 2, task oriented heterogeneity found to have significant effect on dependent decision-making style while non-

significant effect for relations heterogeneity, the interaction term between relations and task heterogeneity and control variables respectively.

Regression equation estimation model of board heterogeneity dimensions together with control variables and the interaction terms of variables on dependent decision-making style are presented for each model during analysis. The results of our analysis show different level of relationship among the predictor variables with the way heterogeneous boards approach the styles of decision making in cooperatives. The findings of this study provide strong evidence of the importance of understanding board heterogeneity dimensions in predicting their effect on dependent decision-making style in cooperative.

In **Model 1**, the regression analysis results found a positive and statistically non-significant relationship between relations-oriented heterogeneity and dependent decision-making style ( $\beta=0.07$ ,  $p=0.429$ ). In contrast, the results from model 1 of the same table found a positive and statistically significant relationship between task-oriented heterogeneity and dependent decision-making style ( $\beta=0.47$ ,  $p=0.000$ ) in cooperative. Regarding control variables, the results found organizational size to have positive and non-significant effect ( $\beta=0.01$ ,  $p=0.505$ ) on dependent decision-making style. The results also found organizational years to have positive and non-significant effect ( $\beta=0.01$ ,  $p=0.113$ ). In contrast, board size has found to have negative and non-significant effect ( $\beta=-0.01$ ,  $p=0.898$ ) on dependent decision-making style. Similarly, location of the decision-makers found to have negative and non-significant effect ( $\beta=-0.11$ ,  $p=0.288$ ) on dependent decision-making style in their respective cooperative. The analytical model applied to test the results in model 1 is presented as follow:

$$\text{“DDMS} = \beta_0 + \beta_1\text{ROH} + \beta_2\text{TOH} + \beta_3\log\_OrganSize + \beta_4\log\_OrganYears + \beta_5\log\_BoardSize + \beta_6\text{Location (Dummy)} + \varepsilon \dots \text{(Model-1)}\text{”}$$

Regarding Model 2, we added the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity to predict the effect of board heterogeneity on the dependent decision-making style in cooperative. Although the results showed similar significant levels as in the model 1 for the board heterogeneity dimensions and control variables, there is variations in the coefficients values of relations-oriented heterogeneity that found to be positive and non-significant ( $\beta=0.07$ ,  $p=0.450$ ) on dependent decision-making style. Task-oriented heterogeneity found to have positive and significant effect ( $\beta=0.47$ ,  $p=0.000$ ) on dependent decision-making style.

In terms of the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity, the results showed that the interaction between relations and task oriented heterogeneity has negative and statistically non-significant effect ( $\beta=-0.01$ ,  $p=0.932$ ) on dependent decision-making style of the heterogeneous board in cooperative. Regarding control variables, the empirical results show different relationship among organizational size, organizational years, board size and location with dependent decision-making style of the heterogeneous board. For instance, organizational size found to have positive and non-significant effect ( $\beta=0.01$ ,  $p=0.510$ ) on dependent decision-making style. However, organizational years ( $\beta=-0.01$ ,  $p=0.328$ ), board size ( $\beta=-0.01$ ,  $p=0.906$ ) and location found to have negative and non-significant effect ( $\beta=-0.09$ ,  $p=0.308$ ) on dependent decision-making style of board with heterogeneous backgrounds in their

respected cooperative. The analytical model applied to test results in model 2 is presented below and followed with the overall results for the two models in different tables.

$$“DDMS = \beta_0 + \beta_1 ROH + \beta_2 TOH + \beta_3 ROH * TOH + \beta_4 \log\_OrganSize + \beta_5 \log\_OrganYears + \beta_6 \log\_BoardSize + \beta_7 Location (Dummy) + \varepsilon \dots (Model-2)”$$

Table 4.21: Board Heterogeneity and Dependent DMS Model Summary

| <b>Model Summary<sup>c</sup></b> |                   |          |                   |                            |                   |          |     |     |               |
|----------------------------------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
| Model                            | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     |               |
|                                  |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 | Sig. F Change |
| 1                                | .695 <sup>a</sup> | .483     | .473              | .622                       | .483              | 44.605   | 6   | 286 | .000          |
| 2                                | .695 <sup>b</sup> | .483     | .471              | .623                       | .000              | .007     | 1   | 285 | .932          |

a. Predictors: (Constant), Relations Oh, Task Oh, Organizational Size, Organizational Years, Board Size,

b. Predictors: (Constant), Relations Oh, Task Oh, Relations HO\*Task OH, Organizational Size, Organizational Years, Board Size, Location

c. Dependent Variable: Dependent Decision-Making Styles

Source: Field Data (2022)

Table 4.22: Board Heterogeneity and Dependent DMS ANOVA

| <b>ANOVA<sup>a</sup></b> |            |                |     |             |        |                   |
|--------------------------|------------|----------------|-----|-------------|--------|-------------------|
| Model                    |            | Sum of Squares | df  | Mean Square | F      | Sig.              |
| 1                        | Regression | 103.390        | 6   | 17.232      | 44.605 | .000 <sup>b</sup> |
|                          | Residual   | 110.487        | 286 | .386        |        |                   |
|                          | Total      | 213.877        | 292 |             |        |                   |
| 2                        | Regression | 103.393        | 7   | 14.770      | 38.101 | .000 <sup>c</sup> |
|                          | Residual   | 110.484        | 285 | .388        |        |                   |
|                          | Total      | 213.877        | 292 |             |        |                   |

a. Dependent Variable: Dependent Decision-Making Style

b. Predictors: (Constant), Relations Oh, Task Oh, Organizational Size, Organizational Years, Board Size,

c. Predictors: (Constant), Relations Oh, Task Oh, Relations HO\*Task OH, Organizational Size, Organizational Years, Board Size, Location

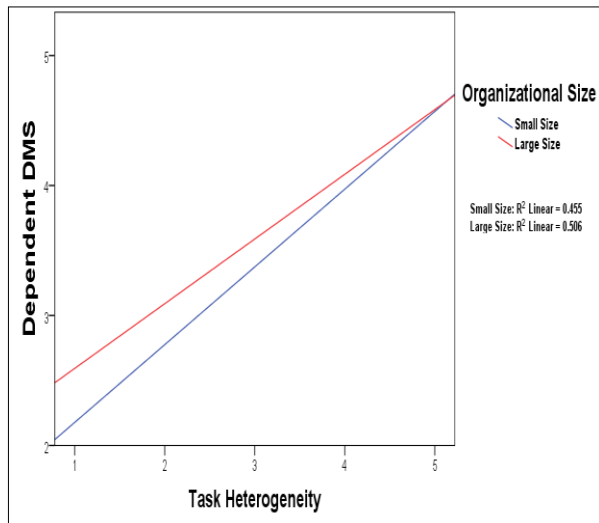
Source: Field Data (2022)

| Table 4.23: Regression Results of Board Heterogeneity and Dependent DMS |                   |                   |
|-------------------------------------------------------------------------|-------------------|-------------------|
| Variables                                                               | Dependent DMS     |                   |
|                                                                         | Model 1           | Model 2           |
| (Intercept)                                                             | 1.63***<br>(0.24) | 1.64***<br>(0.26) |
| Relations Heterogeneity                                                 | 0.07<br>(0.09)    | 0.07<br>(0.09)    |
| Task Heterogeneity                                                      | 0.47***<br>(0.09) | 0.47***<br>(0.09) |
| Relations Heterogeneity*Task Heterogeneity                              |                   | -0.01<br>(0.03)   |
| Organizational Size                                                     | 0.01<br>(0.01)    | 0.01<br>(0.02)    |
| Organizational Years                                                    | 0.02<br>(0.01)    | -0.01<br>(0.02)   |
| Board Size                                                              | -0.01<br>(0.04)   | -0.02<br>(0.04)   |
| Location                                                                | -0.11<br>(0.09)   | -0.11<br>(0.10)   |
| R <sup>2</sup>                                                          | 0.483             | 0.483             |
| Adjusted R <sup>2</sup>                                                 | 0.473             | 0.471             |
| F-value                                                                 | 44.6***           | 38.1***           |
| df                                                                      | 6, 286            | 7, 285            |
| Number of obs.                                                          | 293               | 293               |

\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$   
Source: Field Data (2022)

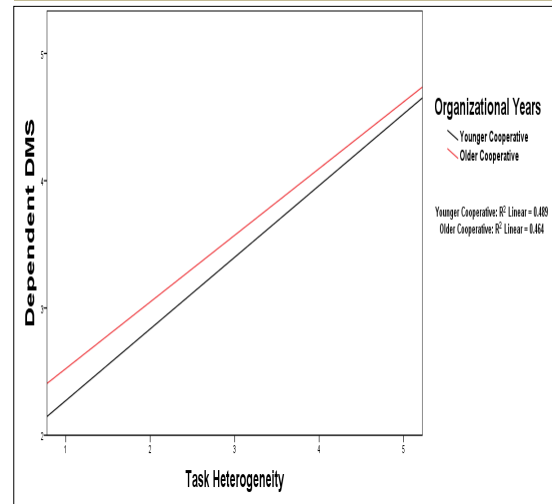
In relation to task oriented heterogeneity and dependent decision-making style in terms of organizational size, the results found that the effect of board heterogeneity using task oriented heterogeneity dimension on dependent decision-making is stronger in large organizational size ( $R^2=50.6\%$ ) than in small organizational size ( $R^2=45.5\%$ ) of the cooperative. In terms of organizational years, the results found that task oriented heterogeneity dimension has stronger influence on dependent decision-making style in younger cooperative ( $R^2=48.9\%$ ) than in older cooperative ( $R^2=46.4\%$ ) respectively. Regarding board size, the task oriented heterogeneity dimension found to have stronger influence on dependent decision-making style in large board size ( $R^2=49.1\%$ ) than in a small board size ( $R^2=41.7\%$ ) of cooperative. Concerning location, the results found that task oriented heterogeneity has stronger influence on dependent decision-making style of heterogeneous board living far away from the cooperative ( $R^2=47.9\%$ ) than board members who live nearby the cooperative ( $R^2=44.9\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how board heterogeneity predict the effect on dependent decision-making style in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 4.18:** Effect of TOH on DDMS in the Context of Organizational Size



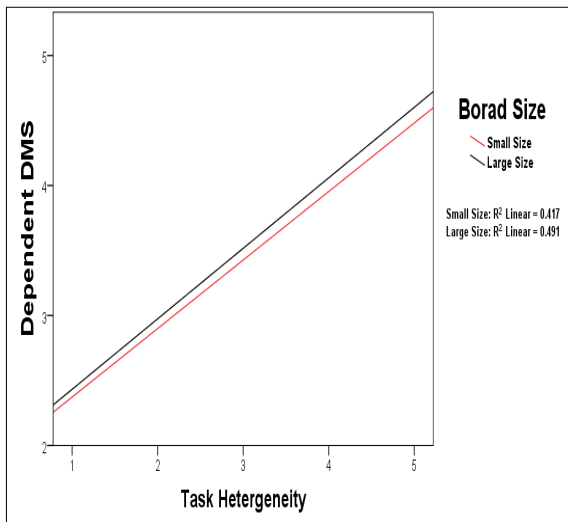
Source: Source: Field Data (2022)

**Figure 4.19:** Effect of TOH on DDMS in the Context of Organizational Years



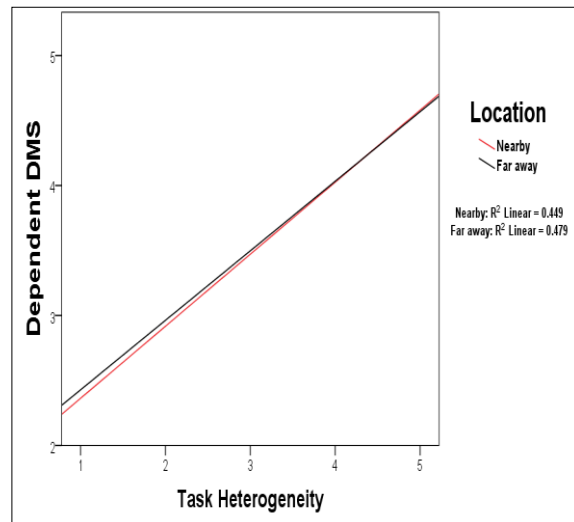
Source: Source: Field Data (2022)

**Figure 4.20:** Effect of TOH on DDMS in the Context of Board Size



Source: Source: Field Data (2022)

**Figure 4.21:** Effect of TOH on DDMS in the Context of Location



Source: Source: Field Data (2022)

#### 4.9.5.4. Board Heterogeneity and Avoidant Decision Making Style

This section presents the study's objective that was set to determine the effect of board heterogeneity dimensions and control variable on avoidant decision-making style in cooperative. The hypotheses were stated as:

*(H1d): Relations-oriented heterogeneity has negative and significant influence on avoidant decision-making style in cooperative; and (H2d): Task-oriented heterogeneity has positive significant influence on avoidant decision-making style in cooperative.*

The study set out to establish the independent effect of board heterogeneity dimensions on the avoidant decision-making style in cooperative. Board heterogeneity was measured using Webber & Donahue (2001) dimensions such as relations-oriented and task oriented heterogeneities. In addition, decision-making styles were measured using Scott & Bruce's (1995) general decision-making styles consisted rational, intuitive, dependent, avoidant and spontaneous. As control variables, organizational size, organizational years, board size and location were included in the model to understand the effect of board heterogeneity on avoidant decision-making style. Since heterogeneous board decision-making might be affected by the overlapping nature of the board heterogeneity dimensions, we created the interaction between relations and task oriented dimensions. Thus, the interaction between relations and task oriented heterogeneity was created to understand if there is effect on avoidant decision-making style.

The results of analysis were done using a series of two hierarchical regression models to determine the effect when there is change in models shown in the tables below. The results in Model 1 showed that relations-oriented heterogeneity, task oriented heterogeneity and organizational size, organizational years, board size and location of the decision-makers explained 85.7% ( $R^2=85.7$ ) of avoidant decision-making style in cooperative with the remaining 14.3% being explained by other variables. Adding the interaction terms between relations oriented heterogeneity and task oriented heterogeneity in model 2 with all other variables, it explained 85.7% ( $R^2=85.7$ ) of avoidant decision-making style in cooperative with the remaining 14.3% being explained by other variables. The F values for all models were significant at  $p < 0.001$ . For example, the F value for model 1 is 284.8 and  $p < 0.001$ . The F values for Model 2 is 243.8 with  $p < 0.001$  respectively.

Since the results of Shapiro-Wilk from the test of normality was less than 0.05 or significant at  $p < 0.001$ , the use of null hypotheses were rejected, meaning that independent, control and interaction terms expected to have significant relationship with the rational decision-making style in cooperative. Thus, the regression model was robust enough to explain the relationship between the explanatory and dependent variable. In order to test the hypotheses, we conducted hierarchical regression analysis.

In the model 1, we entered only the main independent effects and control variables. Then, add them in model 2 with other interaction terms. The analysis of the significance of board heterogeneity dimensions, control variables and interaction terms on avoidant decision-making style showed statistically significant results for both relations and task-oriented heterogeneity. All control variables in model 1 found to have non-significant effect intuitive decision-making style in cooperative. In model 2, both relations and task oriented heterogeneity have positive and statistically non-significant effect on avoidant decision-making style. However, organizational size, organizational years, board size and location found to have to non-significant effect on avoidant

decision-making style respectively. Regression equation estimation model of board heterogeneity dimensions together with the interaction terms and control variables on avoidant decision-making style are presented for each model during analysis. The results of our analysis show different level of relationship among the predictor variables with the way heterogeneous boards approach the styles of decision making in cooperatives. The findings of this study provide strong evidence of the importance of understanding board heterogeneity dimensions in predicting their effect on avoidant decision-making style in cooperative.

In Model 1, the regression analysis results found a positive and statistically significant relationship between relations-oriented heterogeneity and avoidant decision-making style ( $\beta=0.65$ ,  $p=0.000$ ). Similarly, the results from the model 1 of the same table found a positive and statistically significant relationship between task-oriented heterogeneity and avoidant decision-making style ( $\beta=0.24$ ,  $p=0.000$ ) in cooperative. Regarding control variables in model 1, the results found organizational size to have negative and non-significant effect ( $\beta=-0.01$ ,  $p=0.305$ ) on avoidant decision-making style. However, the results also found organizational years to have positive and non-significant effect ( $\beta=0.01$ ,  $p=0.470$ ). Similarly, board size has positive and non-significant effect ( $\beta=0.02$ ,  $p=0.764$ ) on avoidant decision-making style. Furthermore, location of the decision-makers found to have negative and non-significant effect ( $\beta=0.08$ ,  $p=0.233$ ) on avoidant decision-making style in their respective cooperative. The analytical model applied to test the results in model 1 is presented as follow:

$$\text{“ADMS} = \beta_0 + \beta_1\text{ROH} + \beta_2\text{TOH} + \beta_3\log\_OrganSize + \beta_4\log\_OrganYears + \beta_5\log\_BoardSize + \beta_6\text{Location (Dummy)} + \varepsilon \dots \text{ (Model-1)”}$$

Regarding Model 2, we added the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity to predict the effect of board heterogeneity on the avoidant decision-making style in cooperative. Although the results showed similar significant levels as in the model 1 for the board heterogeneity dimensions and control variables, there is variations in the coefficients values of relations-oriented heterogeneity that found have positive and statistically significant effect ( $\beta=0.66$ ,  $p=0.000$ ) on avoidant decision-making style. Similarly, task-oriented heterogeneity also found to have positive and statistically significant effect ( $\beta=0.24$ ,  $p=0.000$ ) on avoidant decision-making style. In terms of the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity, the results showed that the interaction between relations and task oriented heterogeneity has positive and statistically non-significant effect ( $\beta=0.02$ ,  $p=0.434$ ) on avoidant decision-making style of the heterogeneous board in cooperative. Regarding control variables, the empirical results show positive relationship among organizational size, organizational years, board size and location with avoidant decision-making style of the heterogeneous board. For instance, organizational size found to have positive and non-significant effect ( $\beta=0.01$ ,  $p=0.334$ ) on avoidant decision-making style. Similarly, the organizational years ( $\beta=0.01$ ,  $p=0.541$ ), board size ( $\beta=0.01$ ,  $p=0.829$ ) and location ( $\beta=0.08$ ,  $p=0.230$ ) found to have positive and statistically non-significant effect on avoidant decision-making style in cooperative respectively. The analytical model applied to test results in model 2 is presented below and followed with the overall results for the two models in different tables.

$$\text{“ADMS} = \beta_0 + \beta_1\text{ROH} + \beta_2\text{TOH} + \beta_3\text{ROH*TOH} + \beta_4\log\_OrganSize + \beta_5\log\_OrganYears + \beta_6\log\_BoardSize + \beta_7\text{Location (Dummy)} + \varepsilon \dots \text{ (Model-2)”}$$

Table 4.24: Board Heterogeneity and Avoidant DMS Model Summary

| <b>Model Summary<sup>c</sup></b> |                   |        |          |               |          |                   |     |     |               |
|----------------------------------|-------------------|--------|----------|---------------|----------|-------------------|-----|-----|---------------|
| Model                            | R                 | R      | Adjusted | Std. Error of | R Square | Change Statistics |     |     | Sig. F Change |
|                                  |                   | Square | R Square | the Estimate  | Change   | F Change          | df1 | df2 |               |
| 1                                | .926 <sup>a</sup> | .857   | .854     | .401          | .857     | 284.760           | 6   | 286 | .000          |
| 2                                | .926 <sup>b</sup> | .857   | .853     | .401          | .000     | .614              | 1   | 285 | .434          |

a. Predictors: (Constant), Relations Oh, Task Oh, Organizational Size, Organizational Years, Board Size,

b. Predictors: (Constant), Relations Oh, Task Oh, Relations HO\*Task OH, Organizational Size, Organizational Years, Board Size, Location

c. Dependent Variable: Avoidant Decision-Making Styles

Source: Field Data (2022)

Table 4.25: Board Heterogeneity and Avoidant DMS ANOVA

| <b>ANOVA<sup>a</sup></b> |            |                |     |             |         |                   |
|--------------------------|------------|----------------|-----|-------------|---------|-------------------|
| Model                    |            | Sum of Squares | df  | Mean Square | F       | Sig.              |
| 1                        | Regression | 275.033        | 6   | 45.839      | 284.760 | .000 <sup>b</sup> |
|                          | Residual   | 46.038         | 286 | .161        |         |                   |
|                          | Total      | 321.072        | 292 |             |         |                   |
| 2                        | Regression | 275.132        | 7   | 39.305      | 243.838 | .000 <sup>c</sup> |
|                          | Residual   | 45.940         | 285 | .161        |         |                   |
|                          | Total      | 321.072        | 292 |             |         |                   |

a. Dependent Variable: Avoidant Decision-Making Style

b. Predictors: (Constant), Relations Oh, Task Oh, Organizational Size, Organizational Years, Board Size,

c. Predictors: (Constant), Relations Oh, Task Oh, Relations HO\*Task OH, Organizational Size, Organizational Years, Board Size, Location

Source: Field Data (2022)

Table 4.26: Regression Results of Board Heterogeneity and Avoidant DMS

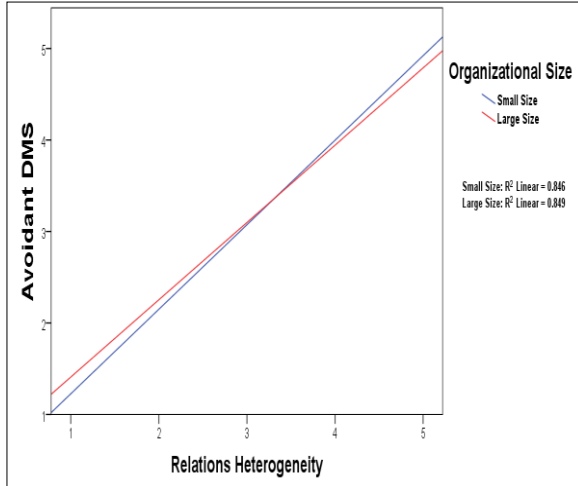
| Variables                                  | Avoidant DMS      |                   |
|--------------------------------------------|-------------------|-------------------|
|                                            | Model 1           | Model 2           |
| (Intercept)                                | 0.36*<br>(0.15)   | 0.31<br>(0.17)    |
| Relations Heterogeneity                    | 0.65***<br>(0.06) | 0.66***<br>(0.06) |
| Task Heterogeneity                         | 0.24***<br>(0.06) | 0.24***<br>(0.06) |
| Relations Heterogeneity*Task Heterogeneity |                   | 0.02<br>(0.02)    |
| Organizational Size                        | -0.01<br>(0.01)   | 0.01<br>(0.02)    |
| Organizational Years                       | 0.01<br>(0.02)    | 0.01<br>(0.01)    |
| Board Size                                 | 0.02<br>(0.02)    | 0.01<br>(0.02)    |
| Location                                   | 0.08<br>(0.06)    | 0.08<br>(0.06)    |
| R <sup>2</sup>                             | 0.857             | 0.857             |
| Adjusted R <sup>2</sup>                    | 0.854             | 0.853             |
| F-value                                    | 284.8***          | 243.8***          |
| df                                         | 6, 286            | 7, 285            |
| Number of obs.                             | 293               | 293               |

\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$ 

Source: Field Data (2022)

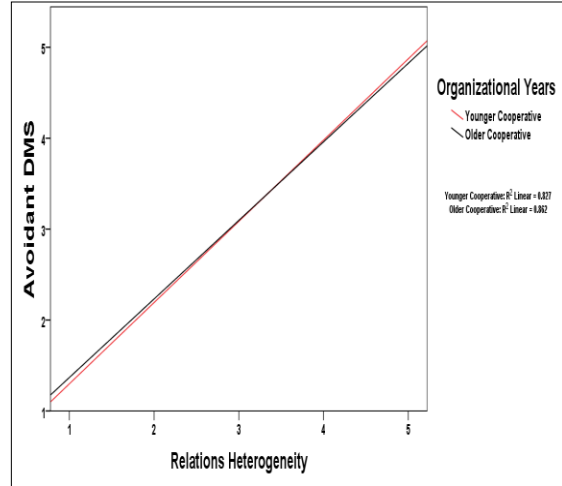
In order to explain the effect of board heterogeneity on avoidant decision-making style in the context of organizational characteristics, the results of regression presented in the graphical presentation below for both relations and task oriented heterogeneity dimensions. According to the analytical results regarding the organizational size, it was found that the effect of board heterogeneity using relations oriented heterogeneity dimension on avoidant decision-making style is almost similar in small organizational size ( $R^2=84.6\%$ ) as in large organizational size ( $R^2=84.9\%$ ) of the cooperative. In terms of organizational years, the results found that relations oriented heterogeneity dimension has stronger influence on avoidant decision-making style in older cooperative ( $R^2=80.2\%$ ) than in younger cooperative ( $R^2=78.2\%$ ) respectively. Regarding board size, the relations oriented heterogeneity dimension found to have stronger influence on avoidant decision-making style in large board size ( $R^2=84.9\%$ ) than in small board size ( $R^2=83.9\%$ ) in cooperative. Concerning location, the results found that relations oriented heterogeneity has almost the same influence on avoidant decision-making style for heterogeneous board living nearby the cooperative ( $R^2=84.1\%$ ) compared with board members who live far away from the cooperative ( $R^2=84.8\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how board heterogeneity predict the effect on avoidant decision-making style in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 4.22: Effect of ROH on ADMS in the Context of Board Size**



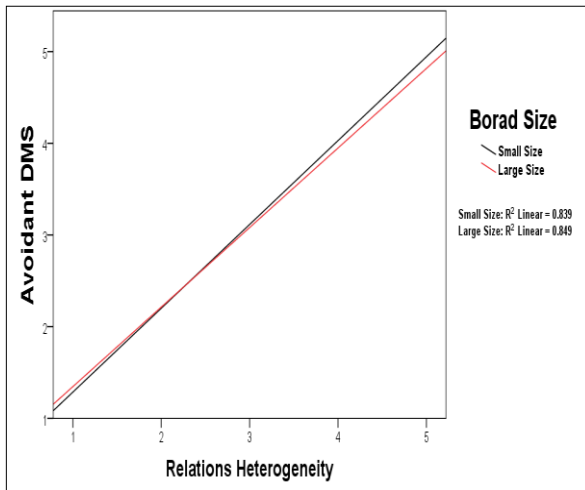
Source: Source: Field Data (2022)

**Figure 4.23: Effect of ROH on ADMS in the Context of Location**



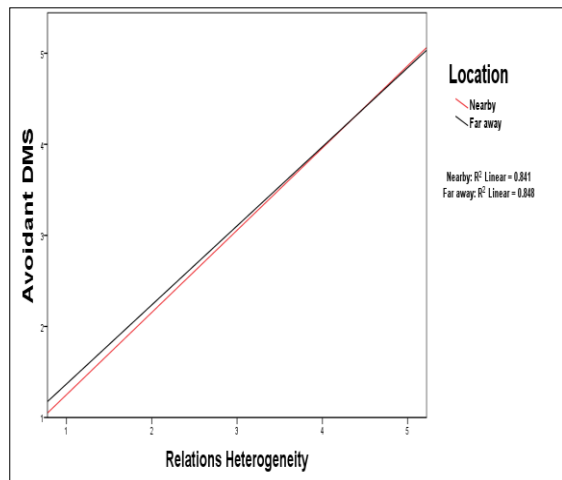
Source: Source: Field Data (2022)

**Figure 4.24: Effect of ROH on ADMS in the Context of Organizational Size**



Source: Source: Field Data (2022)

**Figure 4.25: Effect of ROH on ADMS in the Context of Organizational Years**

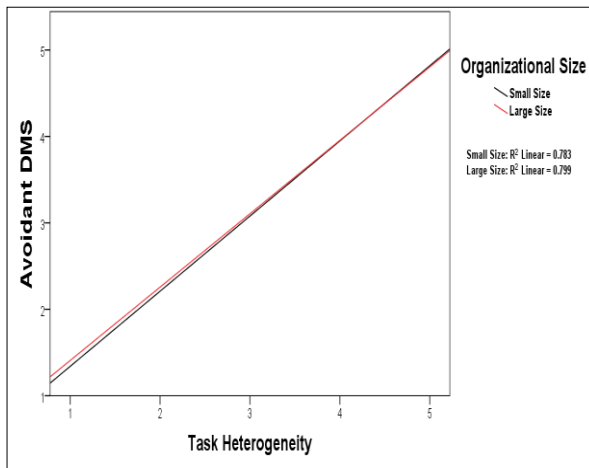


Source: Source: Field Data (2022)

In relation to task oriented heterogeneity and avoidant decision-making style in terms of organizational size, the results found that the effect of board heterogeneity using task oriented heterogeneity dimension on avoidant decision-making style is almost similar in large organizational size ( $R^2=79.9\%$ ) as in small organizational size ( $R^2=78.3\%$ ) of the cooperative. In terms of organizational years, the results found that task oriented heterogeneity dimension has stronger influence on avoidant decision-making style in older cooperative ( $R^2=80.2\%$ ) than in younger

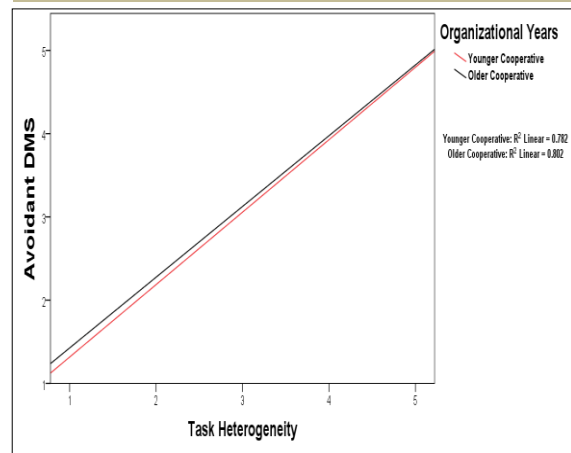
cooperative ( $R^2=78.2\%$ ) respectively. Regarding board size, task oriented heterogeneity dimension found to have similar influence on avoidant decision-making style in small board size ( $R^2=79.2\%$ ) as in large board size ( $R^2=79.2\%$ ) of cooperative respectively. Concerning location, the results found that task oriented heterogeneity has stronger influence on avoidant decision-making style of heterogeneous board living far away from the cooperative ( $R^2=80.4\%$ ) than board members who live nearby the cooperative ( $R^2=75.9\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how board heterogeneity predict the effect on avoidant decision-making style in terms of different organizational context. The graphical results of the study are presented in the figure below.

**Figure 4.26:** Effect of TOH on ADMS in the Context of Organizational Size



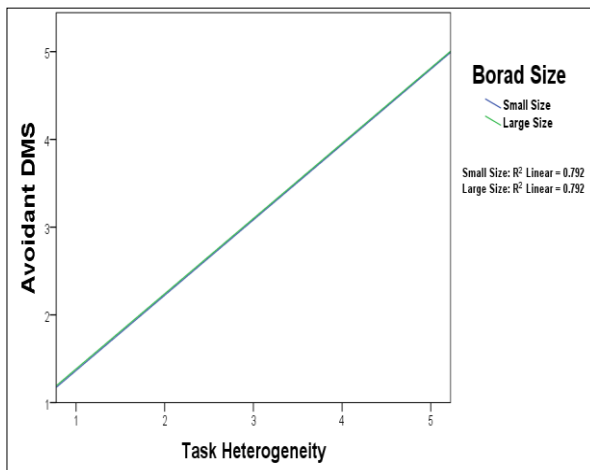
Source: Source: Field Data (2022)

**Figure 4.27:** Effect of TOH on ADMS in the Context of Organizational Years



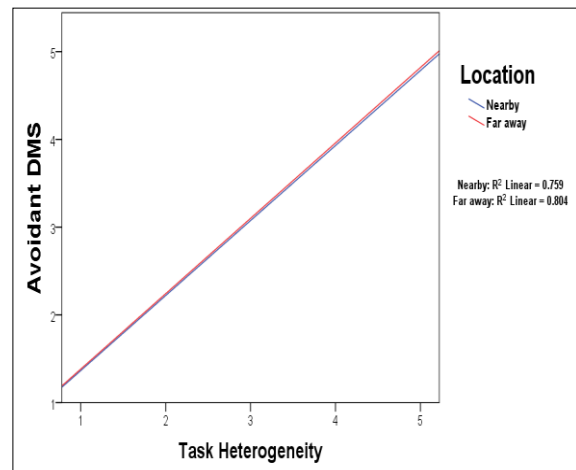
Source: Source: Field Data (2022)

**Figure 4.28:** Effect of TOH on ADMS in the Context of Board Size



Source: Source: Field Data (2022)

**Figure 4.29:** Effect of TOH on ADMS in the Context of Location



Source: Source: Field Data (2022)

#### 4.9.5.5. Board Heterogeneity and Spontaneous Decision-Making Style

This section presents the study's objective that was set to determine the effect of board heterogeneity dimensions and control variables on spontaneous decision-making style in cooperative. The hypotheses were stated as:

*(H1e): Relations-oriented heterogeneity has negative and significant influence on spontaneous decision-making style in cooperative; and (H2e): Task-oriented heterogeneity has positive and significant influence on spontaneous decision-making style in cooperative.*

The study set out to establish the independent effect of board heterogeneity dimensions on the spontaneous decision-making style in cooperative. Board heterogeneity was measured using Webber & Donahue (2001) dimensions such as relations-oriented and task oriented heterogeneities. In addition, decision-making styles were measured using Scott & Bruce's (1995) general decision-making styles consisted rational, intuitive, dependent, avoidant and spontaneous. As control variables, organizational size, organizational years, board size and location were included in the model to understand the effect of board heterogeneity on spontaneous decision-making style. Since heterogeneous board decision-making might be affected by the overlapping nature of the board heterogeneity dimensions, we created the interaction between relations and task oriented dimensions. Thus, the interaction between relations and task oriented heterogeneity was created to understand if there is effect on spontaneous decision-making style.

The results of analysis were done using a series of two hierarchical regression models to determine the effect when there is change in models shown in the tables below. The results in Model 1 showed that relations-oriented heterogeneity, task oriented heterogeneity and organizational size, organizational years, board size and location explained 18.7% ( $R^2=18.7$ ) of spontaneous decision-making style in cooperative with the remaining 81.3% being explained by other variables. Adding the interaction terms between relations oriented heterogeneity and task oriented heterogeneity in model 2 with all other variables, it explained 18.8% ( $R^2=18.8$ ) of spontaneous decision-making style in cooperative with the remaining 81.2% being explained by other variables. The F values for all models were significant at  $p < 0.001$ . For example, the F value for model 1 is 11 and  $p < 0.001$ . The F values for Model 2 is 9.5 with  $p < 0.001$  respectively.

Since the results of Shapiro-Wilk from the test of normality was less than 0.05 or significant at  $p < 0.001$ , the use of null hypotheses were rejected, meaning that independent, control and interaction terms expected to have significant relationship with the dependent decision-making style in cooperative. Thus, the regression model was robust enough to explain the relationship between the explanatory and dependent variable. In order to test the hypotheses, we conducted hierarchical regression analysis.

In the model 1, we entered only the main independent effects and control variables. Then, add them in model 2 with other interaction terms. The analysis of the significance of board heterogeneity dimensions, control variables and interaction terms on spontaneous decision-making style showed statistically significant results only for task-oriented heterogeneity and non-significant for relations-oriented heterogeneity and all control variables in model 1. In model 2, task oriented heterogeneity found to have significant effect on spontaneous decision-making style while non-significant effect for relations heterogeneity, the interaction term between relations and task heterogeneity and control variables respectively.

Regression equation estimation model of board heterogeneity dimensions together with control variables and the interaction terms of variables on spontaneous decision-making style are presented for each model during analysis. The results of our analysis show different level of relationship among the predictor variables with the way heterogeneous boards approach the styles of decision making in cooperatives. The findings of this study provide strong evidence of the importance of understanding board heterogeneity dimensions in predicting their effect on spontaneous decision-making style in cooperative.

In **Model 1**, the regression analysis results found a positive and statistically non-significant relationship between relations-oriented heterogeneity and spontaneous decision-making style ( $\beta=0.07$ ,  $p=0.567$ ). In contrast, the results from model 1 of the same table found a positive and statistically significant relationship between task-oriented heterogeneity and spontaneous decision-making style ( $\beta=0.26$ ,  $p=0.031$ ) in cooperative. Regarding control variables, the results found organizational size to have positive and non-significant effect ( $\beta=0.01$ ,  $p=0.784$ ) on spontaneous decision-making style. The results also found organizational years to have positive and non-significant effect ( $\beta=0.02$ ,  $p=0.056$ ). Furthermore, board size has found to have positive and non-significant effect ( $\beta=0.05$ ,  $p=0.317$ ) on spontaneous decision-making style. However, location of the decision-makers found to have negative and non-significant effect ( $\beta=-0.12$ ,  $p=0.352$ ) on spontaneous decision-making style in their respective cooperative. The analytical model applied to test the results in model 1 is presented as follow:

$$“SDMS = \beta_0 + \beta_1 ROH + \beta_2 TOH + \beta_3 \log\_OrganSize + \beta_4 \log\_OrganYears + \beta_5 \log\_BoardSize + \beta_6 Location (Dummy) + \varepsilon \dots (Model-1)”$$

Regarding **Model 2**, we added the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity to predict the effect of board heterogeneity on the spontaneous decision-making style in cooperative. Although the results showed similar significant levels as in the model 1 for the board heterogeneity dimensions and control variables, there is variations in the coefficients values of relations-oriented heterogeneity that found to be positive and statistically non-significant ( $\beta=0.08$ ,  $p=0.501$ ) on spontaneous decision-making style. Task-oriented heterogeneity found to have positive and significant effect ( $\beta=0.27$ ,  $p=0.029$ ) on spontaneous decision-making style.

In terms of the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity, the results showed that the interaction between relations and task oriented heterogeneity has positive and statistically non-significant effect ( $\beta=0.02$ ,  $p=0.580$ ) on spontaneous decision-making style of the heterogeneous board in cooperative. Regarding control variables, the empirical results show different relationship among organizational size, organizational years, board size and location with spontaneous decision-making style of the heterogeneous board. For instance, organizational size found to have positive and non-significant effect ( $\beta=0.01$ ,  $p=0.816$ ) on spontaneous decision-making style. Similarly, organizational years ( $\beta=0.02$ ,  $p=0.069$ ) and board size ( $\beta=0.05$ ,  $p=0.349$ ) found to have positive and non-significant effect on spontaneous decision-making style of board with heterogeneous backgrounds in their respected cooperative. In contrast, location found to have negative and statistically non-significant effect ( $\beta=-0.12$ ,  $p=0.356$ ) on spontaneous decision-making style in their respected cooperative. The analytical model applied to test results in model 2 is presented below and followed with the overall results for the two models in different tables.

$$\text{“SDMS} = \beta_0 + \beta_1 \text{ROH} + \beta_2 \text{TOH} + \beta_3 \text{ROH} * \text{TOH} + \beta_4 \log\_ \text{OrganSize} + \beta_5 \log\_ \text{OrganYears} + \beta_6 \log\_ \text{BoardSize} + \beta_7 \text{Location (Dummy)} + \varepsilon \dots \text{ (Model-2)”}$$

Table 4.27: Board Heterogeneity and Spontaneous DMS Model Summary

| <b>Model Summary<sup>c</sup></b> |                   |          |                   |                            |                   |          |     |     |               |
|----------------------------------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
| Model                            | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     |               |
|                                  |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 | Sig. F Change |
| 1                                | .433 <sup>a</sup> | .187     | .170              | .808                       | .187              | 10.998   | 6   | 286 | .000          |
| 2                                | .434 <sup>b</sup> | .188     | .168              | .809                       | .001              | .307     | 1   | 285 | .580          |

a. Predictors: (Constant), Relations Oh, Task Oh, Organizational Size, Organizational Years, Board Size.

b. Predictors: (Constant), Relations Oh, Task Oh, Relations HO\*Task OH, Organizational Size, Organizational Years, Board Size, Location

c. Dependent Variable: Spontaneous Decision-Making Style

Source: Field Data (2022)

Table 4.28: Board Heterogeneity and Spontaneous DMS ANOVA

| <b>ANOVA<sup>a</sup></b> |            |                |     |             |        |                   |
|--------------------------|------------|----------------|-----|-------------|--------|-------------------|
| Model                    |            | Sum of Squares | df  | Mean Square | F      | Sig.              |
| 1                        | Regression | 43.126         | 6   | 7.188       | 10.998 | .000 <sup>b</sup> |
|                          | Residual   | 186.908        | 286 | .654        |        |                   |
|                          | Total      | 230.034        | 292 |             |        |                   |
| 2                        | Regression | 43.327         | 7   | 6.190       | 9.448  | .000 <sup>c</sup> |
|                          | Residual   | 186.707        | 285 | .655        |        |                   |
|                          | Total      | 230.034        | 292 |             |        |                   |

a. Dependent Variable: Spontaneous Decision-Making Style

b. Predictors: (Constant), Relations Oh, Task Oh, Organizational Size, Organizational Years, Board Size

c. Predictors: (Constant), Relations Oh, Task Oh, Relations HO\*Task OH, Organizational Size, Organizational Years, Board Size, Location

Source: Field Data (2022)

Table 4.29: Board Heterogeneity and Spontaneous DMS regression Results

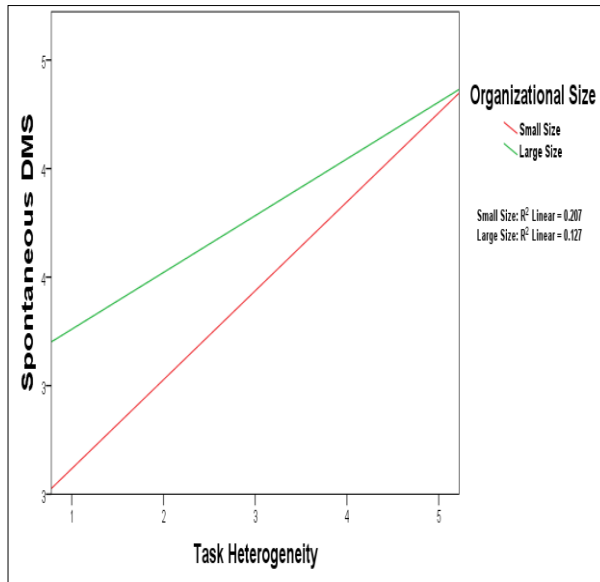
| Variables                                  | Spontaneous DMS   |                   |
|--------------------------------------------|-------------------|-------------------|
|                                            | Model 1           | Model 2           |
| (Intercept)                                | 2.03***<br>(0.31) | 1.96***<br>(0.33) |
| Relations Heterogeneity                    | 0.07<br>(0.12)    | 0.08<br>(0.12)    |
| Task Heterogeneity                         | 0.26*<br>(0.12)   | 0.27*<br>(0.12)   |
| Relations Heterogeneity*Task Heterogeneity |                   | 0.02<br>(0.04)    |
| Organizational Size                        | 0.01<br>(0.00)    | 0.01<br>(0.01)    |
| Organizational Years                       | 0.02<br>(0.01)    | 0.02<br>(0.01)    |
| Board Size                                 | 0.05<br>(0.05)    | 0.05<br>(0.05)    |
| Location                                   | -0.12<br>(0.13)   | -0.12<br>(0.13)   |
| R <sup>2</sup>                             | 0.187             | 0.188             |
| Adjusted R <sup>2</sup>                    | 0.170             | 0.168             |
| F-value                                    | 11***             | 9.5***            |
| df                                         | 6, 286            | 7, 285            |
| Number of obs.                             | 293               | 293               |

\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$ 

Source: Source: Field Data (2022)

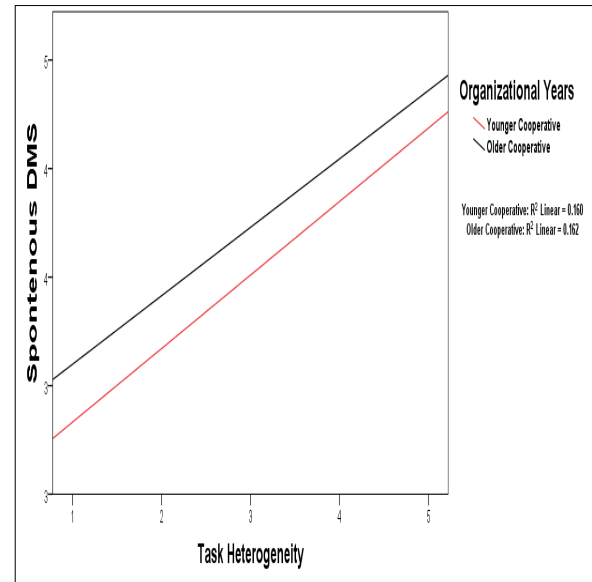
In relation to task oriented heterogeneity and spontaneous decision-making style in terms of organizational size, the results found that the effect of board heterogeneity using task oriented heterogeneity dimension on spontaneous decision-making is stronger in small organizational size ( $R^2=20.7\%$ ) than in large organizational size ( $R^2=12.7\%$ ) of the cooperative. In terms of organizational years, the results found that task oriented heterogeneity dimension has almost similar influence on spontaneous decision-making style in younger cooperative ( $R^2=16\%$ ) as in older cooperative ( $R^2=16.2\%$ ) respectively. Regarding board size, the task oriented heterogeneity dimension found to have stronger influence on spontaneous decision-making style in large board size ( $R^2=17.9\%$ ) than in a small board size ( $R^2=10.4\%$ ) of cooperative. Concerning location, the results found that task oriented heterogeneity has stronger influence on spontaneous decision-making style of heterogeneous board living nearby the cooperative ( $R^2=16.8\%$ ) than board members who live far away from the cooperative ( $R^2=15.3\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how board heterogeneity predict the effect on spontaneous decision-making style in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 4.30: Effect of TOH on SDMS in the Context of Organizational Size**



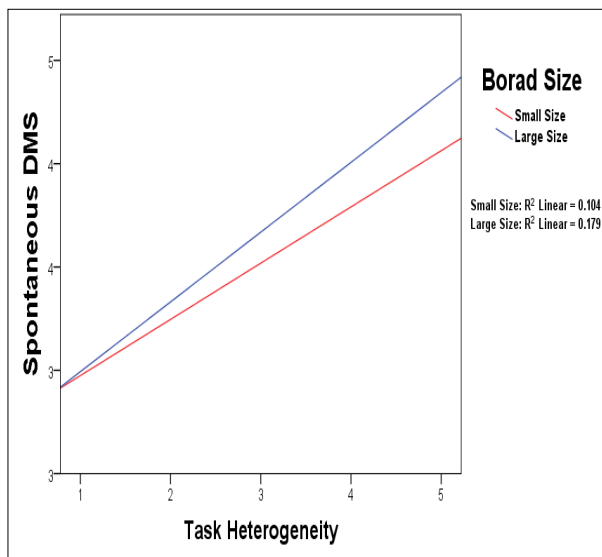
Source: Source: Field Data (2022)

**Figure 4.31: Effect of TOH on SDMS in the Context of Organizational Years**



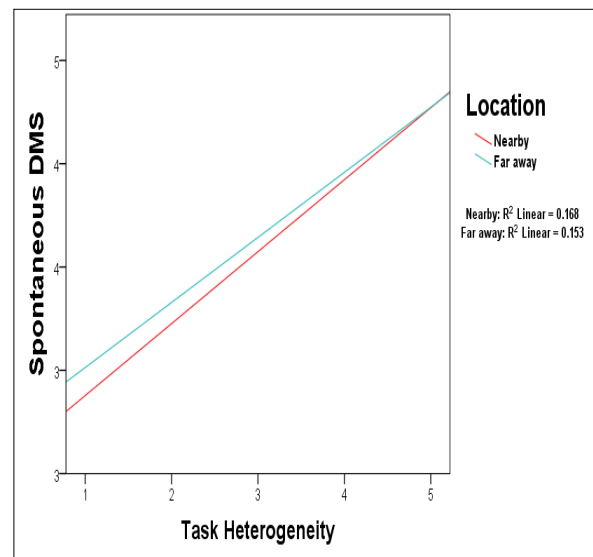
Source: Source: Field Data (2022)

**Figure 4.32: Effect of TOH on SDMS in the Context of Board Size**



Source: Source: Field Data (2022)

**Figure 4.33: Effect of TOH on SDMS in the Context of Location**



Source: Source: Field Data (2022)

#### 4.9.5.6. Discussion of the Results

This section covers discussion parts of the results. In order to interpret the hypotheses test, the data were analyzed from the hierarchical regression, which shows that by adding one or more predictor variables to the existing regression equation, the explanation of the variance of the analysis criteria is significantly increased (De Toni et al., 2021; Osborne, 2001), checking for the presence of a dependent variable, the independent variable(s) and a third variable seen as the control. Thus, a moderating effect exists when the effect of the independent variable on the dependent variable differs according to the control variable (Jaccard et al., 1990; Turrisi et al., 2010). The results of hierarchical regression analysis of the outcomes of decision-making styles (rational, intuitive, dependent, avoidant and spontaneous) of the heterogeneous board of the studied cooperative union from Ethiopia, including the managerial boards' perception of the heterogeneity dimensions: relations and task oriented heterogeneity, together with control variable (organizational size) were discussed in this section. The regression models have identified strong associations between key board heterogeneity dimensions and decision-making styles in the context of the consumer cooperative studied.

Results regarding the effect of board heterogeneity on rational decision-making style, we first included only two main independent variables, interaction terms and control variables in **model 1** to predict the relation and significant influence on the decision-making styles applied by the heterogeneous boards of the consumer cooperative in Ethiopia. The main independent variables such as relations and task oriented heterogeneity measured differently based on demographic characteristics of the board or participants. Relations heterogeneity measured using heterogeneity in age, gender and ethnicity while task oriented heterogeneity measured using heterogeneity in education, functional background and tenure of the managerial boards of cooperative who participated in this study that conducted in Ethiopia.

According to the analytical findings, the result showed that relations oriented heterogeneity has positive and non-significant effect ( $\beta=0.04$ ,  $p>0.05$ ) on rational decision-making style of the heterogeneous board in cooperatives. However, the results showed that task oriented heterogeneity has positive and statistically significant effect ( $\beta=0.57$ ,  $p<0.001$ ) on rational decision-making style of the heterogeneous boards. Regarding control variables, we first used organizational size that measured by the number of individual members belong to the cooperative understudy in Ethiopia, the results found positive and non-significant effect ( $\beta=0.01$ ,  $p>0.05$ ) on rational decision-making style. The results also found organizational years that measured in the number of years since cooperative established and registered as legal entity to have positive and non-significant effect ( $\beta=0.02$ ,  $p>0.05$ ). Similarly, board size that measured by the number of individuals elected to represent the managerial boards of cooperative studied found to have positive and non-significant effect ( $\beta=0.03$ ,  $p>0.05$ ) on rational decision-making style. However, location which measured using the distance between cooperative and decision-makers or boards has found to have negative and non-significant effect ( $\beta=-0.08$ ,  $p>0.05$ ) on rational decision-making style in their respective cooperative.

Adding the interaction terms in **Model 2**, the results showed variations in the coefficient values with the same level of significant effect. For instance, results related to relations oriented heterogeneity found to have to be negative and non-significant ( $\beta=-0.03$ ,  $p>0.05$ ) on rational decision-making

style. But, the results showed that task-oriented heterogeneity has positive and significant effect ( $\beta=0.56$ ,  $p<0.001$ ) on the rational decision-making style among heterogeneous board of cooperative respectively. Since both relations and task-oriented heterogeneity dimensions are overlapping in nature that can be shared by every board member or decision-makers, we created the interaction terms to understand their effect on the rational decision-making style. Thus, the analytical results revealed that the interaction between relations and task-oriented heterogeneity has negative and statistically significant effect ( $\beta=-0.10$ ,  $p<0.001$ ) on the rational decision-making style of the heterogeneous board in cooperative.

Regarding control variables, the empirical results show different relationship among organizational size, organizational years, board size and location with rational decision-making style of the heterogeneous board. For example, organizational size found to have positive and non-significant effect ( $\beta=0.02$ ,  $p>0.05$ ) on rational decision-making style. The same are true for organizational years ( $\beta=0.01$ ,  $p>0.05$ ) and board size ( $\beta=0.02$ ,  $p>0.05$ ) that have positive and non-significant effect on rational decision-making style. However, location found to have negative and non-significant effect ( $\beta=-0.09$ ,  $p>0.05$ ) on rational decision-making style of board with heterogeneous backgrounds in their respected cooperative.

Task-oriented heterogeneity as a dimension explained based on the demographic characteristics of education, functional background & tenure with an assumption that variation in a group composition with such characteristics can enhance the quality of the decision-making process (Williams & O'Reilly, 1998; Van Knippenberg et al., 2004), the statistically positive significant influence of task-oriented heterogeneity of the managerial board on the rational decision-making style indicate that heterogeneous board of consumer cooperative possessed diverse skills, knowledge and information (Williams & O'Reilly, 1998) to logically and systematically explore the information sources for decision-making that required careful thought, consideration of various options and double checking the information sources before final decision (Scott & Bruce, 1995; Verma & Rangnekar., 2015) resulting from various educational background, tenure and functional background.

In terms of board heterogeneity and intuitive decision-making style, both relations and task-oriented heterogeneity dimensions and control variables were included in the first model of our study. According to the results in model, the regression analysis results found a positive and statistically significant effect of relations-oriented heterogeneity ( $\beta=0.64$ ,  $p<0.001$ ) on intuitive decision-making style. Similarly, the results from the same model of the same table found a positive and statistically significant effect of task-oriented heterogeneity ( $\beta=0.25$ ,  $p<0.001$ ) intuitive decision-making style in cooperative. Regarding control variables, the results found organizational size to have positive and non-significant effect ( $\beta=0.03$ ,  $p>0.05$ ) on intuitive decision-making style. However, the results also found organizational years to have negative and non-significant effect ( $\beta=-0.02$ ,  $p>0.05$ ). Similarly, board size has negative and non-significant effect ( $\beta=-0.03$ ,  $p>0.05$ ) on intuitive decision-making style. Furthermore, location of the decision-makers found to have negative and non-significant effect ( $\beta=-0.06$ ,  $p>0.05$ ) on intuitive decision-making style in their respective cooperative. Regarding **Model 2**, we added the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity to predict the effect of board heterogeneity on the intuitive decision-making style in cooperative. Although the results showed similar significant levels as in the model 1 for the board heterogeneity dimensions and control variables, there is variations in the coefficients values of relations-oriented heterogeneity that found have positive and

statistically significant effect ( $\beta=0.63$ ,  $p=0.001$ ) on intuitive decision-making style. Similarly, task-oriented heterogeneity also found to have positive and statistically significant effect ( $\beta=0.25$ ,  $p=0.001$ ) on intuitive decision-making style.

In terms of the interaction between relations and task-oriented heterogeneity, the results showed that the interaction between relations and task oriented heterogeneity has negative and statistically non-significant effect ( $\beta=-0.07$ ,  $p>0.05$ ) on intuitive decision-making style of the heterogeneous board in cooperative. Regarding control variables, the empirical results show different relationship among organizational size, organizational years, board size and location with rational decision-making style of the heterogeneous board. For instance, organizational size found to have positive and non-significant effect ( $\beta=0.02$ ,  $p>0.05$ ) on intuitive decision-making style. In contrast, the organizational years ( $\beta=-0.01$ ,  $p>0.05$ ), board size ( $\beta=-0.03$ ,  $p>0.05$ ) and location ( $\beta=-0.07$ ,  $p>0.05$ ) that have negative and statistically non-significant effect on intuitive decision-making style in cooperative respectively.

Regarding the relationship between board heterogeneity and dependent decision-making style, we entered only the main independent effects and control variables in model. Then, added them in model 2 with other interaction terms. In **Model 1**, the regression analysis results found a positive and statistically non-significant effect of relations-oriented heterogeneity ( $\beta=0.07$ ,  $p>0.05$ ) on dependent decision-making style. In contrast, the results from model 1 of the same table found a positive and statistically significant effect of task-oriented heterogeneity ( $\beta=0.47$ ,  $p<0.001$ ) on dependent decision-making style in cooperative. Regarding control variables, the results found organizational size to have positive and non-significant effect ( $\beta=0.01$ ,  $p>0.05$ ) on dependent decision-making style. The results also found organizational years to have positive and non-significant effect ( $\beta=0.01$ ,  $p>0.05$ ). In contrast, board size has found to have negative and non-significant effect ( $\beta=-0.01$ ,  $p>0.05$ ) on dependent decision-making style. Similarly, location of the decision-makers found to have negative and non-significant effect ( $\beta=-0.11$ ,  $p>0.05$ ) on dependent decision-making style in their respective cooperative.

In **Model 2**, we added the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity to predict the effect of board heterogeneity on the dependent decision-making style in cooperative. Although the results showed similar significant levels as in the model 1 for the board heterogeneity dimensions and control variables, there is variations in the coefficients values of relations-oriented heterogeneity that found to be positive and non-significant ( $\beta=0.07$ ,  $p>0.05$ ) on dependent decision-making style. Task-oriented heterogeneity found to have positive and significant effect ( $\beta=0.47$ ,  $p<0.001$ ) on dependent decision-making style.

In terms of the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity, the results showed that the interaction between relations and task oriented heterogeneity has negative and statistically non-significant effect ( $\beta=-0.01$ ,  $p>0.05$ ) on dependent decision-making style of the heterogeneous board in cooperative. Regarding control variables, the empirical results show different relationship among organizational size, organizational years, board size and location with dependent decision-making style of the heterogeneous board. For instance, organizational size found to have positive and non-significant effect ( $\beta=0.01$ ,  $p>0.05$ ) on dependent decision-making style. However, organizational years ( $\beta=-0.01$ ,  $p>0.05$ ), board size ( $\beta=-0.01$ ,  $p>0.05$ ) and location found to have negative and non-significant effect ( $\beta=-0.09$ ,  $p>0.05$ ) on

dependent decision-making style of board with heterogeneous backgrounds in their respected cooperative.

Concerning the effect of board heterogeneity on avoidant decision-making style, in the model 1, we entered only the main independent effects and control variables and then, added them in model 2 with other interaction terms. In **Model 1**, the regression analysis results found a positive and statistically significant effect of relations-oriented heterogeneity ( $\beta=0.65$ ,  $p<0.001$ ) on avoidant decision-making style. Similarly, the results from the model 1 of the same table found a positive and statistically significant effect of task-oriented heterogeneity ( $\beta=0.24$ ,  $p<0.001$ ) on avoidant decision-making style in cooperative. Regarding control variables in model 1, the results found organizational size to have negative and non-significant effect ( $\beta=-0.01$ ,  $p>0.05$ ) on avoidant decision-making style. However, the results also found organizational years to have positive and non-significant effect ( $\beta=0.01$ ,  $p>0.05$ ). Similarly, board size has positive and non-significant effect ( $\beta=0.02$ ,  $p>0.05$ ) on avoidant decision-making style. Furthermore, location of the decision-makers found to have negative and non-significant effect ( $\beta=0.08$ ,  $p>0.05$ ) on avoidant decision-making style in their respective cooperative.

In **Model 2**, we added the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity to predict the effect of board heterogeneity on the avoidant decision-making style in cooperative. Although the results showed similar significant levels as in the model 1 for the board heterogeneity dimensions and control variables, there is variations in the coefficients values of relations-oriented heterogeneity that found have positive and statistically significant effect ( $\beta=0.66$ ,  $p<0.001$ ) on avoidant decision-making style. Similarly, task-oriented heterogeneity also found to have positive and statistically significant effect ( $\beta=0.24$ ,  $p<0.001$ ) on avoidant decision-making style. In terms of the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity, the results showed that the interaction between relations and task oriented heterogeneity has positive and statistically non-significant effect ( $\beta=0.02$ ,  $p>0.05$ ) on avoidant decision-making style of the heterogeneous board in cooperative. Regarding control variables, the empirical results show positive relationship among organizational size, organizational years, board size and location with avoidant decision-making style of the heterogeneous board. For instance, organizational size found to have positive and non-significant effect ( $\beta=0.01$ ,  $p>0.05$ ) on avoidant decision-making style. Similarly, the organizational years ( $\beta=0.01$ ,  $p>0.05$ ), board size ( $\beta=0.01$ ,  $p>0.05$ ) and location ( $\beta=0.08$ ,  $p>0.05$ ) found to have positive and statistically non-significant effect on avoidant decision-making style in cooperative respectively.

Lastly, we analyzed the data to determine the relation and effect of board heterogeneity on spontaneous decision-making style of the heterogeneous boards of the consumer cooperative by including only two main independent and control variables in model 1. Then, we added the interaction term with other variables in model 2. In **Model 1**, the regression analysis results found a positive and statistically non-significant effect of relations-oriented heterogeneity ( $\beta=0.07$ ,  $p>0.05$ ) on spontaneous decision-making style. In contrast, the results from model 1 of the same table found a positive and statistically significant effect of task-oriented heterogeneity ( $\beta=0.26$ ,  $p<0.05$ ) on spontaneous decision-making style in cooperative. Regarding control variables, the results found organizational size to have positive and non-significant effect ( $\beta=0.01$ ,  $p>0.05$ ) on spontaneous decision-making style. The results also found organizational years to have positive and non-significant effect ( $\beta=0.02$ ,  $p>0.05$ ). Furthermore, board size has found to have positive and non-

significant effect ( $\beta=0.05$ ,  $p>0.05$ ) on spontaneous decision-making style. However, location of the decision-makers found to have negative and non-significant effect ( $\beta=-0.12$ ,  $p=0.352$ ) on spontaneous decision-making style in their respective cooperative.

Regarding **Model 2**, we added the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity to predict the effect of board heterogeneity on the spontaneous decision-making style in cooperative. Although the results showed similar significant levels as in the model 1 for the board heterogeneity dimensions and control variables, there is variations in the coefficients values of relations-oriented heterogeneity that found to be positive and statistically non-significant ( $\beta=0.08$ ,  $p>0.05$ ) on spontaneous decision-making style. Task-oriented heterogeneity found to have positive and significant effect ( $\beta=0.27$ ,  $p<0.05$ ) on spontaneous decision-making style. In terms of the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity, the results showed that the interaction between relations and task oriented heterogeneity has positive and statistically non-significant effect ( $\beta=0.02$ ,  $p>0.05$ ) on spontaneous decision-making style of the heterogeneous board in cooperative. Regarding control variables, the empirical results show different relationship among organizational size, organizational years, board size and location with spontaneous decision-making style of the heterogeneous board. For instance, organizational size found to have positive and non-significant effect ( $\beta=0.01$ ,  $p>0.05$ ) on spontaneous decision-making style. Similarly, organizational years ( $\beta=0.02$ ,  $p>0.05$ ) and board size ( $\beta=0.05$ ,  $p>0.05$ ) found to have positive and non-significant effect on spontaneous decision-making style of board with heterogeneous backgrounds in their respected cooperative. In contrast, location found to have negative and statistically non-significant effect ( $\beta=-0.12$ ,  $p>0.05$ ) on spontaneous decision-making style in their respected cooperative.

Reflecting on the results of our empirical study in the context of consumer cooperative studied from Ethiopia, the positive significant influence of task oriented heterogeneity on the decision-making styles indicated that managerial boards of cooperative possessed heterogeneous background in their education, tenure and functional backgrounds. For example, according to the descriptive statistical results of this study, participants have high heterogeneity in their education, functional background and tenure helped them to navigate the decision. For instance, over 82% of the participants of the study were having college diploma through doctoral degree (PhD). 45.1% of the participant has college diploma, 30% with bachelor degree, 7.2% with master degree and 0.3% with doctoral degree respectively. In terms of functional background, there was high diversity in board's functional background measured with area of specialization or expertise. For example, majority 26.6% were graduated with marketing followed by 20% who were graduated with cooperatives. 10.2% and 9.9% of them have agricultural sciences and management backgrounds followed with other fields such as accounting and finance (4.1%), business administration (3.1%) and natural sciences (7.2%) respectively. In term of tenure in position, majority 37.9% of the board members have tenures between 3-4 years followed by 32.8% with tenure between 5-6 years. This implies that 70.5% of the boards were in their second terms of managing their cooperative. The existence of such heterogeneity in terms of task proved that managerial board of cooperative studied possessed various knowledge and skills that enable them to analyze the information that lead to best decision among the available alternatives.

The findings our study in terms of positive influence of task heterogeneity on decision-making styles were in with the study of Simons et al. (1999) who investigated making use of difference based on diversity, debate, and decision comprehensiveness in top management teams and found

member heterogeneity member heterogeneity in education and company tenure influenced the quality of debates and, thus, positively impacted the decision-making process in a team of top managers. Similarly, Kor & Mesko (2013) found that entrepreneurial teams with high cognitive ability could grasp the nature of the problem and make feasible decisions, which could be effectively executed and finally reach the strategic goal (Zhang et al., 2021).

Theoretically, our findings supported by the cognitive resource diversity theory (Cox & Blake, 1991; Williams & O'Reilly, 1998) and information decision-making theory (Van Knippenberg & Schippers, 2007; Williams & O'Reilly, 1998) because the results imply that heterogeneous board of cooperative possessed diverse skills, knowledge and information that enhance the quality of the decision-making process (Williams & O'Reilly, 1998; Van Knippenberg et al., 2004) as well as seeking assistance or advice of others to make important decision (Scott & Bruce, 1995; Curşeu & Schruijer, 2012).

Regarding the influence of interaction between relations and task oriented heterogeneity on rational decision-making style, these two dimensions represent the whole board. According to the statistical results, the negative and significant effect of the interaction between relations and task oriented heterogeneity on rational decision-making style indicated that managerial board of cooperative brought conflicting views to make decision that affect the improvement of product quality and quality, operating cost of general management activities, cost of interacting and coordinating activities with suppliers, customers and business partners. This is because individual members of the boards came from different backgrounds not only task but also relations-oriented. For instance, the Ethiopian cooperative proclamation restricted individuals who represent union to come from specific areas. In such case, the possibility of board members to link up themselves based on certain similarities was high. Since the overall administrative structure was based on ethnicity, majority within affiliated could form sub-groups based on tribal ethnicity. The same attraction witnessed in women only affiliated cooperative that they linked themselves along gender line. The same is true for age between younger and older that each group form sub-group related to their ages.

Although, task oriented heterogeneity play great role to enhance the decision-making process, relations based heterogeneity found to be the reasons for the negative influence of the interaction between relations and task oriented heterogeneity on rational decision-making styles of the heterogeneous board of cooperative studied. This finding was supported by the argument that board heterogeneity could negatively affect the performance of board in decision-making when the decision was not agreed upon, postpone or totally avoid due conflicting interests or opinions. This results of board heterogeneity is in line with the previous findings of Joshi & Roh (2009) Jehn & Bezrukova (2004) and Jehn et al. (1999). Our finding was in line with the empirical findings of Joshi & Roh (2009) who conducted meta-analysis on 8757 teams in 39 studies on the role of context in work team diversity in the USA using social categorization theory found age, gender, and race to have a negative impact on team performance. It was also in line with the findings of Jehn et al. (1999) who done a survey on workgroup diversity in the USA using the social categorization theory from 92 teams in household goods and found the negative result on workgroup performance. Therefore, the negative finding of this study is in line with the similarity-attraction theory (Dorm Byrne et al., 1971) and social categorization theory (Tajfel, 1981; Williams & O'Reilly, 1998).

#### 4.9.5.7. Results of Hypothesis and Interpretations

This section presents the analytical results to determine the study's hypotheses. There were various hypotheses in this study that had different relationships among the various independent, intervening and dependent variables. Multiple regression analysis was used to carry out the tests of hypotheses. The hypotheses were tested at 95 percent confidence level ( $\alpha=0.05$ ) at which point a decision to confirm the hypothesis was made at values where  $p \leq 0.05$ . Results that yielded  $p$  values  $> 0.05$  led to rejection of hypotheses while, results with  $p \leq 0.05$  resulted in accepting the hypotheses.

The objectives of the study were established to determine the relationship and influence of board heterogeneity dimensions (relations and task oriented heterogeneity), interaction terms and control variables (organizational size, organizational years, board size and location) on decision-making styles (rational, intuitive, dependent, avoidant and spontaneous) in cooperative studied from Ethiopia. A hierarchical multiple regression as a techniques that show if variables of interest can explain a statistically significant amount of variance in dependent variables after accounting for all other variables, was used due to the fact that several predictor variables could be entered in the first block, and then entered one or more variables in the second or other blocks. In addition to the main independent variables, interaction terms between predictors (relations and task heterogeneity) and control variables were included to independent variables to check the direct influence on dependent variables.

Accordingly, the results were presented in two models. First, the results of the predictors (independent and control variables) effects on the dependent variables are presented in model 1 alone. Then, the results of the interaction term effect on the dependent variable are presented in Model 2. Based on the objective of the study, the hypotheses were first developed differently to establish and determine the influence of each decision-making style as independent variable on all performance measures (efficiency, market performance and financial performance) of cooperative as dependent variables. Then, we included the control variable and interaction terms to understand if they could determine the effect of decision-making styles on organizational performance indicators.

Following the different hypotheses proposed based on the objectives of the study, the first hypothesis (**H1a**): was proposed that: Relations-oriented heterogeneity has negative and significant influence on rational decision-making style in cooperative with hybrid organizational structure in Ethiopia. The results of this study provided negative and statistically non-significant support on the relationship between relations-oriented heterogeneity and rational decision-making style ( $\beta=-0.03$ ,  $t=-0.43$ ,  $p>0.05$ ) in consumer cooperative studied in Ethiopia. Hypothesis (**H2a**) proposed that: Task-oriented heterogeneity has positive and significant influence on rational decision-making style in cooperative with hybrid organizational structure. The results found that task-oriented heterogeneity has positive and statistically significant effect ( $\beta=0.56$ ,  $t=7.21$ ,  $p<0.001$ ) on rational decision-making style. Thus, empirical findings of our study supported hypothesis **H2a** and failed to support **H1a**.

Regarding the relationship between board heterogeneity and intuitive decision-making style, Hypothesis (**H1b**) developed as: Relations-oriented heterogeneity has positive and significant influence on intuitive decision-making style in cooperative with hybrid organizational structure. The results found that relations-oriented heterogeneity has positive and statistically significant effect ( $\beta=0.63$ ,  $t=9.85$ ,  $p<0.001$ ) on intuitive decision-making style. Hypothesis (**H2b**) proposed as:

Task-oriented heterogeneity has positive and significant influence on intuitive decision-making style in cooperative with hybrid organizational structure. The study findings also revealed that task-oriented heterogeneity has positive and statistically significant influence ( $\beta=0.25$ ,  $t=3.96$ ,  $p<0.001$ ) on intuitive decision-making style in cooperative. Based on the analytical results, our empirical findings show support for both hypothesis **H1b** and **H2b**.

In terms of relationship between board heterogeneity and dependent decision-making style, Hypothesis (**H1c**) developed as: Relations-oriented heterogeneity has negative and significant influence on dependent decision-making style in cooperative with hybrid organizational structure. The results of this study provided positive and statistically non-significant effect of relations-oriented heterogeneity ( $\beta=0.07$ ,  $t=0.76$ ,  $p>0.05$ ) on dependent decision-making style in consumer cooperative. Hypothesis (**H2c**) proposed as: Task-oriented heterogeneity has positive and significant influence on dependent decision-making style in cooperative with hybrid organizational structure. The results showed that task-oriented heterogeneity has positive and statistically significant effect ( $\beta=0.47$ ,  $t=5.12$ ,  $p<0.001$ ) on dependent decision-making style. Thus, empirical findings of our study supported hypotheses **H2c** and failed to support **H1c**.

Concerning the relationship between board heterogeneity and avoidant decision-making style, Hypothesis (**H1d**) developed as: Relations-oriented heterogeneity has negative and significant influence on avoidant decision-making style in cooperative with hybrid organizational structure in Ethiopia. The results revealed that relations-oriented heterogeneity has positive and statistically significant effect ( $\beta=0.66$ ,  $t=11.01$ ,  $p<0.001$ ) on avoidant decision-making style. Hypothesis (**H2d**) proposed that: Task-oriented heterogeneity has positive and significant influence on avoidant decision-making style in cooperative with hybrid organizational structure. The study findings also revealed that task-oriented heterogeneity has positive and statistically significant influence ( $\beta=0.24$ ,  $t=4.09$ ,  $p<0.001$ ) on avoidant decision-making style in cooperative. Based on the analytical results, our empirical findings show support for hypothesis **H2d** and failed to support **H1d**.

Regarding the relationship between board heterogeneity and spontaneous decision-making style, Hypothesis (**H1e**) developed as: Relations-oriented heterogeneity has negative and significant influence on spontaneous decision-making style in cooperative with hybrid organizational structure in Ethiopia. The results revealed that relations-oriented heterogeneity has positive and non-significant effect ( $\beta=0.10$ ,  $t=0.89$ ,  $p>0.05$ ) on spontaneous decision-making style. Hypothesis (**H2d**) proposed that: Task-oriented heterogeneity has positive and significant influence on spontaneous decision-making style in cooperative with hybrid organizational structure. The study findings also revealed positive and non-significant effect of task-oriented heterogeneity ( $\beta=0.23$ ,  $t=1.89$ ,  $p>0.05$ ) on spontaneous decision-making style in cooperative. Based on the analytical results, our empirical findings support for hypothesis **H2e** and failed to support **H1e**.

Board heterogeneity as defined by the demographic characteristics that categorized under relations-oriented heterogeneity (age, gender and ethnicity) and task-oriented heterogeneity (education, functional background and tenure), is an overlapping concept. Thus, we created the interaction term between relations-oriented heterogeneity and task-oriented heterogeneity to determine how it related and influence the decision-making styles of the heterogeneous board in cooperative with hybrid organizational structure of Ethiopian context. As a multi ethnic diverse country where cooperative societies proclamation number 985/2016 restricted primary cooperatives not to establish the same cooperative in the same village or place, the union was formed by primary cooperatives from different places that share similar objectives and purpose with board composed

of individuals from heterogeneous backgrounds as well as the nature of hybrid organizational structure of cooperative that allow the involvement of stakeholders in decision related activities, the interaction between relations and task-oriented heterogeneity were proposed to have negative effect on the decision-making styles of cooperative.

Thus, Hypothesis **(H3a)** proposed that: the interaction between relations and task-oriented heterogeneity has negative and significant effect on rational decision-making style. The study findings revealed negative and significant effect ( $\beta=-0.10$ ,  $t=-4.09$ ,  $p<0.001$ ) on rational decision-making style in cooperative. Hypothesis **(H3b)** developed as: the interaction between relations and task-oriented heterogeneity has negative and significant effect on intuitive decision-making style. The study findings showed negative and non-significant effect ( $\beta=-0.07$ ,  $t=-0.36$ ,  $p>0.05$ ) on intuitive decision-making style in cooperative. Hypothesis **(H3c)** hypothesized that: the interaction between relations and task-oriented heterogeneity has negative and significant effect on dependent decision-making style. The results found the interaction between relations and task-oriented heterogeneity to have negative and non-significant effect ( $\beta=-0.01$ ,  $t=-0.09$ ,  $p>0.05$ ) on dependent decision-making style in cooperative. **(H3d)** hypothesized that: the interaction between relations and task-oriented heterogeneity has negative and significant effect on avoidant decision-making style. The results found the interaction between relations and task-oriented heterogeneity to have positive and non-significant effect ( $\beta=0.02$ ,  $t=0.78$ ,  $p>0.05$ ) on avoidant decision-making style in cooperative. Similarly, **(H3e)** developed as: the interaction between relations and task-oriented heterogeneity has negative and significant effect on spontaneous decision-making style. The results found the interaction between relations and task-oriented heterogeneity to have positive and non-significant effect ( $\beta=0.02$ ,  $t=0.55$ ,  $p>0.05$ ) on spontaneous decision-making style in cooperative. Based on the analytical results, our empirical findings show support for only hypothesis **H3a**. Although **H3b** and **H3c** negatively related to intuitive and dependent, they were not significant and the results failed to support hypotheses **H3b** and **H3c**. It also failed to support **H3d** and **H3e** that turned out positive.

The positive and statistically significant influence of board heterogeneity on decision-making styles indicate that heterogeneous boards in cooperative possessed diverse knowledge, skills, experiences and information that could improve the quality of decision process in their respected cooperative (Williams & O'Reilly, 1998). The positive findings are supported the underpinning theories of cognitive resource diversity (Cox & Blake, 1991; Hambrick et al., 1996) and information decision-making (Cox & Blake, 1991; Williams & O'Reilly, 1998). On the other hand, the negative and statistically significant influence of the interaction term between relations and task oriented heterogeneity on rational decision-making styles indicates that heterogeneous boards in the cooperative study were influenced by factors that linked them to sub-groups within boards since they came from operating areas confined and restricted by the Ethiopian cooperative proclamation 985/2016. There were cooperatives initiated by the external organizations in terms of empowering gender that formed women oriented cooperatives. The negative and statistically significant effect is in line with the theories of similarity attraction (Dorm Byrne et al., 1971) and social categorization (Tajfel, 1981; Williams & O'Reilly, 1998). According to the results of hypothesis, there were some results that were found to have significant influence but not supported. The reasons for the significant results that were deemed not supported were because they were against the proposed hypotheses of the study. A summary of hypothetical results were presented in the table below.

Table 4.30: Results of the Hypotheses and Interpretations

| No.    | Hypotheses                     | Coefficient( $\beta$ ) | P-Value | Status          | Results       |
|--------|--------------------------------|------------------------|---------|-----------------|---------------|
| 1-H1a  | ROH $\rightarrow$ RDMS (-)     | -0.03                  | 0.670   | Non-Significant | Not supported |
| 2-H1b  | ROH $\rightarrow$ IDMS (+)     | 0.63                   | 0.000   | Significant     | Supported     |
| 3-H1c  | ROH $\rightarrow$ DDMS (-)     | 0.07                   | 0.450   | Non-Significant | Not supported |
| 4-H1d  | ROH $\rightarrow$ ADMS (-)     | 0.66                   | 0.000   | Significant     | Not supported |
| 5-H1e  | ROH $\rightarrow$ SDMS (-)     | 0.08                   | 0.501   | Non-Significant | Not supported |
| 6-H2a  | TOH $\rightarrow$ RDMS (+)     | 0.56                   | 0.000   | Significant     | Supported     |
| 7-H2b  | TOH $\rightarrow$ IDMS (+)     | 0.25                   | 0.000   | Significant     | Supported     |
| 8-H2c  | TOH $\rightarrow$ DDMS (+)     | 0.47                   | 0.000   | Significant     | Supported     |
| 9-H2d  | TOH $\rightarrow$ ADMS (+)     | 0.24                   | 0.000   | Significant     | Supported     |
| 10-H2e | TOH $\rightarrow$ SDMS (+)     | 0.27                   | 0.029   | Significant     | Supported     |
| 11-H3a | ROH*TOH $\rightarrow$ RDMS (-) | -0.10                  | 0.000   | Significant     | Supported     |
| 12-H3b | ROH*TOH $\rightarrow$ IDMS (-) | -0.07                  | 0.719   | Non-Significant | Not supported |
| 13-H3c | ROH*TOH $\rightarrow$ DDMS (-) | -0.01                  | 0.936   | Non-Significant | Not supported |
| 14-H3d | ROH*TOH $\rightarrow$ ADMS (-) | 0.02                   | 0.432   | Non-Significant | Not supported |
| 15-H3e | ROH*TOH $\rightarrow$ SDMS (-) | 0.02                   | 0.580   | Non-Significant | Not supported |

**Note:** ROH=Relations-Oriented Heterogeneity, TOH= Task-Oriented Heterogeneity, RDMS=Rational Decision Making Style, IDMS= Intuitive Decision Making Style, DDMS= Dependent Decision Making Style, ADMS= Avoidant Decision Making Style, SDMS= Spontaneous Decision Making Style

#### 4.9.5.8. Summary of Results

The interest in investigating the complex interplay between board heterogeneity dimensions and decision-making styles in cooperative with hybrid organizational structure in this study, stems from the fact that ever since Ethiopia began designing and implementing cooperatives – led development programs, the numbers of cooperatives has increased and their contribution to a diversified enterprise-led social and economy of the marginalized section has become significant (Bernard & Spielman, 2009; Abebaw & Haile, 2013). Despite this significant contribution, the Ethiopian cooperatives' performance is largely characterized by most as weak because of factors including internal governance of heterogeneous membership and decision-making process (Royer et al., 2017; Begna, 2016; Mojo et al., 2017). This apparent contradiction called for in-depth research into the complex relationships between board heterogeneity dimensions and decision-making styles, which has not been empirically investigated in the previous studies.

Thus, this study was designed to examine the relationship and influence of board heterogeneity dimensions on the decision-making styles of cooperative with hybrid organizational structure in Ethiopia. In doing so, the hierarchical multiple regressions model was used to show how relational-oriented heterogeneity and task-oriented heterogeneity explain a statistically significant amount of variance in decision-making styles applied by the heterogeneous boards of cooperative studied. The findings of this study revealed a strong relations between the heterogeneity dimensions (relational and task heterogeneities) of heterogeneous board and decision-making styles in cooperative. For instance, relational heterogeneity found to have positive relation and statistically significant

influence on intuitive and avoidant decision-making styles. This implies that increase in relational heterogeneity among heterogeneous boards in cooperative positively enhance their ability to intuitively make decision and avoid the unnecessary decision regarding their respected cooperative. The positive findings of both relations oriented heterogeneity and task-oriented heterogeneity supported by the assumption of cognitive resource diversity theory (Cox & Blake, 1991; Easely, 2001) that believed heterogeneous board has unique cognitive resources. This implies that heterogeneity of managerial boards of cooperatives enhance the capacity to rationally make quality decision because of various task related skills, knowledge, abilities and information exchanges possessed by the boards. The same is true for the remaining decision-making styles that task heterogeneity improves the ability of heterogeneous board to approach the styles of decision-making to make quality decision in terms efficient use of improving the quantity and quality of products and services, reducing the cost of interacting with suppliers and coordinating activities. Results regarding the positive influence of task oriented heterogeneity on the decision-making styles were in line with the previous findings (e.g., Simons et al., 1999; Dokko et al., 2009; Zhang et al., 2021; Bouncken, 2004; Homberg & Bui, 2013). The finding also supported by both cognitive resource diversity and information decision-making theories (Cox & Blake, 1991; Williams & O'Reilly, 1998).

Moreover, results of the interaction between relations and task oriented heterogeneity were included to predict the overall board heterogeneity on the styles of decision-making. Surprisingly, the results found to have negative and statistically significant relations with rational decision-making style. This finding reflects that the use of both dimensions simultaneously cause disagreement and conflicts of ideas and opinions when some board members linked-up based on certain similarities that harm the quality of decision in cooperative. The result was in line with the previous findings of Heyden et al. (2013) and Doorn et al. (2013). Thus, the of finding of board heterogeneity based on the interaction term between the relations and task oriented heterogeneity supported by the similarity attraction theory (Dorm Byrne et al., 1971; Horwitz, 2005; Williams & O'Reilly, 1998). Moreover, the significant influence of each board heterogeneity dimension on the decision-making styles were explained and discussed in the context of organizational characteristics such as cooperative size, cooperative years, board size and location. Size measured as small and large, cooperative years measured as young and old whereas the location measure as nearby or far away respectively. Therefore, the findings could be summarized that the dimensions of board heterogeneity impact the styles of decision-making differently in cooperatives where task oriented heterogeneity has more significant effect than relations oriented heterogeneity in such a hybrid organizational structure. This indicated that heterogeneity based on education, tenure and functional backgrounds is better in improving the decision-making process in cooperative than heterogeneity based on age, gender and ethnicity.

#### **4.10. Chapter Summary**

This chapter presented the developed conceptual framework and hypotheses, research design, data collection and analysis method, model specification, test of reliability and validity measures, correlations, normality and multicollinearity. It pilot test the variables of the study and found them reliable and valid to further carry on the main study. The main study presented the profile of both the cooperative studied and participants in terms of years, size, age, gender, ethnicity, education, tenure, functional background and survey response rates. Thereafter, it provided descriptive statistical analyses and interpretations.

Compelling evidences were provided in support of a number of hypotheses and discussion was given to each of these relationships. The results of the study have been compared with other studies in the area and the conclusions drawn within the context of hybrid organization structure of Ethiopian cooperative model. In addition, the strength of significant influence of each board heterogeneity dimension on decision-making styles of the board of cooperative were explained in the context of organizational and board size when they are large or small. The same context in terms of organizational years when the cooperative was young or old as well as location based on the distance if nearby or far away were also discussed. It is worth mentioning that the results for statistical analyses methods were presented and provide an insight understanding of the robust associations between the decision-making styles and organizational performance of cooperative studied in Ethiopia.

## **Chapter Five: The Influence of Decision Making Styles on Organizational Performance**

### **5.1. Introduction**

Following part of a research conducted earlier on the effect of board heterogeneity on decision-making styles, this study focused on the influence of decision-making styles on organizational performance of cooperative with hybrid organizational structure in Ethiopia. In order to prove part of the exploratory findings in the case studies, here we use quantitative data with the primary purpose of investigating and validating the proposed model while simultaneously testing and validating the proposed hypotheses that could help generalize the study findings. Thus, building from the qualitative exploratory results, a self-rating survey was developed to collect the data necessary to answer the research questions (O'Regan & Ghobadian, 2004; Avolio et al., 1991). Though the process of having respondents self-rate may appear overly subjective, previous studies have highlighted that even the most objective measures contain subjective elements (Boyd et al., 1993; Biru, 2018). Subjectivity is particularly common amongst secondary data sources – the creation of which requires judgments on the researcher's part and contains several sources of error (Biru, 2018). The survey data collection involved three steps: (i) developing a reliable and valid survey instrument, (ii) selecting an appropriate sample (sampling size), and (iii) conducting the survey with the selected cooperatives in Ethiopia. Thus, this study primarily addressed the following research question:

- (1) To investigate the influence of decision-making styles on performance indicators of cooperative with such hybrid organizational structure in Ethiopia.*

### **5.2. Conceptual Model and Hypothesis Development**

#### **5.2.1. Conceptual Model**

Drawing from cognitive resource diversity theory (Cox & Blake, 1991) for decision-making and organizational research, the conceptual framework developed for the study follows information decision making theory (Cox & Blake, 1991; Williams & O'Reilly, 1998), and integrates the decision-making styles to describe and explain the effect of such decision-making styles on performance of cooperative with the hybrid organizational structure in Ethiopia. Based on the purpose and functions of cooperative, efficiency (Pollanen et al., 2017; Cavalluzzo & Ittner, 2004; Wu et al., 2003; Sethi & King, 1994), market performance (Nandakumar et al., 2011; Pino et al., 2016; De Toni et al., 2021; Dadzie et al., 2012) and financial performance (Sarah et al., 2009; Elbanna & Naguib, 2009; Kalogeras et al., 2013b; Amhalhal et al., 2022) as performance indicators for the study as shown in below Figure.

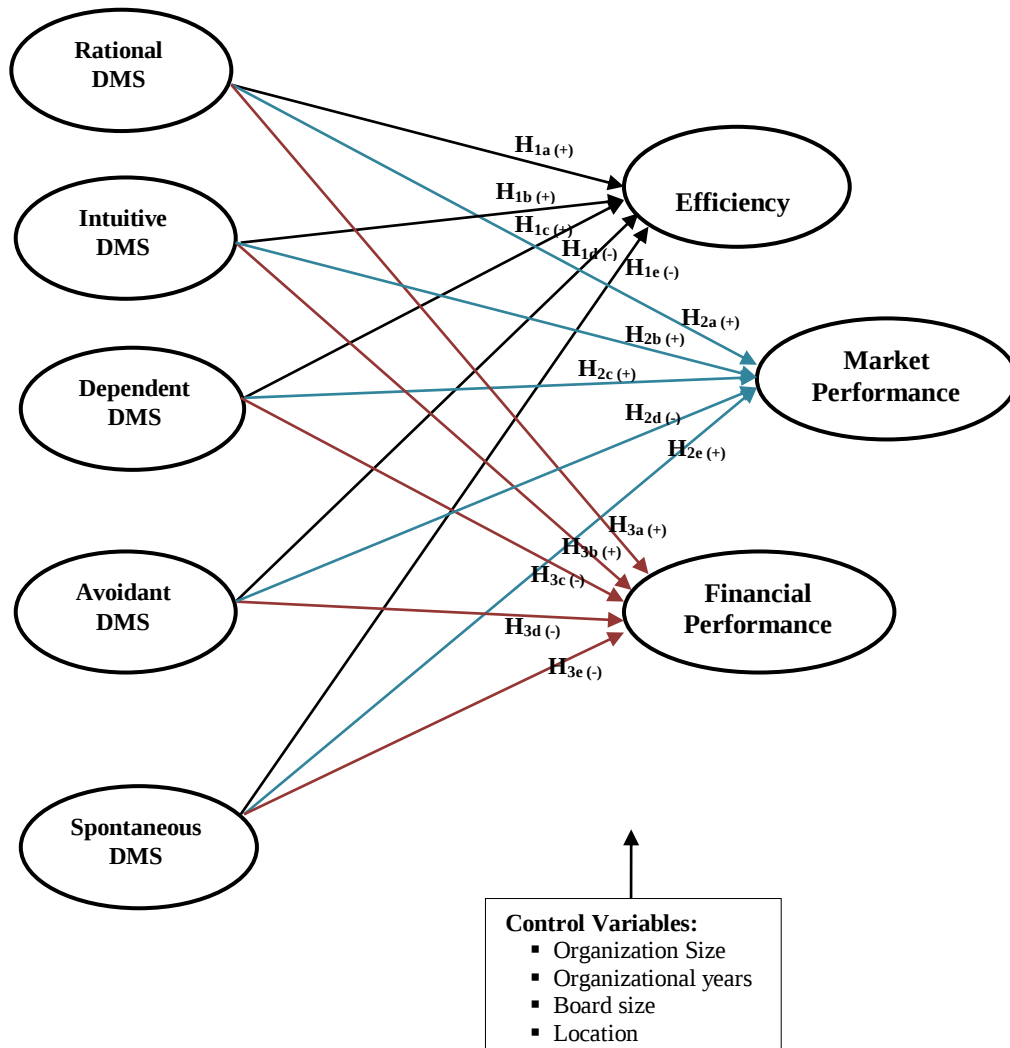


Figure 5.1: Conceptual Model of the Study

### 5.2.2. Development of Hypotheses

As decision-making style reflects a mode or habitual propensity that individuals use during decision tasks (Thunholm, 2004; Gati & Levin, 2012), research about individual decision-making styles commonly uses Scott & Bruce's (1995) measure of five styles: rational, intuitive, avoidant, dependent, and spontaneous. The rational style consists of searching for or creating alternatives and an ensuing logical evaluation of those alternatives. Like the rational style, the intuitive decision-making style involves collecting and evaluating information. Unlike the rational style, the intuitive decision-making style relies on hunches, gut instinct, and feelings of "rightness" or "wrongness" when evaluating information. The avoidant style consists of an effort to push the responsibility of the decision onto others so that the original decision-maker does not directly have to make the decision him or herself. The dependent style emphasizes gathering advice and input from others before making any choices. Finally, the spontaneous decision-making style exhibits quick decisions with seemingly no conscious consideration. A sense of immediacy and priority to make decisions as quickly as possible distinguish the spontaneous style from the intuitive one (Scott & Bruce, 1995; Thunholm, 2004).

Although decision-making styles appear to be stable over time, the use of some decision-making styles may be unlikely in certain contexts (Riaz, 2015). Similarly, prior literature indicated that the effectiveness of these different decision-making styles would generally depend on the context and the type of decisions that need to be made (Rowe & Boulgarides, 1983; Scott & Bruce, 1995; Jamian et al., 2013). Not only context and the type of decision needed, the decision-making styles vary with regards to the quantity of information at the disposal of the decision-makers and the number of alternatives that present to put together and coordinate several sources of information (Tatum et al., 2003; Oyewobi et al., 2016).

Findings from previous literature revealed that different decision-making styles exhibit different impacts on organizational performance, which may be positive or negative (Rehman et al., 2012; Amzat & Idris, 2012). Though Russ et al (1996) contend that decision-making styles appears to be related to performance, it remains unclear which style(s) relates to increasing organizational performance during both the short term and long term (Shepherd et al., 2015). For example, Oyewobi et al. (2016) study on the relationship between decision-making styles and organizational performance among construction organizations in South Africa found that decision-making styles influence organizational performance. In a similar study on the impact of employee decision-making styles on organizational performance, Rehman et al. (2012) found that different decision-making styles influence organizational performance differently. In a study of Ward (2016) on the relationship between decision-making styles of entrepreneurs and organizational performance, findings reported that entrepreneurs were using the rational, intuitive, dependent, spontaneous, to a greater extent than avoidant decision-making style and found no direct relationships between decision-making styles and overall organizational performance.

Following the results of exploratory study in the qualitative stage of this research, we found that heterogeneous boards in cooperative approach decision-making styles differently. Given the varying nature of the different decision-making styles, there is reason to anticipate that the relationships with performance will differ across decision-making styles (Ward, 2016) and expected to have positive impact on the performance of cooperative in Ethiopia.

Using the theoretical argument of cognitive resource diversity and information decision making theories (Cox & Blake, 1991; Hambrick et al., 1996) that teams consisting of heterogeneous members promote creativity, innovation, and problem solving, hence generating more informed decisions (Horwitz, 2005) because of unique cognitive resources that members bring to the team, the pooling of resources by individuals expected to have significant contribution on the success of their respected cooperatives. However, as prescribed in the proclamation and bylaw that those board members from affiliated primary cooperative must be individuals who live in a certain operating areas, allow members to similarities during formation that may challenges the process of decision-making because of heterogeneity or diversity. Thus, we also included the similarity attraction or social categorization theories (Horwitz, 2005; O'Reilly et al., 1989; Wiersema & Bantel, 1992) and hypothesized to have negative association with team performance and social integration (Jackson et al., 1995; Milliken & Martins, 1996) because of lower team cohesion, inherent tensions and relational conflicts arising from member heterogeneity. Thus, this study attempts to determine the influence of decision-making styles on organizational performance measures (using efficiency, market performance and financial performance) and proposed the hypotheses presented below.

#### **5.2.2.1. Rational Decision-Making Style and Performance of Cooperative**

Although decision-making styles appear to be general throughout organizations, the use of some decision-making styles may be unlikely in certain contexts (Ward, 2016). Cooperative as one of the organizations has its own unique administrative way based on its principles and laws across countries around the world. To achieve its objective, it determines each member to have one vote in any decision-making process. For example, Ethiopian cooperative society's proclamation number 985/2016, Article 29(1) stated that "Decisions of any cooperative society shall pass by majority vote (50+1), where issues need special resolutions must pass by two third (2/3) members vote"; and sub-article (2) "Any member shall, regardless of the number of shares he/she has, have only one vote at the meeting of the cooperative society". Numerous researchers (e.g., Yadav & Lenka, 2020; Riaz et al., 2014; Spicer & Sadler-Smith, 2005; Mau, 1995) suggested that managers opt various styles while making organizational decisions that linked with numerous individual, group, and organizational outcomes.

Rational decision as one of the styles, is a logical manner based that deliberately analyzed and evaluate alternatives to reach at an ideal goal through most effective means (Akram & Siddiqui, 2019). According to Dean & Sharfm (1993), rationality defined as the extent to which the decision-making process involves the collection of information relevant to the decision, and the reliance upon analysis of this information in making the choice. Decision rationality refers to the extent to which they use a systematic and analytical approach to make general decisions (Kandemir & Acur, 2012; Zhang et al., 2020). Solutions obtained from rational analysis follow a sensible sequence for the decision maker. According to Verma & Rangnekar (2015), individuals with high decision rationality will likely make decisions based on searching for and cognitively evaluating all alternatives. Rational decision makers approach decision-making objectively, unemotionally, analytically and thoroughly (Phillips et al., 1984).

Although many prior studies reflect conflicting findings of different decision-making styles, most of the previous empirical studies' found positive impact of rational decision making on performance (such as workgroup or organization). According to the study examining how decision-making styles affect performance, Riaz (2015) found different relationships between decision-making styles and organizational performance. Applying purposive sampling to survey 300 employees from organizations that he described non-profit service providing organizations

(hospitals, banks and universities) in Pakistan, he measured performance using Likert-scales and found that rational decision-making style have a positive impact on both job performance of employees and organizational performance of non-profits service providing organizations. The same finding was found by Rehman et al. (2012) on organizational performance of bank sector in Pakistan using structural equation model. Yet, Ward (2016) studied the relationship between decision-making styles of entrepreneurs and organizational performance across various countries and found positive results. On the other hand, in a survey research using 538 participants and their superiors to examine the leaders' decision- making styles of sales managers in the USA, Russ et al. (1996) revealed positive influence of rational decision-making style on sales managers' performance. Cooperative as voluntary and open membership organization, the Ethiopian cooperative law implements the same principles and allowed individuals with heterogeneous backgrounds to join. For instance, the results from our case study revealed that managerial board members of cooperatives in Ethiopia have diverse demographic characteristics. Individual board members with heterogeneous backgrounds such as education, experience functional background and others possess diverse cognitive resources including knowledge; skills and information relevant to make decision that enhance the performance of group and organization of cooperative. Following information decision-making theory (Williams & O'Reilly, 1998; Horwitz, 2005) that proposed variance in groups composition can have a direct positive impact through the increase in the skills, information and knowledge that heterogeneity brings, independent of what happens in the group process (Cox & Blake, 1991), heterogeneous board members of cooperative expected to rationally approach decision that enhance the efficiency, marketing and financial performance of cooperative respectively. Therefore, we proposed that rational decision-making style among heterogeneous board to have positive influence on performance indicators of cooperatives and developed the following hypotheses:

- (H1a): Rational decision-making style has positive and significant effect on the efficiency of cooperative.*
- (H2a): Rational decision-making style has positive and significant effect on the market performance of cooperative.*
- (H3a): Rational decision-making style has positive and significant effect on the financial performance of cooperative.*

#### **5.2.2.2. Intuitive Decision-Making Style and Performance Indicators**

Among the general decision-making styles (Scott & Bruce), intuitive decision-making style is one that defined as process in which an individual or group relying upon one's own personal instinct, intuition and inner feelings about what feels right to make the final decision (Verma & Rangnekar., 2015; Curşeu & Schrujjer, 2012). Although there were few scholars who empirically investigate the role of intuitive decision-making style on performance, their studies reflect conflicting findings. For example, a research investigating the decision-making styles of managers among bank and insurance firms in Italy, Gambetti & Giusberti (2019) used 362 participants and their regression result found that intuitive decision-making style was non-significant influence on investment decisions. The same results was found by Rehman et al. (2012) on organizational performance of bank sector in Pakistan using structural equation model from a sample of 187 employees.

In contrast, Bourgeois & Eisenhardt (1988) found that high performance results from a decisive CEO who uses an intuitive decision-making style along with a powerful management team. Similarly, in a survey study, Baum & Wally (2003) also found that fast, strategic decision making using intuition predicted high organizational performance as measured by business growth and

profits. Similarly, Ward (2016) in her study on the relationship between decision-making styles of entrepreneurs and organizational performance across various countries, her regression results using a sample of 269 entrepreneurs of small business owners revealed positive effect of intuitive decision-making style on organizational performance. Again, Riaz (2015) in his thesis investigating the influence of leaders' decision-making styles, he found positive impact of intuitive decision-making style on both job performance of leaders and organizational performance of the selected service providing organizations in Pakistan.

With respect to Ethiopian cooperatives, few studies on the impact of heterogeneity show variability across numerous institutional settings. For instance, in exploratory research on the heterogeneous impact of coffee cooperative membership in Southwest Ethiopia, Shumeta & D'Haese (2016) concluded that the impact levels differed across cooperatives and found that cooperatives with relatively older and educated members with large farms were more effective. In their study, Bernard et al. (2007) found that cooperatives close to the town exhibit more heterogeneous composition due to the mixture of heterogeneous ethnic groups. Bernard et al. (2007) also registered a large heterogeneity amongst Ethiopian (cereal) cooperatives with respect to their marketing responses to price changes. Surprisingly, they found that more heterogeneity seems to be linked to better performance. Their interpretation was that greater heterogeneity was driven by much larger farmers who have an incentive to ensure the organization's success. Moreover, Shumeta & D'Haeseb (2016) used education and age along farm size to analyze the heterogeneous impact of coffee cooperative membership in Southwest Ethiopia and showed that the impact levels differed across cooperatives. Thus, they found older and educated household members with a larger coffee farm were more effective.

Despite the conflicting views of board perception on the effect of intuitive decision making style, the results of our case study also explained that the use of intuitive decision help ease the process of reaching at decision because of different experiences of the heterogeneous boards based on their diverse functional backgrounds and tenure both in position and organization of the cooperative. Therefore, we developed the following hypotheses:

- (H1b): The use of intuitive decision-making style has positive and significant influence on the efficiency of cooperative.*
- (H2b): The use of intuitive decision-making style has positive and significant influence on the market performance of cooperative.*
- (H3b): The use of intuitive decision-making style has positive and significant influence on the financial performance of cooperative.*

### **5.2.2.3. Dependent Decision-Making Style and Performance Indicators**

Dependent decision-making style refers to reliance upon the direction and support of others (Scott & Bruce, 1995). Decision makers in this style always search for advice and guidance from others before making important decisions (Thunholm, 2004), rarely do they make important decisions without consulting others (Scott & Bruce, 1995). They find it easier to be guided by others in the right direction (Thunholm, 2004). They act upon the opinions, expectations, and desires of their peers and authority in order to overcome the fear of failure and rejection (Riaz, 2015). However, Phillips et al (2001) and Singh & Greenhaus (2004) stated that too much reliance of dependent decision-making style results in decreased validity of the information, decline in accuracy of awareness, and the less effective their decision than some other ways of involving and consulting other people. As the dependent decision maker transfers the responsibility of choice to external

events or other people, such a decision-makers are considered passive, compliant, and influenced by others' expectations (Harren, 1979; Verma & Rangnekar, 2015).

While investigating the impact of decision-making styles, previous studies reported conflicting findings of dependent decision-making style on performance (Yadav & Lenka, 2020b). Considering the positive impact, authors measure performance differently. Ward (2016) in her study on the relationship between decision-making styles of entrepreneurs and organizational performance using 269 entrepreneurs of small business owners, she found positive result between dependent decision-making style and organizational performance. Riaz (2015) and Rehman et al. (2012) supported the same result based on their studies conducted on bank sectors and service providing sectors in Pakistan. Moreover, a research investigating the decision-making styles of managers among bank and insurance firms in Italy, Gambetti & Giusberti (2019) used 362 participants and their regression result found that dependent decision-making style was positively influenced investment decisions. However, Riaz (2015) in his thesis investigating the influence of leaders' decision-making styles, he found positive impact of dependent decision-making style on job performance of leaders from the selected service providing organizations in Pakistan. Russ et al. (1996) also found that dependent has non-significant result on sales managers' performance in their survey with a sample of 538 participants and superiors in the USA.

However, the combination of high complexity in the cooperative firm with a heterogeneous membership leads to paralysis in the board and thus to a de facto shift of decision-making power (Bijman et al., 2013). Shifting decision-making power encourage the dependency of the board or members on other individual or organizations. Few empirical studies confirm the challenges of decision-making process in cooperatives. For example, the study of Araya & Chung (2015) on the commercialization role of agricultural cooperatives in Ethiopia, the Agricultural Transformation Agency data showed that only 17.8 percent of the members took part in most decisions meeting, while more than 54 percent attended none of the cooperatives meeting in 2011. Likewise, the extent of member's involvement in decision-making as well as their interest to engage in decision-making within the cooperatives is found to be much lower. Nearly, 50 percent of the respondents felt excluded from decision-making (Araya & Chung, 2015). In a large survey of smallholder agricultural marketing cooperatives in Ethiopia using participation indicators (Bernard & Spielman, 2009), they found that member farmers are often excluded from decision-making processes where only 10 percent participate in all decisions. This suggested a relatively low level of member participation in decision-making processes in cooperatives. According to Dunn et al. (2002), forces outside the cooperative can also exert control through their ability to limit its decision-making.

The interferences of the government and other development partners in decision-making on matters of cooperatives and the use of cooperatives for political purposes by local governments have been identified as serious threats to the cooperative development in Ethiopia (Tefera et al., 2017; Mojo et al., 2018). According to Bernard et al. (2008), most cooperatives in Ethiopia were initiated under the influence of an external partner: 63% were created by government institutions, 11% by donor agency or NGOs, and only 26% by members themselves. Though the involvement of government in the distribution of imported consumer product such as food items and processed products improved the accessibility of products, the involvement of NGOs in cooperatives formed based on their support will challenge the financial sustainability of such cooperatives in a long run. Therefore, due to the dual purpose of cooperative such as social and economic, we are expecting the use of intuitive decision to have different effect on various performance of cooperative. Thus, depending

on other to make decision impact the organizational performance of cooperative and the following hypotheses were developed:

- (H1c): The use of dependent decision-making style has positive and significant influence on the efficiency of cooperative.*
- (H2c): The use of dependent decision-making style has positive and significant influence on the market performance of cooperative.*
- (H3c): The use of dependent decision-making style has negative and significant influence on the financial performance of cooperative.*

#### **5.2.2.4. Avoidant Decision-Making Style and Performance Indicators**

Avoidant decision-making style defined as an attempt to avoid or postpone decisions as long as possible (Scott & Bruce, 1995). This type of decision-maker avoids making decisions until the pressure is on, procrastinates, and delays decisions until the last minute (Spicer & Sadler-Smith, 2005). This decision-making style was found to be related to an avoidant style of conflict management (Thunholm, 2004). According to the findings of the previous empirical studies, many authors reported negative result of avoidant decision-making style on the performance of organization or group. For example, Riaz (2015) and Rehman et al. (2012) supported the same negative result based on their studies conducted on bank sectors and service providing sectors in Pakistan. Similarly, a research investigating the decision-making styles of managers among bank and insurance firms in Italy, Gambetti & Giusberti (2019) used 362 participants and their regression result found that avoidant decision-making style was negatively influence investment decisions. Moreover, de Bruin et al (2007) also reported that avoidant decision-making is negatively connected with decision making competence, satisfactory decision outcomes, and decision making planning. However, a particular surprising finding of Ward (2016) was that higher levels of avoidant decision-making style related to increases in performance (profitability). One possible explanation for her finding was that it can be beneficial to wait to make a decision if the decision maker is particularly emotional or distressed (Maner et al., 2007). In cooperative

Cooperative as organization of individuals with heterogeneous backgrounds, they pooled their resources such as capital in order to overcome common problems together. According to Ethiopian cooperative society's proclamation, board members or decision-makers of primary cooperative affiliated to the union were restricted to a specific area and allowed to pass decision only when attended by the 2/3 of the members. As showed in the study of Araya & Chung (2015) regarding the commercialization role of agricultural cooperatives in Ethiopia, only 17.8 percent of the members took part in most decisions meeting, while more than 54 percent attended none of the cooperatives meeting. Moreover, 50 percent of the respondents felt excluded from decision-making (Araya & Chung, 2015). In a large survey of smallholder agricultural marketing cooperatives in Ethiopia using participation indicators (Bernard & Spielman., 2009), they found that member farmers are often excluded from decision-making processes where only 10 percent participate in all decisions. This suggested a relatively low level of member participation in decision-making processes in cooperatives. When the decision-makers in cooperatives fall below 50+1 or 2/3 as prescribed in the proclamation, it directly lead to the avoidant or postponing the decision. Therefore, avoiding important or significant decision because of low level of attendant will harm the performance of cooperative. Hence, the following hypotheses were developed:

- (H1d): The use of avoidant decision-making style has positive and significant influence on the efficiency of cooperative.*
- (H2d): The use of avoidant decision-making style has positive and significant influence on the market performance of cooperative.*
- (H3d): The use of avoidant decision-making style has positive and significant influence on financial performance of cooperative.*

#### **5.2.2.5. Spontaneous Decision-Making Style and Performance Indicators**

While research suggests that the quick, intuitive decision-making style may benefit organizational performance (Ward, 2016), hastily making decisions using a spontaneous decision-making style seems to be detrimental to performance. Spontaneous decision-making style is defined in terms of emergency, and aspiration to complete decisional process in speedy manner (Scott & Bruce, 1995). It involves ‘thought chunking’ and the concentration is focused on the information as a whole instead of analyzing the information in parts (Riaz, 2015). In a survey study conducted on the individual differences in adult decision-making competence of participants comprised of 65.5% (white), African American (28.2%) and 6.3% (other racial groups) from social service organizations and community groups in the Pittsburgh metropolitan area of the USA, Parker et al (2007) found that spontaneous decision-making style negatively predicted decision outcomes for people that varied in their level of education and socio-economic status. Similarly, de Bruin et al (2007) found spontaneous decision-making style negatively related to competence in decision making and satisfactory decision outcomes as well as decision planning (Galotti et al., 2006). Moreover, Ward (2016) in her study on the relationship between decision-making styles of entrepreneurs and organizational performance, she found negative result between spontaneous decision-making style of entrepreneurs and organizational performance.

In contrary, some found positive impact of spontaneous decision-making styles on performance. For example, Riaz (2015) and Rehman et al. (2012) supported the same positive result of spontaneous decision-making styles on organizational performance based on their studies conducted on banking and service providing sectors in Pakistan. However, while investigating the influence of decision-making styles of managers among bank and insurance firms in Italy, Gambetti & Giusberti (2019) used 362 participants and their regression result found non-significant impact of spontaneous decision-making style on investment decision.

According to the hybrid organizational structure of Ethiopian cooperative, government mandated Cooperative Agency to involve in the distribution of products especially imported processed consumer and industrial products to the communities through cooperatives as protection against greedy private firms. However, the interferences of the government and other development partners in decision-making on matters of cooperatives and the use of cooperatives for political purposes by local governments have been identified as serious threats to the development cooperative of in Ethiopia (Tefera et al., 2017; Mojo et al., 2018).

Moreover, the principle of one member one vote in cooperative that required the presence of majority slower the process of decision making. According to study conducted in three countries such as Hungary, Canada and France, Kispál-Vitai et al. (2019) revealed that decisions were made slowly in the cooperative due to the difficulty of convincing large and diverse ownership when all owners follow the principle of one vote. The empirical results of case study found that the need for quick or spontaneous decision play a double roles regarding performance of cooperative. Decision

related to increased quantity and quality of products as well as efficient use budget required time to discuss the issue with the majority. However, impulsive call to obtain consumer products from external organization such as Cooperative Agency and Bureau of Trade and Industry needs snap or spontaneous decision to acquire what demanded by the cooperative. Therefore, in cooperative with such hybrid organizational structure, we developed the following hypotheses:

- (H1e): Spontaneous decision-making style has negative and significant influence on the efficiency of cooperative.*
- (H2e): Spontaneous decision-making style has positive and significant influence on the market performance of cooperative.*
- (H3e): Spontaneous decision-making style has negative and significant influence on the financial performance of cooperative.*

#### **5.2.2.6. The Interaction Terms of DMS and Performance of Cooperative**

Despite the fact that scholars attempted to understand, interpret and identify different decision-making styles (Adikaram & Kailasapathy, 2021), decision-making is a collective responsibility of all stakeholders in an organization and should be viewed from a broader perspective of an organization characteristics as against individually learned or acquired habit of solving problems (Albaum et al., 1995). According to Tatum et al. (2003), decision makers are influenced by the unpredictable nature of the business and as such are saddled with the responsibility of making everyday decisions on issues that affect their organizations and provide solutions to problems. Therefore, the manner of arriving at decisions by the management of an organization – their decision-making style influences organizational performance (Russ et al., 1996). Tatum et al. (2003) posit that a-one-size-fits-all solution does not exist, as there is no one unanimously accepted categorization of decision-making styles.

Cooperatives as democratic organizations controlled by their members, follow the principle of one member-one vote rule in their decision-making (Birchall, 2002; Mikami, 2016). For instance, according to the Ethiopian FDRE (2016) cooperative societies proclamation no.985/2016:

Article 5(2): *Cooperative societies shall be democratic organizations controlled by their members who actively participate in setting their policies and making decisions; each member having equal voting right as well as one member having one vote.* Article 31: *“The supreme organ of any cooperative society shall be the general assembly that elects managerial board”*

Article 32(11): *“General assembly decides, in accordance with the powers vested in it by the by-law, on any issue submitted to it by the management committee or managerial board.”*

Although cooperative transparent in making decision through their proclamations and bylaws, Tatum et al. (2003) contend that decision-making styles vary with regards to the quantity of information at the disposal of the decision makers, the amount of alternatives that presents themselves and the degree to which decision makers strive to put together and coordinate several sources of input (information). In such case, decision makers or managerial boards of cooperative possess heterogeneous backgrounds that make them approach the decisions. For example, the results from the case study indicated that highly educated board members tend to be more rational decision-making compared to less educated. Older member more or less relied on their experience to intuitively pass decision than members with less experience. Furthermore, the hybrid institutional

structure of Ethiopian cooperatives invited the involvement of government official through cooperative agency in decision-making process of cooperative specially fixing the price of imported goods that obtained from the government. Therefore, heterogeneity of board in such organizational structure with other contextual factors prescribed in the bylaws of cooperative including the election board members from various affiliated cooperative in different locations. Some cooperatives affiliated to the union represented by people who with heterogeneous backgrounds who can have less trust even though they share the objectives of forming cooperatives. Since there was no best decision-making style that enhance the performance of cooperative and the use of one decision to back up the other decisions, we created the interaction term among decision-making styles depend on the feedback of the participants who dominantly use rational, intuitive and dependent decision-making styles simultaneously. Hence, since rational and intuitive mostly used by the members within the board or cooperative, we argued in this study that the interaction between rational and intuitive decision making styles among heterogeneous board members who lives in different locations to have negative effect on the performance of cooperative. Thus, we proposed the following hypotheses:

- (H1f): The interaction between rational and intuitive decision-making styles has negative and significant effect on the efficiency of cooperative under study in Ethiopia.*
- (H2f): The interaction between rational and intuitive decision-making styles has negative and significant effect on the market performance of cooperative under study in Ethiopia.*
- (H3f): The interaction between rational and intuitive decision-making styles has negative and significant effect on the financial performance of cooperative under study in Ethiopia.*

However, due the changing external business environment including inflations and shortage of accessibility to obtain products specially processed products imported by the government, cooperative seeks assistance or advices from external individuals and organizations such as regional cooperative agency and bureau of trade and industry. FDRE (2016) cooperative society's proclamation no.985/2016: Article 43(1) stated "Without prejudice to incentives permitted under investment laws and other laws, any cooperative society is organized and registered in accordance with this proclamation shall be exempted from tax, obtain land from the region on the basis of allocation to conduct their activity or to provide their service and to receive promotion service with respect to cooperative movement and capacity building training". Article 50(1) stated that "The appropriate authority or cooperative agencies shall audit cooperatives by a person assigned by the government at least once in a year." Article 52(1) stated that "The appropriate authority or cooperative agencies shall inspect cooperatives by a person assigned by the government at least once in a year." (2) "The appropriate authority or cooperative agencies shall issue directive on operational standards to measure the status of cooperative society." Besides the incentives permitted by the government, depending on assistance or support from external individuals with expertise or specialization can lead to better quality decision that further enhance the performance of cooperatives. Therefore, we interacting dependent with rational and intuitive decision-making styles and proposed the following hypotheses:

- (H1g): Interacting dependent decision-making style with rational and intuitive decision-making styles to make better decision has positive and significant effect on the efficiency of cooperative under study in Ethiopia.*
- (H2g): Interacting dependent decision-making style with rational and intuitive decision-making styles to make better decision has positive and significant effect on the market performance of cooperative under study in Ethiopia.*

*(H3g): Interacting dependent decision-making style with rational and intuitive decision-making styles to make better decision has positive and significant effect on the financial performance of cooperative under study in Ethiopia.*

### **5.3. Research Approach and Design**

Research design is the strategy or plan, which is used to acquire participants, and how to collect data from them, in order to arrive at conclusions about a research question (Zikmund, 2013). A cross-sectional descriptive survey was used in this study. According to Kothari (2004), the design was appropriate since it involves data collection at a point in time related to two or more variables in an effort to determine associations between the variables after the data was analyzed. The chosen design therefore, offered the researcher an opportunity to assess the effects of heterogeneity and decision-making on the relation between board heterogeneity dimensions and decision-making styles of cooperative under study (Mkalama & Machuki, 2019). The study was also a correlational research conducted in the natural environment of the organizations in the context of cooperative with no interference and manipulation of research variables by the researcher. Such a setting helps the research assess relationships between variables (Kinuu, 2014).

### **5.4. Sampling and Data Collection Method**

The selection of sample size is a statistical concept that involves determining the number of observations or replicates included in a statistical sample. It is an essential aspect of any empirical study requiring inferences about a population based on a sample (Atkinson & Flint, 2001). This research is interested in study the consumer cooperatives in Ethiopia. To survey all regions in Ethiopia, is a huge challenge due to lack of access to published information on the current status of cooperatives and the insecurities in a country. Hence, this study purposively selected Gambella region of Ethiopia because of its convenience to obtain data as per the reasons mentioned earlier (Biernacki & Waldorf, 1981).

As of June 2016, there were 78,684 primary cooperatives with 370 Cooperative Unions published in the website of Ethiopian Cooperative Agency (<http://www.fca.gov.et/>). Although over 200 of the 370 cooperative unions in a country (Ethiopia) were agricultural related, there were only 31 consumer cooperative unions with 495 member primary cooperatives affiliated to them. Based on the nature of the study topic to understand the heterogeneity of managerial board in relation to decision-making, the organizations to be investigated considered having the same objective. According to the nature of Ethiopian cooperative structure, the union is formed by primary cooperatives whose board members are the decision-maker of the union due to the nature of their affiliation (Tefera et al., 2017; Kaleb Kelemu et al., 2014). Based on the information obtained from the regional cooperative agency, this study selected the largest union with more affiliated member primary cooperatives from the established 3 unions in Gambella region. The selected cooperative union has 32 member primary cooperatives with 8502 individual members and 298 board members of the 32 primary cooperatives comprised of 222 males and 76 females listed in the table presented in below. Therefore, due to the small size of the population, a census survey was done to include all managerial board members. But, because of the inconvenience of 5 individual from board members, the data was collected from the 293 (98.3%) individual board members.

To collect the data, the decision to apply the author's network of professionals who work in the targeted areas and mainly in the field of cooperative and marketing was made as an appropriate

method to reach a bigger population. Thus, data collection method (questionnaires) was administered by a number of research assistants, who personally delivered and collected the questionnaires to and from respondents in order to ensure a high response rate. Data was collected using a semi-structured questionnaire as shown in Appendix section. The questionnaire was divided into four parts namely cooperatives' background, participants' demographic characteristics, and board heterogeneity dimension and decision-making styles.

The research instrument was obtained from the published academic literatures and journals. The researcher and research assistants made an initial contact with the cooperative organizations with the help of regional cooperative agency and written letters requesting the participants' willingness. A protocol was developed to guide and thoroughly brief the research assistants about data collection process. Each respondent was provided with a survey package which included a survey questionnaire and a cover letter to formally invite the cooperatives to participate in the survey and to explain the objectives of the survey, as well as confirming respondent anonymity.

Once contact was established, the research purpose was explained and assured the respondents that their confidentiality and anonymity would be preserved. By sharing the research proposal with the respondents, the researcher was able to gain the respondents' confidence as it clearly showed the questionnaire fully embedded in the proposal. Then, the collection of data was carried out through self-rating questionnaires with close contact for clarity.

## **5.5. Reliability and Validity**

### **5.5.1. Reliability**

Regardless of the research procedure used and the method employed, researchers need to critically assess to what extent it is likely to consistently measure what it ought to accurately (O'Regan & Ghobadian, 2004). A fundamental requirement of any instrument design is to ensure that it measures what intended to measure (Batterton & Hale, 2017). To ensure this, construct and content validation were conducted on this study's questionnaire following its initial construction.

According to Hair et al. (2010a) and Nagel & Cilliers (1990), reliability refers to the extent to which a scale produces consistent results over time and an accurate representation of the total population under study is said to be reliable, if the measurements are repeated a number of times under a similar methodology. Data reliability was measured using Cronbach's alpha method. The coefficient alpha is an appropriate measure of variance attributable to subjects and variance attributable to the interaction between subjects and items. The rule of thumb for item reliability is to have a cut-off value of 0.7 (Tenenhaus et al., 2005). However, Hair et al. (2019) recommends a Cronbach's  $\alpha$  value of 0.6 is sufficient to recognize construct reliability. Therefore, all items with lower loading than 0.6 are deleted after checking that other measures had high loadings. Cronbach's alpha quantifies how well a set of indicators measures unidimensional latent construct" (Götz et al., 2010. p.695) will be checked.

Cronbach's alpha (Cronbach, 1951) is defined as:

$$\text{Cronbach } \alpha = \frac{N}{N-1} * (1 - \frac{\sum \delta^2}{\delta^2})$$

Where;

“N” is the number of indicators and “ $\delta$ ” reflects indicators variance.

### 5.5.2. Validity

Another way of conducting reliability is dealing with validity, which refers to the extent indicators would represent the concept of interest (Hair et al., 2019) and it do combine two types; convergent and discriminant validity. Convergent validity examines if indicators represents one and the same underlying construct. A common method to measure convergent validity is Average Variance Extracted (AVE) (Lambert & Larcker, 1987) which is defined as:

$$AVE = \frac{\sum \lambda^2 I}{\sum \lambda^2 I + \sum VAR(\epsilon AR)}$$

The convergent validity of a construct with reflective indicators is evaluated by Average Variance Extracted (AVE) for all items on each construct (Fornell & Larcker, 1981). The AVE value should be equal to 0.5 or more. An AVE value of 0.5 or more means that the construct can explain 50% or more of the variance of the item (Sarstedt et al., 2017; Wong, 2013). During questionnaire development, researchers should conduct various validity checks to ensure the instrument measured what it was supposed to measure (Nagel & Cilliers., 1990). According to Hair et al. (2017), validity is the extent to which a construct measures what it is supposed to measure. According to the existing literature, there are three important approaches to assessing measurement validity: content validity (also referred to as face validity), construct validity, and criterion validity (Higgins & Straub, 2006; Heale & Twycross, 2015; Golafshani, 2003). The current study utilized content and construct validities.

#### ○ Content Validity

Content validity is the most important validity test (Hair et al., 2020). It is based on the extent to which a measurement reflects the specific intended domain of content. Validity is not quantified using statistical methods, meaning that validity is a qualitative measure. To ensure content validity, the questionnaires formulated were adapted from the prior empirical studies that tested in various fields. For example, questionnaires for the dimensions of board heterogeneity were borrowed from the previous published works (Zhang et al., 2021; Su et al., 2021; Doorn et al., 2013; Campion & Medsker, 2001; Heyden et al., 2013; Kim & Rasheed, 2014). Questionnaires for decision-making styles borrowed from that proposed by Scott & Bruce (1995) tested by Verma & Rangnekar (2015) in India. The indicators for organizational performance were taken from various authors (e.g., Pollanen et al., 2017; Wu et al., 2003; Nandakumar et al., 2011; De Toni et al., 2021; Brah & Chong, 2004; Elbanna & Naguib, 2009; Kalogeras et al., 2013b).

## ○ Construct Validity

According to Golafshani (2003), construct validity refers to how well you translated or transformed a concept, idea, or behavior—that is a construct— into a functioning and operating reality, the operationalization. It assesses what the construct or scale is in fact measuring (Heale & Twycross, 2015; Atikiya, 2015). Construct validity was maintained through anchoring of the constructs to the theory from which they were derived.

## 5.6. Data Analysis Method

For the analysis to begin, the data collected was first cleaned and assessed for completeness. There was no missing information found and the questionnaires were deemed complete for further steps. Data was then coded in readiness for entry into the statistical analysis software. For example, Codes DDMS1 to DDMS5 was used to represent items 11-15 for dependent decision-making style in the cooperatives and the same is true for other styles. The last codes used for control variables were COY, COS and CBS representing organizations' years, organizational size and board size respectively.

Since the unit of analysis in this study was a single cooperative union formed by affiliated member primary cooperatives, board heterogeneity dimensions, decision-making styles were obtained for board level analysis. The Statistical Package for Social Sciences (SPSS) version 20 used for the facilitation of the data analysis. In order to ensure the suitability of variables for analysis, several tests were carried on the data prior to commencing any data analysis. These tests were reliability and validity tests, tests of normality, multicollinearity tests and Kaiser-Meyer-Olkin and Bartlett's Test (Senaviratna & Cooray, 2019; Lin, 2008; Zenger & Lawrence, 1989; Myers, 2004; Hair et al., 2020). The data analysis gave both descriptive and inferential statistics in order to summarize data in an understandable way and infer characteristics of the population, respectively. Descriptive statistics entailed measures of mean and dispersion.

In line with other studies (Mueller et al., 2007; Smith et al., 1994; Straub, 1989), Confirmatory Factor Analysis (CFAs) was done to ascertain that the respondents reported board heterogeneity dimensions and the decision-making styles were distinct constructs. Correlation analysis was done to determine the coefficient of correlation between variables and coefficient of determination to test for goodness of fit of the models. Regression is used to examine the relationship between variables especially the extent to which a dependent variable is a function of one or more independent variables. It is used to analyze the relationship between a single dependent variable and several independent variables (Hair et al., 2021; Hinds et al., 2000). The values of one are used to predict the values of others (Robson, 2002).

Multiple regression analysis was used to examine the proposed research hypotheses. In this study we used hierarchical multiple regressions since we attempted to predict an outcome from various predictors (Field, 2005). The use of hierarchical regression analysis displays the results of analysis of variance (ANOVA) that help to understand the variance among variables (Stahle & Wold, 1989; Tukey, 1977; Rutherford, 2013) and empowers researchers to explore the potential interesting relationships of the data as well as confirming factor analysis (Rutherford, 2013). Usually, the investigator seeks to ascertain the causal effect of one variable upon another. Hierarchical Multiple Regression models were used to examine the relationship among the independent, dependent and control variables (Xu et al., 2017; Kelley & Bolin, 2013; Myers, 2004).

The regression line is described algebraically by the multiple regression equation that expresses the relationship between two or more variables. In fact the straight line is defined by (1) the slope or gradient (usually denoted by  $\beta_1$ ) and (2) the point at which the line crosses the vertical axis of the graph (known as the intercept of the line  $\beta_0$ ). The general model can be expressed in the regression equation below:  $Y_i = (\beta_0 + \beta_1 X_i) + \varepsilon_i$ , where  $Y_i$  is the outcome,  $X_i$  the participants' score on the predictor variable,  $\beta_1$  is the gradient of the straight line fitted to the data and  $\beta_0$  the intercept of that line,  $\beta_0$  and  $\beta_1$  are regression coefficients and finally,  $\varepsilon_i$  represents the standard errors or difference between the scores (Xu et al., 2006; Hinds et al., 2000). The multiple regression equation model formulated for this study was:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_n X_n + \dots + \varepsilon_i,$$

Where,

$Y_i$  = is the dependent variable,  $\beta_0$  = y intercept/constant,  $\beta_1$ - $\beta_n$  = regression coefficients,  $X_1$ - $X_n$  = Independent Variables and  $\varepsilon_i$  = error term/ random variation due to other unmeasured variables (Myers, 2004; Ghani & Ahmad, 2010; Kelley & Bolin, 2013; Xu et al., 2017).

A series of three hierarchical regression modeling was used to enhance the regression analysis framework, as it show if variables of interest explain a statistically significant amount of variance in the dependent variable after accounting for all other variables (Elbanna & Fadol, 2016; Myers, 2004; Kirkman et al., 2004; Amason et al., 2006). The fundamental tests of the underlying assumptions for multiple regression analysis were conducted in order to ensure that the data were conducive to such analyses. For example, the relationships between the independent variables as well as the relationships between the dependent and independent variables were analyzed using correlation coefficients for every potential pair of variables used in the study (Schober et al., 2018; Akoglu, 2018; Robson, 2002). Multicollinearity tests were developed using variance inflation factors (VIF) to test for the presence of multicollinearity between each of the independent variables. The results of the tests for multicollinearity depended upon the values of the VIFs for all independent variables.

### 5.6.1. Descriptive Statistics

Descriptive statistics are the kind of information presented in just a few words to describe the basic features of the data in a study such as the mean standard deviation, frequency and percent (Mishra et al., 2019). Descriptive analysis describes, show or summarize data points in a constructive way consists frequency tables and diagrams (Bryman, 2006). For this study purpose, we used descriptive statistics to summarize the results in the form of tables using SPSS.

### 5.6.2. Cronbach's Alpha

Cronbach's alpha reliability (Cronbach, 1951; Cronbach & Meehl, 1955) is one of the most widely used measures of reliability in the social and organizational sciences. It is the most commonly applied estimate of a multiple-item scale's reliability. The Cronbach's alpha coefficient ranges from zero, meaning no consistency, to one meaning complete consistency (Zikmund-Fisher et al., 2012; Purwanto & Sudargini, 2021). When the measurements represent multiple questionnaire/test items,

which is the most common application, Cronbach's alpha is referred to as a measure of "internal consistency" reliability (Bonett & Wright, 2015, p.3).

There is consensus among researchers that for a scale to be valid and possess practical utility, it must be reliable (Peterson, 1994). However, the author further observes that there is little guidance in the literature as to what constitutes acceptable reliability for research. Different research authors used different cut-off points of the Cronbach's alpha coefficient. The most threshold valued suggested and judged for acceptable Cronbach's alpha in this study was 0.7 (Purwanto & Sudargini, 2021; Hair et al., 2019). Validity, on the other hand, is the accuracy of a measure or the extent to which a score truthfully represents a concept (Zikmund-Fisher et al., 2012). There are normally four ways of establishing validity namely; face validity, content validity, criterion validity and construct validity. This study adopted research instruments from various researches that further enhanced from expert opinions received during the study process.

### **5.6.3. Correlation Analysis**

The use of correlation examines the relationships between variables describing the direction and degree of association between them. A correlation matrix includes the values of the correlation coefficients for the variables involved (Robson, 2002). A correlation is very low if the coefficient has a value under 0.20, low between 0.21 and 0.40, moderate between 0.41 and 0.70, high between 0.71 and 0.91 and very high if it is over 0.91 (Pfeifer & Carraway, 2000). Pearson product-moment correlation coefficient was used in order to examine the strength of a correlation and whether is appropriate to proceed toward subsequent analysis.

### **5.6.4. Factor Analysis**

Factor analysis is one of several multivariate techniques. According to Rummel (1967), factor analysis is used in order to discern the underlying dimensions or regularity in phenomena. In effect, it summarizes the information contained in a large number of variables into a smaller number of factors (Rummel, 1967). Factor analysis was used to inform the reduction of items to a more manageable number (Gerbing & Anderson, 1988). This technique attempts to determine the number and nature of the underlying factors affecting the relationship between a set of variables (Watkins, 2018). A factor matrix is a table of coefficients that expresses the relationships between the variables and the underlying factors. The elements in the factor matrix are referred to as "factor loadings". Factor analysis is a statistical technique used for a large number of variables to establish interrelationships between variables. It is often used with multiple-indicator measures to see if the indicator tends to cluster one or more groups of indicators. This group of indicators are called factors (Bryman & Bell, 2007). Principal component analysis with varimax rotation was used in order to reduce the number of variables (Kanyongo & Schreiber, 2009; Wood et al., 1996).

### **5.6.5. Test of Normality**

Normally, there are assumptions that are made about variables during statistical tests. One of the main assumptions is that data follows a normal distribution (Zikmund, 2013). Statistical procedures used in analyses may however have some errors and therefore need to be tested. This is to ensure that the findings are worth using in decision making. Testing for assumptions is beneficial because it ensures that analysis meets associated assumptions and helps avoid Type I and Type II errors (Osborne, 2001). This study therefore carried out test of normality. Since statistical errors are common in scientific literature, many of the statistical procedures including correlation, regression,

t-tests are based on the assumption that the data follows a normal distribution (Ghasemi & Zahediasl, 2012). Normality is important because if the assumptions do not hold, it is impossible to draw accurate and reliable conclusions about reality (Bonett & Seier, 2002; Royston, 1982). Since the assumptions are not always the case, the test of normality is usually carried out to assess the extent to which the variables of interest assume a normal probability distribution.

In the event that normality is not achieved for some of the variables, then these variables would end up depicting the wrong picture of the relationships between the variables (Jarque & Bera, 1987). In addition, the inferential statistics were used to test the null hypothesis for possible rejection or acceptance. In this study, the 5% level of significance was taken as the level of decision criteria whereby the null hypothesis could be rejected if the p-value was less than 0.05 and accepted if otherwise (Ghasemi & Zahediasl, 2012). The main test for the assessment of normality is the Shapiro-Wilk test. If Shapiro-Wilk test is less than 0.5 then the data significantly deviates from a normal distribution (Ghasemi & Zahediasl, 2012).

#### **5.6.6. Multicollinearity Analysis**

The phenomenon of multicollinearity exists when there is a strong correlation between two or more predictors in a regression model (Hair et al., 2011). The case of multicollinearity exists in multiple regression models when there is more than one predictor. One of the common approaches to detect multicollinearity is to execute a correlation matrix of all predictors and identify if they are highly correlated (above .80 or .90) (Field, 2005). For the purpose of the study a more scientific approach has been implemented. Multicollinearity is detected by the variance inflation factor (VIF) scores and the tolerance values of the independent variables (De Toni et al., 2017; Papadakis et al., 1998). An acceptable threshold level of a VIF is to be less than 10 and a tolerance value greater than 0.10 (Myers, 1990; Hair et al., 2011).

#### **5.6.7. Multiple Regression Analysis**

Regression is used to examine the relationship between variables especially the extent to which a dependent variable is a function of one or more independent variables. It is used to analyze the relationship between a single dependent variable and several independent variables (Hair et al., 2011; Sarstedt et al., 2014). The values of one are used to predict the values of others (Robson, 2002). Multiple regression analysis was used to examine the proposed research hypotheses. In this study we used multiple regressions since we attempted to predict an outcome from various predictors (Field, 2005). Usually, the investigator seeks to ascertain the causal effect of one variable upon another. The regression line is described algebraically by the regression equation that expresses the relationship between two variables. In fact the straight line is defined by (1) the slope or gradient (usually denoted by  $b_1$ ) and (2) the point at which the line crosses the vertical axis of the graph (known as the intercept of the line  $b_0$ ). The general model can be expressed in the equation below:

$$Y_i = b_0 + b_1 X_i \dots + \varepsilon_i,$$

Where;

$Y_i$  = is the outcome,

$X_i$  = the participants' score on the predictor variable,

$b_1$  = is the gradient of the straight line fitted to the data and  $b_0$  = is the intercept of that line,  $b_0$  and  $b_1$  are regression coefficients and finally,

$\varepsilon_i$  = represents the difference between the scores.

T-statistic was used which is drawn from a t distribution if the null hypothesis is true. This statistic can be positive or negative as the parameter estimate from which it is derived is greater or less than the hypothesized true value of the parameter. The researcher conducted fundamental tests of the underlying assumptions for multiple regression analysis in order to ensure that the data were conducive to such analyses. Multicollinearity tests were developed using variance inflation factors (VIF) to test for the presence of multicollinearity between each of the independent variables. The results of the tests for multicollinearity depended upon the values of the VIFs for all independent variables.

### 5.6.8. Measurement of Variables and Model Specification

Summary tables of variables: independent, dependent and control variables as well as multiple regression analytical methods are shown in the tables below. The variables such as rational decision-making style, intuitive decision-making style, dependent decision-making style, avoidant decision-making style, spontaneous decision-making style, efficiency, market performance and financial performance were measured using five point Likert scales (1 = strongly disagree, 5 = strongly agree). Log was used to measure organizational size using number of individual members of the cooperative. Summary tables of variables: independent, dependent and control variables as well as multiple regression analytical methods are shown in the tables below.

Table 5.1: Variables of the study

| Variable                                | Items (Indicators)                           | Code  | Sources (Reference)                                                                                                                                                                             |
|-----------------------------------------|----------------------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rational<br>Decision<br>Making Style    | Carefully plan important decisions           | RDMS1 | Scott & Bruce (1995),<br>Verma & Rangnekar<br>(2015), Adikaram &<br>Kailasapathy (2021),<br>Spicer & Sadler-Smith<br>(2005), Riaz, (2015),<br>Ward (2016),<br>Hablemitoglu &<br>Yildirim (2008) |
|                                         | Double check information for right facts     | RDMS2 |                                                                                                                                                                                                 |
|                                         | Logical systematic way                       | RDMS3 |                                                                                                                                                                                                 |
|                                         | Decision making requires careful thought     | RDMS4 |                                                                                                                                                                                                 |
|                                         | Consider options in terms of specific goal   | RDMS5 |                                                                                                                                                                                                 |
| Intuitive<br>Decision<br>Making Style   | Rely upon instincts while making decision    | IDMS1 |                                                                                                                                                                                                 |
|                                         | Tend to rely on intuition while deciding     | IDMS2 |                                                                                                                                                                                                 |
|                                         | Decide which feels right                     | IDMS3 |                                                                                                                                                                                                 |
|                                         | Important to feel right rather than rational | IDMS4 |                                                                                                                                                                                                 |
|                                         | Trust inner feelings and reactions           | IDMS5 |                                                                                                                                                                                                 |
| Dependent<br>Decision<br>Making Style   | Need assistant of others while deciding      | DDMS1 |                                                                                                                                                                                                 |
|                                         | Rarely make decisions without consulting     | DDMS2 |                                                                                                                                                                                                 |
|                                         | Support of others, makes decision easy       | DDMS3 |                                                                                                                                                                                                 |
|                                         | Use advice of others to make decisions       | DDMS4 |                                                                                                                                                                                                 |
|                                         | Like to have someone to steer in direction   | DDMS5 |                                                                                                                                                                                                 |
| Avoidant<br>Decision<br>Making Style    | Avoid important decision until               | ADMS1 |                                                                                                                                                                                                 |
|                                         | Postpone decision whenever possible          | ADMS2 |                                                                                                                                                                                                 |
|                                         | Often procrastinate when have to decide      | ADMS3 |                                                                                                                                                                                                 |
|                                         | Decide at last minute                        | ADMS4 |                                                                                                                                                                                                 |
|                                         | Put off decisions because makes uneasy       | ADMS5 |                                                                                                                                                                                                 |
| Spontaneous<br>Decision<br>Making Style | Generally make snap decisions                | SDMS1 |                                                                                                                                                                                                 |
|                                         | Often decide at spur of the moment           | SDMS2 |                                                                                                                                                                                                 |
|                                         | Make quick decisions                         | SDMS3 |                                                                                                                                                                                                 |
|                                         | Often make impulsive                         | SDMS4 |                                                                                                                                                                                                 |
|                                         | Decide what seems natural at the moment      | SDMS5 |                                                                                                                                                                                                 |

*Continued...*

| Variables             | Items                                                                                                                         | Code        | Sources (Reference)                                                                                                                                                                                                                                                                                                                       |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Efficiency            | The quantity of products or services provided substantially improved                                                          | Efficiency1 | Pino et al. (2016), Pollanen et al. (2017), Cavalluzzo & Ittner (2004), Wu et al. (2003) Sethi & King (1994). Kandemir et al. (2006), Talke (2007), De Toni et al. (2021), Dadzie et al. (2012), Morgan et al. (2009), Sarah et al. (2009), Brah & Chong (2004), Elbanna & Naguib (2009), Kalogeras et al. (2013b) Amhalhal et al. (2022) |
|                       | The quality of products or services provided substantially improved                                                           | Efficiency2 |                                                                                                                                                                                                                                                                                                                                           |
|                       | Efficient use of allocated budget                                                                                             | Efficiency3 |                                                                                                                                                                                                                                                                                                                                           |
|                       | The operating or cost of general management activities efficiency substantially improved                                      | Efficiency4 |                                                                                                                                                                                                                                                                                                                                           |
|                       | Cost of interacting & coordinating activities with suppliers, customers and business partners have been substantially reduced | Efficiency5 |                                                                                                                                                                                                                                                                                                                                           |
| Market Performance    | The sales volume of our products has increased.                                                                               | MktPerform1 |                                                                                                                                                                                                                                                                                                                                           |
|                       | The market share of our products has increased.                                                                               | MktPerform2 |                                                                                                                                                                                                                                                                                                                                           |
|                       | Our profitability has increase                                                                                                | MktPerform3 |                                                                                                                                                                                                                                                                                                                                           |
|                       | The number of customers that we are able to acquire and retain has increased.                                                 | MktPerform4 |                                                                                                                                                                                                                                                                                                                                           |
|                       | We are able to achieve the target time-to-market                                                                              | MktPerform5 |                                                                                                                                                                                                                                                                                                                                           |
| Financial Performance | Return on assets (ROA) have increased                                                                                         | FinPerform1 |                                                                                                                                                                                                                                                                                                                                           |
|                       | Return on sales (ROS) have increased                                                                                          | FinPerform2 |                                                                                                                                                                                                                                                                                                                                           |
|                       | Return on equity (ROE) have increased                                                                                         | FinPerform3 |                                                                                                                                                                                                                                                                                                                                           |
| Organizational Size   | Number of people or individual members in cooperative                                                                         | OrganSize   | Xu et al. (2017), Tarus & Aime (2014), García-Ramos & García-Olalla (2011), Kiel & Nicholson (2003), Cheng (2008), Rashid & Islam (2013)                                                                                                                                                                                                  |
| Organizational Years  | Number of years since the cooperative established                                                                             | OrganYears  |                                                                                                                                                                                                                                                                                                                                           |
| Board Size            | Number of people or individual members representing boards of cooperative                                                     | Board Size  |                                                                                                                                                                                                                                                                                                                                           |
| Location              | The distance between the location of cooperative and the area an individual member of board live                              | Location    |                                                                                                                                                                                                                                                                                                                                           |

Table 5.2: Analytical Models

### ❖ Analytical Models

#### Multiple Regression Analysis

$$Y_{1-3} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \varepsilon \dots \text{ (Model-1)}$$

$$Y_{1-3} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_1 * X_2 + \beta_7 X_1 * X_2 * X_3 + \beta_8 X_6 + \beta_9 X_7 + \beta_{10} X_8 + \beta_{11} X_9 + \varepsilon \dots \text{ (Model-2)}$$

#### Where,

$Y_{1-3}$  = Dependent variables ( $Y_1$ =Efficiency,  $Y_2$ =Market Performance,  $Y_3$ =Financial Performance)

$\beta_0$  = y intercept/constant,

$\beta_1$ - $\beta_{11}$  = regression coefficients,

$X_1$ - $X_5$  = Independent Variables ( $X_1$ =RDMS,  $X_2$ =IDMS,  $X_3$ =DDMS,  $X_4$ =ADMS,  $X_5$ =SDMS)

$X_6$ - $X_9$  = Control Variable ( $X_6$ =Organizational Size,  $X_7$ =Organizational Years,  $X_8$ =Board Size,  $X_9$ =Location)

$X_1 X_2$  and  $X_1 X_2 X_3$  = Interaction Terms ( $X_1 X_2$ =RDMS\*IDMS,  $X_1 X_2 X_3$ =RDMS\*IDMS\*DDMS)

$\varepsilon$  = error term/ random variation due to other unmeasured variables

Thus, the Multiple Regression Analysis Models Using variables of the study are;

$$OP_{1-3} = \beta_0 + \beta_1 RDMS + \beta_2 IDMS + \beta_3 DDMS + \beta_4 ADMS + \beta_5 SDMS + \beta_6 \log\_OrganSize + \beta_7 \log\_OrganYears + \beta_8 \log\_BoardSize + \beta_9 \log\_OrganSize + \beta_{10} \log\_OrganYears + \beta_{11} \log\_BoardSize + \beta_{12} Dummy\_Location + \varepsilon \dots \text{ (Model-1)}$$

$$OP_{1-3} = \beta_0 + \beta_1 RDMS + \beta_2 IDMS + \beta_3 DDMS + \beta_4 ADMS + \beta_5 SDMS + \beta_6 RDMS * IDMS + \beta_7 RDMS * IDMS * DDMS + \beta_8 \log\_OrganSize + \beta_9 \log\_OrganYears + \beta_{10} \log\_BoardSize + \beta_{11} Dummy\_Location + \varepsilon \dots \text{ (Model-2)}$$

**Note:** RDMS=Rational Decision-Making Style, IDMS=Intuitive Decision-Making Style, DDMS=Dependent Decision-Making Style, ADMS=Avoidant Decision-Making Style, SDMS=Spontaneous Decision-Making Style, OrganSize=Organizational Size, OrganYears=Organizational Years,  $OP_{1-3}$ =Organizational Performance Indicators representing  $OP_1$  is Efficiency,  $OP_2$ =Market Performance and  $OP_3$ =Financial Performance.

## 5.7. Results and Discussion

### 5.7.1. Introduction

This section presents the results of the study performed to test the conceptual model and research hypotheses. First, it presents the general background information of the cooperative and respondents including descriptive statistical analysis. Secondly, it introduces the evaluation procedures for reliability and validity of the survey constructs. Finally, it presents the results of statistical analysis to test the research hypotheses as well as presenting discussions of the results and implication arising from the findings.

### 5.7.2. Reliability and Validity

#### 5.7.2.1. Cronbach's Alpha and AVE

Reliability and validity test are the key indicators of the quality of the data collection instrument. A measure is reliable when different attempts at measuring something converge on the same result (Hair et al., 2014; Matzler et al., 2006). Impliedly, reliability is therefore an indicator of an instrument's internal consistency. Cronbach's alpha reliability (Cronbach, 1951; Cronbach & Meehl, 1955) is one of the most widely used measures of reliability in the social and organizational sciences. It is the most commonly applied estimate of a multiple-item scale's reliability. The

Cronbach's alpha coefficient ranges from zero, meaning no consistency, to one meaning complete consistency (Zikmund-Fisher et al., 2012; Purwanto & Sudargini, 2021). Another way of conducting reliability s through convergent Validity (using AVE): It measures the magnitude of the correlation between constructs and latent variables. It is determined based on the principle that the measures of a construct should be highly correlated (Purwanto & Sudargini, 2021). The convergent validity of a construct with reflective indicators is evaluated by Average Variance Extracted (AVE) for all items on each construct (Fornell & Larcker, 1981). The AVE value should be equal to 0.5 or more. An AVE value of 0.5 or more means that the construct can explain 50% or more of the variance of the item (Sarstedt et al., 2017; Wong, 2013).

Based on the most threshold valued recommended and judged for acceptable Cronbach's alpha, that is 0.7 (Purwanto & Sudargini, 2021; Hair et al., 2019), the results of the Cronbach's alphas of all the variables included for the data analysis ranged from 0.847 for efficiency to 0.924 for intuitive decision-making style. Therefore, based on the acceptable threshold valued for Cronbach's alpha to be greater than 0.7, the constructs of this study were sufficient to be deemed as reliable and valid since all of them are greater than 0.7 construct validity and reliability (Hair et al., 2019). The results were presented in the table below. In terms of AVE, financial performance found to have the highest score of 0.822. The results of the AVE for all the study's variables included for the data analysis ranged from 0.517 for efficiency to 0.822 for financial performance. Thus, all variables satisfied the threshold of 0.5. Since both CR and AVE exceed the critical thresholds values for all construct, this thesis conclude that the model passed the construct reliability test and that these reliabilities provide evidence of that constructs are suitable for further analysis (Wilson 2010).

Table 5.3: Extracted Factor Analysis

| <b>RDMS</b> |       | <b>ADMS</b>       |       | <b>Market Performance</b>    |       |
|-------------|-------|-------------------|-------|------------------------------|-------|
| RDMS1       | 0.712 | ADMS1             | 0.799 | MktPerform1                  | 0.954 |
| RDMS2       | 0.743 | ADMS2             | 0.866 | MktPerform2                  | 0.934 |
| RDMS3       | 0.526 | ADMS3             | 0.773 | MktPerform3                  | 0.933 |
| RDMS4       | 0.929 | ADMS4             | 0.913 | MktPerform4                  | 0.941 |
| RDMS5       | 0.913 | ADMS5             | 0.617 | MktPerform5                  | 0.737 |
| <b>IDMS</b> |       | <b>SDMS</b>       |       | <b>Financial Performance</b> |       |
| IDMS1       | 0.837 | SDMS1             | 0.801 | FinPerform1                  | 0.924 |
| IDMS2       | 0.746 | SDMS2             | 0.831 | FinPerform2                  | 0.867 |
| IDMS3       | 0.827 | SDMS3             | 0.714 | FinPerform3                  | 0.927 |
| IDMS4       | 0.813 | SDMS4             | 0.941 |                              |       |
| IDMS5       | 0.913 | SDMS5             | 0.833 |                              |       |
| <b>DDMS</b> |       | <b>Efficiency</b> |       |                              |       |
| DDMS1       | 0.954 | Efficiecnny1      | 0.967 |                              |       |
| DDMS2       | 0.934 | Efficiecnny2      | 0.749 |                              |       |
| DDMS3       | 0.933 | Efficiecnny3      | 0.725 |                              |       |
| DDMS4       | 0.883 | Efficiecnny4      | 0.730 |                              |       |
| DDMS5       | 0.737 | Efficiecnny5      | 0.555 |                              |       |

Source: Source: Field Data (2022)

Table 5.4: Results of Cronbach's Alpha and AVE of the Study's Variables

| Variables             | Original Items | After Analysis | Cronbach's Alpha | AVE   | Reliability |
|-----------------------|----------------|----------------|------------------|-------|-------------|
| Rational DMS          | 5              | 4              | 0.891            | 0.643 | Accepted    |
| Intuitive DMS         | 5              | 5              | 0.924            | 0.729 | Accepted    |
| Dependent DMS         | 5              | 5              | 0.850            | 0.796 | Accepted    |
| Avoidant DMS          | 5              | 4              | 0.910            | 0.704 | Accepted    |
| Spontaneous DMS       | 5              | 5              | 0.851            | 0.790 | Accepted    |
| Efficiency            | 5              | 4              | 0.847            | 0.517 | Accepted    |
| Market Performance    | 5              | 4              | 0.850            | 0.816 | Accepted    |
| Financial Performance | 3              | 3              | 0.866            | 0.822 | Accepted    |

Source: Source: Field Data (2022)

### 5.7.2.2. Correlation Analysis

An examination of the relationships between variables describing the direction and degree of association between them were done through SPSS software version 20. A correlation matrix included the values of the correlation coefficients for the variables involved (Robson, 2002). Following the literatures, correlation is said to be very weak if the coefficient has a value under 0.20, weak between 0.21 and 0.40, moderate between 0.41 and 0.69, strong between 0.70 and 0.89, very strong between 0.90 and 0.99 and perfect if 1 (Schober et al., 2018; Dancey & Reidy, 2020; Akoglu, 2018; Robson, 2002). Pearson product-moment correlation coefficient was done in order to examine the strength of a correlation and whether it was appropriate to proceed toward subsequent analysis. Results of the correlation matrix revealed that the variables in the study were differently correlated from very weak to very strong (>0.9) but not perfectly as presented in the table below. According to Field (2005), the existence of strong relation between two or more predictors variables an indication of substantial collinearity. Then to assess the problem of multicollinearity, the use variance inflation factor (VIF) was suggested with a threshold of VIF values less or equal to 10 for acceptance the appropriateness of the correlations (Hair et al., 2006; Mason & Perreault, 1991; Senaviratna & Cooray, 2019; Lin, 2008). Therefore, the collinearity issue is assessed under multicollinearity test.

Table 5.5: Results of Correlations Analysis Matrix among Variables (N=293)

| Variables             | Rational DMS     | Intuitive DMS    | Dependent DMS    | Avoidant DMS     | Spontaneous DMS  | Efficiency       | Market Performance | Financial Performance |
|-----------------------|------------------|------------------|------------------|------------------|------------------|------------------|--------------------|-----------------------|
| Rational DMS          | 1                |                  |                  |                  |                  |                  |                    |                       |
| Intuitive DMS         | .777**<br>(.000) | 1                |                  |                  |                  |                  |                    |                       |
| Dependent DMS         | .595**<br>(.000) | .700**<br>(.000) | 1                |                  |                  |                  |                    |                       |
| Avoidant DMS          | .745**<br>(.000) | .852**<br>(.000) | .661**<br>(.000) | 1                |                  |                  |                    |                       |
| Spontaneous DMS       | .437**<br>(.000) | .481**<br>(.000) | .836**<br>(.000) | .423**<br>(.000) | 1                |                  |                    |                       |
| Efficiency            | .829**<br>(.000) | .939**<br>(.000) | .711**<br>(.000) | .852**<br>(.000) | .468**<br>(.000) | 1                |                    |                       |
| Market Performance    | .428**<br>(.000) | .557**<br>(.000) | .763**<br>(.000) | .522**<br>(.000) | .775**<br>(.000) | .557**<br>(.000) | 1                  |                       |
| Financial Performance | .648**<br>(.000) | .471**<br>(.000) | .387**<br>(.000) | .486**<br>(.000) | .275**<br>(.000) | .507**<br>(.000) | .213**<br>(.000)   | 1                     |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Field Data (2022)

Note: DMS=Decision-Making Style

### 5.7.2.3. Test of Normality

Usually, there are assumptions that are made about variables during statistical tests. One of the main assumptions is that data follows a normal distribution (Zikmund, 2013). Statistical procedures used in analyses may however have some errors and therefore need to be tested. This is to ensure that the findings are worth using in decision making. Testing for assumptions is beneficial because it ensures that analysis meets associated assumptions and helps avoid Type I and Type II errors (Osborne, 2001). This study therefore carried out test of normality. Since statistical errors are common in scientific literature, many of the statistical procedures including correlation, regression, t-tests are based on the assumption that the data follows a normal distribution (Ghasemi & Zahediasl, 2012). Normality is important because if the assumptions do not hold, it is the impossible to draw accurate and reliable conclusions about reality (Bonett & Seier, 2002; Royston, 1982). Since the assumptions are not always the case, the test of normality is usually carried out to assess the extent to which the variables of interest assume a normal probability distribution.

In the event that normality is not achieved for some of the variables, then these variables would end up depicting the wrong picture of the relationships between the variables (Jarque & Bera, 1987). In addition, the inferential statistics were used to test the null hypothesis for possible rejection or acceptance. In this study, the 5% level of significance was taken as the level of decision criteria whereby the null hypothesis could be rejected if the p-value was less than 0.05 and accepted if otherwise (Ghasemi & Zahediasl, 2012). The main test for the assessment of normality is the Shapiro-Wilk test. This test was used to test the data in this study (Martins & Lucato, 2018) to understand if the data deviate from the normal distribution. If Shapiro-Wilk test is less than 0.5 then the data significantly deviates from a normal distribution (Ghasemi & Zahediasl, 2012). The results of the test for normality were as represented in table below.

Table 5.6: Test of Normality

| Variables                             | Shapiro-Wilk |     |      |
|---------------------------------------|--------------|-----|------|
|                                       | Statistic    | df  | Sig. |
| Rational DMS                          | .797         | 293 | .000 |
| Intuitive DMS                         | .837         | 293 | .000 |
| Dependent DMS                         | .783         | 293 | .000 |
| Avoidant DMS                          | .856         | 293 | .000 |
| Spontaneous DMS                       | .848         | 293 | .000 |
| Organizational Size                   | .929         | 293 | .000 |
| Organizational Years                  | .945         | 293 | .000 |
| Board Size                            | .898         | 293 | .000 |
| Location                              | .546         | 293 | .000 |
| Efficiency                            | .793         | 293 | .000 |
| Market Performance                    | .791         | 293 | .000 |
| Financial Performance                 | .816         | 293 | .000 |
| a. Lilliefors Significance Correction |              |     |      |

Source: Source: Field Data (2022)

The study's data set was subjected to a normality test and the results are as shown in table below. So a Shapiro-Wilk test was performed and showed that the distribution of variables departed significantly from normality (p-value  $\leq 0.05$ ). The normality of the variables was then done by

plotting a Quantile-Quantile (QQ) plot. Although Q-Q plots of the observed values were found to coalesce along the line of best fit, according to Shapiro-Wilk tests, the distributions were significantly non-normal for the variables Rational DMS ( $W=0.797$ ,  $p<0.001$ ), Intuitive DMS ( $W=0.837$ ,  $p<0.001$ ), Dependent DMS ( $W=0.783$ ,  $p<0.001$ ), Avoidant DMS ( $W=0.856$ ,  $p<0.001$ ), Spontaneous DMS ( $W=0.848$ ,  $p<0.001$ ), Organizational Size ( $W=0.929$ ,  $p<0.001$ ), Organizational Years ( $W=0.945$ ,  $p<0.001$ ), Board Size ( $W=0.898$ ,  $p<0.001$ ), Location ( $W=0.546$ ,  $p<0.001$ ), Efficiency ( $W=0.793$ ,  $p<0.001$ ), Market Performance ( $W=0.791$ ,  $p<0.001$ ) and Financial Performance ( $W=0.816$ ,  $p<0.001$ ). Therefore, following the Shapiro-Wilk rule, the use of null hypotheses in this study are rejected (Ruxton et al., 2015; Bonett & Seier, 2002).

#### 5.7.2.4. Multicollinearity

Multicollinearity is a statistical phenomenon in which predictor variables in a logistic regression model are highly correlated (Midi et al., 2010, p.253). According to the literatures, multicollinearity is an undesirable situation where correlations among independent variables are very strong that can cause unstable estimates and inaccurate variances which affects confidence intervals and hypothesis tests (Lin, 2008; Mohammadi, 2022). The existence of collinearity inflates the variances of the parameter estimates, and consequently incorrect inferences about relationships between explanatory and response variables. To check for multicollinearity issues among the predictor variables, different methods were provided for examining whether there exist multicollinearity in the model or not (Hair et al., 2006). According to Hair et al. (2012) and Senaviratna & Cooray (2019), the most used methods to diagnose multicollinearity are tolerance and variance inflation factor (VIF). Mathematically, multicollinearity can mainly be detected with the help of tolerance and its reciprocal, called VIF (Midi et al., 2010). Tolerance defined as the percentage of the variance in a given predictor that cannot be explained by the other predictors (Senaviratna & Cooray., 2019). According to Belsley (1980), tolerance is the reciprocal of VIF with the range between 0 and 1. Tolerance for an independent variable is defined as:

$$\text{Tolerance} = 1 - R^2$$

Where;  $R^2$  is the coefficient of determination for the regression of that explanatory variable on all remaining independent variables. Tolerance close to 1 indicates that there is little multicollinearity, whereas a value close to zero suggests that multicollinearity may be a threat (Lin, 2008). There is no formal cutoff value to use with tolerance for determining presence of multicollinearity (Midi et al., 2010). A rule of thumb is that a tolerance value equal or less than 0.1 has a multicollinearity problem that concerns the study for further considerations (Senaviratna & Cooray., 2019; Lin, 2008; Mohammadi, 2022). On the other hand, Hair et al. (2011) set accepted tolerance at  $> 0.20$ .

Another method of diagnosing multicollinearity is VIF. According to Marquardt (1980), VIF is used to measure the inflation of the variances for the parameters above what is expected if there is no correlation among the independent variables. Mathematically, VIF is defined as:

$$\text{VIF} = \frac{1}{\text{Tolerance}} = \frac{1}{1 - R^2}$$

Where,  $R^2$  is the coefficient of determination that is obtained when  $x$  is regressed on all other independent variables in the model. From above formula, if  $R^2$  equal 0, then VIF will be 1. If  $R^2$  approaches 1, then VIF will approach infinity. Neter et al. (1996) and Marquardt (1980) suggested that a VIF greater than 10 indicates the presence of strong multicollinearity, which is arbitrary. Thus,

several authors suggested a threshold for VIF to be  $\leq 10$  (Senaviratna & Cooray., 2019; Lin, 2008; Mohammadi, 2022; Hair et al., 2006; Midi et al., 2010). But, Hair et al. (2011) set a strict rule of accepting VIF at  $< 5$ . Following the existing literature (e.g., Senaviratna & Cooray., 2019; Lin, 2008; Mohammadi, 2022; Midi et al., 2010), this study follow a threshold rule that there is multicollinearity if tolerance is  $< 0.1$  and VIF at  $\leq 10$ . The results of analysis are presented in the table below.

Table 5.7: Results of the Multicollinearity Test

| <b>Coefficients<sup>a</sup></b>                                                  |                                  | <b>Collinearity Statistics</b> |       |
|----------------------------------------------------------------------------------|----------------------------------|--------------------------------|-------|
| Model                                                                            |                                  | Tolerance                      | VIF   |
| 1                                                                                | (Constant)                       |                                |       |
|                                                                                  | Rational DMS                     | .366                           | 2.733 |
|                                                                                  | Intuitive DMS                    | .201                           | 4.976 |
|                                                                                  | Dependent DMS                    | .171                           | 5.834 |
|                                                                                  | Avoidant DMS                     | .233                           | 4.299 |
|                                                                                  | Spontaneous DMS                  | .260                           | 3.848 |
|                                                                                  | Organizational Size              | .104                           | 9.625 |
|                                                                                  | Organizational Years             | .851                           | 1.176 |
|                                                                                  | Board Size                       | .114                           | 8.747 |
|                                                                                  | Location                         | .691                           | 1.447 |
| 2                                                                                | (Constant)                       |                                |       |
|                                                                                  | Rational DMS                     | .302                           | 3.311 |
|                                                                                  | Intuitive DMS                    | .192                           | 5.201 |
|                                                                                  | Dependent DMS                    | .157                           | 6.384 |
|                                                                                  | Avoidant DMS                     | .232                           | 4.315 |
|                                                                                  | Spontaneous DMS                  | .250                           | 4.001 |
|                                                                                  | Rational*Intuitive DMS           | .215                           | 4.660 |
|                                                                                  | Rational*Intuitive*Dependent DMS | .170                           | 5.866 |
|                                                                                  | Organizational Size              | .104                           | 9.652 |
|                                                                                  | Organizational Years             | .846                           | 1.182 |
|                                                                                  | Board Size                       | .113                           | 8.811 |
|                                                                                  | Location                         | .688                           | 1.453 |
| a. Dependent Variables: Efficiency, Market Performance and Financial Performance |                                  |                                |       |

Source: Field Data (2022)

Multicollinearity was tested using Variance Inflation Factors (VIF) which measures how much of the variance of the estimated coefficients are increased over the case of no correlation among the variables. If no two variables are correlated, then all the VIFs will be equal to one (Senaviratna & Cooray., 2019; Mohammadi, 2022; Midi et al., 2010). When the tolerance of one of the variables is equal or less than 0.1, then there exists collinearity. From the result of the correlation matrix, there were strong relationships among other variables. To avoid the problem of multicollinearity issues, we used a series of five hierarchical regression models treating control variables one by one together with the independent variables. As per results of multicollinearity test in the above table, the highest value for VIF is 9.652 and the lowest value for tolerance is 0.104. Since all the tolerance

results were all greater than 0.1 and VIF were less than 10, then the assumption of nonexistence of multicollinearity was not violated.

### 5.7.3. Results of Hierarchical Regression Analysis

This section examined effect of heterogeneity dimension on the decision-making styles heterogeneous boards in cooperatives studied. Since the aim is the integration of the predictor variables such as board heterogeneity dimensions with few controlled variables of organizational characteristics into a single model rather than to examine the individual effect of each factor, multiple hierarchical regression analysis methods were used to analyze the relationship between each dependent variable and several independent variables. A potential problem associated with regression data is the problem of multicollinearity, indicated by the existence of large correlation coefficients between pairs of independent variables in the correlation matrix (Bryman & Cramer, 2002). Multicollinearity problems were certainly expected due to the rich various strong correlation coefficients among some variables. However, based on the outcomes of the performed multicollinearity test, the results suggested that problems of multicollinearity were unlikely to be present.

To determine the individual significant of the study variables, multiple hierarchical regression analyses were performed with the decision-making styles (rational, intuitive, dependent, avoidant and spontaneous) as the independent variables and organizational performance indicators (efficiency, market performance and financial performance) being the dependent variables controlled by the organizational years, organizational size and board size. Assessment of the overall robustness and significance of the regression models was done using the F-test and p-values. Pearson correlation coefficient,  $R^2$ , beta coefficients, and p-values were computed. The significance level for p-value was set at 0.05 or the 95% confidence interval (Nooraie, 2008; Hair et al., 2019).

Additionally, for each hypothesis, a model equation of the variables relationship was computed showing the magnitude and relationships of the independent variable(s) and dependent variable. The coefficients of the regression models indicated the degree of relationship between the dependent variable and each independent variable after the effects of all other variables had been accounted for. A hierarchical regression modeling was used to enhance the regression analysis framework, as it show if variables of interest explain a statistically significant amount of variance in the dependent variable after accounting for all other variables (Elbanna & Fadol, 2016; Myers, 2004; Kirkman et al., 2004; Amason et al., 2006). The models were also used to examine the relationship between two or more independent and dependent with the interaction terms and various control variables (Xu et al., 2017; Kelley & Bolin, 2013; Myers, 2004).

#### 5.7.3.1. Decision Making Styles and Efficiency

This section presents the study's objective that was set to determine the effect of decision-making styles, interaction term and control variables on efficiency as indicator of performance of cooperative. The hypotheses were stated as:

*(H1a): Rational decision-making has positive and significant effect on the efficiency of cooperative; (H1b): The use of intuitive decision-making style has positive and significant influence on the efficiency of cooperative; (H1c): The use of dependent decision-making style has positive and significant influence on the efficiency of cooperative; (H1d): The use*

*of avoidant decision-making style has negative and significant influence on the efficiency of cooperative; and (H1e): Spontaneous decision-making style has negative and significant influence on the efficiency of cooperative.*

The study set out to establish the independent effect of decision-making styles on the efficiency of cooperative. Decision-making styles were measured using Scott & Bruce's (1995) general decision-making styles consisted rational, intuitive, dependent, avoidant and spontaneous. Since heterogeneous boards in cooperative combined two or more decision-making styles to improve the quality of the decision to be made to increase and enhance the efficiency (Li & Chen, 2018; Bobbitt & Ford, 1980; Ward, 2016), we first created the interaction term between rational and intuitive decision-making styles. Then, because of the fact that rational and intuitive are made by the individuals within the same organization, lack of information and knowledge or skills to pass timely decision, it invite the support of other individuals from external with expertise or specialized knowledge and skills required to make the best decision. Thus, we created the interaction term among rational, intuitive and dependent decision-making styles. As control variables, organizational size, organizational years, board size and location were included in the model to control the effect of decision-making styles on the efficiency.

The results of analysis were done using a series of two hierarchical regression models to determine the effect when there is change in models shown in the tables below. In model 1, we include the independent variables (decision-making styles) and control variables to determine the effect on the efficiency of cooperative. In model 2, we included the interaction along the independent and control variables. According to the model 1, the results showed that decision-making styles (rational, intuitive, dependent, avoidant and spontaneous), and control variables (organizational size, organizational years, board size and location) explained 91.8% ( $R^2=91.8$ ) of the efficiency of cooperative with the remaining 8.2% being explained by other variables. Model 2 included the interaction terms between or among the decision-making styles with other variables and the model explained 93.7% ( $R^2=93.7$ ) of efficiency of cooperative with the remaining 6.3% being explained by other variables. Model 2 explained the analytical model better than model 1. The F values for all models were significant at  $p < 0.001$ . For instance, the F value for model 1 is 352 and  $p < 0.001$ . The F values for Model 2 is 377.6 with  $p < 0.001$  respectively.

Since the results of Shapiro-Wilk from the test of normality was less than 0.05 or significant at  $p < 0.001$ , the use of null hypotheses were rejected, meaning that independent, the interaction terms and control variables expected to have significant relationship with the efficiency of cooperatives. Thus, the regression model was robust enough to explain the relationship between the explanatory and dependent variable. In order to test the hypotheses, we conducted hierarchical regression analysis. In the analysis, in the model 1, we entered only the main independent effects and control variables. In model 2, we added interaction terms with other variables. The analysis of the significance of decision-making styles and the interaction terms on efficiency showed statistically significant results for all decision-making styles such as rational, intuitive, dependent, avoidant and spontaneous and interaction terms between rational and intuitive; rational, intuitive and dependent and non significant effect for all control variables such as organizational size, organizational years, board size and location. Regression equation estimation model of decision-making styles, interaction terms and control variables on efficiency are presented for each model during analysis.

The results of our analysis show different level of relationship among the predictor variables with the way heterogeneous boards approach the styles of decision making in increasing the quality and

quantity of products, efficient use of allocated budget in their cooperative to ensure the efficiency of their cooperative. First, the findings of this study provide strong evidence of the importance of understanding decision-making styles in predicting their effect on the efficiency of cooperative. Indeed, in **Model 1**, the regression analysis found a positive and statistically significant relationship between rational decision-making style and efficiency ( $\beta=0.29$ ,  $p=0.000$ ). The results from the same model suggest that there is a positive and statistically significant relationship between intuitive decision-making styles and efficiency ( $\beta=0.64$ ,  $p=0.000$ ). Regarding dependent decision-making style, the results also showed that it has positive and statistically significant relationship with efficiency ( $\beta=0.25$ ,  $p=0.000$ ). Similarly, the results also found positive and statistically significant relationship between avoidant decision-making style and efficiency ( $\beta=0.08$ ,  $p=0.022$ ) of cooperative. However, results under the same model found that spontaneous decision-making style has negative and statistically significant relationship with the efficiency ( $\beta=-0.15$ ,  $p=0.000$ ) of cooperative.

In terms of control variables, the results showed that organizational size has negative and statistically non-significant effect on efficiency ( $\beta=-0.01$ ,  $p=0.766$ ) of cooperative. Similarly, organizational years found to have negative and non-significant effect ( $\beta=-0.01$ ,  $p=0.256$ ). In contrast, the results found board size to have positive and non-significant effect on efficiency ( $\beta=0.01$ ,  $p=0.781$ ). Moreover, location found to have positive and non-significant effect ( $\beta=0.04$ ,  $p=0.501$ ) on the efficiency of cooperative. The analytical model applied to test the hypotheses in model 1 is presented as follow:

$$\text{“Efficiency} = \beta_0 + \beta_1 \text{RDMS} + \beta_2 \text{IDMS} + \beta_3 \text{DDMS} + \beta_4 \text{ADMS} + \beta_5 \text{SDMS} + \beta_6 \log\_OrganSize + \beta_7 \log\_Org \\ \text{anYears} + \beta_8 \log\_Board\ Size + \beta_9 \text{Location (Dummy)} + \varepsilon \dots \text{(Model-1)}\text{”}$$

Regarding Model 2, we added the interaction term between/among the decision-making styles together with other variables to predict the effect on the efficiency of cooperative. Although the results showed similar significant levels as in the model 1 for the decision-making styles, there are variations in their coefficients. The results in model 2 showed that a positive and statistically significant relationship between rational decision-making style and efficiency ( $\beta=0.34$ ,  $p=0.000$ ) has been found. The results from the same model suggest that there is a positive and statistically significant relationship between intuitive decision-making style and efficiency ( $\beta=0.57$ ,  $p=0.000$ ). Regarding dependent decision-making style, the results in same model showed positive and statistically significant relationship with the efficiency ( $\beta=0.25$ ,  $p=0.000$ ). The results also found positive and statistically significant relationship between avoidant decision-making style and efficiency ( $\beta=0.08$ ,  $p=0.016$ ) of cooperative. However, results found that spontaneous decision-making style has negative and statistically significant effect on efficiency ( $\beta=-0.11$ ,  $p=0.004$ ) of cooperative. With respect to interaction term, the results showed that the interaction between rational and intuitive decision-making styles has negative and statistically significant effect on efficiency ( $\beta=-0.26$ ,  $p=0.000$ ) of cooperative. In contrast, the interaction among rational, intuitive and dependent decision-making styles found to have positive and statistically significant effect ( $\beta=0.14$ ,  $p=0.000$ ) on efficiency of cooperative.

In terms of control variables, the analytical results found non-significant effect for all control variables on the efficiency of cooperative with different relationship. For instance, organizational size found to have negative and statistically non-significant effect ( $\beta=-0.01$ ,  $p=0.779$ ). The results also found that organizational years has negative and statistically non-significant effect ( $\beta=-0.02$ ,

p=0.530) on the efficiency of cooperative. Furthermore, board size found to have negative and statistically non-significant effect on ( $\beta=-0.01$ , p=0.579) efficiency. In contrary, the results showed that location has positive and statistically non-significant effect ( $\beta=0.03$ , p=0.842) on the efficiency respectively. The analytical model applied to test the hypotheses in model 2 is presented below and followed by the tables of the regression results.

$$\text{“Efficiency} = \beta_0 + \beta_1 \text{RDMS} + \beta_2 \text{IDMS} + \beta_3 \text{DDMS} + \beta_4 \text{ADMS} + \beta_5 \text{SDMS} + \beta_6 \text{RDMS} * \text{IDMS} + \beta_7 \text{RDMS} * \text{IDMS} * \text{DDMS} + \beta_8 \log\_ \text{OrganSize} + \beta_9 \log\_ \text{OrganYears} + \beta_{10} \log\_ \text{Board Size} + \beta_{11} \text{Location (Dummy)} + \varepsilon \dots$$

(Model-2)”

Table 5.8: Decision-Making Styles and Efficiency Model Summary

| Model Summary <sup>c</sup> |                   |          |                   |                            |                   |          |     |     |               |
|----------------------------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
| Model                      | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     |               |
|                            |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 | Sig. F Change |
| 1                          | .958 <sup>a</sup> | .918     | .915              | .317                       | .918              | 352.059  | 9   | 283 | .000          |
| 2                          | .968 <sup>b</sup> | .937     | .934              | .279                       | .019              | 41.303   | 2   | 281 | .000          |

a. Predictors: (Constant), RDMS, IDMS, DDMS, ADMS, SDMS, OrganSize, OrganYears, Board Size, Location,  
b. Predictors: (Constant), RDMS, IDMS, DDMS, ADMS, SDMS, RDMS\*IDMS, RDMS\*IDMS\*DDMS, OrganSize, OrganYears, Board Size, Location,  
c. Dependent Variable: Efficiency

Source: Field Data (2022)

Table 5.9: Decision-Making Styles and Efficiency ANOVA

| ANOVA <sup>a</sup> |            |                |     |             |         |                   |
|--------------------|------------|----------------|-----|-------------|---------|-------------------|
| Model              |            | Sum of Squares | df  | Mean Square | F       | Sig.              |
| 1                  | Regression | 317.662        | 9   | 35.296      | 352.059 | .000 <sup>b</sup> |
|                    | Residual   | 28.372         | 283 | .100        |         |                   |
|                    | Total      | 346.034        | 292 |             |         |                   |
| 2                  | Regression | 324.108        | 11  | 29.464      | 377.603 | .000 <sup>c</sup> |
|                    | Residual   | 21.926         | 281 | .078        |         |                   |
|                    | Total      | 346.034        | 292 |             |         |                   |

a. Dependent Variable: Efficiency  
b. Predictors: (Constant), RDMS, IDMS, DDMS, ADMS, SDMS, OrganSize, OrganYears, Board Size, Location.  
c. Predictors: (Constant), RDMS, IDMS, DDMS, ADMS, SDMS, RDMS\*IDMS, RDMS\*IDMS\*DDMS, OrganSize, OrganYears, Board Size, Location.

Source: Source: Field Data (2022)

Table 5.10: Regression Results of Decision-Making Styles and Efficiency

| Variables                        | Efficiency         |                    |
|----------------------------------|--------------------|--------------------|
|                                  | Model 1            | Model 2            |
| (Intercept)                      | -0.38**<br>(0.14)  | -0.69***<br>(0.15) |
| Rational DMS                     | 0.29***<br>(0.04)  | 0.34***<br>(0.04)  |
| Intuitive DMS                    | 0.64***<br>(0.04)  | 0.57***<br>(0.04)  |
| Dependent DMS                    | 0.25***<br>(0.05)  | 0.32***<br>(0.05)  |
| Avoidant DMS                     | 0.08*<br>(0.04)    | 0.08*<br>(0.03)    |
| Spontaneous DMS                  | -0.15***<br>(0.04) | -0.11**<br>(0.04)  |
| Rational*Intuitive DMS           |                    | -0.26***<br>(0.03) |
| Rational*Intuitive*Dependent DMS |                    | 0.14***<br>(0.02)  |
| Organizational Size              | -0.01<br>(0.00)    | -0.01<br>(0.00)    |
| Organizational Years             | -0.01<br>(0.01)    | -0.02<br>(0.01)    |
| Board Size                       | 0.01<br>(0.02)     | -0.01<br>(0.00)    |
| Location                         | 0.04<br>(0.05)     | 0.03<br>(0.05)     |
| R <sup>2</sup>                   | 0.918              | 0.937              |
| Adjusted R <sup>2</sup>          | 0.915              | 0.934              |
| F-value                          | 352***             | 377.6***           |
| df                               | 9, 283             | 11, 281            |
| Number of obs.                   | 293                | 293                |

\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$ *Source: Field Data (2022)*

In order to understand the effect of decision-making styles of heterogeneous boards on organizational performance of cooperatives in the context of organizational characteristics, we included four organizational characteristics deemed as control variables that might be related with decision-making and performance. Therefore, we selected organizational size, organizational years, board size and location in terms of cooperative. Forsaith and Fuller (1995) suggested that enterprises are most frequently classified by size according to the number of people they employ. According to Damanpour, 2010; Zona et al. (2013), organizational size may facilitate or constrain organizations' activities, such as decision making and group information-processing. Larger organizations generally have larger inertia forces (Xie, 2014) and more hierarchical structures (Nahavandi & Malekzadeh, 1993; Nelson, 2009), which may cause wider distribution of power and less discretion (Nahavandi & Malekzadeh, 1993; Papadakis, 2006) and thus reduce the impact of board diversity on organization's decision making and management. In contrast, smaller firms are

more likely and quicker to implement creativity and innovation, and ultimately promote decision making and problem solving (Gong et al., 2013; Tripsas & Gavetti, 2000; Li & Chen, 2018). In this study, we defined organizational size using the number of individual members registered by the cooperatives. To be able to explain the effects of relationship strength decision-making styles with performance measures in the context of organizational size of cooperative, we divide the size in to small and large by taking the median for the categorization of size. Thus, based on the analytical results of the organizational size, we determined 268 to be the threshold for categorization of the size. If the organizational size is 268 and above, it is large size and otherwise small size respectively.

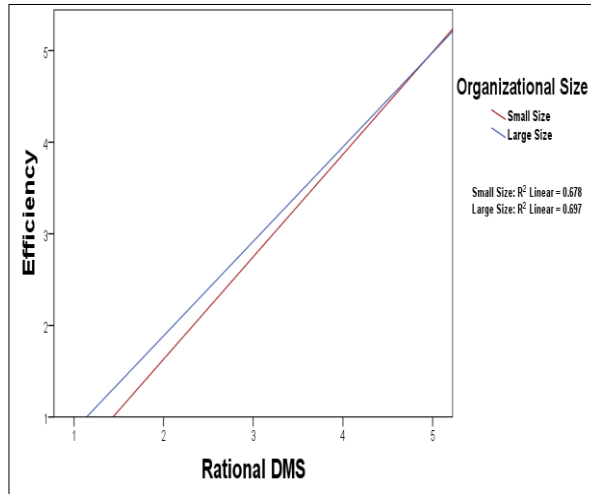
The second control variable is organizational years. Organizational year is perceived as an indication of external legitimacy of the existence of interfirm relationships or of the pervasiveness of internal routines (BarNir et al., 2003) and deemed to be important as older organizations are expected to become more inert over time (Doorn et al., 2013). In this study, we defined organizational years is factor measured using the number of years since cooperatives were established and registered as a legal entity. Based on the statistical results, we categorized the organizational years or age as older and younger based the years since their formation. Thus, if the cooperative years or age is 15 and above, it deemed as older, other was younger cooperatives.

The third control variable is board size. The effectiveness of the board of directors and effect on performance of the firms has been studied widely (S. Cheng, 2008). Chaganti, Mahajan & Sharma (1985) argued that board size is a significant board attribute and affects board functions and eventually corporate performance. Lipton & Lorsch (1992) and Jensen (1993) asserted that large boards could be less effective than small boards. Increase in board's size, occurs with increase in agency problems (such as director free-riding) within the board and the board becomes less effective. Jensen (1993) also supported the theory of Lorsch (1992) and further added that the decision-making power of the board becomes slower with the involvement of more people. Defining board size as the number of individuals elected in board to represent the union, categorized into small and large size. According to the statistical results, the median determined the threshold at 9. Primary cooperatives affiliated to the union deemed large board size if it has 9 or above members, otherwise small. Finally, we included location of the decision-makers or board members from the cooperative using the distance. Since, the affiliated primary cooperatives restricted to a certain operating areas, not all cooperative decision makers or board members representing union were living in the vicinity. Thus, we divided the distance as nearby or far away to understand the location issue.

Therefore, using SPSS to analyze the effect of decision-making styles on the efficiency of cooperative in the context of organizational characteristics such as organizational size, organizational years, board size and location, we use graphical interaction to explain the cooperative organizational contextual factors presented under each analytical results of the regression. According to the analytical results regarding rational decision-making style and efficiency in the context of organizational size, it was found that the positive effect of rational decision-making style on the efficiency of cooperative is stronger in large organizational size ( $R^2=69.7\%$ ) than in small organizational size ( $R^2=76.8\%$ ) of the cooperative. In terms of organizational years, the results found that rational decision-making style has almost the same influence on the efficiency of cooperative in younger cooperative ( $R^2=69.2\%$ ) as in older cooperative ( $R^2=69\%$ ) respectively. Regarding board size, rational decision-making style found to have stronger influence on the efficiency of cooperative in small board size ( $R^2=69.6\%$ ) than in large board size ( $R^2=68.5\%$ ) respectively. Concerning location, the results found almost no

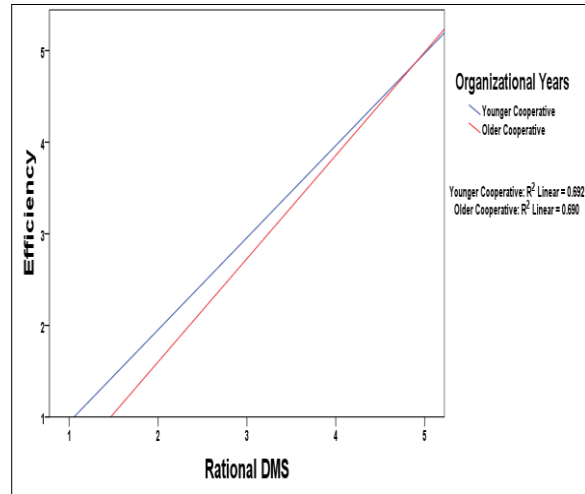
difference. The study found that rational decision-making style has the same effect on the efficiency of cooperative in the nearby ( $R^2=68.6\%$ ) as in the cooperative far away ( $R^2=68.8\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how rational decision-making style predict the efficiency of cooperatives in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 5.2: Effect of RDMS on Efficiency in the Context of Organizational Size**



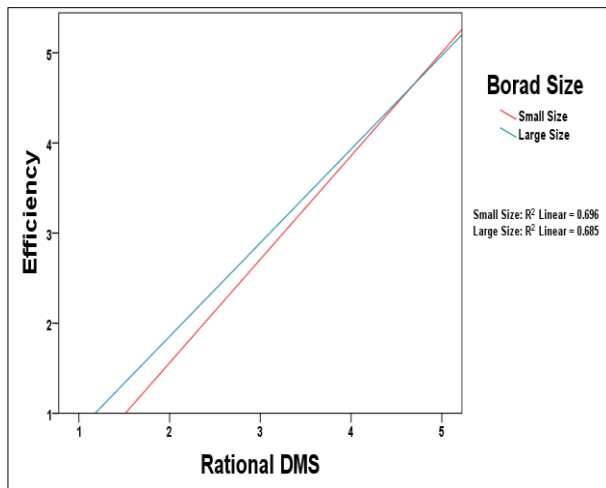
Source: Field Data (2022)

**Figure 5.3: Effect of RDMS on Efficiency in the Context of Organizational Years**



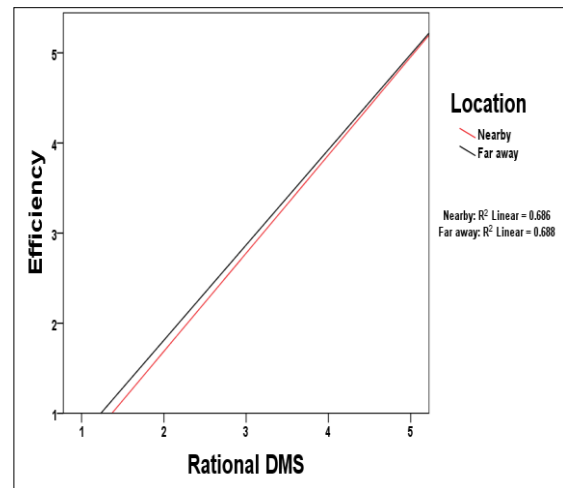
Source: Field Data (2022)

**Figure 5.4: Effect of RDMS on Efficiency in the Context of Board Size**



Source: Field Data (2022)

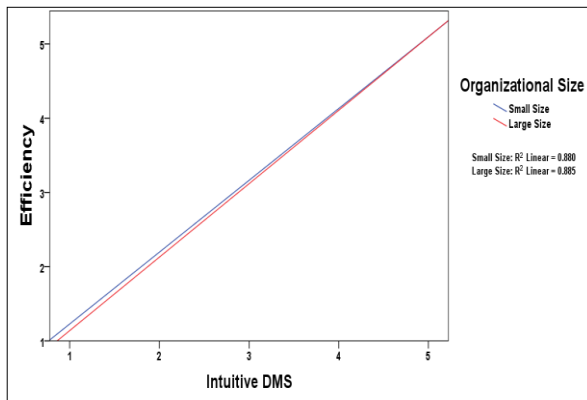
**Figure 5.5: Effect of RDMS on Efficiency in the Context of Location**



Source: Field Data (2022)

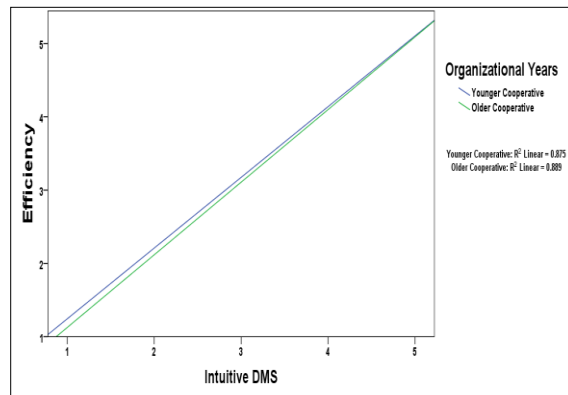
The analytical results regarding the intuitive decision-making style and efficiency of cooperative in the context of organizational size, the results found that the positive effect of intuitive decision-making style on the efficiency of cooperative is almost similar in small organizational size ( $R^2=88.5\%$ ) as in large organizational size ( $R^2=88.5\%$ ) of the cooperative. In terms of organizational years, the results found that intuitive decision-making style has stronger influence on the efficiency in older cooperative ( $R^2=88.9\%$ ) than in younger cooperative ( $R^2=87.5\%$ ) respectively. Regarding board size, intuitive decision-making style found to have stronger influence on the efficiency of cooperative in large board size ( $R^2=88.5\%$ ) than in small board size ( $R^2=87.4\%$ ) respectively. Concerning location, the results found almost no difference. The study found that intuitive decision-making style has the same effect on the efficiency of cooperative in the nearby ( $R^2=88.7\%$ ) as in the cooperative far away ( $R^2=88.1\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how intuitive decision-making style predict the efficiency of cooperatives in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 5.6:** Effect of IDMS on Efficiency in the Context of Organizational Size



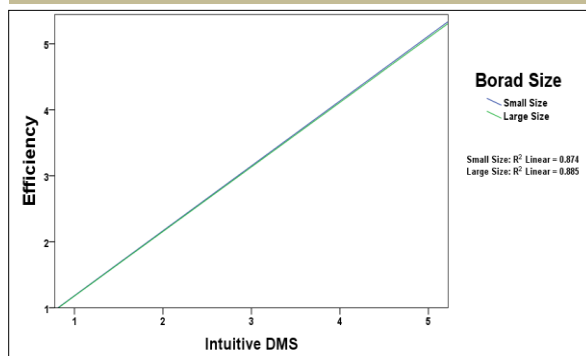
Source: Field Data (2022)

**Figure 5.7:** Effect of IDMS on Efficiency in the Context of Organizational Years



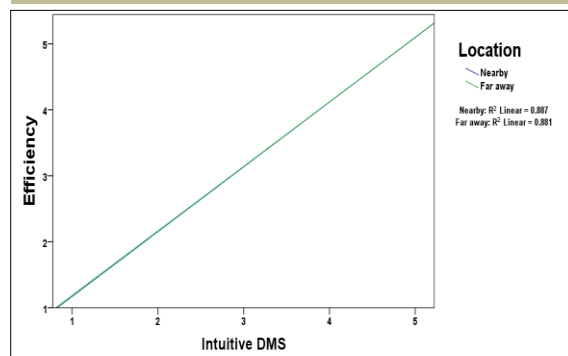
Source: Field Data (2022)

**Figure 5.8:** Effect of IDMS on Efficiency in the Context of Board Size



Source: Field Data (2022)

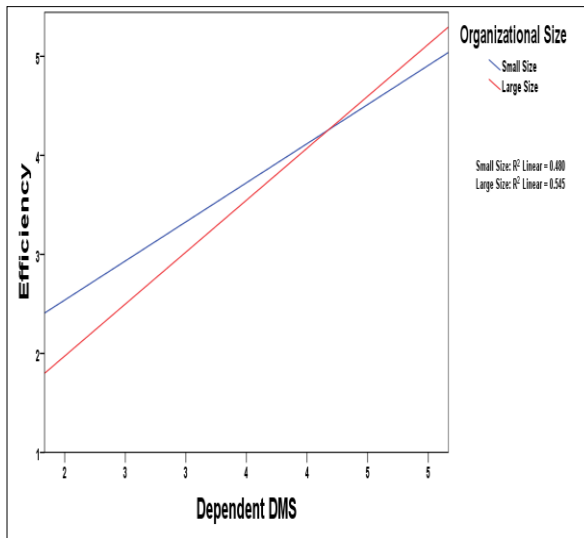
**Figure 5.9:** Effect of IDMS on Efficiency in the Context of Location



Source: Field Data (2022)

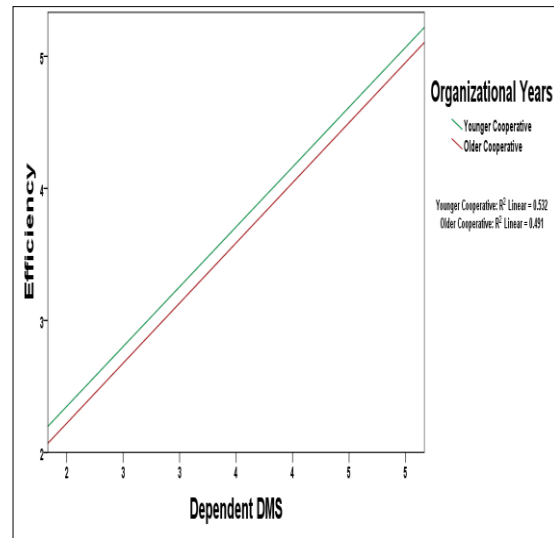
The analytical results regarding the dependent decision-making style and efficiency of cooperative in the context of organizational size, the results found that the positive effect of dependent decision-making style on the efficiency of cooperative is stronger in large organizational size ( $R^2=54.5\%$ ) than in small organizational size ( $R^2=48\%$ ) of the cooperative. In terms of organizational years, the results found that dependent decision-making style has stronger influence on the efficiency in younger cooperative ( $R^2=53.2\%$ ) than in older cooperative ( $R^2=49.1\%$ ) respectively. Regarding board size, dependent decision-making style found to have stronger influence on the efficiency of cooperative in large board size ( $R^2=53.4\%$ ) than in small board size ( $R^2=42.9\%$ ) respectively. Concerning location, the study found that dependent decision-making style has stronger effect on the efficiency of cooperative far away ( $R^2=51.3\%$ ) than in the nearby cooperative ( $R^2=48.7\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how dependent decision-making style predict the efficiency of cooperatives in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 5.10:** Effect of DDMS on Efficiency in the Context of Organizational Size



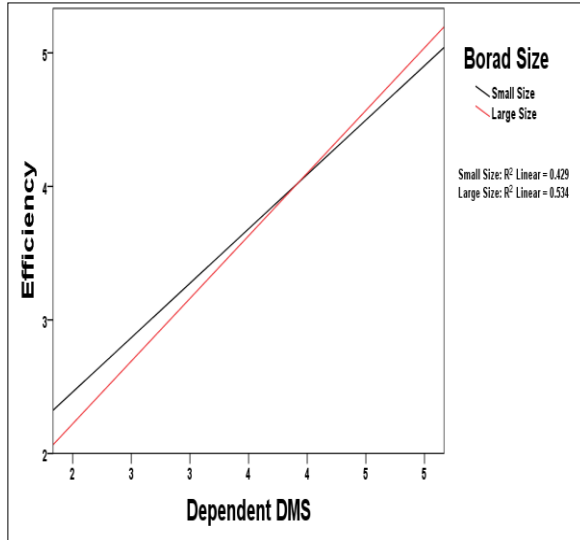
Source: Field Data (2022)

**Figure 5.11:** Effect of DDMS on Efficiency in the Context of Organizational Years



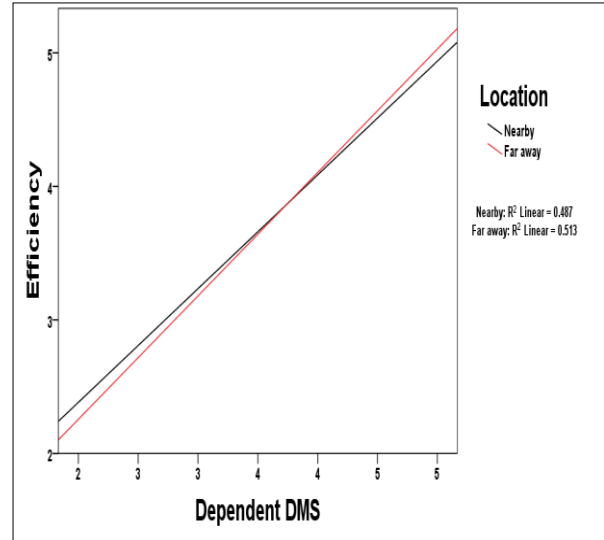
Source: Field Data (2022)

**Figure 5.12: Effect of DDMS on Efficiency in the Context of Board Size**



Source: Field Data (2022)

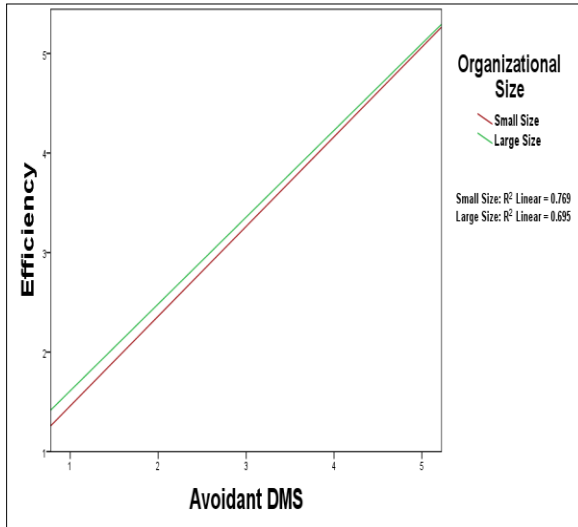
**Figure 5.13: Effect of DDMS on Efficiency in the Context of Location**



Source: Field Data (2022)

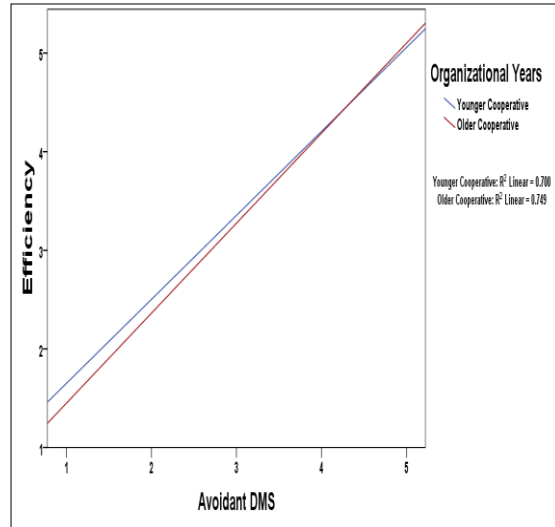
The analytical results regarding the avoidant decision-making style and efficiency of cooperative in the context of organizational size, the results found that the positive effect of avoidant decision-making style on the efficiency of cooperative is stronger in small organizational size ( $R^2=76.9\%$ ) than in large organizational size ( $R^2=69.5\%$ ) of the cooperative. In terms of organizational years, the results showed that avoidant decision-making style has stronger influence on the efficiency in older cooperative ( $R^2=70.9\%$ ) than in younger cooperative ( $R^2=70\%$ ) respectively. Regarding board size, avoidant decision-making style found to have stronger influence on the efficiency of cooperative in small board size ( $R^2=76.9\%$ ) than in large board size ( $R^2=71.2\%$ ) respectively. Concerning location, the study also found that avoidant decision-making style has stronger effect on the efficiency of cooperative far away ( $R^2=73.3\%$ ) than in the nearby cooperative ( $R^2=70.7\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how avoidant decision-making style predict the efficiency of cooperatives in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 5.14: Effect of ADMS on Efficiency in the Context of Organizational Size**



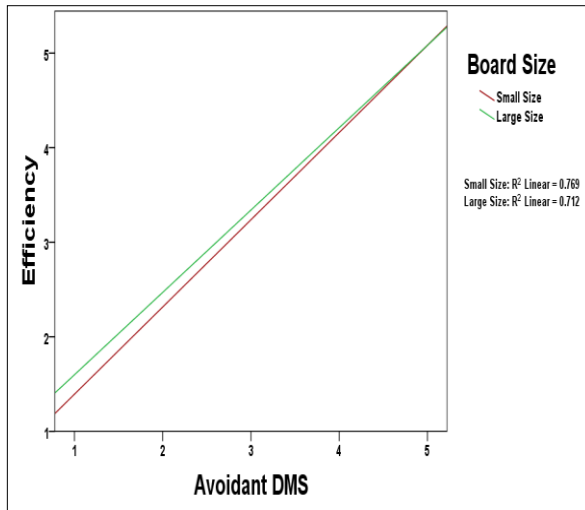
Source: Field Data (2022)

**Figure 5.15: Effect of ADMS on Efficiency in the Context of Organizational Years**



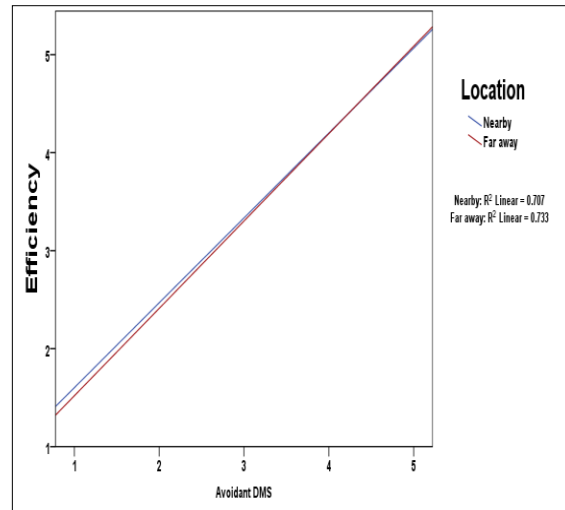
Source: Field Data (2022)

**Figure 5.16: Effect of ADMS on Efficiency in the Context of Board Size**



Source: Field Data (2022)

**Figure 5.17: Effect of ADMS on Efficiency in the Context of Location**

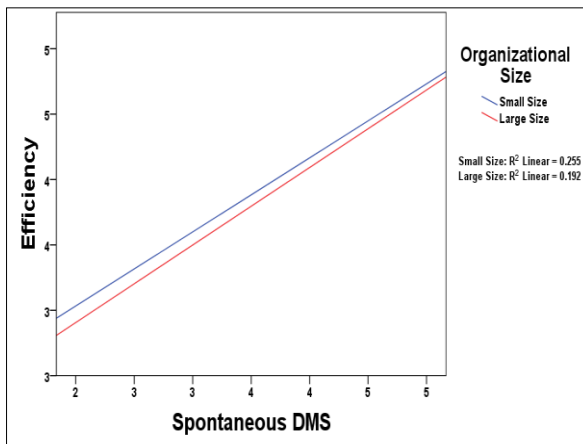


Source: Field Data (2022)

The analytical results regarding the spontaneous decision-making style and efficiency of cooperative in the context of organizational size, the results found that the negative effect of spontaneous decision-making style on the efficiency of cooperative is stronger in small organizational size ( $R^2=25.5\%$ ) than in large organizational size ( $R^2=19.2\%$ ) of the cooperative. In

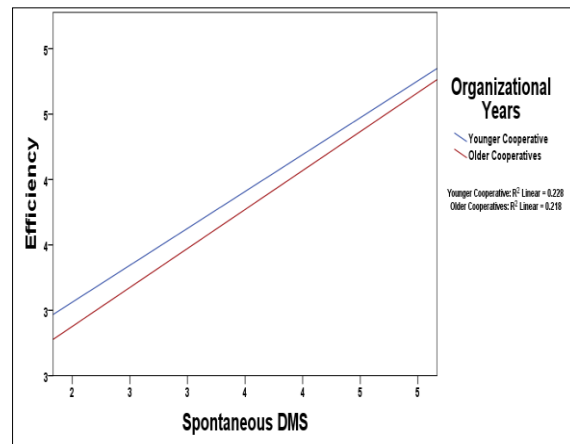
terms of organizational years, the results showed that spontaneous decision-making style has stronger influence on the efficiency in older cooperative ( $R^2=22.8\%$ ) than in younger cooperative ( $R^2=21.8\%$ ) respectively. Regarding board size, spontaneous decision-making style found to have stronger influence on the efficiency of cooperative in large board size ( $R^2=24.7\%$ ) than in small board size ( $R^2=14.4\%$ ) respectively. Concerning location, the study found that spontaneous decision-making style has the same level of effect on the efficiency of cooperative in a far away ( $R^2=21.9\%$ ) as in the nearby cooperative ( $R^2=21.9\%$ ) respectively. The higher percent of  $R^2$  in negative results showed bad sign for predictive models on how spontaneous decision-making style predict the efficiency of cooperatives in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 5.18: Effect of SDMS on Efficiency in the Context of Organizational Size**



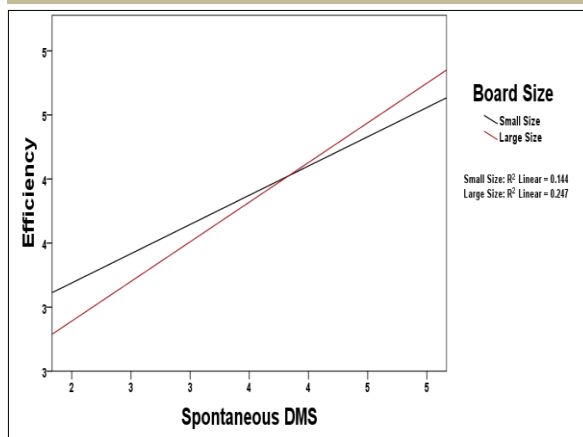
Source: Field Data (2022)

**Figure 5.19: Effect of SDMS on Efficiency in the Context of Organizational Years**



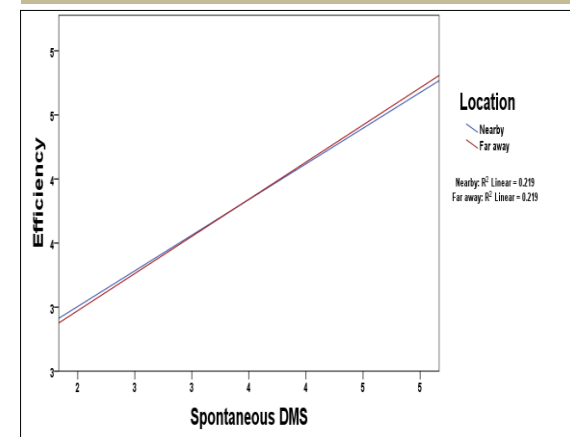
Source: Field Data (2022)

**Figure 5.20: Effect of SDMS on Efficiency in the Context of Board Size**



Source: Field Data (2022)

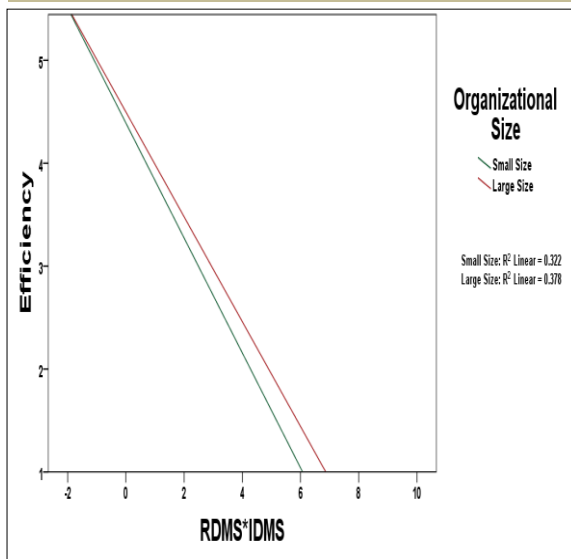
**Figure 5.21: Effect of SDMS on Efficiency in the Context of Location**



Source: Field Data (2022)

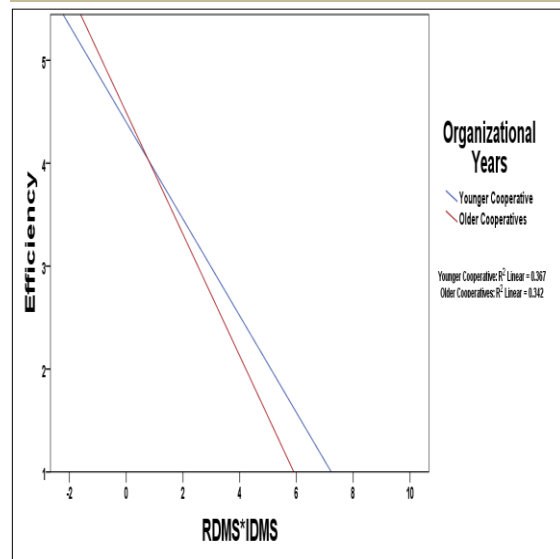
In terms of analytical results regarding the interaction term between rational and intuitive decision-making styles and efficiency of cooperative in the context of organizational size, the results found that the negative effect of the interaction between rational and intuitive decision-making styles on the efficiency of cooperative is stronger in large organizational size ( $R^2=37.8\%$ ) than in small organizational size ( $R^2=32.2\%$ ) of the cooperative. In terms of organizational years, the results showed that the interaction between rational and intuitive decision-making styles has stronger influence on the efficiency in younger cooperative ( $R^2=36.7\%$ ) than in older cooperative ( $R^2=34.2\%$ ) respectively. Regarding board size, the interaction between rational and intuitive decision-making styles found to have almost similar influence on the efficiency of cooperative in small board size ( $R^2=35.9\%$ ) than in large board size ( $R^2=35\%$ ) respectively. Concerning location, the study found that the interaction term between rational and intuitive decision-making styles has stronger influence on the efficiency of cooperative in a far away ( $R^2=36\%$ ) than in the nearby cooperative ( $R^2=31.9\%$ ) respectively. The higher percent of  $R^2$  in negative results showed bad sign for predictive models on how spontaneous decision-making style predict the efficiency of cooperatives in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 5.22: Effect of RDMS\*IDMS on Efficiency in the Context of Organizational Size**



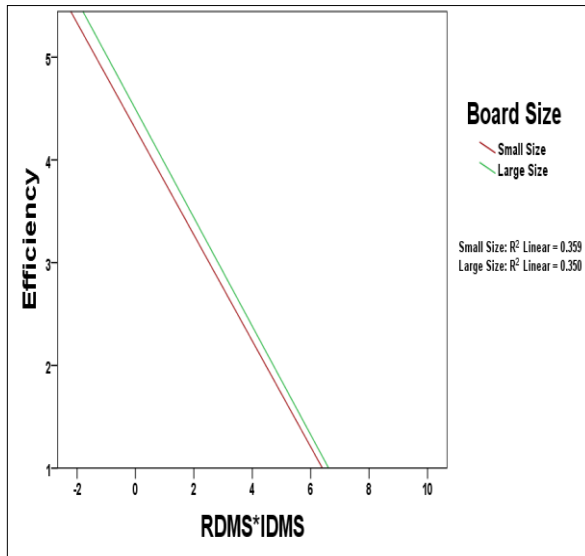
Source: Field Data (2022)

**Figure 5.23: Effect of RDMS\*IDMS on Efficiency in the Context of Organizational Years**



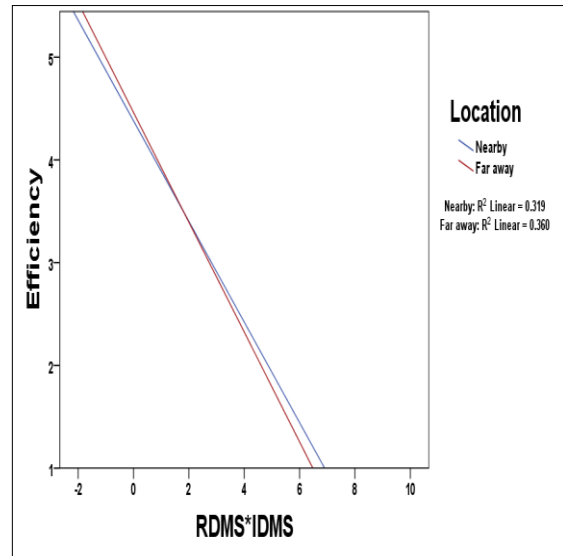
Source: Field Data (2022)

**Figure 5.24:** Effect of RDMS\*IDMS on Efficiency in the Context of Board Size



Source: Field Data (2022)

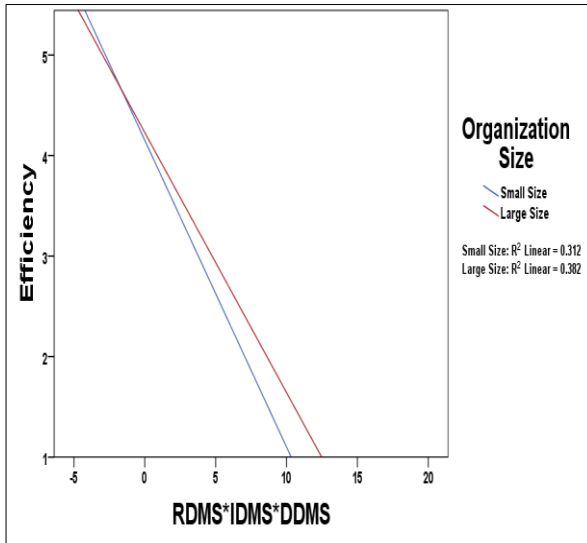
**Figure 5.25:** Effect of RDMS\*IDMS on Efficiency in the Context of Location



Source: Field Data (2022)

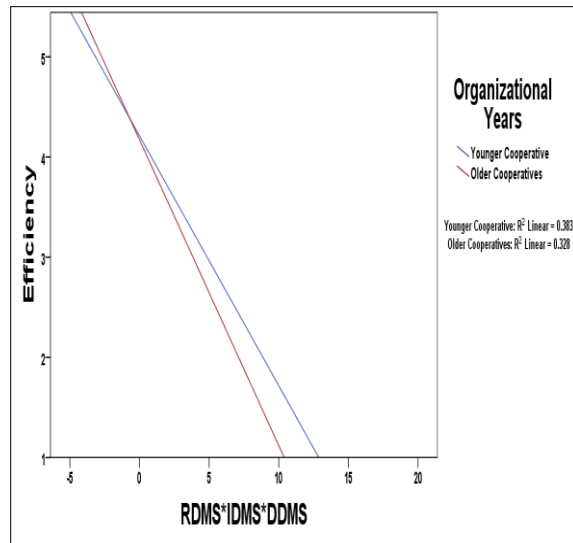
In terms of interacting dependent decision-making style with rational and intuitive decision-making styles and efficiency of cooperative in the context of organizational size, the results found positive relationship and significant effect. Accordingly, the results found the positive effect of interacting dependent decision-making style with rational and intuitive decision-making styles on the efficiency of cooperative is stronger in large organizational size ( $R^2=38.2\%$ ) than in small organizational size ( $R^2=31.2\%$ ) of the cooperative. In terms of organizational years, the results showed that interacting dependent decision-making style with rational and intuitive decision-making styles has stronger influence on the efficiency in younger cooperative ( $R^2=38.3\%$ ) than in older cooperative ( $R^2=32.8\%$ ) respectively. Regarding board size, interacting dependent decision-making style with rational and intuitive decision-making styles found to have stronger influence on the efficiency of cooperative in large board size ( $R^2=37.8\%$ ) than in small board size ( $R^2=27.2\%$ ) respectively. Concerning location, the study found that interacting dependent decision-making style with rational and intuitive decision-making styles has stronger influence on the efficiency of cooperative in a far away ( $R^2=36.2\%$ ) than in the nearby cooperative ( $R^2=30.8\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how interacting dependent decision-making style with rational and intuitive decision-making styles predict the efficiency of cooperatives in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 5.26:** Effect of RDMS\*IDMS\*DDMS on Efficiency in the Context of Organizational Size



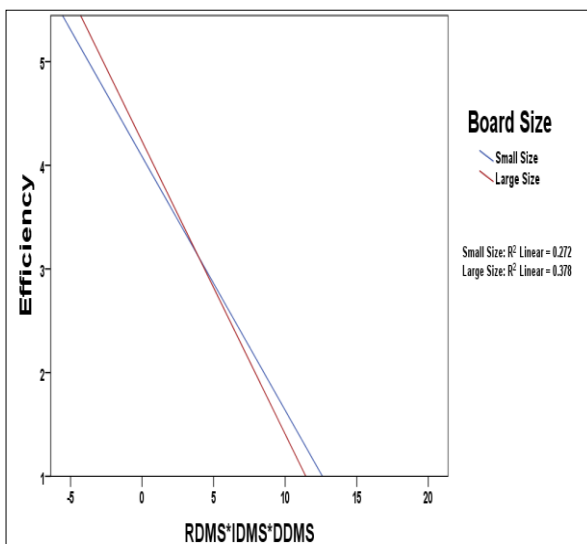
Source: Field Data (2022)

**Figure 5.27:** Effect of RDMS\*IDMS\*DDMS on Efficiency in the Context of Organizational Years



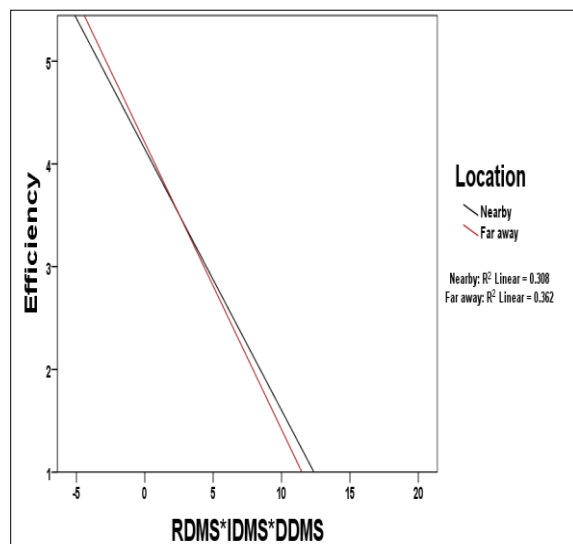
Source: Field Data (2022)

**Figure 5.28:** Effect of RDMS\*IDMS\*DDMS on Efficiency in the Context of Board Size



Source: Field Data (2022)

**Figure 5.29:** Effect of RDMS\*IDMS\*DDMS on Efficiency in the Context of Location



Source: Field Data (2022)

### 5.7.3.2. Decision Making Styles and Market Performance

This section presents the study's objective that was set to determine the effect of decision-making styles, interaction term and control variables on efficiency as indicator of performance of cooperative. The hypotheses were stated as:

*(H2a): Rational decision-making style has positive and significant effect on the market performance of cooperative; (H2b): The use of intuitive decision-making style has positive and significant influence on the market performance of cooperative; (H2c): The use of dependent decision-making style has positive and significant influence on the market performance of cooperative; (H2d): The use of avoidant decision-making style has negative and significant influence on the market performance of cooperative; and (H2e): Spontaneous decision-making style has positive and significant influence on the market performance of cooperative.*

The study set out to establish the independent effect of decision-making styles on the market performance of cooperative. Decision-making styles were measured using Scott & Bruce's (1995) general decision-making styles consisted rational, intuitive, dependent, avoidant and spontaneous. Since heterogeneous boards in cooperative combined two or more decision-making styles to improve the quality of the decision to be made to increase and achieve better market performance (Li & Chen, 2018; Bobbitt & Ford, 1980; Ward, 2016), we first created the interaction term between rational and intuitive decision-making styles. Then, because of the fact that rational and intuitive are made by the individuals within the same board or organization, lack of information and knowledge or skills to pass timely decision invite the support of other individuals from external with expertise or specialized knowledge and skills required to make the best decision. Thus, we created the interaction term among rational, intuitive and dependent decision-making styles. As control variables, organizational size, organizational years, board size and location were included in the model to control the effect of decision-making styles on the market performance.

The results of analysis were done using a series of two hierarchical regression models to determine the effect when there is change in models shown in the tables below. In model 1, we include the independent variables (decision-making styles) and control variables to determine the effect on the market performance of cooperative. In model 2, we included the interaction along the independent and control variables. According to the model 1, the results showed that decision-making styles (rational, intuitive, dependent, avoidant and spontaneous), and control variables (organizational size, organizational years, board size and location) explained 66.9% ( $R^2=66.9$ ) of the market performance of cooperative with the remaining 33.1% being explained by other variables. Model 2 included the interaction terms between or among the decision-making styles with other variables and the model explained 70.9% ( $R^2=70.9$ ) of market performance of cooperative with the remaining 28.1% being explained by other variables. Model 2 explained the analytical model better than model 1. The F values for all models were significant at  $p < 0.001$ . For instance, the F value for model 1 is 63.7 and  $p < 0.001$ . The F values for Model 2 is 62.1 with  $p < 0.001$  respectively.

Since the results of Shapiro-Wilk from the test of normality was less than 0.05 or significant at  $p < 0.001$ , the use of null hypotheses were rejected, meaning that independent, the interaction terms and control variables expected to have significant relationship with the market performance of cooperatives. Thus, the regression model was robust enough to explain the relationship between the explanatory and dependent variable. In order to test the hypotheses, we conducted hierarchical regression analysis. In the analysis, in the model 1, we entered only the main independent effects and control variables. In model 2, we added interaction terms with other variables.

The analysis of the significance of decision-making styles and the interaction terms on market performance showed statistically significant results for all decision-making styles except for intuitive. The interaction terms between rational and intuitive; rational, intuitive and dependent also found to have significant effect on market performance while all control variables (organizational size, organizational years, board size and location) were found to be statistically non-significant. Regression equation estimation model of decision-making styles, interaction terms and control variables on market performance are presented for each model during analysis.

The results of our analysis show different level of relationship among the predictor variables with the way heterogeneous boards approach the styles of decision making that increase the sales volume of the products, market share, profitability and the existing number of customers in their cooperative to ensure the efficiency of their cooperative. First, the findings of this study provide strong evidence of the importance of understanding decision-making styles in predicting their effect on the market performance of cooperative.

In **Model 1**, the regression analysis found a negative and statistically significant relationship between rational decision-making style and market performance ( $\beta = -0.19$ ,  $p = 0.007$ ). The results from the same model suggest that there is a positive and statistically non-significant relationship between intuitive decision-making styles and market performance ( $\beta = 0.14$ ,  $p = 0.070$ ). Regarding dependent decision-making style, the results also showed that it has positive and statistically significant relationship with market performance ( $\beta = 0.23$ ,  $p = 0.020$ ). Similarly, the results also found positive and statistically significant relationship between avoidant decision-making style and market performance ( $\beta = 0.16$ ,  $p = 0.020$ ) of cooperative. Furthermore, results under the same model found that spontaneous decision-making style has positive and statistically significant relationship with the market performance ( $\beta = 0.63$ ,  $p = 0.000$ ) of cooperative.

In terms of control variables, the results showed that organizational size has positive and statistically non-significant effect on market performance ( $\beta = 0.01$ ,  $p = 0.139$ ) of cooperative. However, organizational years found to have negative and non-significant effect ( $\beta = -0.01$ ,  $p = 0.814$ ). Similarly, the results found board size to have negative and non-significant effect on market performance ( $\beta = -0.04$ ,  $p = 0.280$ ). Moreover, location found to have negative and non-significant effect ( $\beta = -0.04$ ,  $p = 0.501$ ) on market performance of cooperative. The analytical model applied to test the hypotheses in model 1 is presented as follow:

$$\text{“Market Performance} = \beta_0 + \beta_1 \text{RDMS} + \beta_2 \text{IDMS} + \beta_3 \text{DDMS} + \beta_4 \text{ADMS} + \beta_5 \text{SDMS} + \beta_6 \log\_OrganSize + \beta_7 \log\_OrganYears + \beta_8 \log\_Board Size} + \beta_6 \text{Location (Dummy)} + \varepsilon \dots \text{ (Model-1)”}$$

Regarding **Model 2**, we added the interaction term between/among the decision-making styles together with other variables to predict the effect on market performance of cooperative. Although the results showed similar significant levels as in the model 1 for the decision-making styles, there are variations in their coefficients. The results in model 2 showed that a negative and statistically significant relationship between rational decision-making style and market performance ( $\beta=-0.18$ ,  $p=0.011$ ) has been found. The results from the same model suggest that there is a positive and statistically non-significant relationship between intuitive decision-making style and market performance ( $\beta=0.05$ ,  $p=0.526$ ). Regarding dependent decision-making style, the results in same model showed positive and statistically significant relationship with market performance ( $\beta=0.28$ ,  $p=0.005$ ). The results also found positive and statistically significant relationship between avoidant decision-making style and market performance ( $\beta=0.16$ ,  $p=0.014$ ) of cooperative. Yet, the results also found that spontaneous decision-making style has positive and statistically significant effect on market performance ( $\beta=0.71$ ,  $p=0.000$ ) of cooperative. With respect to interaction term, the results showed that the interaction between rational and intuitive decision-making styles has negative and statistically significant effect on market performance ( $\beta=-0.35$ ,  $p=0.000$ ) of cooperative. In contrast, the interaction among rational, intuitive and dependent decision-making styles found to have positive and statistically significant effect ( $\beta=0.15$ ,  $p=0.000$ ) on market performance of cooperative.

In terms of control variables, the analytical results found non-significant effect for all control variables on market performance of cooperative with different relationship. For instance, organizational size found to have positive and statistically non-significant effect ( $\beta=0.01$ ,  $p=0.113$ ). The results also found that organizational years has negative and statistically non-significant effect ( $\beta=0.02$ ,  $p=0.899$ ) on market performance of cooperative. Furthermore, board size found to have negative and statistically non-significant effect on ( $\beta=-0.03$ ,  $p=0.408$ ) market performance. Similarly, the results showed that location has positive and statistically non-significant effect ( $\beta=-0.10$ ,  $p=0.252$ ) on market performance respectively. The analytical model applied to test the hypotheses in model 2 is presented below and followed by the tables of the regression results.

$$\begin{aligned} \text{“Market Performance} = & \beta_0 + \beta_1 \text{RDMS} + \beta_2 \text{IDMS} + \beta_3 \text{DDMS} + \beta_4 \text{ADMS} + \beta_5 \text{SDMS} + \beta_6 \text{RDMS} * \text{IDMS} + \\ & \beta_7 \text{RDMS} * \text{IDMS} * \text{DDMS} + \beta_8 \log\_OrganSize + \beta_9 \log\_OrganYears + \beta_{10} \log\_Board\ Size + \\ & \beta_{11} \text{Location (Dummy)} + \varepsilon \dots \text{ (Model-2)} \text{”} \end{aligned}$$

Table 5.11: Decision-Making Styles and Market Performance Model Summary

| <b>Model Summary<sup>c</sup></b> |                   |          |                   |                            |                   |          |     |     |               |
|----------------------------------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
| Model                            | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     |               |
|                                  |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 | Sig. F Change |
| 1                                | .818 <sup>a</sup> | .669     | .659              | .600                       | .669              | 63.649   | 9   | 283 | .000          |
| 2                                | .842 <sup>b</sup> | .709     | .697              | .565                       | .039              | 18.972   | 2   | 281 | .000          |

a. Predictors: (Constant), RDMS, IDMS, DDMS, ADMS, SDMS, OrganSize, OrganYears, Board Size, Location.

b. Predictors: (Constant), RDMS, IDMS, DDMS, ADMS, SDMS, RDMS\*IDMS, RDMS\*IDMS\*DDMS, OrganSize, OrganYears, Board Size, Location,

c. Dependent Variable: Market Performance

Source: Field Data (2022)

Table 5.12: Decision-Making Styles and Market Performance ANOVA

| <b>ANOVA<sup>a</sup></b> |            |                |     |             |        |                   |
|--------------------------|------------|----------------|-----|-------------|--------|-------------------|
| Model                    |            | Sum of Squares | df  | Mean Square | F      | Sig.              |
| 1                        | Regression | 206.027        | 9   | 22.892      | 63.649 | .000 <sup>b</sup> |
|                          | Residual   | 101.782        | 283 | .360        |        |                   |
|                          | Total      | 307.809        | 292 |             |        |                   |
| 2                        | Regression | 218.135        | 11  | 19.830      | 62.141 | .000 <sup>c</sup> |
|                          | Residual   | 89.673         | 281 | .319        |        |                   |
|                          | Total      | 307.809        | 292 |             |        |                   |

a. Dependent Variable: Market Performance

b. Predictors: (Constant), RDMS, IDMS, DDMS, ADMS, SDMS, OrganSize, OrganYears, Board Size, Location.

c. Predictors: (Constant), RDMS, IDMS, DDMS, ADMS, SDMS, RDMS\*IDMS, RDMS\*IDMS\*DDMS, OrganSize, OrganYears, Board Size, Location.

Source: Field Data (2022)

Table 5.13: Regression Results of Decision-Making Styles and Market Performance

| Variables                        | Market Performance |                    |
|----------------------------------|--------------------|--------------------|
|                                  | Model 1            | Model 2            |
| (Intercept)                      | 0.49<br>(0.27)     | 0.41<br>(0.31)     |
| Rational DMS                     | -0.19**<br>(0.07)  | -0.18*<br>(0.07)   |
| Intuitive DMS                    | 0.14<br>(0.08)     | 0.05<br>(0.07)     |
| Dependent DMS                    | 0.23*<br>(0.10)    | 0.28**<br>(0.10)   |
| Avoidant DMS                     | 0.16*<br>(0.07)    | 0.16*<br>(0.06)    |
| Spontaneous DMS                  | 0.63***<br>(0.08)  | 0.71***<br>(0.08)  |
| Rational*Intuitive DMS           |                    | -0.35***<br>(0.06) |
| Rational*Intuitive*Dependent DMS |                    | 0.15***<br>(0.04)  |
| Organizational Size              | 0.01<br>(0.01)     | 0.01<br>(0.01)     |
| Organizational Years             | -0.01<br>(0.01)    | 0.01<br>(0.02)     |
| Board Size                       | -0.04<br>(0.04)    | -0.03<br>(0.03)    |
| Location                         | -0.07<br>(0.09)    | -0.10<br>(0.09)    |
| R <sup>2</sup>                   | 0.669              | 0.709              |
| Adjusted R <sup>2</sup>          | 0.659              | 0.697              |
| F-value                          | 63.7***            | 62.1***            |
| df                               | 9, 283             | 11, 281            |
| Number of obs.                   | 293                | 293                |

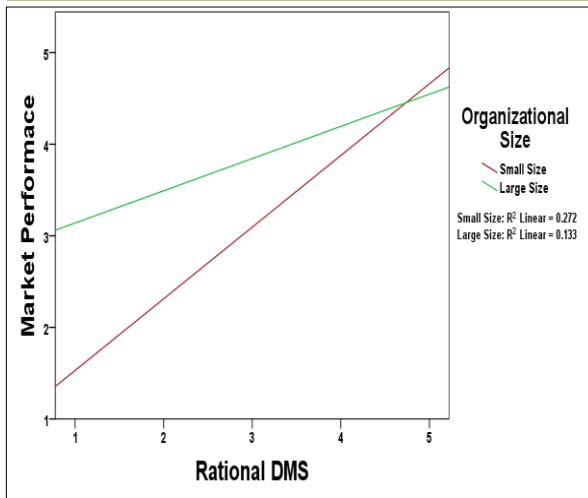
\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$

Source: Field Data (2022)

Based on the same analysis using SPSS to understand the effect of decision-making styles on the market performance of cooperative in the context of organizational characteristics such as organizational size, organizational years, board size and location, we use the same graphical interaction to explain the cooperative organizational contextual factors presented under each analytical results of the regression. According to the analytical results regarding rational decision-making style and market performance in the context of organizational size, it was found that the negative effect of rational decision-making style on the market performance of cooperative is stronger in small organizational size ( $R^2=27.2\%$ ) than in large organizational size ( $R^2=13.3\%$ ) of the cooperative. In terms of organizational years, the results found that rational decision-making style has stronger influence on market performance of cooperative in older cooperative ( $R^2=19.3\%$ ) than in younger cooperative ( $R^2=17.2\%$ ) respectively. Regarding board size, rational decision-

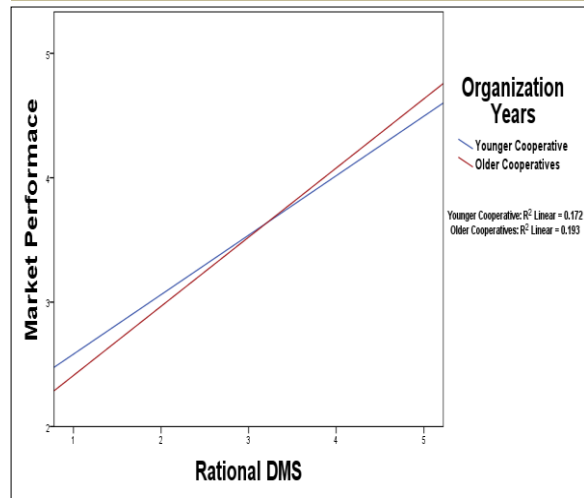
making style found to have almost similar influence on market performance of cooperative in small board size ( $R^2=18.7\%$ ) as in large board size ( $R^2=18.4\%$ ) respectively. Concerning location, the study found that rational decision-making style has stronger effect on the market performance of cooperative in the nearby ( $R^2=21.6\%$ ) than in the cooperative far away ( $R^2=17.3\%$ ) respectively. The higher percent of  $R^2$  in negative results showed bad sign for predictive models on how rational decision-making style predict the market performance of cooperatives in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 5.30: Effect of RDMS on Market Performance in the Context of Organizational Size**



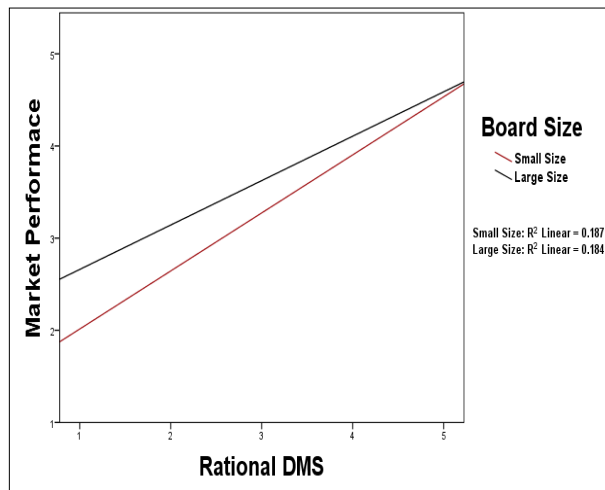
Source: Field Data (2022)

**Figure 5.31: Effect of RDMS on Market Performance in the Context of Organizational Years**



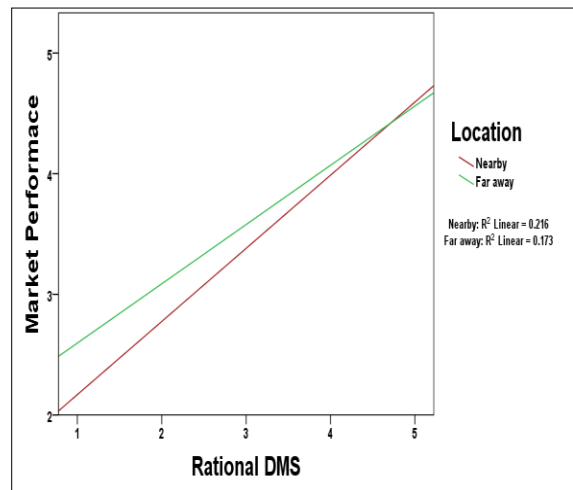
Source: Field Data (2022)

**Figure 5.32: Effect of RDMS on Market Performance in the Context of Board Size**



Source: Field Data (2022)

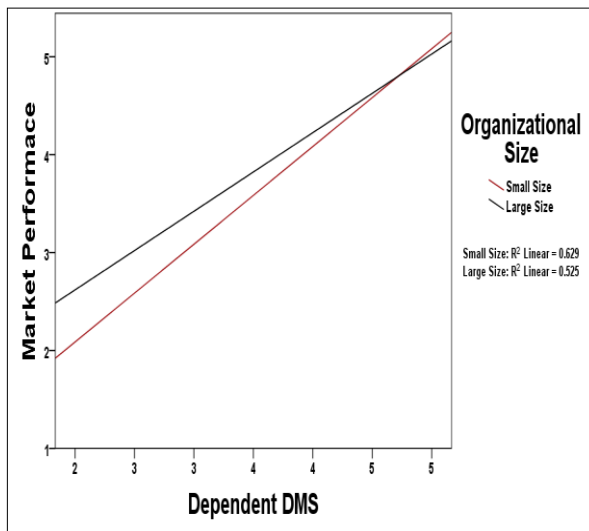
**Figure 5.33: Effect of RDMS on Market Performance in the Context of Location**



Source: Field Data (2022)

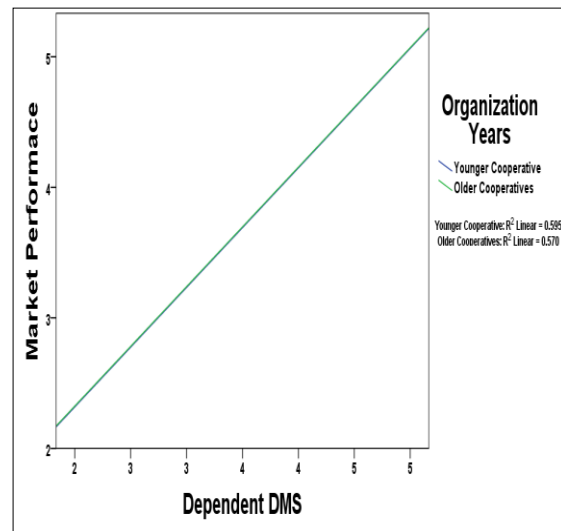
In terms of the analytical results regarding the relationship between dependent decision-making style and market performance of cooperative in the context of organizational size, the results found that the positive effect of dependent decision-making style on the market performance of cooperative is stronger in small organizational size ( $R^2=62.9\%$ ) than in large organizational size ( $R^2=52.5\%$ ) of the cooperative. In terms of organizational years, the results found that dependent decision-making style has stronger influence on the market performance in younger cooperative ( $R^2=59.5\%$ ) than in older cooperative ( $R^2=57\%$ ) respectively. Regarding board size, dependent decision-making style found to have stronger influence on the market performance of cooperative in large board size ( $R^2=60.2\%$ ) than in small board size ( $R^2=53.8\%$ ) respectively. Concerning location, the study found that dependent decision-making style has stronger effect on the market performance of cooperative far away ( $R^2=58.3\%$ ) than in the nearby cooperative ( $R^2=57.9\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how dependent decision-making style predict the market performance of cooperatives in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 5.34: Effect of DDMS on Market Performance in the Context of Organizational Size**



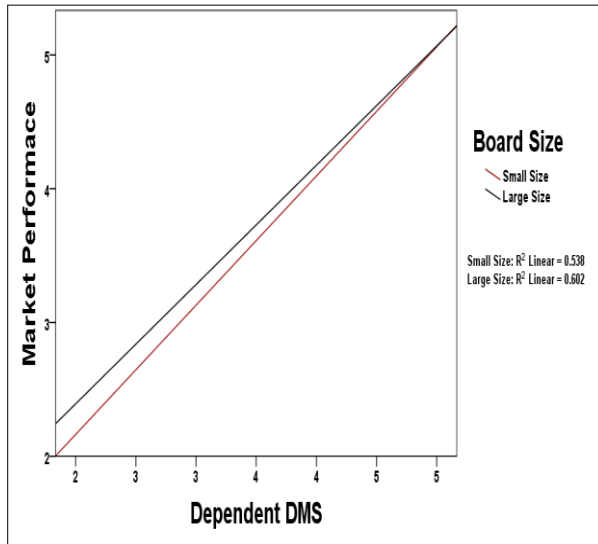
Source: Field Data (2022)

**Figure 5.35: Effect of DDMS on Market Performance in the Context of Organizational Years**



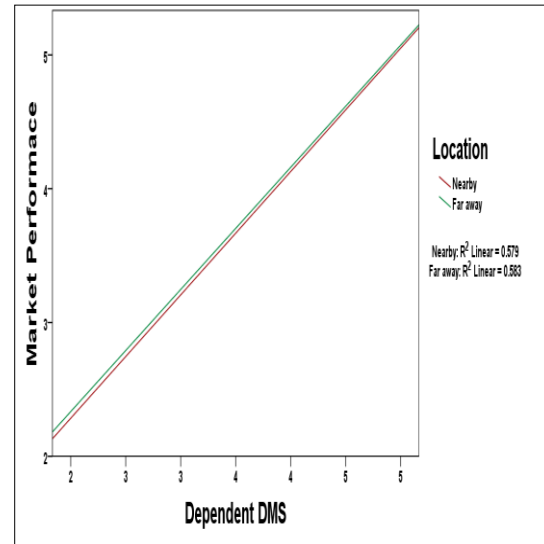
Source: Field Data (2022)

**Figure 5.36:** Effect of DDMS on Market Performance in the Context of Board Size



Source: Field Data (2022)

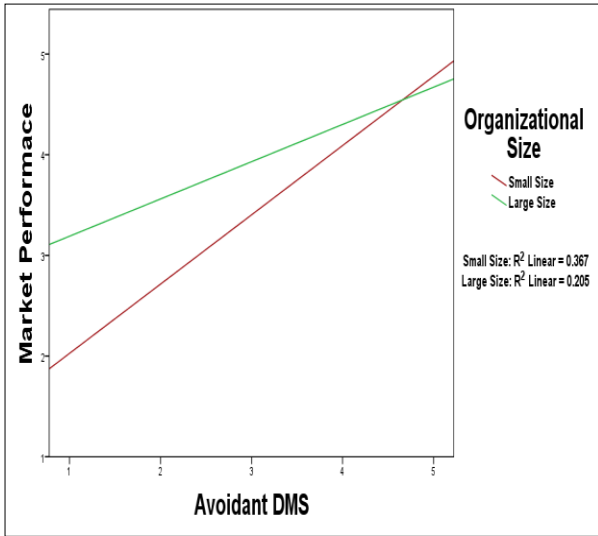
**Figure 5.37:** Effect of DDMS on Market Performance in the Context of Location



Source: Field Data (2022)

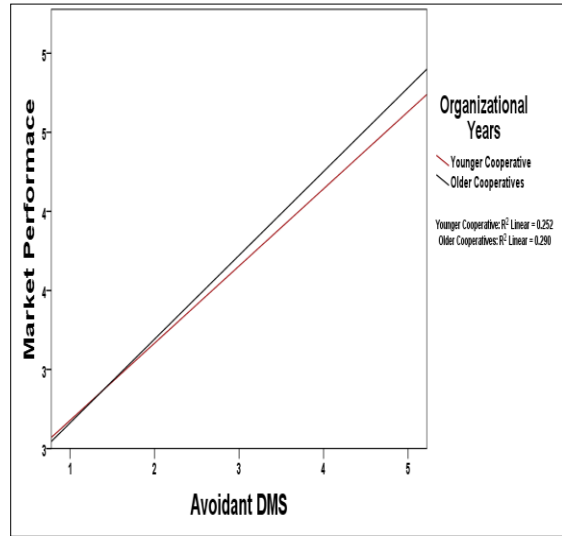
Regarding the relationship between avoidant decision-making style and market performance of cooperative in the context of organizational size, the results found that the positive effect of avoidant decision-making style on the market performance of cooperative is stronger in small organizational size ( $R^2=36.7\%$ ) than in large organizational size ( $R^2=20.5\%$ ) of the cooperative. In terms of organizational years, the results showed that avoidant decision-making style has stronger influence on market performance in older cooperative ( $R^2=29\%$ ) than in younger cooperative ( $R^2=25.2\%$ ) respectively. Regarding board size, avoidant decision-making style found to have stronger influence on the efficiency of cooperative in larger board size ( $R^2=28.5\%$ ) than in small board size ( $R^2=24.8\%$ ) respectively. Concerning location, the study also found that avoidant decision-making style has stronger effect on market performance of cooperative in the nearby ( $R^2=29.9\%$ ) than in far away cooperative ( $R^2=26.3\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how avoidant decision-making style predict the market performance of cooperatives in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 5.38:** Effect of ADMS on Market Performance in the Context of Organizational Size



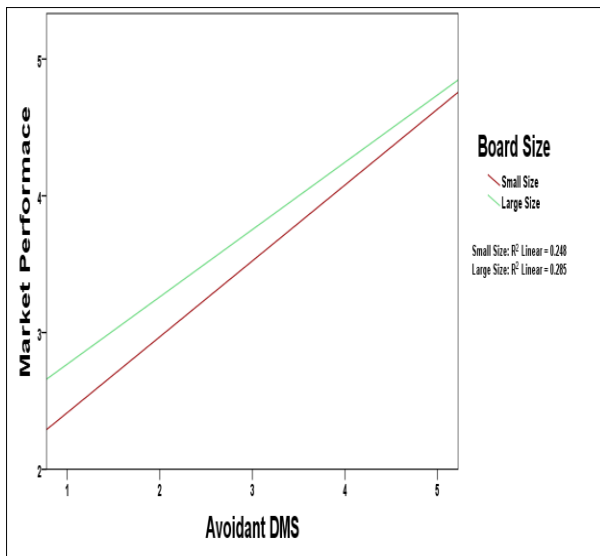
Source: Field Data (2022)

**Figure 5.39:** Effect of ADMS on Market Performance in the Context of Organizational Years



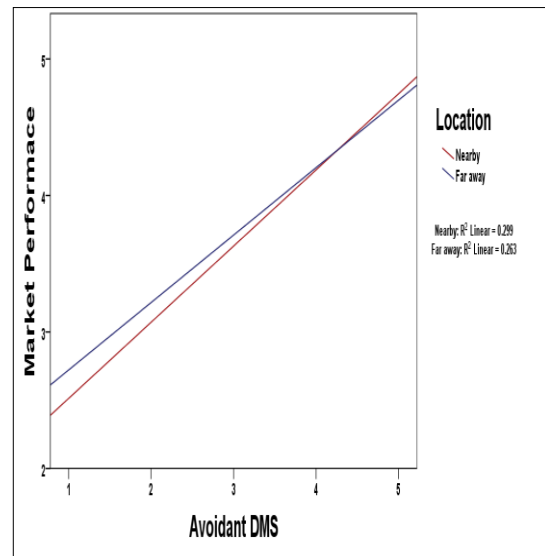
Source: Field Data (2022)

**Figure 5.40:** Effect of ADMS on Market Performance in the Context of Board Size



Source: Field Data (2022)

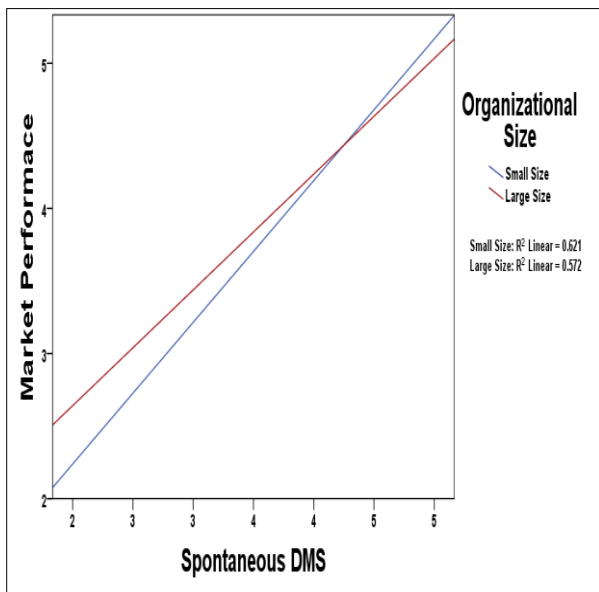
**Figure 5.41:** Effect of ADMS on Market Performance in the Context of Location



Source: Field Data (2022)

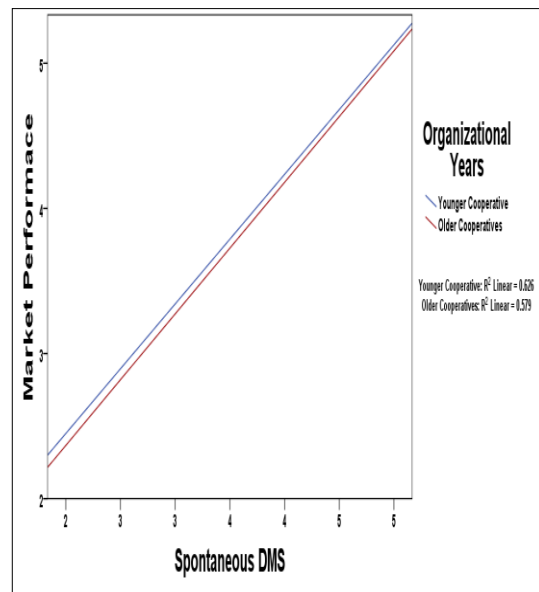
In terms of the relationship between spontaneous decision-making style and market performance of cooperative in the context of organizational size, the results found that the positive effect of spontaneous decision-making style on the market performance of cooperative is stronger in small organizational size ( $R^2=62.1\%$ ) than in large organizational size ( $R^2=57.2\%$ ) of the cooperative. In terms of organizational years, the results showed that spontaneous decision-making style has stronger influence on market performance in younger cooperative ( $R^2=62.6\%$ ) than in older cooperative ( $R^2=57.9\%$ ) respectively. Regarding board size, spontaneous decision-making style found to have stronger influence on market performance of cooperative in large board size ( $R^2=62.1\%$ ) than in small board size ( $R^2=55.1\%$ ) respectively. Concerning location, the study found that spontaneous decision-making style has stronger influence on market performance of cooperative in a far away ( $R^2=60.7\%$ ) than in the nearby cooperative ( $R^2=58.3\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how spontaneous decision-making style predict the market performance of cooperatives in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 5.42: Effect of SDMS on Market Performance in the Context of Organizational Size**



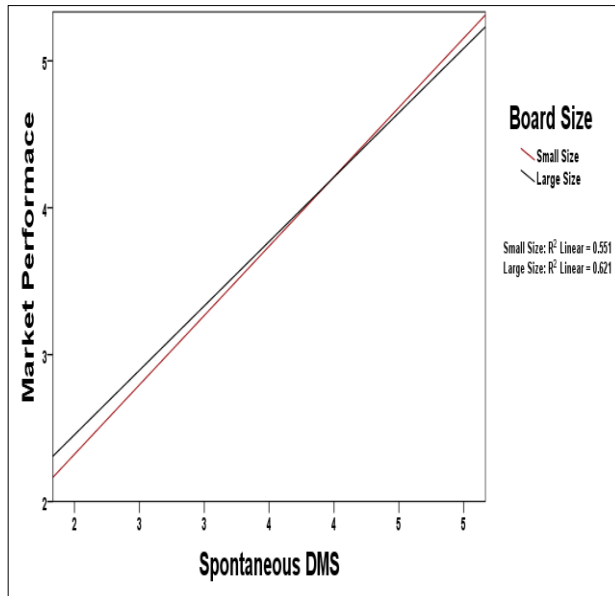
Source: Field Data (2022)

**Figure 5.43: Effect of SDMS on Market Performance in the Context of Organizational Years**



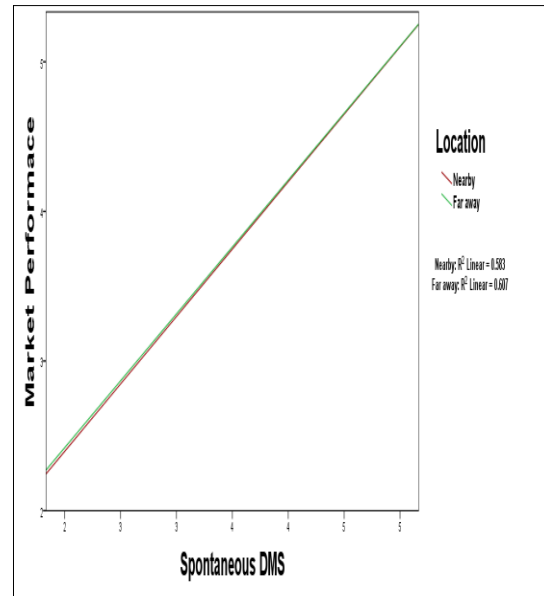
Source: Field Data (2022)

**Figure 5.44:** Effect of SDMS on Market Performance in the Context of Board Size



Source: Field Data (2022)

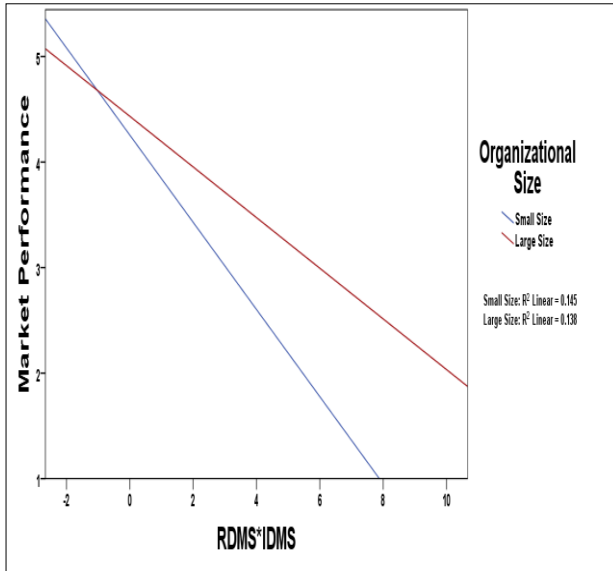
**Figure 5.45:** Effect of SDMS on Market Performance in the Context of Location



Source: Field Data (2022)

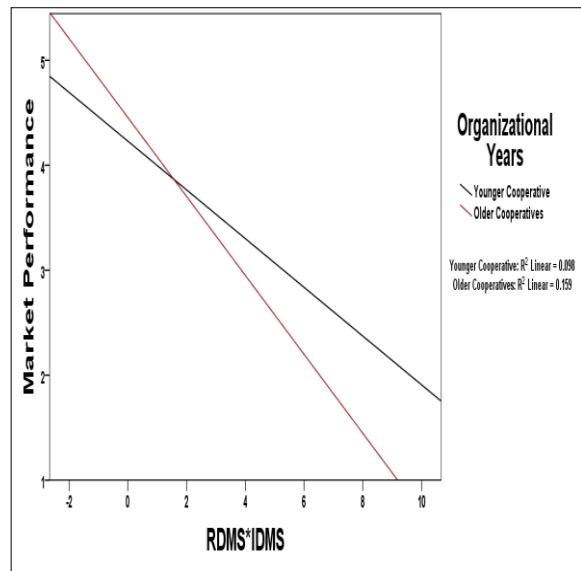
In terms of analytical results regarding the interaction term between rational and intuitive decision-making styles and market performance of cooperative in the context of organizational size, the results found that the negative effect of the interaction between rational and intuitive decision-making styles on the market performance of cooperative is stronger in small organizational size ( $R^2=14.5\%$ ) than in large organizational size ( $R^2=13.8\%$ ) of the cooperative. In terms of organizational years, the results showed that the interaction between rational and intuitive decision-making styles has stronger influence on the market performance in older cooperative ( $R^2=15.5\%$ ) than in younger cooperative ( $R^2=0.98\%$ ) respectively. Regarding board size, the interaction between rational and intuitive decision-making styles found to have stronger influence on market performance of cooperative in large board size ( $R^2=13.1\%$ ) than in small board size ( $R^2=11.8\%$ ) respectively. Concerning location, the study found that the interaction term between rational and intuitive decision-making styles has stronger influence on market performance of cooperative in a far away ( $R^2=36\%$ ) than in the nearby cooperative ( $R^2=31.9\%$ ) respectively. The higher percent of  $R^2$  in negative results showed bad sign for predictive models on how spontaneous decision-making style predict the market performance of cooperatives in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 5.46:** Effect of RDMS\*IDMS on Market Performance in the Context of Organizational Size



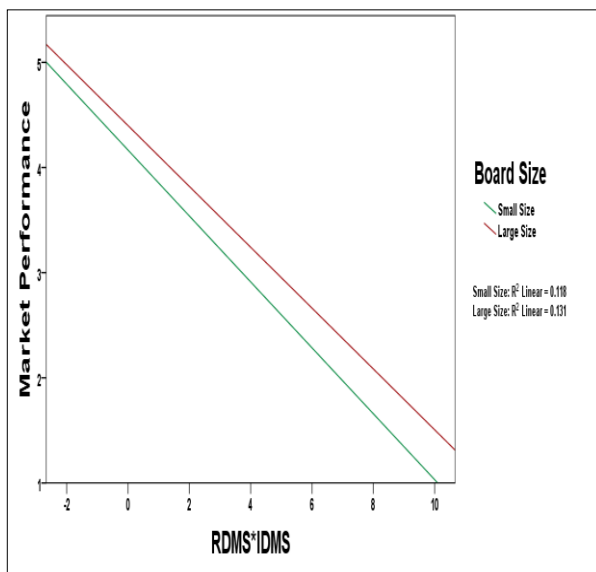
Source: Field Data (2022)

**Figure 5.47:** Effect of RDMS\*IDMS on Market Performance in the Context of Organizational Years



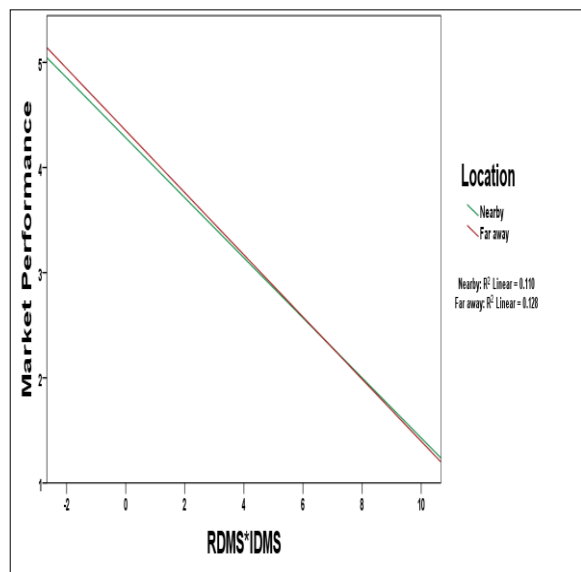
Source: Field Data (2022)

**Figure 5.48:** Effect of RDMS\*IDMS on Market Performance in the Context of Board Size



Source: Field Data (2022)

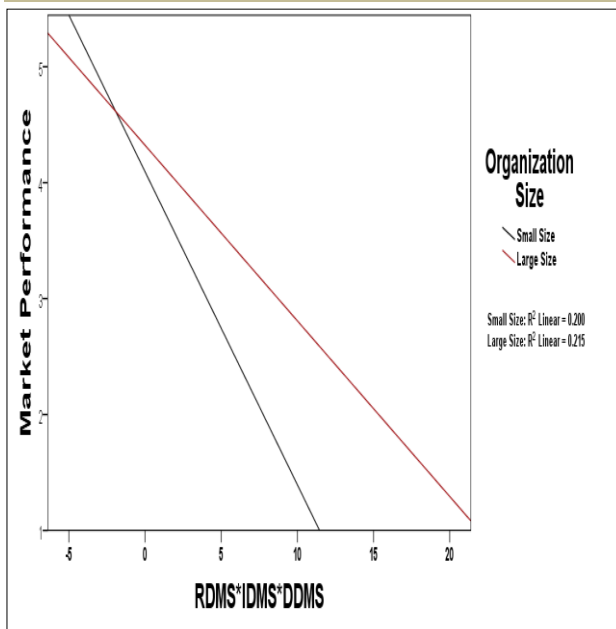
**Figure 5.49:** Effect of RDMS\*IDMS on Market Performance in the Context of Location



Source: Field Data (2022)

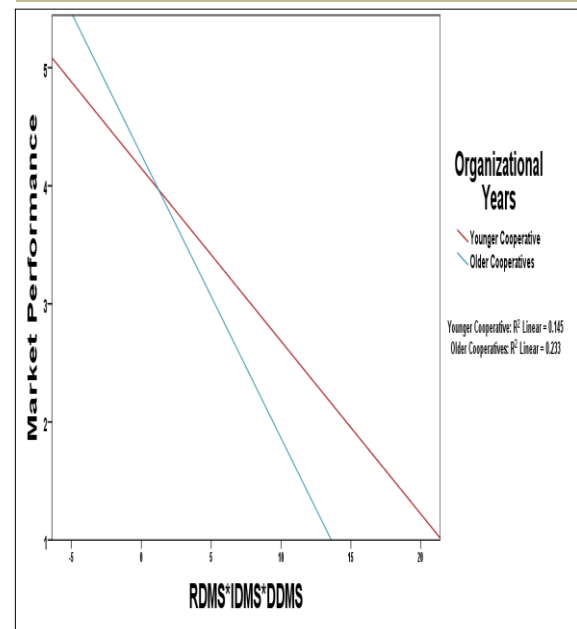
In terms of interacting dependent decision-making style with rational and intuitive decision-making styles and market performance of cooperative in the context of organizational size, the results found negative relationship and significant effect. Accordingly, the results found the negative effect of interacting dependent decision-making style with rational and intuitive decision-making styles on market performance of cooperative is stronger in large organizational size ( $R^2=21.5\%$ ) than in small organizational size ( $R^2=20\%$ ) of the cooperative. In terms of organizational years, the results showed that interacting dependent decision-making style with rational and intuitive decision-making styles has stronger influence on market performance in older cooperative ( $R^2=23.3\%$ ) than in younger cooperative ( $R^2=14.5\%$ ) respectively. Regarding board size, interacting dependent decision-making style with rational and intuitive decision-making styles found to have stronger influence on market performance of cooperative in large board size ( $R^2=21.1\%$ ) than in small board size ( $R^2=13.3\%$ ) respectively. Concerning location, the study found that interacting dependent decision-making style with rational and intuitive decision-making styles has stronger influence on the market performance of cooperative in a far away ( $R^2=19.1\%$ ) than in the nearby cooperative ( $R^2=16.3\%$ ) respectively. The higher percent of  $R^2$  in negative results showed bad sign for predictive models on how interacting dependent decision-making style with rational and intuitive decision-making styles predict the efficiency of cooperatives in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 5.50:** Effect of RDMS\*IDMS\*DDMS on Market Performance in the Context of Organizational Size



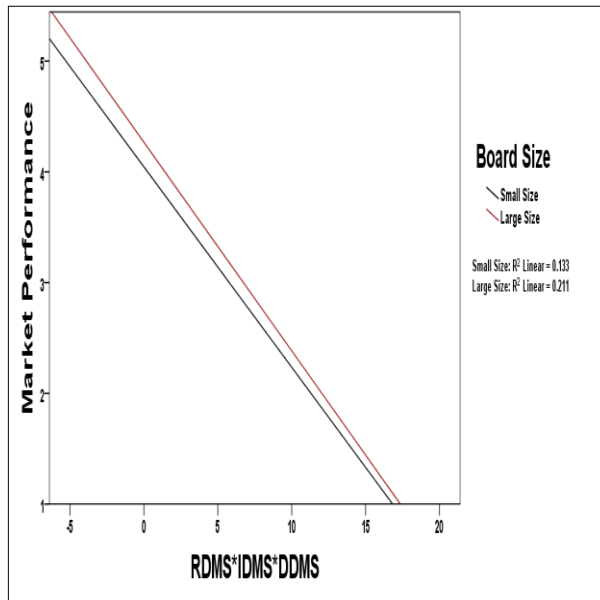
Source: Field Data (2022)

**Figure 5.51:** Effect of RDMS\*IDMS\*DDMS on Market Performance in the Context of Organizational Years



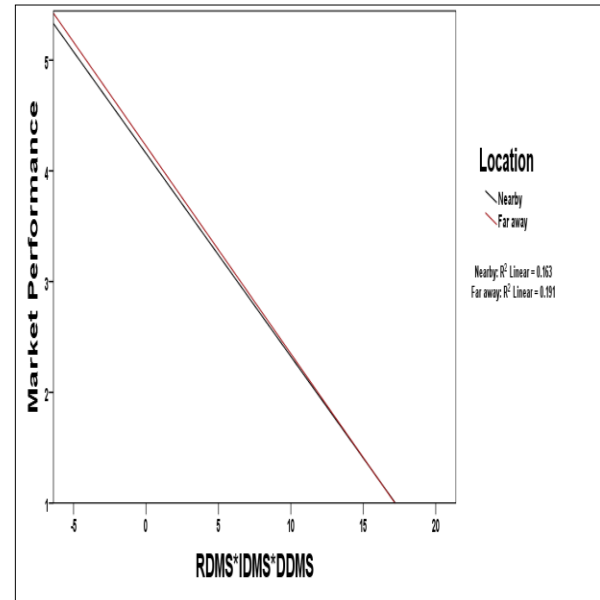
Source: Field Data (2022)

**Figure 5.52: Effect of RDMS\*IDMS\*DDMS on Market Performance in the Context of Board Size**



Source: Field Data (2022)

**Figure 5.53: Effect of RDMS\*IDMS\*DDMS on Market Performance in the Context of Location**



Source: Field Data (2022)

### 5.7.3.3. Decision Making Styles and Financial Performance

This section presents the study's objective that was set to determine the effect of decision-making styles and control variables on financial performance of cooperative. The hypotheses were stated as:

**(H3a):** Rational decision-making style has positive and significant effect on the financial performance of cooperative; **(H3b):** The use of intuitive decision-making style has positive and significant influence on the financial performance of cooperative; **(H3c):** The use of dependent decision-making style has negative and significant influence on the financial performance of cooperative; **(H3d):** The use of avoidant decision-making style has negative and significant influence on financial performance of cooperative; and **(H3e):** Spontaneous decision-making style has negative and significant influence on the financial performance of cooperative.

The study set out to establish the independent effect of decision-making styles on the financial performance of cooperative. Decision-making styles were measured using Scott & Bruce's (1995) general decision-making styles consisted rational, intuitive, dependent, avoidant and spontaneous. Since heterogeneous boards in cooperative combined two or more decision-making styles to improve the quality of the decision to be made to increase and achieve better financial performance in terms of return on assets, return on sales and return on equity (Li & Chen, 2018; Bobbitt & Ford, 1980; Ward, 2016), we first created the interaction term between rational and intuitive decision-making styles. Then, because of the fact that rational and intuitive are made by the individuals within the same board or organization, lack of information and knowledge or skills to pass timely decision invite the support of other individuals from external with expertise or specialized

knowledge and skills required to make the best decision. Thus, we created the interaction term among rational, intuitive and dependent decision-making styles. As control variables, organizational size, organizational years, board size and location were included in the model to control the effect of decision-making styles on financial performance.

The results of analysis were done using a series of two hierarchical regression models to determine the effect when there is change in models shown in the tables below. In model 1, we include the independent variables (decision-making styles) and control variables to determine the effect on the financial performance of cooperative. In model 2, we included the interaction along the independent and control variables. According to the model 1, the results showed that decision-making styles (rational, intuitive, dependent, avoidant and spontaneous), and control variables (organizational size, organizational years, board size and location) explained 43.2% ( $R^2=43.2$ ) of the financial performance of cooperative with the remaining 56.8% being explained by other variables. Model 2 included the interaction terms between or among the decision-making styles with other variables and the model explained 44.1% ( $R^2=44.1$ ) of financial performance of cooperative with the remaining 55.9% being explained by other variables. Model 2 explained the analytical model better than model 1. The F values for all models were significant at  $p < 0.001$ . For instance, the F value for model 1 is 23.9 and  $p < 0.001$ . The F values for Model 2 is 20.1 with  $p < 0.001$  respectively.

Since the results of Shapiro-Wilk from the test of normality was less than 0.05 or significant at  $p < 0.001$ , the use of null hypotheses were rejected, meaning that independent, the interaction terms and control variables expected to have significant relationship with the financial performance of cooperatives. Thus, the regression model was robust enough to explain the relationship between the explanatory and dependent variable. In order to test the hypotheses, we conducted hierarchical regression analysis. In the analysis, in the model 1, we entered only the main independent effects and control variables. In model 2, we added interaction terms with other variables.

The analysis of the significance of decision-making styles and the interaction terms on financial performance showed statistically significant results only for rational decision-making style. The remaining decision-making styles, interaction terms and control variables found to have statistically non-significant effect on financial performance of cooperative. Regression equation estimation model of decision-making styles, interaction terms and control variables on market performance are presented for each model during analysis. The results of our analysis show different level of relationship among the predictor variables with the way heterogeneous boards approach the styles of decision making that increase the return on assets, return on sales and return on equity their cooperative to ensure the financial performance of their cooperative. First, the findings of this study provide strong evidence of the importance of understanding decision-making styles in predicting their effect on the financial performance of cooperative.

In **Model 1**, the regression analysis found a negative and statistically significant relationship between rational decision-making style and financial performance ( $\beta=0.68$ ,  $p=0.000$ ). The results from the same model suggest that there is a negative and statistically non-significant relationship between intuitive decision-making styles and financial performance ( $\beta=-0.12$ ,  $p=0.138$ ). Regarding dependent decision-making style, the results showed that it has positive and statistically non-significant relationship with financial performance ( $\beta=0.08$ ,  $p=0.484$ ). Similarly, the results also found positive and statistically non-significant relationship between avoidant decision-making style and financial performance ( $\beta=0.05$ ,  $p=0.475$ ) of cooperative. However, results under the same

model found that spontaneous decision-making style has negative and statistically non-significant relationship with the market performance ( $\beta=-0.05$ ,  $p=0.569$ ) of cooperative.

In terms of control variables, the results showed that organizational size has positive and statistically non-significant effect on financial performance ( $\beta=0.01$ ,  $p=0.784$ ) of cooperative. Similarly, organizational years also found to have positive and non-significant effect ( $\beta=0.01$ ,  $p=0.159$ ). In contrast, the results found board size to have negative and non-significant effect on financial performance ( $\beta=-0.01$ ,  $p=0.878$ ). However, location found to have positive and non-significant effect ( $\beta=-0.05$ ,  $p=0.595$ ) on financial performance of cooperative. The analytical model applied to test the hypotheses in model 1 is presented as follow:

$$\text{“Financial Performance} = \beta_0 + \beta_1 \text{RDMS} + \beta_2 \text{IDMS} + \beta_3 \text{DDMS} + \beta_4 \text{ADMS} + \beta_5 \text{SDMS} + \beta_6 \log\_OrganSize + \beta_7 \log\_OrganYears + \beta_8 \log\_Board Size} + \beta_9 \text{Location (Dummy)} + \varepsilon \dots \text{ (Model-1)”}$$

Regarding the results in **Model 2**, we added the interaction term between/among the decision-making styles together with other variables to predict the effect on financial performance of cooperative. Although the results showed similar significant levels as in the model 1 for the decision-making styles, there are variations in their coefficients. The results in model 2 showed that a positive and statistically significant relationship between rational decision-making style and market performance ( $\beta=0.61$ ,  $p=0.000$ ) has been found. The results from the same model suggest that there is a negative and statistically non-significant relationship between intuitive decision-making styles and financial performance ( $\beta=-0.11$ ,  $p=0.185$ ). Regarding dependent decision-making style, the results showed that there is positive and statistically non-significant relationship with market performance ( $\beta=0.06$ ,  $p=0.463$ ). Similarly, the results also found positive and statistically non-significant relationship between avoidant decision-making style and market performance ( $\beta=0.06$ ,  $p=0.398$ ) of cooperative. However, results under the same model found that spontaneous decision-making style has negative and statistically non-significant relationship with the market performance ( $\beta=-0.04$ ,  $p=0.683$ ) of cooperative.

In terms of control variables, the results showed that organizational size has positive and statistically non-significant effect on market performance ( $\beta=0.01$ ,  $p=0.703$ ) of cooperative. Similarly, organizational years also found to have positive and non-significant effect ( $\beta=0.02$ ,  $p=0.192$ ). In contrast, the results found board size to have negative and non-significant effect on market performance ( $\beta=-0.01$ ,  $p=0.985$ ). However, location found to have positive and non-significant effect ( $\beta=0.06$ ,  $p=0.570$ ) on market performance of cooperative. The analytical model applied to test the hypotheses in model 2 is presented below and followed by the tables of the regression results.

$$\text{“Financial Performance} = \beta_0 + \beta_1 \text{RDMS} + \beta_2 \text{IDMS} + \beta_3 \text{DDMS} + \beta_4 \text{ADMS} + \beta_5 \text{SDMS} + \beta_6 \text{RDMS} * \text{IDMS} + \beta_7 \text{RDMS} * \text{IDMS} * \text{DDMS} + \beta_8 \log\_OrganSize + \beta_9 \log\_OrganYears + \beta_{10} \log\_Board Size} + \beta_{11} \text{Location (Dummy)} + \varepsilon \dots \text{ (Model-2)”}$$

Table 5.14: Decision-Making Styles and Financial Performance Model Summary

| <b>Model Summary<sup>c</sup></b> |                   |          |                   |                            |                   |          |     |     |               |
|----------------------------------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
| Model                            | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     |               |
|                                  |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 | Sig. F Change |
| 1                                | .657 <sup>a</sup> | .432     | .414              | .633                       | .432              | 23.892   | 9   | 283 | .000          |
| 2                                | .664 <sup>b</sup> | .441     | .419              | .630                       | .009              | 2.259    | 2   | 281 | .106          |

a. Predictors: (Constant), RDMS, IDMS, DDMS, ADMS, SDMS, OrganSize, OrganYears, Board Size, Location.

b. Predictors: (Constant), RDMS, IDMS, DDMS, ADMS, SDMS, RDMS\*IDMS, RDMS\*IDMS\*DDMS, OrganSize, OrganYears, Board Size, Location.

c. Dependent Variable: Financial Performance

Source: Field Data (2022)

Table 5.15: Decision-Making Styles and Financial Performance ANOVA

| <b>ANOVA<sup>a</sup></b> |            |                |     |             |        |                   |
|--------------------------|------------|----------------|-----|-------------|--------|-------------------|
| Model                    |            | Sum of Squares | df  | Mean Square | F      | Sig.              |
| 1                        | Regression | 86.119         | 9   | 9.569       | 23.892 | .000 <sup>b</sup> |
|                          | Residual   | 113.342        | 283 | .401        |        |                   |
|                          | Total      | 199.461        | 292 |             |        |                   |
| 2                        | Regression | 87.912         | 11  | 7.992       | 20.132 | .000 <sup>c</sup> |
|                          | Residual   | 111.549        | 281 | .397        |        |                   |
|                          | Total      | 199.461        | 292 |             |        |                   |

a. Dependent Variable: Financial Performance

b. Predictors: (Constant), RDMS, IDMS, DDMS, ADMS, SDMS, OrganSize, OrganYears, Board Size, Location.

c. Predictors: (Constant), RDMS, IDMS, DDMS, ADMS, SDMS, RDMS\*IDMS, RDMS\*IDMS\*DDMS, OrganSize, OrganYears, Board Size, Location.

Source: Field Data (2022)

Table 5.16: Regression Results of Decision-Making Styles and Financial Performance

| Variables                        | Financial Performance |                   |
|----------------------------------|-----------------------|-------------------|
|                                  | Model 1               | Model 2           |
| (Intercept)                      | 1.42***<br>(0.28)     | 1.84***<br>(0.34) |
| Rational DMS                     | 0.68***<br>(0.07)     | 0.61***<br>(0.08) |
| Intuitive DMS                    | -0.12<br>(0.08)       | -0.11<br>(0.08)   |
| Dependent DMS                    | 0.08<br>(0.11)        | 0.06<br>(0.11)    |
| Avoidant DMS                     | 0.05<br>(0.08)        | 0.06<br>(0.07)    |
| Spontaneous DMS                  | -0.05<br>(0.08)       | -0.04<br>(0.08)   |
| Rational DMS*Intuitive DMS       |                       | 0.04<br>(0.07)    |
| Rational*Intuitive*Dependent DMS |                       | -0.06<br>(0.04)   |
| Organizational Size              | 0.01<br>(0.01)        | 0.01<br>(0.00)    |
| Organizational Years             | 0.01<br>(0.02)        | 0.02<br>(0.01)    |
| Board Size                       | -0.01<br>(0.04)       | -0.01<br>(0.04)   |
| Location                         | 0.05<br>(0.10)        | 0.06<br>(0.05)    |
| R <sup>2</sup>                   | 0.432                 | 0.441             |
| Adjusted R <sup>2</sup>          | 0.414                 | 0.419             |
| F-value                          | 23.9***               | 20.1***           |
| df                               | 9, 283                | 11, 281           |
| Number of obs.                   | 293                   | 293               |

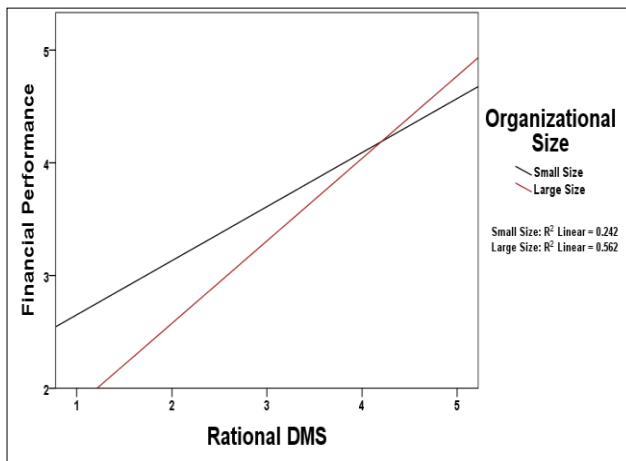
\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$

Source: Field Data (2022)

In order to understand the effect of decision-making styles on the financial performance of cooperative in the context of organizational characteristics such as organizational size, organizational years, board size and location, we use the same graphical interaction to explain the cooperative organizational contextual factors presented under each analytical results of the regression. According to the analytical results regarding rational decision-making style and financial performance in the context of organizational size, it was found that the positive effect of rational decision-making style on financial performance of cooperative is stronger in large organizational size ( $R^2=56.2\%$ ) than in small organizational size ( $R^2=24.2\%$ ) of the cooperative. In terms of organizational years, the results found that rational decision-making style has stronger influence on financial performance of cooperative in older cooperative ( $R^2=50.2\%$ ) than in younger

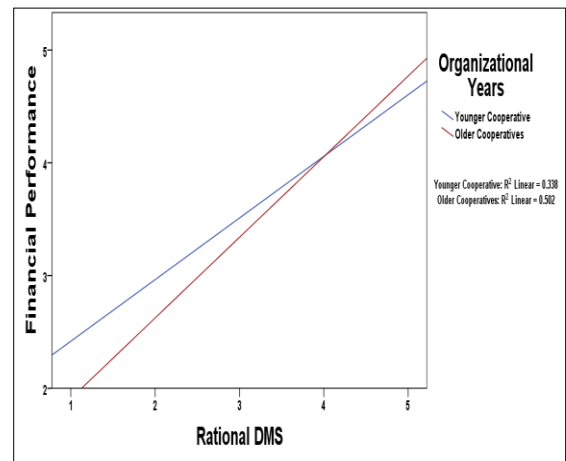
cooperative ( $R^2=33.8\%$ ) respectively. Regarding board size, rational decision-making style found to have stronger influence on financial performance of cooperative in large board size ( $R^2=50.2\%$ ) as in large board size ( $R^2=20.5\%$ ) respectively. Concerning location, the study found that rational decision-making style has stronger effect on the financial performance of cooperative in the nearby ( $R^2=21.6\%$ ) than in the cooperative far away ( $R^2=17.3\%$ ) respectively. The higher percent of  $R^2$  in positive results showed good sign for predictive models on how rational decision-making style predict the financial performance of cooperatives in terms of different organizational context. The graphical results of the study are presented in the figures below.

**Figure 5.54: Effect of RDMS on Financial Performance in the Context of Organizational Size**



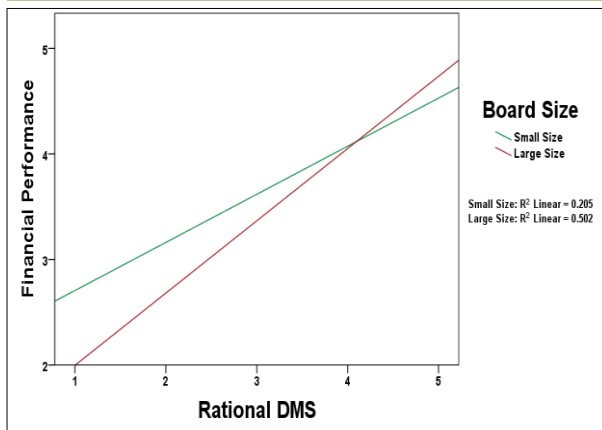
Source: Field Data (2022)

**Figure 5.55: Effect of RDMS on Financial Performance in the Context of Organizational Years**



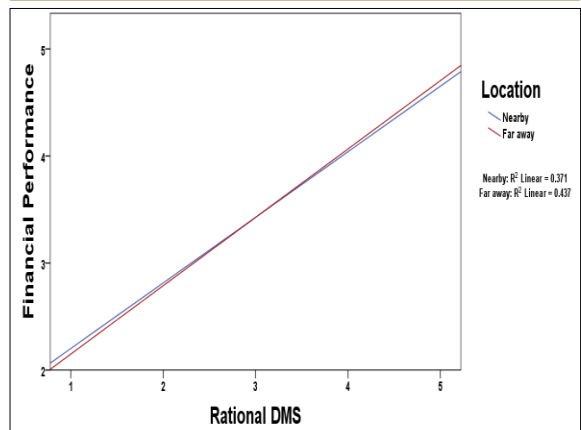
Source: Field Data (2022)

**Figure 5.56: Effect of RDMS on Financial Performance in the Context of Board Size**



Source: Field Data (2022)

**Figure 5.57: Effect of RDMS on Financial Performance in the Context of Location**



Source: Field Data (2022)

#### 5.7.3.4. Discussion of Results

This section covers discussion parts of the results regarding the relations and effect of decision-making styles on organizational performance (measured using efficiency, market performance and financial performance) of consumer cooperative studied in Ethiopia. In order to understand the effect of decision-making styles on the performance of consumer cooperative under study, the data were analyzed using the hierarchical regression that shows by adding one or more predictor variables to the existing regression equation, the explanation of the variance of the analysis criteria is significantly increased (De Toni et al., 2021; Osborne, 2001), checking for the presence of a dependent variable, the independent variable(s) and a third variable seen as the control. Thus, a moderating effect exists when the effect of the independent variable on the dependent variable differs according to the control variable (Jaccard et al., 1990; Turrisi et al., 2010).

The results of hierarchical regression analysis of the outcomes of organizational performance (efficiency, market performance and financial performance) including the prediction of managerial boards' perception of decision-making styles (rational, intuitive, dependent, avoidant and spontaneous) together with control variable (organizational size, organizational years, board size and location) were discussed in this section. The regression models have identified strong associations between key decision-making styles and performance indicators selected in the context of the consumer cooperative investigated.

Regarding the effect of decision-making styles on the efficiency, we included only five main independent variables and four control variables in **model 1** to predict the relation and significant influence on the efficiency of the consumer cooperative. As stated in the Ethiopian cooperative society proclamation no.985/2016 that cooperative established by individual members who pool their resources and run business to stabilize the market through providing products and services at affordable prices to their members, measured using board members' perception on how the quantity and quality of products and services provided substantially improved, efficient use of allocated budget, improved efficiency of operating and cost of general management activities and substantially reduced cost of interacting and coordinating activities with suppliers, customers and business partners.

According to model 1, the analytical results of the regression showed that rational decision-making style has positive and statistically significant effect ( $\beta=0.29$ ,  $p<0.001$ ) on the efficiency of cooperative studied. The results in a same model also revealed that intuitive decision-making style has positive and statistically significant effect ( $\beta=0.64$ ,  $p<0.001$ ) on the efficiency of cooperative. Similarly, dependent decision-making style found to have positive and significant effect ( $\beta=0.25$ ,  $p<0.001$ ) on efficiency. Furthermore, the results also found that avoidant decision-making style has positive and statistically significant effect ( $\beta=0.08$ ,  $p<0.05$ ) on efficiency. However, spontaneous decision-making style found to have negative and statistically significant effect ( $\beta=-0.15$ ,  $p<0.001$ ) on the efficiency of cooperative studied from Ethiopia.

In terms of control variables, the results showed that organizational size that measured using the number of individuals belongs to the cooperative found to have a negative and statistically non-significant effect ( $\beta=-0.01$ ,  $p>0.05$ ) on efficiency of cooperative. Similarly, organizational years that measured by the number of years since cooperative established and registered as legal entity found to have negative and non-significant effect ( $\beta=-0.01$ ,  $p>0.05$ ). In contrast, the results found board size which measured using individuals or people who elected to represent board to have

positive and non-significant effect on efficiency ( $\beta=0.01$ ,  $p>0.05$ ). Moreover, location measured using the distance between cooperative and the decision-makers or board members found to have positive and non-significant effect ( $\beta=0.04$ ,  $p=0.501$ ) on the efficiency of cooperative.

In **model 2** of the same table, we added the interaction between/among decision-making styles to determine if they could influence the efficiency of cooperative. Due to the fact that managerial board applied different decision-making styles simultaneously using various information, knowledge, skills and experience to improve the quality of decision, we first created the interaction term between rational and intuitive decision-making styles. Then, since both rational and intuitive decision-making styles are made by individuals or people within the same board or organization, when there is limited information, knowledge, skills and experience to make a certain decision that increase the efficiency of cooperative, they seek assistance or advice from the external individuals or organizations such as cooperative promotion agency and regional trade and industry bureau. Then, we created interaction between dependent decision-making style with rational and intuitive decision-making styles to see the effect on efficiency of cooperative. According to the analytical results of the regression on the effect of decision-making styles on efficiency of cooperative, the results found that all decision-making styles have significant effect on efficiency. For instance, the results in model 2 found a positive and statistically significant effect of rational decision-making style ( $\beta=0.34$ ,  $p<0.001$ ), intuitive decision-making style ( $\beta=0.57$ ,  $p<0.001$ ), dependent decision-making style ( $\beta=0.32$ ,  $p<0.001$ ) and avoidant decision-making style ( $\beta=0.08$ ,  $p<0.05$ ) on the efficiency of cooperative respectively. In contrast, spontaneous decision-making style found to have negative and statistically significant effect ( $\beta=-0.11$ ,  $p<0.01$ ) on efficiency.

Regarding the interaction between rational and intuitive decision-making styles, the results found a negative and statistically significant effect ( $\beta=-0.26$ ,  $p<0.001$ ) on the efficiency of cooperative. Surprisingly, the interaction among dependent decision-making styles with rational and intuitive decision-making styles turned out to have positive and statistically significant effect on ( $\beta=0.14$ ,  $p<0.001$ ) on the efficiency of cooperative respectively.

In terms of control variables, the analytical results found non-significant effect for all control variables on the efficiency of cooperative with different level of relationship. For example, organizational size found to have negative and statistically non-significant effect ( $\beta=-0.01$ ,  $p>0.05$ ). Similarly, the results also found that organizational years has negative and statistically non-significant effect ( $\beta=-0.02$ ,  $p>0.05$ ) on the efficiency of cooperative. Furthermore, board size found to have negative and statistically non-significant effect ( $\beta=-0.01$ ,  $p>0.05$ ) on efficiency. In contrary, the results showed that location has positive and statistically non-significant effect ( $\beta=0.03$ ,  $p>0.05$ ) on the efficiency respectively.

The positive and significant results of decision-making styles indicate that heterogeneous boards in cooperative studied from Ethiopia possessed diverse knowledge, skills, experiences and information that improve the quality of decision processed to enhance the performance of their respected cooperative (Williams & O'Reilly, 1998). For instance, in terms of positive significant effect of rational decision-making style and efficiency, the finding indicates that heterogeneous boards of cooperative logically and systematically explore the information sources for decision-making that required careful thought, consideration of various options and double checking the information sources before final decision that improve quantity and quality of products and services provided, efficient use of allocated budget, reduced operating cost of general management as well as cost of

interacting and coordinating activities with suppliers, customers and business partners (Pollanen et al., 2017; Cavalluzzo & Ittner, 2004; Wu et al., 2003). They could be done by identifying the types of products that demanded by the members or customers and analyze the sources of the product including prices, quantity and quality and then compare them with others sources based on the information on hands. The positive significant result on efficiency as performance indicator of this study is in line with the previous findings of Ward (2016) and Gambetti & Giusberti (2019); Rehman et al. (2012) and Riaz (2015).

The positive significant influence of intuitive decision-making style implies that heterogeneous boards in cooperative have adequate experiences that allowed them to rely upon one's own personal instinct, intuition and inner feelings on what feels right to make the final decision (Scott & Bruce, 1995; Curşeu & Schruijer, 2012). In this case managerial board of the cooperative studied found to use their prior experiences and the network that have to make decision that improves the efficiency of their cooperatives. For example, in 2021 when the inflation were so high, they collaborated with local government to use economy of scales for bulk purchase that minimize their costs of purchasing products which allow members purchasing capacity to remain high within their respected cooperative. This empirical results of study supported by the prior works of Ward (2016), Riaz (2015) and Rehman et al. (2012). Reflecting on the positive significant influence of dependent decision-making style on the efficiency of cooperative entails that heterogeneous boards in cooperative possessed diverse cognitive resources that make them able to seek assistance or advice of others when make important decision (Scott & Bruce., 1995; Spicer & Sadler-Smith., 2005) when they lack enough information and knowledge related to decision in hand. In the context where cooperative need assistant to make decision, they use the opportunity given to them by the government to get all the support like given priority as organization that also serving the nearby community through affordable prices resulted from tax exemptions. Our empirical finding is supported by the previous studies of Gambetti & Giusberti (2019), Ward (2016) and Riaz (2015).

Regarding the positive significant influence of avoidant decision-making style on the efficiency of cooperative indicates that heterogeneous boards in cooperative were in a position to avoid making decision that has less importance or if not considered to have immediate needs (Scott & Bruce., 1995; Spicer & Sadler-Smith., 2005) based on purpose and function of the context of their cooperative. Since cooperative decision making structure designed based on the approval of the general assembly or laws allowed the passing of decision in the presence of two-third of the decision-makers. This finding contradicted with the pervious findings of Gambetti & Giusberti (2019), Ward (2016), Riaz (2015), Rehman et al. (2012) and Russ et al. (1996) since most their studies conducted on business with different organization structure.

In terms of spontaneous decision-making style and efficiency, the negative results reflects that heterogeneous board of cooperative were not efficient in making a snap, quick or impulsive decision on the spur of the moment when it seems natural at the moment (Scott & Bruce, 1995; Verma & Rangnekar., 2015; Curşeu & Schruijer, 2012). One of the reasons is that cooperatives received imported consumer product from the government independent of boards' control. Another reason is that except for special resolution, the decision has to pass through meeting that must be attained by the 50+1 or two third of the general board members. Furthermore, individual members of the board live in different operating areas where their affiliated primary cooperative were established that challenged them to make timely decision. The result is in line with the findings of

Ward (2016) and Russ et al. (1996) but contradicted with the findings of Riaz (2015) and Rehman et al. (2012).

Reflecting on the negative and significant influence of the interaction between rational and intuitive decision-making styles on efficiency, the results implies that heterogeneous board of cooperative follow series of procedures regarding the information and their sources. Evaluating and making decision has to be done through rational way that engaged bulk alternatives to analyze the information that dissatisfied older board members who relied more on their experiences. However, rationality always needs information regarding the alternatives to be made. In time when there is no prior knowledge and the changing environment of the market, prior experiences used should be applied to increase the accessibility of linkage through intuitive decision techniques. Thus, the use of combined rational and intuitive by individuals with various opinions and heterogeneity directly or indirectly lead to disagreement and conflict of that further harm the efficiency of cooperatives. Then people grouped themselves along their interest of that negatively impact the efficiency of cooperatives that supported by the similarity-attraction theory (Dorm Byrne et al., 1971).

However, the positive effect of interacting dependent with rational and intuitive decision-making styles show that when there is lack of enough information, knowledge, skills and experience to make decision, seeking assistance or advice from external individuals or organization with specific expertise or specialization that required for the decision increase the efficiency of cooperative. Thus, the overall findings of positive and significant influences of various decision-making styles on the efficiency of cooperative supported the underpinning theories of cognitive resource diversity (Cox & Blake, 1991; Hambrick et al., 1996) and information decision-making (Cox & Blake, 1991; Williams & O'Reilly, 1998) that porposed heterogeneous board to have diverse cognitive resources such as knoeldge, skills, experiences and information that could enhance the quality of decision and performance of team or organization. Thus, the overall findings of positive and significant influences of various decision-making styles on the efficiency of cooperative supported the underpinning theories of cognitive resource diversity (Cox & Blake, 1991; Hambrick et al., 1996) and information decision-making (Cox & Blake, 1991; Williams & O'Reilly, 1998). However, the findings of negative effect on the efficieny could interpreted based on theories of similarity-attraction theory or paradigm (Dorm Byrne et al., 1971) and social categorization theory (Tajfel, 1981; Williams & O'Reilly, 1998).

Regarding the effect of decision-making styles on the market performance, we included only five main independent variables and four control variables in model 1 to predict the relation and significant influence on market performance of the consumer cooperative. As mentioned above according to the Ethiopian cooperative society proclamation no.985/2016 that stated cooperative established by individual members who pool their resources and run business to stabilized the market through providing products and services at affordable prices to their members, measured using board members' perception on how sales volume of products of cooperative increased to satisfy members' needs, increased market share of the products and increased number of existing member customers that cooperative is able to retain.

According to model 1, the analytical results of the regression showed that rational decision-making style has negative and statistically significant effect ( $\beta=-0.19$ ,  $p<0.01$ ) on market performance of cooperative studied. But, the results in a same model also revealed that intuitive decision-making style has positive and statistically non-significant effect ( $\beta=0.14$ ,  $p>0.05$ ) on the market

performance of cooperative. However, dependent decision-making style found to have positive and statistically significant effect ( $\beta=0.23$ ,  $p<0.05$ ) on market performance. Similarly, the results also found that avoidant decision-making style has positive and statistically significant effect ( $\beta=0.16$ ,  $p<0.05$ ) on market performance. Furthermore, spontaneous decision-making style found to have negative and statistically significant effect ( $\beta=0.63$ ,  $p<0.001$ ) on the market performance of cooperative studied from Ethiopia.

In terms of control variables, the results showed that organizational size that measured using the number of individuals belongs to the cooperative found to have a positive and statistically non-significant effect ( $\beta=0.01$ ,  $p>0.05$ ) on market performance of cooperative. Similarly, organizational years that measured by the number of years since cooperative established and registered as legal entity found to have positive and non-significant effect ( $\beta=0.01$ ,  $p>0.05$ ) on market performance of cooperative. In contrast, the results found board size which measured using individuals or people who elected to represent board to have negative and statistically non-significant effect ( $\beta=-0.04$ ,  $p>0.05$ ) on market performance. Moreover, location that measured using the distance between cooperative and the decision-makers or board members found to have negative and non-significant effect ( $\beta=-0.07$ ,  $p>0.05$ ) on market performance of the cooperative studied respectively.

In **model 2** of the same table, we added the interaction between/among decision-making styles to determine if they could influence the market performance of cooperative. Due to the fact that managerial board applied different decision-making styles simultaneously using various information, knowledge, skills and experience to improve the quality of decision, we first created the interaction term between rational and intuitive decision-making styles. Then, since both rational and intuitive decision-making styles are made by individuals or people within the same board or organization, when there is limited information, knowledge, skills and experience to make a certain decision that improve the market performance of cooperative, they seek assistance or advice from the external individuals or organizations such as cooperative promotion agency and regional trade and industry bureau. Then, we created the interaction between dependent decision-making style with rational and intuitive decision-making styles to see the effect on market performance of cooperative. According to the analytical results of the regression on the effect of decision-making styles on market performance of cooperative, the results found that except for intuitive all decision-making styles have significant effect on market performance. For instance, the results in model 2 found a negative and statistically significant effect of rational decision-making style ( $\beta=-0.18$ ,  $p<0.05$ ) on market performance. However, in terms of intuitive decision-making style, the result showed positive but non-significant effect ( $\beta=0.05$ ,  $p>0.05$ ) on market performance of cooperative. In fact, the results found dependent decision-making style to have positive and statistically significant effect ( $\beta=0.28$ ,  $p<0.01$ ) market performance of cooperative. Similarly, the results also found avoidant decision-making style to have positive and statistically significant effect ( $\beta=0.16$ ,  $p<0.05$ ) on market performance. Furthermore, the results showed that spontaneous decision-making style has a positive and statistically significant effect ( $\beta=0.71$ ,  $p<0.001$ ) on market performance of cooperative studied.

Regarding the interaction between rational and intuitive decision-making styles, the results found a negative and statistically significant effect ( $\beta=-0.35$ ,  $p<0.001$ ) on market performance of cooperative. Surprisingly, the interaction among dependent decision-making styles with rational and intuitive decision-making styles turned out to have positive and statistically significant effect on ( $\beta=0.15$ ,  $p<0.001$ ) on the market performance of cooperative respectively.

In terms of control variables, the results showed that organizational size that measured using the number of individuals belongs to the cooperative found to have a positive and statistically non-significant effect ( $\beta=0.01$ ,  $p>0.05$ ) on market performance of cooperative. Similarly, organizational years that measured by the number of years since cooperative established and registered as legal entity found to have positive and non-significant effect ( $\beta=0.01$ ,  $p>0.05$ ) on market performance of cooperative. In contrast, the results found board size which measured by the number of individuals or people who elected to represent board to have negative and statistically non-significant effect ( $\beta=-0.03$ ,  $p>0.05$ ) on market performance. Moreover, location that measured using the distance between cooperative and the decision-makers or board members found to have negative and non-significant effect ( $\beta=-0.10$ ,  $p>0.05$ ) on market performance of the cooperative studied respectively.

The negative significant effect of rational decision-making style and market performance indicates that heterogeneous boards of cooperative might that diverse opinions and ideas that brings conflicts depends on the majority side of the decision-makers. Such conflicting of ideas and opinion of heterogeneous boards might affect decision that decrease sales volume of cooperative's products, market share of the products, profitability and number of customers that cooperatives are able to acquire and retained.

The positive and significant results of decision-making styles indicate that heterogeneous boards in cooperative possessed diverse knowledge, skills, experiences and information that improve the quality of decision processed to enhance the performance of their respected cooperative. For instance, the positive significant influence of dependent decision-making style on the market performance of cooperative entails that heterogeneous boards in cooperative possessed diverse cognitive resources that make them able to seek assistance or advice of others when make important decision when they lack enough information and knowledge related to decision in hand to increase sales volume of cooperative's products, market share of the products, profitability and number of customers that cooperatives are able to acquire and retained. Our empirical finding is supported by the previous studies of Gambetti & Giusberti (2019), Ward (2016) and Riaz (2015).

Regarding the positive significant influence of avoidant decision-making style on the market performance of cooperative indicates that heterogeneous boards in cooperative were in a position to avoid making decision that has less importance or if not considered to have immediate needs based on purpose and function of the context of their cooperative. Since cooperative decision making structure designed based on the approval of the general assembly or laws allowed the passing of decision in the presence of two-third of the decision-makers. This finding contradicted with the pervious findings of Gambetti & Giusberti (2019), Ward (2016), Riaz (2015), Rehman et al. (2012) and Russ et al. (1996) since most their studies conducted on business with different organization structure.

In terms of spontaneous decision-making style and efficiency, the positive results reflects that heterogeneous board of cooperative have capacity to make a snap, quick or impulsive decision on the spur of the moment when it seems natural at the moment. One of the reasons is that cooperatives received large volumes of consumer product from the government at any time independent of boards' control. The result is in line with the findings of Riaz (2015) and Rehman et al. (2012) but contradicted with the findings of Ward (2016) and Russ et al. (1996).

In contrast, the negative significant effect of rational decision-making style and market performance indicates that heterogeneous boards of cooperative might that diverse opinions and ideas that brings conflicts depends on the majority side of the decision-makers. Such conflicting of ideas and opinion of heterogeneous boards might affect decision that decrease sales volume of cooperative's products, market share of the products, profitability and number of customers that cooperatives are able to acquire and retained.

Thus, the overall findings of positive and significant influences of various decision-making styles on market performance of cooperative supported the underpinning theories of cognitive resource diversity (Cox & Blake, 1991; Hambrick et al., 1996) and information decision-making (Cox & Blake, 1991; Williams & O'Reilly, 1998) that proposed heterogeneous board to have diverse cognitive resources such as knowledge, skills, experiences and information that could enhance the quality of decision and market performance of cooperative organization. However, the findings of negative effect on the efficiency could be interpreted based on theories of similarity-attraction theory or paradigm (Dorm Byrne et al., 1971) and social categorization theory (Tajfel, 1981; Williams & O'Reilly, 1998).

Regarding the effect of decision-making styles on the financial performance, we included only five main independent variables and four control variables in model 1 to predict the relation and significant influence on financial performance of the consumer cooperative. As mentioned above according to the Ethiopian cooperative society proclamation no.985/2016 that stated cooperative established by individual members who pool their resources and run business to stabilize the market through providing products and services at affordable prices to their members, cooperatives required better finance to perform well to maintain their sustainability and better financial performance. The financial performance measured using board members' perception on how cooperative could increase their return on assets, return on sales and return on equity respectively.

According to model 1, the analytical results of the regression showed that rational decision-making style has positive and statistically significant effect ( $\beta=0.68$ ,  $p<0.001$ ) on financial performance of cooperative studied. But, the results in a same model revealed that intuitive decision-making style has negative and statistically non-significant effect ( $\beta=-0.12$ ,  $p>0.05$ ) on the financial performance of cooperative. However, dependent decision-making style found to have positive and statistically non-significant effect ( $\beta=0.08$ ,  $p>0.05$ ) on financial performance. Similarly, the results also found that avoidant decision-making style has positive and statistically non-significant effect ( $\beta=0.05$ ,  $p>0.05$ ) on financial performance. In contrast, spontaneous decision-making style found to have negative and statistically non-significant effect ( $\beta=-0.05$ ,  $p>0.05$ ) on financial performance of cooperative studied from Ethiopia.

In terms of control variables, the results showed that organizational size that measured using the number of individuals belongs to the cooperative found to have a positive and statistically non-significant effect ( $\beta=0.01$ ,  $p>0.05$ ) on financial performance of cooperative. Similarly, organizational years that measured by the number of years since cooperative established and registered as legal entity found to have positive and non-significant effect ( $\beta=0.01$ ,  $p>0.05$ ) on financial performance of cooperative. In contrast, the results found board size which measured using individuals or people who elected to represent board to have negative and statistically non-significant effect ( $\beta=-0.01$ ,  $p>0.05$ ) on financial performance. But, location that measured using the distance between cooperative and the decision-makers or board members found to have negative

and non-significant effect ( $\beta=0.05$ ,  $p>0.05$ ) on financial performance of the cooperative studied respectively.

In **model 2** of the same table, we added the interaction between/among decision-making styles to determine if they could influence the financial performance of cooperative. Due to the fact that managerial board applied different decision-making styles simultaneously using various information, knowledge, skills and experience to improve the quality of decision, we first created the interaction term between rational and intuitive decision-making styles. Then, since both rational and intuitive decision-making styles are made by individuals or people within the same board or organization, when there is limited information, knowledge, skills and experience to make a certain decision that improve the financial performance of cooperative, they seek assistance or advice from the external individuals or organizations. Then, we created the interaction between dependent decision-making style with rational and intuitive decision-making styles to see the effect on financial performance of cooperative. According to the analytical results of the regression on the effect of decision-making styles on financial performance of cooperative, the results found that except for rational, all decision-making styles have non-significant effect on financial performance.

For instance, the results in model 2 found a positive and statistically significant effect of rational decision-making style ( $\beta=0.61$ ,  $p<0.001$ ) on market performance. However, in terms of intuitive decision-making style, the result showed negative but non-significant effect ( $\beta=-0.11$ ,  $p>0.05$ ) on financial performance of cooperative. In fact, the results found dependent decision-making style to have positive and statistically non-significant effect ( $\beta=0.06$ ,  $p>0.05$ ) financial performance of cooperative. Similarly, the results also found avoidant decision-making style to have positive and statistically non-significant effect ( $\beta=0.06$ ,  $p>0.05$ ) on financial performance. In contrast, the results showed that spontaneous decision-making style has a negative and statistically non-significant effect ( $\beta=-0.04$ ,  $p>0.05$ ) on market performance of cooperative studied.

Regarding the interaction between rational and intuitive decision-making styles, the results found a positive and statistically non-significant effect ( $\beta=0.04$ ,  $p>0.05$ ) on financial performance of cooperative. On the contrary, the interaction among dependent decision-making styles with rational and intuitive decision-making styles turned out to have negative but statistically non-significant effect on ( $\beta=0.15$ ,  $p<0.001$ ) on financial performance of cooperative respectively.

In terms of control variables, the results showed that organizational size that measured using the number of individuals belongs to the cooperative found to have a positive and statistically non-significant effect ( $\beta=0.01$ ,  $p>0.05$ ) on financial performance of cooperative. Similarly, organizational years that measured by the number of years since cooperative established and registered as legal entity found to have positive and non-significant effect ( $\beta=0.02$ ,  $p>0.05$ ) on financial performance of cooperative. In contrast, the results found board size which measured by the number of individuals or people who elected to represent board to have negative and statistically non-significant effect ( $\beta=-0.01$ ,  $p>0.05$ ) on financial performance. In contrast, location that measured using the distance between cooperative and the decision-makers or board members found to have positive and non-significant effect ( $\beta=0.06$ ,  $p>0.05$ ) on financial performance of the cooperative studied respectively.

The positive and significant results of rational decision-making style on financial performance of cooperative indicate that heterogeneous boards in cooperative possessed diverse knowledge, skills,

experiences and information that enhance the financial performance of their respected cooperative. For instance, the finding indicates that heterogeneous boards of cooperative logically and systematically explore the information sources for decision-making and carefully consider the various options and double check the information sources before final decision that increase the return on asset, return on sales and return on equity of the cooperatives. The positive significant result on financial performance of this study is in line with the previous findings of Ward (2016) and Gambetti & Giusberti (2019); Rehman et al. (2012) and Riaz (2015).

#### **5.7.3.5. Results of Hypothesis and Interpretations**

This section presents the results of tests carried out to determine the study's hypotheses. There were various hypotheses in this study that had different relationships among the various independent, intervening and dependent variables. Multiple linear regression analysis was used to carry out the tests of hypotheses. The hypotheses were tested at 95 percent confidence level ( $\alpha=0.05$ ) at which point a decision to confirm the hypothesis was made at values where  $p \leq 0.05$ . Results that yielded  $p$  values  $> 0.05$  led to rejection of hypotheses while, results with  $p \leq 0.05$  resulted in accepting the hypotheses. The objectives of the study were established to determine the relationship and influence of decision-making styles (rational, intuitive, dependent, avoidant and spontaneous) applied in cooperatives on the performance (efficiency, market performance and financial performance) of cooperative. A hierarchical multiple regression as a way that show if variables of interest can explain a statistically significant amount of variance in dependent variables after accounting for all other variables, was used due to the fact that several predictor variables could be entered in the first block, and then entered one or more variables in the second or other blocks.

In addition to the main independent variables, interaction terms between main predictors and control variable were included to independent variables in other model to check the direct influence on dependent variable. The results are presented in two models. First, the results of the predictors (independent variables) and control variable effects on the dependent variables are presented in model 1 alone. Then, the results of the interaction terms effect together with independent and control variables on the dependent variable are presented in Model 2. Based on the objective of the study, the hypotheses were first developed differently to establish and determine the influence of each decision-making style and control variables as independent variable on all performance measures (efficiency, market performance and financial performance) of cooperative as dependent variables. Then, we included the interaction terms with other variables in model to understand if they could determine the effect of decision-making styles on organizational performance.

Following the different hypotheses we have developed based on the objectives of the study, the first hypothesis (**H1a**) was hypothesized that: Rational decision-making style has positive and significant effect on the efficiency of cooperative. The results of this study provided positive and statistically significant support on the linkage between rational decision-making style and the efficiency ( $\beta=0.34$ ,  $t=9.56$ ,  $p<0.001$ ) of consumer cooperative in Ethiopia. Hypothesis (**H2a**) proposed that: Rational decision-making style has positive and significant effect on the market performance of cooperative. The results found that rational decision-making style has negative and statistically significant effect on the market performance ( $\beta=-0.18$ ,  $t=-2.57$ ,  $p<0.05$ ). Hypothesis (**H3a**) developed as: Rational decision-making style has positive and significant effect on the financial performance of cooperative. The study findings confirm that rational decision-making style has positive and significantly influence on the financial performance ( $\beta=0.61$ ,  $t=9.33$ ,

$p < 0.001$ ) of cooperative. Thus, empirical findings of our study supported hypotheses **H1a** and **H1c** but failed to support **H1b**.

Regarding the relationship between intuitive decision-making style and performance measures (**H1b**) was hypothesized that: The use of intuitive decision-making style has positive and significant influence on the efficiency of cooperative. The results of this study provided positive and statistically significant support on the linkage between intuitive decision-making style and the efficiency ( $\beta = 0.57$ ,  $t = 16.01$ ,  $p < 0.001$ ) of consumer cooperative in Ethiopia. Hypothesis (**H2b**) proposed that: The use of intuitive decision-making style has positive and significant influence on the market performance of cooperative. The results found that intuitive decision-making style has positive and statistically non-significant effect on market performance ( $\beta = 0.05$ ,  $t = 0.63$ ,  $p > 0.05$ ). Hypothesis (**H3b**) developed as: The use of intuitive decision-making style has positive and significant influence on the financial performance of cooperative. The study findings revealed that intuitive decision-making style has negative and non-significant influence on financial performance ( $\beta = -0.11$ ,  $t = -1.33$ ,  $p > 0.05$ ) of cooperative. Based on the analytical results, our empirical findings show support only to hypothesis **H1b**. However, the result failed to support hypotheses **H2b** and **H3b**.

In terms of the relationship between dependent decision-making style and performance indicators, (**H1c**) was hypothesized that: The use of dependent decision-making style has positive and significant influence on the efficiency of cooperative. The results of this study provided positive and statistically significant support on the linkage between dependent decision-making style and the efficiency ( $\beta = 0.32$ ,  $t = 6.66$ ,  $p < 0.001$ ) of consumer cooperative in Ethiopia. Hypothesis (**H2c**) proposed that: The use of dependent decision-making style has positive and significant influence on the market performance of cooperative. The results found that dependent decision-making style has positive and statistically significant effect on market performance ( $\beta = 0.28$ ,  $t = 2.84$ ,  $p < 0.01$ ). Hypothesis (**H3c**) developed as: The use of dependent decision-making style has negative and significant influence on the financial performance of cooperative. The study findings revealed positive and non-significant influence of dependent decision-making style on financial performance ( $\beta = 0.06$ ,  $t = 0.70$ ,  $p > 0.05$ ) of consumer cooperative. The analytical results of our study confirm that hypotheses **H1c** and **H2c** were supported. But, the result failed to support **H3c**.

Concerning the relations and influence of avoidant decision-making style on performance measures, (**H1d**) was hypothesized that: The use of avoidant decision-making style has negative and significant influence on the efficiency of cooperative. The results of this study provided positive and statistically significant effect of avoidant decision-making style and the efficiency ( $\beta = 0.08$ ,  $t = 2.42$ ,  $p < 0.05$ ) of consumer cooperative in Ethiopia. Hypothesis (**H2d**) proposed that: The use of avoidant decision-making style has negative and significant influence on the market performance of cooperative. Similarly, the results found that avoidant decision-making style has positive and statistically significant effect on market performance ( $\beta = 0.16$ ,  $t = 2.47$ ,  $p < 0.05$ ). Hypothesis (**H3d**) developed as: The use of avoidant decision-making style has negative and significant influence on financial performance of cooperative. The study findings also found positive and non-significant influence of avoidant decision-making style on financial performance ( $\beta = 0.06$ ,  $t = 0.85$ ,  $p > 0.05$ ) of cooperative. The analytical results of our study failed to support all the hypotheses **H1d**, **H2d** and **H3d** respectively.

Regarding the relationship between spontaneous decision-making style and performance indicators, **(H1e)** was hypothesized that: Spontaneous decision-making style has negative and significant influence on the efficiency of cooperative. The results of this study provided negative and statistically significant effect of the spontaneous decision-making style on the efficiency ( $\beta=-0.11$ ,  $t=-2.87$ ,  $p<0.001$ ) of consumer cooperative in Ethiopia. Hypothesis **(H2e)** proposed that: Spontaneous decision-making style has positive and significant influence on the market performance of cooperative. The results found that spontaneous decision-making style has positive and statistically significant effect ( $\beta=0.71$ ,  $t=9.51$ ,  $p<0.001$ ) on market performance. Hypothesis **(H3e)** developed as: Spontaneous decision-making style has negative and significant influence on the financial performance of cooperative. The study findings revealed that spontaneous decision-making style has negative and non-significant influence on financial performance ( $\beta=-0.04$ ,  $t=-0.41$ ,  $p>0.05$ ) of cooperative. Based on the analytical results, our empirical findings show support only to hypothesis **H1e**. However, the result failed to support **H2e** and **H3e**.

Although the use of some decision-making styles may be unlikely in certain contexts (Riaz, 2015), prior literature indicated that the effectiveness of these different decision-making styles would generally depend on the context and the type of decisions that need to be made (Rowe & Boulgarides, 1983; Scott & Bruce, 1995; Jamian et al., 2013). Our case study found that managerial board members of cooperative used different styles of decision regarding the issues in their cooperatives. This is because decision-making styles vary with regards to the quantity of information at the disposal of the decision-makers and the number of alternatives that present to put together and coordinate several sources of information (Tatum et al., 2003; Oyewobi et al., 2016). Since different styles of decision-making used together, we created the interaction terms among the main decision-making styles that mostly dominant among boards of cooperative under study. In this case, we interact rational with intuitive decision-making styles and the second interaction made among rational and intuitive with dependent decision-making styles. The reason we created interaction among three styles is because managerial board or decision-makers seek assistance or advice from other people or organization when the required products are processed or imported by the government and obtained through cooperative agency and trade bureau respectively. On the other hand, decision-makers seek assistance or advice from individuals with expertise when they need timely or current information about the market from suppliers.

Hypothesis **(H1f)** developed as: the interaction between rational and intuitive decision-making styles has negative and significant influence on the efficiency of cooperatives. Therefore, the result of the interaction between rational and intuitive decision-making styles found to have negative and statistically significant effect ( $\beta=-0.26$ ,  $t=-8.96$ ,  $p<0.001$ ) on efficiency. Similarly, Hypothesis **(H2f)** proposed as: the interaction between rational and intuitive decision-making styles has negative and significant influence on the market performance of cooperatives. The results found that the interaction between rational and intuitive decision-making styles has negative and statistically significant effect ( $\beta=-0.35$ ,  $t=-6.08$ ,  $p<0.001$ ) on market performance. Hypothesis **(H3f)** developed as: the interaction between rational and intuitive decision-making styles has negative and significant influence on the financial performance of cooperatives. The results found that the interaction between rational and intuitive decision-making styles has positive and statistically non-significant effect ( $\beta=0.04$ ,  $t=0.54$ ,  $p>0.05$ ) on financial performance of cooperative respectively. Based on the analytical results, our empirical findings show support to hypothesis **H1f** and **H2f**. However, the result failed to support **H3f**.

Hypothesis (**H1g**) developed as: the interaction among dependent with rational and intuitive decision-makings styles have positive and significant influence on the efficiency of cooperative. Thus, the result of the interaction among dependent with rational and intuitive decision-makings styles found to have positive and statistically significant effect ( $\beta=0.14$ ,  $t=8.12$ ,  $p<0.001$ ) on efficiency of the cooperative study. Similarly, Hypothesis (**H2g**) proposed as: the interaction among dependent with rational and intuitive decision-makings styles have positive and significant influence on the marketing performance of cooperative. The result of the interaction among dependent with rational and intuitive decision-makings styles found to have positive and statistically significant effect ( $\beta=0.15$ ,  $t=4.34$ ,  $p<0.001$ ) on market performance of cooperative. Hypothesis (**H3g**) proposed as: the interaction among dependent with rational and intuitive decision-makings styles have positive and significant influence on the financial performance of cooperative. The result of the interaction among dependent with rational and intuitive decision-makings styles found to have negative and statistically non-significant effect ( $\beta=-0.06$ ,  $t=-1.64$ ,  $p>0.05$ ) on financial performance of cooperative. Therefore, our empirical findings show support for both hypothesis **H1g** and **H2g**. However, the result failed to support **H3g**. Although there were some results that found statistically significant and hypothetically rejected, the reason is because it contradicted with our proposed hypotheses. A summary of hypothetical results were presented in the table below.

Table 5.17: Results of the Hypotheses and Interpretations

| No.    | Developed Hypothesis                      | Coefficient( $\beta$ ) | P-Value | Status          | Results       |
|--------|-------------------------------------------|------------------------|---------|-----------------|---------------|
| 1-H1a  | RDMS→ Efficiency (+)                      | 0.34                   | 0.000   | Significant     | Supported     |
| 2-H2a  | RDMS→ Market Performance (+)              | -0.18                  | 0.011   | Significant     | Not supported |
| 3-H3a  | RDMS→ Financial Performance (+)           | 0.61                   | 0.000   | Significant     | Supported     |
| 4-H1b  | IDMS→ Efficiency (+)                      | 0.57                   | 0.000   | Significant     | Supported     |
| 5-H2b  | IDMS→ Market Performance (+)              | 0.05                   | 0.526   | Non-significant | Not supported |
| 6-H3b  | IDMS→ Financial Performance (+)           | -0.11                  | 0.185   | Non-significant | Not supported |
| 7-H1c  | DDMS→ Efficiency (+)                      | 0.32                   | 0.000   | Significant     | Supported     |
| 8-H2c  | DDMS→ Market Performance (+)              | 0.28                   | 0.005   | Significant     | Supported     |
| 9-H3c  | DDMS→ Financial Performance (-)           | 0.06                   | 0.954   | Non-significant | Not Supported |
| 10-H1d | ADMS→ Efficiency (-)                      | 0.08                   | 0.016   | Significant     | Not supported |
| 11-H2d | ADMS→ Market Performance (-)              | 0.16                   | 0.014   | Significant     | Not supported |
| 12-H3d | ADMS→ Financial Performance (-)           | 0.06                   | 0.398   | Non-significant | Not Supported |
| 13-H1e | SDMS→ Efficiency (-)                      | -0.11                  | 0.004   | Significant     | Supported     |
| 14-H2e | SDMS→ Market Performance (+)              | 0.71                   | 0.000   | Significant     | Supported     |
| 15-H3e | SDMS→ Financial Performance (-)           | -0.04                  | 0.683   | Non-significant | Not Supported |
| 16-H1f | RDMS*IDMS→ Efficiency (-)                 | -0.26                  | 0.000   | Significant     | Supported     |
| 17-H2f | RDMS*IDMS→ Market Performance (-)         | -0.35                  | 0.000   | Significant     | Supported     |
| 18-H3f | RDMS*IDMS→ Financial Performance (-)      | 0.04                   | 0.587   | Non-significant | Not Supported |
| 19-H1g | RDMS*IDMS*DDMS→ Efficiency (+)            | 0.14                   | 0.000   | Significant     | Supported     |
| 20-H2g | RDMS*IDMS*DDMS→ Market Performance (+)    | 0.15                   | 0.000   | Significant     | Supported     |
| 21-H3g | RDMS*IDMS*DDMS→ Financial Performance (+) | -0.06                  | 0.101   | Non-significant | Not Supported |

#### 5.7.3.6. Summary of Results

This study conducted with the intention to examine the influence of decision making styles of heterogeneous boards on the performance of cooperatives measured using efficiency, market performance and financial performance studied in Ethiopia. The main purpose of this study is to determine the relation and effect of decision makings on organizational performance in terms of cooperative with hybrid organizational structure model. To advance our understanding of how and when the decision-making styles of heterogeneous boards explain a statistically significant amount of variance and affect the performance of cooperative, we applied hierarchical multiple regression modeling. The models further look at the role of control variables in predicting this relationship among decision making styles and performance.

According to hierarchical regression analysis, the study findings indicated that heterogeneous board approach decision differently and the use of various decision-making styles differently related to efficiency, market performance and financial performance of the cooperative. For instance, the use of rational decision-making style among heterogeneous board of cooperative found to have positive and statistically significant influence on efficiency and financial performance. Intuitive decision-making style has positive and significant influence on efficiency and market performance, but has negative and non-significant effect on financial performance. The same is true for dependent and avoidant decision-making styles. The result found that both dependent and avoidant decision-making styles have positive and statistically significant effect on efficiency and market performance while non-significant effect on financial performance. The use of spontaneous decision-making style has negative and statistically significant impact on efficiency, positive and significant effect on market performance and negative non-significant influence on financial performance.

One interesting issue is the creation of interaction to have mixing between/among two or more decision-making styles to understand how they impact the performance measures. Thus, based on the results of the regression analysis, it was found that the interaction between rational and intuitive decision-making styles has negative and statistically significant effect on efficiency and market performance but positively non-significant effect on financial performance of cooperative. Since the rational and intuitive styles are applied by the same decision-makers in cooperative, when there is difficulty among heterogeneous board to come up with decision due to lack of information, prior knowledge, skills related to problems, they seek assistance or advice from external individuals or organizations that have specialization or expertise. Then, we created interaction among rational, intuitive and dependent to recognize if they could change the effect of decision on performance. To our surprise, the results revealed that the interaction among rational, intuitive and dependent decision-making styles has positive and statistically significant effect on efficiency and market performance but negatively non-significant effect on financial performance. Although decision-making significantly have strong influence on efficiency and market performance, managerial board of cooperative should pay attention why financial performance was not significantly influenced by the decision-making styles except for rational decision-making style. The inclusions of control variables in the model have found to have non-significant impact on the performance of cooperative.

However, the strength of significant influence varies in the context of cooperative size, cooperative years, board size and location of the decision-makers or board members from the cooperative union. Despite the limitations of this study, such as the self-reported data and the results based only on perceptions of the managerial board members, these findings may be of considerable importance for the theoretical and practical implications.

## 5.8. Chapter Summary

This chapter presented the developed conceptual framework and hypotheses, research design, data collection and analysis method, model specification, test of reliability and validity measures, correlations, normality and multicollinearity. The variables of the study found reliable and valid to carry on the study. This chapter also presented the results of correlation analysis and the executed results of hierarchical multiple regression models in order to gain an insight into the extent of association between the variables.

Compelling evidences were provided in support of a number of hypotheses and discussion was given to each of these relationships. The results of the study have been compared with other studies in the area and the conclusions drawn within the context of hybrid organization structure of Ethiopian cooperative model. In addition, the strength of significant influence of each decision-making style on the performance measure of cooperative were explained in the context of organizational and board size when they are large or small. The same context in terms of organizational years when the cooperative was young or old as well as location based on the distance if nearby or far away were also discussed. It is worth mentioning that the results for statistical analyses methods were presented and provide an insight understanding of the robust associations between the decision-making styles and organizational performance of cooperative studied in Ethiopia.

## **Chapter Six: Conclusion, Contribution, Limitation and Recommendations**

### **6.1. Introduction**

This chapter starts with a summary of the findings of the study's objectives as set out in chapter one. Thereafter, conclusion, contributions, limitations of the study and recommendations for further research are presented. Implications of the study as seen in various perspectives of theory and practical implications are also discussed. The interest in investigating the complex interplay between board heterogeneity, decision-making styles and performance of cooperative within hybrid organizational structure of Ethiopian cooperative model grew from the fact that ever since Ethiopia began designing and implementing enterprise-led economic development policies and programs, the numbers of cooperative has increased and the significant contribution of consumer cooperative paid less attention (Tefera et al., 2017; Abate et al., 2014; Bernard et al., 2007). Thus, lack of prior studies empirically examined the relations between heterogeneity and decision-making styles with performance of consumer cooperatives motivated this research.

### **6.2. Summary of Findings**

This study is one of the theoretically grounded and empirically investigated the effects of board heterogeneity on decision-making styles and performance of consumer cooperatives. Although it begun with case study to explore the dimensions of board heterogeneity among heterogeneous boards of cooperative and their relation to decision-making styles that further impact the performance of cooperatives, the findings helped to develop the conceptual model for further empirical studies. Hence, the empirical study broadly divided into two parts. The first part was investigating the influence of board heterogeneity on decision-making styles in cooperative under hybrid organizational structure. The second part was the influence of decision-making styles on performance of consumer cooperative under the same structure. Both studies used previously validated constructs to enrich board heterogeneity management and decision-making in the areas of board level and organizational structure.

Using Webber & Donahue (2001) board heterogeneity dimensions, objective of the first study was to investigate the influence of relation-oriented heterogeneity and task-oriented heterogeneity on the decision-making styles in consumer cooperative under hybrid organizational structure in Ethiopia. Hence, the study found that relations-oriented heterogeneity statistically has positive and significant influence only on intuitive and avoidant decision-making styles respectively. However, task-oriented heterogeneity found to have positive and significant effect on all decision-making styles such as rational, intuitive, dependent, avoidant and spontaneous (Scott & Bruce, 1995). Since, the study tested the influence of each type of dimension on every decision-making styles to understand the one that enhance the decision making of heterogeneous board in consumer cooperative which further lead to better performance, it found that task-oriented heterogeneity has more positive significant effect on all decision-making styles than relation-oriented heterogeneity of the board in the cooperative studied from Gambella, Ethiopia. But, the overlapping nature of both heterogeneity dimensions on each board member motivated the study to consider the interaction effect of both dimensions on decision-making styles. Interaction effect is the effect of one independent variable being contingent on the level of another independent variable (Mize, 2019, p.82). According to the results, the interaction between relations and task-oriented found to

have negative and significant effect only on rational decision-making styles though negatively related to intuitive and dependent styles.

Moreover, to understand the strength of significant effect on each heterogeneity dimension including interaction term on the decision-making styles in the context of control variables such as organizational size, organizational years, board size and location, we set the control variables into dummy (Allison, 1977) to use graphical interaction to understand the significant effect of the independent variables on the dependent variables. Beside the direct influence of the board heterogeneity dimension on the decision-making styles, the results also explained the degree of strength of significant when the cooperative size is small or large, cooperative is young or old, board size is small or large, and location of the decision-makers is nearby or far away from the cooperatives.

In the second empirical study, we used Scott & Bruce (1995) general decision-making styles to investigate the influence of decision-making styles on performance of consumer cooperative in Ethiopia under hybrid organizational structure. According to the results of hierarchical regression, the study found different significant influence of various decision-making styles in cooperative studied in Gambella, Ethiopia. Thus, the findings revealed that rational, intuitive and avoidant decision-making styles found to have strong positive and significant effect on the efficiency of cooperatives at  $P < 0.001$ . Avoidant alone found to have lower positive significant effect on the efficiency of cooperative at  $P < 0.05$ . In contrary, spontaneous found to have strong negative and significant effect on the efficiency of cooperative studied in Gambella region of Ethiopia. Regarding the effect of decision-making styles on the market performance of consumer cooperative studied in Gambella, Ethiopia, the results found rational to have negative and significant influence on the market performance. However, dependent, avoidant and spontaneous found to have positive and significant influence on the market performance. In terms of decision-making styles and financial performance, only rational decision-making style found to have positive and significant influence on financial performance of consumer cooperative studied.

Despite testing the influence of each decision-making styles on the performance measures of consumer cooperative, heterogeneous boards found combine two or more decision-making styles as backup to strengthen the quality decision to enhance the performance in their cooperatives. Hence, we created the interaction among the dominant styles since the effect of one decision styles could be influenced by the effect of the other. Thus, the results found that the interaction between rational and intuitive decision-making styles to have strong negative and significant influence on the both efficiency and market performance of consumer cooperative. One of the reasons for the negative effect could be caused by the size of cooperative, board, cooperative age and location of the boards from the cooperative union. Since, both rational and intuitive usually practiced by the boards within their cooperative, we interacted both rational and intuitive with dependent because consumer cooperative in Ethiopia depend on various stakeholders under some conditions. Surprisingly, the results of interacting dependent with rational and intuitive turned out to have strong positive and significant effect on only both efficiency and market performance respectively. The more positive significant influence of the decision-making styles including the interaction terms among decision styles on only on efficiency and market performance prove the principle that cooperative is more service-oriented towards the members and community than profit-oriented due to the insignificant effect on financial performance. The same graphical interaction were used using the same control variables reflecting organizational context of cooperative to consider when to make more effective

decision among heterogeneous boards of consumer cooperative in Ethiopia when the cooperative was under hybrid organization structure.

### 6.3. Conclusion

The general objectives of the study was to determine the influence of board heterogeneity on decision-making styles and how such decision-making styles further influence the performance of cooperative with hybrid organizational structure in Ethiopia. Over the last few years, researchers have devoted significant attention in studying membership heterogeneity of cooperatives conceptually (Apparao et al., 2020; Höhler & Kühl, 2018; Apparao et al., 2019; Iliopoulos & Valentinov, 2017). However, there were very limited studies conducted on cooperatives that indirectly included the effect of membership heterogeneity in Ethiopia. Such studies were done on agricultural cooperatives dominantly used different heterogeneity dimensions such as heterogeneity of goals and dividends (Sebhatu et al., 2020), institutional and structural heterogeneity, human capital heterogeneity (Gezahegn et al., 2021), participation heterogeneity among members of NGOs, government and community initiated cooperatives (Gezahegn et al., 2020) and heterogeneity in land holding, household education and size (Bernard & Spielman, 2009). None of these studies were in the realms of managerial boards. The findings of this research give an affirmative answer as it demonstrated that board heterogeneity measured using relations and task-oriented heterogeneity dimensions (Webber & Donahue, 2001b); explain 60.9% of rational decision-making style, 83.8% of intuitive decision-making style, 48.3% of dependent decision-making style, 85.7% of avoidant decision-making styles and 18.7% of spontaneous decision-making style respectively. The same study confirmed that decision-making styles measured using rational, intuitive, dependent, avoidant and spontaneous (Susanne G. Scott & Bruce, 1995); explain 91.8% of efficiency, 66.9% and 43.2% of market performance and financial performance respectively.

Previous researchers and practitioners have questioned the use of demography as a measurement proxy for underlying individual and group behaviors (Marimuthu & Kolandaisamy, 2009). Depends on the purpose of the study, the current research dealt with Webber & Donahue's (2001) board heterogeneity dimensions derived from demographic characteristics that have been grounded in psychological and organizational behavior theories of cognitive resource diversity grounded in information decision-making theories (Cox & Blake, 1991; Williams & O'Reilly, 1998), similarity attraction theory (Dorm Byrne et al., 1971), similarity attraction theory and social categorization theory (Tajfel, 1981; Williams & O'Reilly, 1998).

Viewing the influence of board heterogeneity on decision-making styles, the study's empirical findings showed different significant levels of board heterogeneity dimensions on decision-making styles. Though relations-oriented heterogeneity has significant effect on few decision-making styles, task-oriented heterogeneity found to have more significant influence on all decision-making styles. Theoretically, the more statistically positive significant influence of results of task-oriented heterogeneity on decision-making styles imply that heterogeneous board of consumer cooperative composed of individuals who possess diverse cognitive backgrounds. This is because of the fact that 82.6% of the board members were individuals who hold College diploma, Bachelor degree, Master degree and Doctoral degree. On the other hand, board members hold heterogeneous functional backgrounds such as Accounting & Finance, Management, Cooperative, Business Administration, Marketing, Agricultural sciences, Natural sciences and other fields of specializations. Furthermore, 79.6% of the board members were individuals who worked in the board for at least 3 years in the board of their respected cooperatives while 68.3% of the board

members were individuals with tenure for at least 6 years in the including the previous organizations and their respected cooperatives. This means heterogeneity based on education, tenure and functional backgrounds are more beneficial than heterogeneity based on age, gender and ethnicity in cooperatives. The positive findings are supported by the theories of cognitive resource diversity (Cox & Blake, 1991; Hambrick et al., 1996) and information decision-making (Cox & Blake, 1991; Williams & O'Reilly, 1998). On the other hand, the negative effect of the interaction between relations and task-oriented heterogeneity should be given special attention since the interaction holistically represent the board heterogeneity. The negative results were in line with the similarity attraction theory (Dorm Byrne et al., 1971) and social categorization theory (Tajfel, 1981).

Regarding the decision-making styles and performance of cooperative, the empirical findings revealed different significant levels of decision-making styles on performance measures of cooperative. The study showed that rational, intuitive, and dependent and avoidant decision-making styles of heterogeneous boards had positive and statistically significant effect on the efficiency of cooperative. In contrast, spontaneous found to have negative and significant effect. Due to the fact that individual within board combined styles of decision-making, the interaction between rational and intuitive style revealed negative and significant effect on the efficiency of cooperative. Since, rational and intuitive styles are done by individuals within a team in the organization, seeking assistance or advice from the external people or organization play role in improving the decision when there is lack of knowledge, information and prior experience related to problems need decision. Thus, the results found interacting dependent with rational and intuitive styles have positive significant effect on the efficiency of cooperative.

The results also found rational decision-making style to have negative and significant effect on market performance of cooperatives while dependent, avoidant and spontaneous decision-making styles of heterogeneous boards had positive and statistically significant effect on the market performance respectively. The interaction between rational and intuitive style revealed negative and significant effect on market performance of cooperative. As an association of various individuals, seeking assistance or advice from the external people or organization play role in improving the quality of making decision when there is lack of knowledge, information and prior experience related to problems in hands. Thus, interacting dependent with rational and intuitive styles found to have positive significant effect on market performance of cooperative. However, in relation to effect of decision-making styles on financial performance of cooperative, the results found only rational decision-making style to have positive and significant influence on financial performance of cooperative. Yet, the other decision-making styles have non-significant effect on financial performance. The interaction terms also have non-significant effect on financial performance.

The negative significant influence of spontaneous decision-making style on the efficiency indicate that heterogeneous board lacks adequate time to collect, analyze and process the decision in terms of the products that obtained from the third organization, particularly consumer products imported by government that include other private business organizations. Not only spontaneous, the negative significant effect of rational decision-making style on market performance implies that lacks of enough information to systematically collect and analyze the decision that believed to increase the volume of products and achieving the target time-to-market to satisfy the demand of their members or customers. These findings could be interpreted in the context of similarity attraction theory since individual board members belong to specific areas as prescribed in the Ethiopian cooperative proclamation 985/2016. But, the positive and significant influence of the various decision-making

styles on several performance measures proved that heterogeneous boards used their diverse cognitive resources such as knowledge, skills, experience and information to make good decision.

Theoretically, the positive finding supported the underpinning assumption of cognitive resources diversity theory grounded in information decision-making theory (Cox & Blake, 1991; Williams & O'Reilly, 1998; Van Knippenberg et al., 2004). Concerning the positive relations and influence of decision-making styles on efficiency and market performance, this study proved that cooperative is more service oriented through efficiency in increasing the quality and quantity of products as well marketing product than financial measurement. This confirmed the concept that cooperative is service oriented than profit, even within the hybrid organizational structure of Ethiopia (Sebhatu et al., 2020; Fulton & Giannakas, 2013; McMurtry, 2008). However, the negative finding supported by the underpinning assumption of similarity attraction theory (Dorm Byrne et al., 1971) and social categorization theory (Tajfel, 1981). Overall, empirical findings serve as response to the call by the previous conceptual studies (Höhler & Kühl, 2018; Apparao et al., 2019; Yadav & Lenka, 2020). In addition, presenting the significant influence of the independent variables on the dependent variables through graphical interaction to explain the degree of effect in the context of cooperative size, cooperative years, board size and location strengthen the theoretical and empirical argument of our study and advance the knowledge to understand how heterogeneous board improve the decision-making styles that further enhance the performance of cooperatives.

#### **6.4. Theoretical and Managerial Contribution**

This empirical study offers a significant contribution to both theories and managerial or practical implications of how heterogeneity influence the decision-making styles that further affect the performance of consumer cooperatives. The following sub-sections explains how this study contributes to the theories and managerial implication and provides recommendations for future research to further the understanding and knowledge of the dynamic relationship between board heterogeneity, decision-making styles and performance of cooperative in the context of cooperative size, cooperative years, board size and location.

##### **6.4.1. Theoretical Implications**

This study grounded on various theoretical underpinning linking board heterogeneity dimension with the process of decision-making and performance of heterogeneous managerial board of cooperative under hybrid organizational structure from Ethiopia. To date, knowledge regarding the linkage between heterogeneity dimensions and the decision-making styles remains largely limited to individual level analysis. The significant influence of our empirical findings contributes to theirs in the following ways: First, the positive and significant influence of board heterogeneity dimension on the decision-making styles in consumer cooperatives under the control of both board member and government reflect that having individuals with heterogeneous backgrounds enhance the quality of decision-making using different approaches. The strong positive and significant influence of task-oriented heterogeneity on all decision-making styles such as rational, intuitive, dependent, avoidant and spontaneous implies that heterogeneous boards of cooperative possess divers knowledge, skills and experience that could analyze the available information and alternative to make sound decision that substantially increase the quantity and quality of products demanded by members, increase the efficient use of budget, achieve the target time-to-market substantially reduce the cost of interacting and coordinating activities with suppliers and business partners. Theoretically, our study found that task-oriented heterogeneity of board has stronger positive influence on rational decision-making style in small size than large size consumer cooperative under hybrid

organizational structure of cooperative in Ethiopia. Similarly, task-oriented heterogeneity has stronger positive influence on rational decision-making style in small board size than large board size. The same is true for the significant effect of both relations-oriented heterogeneity and task-oriented heterogeneity on intuitive decision-making style. These findings were in line with previous works (e.g., Simons et al., 1999; Dokko et al., 2009; Zhang et al., 2021; Homberg & Bui, 2013) supported by the underpinning assumption of cognitive resource diversity theory (Cox & Blake, 1991; Williams & O'Reilly, 1998).

The finding also confirmed that the presence of heterogeneous individuals with task relevant knowledge, skills and experience in consumer cooperative is more beneficial in making good decision than heterogeneous individuals with relationship-oriented mindset. This indicates that heterogeneity based on education, tenure and functional background is more important to make quality decision than heterogeneity based on age, gender and ethnicity. However, negative and significant influence of the interaction between relation and task-oriented heterogeneity on rational decision-making style in consumer cooperative found to be stronger in larger cooperative size than small cooperative size. Similarly, the interaction between relation and task-oriented heterogeneity found to have stronger negative influence on rational decision-making style in large board size than in small board size. This implies that making decision without paying attention to the specific dimensions of board heterogeneity harm the systematic and logical ways of making decision carefully. This is because board members were individuals from affiliated primary cooperative restricted by the cooperative law to specific operating areas. Furthermore, some board members belong to specific gender oriented cooperatives initiated by NGOs with the purpose to empowerment women. In such case, the possibility of linking up with board members from vicinity or same areas will occur during board decision in the form of sub-groups. The negative result of our empirical finding is in line with the similarity attraction theory (Dorm Byrne et al., 1971)

Similarly, the findings provided evidence that the positive influence of decision-making styles on the performance measures lend weight on the argument of underpinning theory of information decision-making (Cox & Blake, 1991; Williams & O'Reilly, 1998) that variation in group composition can have a direct positive impact through diverse cognitive resources that heterogeneity brings to enhance problem-solving as well as the quality of decisions. But, the negative results could have supported by and social categorization theory (Tajfel, 1981) since individual board members from affiliated primary cooperatives belong to certain specific areas restricted by the Ethiopian cooperative proclamation number 985/2016 that administratively classified based on ethnicities. In terms of cooperative and board size, the study found that the positive and significant effect of rational decision-making style and intuitive decision-making style on the efficiency of cooperatives is more or less similar in both small and large size. However, dependent decision-making style found to have stronger positive and significant effect the efficiency in large size of cooperative and board than in small size cooperative and board respectively. But, avoidant decision-making style found to have stronger positive and significant effect on efficiency of consumer cooperative in both small size of cooperative and board than in large size of cooperative and board respectively. Similarly, the results true for market performance. Though different styles of decision-making affect performance measures differently, the interaction between rational and intuitive decision-making styles among heterogeneous boards of cooperative found to have strong negative and significant influence on both efficiency and market performance. Surprisingly, interacting dependent with rational and intuitive decision-making styles turned out to have strong and positive influence on both efficiency and market performance respectively.

The main finding of this study is that positive results have stronger influence on small size of cooperative and board than in large size of both cooperative and board. However, the reverse is true for negative results. This study contributes to the unpacking role of heterogeneity dimensions in shaping board-level decision-making styles. Using Webber & Donahue's (2001) dimensions (relations and task), the different significant influences of board heterogeneity on various decision-making styles proved the conceptual studies of Höhler & Kühl (2018), Apparao et al. (2019), and Yadav & Lenka (2020) that board heterogeneity have significant effect on decision-making. The study also found that the different significant effect of decision-making styles of heterogeneous board on various performance measures proved Adikaram & Kailasapathy's (2021) conceptual study.

Finally, this study is perhaps one of the first that has examined the conditions under which board heterogeneity dimensions affect decision-making styles in relation to performance of cooperatives. It goes beyond simple demographic heterogeneity to more relations and task related heterogeneity in cooperative. Specifically, the study offers an empirical evidence to the conceptual arguments of Höhler & Kühl (2018), Apparao et al. (2019) and Yadav & Lenka (2020), that board heterogeneity impose significant impact on the decision-making in cooperative sector. Thus, our overall findings contribute to empirical gaps (Höhler & Kühl, 2018; Apparao et al., 2019) in the study of board heterogeneity in relation to decision-making and performance with due attention paid to organizational structure of cooperative model. In addition, the study also provided the strength of significant relationship in the context of organizational size, organizational years, board size and location of the cooperatives.

#### **6.4.2. Practical Implications**

This study has various implications to managerial practices. It demonstrated that board heterogeneity significantly affect the decision-making styles. Cooperative with heterogeneous boards might consider incorporating the heterogeneity dimensions into how they improve the decision-making styles that further enhance the performance of cooperatives. Decision-making style as a cognitive process and learned response pattern exhibited by an individual when confronted with a decision situation that solves a problem and makes use of available information to formulate decisions (Rowe & Boulgarides, 1983; Scott & Bruce, 1995), this study showed that it matters to organizational performance. Managerial boards may therefore leverage on this understanding of approaching decisions to make interventions that can positively improve board's task oriented and performance in terms of efficiency and marketing within hybrid organizational structure.

The results found task-oriented heterogeneity to have more positive significant influences on decision-making styles than relations-oriented heterogeneity. Practically, this implies that heterogeneity based on education, functional background and tenure is more important and beneficial because of the knowledge, skills and information obtained from diverse board than heterogeneity based on age, gender and ethnicity. This is because of the fact that 82.6% of the board members hold College diploma till Doctorate degree. On the other hand, board members also hold heterogeneous educational backgrounds such as Accounting & Finance, Management, Cooperative, Business Administration, Marketing, Agricultural sciences, Natural sciences and other fields of specializations. Furthermore, 79.6% of the board members were individuals who worked in the board for at least 3 years while 68.3% of the board members were individuals with tenure for at least 6 years till more than 30 years including the previous organizations and their respected cooperatives. Since the heterogeneous board possesses both relation and task dimensions, the

interaction between the two dimensions negatively influenced the rational decision-making style. This implies that heterogeneous board of the cooperative affect the rationality of the decision due to diverse age, gender, ethnics, education, tenure and functional backgrounds as well as organizational size of the cooperative, board size, cooperative years and location where board members live from the cooperative. Thus, the managerial boards of cooperative should be able to understand the dimensions and balance such dimensions while electing heterogeneous boards to improve the quality of decision-making in cooperatives.

The study also provided evidence that various styles of decision improve the performance measures of cooperative based on the purpose and objective. The positive influence of interacting or mixing dependent with rational and intuitive styles on efficiency and market performance imply that external people or organizations with various specialized skills, knowledge and experiences provided needed information and other resources that enhance the process of decision-making that further lead to better performance of cooperative. However, there were some decision-making styles that turned out to have negative influence on various performance measures of cooperatives. Hence, managerial boards of cooperative should pay attention on attributes that make certain decision-making styles to negatively affect the performance of their cooperative.

With different possibilities and combinations of styles that would make a significant decision, the results provided boards with information to consider or be mindful of the different pitfalls of using these various styles and combinations. Particularly, special attention should be paid to organizational structure of the cooperative union and organizational characteristics such size, years, board size and location. The findings also explained and discussed how the board heterogeneity dimensions and decision-making styles significantly related when the cooperative size and board size is small and large; when the is cooperative young and old; and when the location of the decision-makers or board members live nearby or far away from the cooperative union respectively. This is because the board represents both the union and affiliated primary cooperatives. It also helps others to setup their research agenda in selecting the dimensions of board heterogeneity and decision-making styles when carrying study in the cooperative sector. Thus, to ensure better decision choice and performance measure, managerial board of cooperative should balance the heterogeneity dimensions among diverse boards and further look at the decision-making styles that improve a particular performance indicator of cooperatives.

## **6.5. Limitations of the Study**

Despite the important contributions detailed above, this study had a number of limitations like any other research. First, the researcher experienced the first-hand challenge associated with gathering published data from Ethiopian cooperatives. The 32 affiliated primary cooperatives to the union had small number of board size that is only 298 members of which 293 responded the questionnaires. Though the response rate was so high, the research design was focused on board-level analysis of a single cooperative union. Second, the population for this study comprises cooperatives from Gambella region in Ethiopia only. While this enhances internal validity, it inhibits generalizability.

Thirdly, all the study's data were obtained through self- reporting measures. The reliance on primary data has the potential associated with common method variance and other sources of systematic measurement error (Stajkovic et al., 2011). It is not, however likely that a consistency motive was present for a number of measures taken in the questionnaire design. For example, participants did not have an implicit theoretical knowledge of what the research was on.

Additionally, the study's variables were intermingled in the questionnaire to minimize consistency motive in responses as suggested by Podsakoff et al. (2003).

Fourth, despite some literature on measurement model development stipulating that separate data should be used to conduct the confirmatory factor analysis (CFA), this study used the same data for both quantitative analyses.

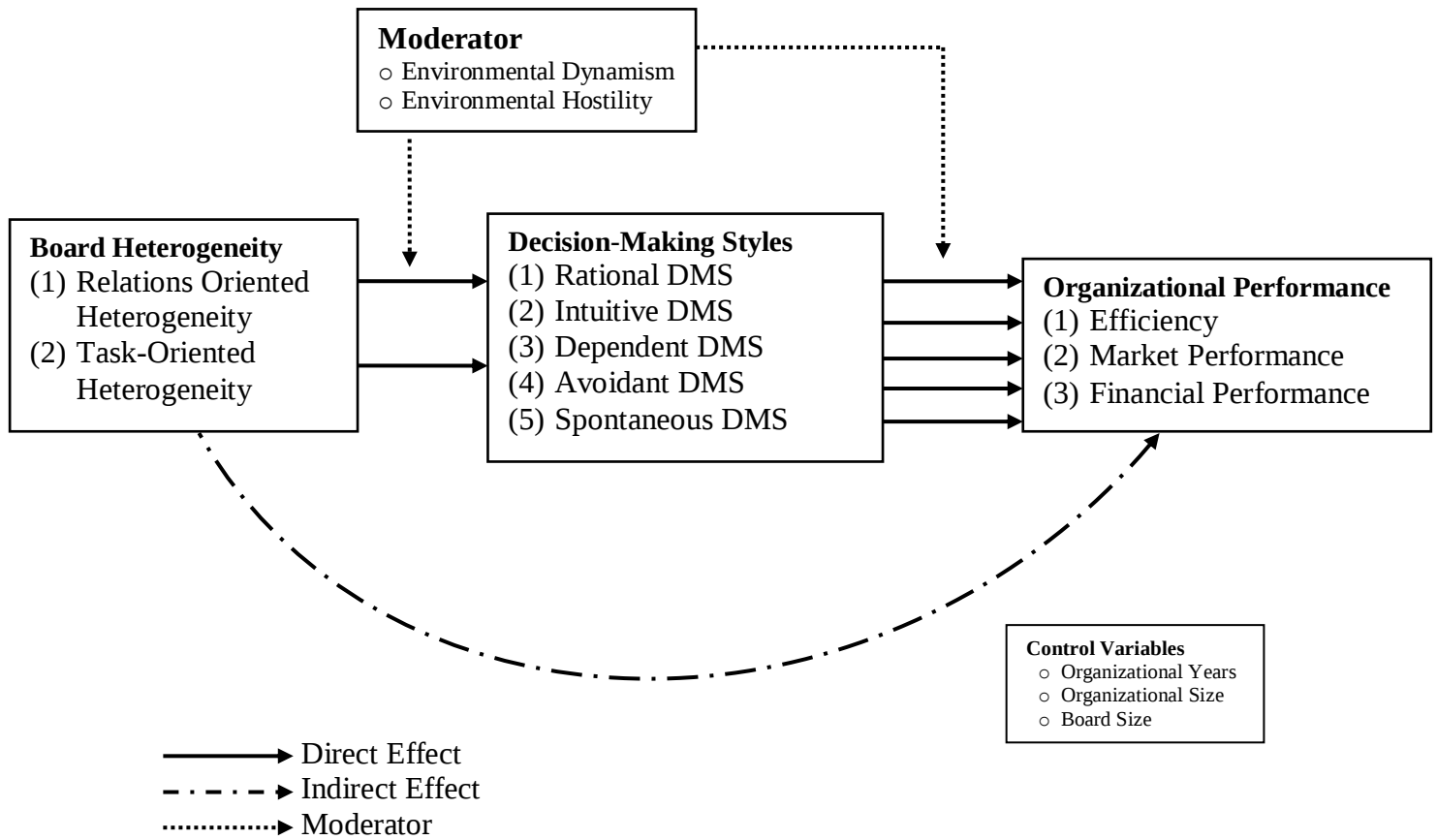
## **6.6. Recommendations for Future Research**

First, there is a need to replicate this study in different contexts bearing in mind that this study directly measured effect of board heterogeneity dimensions and decision-making styles and organizational performance using conceptually validated constructs. Future research can test whether the conceptual framework developed in this thesis and its results can be generalized to other institutional settings. Testing the model in other institutions or contexts may lead to the need to re-evaluate both significant and non-significant factors found in this study.

Second, this study used primary data based on participants' perceptual responses to measure the dimensions of board heterogeneity, decision-making styles and performance measures. The current study employed a cross sectional approach whereas a longitudinal approach would provide for a longer time of study to observe relationships among study's variables. Future research may consider the application of longitudinal study to explain findings; as it may enable the examination of the existence and persistence of the relationships between tested constructs over time. A longitudinal study may explain how the exogenous constructs impact cooperative performance. By recollecting relatively similar data through a longitudinal study, changes in the influences of the exogenous constructs (board heterogeneity dimensions) on the endogenous variables (decision-making style and organizational performance) can be examined and better elaborated. In this way, the research outcomes could be further enhanced and any issues with common method bias could be addressed as well.

Thirdly, the first quantitative study directly tested the effect of board heterogeneity on decision-making styles and then followed by the influence of decision-making style on the performance of cooperative with hybrid organizational structure in Ethiopia. Though the study focused on linking the result in the context of organization structure, it did not used moderator variables. Future research should consider the moderating effects of contextual factors of the environment and competition intensity. Not only moderating effect, the indirect effect of board heterogeneity on organizational performance should be considered for further study. The following conceptual model might give picture for further research works.

Figure 6.1: Integrated Conceptual Model for Future Research



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## Appendices

### Appendix (I): Survey Questionnaire for Interviews

Region: \_\_\_\_\_

Date: \_\_\_\_\_

Interview's start time: \_\_\_\_\_

Interview's finish time: \_\_\_\_\_

#### Recent Decisions Made

Based on the functions and activities of your cooperative, you are kindly requested to provide answers regarding the recent decisions made on efficiency, market performance and financial performance.

#### ❖ Section One: Background of cooperative

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This section deals with the background information of the cooperatives. We ask you for detail information about your cooperatives. Cooperative here is the one legally constituted entity where you are member of.

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1. Cooperative type: \_\_\_\_\_
  2. When did your cooperative established (in years): \_\_\_\_\_
  3. What goods/services does your organization currently market? (Please tick all those applicable)
    - (1) Consumer goods
    - (2) Industrial goods
    - (3) Others \_\_\_\_\_
  4. Cooperative size
    - (1) Membership size (in number) : \_\_\_\_\_ Male: \_\_\_\_\_ Female: \_\_\_\_\_
    - (2) Board size (in number): \_\_\_\_\_ Male: \_\_\_\_\_ Female: \_\_\_\_\_
  5. Scope of service provision (Circle your answer)
    - (1) Zonal
    - (2) Regional
    - (3) National
-

## ❖ Section Two: Demographic Characteristics Questions

This section deals with the background profile of the study participants. Please circle the one which best describes you

- 
1. Gender:
    - (1) Male
    - (2) Female
- 
2. Age: \_\_\_\_\_
    - (1) 18-30
    - (2) 31-40
    - (3) 40-50
    - (4) 50-60
    - (5) Over 60 years
  3. Educational level:
    - (1) High school
    - (2) Vocational Certificate
    - (3) College Diploma
    - (4) Bachelor Degree
    - (5) Masters Degree
    - (6) Doctorate Degree
  4. Functional background (Area of expertise): \_\_\_\_\_
  5. General experience (In years): \_\_\_\_\_
  6. Experience in current position: \_\_\_\_\_
    - (1) Less than 5
    - (2) 6-10
    - (3) 11-15
    - (4) More than 15 years
  7. Your current position:
    - (1) Chairperson
    - (2) Vice chair person
    - (3) Board member
  8. Your ethnic: \_\_\_\_\_
- 
- (1) Ethnic background of board members (in number): \_\_\_\_\_
-

### ❖ Section Three: Board Heterogeneity and Decision-Making Styles Related Questions

This section deals with board member heterogeneity in relation to decision-making process. You are kindly asked to give your honest response based on your perception or experience on how the existing board heterogeneity affects the decision-making process in your respected cooperative.

- 1 How did the age heterogeneity among managerial board members affect the decision-making styles?
- 2 How did the gender heterogeneity among managerial board affect the decision-making styles?
- 3 How did the ethnic heterogeneity among members of managerial board affect the decision-making styles?
- 4 How did the educational heterogeneity among members of managerial board of your respected cooperatives affect the decision-making styles?
- 5 How did the functional expertise heterogeneity among members of managerial board of your respected cooperatives affect the decision-making styles?
- 6 How did the heterogeneity in tenure among members of managerial board of your respected cooperatives affect the decision-making styles?
- 7 How did the overall board heterogeneity affect the decision-making and performance of your respected consumer cooperatives?

### ❖ Section Four: Decision-Making and Performance Related Questions

This section deals with decision-making process in relation to performance. Please make sure that there is no right or wrong answer expected from any question. You are kindly requested to give your honest response based on your perception or experience of practicing decision-making styles in your respected cooperative.

- 1 **Rational DMS:** (Decision-making process that involves the collection of information relevant to the decision that relies upon the analysis of the information in making the choice OR decision characterized by thorough search for logical evaluation of alternatives)
  - Did you collect information before making decision? How did you check the sources of information? Did you logical and systematically make decision? How? Did you carefully think and consider various options to make decision? How did you consider various options prior to final decision?
- 2 **Intuitive DMS:** (Decision-making process based on direct knowledge, understanding or experience without the apparent intrusion of rational thought or logical inference OR decision characterized by reliance upon hunches and feelings)
  - *Did you make decision based on your instinct, intuition and what feels right to you? If yes, how did you rely upon your instinct, intuition and what feels right to you? How did you trust your inner feelings and reactions?*
- 3 **Dependent DMS:** (Decision-making process characterized by search for advice and direction from others OR reliance upon the direction and support of others)
  - Is there a situation that you need assistance of other to make decisions? How did you seek assistance of others? How did you contact other people for assistance to make important decisions?
- 4 **Avoidant DMS:** (Decision-making process characterized by attempt to avoid or postponing

decision-making)

- Are there situations that managerial board likely to avoid or postpone making important decision? How the boards avoid decision-making? How the boards postpone decision-making?

5 **Spontaneous DMS:** (Characterized by taking sudden and impulsive decisions or making “snap” or “spur of the moment” decisions)

- Are there times managerial boards generally make snap or quick decisions? Under what situation do boards make snap or quick decisions? How did boards make snap decisions? How did boards make quick decisions?
  - How do you briefly describe the effects of boards’ decision-making styles on the performance of your respected consumer cooperatives?
- 

❖ **Section Five: Performance Related Questions**

This section deals with performance in relation to consumer cooperatives that measured in term of efficiency, marketing, and financial performance. You are kindly requested to give your honest response based on your perception about the effectiveness of your respected cooperative.

- With respect to the objectives and activities your cooperative performs, has the cooperative been successfully achieved them based on the decisions made? As managerial board members, what is your perception toward the quality of product/service provided? Do members satisfied with the quantity of products or services provided? How is your appropriated budget management?

## Appendix (II): Survey Questionnaire for Quantitative Study

Region: \_\_\_\_\_

Date: \_\_\_\_\_

Interview's number: \_\_\_\_\_

Based on the purpose and functions of your cooperative, you are kindly requested to provide answers regarding the cooperatives' background, demographic information and decision-making styles practiced based on the recent decisions made to implement the objectives or goals of your respected cooperatives.

### ❖ Section One: Background of Cooperatives

⇒ This section deals with the background information of the cooperatives. We ask you for detail information about your cooperatives. Cooperative here is the one legally constituted entity where you are member of. You can write and circle your answer.

1. Cooperative name: \_\_\_\_\_
2. Cooperative type: \_\_\_\_\_
3. When did your cooperative established (Organizational Years): \_\_\_\_\_
4. What goods/services does your organization currently market? (Please tick all those applicable)
  - (1) Consumer goods
  - (2) Industrial goods
  - (3) Others
5. Organizational (Cooperative) Size
  - (1) Membership size (in number) : \_\_\_\_\_ Male: \_\_\_\_\_ Female: \_\_\_\_\_
  - (2) Board size (in number): \_\_\_\_\_ Male: \_\_\_\_\_ Female: \_\_\_\_\_
6. Scope of operation or service to members or customers
  - (1) District (Woreda)
  - (2) Zonal
  - (3) Regional

## ❖ Section Two: Demographic Characteristics of the Respondents

This section deals with the background profile of the study participants. Please circle the one which best describes you

|     |                                                                         |     |                       |                     |
|-----|-------------------------------------------------------------------------|-----|-----------------------|---------------------|
| ❖   | <b>Relational Oriented Heterogeneity</b>                                |     |                       |                     |
| 9.  | <b>Gender:</b>                                                          |     |                       |                     |
| (1) | Male                                                                    |     |                       |                     |
| (2) | Female                                                                  |     |                       |                     |
| 10. | <b>Age:</b> _____                                                       |     |                       |                     |
| (1) | 18-30                                                                   | (4) | 50-60                 |                     |
| (2) | 31-40                                                                   | (5) | ≥61                   |                     |
| (3) | 40-50                                                                   |     |                       |                     |
| 11. | <b>Ethnicity:</b> Ethnic background of board members (in number): _____ |     |                       |                     |
| ❖   | <b>Task/Job Oriented Heterogeneity</b>                                  |     |                       |                     |
| 12. | Educational level:                                                      |     |                       |                     |
| (1) | High school                                                             | (4) | Bachelor Degree       |                     |
| (2) | Vocational Certificate                                                  | (5) | Masters Degree        |                     |
| (3) | College Diploma                                                         | (6) | Doctoral Degree       |                     |
| 13. | Functional background (Area of expertise)                               |     |                       |                     |
| (1) | Accounting & Finance                                                    | (6) | Agricultural sciences |                     |
| (2) | Management                                                              | (7) | Natural sciences      |                     |
| (3) | Cooperative                                                             | (8) | Engineering           |                     |
| (4) | Business Administration                                                 | (9) | Others                |                     |
| (5) | Marketing                                                               |     |                       |                     |
| 14. | Field of specialization: _____                                          |     |                       |                     |
| 15. | General experience (In years): _____                                    |     |                       |                     |
| 16. | Experience in current position (In years): _____                        |     |                       |                     |
| (1) | ≤2                                                                      | (2) | 3-4                   | (3) 5-6      (4) ≥7 |
| 17. | Your current position:                                                  |     |                       |                     |
| (1) | Chairperson                                                             |     |                       |                     |
| (2) | Vice chairperson                                                        |     |                       |                     |
| (3) | Secretary                                                               |     |                       |                     |
| (4) | Member                                                                  |     |                       |                     |

### ⇒ Section Three: Managerial perception on board heterogeneity

The statements given below are related to the demographic heterogeneity of managerial board of your cooperatives. Please indicate the degree of your agreement or disagreement with each statement by selecting the option that best represents your perception about how heterogeneity enhance the efficiency of decision-making styles of the board in your respected cooperative. Please consider the decision you made on improving the quantity and quality and quality of product and services provided efficient use of resources and budget, increasing sales volume, profitability and increasing finance.

| No. | Item (Description)                                                                                                 | Strongly<br>Disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly<br>Agree (5) |
|-----|--------------------------------------------------------------------------------------------------------------------|--------------------------|--------------|-------------|-----------|-----------------------|
| 1   | Our board members' age heterogeneity improve the decision-making styles in our coop                                | 1                        | 2            | 3           | 4         | 5                     |
| 2   | The existing gender heterogeneity among our board members enhance the efficiency of decision-making styles         | 1                        | 2            | 3           | 4         | 5                     |
| 3   | The board is comprised of members from heterogeneous ethnic backgrounds that boost the decision-making styles      | 1                        | 2            | 3           | 4         | 5                     |
| 4   | Existing wide ranges of educational background among board members enhance the decision-making styles in the coop. | 1                        | 2            | 3           | 4         | 5                     |
| 5   | Boards' variety of functional expertise enhance the decision-making styles in our coop                             | 1                        | 2            | 3           | 4         | 5                     |
| 6   | The diverse tenures of our board improve the decision-making styles in the coop                                    | 1                        | 2            | 3           | 4         | 5                     |

**Sources:** Zhang et al. (2021), Su et al. (2021), Doorn et al. (2013), Campion & Medsker (2001), (Heyden et al., 2013) & Kim & Rasheed (2014)

#### ⇒ Section Four: Perception of Board on Decision-Making Styles in the Cooperative

The statements given below are related to the decision-making styles of managerial board in the present tasks required decisions in your cooperatives. Please indicate the degree of your agreement or disagreement with each statement by selecting the option that best represents your point of view about the decision-making style within your respected managerial board. Please consider the decision you made on improving the quantity and quality and quality of product and services provided efficient use of resources and budget, increasing sales volume, profitability and increasing finance.

| No. | Item (Description)                                                                                                       | Strongly<br>Disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly<br>Agree (5) |
|-----|--------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------|-------------|-----------|-----------------------|
| 1   | I double-check my information sources to be sure I have the right facts before making decisions.                         | 1                        | 2            | 3           | 4         | 5                     |
| 2   | I make decisions in a logical and systematic way.                                                                        | 1                        | 2            | 3           | 4         | 5                     |
| 3   | My decision making requires careful thought.                                                                             | 1                        | 2            | 3           | 4         | 5                     |
| 4   | When making a decision, I consider various options in terms of a specific goal.                                          | 1                        | 2            | 3           | 4         | 5                     |
| 5   | I explore all of my options before making a decision.                                                                    | 1                        | 2            | 3           | 4         | 5                     |
| 6   | When making decisions, I rely upon my instincts.                                                                         | 1                        | 2            | 3           | 4         | 5                     |
| 7   | When I make decisions, I tend to rely on my intuition.                                                                   | 1                        | 2            | 3           | 4         | 5                     |
| 8   | I generally make decisions that feel right to me.                                                                        | 1                        | 2            | 3           | 4         | 5                     |
| 9   | When I make a decision, it is more important for me to feel the decision is right than to have a rational reason for it. | 1                        | 2            | 3           | 4         | 5                     |
| 10  | When I make a decision, I trust my inner feelings and reactions.                                                         | 1                        | 2            | 3           | 4         | 5                     |
| 11  | I often need the assistance of other people when making important decisions.                                             | 1                        | 2            | 3           | 4         | 5                     |
| 12  | I rarely make important decisions without consulting other people.                                                       | 1                        | 2            | 3           | 4         | 5                     |
| 13  | If I have the support of others, it is easier for me to make important decisions.                                        | 1                        | 2            | 3           | 4         | 5                     |
| 14  | I use the advice of other people in making my important decisions.                                                       | 1                        | 2            | 3           | 4         | 5                     |
| 15  | I like to have someone to steer me in the right direction when I am faced with important decisions.                      | 1                        | 2            | 3           | 4         | 5                     |
| 16  | I avoid making important decisions until the pressure is on.                                                             | 1                        | 2            | 3           | 4         | 5                     |
| 17  | I postpone decision making whenever possible.                                                                            | 1                        | 2            | 3           | 4         | 5                     |
| 18  | I often procrastinate when it comes to making important decisions.                                                       | 1                        | 2            | 3           | 4         | 5                     |
| 19  | I generally make important decisions at the last minute                                                                  | 1                        | 2            | 3           | 4         | 5                     |
| 20  | I put off making many decisions because thinking about them makes me uneasy.                                             | 1                        | 2            | 3           | 4         | 5                     |
| 21  | I generally make snap decisions.                                                                                         | 1                        | 2            | 3           | 4         | 5                     |
| 22  | I often make decisions on the spur of the moment.                                                                        | 1                        | 2            | 3           | 4         | 5                     |
| 23  | I make quick decisions.                                                                                                  | 1                        | 2            | 3           | 4         | 5                     |
| 24  | I often make impulsive decisions.                                                                                        | 1                        | 2            | 3           | 4         | 5                     |
| 25  | When making decisions, I do what seems natural at the moment.                                                            | 1                        | 2            | 3           | 4         | 5                     |

**Sources:** Scott & Bruce (1995), Verma & Rangnekar (2015), Adikaram & Kailasapathy (2021), Spicer & Sadler-Smith (2005), Riaz, (2015), (Ward, 2016), Hablemitoglu & Yildirim (2008)

#### ⇒ Section Four: Perception of Board on Performance Outcomes in the Cooperatives

The statements given below are related to the performance outcomes from the decisions made by the board in your cooperatives. Please indicate the degree of your agreement or disagreement with each statement by selecting the option that best represents your point of view about the effects of decision-making styles applied on the following performance outcomes in your respected cooperatives.

| No | Item (Description)                                                                                                            | Strongly Disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly Agree (5) |
|----|-------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------|-------------|-----------|--------------------|
| 1  | The quantity of products or services provided substantially improved                                                          | 1                     | 2            | 3           | 4         | 5                  |
| 2  | The quality of products or services provided substantially improved                                                           | 1                     | 2            | 3           | 4         | 5                  |
| 3  | Efficient use of allocated budget                                                                                             | 1                     | 2            | 3           | 4         | 5                  |
| 4  | The operating or cost of general management activities efficiency substantially improved                                      | 1                     | 2            | 3           | 4         | 5                  |
| 5  | Cost of interacting & coordinating activities with suppliers, customers and business partners have been substantially reduced | 1                     | 2            | 3           | 4         | 5                  |
| 6  | The sales volume of our products has increased.                                                                               | 1                     | 2            | 3           | 4         | 5                  |
| 7  | The market share of our products has increased.                                                                               | 1                     | 2            | 3           | 4         | 5                  |
| 8  | Our profitability has increase                                                                                                | 1                     | 2            | 3           | 4         | 5                  |
| 9  | The number of customers that we are able to acquire and retain has increased.                                                 | 1                     | 2            | 3           | 4         | 5                  |
| 10 | We are able to achieve the target time-to-market                                                                              | 1                     | 2            | 3           | 4         | 5                  |
| 11 | Return on assets (ROA) have increased                                                                                         | 1                     | 2            | 3           | 4         | 5                  |
| 12 | Return on sales (ROS) have increased                                                                                          | 1                     | 2            | 3           | 4         | 5                  |
| 13 | Return on equity (ROE) have increased                                                                                         | 1                     | 2            | 3           | 4         | 5                  |

**Sources:** *Efficiency (1-5):* (Pollanen et al., 2017), (Cavalluzzo & Ittner, 2004), (Wu et al., 2003) (Sethi & King, 1994). *Market Performance (6-10):* (Wu et al., 2003)(Nandakumar et al., 2011) (Kandemir et al., 2006)(Pino et al., 2016) (Talke, 2007) (De Toni et al., 2021)(Dadzie et al., 2012)(Morgan et al., 2009). *Financial Performance (11-13):* (Sarah et al., 2009) (Brah & Chong, 2004) (Elbanna & Naguib, 2009) (Kalogeris et al., 2013b) (Amhalhal et al., 2022)