



Privatization and Financial Sector Development in Egypt: Bank-Based and Market-Based Finance

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A thesis submitted to

**Graduate School of International Cooperation Studies,
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Academic supervisor: Professor Yuichiro Uchida

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List of Abbreviations and Acronyms

CBE	The Central Bank of Egypt
GMM	Generalized Method of Moments
IMF	International Monetary Fund
IPO	Initial Public Offering
LE	Livre Égyptienne (The Egyptian Pound)
OFIs	Other Private Financial Institutions
OPBs	Other Private Banks
PBs	Privatized Banks
PFIs	Privatized Financial Institutions
PNFIs	Privatized Non-Financial Institutions
SOEs	State-Owned Firms
WEPLs	Well-Established Publicly Listed Firms

Chapter 1. Introduction

One of recent debatable issues in Egypt is whether privatization could develop and improve activities of the financial sector. Since 1991, Egypt aimed at developing the financial sector through implementing share issue privatization and privatizing state-owned banks. Notwithstanding its expected positive gains in the financial sector, privatization might have different impacts on banks compared to financial markets. The purpose of this thesis is to scrutinize the different impact of privatization on the development of the financial sector in Egypt.

This chapter is organized as follows. Section 1.1 provides facts and background of the study. Section 1.2 discusses the objectives and research questions. Section 1.3 examines the significance of the study. Section 1.4 demonstrates limitation of the study. Section 1.5 describes the organization of the study.

1.1. Facts and Background of the Study

Identifying and distinguishing roles of the state and the private sector in economic activities was debatable issue in modern economic thinking. That debate highlighted the significance of the state intervention in economic activities. The state ownership dominated most economic activities during 1940s. However, its dominance was gradually diminishing during 1970s, when some aspects of privatization appeared. Although a number of practices of privatization were found during 1970s, the real practice of privatization began after the announcement of Thatcher's government in Britain the first-known comprehensive plan of privatization in 1980s.

Privatization is a process of transferring ownership and/or management of an economic activity from control of a state to private entrepreneurs. The main purpose of privatizing state-owned firms is to cure macroeconomic imbalances caused by the increasing budget deficits and improve operating performance of firms.

A number of studies, e.g. Megginson and Netter (2001), emphasized the significant role of privatization in enhancing activities and performance of the private sector in both

developed and developing countries. The concern of those studies was analysis of the macroeconomic impact of privatization on issues of employment, social welfare, and foreign direct investment. However, recent studies (Cook and Uchida, 2008; Parker, 2009) began to attract the attention to the microeconomic impact of privatization on issues of productivity, efficiency gains, and financial performance of privatized firms.

From an empirical perspective, Egypt was among developing countries that implemented an early comprehensive divestiture plan of its state-owned firms (SOEs). State-owned firms were the main actors in the economy for more than three decades since 1952. However, the commitment of establishing a new economic ideology based on market principles in early 1990s was a result of the direction of the world bank, IMF, and creditors to restructure the Egyptian economy through implementing a structural adjustment program.

After an expanded public sector that faced major financial losses, Egypt announced privatization in 1991 aiming at reducing high levels of the public debt, improving productivity of firms, encouraging inflows of capital, and enhancing market competition. By adopting privatization, Egypt was able to improve the operating efficiency and managerial skills of privatized firms. That helped in fostering economic growth and curing structural imbalances. Moreover, Egypt was able to resolve problems associated with the budget deficit resulted from the financial losses of its operating state-owned firms¹. In addition, privatization helped develop the investment climate through improving business regulations, e.g., corporate governance.

Since its start in 1991, the privatization in Egypt witnessed a modest progress due to various legal and socioeconomic obstacles. Those obstacles were mainly represented in the guaranteed employment schemes formed by elements of the social safety net, which protect employees against lay-offs. Thus, employees strongly protested against privatization and the

¹ Because of privatization, Egypt gained 50% of debt relief from creditors for supporting the new structural adjustment plans, which helped reduce the pressure on the fiscal budget (Hinnebusch, 1993).

early retirement scheme, which is associated with privatization in order to shrink the number of employees prior to divestiture². In addition, the fear of dominance of foreign investors over the national capital was one of the most influential factors limiting the privatization progress. Its historical background of colonialism made policy makers and activists afraid of selling state-owned properties to foreigners, despite their willingness and financial creditworthiness to manage big projects compared to national investors (Pripstein, 1999). Those obstacles resulted in poor investment opportunities and adversely affected employees. That, in turn, impeded progress of the privatization process. Therefore, institutional change and adoption of new legislations were required to cope with negative social consequences resulted from the privatization.

During the second half of the 1990s, the privatization gained a momentum after an approval by the constitutional court that allows the government to move on selling state-owned firms. By June 2002, 190 state-owned out of 314 firms belong to various economic sectors were privatized by adopting various privatization methods such as anchor investor, initial public offering, employee share associations, liquidation, asset sales, and leases (PCSU, 2002). Privatization was applied to main economic sectors such as manufacturing, banking sector, non-bank financial services, construction, trade, tourism, and utilities.

The financial sector received a large share in the total privatization proceeds since its announcement in 1991. Three aspects of distortions characterized the financial sector in Egypt. One is the control of the state over financial services that are represented in banking and non-banking services. Two is the dominance of the banking sector over the financial market in financing activities. Three is the lack of solid legal and institutional bases and the low degree of liberalization required for financial institutions to operate efficiently. Amending those distortions within the financial sector before divestiture was important in

² The early retirement scheme was developed by the social development fund and financed by foreign donors.

order to absorb the increase in number of privately owned firms resulted from the privatization.

Privatization could positively affect the financial sector by improving efficiency and enhancing activities of both the financial market and the banking sector. It allows introducing new financial innovations, strengthening the banking infrastructure, and enhancing competitiveness within the sector. Furthermore, it increases activities within the financial market by increasing the number of publicly listed firms³.

1.2. Objectives and Research Questions

The purpose of this study is to examine empirically the following:

1. The impact of privatization on the financial sector development
2. The relative impact of privatization on the banking sector compared to the financial markets
3. The choices of financing among firms with different ownership structures
4. The lending and risk-taking behavior of privatized financial institutions

Privatization is a potential determinant of development of the financial sector. This stems from its impact on the private sector participation and activities of both banks and stock markets in an economy. The transfer of ownership from the state to private entrepreneurs enhances directly development of the financial sector through introducing new private firms when divestiture occurs through share issue privatization. In addition, the transfer of ownership has a direct influence on the banking sector through the divestiture of state-owned banks. However, privatization may have relative different impact on banks

³ Since the start of the privatization in Egypt, it significantly improved the volume of trade in the financial market. This was due to the increase in numbers of publicly listed domestic and foreign firms. The new competitive environment enhanced by privatization helped attract the foreign capital and foreign financial portfolios, which was estimated at 30 percent of the total market capitalization in 1997. Until 1997, more than 700 foreign institutions and funds traded in the Egyptian stock market (Pripstein, 1999).

compared to stock markets. Studying the relative impact of privatization on banks as opposed to stock markets is important for policy makers when constructing their plans regarding privatization and financial sector development.

Regarding the impact of privatization on choices of financing, although it was proven empirically that privatization improves operating performance of firms, its impact on choices of financing among firms was largely ignored. Such impact stems from differences of information asymmetry across firms with different ownership structures. One factor that affects choices of finance of privatized firms is the appointment of new managers. Although privatized firms were operated under state ownership, privatization changes their management under the new ownership structure. Thus, they differ in their operating activities and investment decisions and, in turn, creditors evaluate them differently. Another factor that affects choices of financing of privatized firms is their bad reputation in the credit market resulted from their low performance prior to divestiture. This causes difficulties in raising external funds, especially through stock markets. As a result, they face obstacles in financing their projects by facing a costly external finance in post privatization period.

Moreover, privatization encourages foreign and domestic entry of banks. This improves competition within the banking sector, which, in turn, affects the lending and risk-taking behavior of operating financial institutions. Privatized banks that depend mainly on lending activities may lag behind other banks that depend on non-lending activities such as treasury bills and government bonds. This is because the former banks are more exposed to risks associated with fluctuations of interest rates.

In order to achieve the previous objectives, the study attempts to answer the following questions:

1. Does privatization positively affect development of the banking sector and stock markets?
2. Does privatization have a significant positive impact on the financial system structure?

3. Does privatization positively affect development of the overall financial sector?
4. Do privatized firms depend more on internal finance compared to external finance?
5. Do privatized firms depend more on bank-based finance compared to market-based finance?
6. What are the main determinants of choices of financing of privatized firms?
7. Does privatization affect the performance of privatized banks and non-bank financial institutions?
8. Does privatization affect the lending and risk-taking behavior of divested financial institutions?

In order to answer the foregoing questions, this thesis consists of three empirical studies. The empirical studies presented in the thesis are based on the neo-Keynesian economics, which assume, among others, the following. First, volatilities in the financial sector are caused by different macroeconomic factors. Second, the financial sector is integrated with economic activities. Third, fiscal and monetary policies are required to achieve stability in the financial sector. Fourth, financial structure is driven by choices of financing of firms. Fifth, choices of financing depend on the desire of firms to involve in riskier activities. Sixth, diversification of loans among banks affects their lending and risk-taking behavior by mitigating asymmetry of information and cost of monitoring. In particular, the studies utilized theories of neo-Keynesian economics in order to scrutinize the impact of privatization on the development of financial sector, choices of financing, and lending and risk-taking behavior of financial institutions. By adopting the neo-Keynesian approach, it will be possible to examine the demand and supply side of the financial sector. In the demand side, the thesis considers choices of financing among privatized firms. In the supply side, it considers the development of the financial sector and the efficiency of privatized financial institutions in providing financial services.

Neo-Keynesian economics significantly contributed to the understanding of finance and the development of financial institutions through introducing concepts of asymmetric

information, agency problem, and adverse selection. They criticized Modigliani-Miller theorem (1958), which shows that activities of the financial sector are not connected with real economic activities. The neo-Keynesians showed that output and investment are constrained by the availability of funds provided by financial institutions. In addition, neo-Keynesian economics proposed the theory of credit rationing in relation to principal-agent problem, which explains a possible adverse relationship between shareholders and managers.

The neo-Keynesian economics provided realistic assumptions compared to other schools of economic thought. By assuming imperfect capital markets, it replaced unrealistic assumptions of neo-classical economics, which led them to consider the market signaling as being the main determinant of choices of financing of firms. The assumption of perfect capital market by the neoclassical economics ignores the fact that volatility in stock markets does not always move with firm's fundamentals (Blanchard et al., 1993). Contrary, by assuming imperfect capital market, the neo-Keynesians were able to scrutinize the financing behavior of firms that are located in economies with less sophisticated and inefficient capital markets. In addition, neo-classical economics failed to account for the agency problem, which results from conflicts between managers and shareholders (Crotty, 1992). Moreover, unlike the monetarists, neo-Keynesian economics assume that banking credit, not money, is interconnected with the real economic activities. This led them to incorporate the financial sector in the analysis of fluctuations of economic activities. Neo-Keynesian economics also assumed that monetary variables have short-term effect on output, further providing evidence that the interaction between the financial sector and economic activities firmly exists.

1.3. The Significance of the Study

This study contributes to the relevant literature in five ways. First, the study provides more evidences on how real activities, such as privatization, affect the development of financial sector. Second, by examining the impact of privatization on financial structure, the study provides more evidence on how privatization has a relative different impact on the development of the banking sector compared to the financial market. Third, by applying new

theoretical approaches, the study provides a new analysis on the choices of financing of privatized firms. In the Egyptian context, this enriches the relevant literature by providing new evidence on how privatization affects the financial decisions of privatized firms. Fourth, the study contributes to the relevant literature by examining the lending and risk-taking behavior of privatized banks. Fifth, a uniqueness of the study is the identification of main differences among privatized firms, other publicly listed firms, and state-owned firms. In addition, the study identifies the main differences among privatized financial institutions and privatized non-financial institutions. The study constructs a new dataset that includes data about these firms and institutions.

Previous empirical studies, e.g. Kikeri, et al., 1994, Torino, 2003, Segal, 2004, Kotler and Lee, 2007, focused mainly on the impact of privatization on investments, foreign direct investment, employment, budget deficit, market competition, economic growth, the performance of the financial sector, and overall economic welfare, in particular in developed countries. Those studies ignored another important dimension with respect to the relationship between the privatization and the financial structure. In addition, while those studies focused on the impact of privatization on the banking sector performance and stock market returns, they ignored the different relative impact of privatization on the banking sector compared to the financial market. In addition, those studies ignored the choices of financing of privatized firms, and if exists, they focused on cross-country analysis and ignored such analysis at country-level, in particular in developing countries.

In the Egyptian context, previous studies, e.g. Heller and Schiller, 1989; Aly and Shields, 1999; Awadalla, 2003; Mohieldin and Nasr, 2007; Kenawy, 2009, focused on the analysis of the operating performance of privatized firms and the role of privatization in enhancing macroeconomic performance. All those studies ignored two main important issues: one, the choices of financing among privatized firms and, two, the risk-taking and lending behavior of privatized banks.

1.4. Limitation of the Study

The study has certain limitations that need to be taken into account. However, some of these limitations can be seen as important elements for future research in the relevant literature. These limitations are due to the following issues:

1. Unavailability of a comprehensive privatization dataset that includes all privatization transactions
2. Unavailability of data that covers socioeconomic indicators
3. Unavailability of a comprehensive measure of the development of financial sector that covers obstacles that are faced by firms in accessing external finance
4. Lack of data about small size firms in Egypt
5. Lack of data about privatized firms and financial institutions in Egypt

This study focuses on analysis of the impact of privatization on financial sector development. Examining such impact across countries requires a comprehensive dataset that includes all privatization transactions. The most comprehensive data for privatization transactions are available in the World Bank Privatization Database. That database includes all privatization transactions over USD one million that had been announced officially. For developing countries, the impact of privatization might be underestimated due to a disregard of the low privatization proceeds. In addition, the database covers only the privatization transactions that generate revenues for governments (the World Bank, 2012). However, this ignores other aspects of privatization that does not generate revenues for government such as voucher privatization and new green-field investments. However, the database has its advantages in terms of its coverage. That is because it covers a wide range of developing countries, privatization methods, and economic sectors. This helps in mitigating the biases that might arise from missing a number of privatization transactions.

This study focuses on a complex and interconnected phenomenon. This may impose certain limitations in the sense that some of the sampled countries are emerging countries. Those countries have experienced synchronically different kinds of reforms beside

privatization. The lack of data related to such reforms, e.g. the reduction in the prevailing corruption in a country, may impose certain biases. However, the study attempts to reduce such biases by taking into consideration other reforms in the macroeconomic environment.

Moreover, analyzing the financial sector development is a multifaceted issue. In addition to the macroeconomic environment, other socioeconomic factors should be considered such as the tendency of citizens in some countries to deposit less money in the banking sector because of religious considerations as in Muslim countries. This study does not cover these issues due to difficulty of obtaining such data.

In pursuing this study, the empirical design depends on some commonly used indicators for measuring development of financial sector. However, a more comprehensive indicator for the financial sector development that takes into consideration the ability of firms to access the financial sector is required. This study attempts to mitigate such issue by using different sub-indicators that covers the development of the banking sector, the financial market, and the overall financial sector. In addition, the study carries out a separate empirical analysis that examines the factors that affect the access of firms to external finance.

In its analysis of the choices of financing of privatized firms and the lending-behavior of privatized financial institutions in Egypt, the study depends on financial statements of firms and financial institutions. The study does not include small size firms and financial institutions, which might gain or lose from privatization. However, this does not cause any significant problem since major privatized firms and financial institutions in Egypt are medium to large size. In addition, some data about privatized firms and financial institutions are not available due to political concerns of such topic and poor auditing standards. Privatizing SOEs is one of major issues that Egyptian' politicians avoid the public disclosure of information, particularly regarding the sales procedures, the amount of sales, and other firms' performance data. This is because privatization faced a number of protests by labors after losing their jobs (Khattab, 1999; Pripstein, 1999). Regarding the auditing standards of firms, although they have been adjusted recently to meet requirements of enhancing the role

of stock market in Egypt, they are still weak and do not meet the international standards. The initial steps towards more consistent auditing standards were started by approving the Capital Market Law No. 95 in 1992, which aims at reviving the Egyptian stock market. According to this law and its comprehensive executive regulations, listed companies were obliged to compile their financial data with International Auditing Standards. However, the enforcement of these requirements started in 1995 for all publicly listed firms (Abdelsalam et al., 2007). With respect to the banking sector, banks were required to disclose their financial statements based on the International Auditing Standards starting from 1997 (Bolbol et al., 2005). Due to the dominance of state-ownership and the slow progress of privatization during 1990s, few financial data about privatized firms, banks, and non-bank financial institutions are available during that period⁴. However, during 2000s, when a number of privatized firms were publicly listed and obliged to disclose their financial statements to the capital market authority, financial data about privatized firms can be obtained.

The limitations of this study, however, bring forth various possible issues for future research in the relevant literature. The following is a list of various possible research improvements:

1. Taking into consideration socioeconomic factors, in addition to privatization, in examining the development of financial sector will enhance the scope of the research in the relevant literature
2. A more comprehensive dataset that includes detailed information about all privatization transaction is required. This will enable researchers for better elaboration of elements of privatization and its impact on the development of the financial sector

⁴ Until 1996, three companies were fully privatized: Coca Cola Egypt, Pepsi Egypt, and Al-Nasr Boilers through strategic investors. In addition, ten companies were sold to their employees. Privatization began to gain momentum in the second half of 1996 (Khatab, 1999).

3. A more comprehensive indicator for the financial sector development is required that takes into consideration the ability of firms to access the financial sector
4. Taking into consideration small size firms, in addition to medium and large size firms, will provide precise evidence regarding the impact of privatization on the financial sector development

1.5. Organization of the Study

This thesis consists of eight chapters. After introduction, Chapter 2 reviews the relevant literature regarding the development of the financial sector, financial institutions, choices of finance, and privatization. Chapter 3 briefly describes main trends of evolution of privatization and the financial sector in developing countries, in particular Egypt. Chapter 4 demonstrates the theoretical framework of the empirical studies. Chapter 5 provides the first empirical study that examines the impact of privatization on development of the financial sector and the financial structure in developing countries. Chapter 6 provides the second empirical study that examines the choices of financing of privatized firms in Egypt. Chapter 7 provides the third empirical study that analyzes the impact of privatization on the lending and risk-taking behaviors of financial institutions in Egypt. Chapter 8 shows the conclusion of the thesis.

Chapter 2. Literature Review

The development of the financial sector is a signal of economic stability and depth of private participation in an economy. Banks and stock markets represent two main pillars of the financial sector. Examining the development of the financial sector cannot be done without examining the evolution of banks and stock markets simultaneously.

Stock market is a market where buyers and sellers of financial securities are met and, as a result, equilibrium prices of securities are determined through a Walrasian market clearing conditions (Boot and Thakor, 1997). This definition underlines the competitive nature of stock markets in providing required funds to firms. Four main functions of stock markets can be identified (Allen and Gale, 2000; Dailam and Atkin, 1990): pooling and efficient allocation of economic resources, solving of the principal-agent problem, managing and allocating of risks, and enhancing of economic growth. Stock markets play a major role in allocating funds from savers, who have surplus of funds, to investors, who have shortages of funds. This occurs when firms issue stocks in the primary market to expand their projects. Stock markets solve the principal-agent problem by allowing the separation of ownership from management through issuing shares. Stock markets are convenient sources for managing and allocating risk by providing various financial instruments with different degree of riskiness. Stock markets foster economic growth by mobilizing resources required for investment, particularly when businesses are exposed to a liquidity problem.

With respect to banks, they play major role in enhancing economic growth by mobilizing savings required for investments. The development of banks is considered a signal of the development of an economy and is an indicator of efficient utilization of economic resources. Studies, e.g. Goldsmith, 1969 and Demirgüç-Kunt and Levine, 1999, solidly provided evidences on the importance of banks in sustaining economic growth and attracting investments. In addition, banks play major role in monitoring financial credibility of firms (Diamond, 1984). That is, they mobilize required savings for long-run economic growth. Furthermore, they transmit market information through their power of monitoring and

mitigating the moral hazard and the adverse selection problems. That is, banks sort firms based on their credit worthiness, which, in turn, helps in improving capital allocation and corporate governance. Given their importance, identifying factors that influence banks and stock markets helps in setting required policies for long-run economic growth.

This chapter reviews theories that scrutinize the impact of fluctuations in real economic activities on the structure of the financial sector. In addition, it reviews the relevant literature regarding choices of financing between bank-based and market-based finance of firms. In a further part, the impact of privatization on the financial sector is reviewed.

This chapter is organized into five sections. Section 2.1 summarizes the main contributions of major schools of economic thought regarding the development of the financial sector. Section 2.2 reviews main theories of the financial structure and main determinants of the development of financial sector. Section 2.3 reviews main contributions of choices of financing of firms. Section 2.4 reviews main contributions of the relationship between privatization and the financial sector. Finally, section 2.5 provides concluding remarks.

2.1. The Financial Sector and the Choice of Financing by Schools of Economic Thought

Throughout the twentieth century, different schools of economic thoughts responded to major changes in policies of the financial sector. These changes were represented in three major events: the creation of the classical gold standard, the rise of the Great Depression during 1930s, and the creation of a new international order resulted from the Marshall Plan after World War II. Accordingly, by modern standards, financial sectors became more institutionalized, especially after the creation of Bretton Woods's institutions. After 1970s, that institutionalization allowed central banks to engage in regulating the banking sector and, in turn, led to flexibility in the flow of capital (Flandreau et al., 2003). On the other hand, the new international institutions, represented in the World Bank and IMF, began intervening significantly in the formulation of policies regarding the financial sector in developing

countries. The key elements of these policies included targeting inflation, enhancing competition, limiting state-control, and adopting large-scale privatization (Parker, 2006). In particular, privatization prompted governments to enhance free market principles and develop the financial sector, especially during 1990s⁵ (Bortolotti and Siniscalco, 2004).

Responding to those major changes, school of economic thoughts developed theories that explain the influence of the new policies on the financial sector. In particular, they examined the impact of elements of the structural and adjustment policies on the financial sector. Schools of economic thoughts were split into two approaches. The first approach emphasized the dichotomy between the financial sector and real economic policies. The second approach emphasized their interconnection. The first approach was mainly adopted by the neoclassical School, while the second approach was mainly adopted by the neo-Keynesian School. According to the latter view, understanding the fluctuations in the financial sector cannot be isolated from the changes in real economic policies.

Although the neoclassical and neo-Keynesian Schools as orthodoxies introduced major contributions in that context, other schools as heterodoxies had their contributions, namely post-Keynesian School and the Monetarism. In their theories, the post-Keynesians incorporated the interaction between the financial sector and the real economic policies (Arestis, 1988; Hunt and Lautzenheiser, 2011; Isenberg, 1998). They showed a significant role of real economic policies in mitigating exogenous shocks that hit the financial sector

⁵ Although privatization was shown before 1990s, the wide scale implementation of privatization occurred during 1990s as a result of the global changes in macroeconomic policies. An early example of the implementation of privatization was shown in the Federal Republic of Germany when the Adenauer government decided to sell a majority stake in Volkswagen and Veba during the early and mid-sixties through public offerings. Some attempts of privatization were also made in Chile and Ireland in the early 1970s. In the late seventies and early eighties, Thatcher's government in the UK, implemented a well-known policy of privatization (Bortolotti and Siniscalco, 2004).

through their effect on the available money supply. Thus, they assumed endogeneity of money supply (Dow, 1998), which is determined by the demand of private sector rather than monetary authorities. They showed that the credit provided by the banking sector is a main determinant of the money supply, which, in turn, stimulates the economic growth (Arestis, 1988). In this context, they proposed two general equilibrium models (Arestis and Driver, 1988). The first general equilibrium model was illustrated by Eichner (1979) and Forman and Eichner (1981), while the second model was illustrated by Coutts et al. (1981). The first model identified four compositions of credit of the banking sector, i.e. credit to the public, industry, consumers, and the government. The main variable that affects these compositions is the amount of available liquidity, which is determined by the ratio of bank credits to deposits. The second model distinguished between the domestic credit expansion by banks and net acquisitions of financial assets by the private sector. The credit expansion depends on the changes in money stock and external finance. The money stock is endogenous and determined by short-term interest rates, inflation, real national output, and credit restrictions. The external finance depends on the position of external trade and capital flows. The net acquisition of financial asset depends on the difference between disposable income and expenditure of the private sector. Through the two models, one can observe the critical role of net acquisitions of financial assets by the private sector in affecting activities of the financial sector.

With respect to the Monetarism, it considered banks as the only financial institutions that are interacted with vulnerability in real economic policies, while ignoring non-banking financial institutions (Gertler, 1988). Its ideas were built on the assumption that the demand for money is stable. This assumption helped in explaining the link between the financial sector and real economic policies. Accordingly, fluctuations in real economic activities, such as employment and growth, could be controlled by adjusting the money supply. Thus, the stability of money supply is an important factor in achieving economic growth stability (Tsoulfidis, 2010). By considering solely money as a key financial variable, the Monetarism

ignored the role of other financial institutions such as stock markets in influencing the economic growth.

The following two sections review the dominant ideas arising out of the changes in the twentieth century that extended the understanding of financial systems structure and the choices of financing. In particular, the study reviews the contributions introduced by the neoclassical and the neo-Keynesian Schools, as having the most influential impact on recent finance studies.

The Neoclassical School

Responding to the previously mentioned global changes, the neoclassical School concerned about studies of the competitive market, market equilibrium, and theories of finance. Early studies of the integration between the financial sector and real economic policies were shown in the debt-deflation theory (Fisher, 1933), which attributed the fluctuations in output to the vulnerability of the monetary policy. Although the early contribution of the school showed an existence of interconnection between financial variables and real economic activities, its mainstream scholars contradicted with such interconnection. This was shown in their growth and investment theories, for instance Brock and Mirman (1972) in their model of the stochastic competitive equilibrium growth. In these theories, a dichotomy between financial and real variables was assumed.

Such dichotomy resulted from their rigid assumptions concerning the economic system, which include rationality of economic agents, perfect foresight, capital market perfection, and selfless managers. Additionally, it assumed two more assumptions: the objective function of a firm is to maximize its net worth and firms operate with a linear homogenous production function (Coad, 2010). As a result, operating decisions of firms are independent of the choices of financing. That is, it does not matter whether a firm chooses to finance its investment using internal funds or external funds. In addition, it does not matter whether a firm chooses bank-based or market-based finance. This was clear in the Modigliani-Miller theorem in 1958 and Tobin's Q model in 1969. The Modigliani-Miller theorem states

that finance is irrelevant to real activities of firms. Thus, the optimization problem of a firm is independent of its financial policies. The Tobin's Q model assumes a perfect capital market and, as a result, financial policy of a firm is independent of its real decisions.

Based on the previously mentioned assumptions, the Modigliani-Miller theorem, and Tobin's Q model, the neoclassical originated their investment theory. In that theory, the market valuation of assets is the main determinant of the capital accumulation of firms (Fazzari et al, 1988). This is mainly a direct result from the assumption of the capital market perfection. As a result, the stock market affects the accumulation of physical assets through its effect on the rental price of capital (Bosworth et al. ,1975; Fazzari et al., 1988; Coad, 2010). That is, price movements in the capital market affect the real decisions of firms through their impact on the future prospects of returns. This implies that stock prices accurately reflect expected profits of a firm. In this case, the market value is the only predictor, while the internal finance has no significant impact on the capital accumulation of firms. Thus, there exists a perfect substitutability among the different sources of finance.

The rigidity of assumptions of the neoclassical theories motivated the neo-Keynesian School to build a theory based on assumptions that are more realistic. This is explained in the following section.

The Neo-Keynesian School

The shortage of the ex-schools, represented by the neoclassical economics and monetarism, pushed scholars of the neo-Keynesian School to introduce a new economic thought that explained the long-term depression that prevailed during mid-1960s (Tsoulfidis, 2010). This was done through their introduction of a new explanation for the interaction between financial variable and real economic policies. Their main contribution initially existed in the demonstration of IS-LM model introduced by Hicks (1937), and its revision of the theory of the firm.

The building of the IS-LM model was based on the *Keynesian General Theory*, which was introduced as a critique of the neoclassical theory (Hunt and Lautzenheiser, 2011), by

censuring the dichotomy between real and financial variables⁶. The IS-LM model is a general framework that explains the interaction between real and financial sectors. The model is based on assumptions of nominal rigidities and capital market imperfection. It provides an explanation for how financial sector reacts to major government policies such as monetary and fiscal policies (Tsoufidis, 2010). The extensions of the IS-LM model incorporated the role of credit in the real-financial nexus (Blinder, 1987; Bernanke and Blinder, 1988; Stiglitz, 1988). The incorporation of the role of credit was a direct result of the introduction of the hypotheses of rational expectations and credit rationing in an environment of principal-agent conflict, which contradicts with the neoclassical theory⁷ (Ardeni et al., 1999).

Regarding their revision of the theory of the firm, they showed a strong linkage between financial and real decisions of firms (Dow, 1998). The neo-Keynesians showed that managers and shareholders have different objective functions. While shareholders seek for short-term gains from distributed dividends, the managers seek for maximizing revenues (Crotty, 1992). Accordingly, they attempted to relax the rigid assumptions of the neoclassical school by assuming irrationality of economic agents, existence of agency problem, asymmetric information, and imperfect capital markets. These assumptions allowed them to revise the theory of the firm. Their revision is close to the ideas of other schools of economic

⁶ In the General Theory, Keynes proposed the liquidity preference theory, which distinguished between two kinds of demand for money: the demand for money for speculation and for transaction and precaution. The demand for money for speculation depends on the interest rate, while the demand for money for transaction and precaution depends on the income level. In his theory, the real interest rate equilibrates the real saving and the real investment (Samules et al., 2007). The real interest rate is affected by the level of monetary expenditure in an economy. Thus, the level of monetary expansion is non-neutral (Ardeni et al., 1999) and is considered a main determinant of the economic growth (Tsoufidis, 2010).

⁷ Although neo-Keynesians contradict with the neoclassical ideas about the interaction between real and financial variables, they showed a possibility of such dichotomy in the long-run (Sawyer, 1998).

thought, e.g. the monetarism, in the context of monetary variables interact with real economic fluctuations; However, it is different in the context of these fluctuations are due to credit channel not monetary channel (Blinder and Stiglitz, 1983; Dow, 1998). That is, the investment decision by a firm is constrained by the available fund provided by financial institutions (Ardeni et al., 1999). Contrary to the neoclassical school represented in Modigliani-Miller theorem and Tobin's Q model, they showed that financial decisions depend on the degree to which firms are willing to involve into riskier activities. That is, risk-taking firms prefer market-based finance, while risk-averse firms prefer bank-based finance (Greenwald and Stiglitz, 1993). Therefore, the financial policy is an important determinant of investment of a firm and, in turn, the choice between internal funds and external funds has different impacts on investment decisions (Rotheim, 1998). Accordingly, the neo-Keynesians concluded an existence of imperfect substitution⁸ among sources of finance (Dow, 1998). The rationale behind such conclusion is that firms usually do not take into consideration signals of stock markets when taking their investment decisions even if those signals are different from the evaluation of firm's fundamentals. Thus, the neo-Keynesians introduced what is so-called a fundamental-Q as an alternative to the neoclassical Q-theory. Blanchard et al. (1993) supported this rationale by showing that price fluctuations in stock markets are not always in line with firms' fundamentals (Shiller, 1981). Thus, valuation of stock markets has a limited role in real decisions of firms. Various recent empirical studies, e.g. Akerlof (1970); Stiglitz and Weiss (1981), supported the existence of such conclusion.

⁸ Greenwald and Stiglitz (1993) emphasized one of aspects of imperfect substitution. They showed that despite of advantages of market-based finance, efficient firms have more tendency to finance their investments using bank-based finance. This is because there is a tendency of less efficient firms to borrow from the market. In a rational expectation environment, this gives a negative signal in the financial market and therefore reduces the market values of these firms.

2.2. Theories of Bank-Based and Market-Based Financial Structures

Studies on the development of financial sector, e.g. Levine (2002), have examined the importance of bank-based as opposed to market-based financial structures. There is no consensus, among these studies, that either bank-based or market-based financial structure is better for economic growth. Those studies highlighted issues of the long debate regarding the impact of financial variables on real economic activities, what is so-called real-financial nexus, which refer to the interaction between real economic activities, such as investment and output, and financial variables.

The interaction between real economic activities and financial variables can be referred to seminal works of Fisher (1933) and Keynes (1936) for their contributions in explaining causes of the great depression during 1930s (Gertler, 1988). Since the great depression, scholars explained how financial variables influence economic growth. At this time, the focus in writings was the explanation of the impact of poor financial markets in deteriorating output, which causes later bankruptcies in financial institution and, in turn, causes further deterioration in output (Gertler, 1988). According to Fisher, two causes of output deterioration: the high indebtedness of borrowing classes that directly causes a wave of bankruptcies and the redistribution of wealth from debtors to creditors that lead to a cut in their future investments, a deterioration in the balance sheet of borrowers, a further decline in output, deflation and a debt-deflation series (Gertler, 1988). On the other hand, by discussing the general equilibrium in an economy, Keynes provided the economic literature with the first general framework that correlates financial variables with real economic activities (Chiarella et al., 2009). In the Keynesian theory, financial variables and real economic activities are integral and work together through the liquidity preferences' channel. That integration occurs when interest rate affects real economic activities. In addition, the confidence in financial system is a key factor for avoiding vulnerability in the real output (Minsky, 1975; Gertler, 1988). According to Keynes “the rate of interest on money plays a peculiar part in setting a

limit to the level of employment, since it sets a standard to which the marginal efficiency of a capital-asset must attain if it is to be newly produced” (Keynes, 1936, p. 222).

Following the *Keynesian General Theory*, Hicks (1937) emphasized the role of both money and interest rate in causing vulnerability in real economic activities (Gertler, 1988). Hicks portrayed this relationship through the IS-LM model, which shows the relationship between investment and money supply. His model simplified the Keynesian general equilibrium, which helped in examining the simultaneous determination of income, money, and interest rate in an economy. Hicks showed that changes in income represented in changes in the propensity of investment and consumption cause a shift in the IS curve, while changes in the monetary policy represented in money and interest rate cause a shift in the LM curve.

In a further step, Gurley and Shaw (1955) introduced the idea of the significance of credit supply, instead of money supply, in causing fluctuations in real economic activities. They showed that in early stages of development, money supply provided by banks has a major influence on real economic activities. In later stages of development, money cannot be used as a proxy for financial development, while the role for credit emerges as a key source of funding aggregate investments. Thus, the overall financial capacity is very important in explaining the real-financial interaction (Gertler, 1988).

Modigliani and Miller (1958), following Gurley and Shaw (1955), proposed a new contradicting approach to the Keynesian theory. They showed that financial variables are independent of real economic activities (Gertler, 1988). Their approach was the milestone of the neoclassical theories such as the neoclassical investment theory (Hall and Jorgenson, 1967) and the stochastic competitive equilibrium growth theory (Brock and Mirman, 1972). Those theories ignored capital market considerations and other financial variables when solving investment decisions of firms (Gertler, 1988).

Friedman and Schwartz (1963) pointed out the existence of a strong correlation between money market and output. They considered money as a key financial factor at the expense of the role of all other aspects of financial system, e.g. financial markets.

Accordingly, banks are the only financial institutions that participate in vulnerability of real economic activities (Gertler, 1988).

Starting from Tobin (1969), the influence of financial markets on real economic activities was examined. In his theory, Tobin showed that decisions of sales and investments of firms are affected by activities in stock market, measured by stock market value through what is so-called Tobin's Q ⁹. Tobin's Q , which measures the investment opportunity in the financial market, became a major determinant of investment in the neoclassical investment theory. According to him, "In a complete equilibrium the two sides of the economy –one is tempted to call them "financial" and "real" –must be mutually consistent. That is, the financial inputs to the real side must reproduce the assumed values of the real inputs to the financial side." (Tobin, 1969, p. 16). Although Tobin provided a deep explanation to the interaction between financial market and output, he did not conclusively show the causal direction of this interaction.

During 1970s, Mishkin (1978) and Akerlof (1970), among others, adopted new research questions and assumptions that are more realistic. Mishkin examined the relationship between output and financial variables on consumer side through his analysis of output and consumer balance sheets (Gertler, 1988). Akerlof introduced "Lemons" problem, which distinguishes between low-quality products and good-quality products in the financial sector based on the assumption of the information asymmetry. In addition, the assumption of market imperfection was introduced as a contradiction to assumptions of Tobin's Q theory. The latter two assumptions became a milestone of neo-Keynesian school in their analysis of the real-financial nexuses (Leland and Pyle, 1977; Stiglitz and Weiss, 1981; Myers and Majluf, 1984; Williamson, 1987).

⁹ Tobin's q theory depends on the neoclassical assumptions of the existence of perfect capital markets. Tobin's q is calculated as the ratio of the value of a firm scaled by the replacement value of its physical assets (Spiller, 1985).

Building on the previous two assumptions, Blanchard (1981) scrutinized the impact of the financial market on real activities by incorporating the idea of Tobin (1969) in the conventional IS-LM model. Blanchard adjusted IS-LM model to examine the direct link between changes in monetary policy and the financial market. The main difference between his model and the conventional IS-LM model is his emphasis on the interaction between financial market and output instead of the interaction between interest rate and output. He showed an existence of bidirectional relationship between activities of the financial market and real activities, in which asset values are the main determinants of aggregate output, which, in turn, is considered the main determinants of asset values. Although Blanchard introduced a detailed explanation of the real-financial interaction, he did not conclude unquestionably that causality relationship between financial variables and real economic activities exists. Yet, he explained the main channels that connect the two sides. In addition, he showed that variations in financial markets and output could be explained by changes in fiscal policies. According to him, “The stock market is not the “cause” of the increase in output, no more than the increase in the output is the cause of the initial stock market change. They are both the results of changes in policy.” (Blanchard, 1981, p. 141)

The contribution of Blanchard paved the way to the examination of the role of other financial institutions in the conventional IS-LM. Bernanke and Blinder (1988) adjusted the IS-LM model to include factors that affect banking sector loans in their three-asset model, which describes the relationship between money, bonds, and loans. In addition, they analyzed the impact of government policies such as monetary and fiscal policies on the equilibrium in the loan market. Their contribution enriched the relevant literature with a loan-oriented framework. In the same line of research, Bernanke and Gertler (1987) contributed to the bank-lending channel by assuming endogeneity between financial structure and real economic activities (Gertler, 1988).

Another shift in analysis of real-financial nexus occurred by utilizing behavioral theories, which show that banks are working well in an environment of Laissez-Faire policy

and solid regulations¹⁰. For instance, Bhattacharya and Gale (1987) emphasized on that the importance of government intervention in providing deposit insurance against liquidity risk within the financial sector (Gertler, 1988). In addition, Thakor (1996) pointed out that screening activities, credit rationing, and debt restructuring by banks are mechanisms that restrict the role of financial sector in the real-financial nexus.

Table 2-1 summarizes the main theoretical contributions to the understanding of real-financial nexus.

Table 2-1 Main Contributions in the Field of the Real-Financial Nexus

The Financial System	
Keynes (1936): the Real-Financial Interaction	
Hicks (1937): IS-LM model	
Market-Based Finance	Bank-Based Finance
– Tobin (1969): Stock Market Value (F) (M)	– Bernanke and Blinder (1988): Bank-Lending Channel (M) (F)
– Blanchard (1981): Adjusted IS-LM model (F) (M)	– Bernanke (1992): Bank-Lending Channel (M)
– Darrat (1988): Fiscal and Monetary Policy on Stock Market Return (M)(F)	– Kashyap et al. (1993): Loan- Supply Channel (M)
– Schwert (1989): Causes of Stock Market Volatility (M) (IP) (OM)	– Bernanke and Gertler (1995): Bank Lending Channel (M)
– Boyd et al.(2001): Inflation-Financial System Relationship (M)	– Kashyap and Stein (2000): Bank-Lending Channel (M)
– Beltratti and Morana (2006): Macroeconomic and Stock Market Volatility (M) (OM)	– Boyd et al.(2001): Inflation-Financial Channel (M)
– Jansen et al. (2008): Interdependence between Monetary and Fiscal Policies (F) (M)	

Note: F is fiscal variables, M is monetary variables, IP is industrial production, and OM is other macroeconomic variables.

In addition to the shift in the assumptions and theoretical frameworks of the real-financial nexus, there is another shift in the scope of the empirical analyses. Two main empirical analyses were concerned in recent empirical studies (Levine, 2002; Beck and Levine, 2004): the analysis regarding the nature of the relationship between bank-based and

¹⁰ Examples of these regulations are screening and monitoring by the banking sector and regulations against liquidity risk and financial panic (Diamond and Dybvig, 1983; Friedman and Schwartz, 1986; Gorton and Haubrich, 1986).

market-based financial structures and the analysis regarding the importance of each financial structure. Regarding the nature of the relationship, the existing theory presents an ambiguous conclusion about the nature of such relationship (Beck and Levine, 2004). This is because of the multifaceted aspects represented in different regulations and institutions of the financial system.

Despite the remarkable role of both sources of finance in mobilizing savings required for capital accumulation, three different views regarding the relationship between the two sources of finance can be identified (Song and Thakor, 2010). The first view sees the relationship is competitive (Diamond, 1984; Ramakrishnan and Thakor, 1984; Allen and Gale, 1999). According to this view, stock markets compete with banks in financing growth. The second view sees a complementarity between stock markets and banks in fostering economic growth (La Porta et al., 1999; La Porta et al., 2002; Antoniou et al., 2008). The latter view emphasizes the substantial role of laws and regulations in stimulating activities within the financial sector and the development of one source of finance helps in improving the other. The third view sees a co-evolutionary between both sources of finance (Merton and Bodie, 1995; Levine, 2002). According to this view, both sources grow together and the overall financial arrangements are important in financing growth.

Regarding the importance of banks and stock markets in financing real economic activities, there are two main views (Levine, 2002): bank-based view and market-based view. Each view has its own solid reasons for supporting and favoring one of these sources of finance. The bank-based view gives more priority to banks as sources for mobilizing savings especially in the early stages of development. In addition, banks play a major role in improving capital allocation, good monitoring, good corporate governance, and investment efficiency (Diamond, 1984; Ramakrishnan and Thakor, 1984). In addition, banks eliminate market inefficiencies that result from the existence of non-diversifiable risk in an economy (Allen and Gale, 2000). On the other side, the market-based view emphasizes the importance of stock markets in allocating capital. This is because of their crucial role in the transmission

of information about creditworthiness of operating firms (Boot and Thakor, 1997). In addition, they allow firms with less probability of financial distress and higher creditworthiness to raise funds easily by facilitating asset-risk management through diversification of financial portfolios of firms (Chemmanur and Fulghieri, 1994; Holmstrom and Tirole, 1997; Song and Thakor, 2010).

Determinants of the Development of the Financial Sector

Analyzing factors that affect the development of the financial sector is essential for scrutinizing the economic development (Garcia and Liu, 1999). Based on the previously mentioned theoretical models of real-financial nexuses, different factors that influence the development of the financial sector were identified. Although the role of the financial sector in enhancing the economic development was well studied theoretically and empirically, identifying factors, particularly macroeconomic variables, which affect the development of the financial sector, was received less attention in empirical studies, with few exception, e.g. Boyd et al. (2001), Chinn and Ito (2006), and Hauner (2009). This is due to the multidimensional nature of the financial system (Garcia and Liu, 1999) and the variation of those factors across countries. In addition, although there are many common characteristics among banks and stock markets, there are various prudential regulations that influence their activities. This makes the identification of determinants of the financial sector a complicated task. For the purpose of this review, these factors can be classified into three main categories. The first is monetary and fiscal policies. The second is macroeconomic conditions. The third is the institutional background.

Monetary and Fiscal Policies

Monetary and fiscal policies affect the development of the financial sector development through their influence on market returns. The impact of monetary policy, such as interest rates, money supply, and the inflation rate, on the development of the financial sector received substantial attention in the relevant literature (Patelis, 1997; Boyd et al., 2001). Monetary policies work as a stabilizer for activities of the financial sector. They help

diminish the degree of fluctuations of the financial sector during its business cycles. Furthermore, they play a major role in affecting returns, efficiency, performance, and growth of stock markets. The following empirical studies showed that interest rate is a key factor in changes of stock market returns. Jensen (1996) attributed the ability of predicting stock market returns to the monetary policy. Thorbecke (1997) emphasized the response of the ex-ante and ex-post stock returns to monetary shocks. Kholodilin et al. (2009) demonstrated the impact of monetary policies on the stock market in the Euro Area. They found that monetary policies negatively affect the stock returns on aggregate and sectoral levels. That is, the higher the monetary expansion, the lower the overall stock market returns and the sectoral returns. Mala and Reddy (2007) found a statistically significant impact of interest rates on stock market volatility by utilizing the GARCH model. Bernanke and Kuttner (2005) claimed that the largest source of volatility of equity prices is due to the monetary policy. Ologunde et al. (2006) in their study on the Nigerian stock market found that interest rates had a positive and statistically significant impact on stock market capitalization. In addition to interest rate, inflation significantly affects activities of stock markets. Huybens and Smith (1999) illustrated the impact of inflation on the stock market efficiency. They advocated that higher levels of inflation result in less efficient stock markets. Boyd et al. (2001) found a negative and statistically significant impact of monetary shocks, which are measured by inflation rate, inflation change, and the standard deviation of inflation rate, on the development of the banking sector and stock markets.

Although monetary policy is necessary for predicting stock market returns, it is not sufficient factor. Thus, the impact of fiscal policy on the development of the financial sector should be included (Patelis, 1997). Differently from monetary policies, fiscal policies have relatively less interests literary, and if any, it concentrates on the developed economies. Fiscal policies include changes in government expenditures, revenues, and public debt. In his empirical study, Darrat (1988) emphasized the significant impact of fiscal policies on the financial sector development. He examined the influence of budget deficit used as a proxy for

the fiscal policy on growth rate of stock prices in Canada. He found that the lagged values of fiscal policy are key determinants of changes of growth of stock prices. He added that the better forecasting of the stock returns by investors, which depends on the lagged values of fiscal policy, would be diminishing overtime. In turn, this will lead to a market that is more efficient. From another perspective, La Porta et al. (2002) and Hauner (2009) showed that the public debt hinders the development of the financial sector by reducing the efficiency of banks in countries where governments rely mainly on banks in funding losses of their state-owned firms.

Furthermore, there might be an interdependence of both monetary policies implemented by central banks and fiscal policies implemented by the government on the development of the financial sector. Hancock (1989) re-examined the influential role of both monetary and fiscal policies on the development of the financial sector. By distinguishing between anticipated and unanticipated money growth and budget deficit in USA, he found a strong correlation between stock returns and both of fiscal and monetary policies. In addition, he found a binding efficient market hypothesis when considering both of fiscal and monetary policies. By utilizing semi-parametric model, Jansen et al. (2008) examined the impact of the interaction between the fiscal and monetary policies on the US stock markets. They found that the impact of fiscal deficits significantly constraints the impact of the monetary policy on stock market returns. That is, the impact of the monetary policy, as an impact factor on stock market development, depends largely on the fiscal policy.

Macroeconomic Conditions

Macroeconomic factors have substantial impact on the development of the financial sector. Commonly used factors include income, gross capital formation, foreign direct investment, industrial production, and liberalization. Poor performance of these factors, directly or indirectly, impedes the performance of financial institutions. Only recently, empirical studies, as shown below, have given attention to the impact of macroeconomic determinants on the development of the financial sector.

By utilizing Cadeleron-Rossell behavioral structural model, Yartey (2008) examined macroeconomic determinants of stock market development using a panel of 42 emerging markets during the period of 1990-2004. He analyzed the impact of income level, domestic investment, private capital flows, and stock market liquidity on stock market capitalization. He found a positive and statistically significant impact of stock market liquidity on market capitalization within countries with low-developed banking sector and a negative and statistically significant impact of stock market liquidity on market capitalization within countries with high-developed banking sector. In addition, he found a positive impact of income and investment levels on market capitalization and a positive correlation between private capital flows and market capitalization. By utilizing data from 15 industrial and developing countries, Garcia and Liu (1999) demonstrated the impact of saving and investment rates on the development of stock markets. They found a statistically significant impact of those rates on stock market capitalization.

Notwithstanding the substantial role of economic growth on the development of the financial sector, empirical studies (Levine and Zervos, 1998b; Thakor, 1996; Levine et al., 2000; Christopoulos and Tsionas, 2004) have no conclusive results regarding the causal relationship between the development of the financial sector and the economic growth. Garcia and Liu (1999) and Yartey (2008) found the economic growth is an important determinant of financial sector development. Calderon and Liu (2003) tested the causality between economic growth and financial sector development. They found that financial development enhances economic growth and, simultaneously, growth enhances the development of the financial sector. Bernanke and Blinder (1988) found the economic growth is a major factor that affects the demand for credits provided by the banking sector. Baltagi et al. (2009) found that the GDP per capita is a key determinant of the banking sector development. In their semi-parametric model, Jansen et al. (2008) found the industrial production growth has a positive, but statistically insignificant, impact on stock returns. However, the impact of the lagged industrial production growth on stock returns is a

statistically significant. Contrary, other empirical evidences showed that there is no strong correlation between financial development and economic growth, e.g. Gries et al. (2009).

Other macroeconomic factors include financial liberalization and the degree of openness of a country. Trade and financial liberalization affects the development of the financial sector by enhancing the integration with the international capital markets, which, in turn, has a positive effect on transparency and accountability within the financial sector. Levine and Zervos (1998a) demonstrated the impact of the degree of openness measured by capital control liberalization on the stock market development. They found a strong positive association between the capital liberalization, from one side, and the size, liquidity, and volatility of stock markets, from another side. Do and Levchenko (2004) and Huang and Temple (2005) found a positive and statistically significant impact of trade openness on financial development. Baltagi et al. (2009) examined the impact of trade and financial openness on the development of the financial sector in developed and developing countries. They utilized two main indicators as a measure of financial openness. The first indicator is the financial globalization constructed by Lane and Milesi-Ferretti (2007), which is measured as the volume of foreign assets and liabilities as a percentage of GDP. The second indicator is capital account openness constructed by Chinn and Ito (2006), which is measured as a binary dummy that equals unity in case of absence of capital account restrictions. They found that both trade openness and financial liberalization are statistically significant determinants of the development of the financial sector. However, financial liberalization solely may harm the financial sector if not accompanied with other economic reforms. Consistent with Baltagi et al. (2009), Naceur et al. (2008), found a positive impact of financial liberalization on stock market development under a certain economic and regulatory conditions in the Middle East and North Africa. These conditions involve precedent comprehensive financial reforms before liberalizing the financial sector.

Institutional Background

Institutional factors affect the development of the financial sector through their effect on regulations that govern financial institutions. Institutional factors include improvements in legal systems, property rights of shareholders, corporate governance, and accounting standards. The extent to which the financial sector can sustainably grow depends on prevailing legal environment in a country (La Porta et al., 1999; Beck et al., 2000). Levine and Zervos (1998a) analyzed the impact of the legal system on enhancing market size, liquidity, and volatility through their positive impact on the dissemination of the information. They found emerging countries with better information disseminations, accounting standards, and investor protections have large, liquid, and more volatile stock markets. By examining cross-country differences, Levine et al. (2000) found a strong correlation between legal and accounting reforms, from one side, and boosting activities of the financial sector, from another side. Claessens and Laeven (2003) emphasized the role of protecting property rights in enhancing banking sector financing. Billmeier and Massa (2007) found a positive impact of the quality of institutions and financial sector development in Middle East and Central Asia. By utilizing indicators included in the International Country Risk Guide as measures of institutional quality, Baltagi et al. (2009) found a positive impact of institutional quality on the private credit but a negative impact on the stock market capitalization.

2.3. The Choice of Sources of Financing

Two different approaches explain the relationship between choices of financing and real decisions of firms. The first approach supports the neutral effect of choices of financing on real decisions of firms. This approach is based on the assumption of capital market perfection. This implies a perfect substitutability among different sources of finance. That is, it is neutral for a firm to choose internal, bank-based, or market-based finance. That neutrality is supported by Modigliani-Miller Theorem (1958), which is the cornerstone of the neoclassical theory. The second approach supports the interdependence between choices of financing and real decisions of firms. In this approach, firms compare among alternative

sources of finance based on a hierarchical or a tradeoff pattern, which contradicts the neoclassical hypothesis of perfect substitutability among sources of finance¹¹. The hierarchical pattern implies that internal finance has a cost advantage over external finance and bank-based finance has a cost advantage over market-based finance (Fazzari et al., 1988). The tradeoff pattern implies that firms choose among different sources of financing after comparing their costs and benefits.

Based on the two patterns, two main theories were developed in order to explain financing decisions by firms: the pecking order theory (Myers and Majluf, 1984); Fama and French, 2005) and the tradeoff theory (Jensen, 1986). The two theories presume insufficiency of internal finance because of budget constraints and heavy burdens of initial setup cost. As a result, firms resort to external sources of finance represented in bank-based and market-based finance.

With respect to the pecking order theory, Myers and Majluf (1984) added assumption of asymmetric information in scrutinizing choices of financing of firms. According to the theory, managers are well informed about firm's value compared to shareholders. The theory shows that firms choose among different sources of financing in an ascending order. That is, if sufficient internal funds exist, firms will prefer internal than external finance. If external finance is required, firms will prefer bank-based than market-based finance (Myers and Majluf, 1984). The rationale of the theory stems from the preference of firms for safer financial instruments than riskier ones.

¹¹ Modigliani and Miller (1958) showed that there are two motivations for a firm to invest. The first motivation occurs when investment increases net profits of owners. The second motivation occurs when investment increases the market value of the firm. Under assumption of perfect capital market, authors showed that both market value and net profits are independent of their financial policies. This implies that regardless of possible alternative sources of funds, firms are going to invest more, if the rate of return on investment is larger than or equal the average cost of capital.

Regarding, the tradeoff theory, (Jensen, 1986) added assumptions of the agency theory, which describes the conflict of interest between managers and shareholders¹². According to the tradeoff theory, firms mix bank-based and market-based finance in their financing decisions, by comparing costs and benefits of each source. Bank-based finance mitigates agency cost. In addition, it has advantage in terms of tax reductions for firms with large cash flow and low growth prospects. However, it causes higher bankruptcy cost. On the other hand, market-based finance increases market value of firms with low cash flow and high growth prospects. However, it increases the agency cost of firms.

In addition to the asymmetric information assumed in the pecking order theory and agency problem assumed in the tradeoff theory, the market imperfection and uncertainty were assumed in modern corporate finance theories. Hite (1977) developed a general framework that analyzes links between the choices of financing and real decisions of firms under conditions of uncertainty. He found that firms optimize their financing and real decisions, such as investment simultaneously. Fazzari et al. (1988) modified the pecking order and tradeoff theories by incorporating assumptions of market imperfections and uncertainty, which contradicts assumptions of Tobin's Q theory that shows investment opportunities are influenced by stock market signals, which, in turn, affects the market value of a firm. Therefore, stock market signals are not important determinant of financing decision. The latter assumptions led to the emphasis of the fragile impact of signals of the stock market on financing decisions of firms.

The latter assumptions directed Blanchard et al. (1993), who were influenced by Bosworth (1975), to introduce the fundamental-Q theory as a replacement for the Tobin's Q. By investigating the impacts of stock market signal on financing decisions, the authors found

¹² This conflict mainly arises because the cash payout to shareholders reduces available resources that are under control of managers. As a result, a cost of monitoring by the capital market rises when managers require new capital (Jensen, 1986).

a limited influence of market valuation on financing decisions. In addition, the market valuation might deviate from fundamentals when average and marginal profit fluctuate. Fundamental-Q theory emphasized the substantial impact of firms' fundamentals, such as operating performance, on financing decisions. As an alternative measure to Tobin's Q, the authors used the ratio of the sum of after-tax profits, interest payments, and depreciation divided by capital valued at replacement cost. Given that managers are better informed about a firm than shareholders are, they concluded that fundamental-Q, as a measure of investment opportunities, performs better than Tobin's Q¹³. Moreover, Tobin's Q might get statistically wrong sign. This is because, in an environment of credit market imperfections, profit significantly affects financing decisions of firms through its effect on cash flows. Cleary (1999) supported the previous conclusion by showing that in an environment of incomplete information and imperfect capital markets, firms' fundamentals matter more for financing decisions than stock market signals.

As mentioned, two theories explain the interdependence between the choice of sources of financing and real decision. Nevertheless, what are the channels that cause such interdependence? Literary, two channels link financing and real decisions of firms. The first channel is a balance sheet channel (Gertler and Gilchrist, 1994). The second channel is a bank-lending channel (Bernanke and Blinder, 1988; Romer and Romer, 1990; Friedman and Kuttner, 1993; Kashyap et al., 1993; Bernanke and Gertler, 1995). The two channels, which are represented in modern corporate finance theories, take into consideration four main assumptions: informational asymmetry, costly state verification, adverse selection, and moral hazard (Berger and Udell, 1998).

¹³ The market valuation represented in Tobin's q could be relevant to financing decisions under two unrealistic assumptions: if the sole function of stock markets is to the value of the firm and if shareholders never sell their shares (Blanchard et al., 1993).

In the balance sheet channel, financing decisions depend on healthiness of the balance sheet of a firm. Holmstrom and Tirole (1997) showed that firms with relatively higher net worth are able to get funds from stock markets, while firms with a relatively low net worth depend on banks. Moreover, the financial healthiness of the banking sector affects their supply of funds. Bougheas et al. (2006) theoretically modeled the relationship between characteristics of firms and choices of financing. They emphasized the importance of these characteristics when firms compare between the bank-based and market-based finance. They concluded that smaller firms and firms with lower value of intangible assets are more likely to depend on bank-based finance. In addition, they showed that changes in monetary policy and economic cycle affect their access to external finance.

In the bank-lending channel, financing decisions depend on the cost of obtaining external funds, which is mainly affected by size and age. This is because larger firms have easier access to external finance, while small firms are financially constrained. This is due to the limited ownership structure and lack of information disclosure within small and young firms (Berger and Udell, 1998; Hyytinen and Pajarinen, 2008). Small firms are less transparent in terms of information, which discourages banks to finance them. This is due to two main factors. First, the ownership structure of small and young firms reduce the agency problem through which firms are owner-managed. Second, the degree of informational deficiency, which results from inadequate audited financial statements, hinders small firms from access to external finance (Berger and Udell, 1998). The latter factor leads to negative evaluation of creditworthiness of firms. Accordingly, small and young firms depend more on internal finance. In a recent analysis, Torre et al. (2010) demonstrated the bank-lending channel of small and medium firms. They found that both small and large banks are eager to finance small and medium firms and those firms are their strategic clients. Their conclusion is contradictory to the consensus that states that only small banks finance small and medium firms, while large banks abstain from financing them. That new view stems from changes in

funding capacity of banks because of the evolutions in technologies, risk management, and new financial innovation within the banking sector.

2.4. Privatization and the Economic Activities

Distinguishing the role of the state and the private sector in economic activities was a debatable issue in modern economic thinking. According to Megginson and Netter (2003), the state ownership dominated most of economic activities after World War II. This was due to nationalization campaigns implemented in order to meet the needs of the reconstruction and development during that period. However, after three decades, countries encourage private participation in economic activities representing some aspects of privatization¹⁴.

During 1980s, a number of countries adopted structural reforms in order to tackle financial losses of state-owned firms (SOEs) and enhance competition and free market principles¹⁵. Consistent with these reforms, governments started transferring ownership from state to private entrepreneurs and deregulating SOEs in order to improve management and productivity before divestiture (Kikeri et al., 1994; Megginson and Netter, 2001). In late 1980s, the second conservative government led by Thatcher in United Kingdom

¹⁴ There are few exceptions during 1950s and 1960s. During that period, West Germany, United Kingdom, and Taiwan adopted limited actions of privatization by divesting some state-owned properties (Megginson and Netter, 2003; Parker, 2006).

¹⁵ Before 1980s, it was not clear when researchers had started using the concept of privatization. In the context of divestment of public properties, the concept of “denationalization” was used to reflect selling the state-owned firms to private entrepreneur. It is claimed that Peter Drucker used the concept of privatization in early 1969 when he published his book “the Age of Discontinuity”. However, this does not mean that the transfer of ownership from state to private entrepreneur emerged once the modern economy had established. It was found that both of state ownership and private ownership were as old as the ancient world, i.e. in ancient Near East, ancient Greece, ancient Egypt, and ancient Rome (Megginson and Netter, 2003).

announced the first comprehensive plan of privatization¹⁶. Following United Kingdom, a number of countries in Western Europe during 1990s adopted massive privatization plans (Parker, 2006). Constantly, privatization was adopted all over the world in developed and developing countries covering all economic sectors.

Because of the increased private participation during 1990s, privatization became a debatable issue among economists and politicians in modern economic thought. This led to three debating views. The first view favors planned economies and state intervention. This view supports the state intervention in all economic activities and believes that the role of the state should be maximal. In addition, the private sector should not involve in providing strategic services. The second view favors laissez fair policies and privatization. This view supports restriction of state intervention. In addition, private sector can participate in all economic activities including public utilities such as water, sanitation, prisons, energy etc. The third view compromises the above-mentioned views by showing that the role of the state and private sector should be complementary. In addition, public services could be provided by both the state and private sectors in forms of public private partnership.

Privatization is a process of transferring ownership or control rights from state to a private entrepreneur¹⁷. Sappington and Stiglitz (1987) showed that under the state ownership,

¹⁶ In general, the mainstream economists, e.g. Bortolotti, et al. (2003), Willner (2003), Hodge (2006) and Parker (2006), refer to the massive use of privatizations as practical phenomenon started in 1980s after the second conservative government led by Thatcher in UK announced a comprehensive privatization plan (Parker, 2009).

¹⁷ It is important to differentiate between “privatization” and other close concepts such as liberalization, deregulation, and marketization. Liberalization means, “The establishment of competitive product markets” (Robinson, 2003, p. 45). Deregulation means, “The removal of government rules that hinder competition” (Robinson, 2003, p. 45). Marketization refers to the transformation of state-owned firms into state-owned corporations constructed in the first stage of divestiture (Trupiano, 1993).

the state intervenes directly in major aspects of production and financial decisions of firms. Under private ownership, private creditors and financial agents have most of the control over the firm. In the latter case, governments have a limited intervention in the operation of private firms, which includes setting regulations aiming at diverting resources from private firms for better serving of social interests and rescuing private firms from bankruptcy. Furthermore, privatization can be extended to include all aspects of private intervention in all stages of production processes, which includes a transfer of control rights and cash flows from state toward private entrepreneurs (Bortolotti et al., 2003; Boyck et al., 1996). In addition, it can involve all aspects of contracting agreement between state and private entrepreneur (Dudley et al., 2006). From the previous definition, all economic activities can be privatized such as production, delivery of services, and monitoring of production. This was the emphasis of the economic thinking during 1990s and 2000s, when private sector participation covers approximately all economic sectors, such as transportation, railways, energy, communications, finance, and manufacturing.

Countries adopt privatization as prescription of the Bretton Woods institutions in order to tackle the macroeconomic disequilibrium and to enhance the financial sector. Motivations for privatization are different among countries. In general, a government tends to privatize in order to reduce public deficit, alleviate external debt, and enhance activities of the financial sector. By undertaking privatization, a government takes into consideration its various consequences on the economy such as unemployment and investment climate. Literary, privatization has various impacts on an economy. It can significantly influence economic development, operating and financial performance of firms, and financial sector development. The following section briefly previews these impacts.

Privatization and Economic Development

Privatization can positively enhance economic development of a country through its effects on budget deficit, competition, and investment. Privatization helps in recovering imbalances of the budget deficit caused by losses of state ownership. This results from the

inefficiency of SOEs in utilizing economic resource. In addition, it enhances the market competition by allowing new entries of private firms. Kikeri, et al. (1994) emphasized the negative influences of state ownership on market competition, even if market failure does not exist. By suppressing state monopoly in operating industries, market competitions significantly improves within those industries (Segal, 2004). Resulting from its positive impact on market competition, privatization encourages local and foreign investments and increases the aggregate demand, which, in turn, enhances institutional innovation and market development (Torino, 2003). As a result, competition among investors increases leading to better utilization of economic resources, which creates a healthy environment for both local and foreign investment. In their study about Egypt, El-Mahdy et al. (2007) showed that privatization increases the overall efficiency and competition by better utilization of capital and human resources. In addition, by enlarging the consumer access of varieties of better services resulted from privatization, the well-being of people is improved (Segal, 2004). This increases the long-run economic growth rate and spurs the economic development.

Notwithstanding its positive outcomes, privatization has various economic and social costs (Hastings and Levie, 1983). Particularly in developing countries, state control is considered a way of protecting the social obligation of the central government in providing public services, especially the following services. First, those are critical to the public interest such as defense and internal security. Second, those are important to manage essential public services such as sanitation, education, and healthcare facilities. Third, those are considered by the private sector as non-profitable or non-operational projects such as infrastructure (Kotler and Lee, 2007). Thus, the economic costs from privatization are represented in reducing the provision of the previously mentioned public services. In addition, negative economic outcomes from privatization may result from selling profitable state-owned firms. Given that the private entrepreneur will refuse to buy losing firms, governments opt for selling only profitable SOEs. This may result in inefficiency in utilizing economic resources (Hastings and Levie, 1983). From developmental perspectives, the social costs of privatization may

exceed the expected economic efficiency. Those social costs are represented in increasing number of idles in an economy, widening the income gap between rich and poor, and reducing available social services, which is previously provided by the state prior to privatization. Empirical evidences showed various aspects of accelerating violence between labors and government as a result of privatization (Hastings and Levie, 1983). However, the economic and social costs associated with privatization can be mitigated by good regulations introduced before privatization. That is, the extent to which privatization could spur economic development in an economy is constraint by the quality of those regulations (Trupiano, 1993).

To sum up, privatization has positive as well as negative outcomes for economic development. The positive outcomes stem from the role of privatization in curing macroeconomic imbalances caused by the increasing budget deficit. Once the government starts divestiture, the budget deficit will slightly decrease. In addition, the quality of provided goods and services will be enhanced by improving efficiency of utilizing economic resources. Moreover, privatization improves the investment climate in an economy. This attracts new investors and improves the national credit ratings of a country. The negative outcomes stem from its economic and social costs, which can be mitigated by introducing good regulations prior to privatization.

Privatization and Performance of Firms

According to the fundamental theorem of privatization (Sappington and Stiglitz, 1987), the performance of privatized firms exceeds SOEs if externalities or natural monopolies resulted from the market failure dilemma do not exist (Yoder et al., 1991). There are two main reasons of the deficiency of the SOEs in operation. The first reason stems from the inertia in operation of SOEs (Chong et al., 2003). This is caused by the imperfect monitoring, poor incentives of managers, and poor corporate governance that characterize SOEs. According to Boycko et al. (1996) and Chong et al. (2003), that inertia results from the ineffective production plans and the political economy aspect in running SOEs, which can be

shown in the conflict of interest and the soft budget constraint in managing SOEs. Managers aim at maximizing their political capital even if they make inefficient decisions. This leads to inefficient strategies related to employment, production, and investments. By pursuing privatization, an effective restructuring of firms can be achieved. Such restructuring improves operating and financial efficiencies of privatized firms. This can be observed in a number of empirical evidences, which are reviewed as follows.

By surveying 452 Russian small firms privatized during 1992-1993, Barberis et al. (1996) found that the Russian firms implemented a significant positive restructuring after privatization. In particular, they replaced old human capital by new human capital. This caused an improvement in the operating performance of firms by introducing new ideas and replacing the old capital. However, authors suggested that the extent to which privatization can lead to improvement in restructuring depends on the existence of free operating financial markets and good corporate governance. By testing the impact of privatization on Turkish Cement industry, Okten and Arin (2006) found a significant improvement in productive efficiency of privatized firms. This improvement was due to reductions in the workforce. In their analysis, they distinguished between divestiture of SOEs to local or foreign investors. They found that only firms divested to foreign investors achieved significant improvements in investment and capital intensity. In their study, El-Mahdy et al. (2007) found privatization increases investment opportunities, output, net sales, and exports of privatized firms in Egypt. This was because privatized firms modernized their management by establishing new departments for research and development. In addition, privatized firms restructured their usage of labor. Although a number of privatized firms fired labors, particularly in financial and managerial departments, they hired more efficient and educated ones. In addition, the study found an increase in the real wages of labors. By replacing less skilled for high skilled labors, who gain higher wages, the negative impact on employment was reduced.

However, these gains from privatization may depend on the economic environment surrounding privatized firms and the industry, where privatized firms belong. Kikeri et al.

(1994) set three main obstacles to the good performance of privatized firms. First, there is a tendency of central governments to put various constraints in front of the private sector competing SOEs. Second, there is a crowd-out effect in the credit market, which occurs when large SOEs compete privatized firms in obtaining credit, especially in large-scale industries. Third, a high cost of restructuring firms after privatization, which is resulted from the misallocation of production inputs by SOEs before divestiture, increases operating costs of privatized firms. The previous obstacles imply that the expected efficiency gains from privatization are conditional to the adopted economic policies and the type of industry, where privatized firms belong. This can be observed in a number of empirical evidences, which are reviewed as follows.

Robinson (2003) limits the potential benefits of privatization based on trade policies such as the degree of liberalization. Parker (2006) lists a number of conditions necessary for the efficacy of privatization: the existence of corrupt-free government, the existence of competitive product and capital market, and the existence of efficient state regulations. In a recent study, Cook and Uchida (2008) doubted the expected improvement in operating and financial performance of privatized utilities in developing countries. In their analysis, authors compared the performance measures of a sample of privatized utilities and non-utilities. By utilizing non-parametric tests, the study found a reduction in the profitability, sales, employment, and capital investment among privatized firms. However, the reduction in profitability was statistically significant among privatized utilities but statistically insignificant among non-utilities. The reduction in sales was statistically insignificant among all privatized firms. The reduction in number of employees was higher among privatized utilities compared to privatized non-utilities. The privatized utilities witnessed highest reduction in capital investment. In addition, the study found a statistically insignificant reduction in the sale efficiency among privatized non-utilities. On the other hand, 67% of privatized utilities witnessed rises in their sale efficiency.

To sum up, privatization helps in improving efficiency of privatized firms. However, the gains from privatization are constrained by regulations and economic policies set up after privatization. In number of industries, the ability of privatized firms to perform efficiently was suspected. That is because free markets cannot perform well in those industries without government intervention in order to cure market failures.

Privatization and Financial Sector Development

The dominance of the SOEs caused inefficiency in operations of the financial sector. Such inefficiency resulted from the dependence of SOEs on state-owned banks in financing their losses causing a distortion in the financial sector. This can be observed from increasing volumes of bad loans within the banking sector (Chong et al., 2003). Countries that started resolving the structural imbalances within the financial sector adopted certain reforms within their financial system. One of these reforms is liberalizing their financial services through privatization in order to encourage the flow of private capital. As mentioned in the previous section, privatization improves efficiency of operating firms in different economic sectors. Moreover, privatization has a significant impact on performance of the financial sector. Boutchkova et al. (2000) considered the period of 1980s and 1990s as golden age of the financial market. This is due to the significant increases in volume of trades of international stock markets. Such increases in volume of trades were due to the gradual increase in privatization around the world, particularly during 1990s. By adopting share issue privatization and privatizing state-owned banks in a number of developing countries, international financial markets were activated.

Two impacts of privatization on the financial sector can be distinguished: the impact on development of stock markets and the impact on development of the banking sector. With respect to stock markets, privatization directly affects liquidity, volume of trades, number of listed companies, and market capitalization. Subrah et al. (1999) showed that privatization increases liquidity in stock markets, through public share offering. This is due to two main reasons. First, it increases diversification of investment because of the improved

informational efficiency resulting from enhanced market competition. Privatization improves access to costless and useful information in stock markets through what is so-called 'serendipity' effect resulted from increased number of listed firms. This leads to higher assimilation of information and liquidity within stock markets. Second, privatization mitigates the political risk and increases market confidence, which, in turn, encourages firms to list their shares in stock markets. The analysis of the impact of privatization on the stock market is observed in a number of empirical evidences, which is reviewed as follows.

Boubakri et al. (2007) emphasized the significant influence of privatization on developing local stock markets. By using a sample of 61 emerging and developed markets during 1980-2003 and utilizing 2SLS, they found that neither method of privatization nor the intensity of privatization has a contemporaneous effect on the development of stock markets. Despite that, they found a statistically significant inter-temporal effect of intensity of privatization on the size and liquidity of stock markets in both emerging and developed markets. However, they found a statistically significant inter-temporal effect of privatization method on the size and liquidity in emerging markets but no inter-temporal effect in developed markets. In a different line of research, Abdel-Shahid (2002) assessed the stock market performance of privatized firms in Egypt during the period of 1995-2001, by comparing their market prices with offering prices. The author found a fall in price valuation of majority of privatized firms. Farinós et al. (2007) examined the stock market performance of privatized firms during the period of 1993-2001 in Spain. By utilizing the calendar-time portfolio approach, they compared the performance of privatized firms with privately owned firms. They showed that privatized firms were underpriced as a way to increase number of shareholders. Moreover, they did not find any statistically significant abnormal returns of privatized firms. Moreover, privatization could indirectly enhance the development of local stock markets through its impact on market confidence and resolution of the political risk. Perotti et al. (2000) showed that privatization gradually improves trust and increases confidence in the financial system. Together with financial liberalization, these conditions

enhance the growth of stock markets. Perotti and Oijen (2001) showed that privatization indirectly affects liquidity of stock markets through its effect on credibility and political risk. It provides signals of financial credibility and builds up public confidence regarding activities of operating firms, which, in turn, affect the growth of stock markets.

While the previous studies showed causality from privatization towards the development of stock markets, the development of stock markets can promote privatization progress. Bortolotti et al. (2003) showed that deep and liquid stock markets facilitate divestiture of large SOEs, which, in turn, helps in further evolution of stock markets leading to more privatization progress.

Although the previous studies showed a positive impact of privatization on local stock markets, its impact might be constrained by good regulatory and institutions in a country. In their study, Bortolotti et al. (2003) emphasized that the impact of privatization on stock markets is limited in civil law countries, which are characterized by poor protection to shareholders, a powerful banking system, and less developed stock markets.

With respect to its impact on the banking sector, privatization significantly affects the banking sector through its influence on performance of divested banks. Although the impact of privatization on the performance of divested banks is debatable, the empirical evidences of such impact are limited, particularly in developing countries (Otchere, 2005). While a number of existing empirical evidences support improvement of financial and operating performance of privatized banks, other declined such improvement. The changes in financial and operating performance stem from the impact of privatization on efficiency, capitalization, lending behavior, and risk-taking behavior of banks. In addition, privatization affects the stock market performance of privatized banks in terms of changes of their returns in stock markets. Not only privatization affects the performance of privatized banks, but also it has a significant influence on other operating banks, what is a so-called competitive effect or positive information effect hypothesis introduced by Otchere (2005). The changes in the

performance of privatized banks is observed in a number of empirical analyses, which are reviewed as follows.

Beck et al. (2005) examined the changes in performance and lending behavior of nine privatized banks in Nigeria during 1990-2001. The study found a statistically significant improvement in performance measured by profitability. Moreover, the study found that privatized banks that invest more in government bonds and other non-lending activities outperform banks that mainly depend on lending activities. Boubakri et al. (2005) examined the post privatization performance of 81 banks from 22 developing countries. By utilizing univariate and regression techniques, they found a significant marginal improvement in their operating performance measured by profitability and credit risk exposure of privatized banks over time. Despite that, they showed that on average privatized banks have lower economic efficiency and solvency ratio compared to state-owned banks. By distinguishing between domestic and foreign ownership, they found that privatized banks controlled by domestic investors are exposed to higher risk and have lower economic efficiency. Alternatively, privatized banks controlled by both domestic and foreign investors are exposed to lower risk and have higher economic efficiency. Otchere (2005) examined both operating and stock market performance of privatized banks in middle and low-income countries. In their qualitative analysis, the author found a statistically significant marginal improvement in operating performance of privatized banks measured by capital adequacy, asset quality, management efficiency, profitability, and employment. In addition, privatized banks are better capitalized compared to rival banks. Despite that, public shares of privatized banks lag behind the average market and rival indices. With respect to the competitive effects hypothesis, the author found a negative and statistically significant association between privatization and abnormal returns of rival banks. On the other hand, other empirical evidences showed that privatization has a negative impact on operating performance of banks. Bonin et al. (2005) assessed the impact of privatization on efficiency of banks in eleven Eastern European countries during 1996-2000. By applying stochastic frontier estimation,

they found that privatization could not guarantee the improvement in efficiency measured by profit and cost functions. By comparing efficiency of privatized and state-owned banks, they found no statistically significant difference. In addition, the remaining banks expected to be privatized are less efficient than those already privatized. This is consistent with the hypothesis that governments in transition countries start first privatizing best performing banks. In Egypt, Omran (2007) examined the operating and financial performance of 13 privatized banks during the period of 1996-1999. By utilizing a non-parametric test and bank-level regression, they found a significant deterioration in some profitability and liquidity ratios of privatized banks. They found a statistically significant decline in both return on equity ratio, as a measure of profitability, and securities to total assets ratio, as a measure of liquidity. In addition, there is a decline, although statistically insignificant, in other measures of profitability, capital risk, and asset quality such as return on equity ratio, loans to total capital ratio, and asset growth ratio. On the other hand, there exists a slight increase, although statistically insignificant, in asset quality, measured by the loan losses to total loans ratio, and capital risk, measured by the capital to asset ratio. By comparing the performance of privatized banks and other operating banks, they found that privatized banks lag behind other private banks but they outperform majority of state-owned banks.

Regarding the impact of privatization on lending behavior of banks, Clarke et al. (2005a) analyzed the impact of privatization on sectoral lending and foreign bank entry in Argentina during 1990s. By utilizing bank-level regression, they found a temporary reduction in available credit in provinces that privatized their banks. Over time, available credit in those provinces grows up to their pre-privatization level. In addition, it was observable that those provinces have higher level of foreign bank entry compared to other provinces. With respect to the sectoral lending, they showed that privatized bank reduced their lending for the agriculture and mining sector.

Although the previous studies showed a potential impact of privatization on the performance of banking sector, it may depend on the prevailing institutional and regulatory

backgrounds of a country. As Boubakri et al. (2005) showed the prevailing macroeconomic and institutional conditions have an important influence on the performance of banks after privatization.

To sum up, privatization affects the development of the financial sector through its impact on activities of stock markets and banks. Privatization affects stock markets directly through its impact on liquidity, volume of trades, number of listed companies, and market capitalization and indirectly through its impact on market confidence and resolution of the political risk. With respect to the banking sector, there is no common consensus on the expected gains from privatization. It affects the operating and financial performance of banks through its impact on efficiency, capitalization, lending behavior, and risk-taking behavior. Notwithstanding the potential impacts of privatization on the financial sector, those impacts might be dependent on the prevailing macroeconomic and institutional backgrounds of a country.

2.5. Concluding Remarks

This chapter has reviewed the main contributions of schools of economic thought concerning the real-financial nexuses. Mainly, two schools have been reviewed: the neo-classical School and neo-Keynesian School. In addition, the chapter has reviewed main contributions regarding the development of the financial sector, choices of financing of firms, and privatization.

The neo-classical School built their views on the contributions of Modigliani-Miller theorem and Q-theory, which are based on assumptions of perfect capital market, rational expectations, and optimization of firm's value. This led them to ignore the impact of financial variables on real decisions of firms. In addition, those assumptions clearly ignore the possibility of capital market imperfections and the existence of asymmetric information and selfless managers. By ignoring the latter assumptions, the school disregarded the fact that managers and shareholders are different in their information about the firm. While managers are well informed about their firm, the shareholders are less informed. By assuming a perfect

capital market, this implies that capital markets are efficient and the changes of stock market prices could be used as signals for real decisions of firms. However, recent evidences showed an inefficiency of capital market in both developed and developing countries. By assuming selfless managers, who seek for optimizing firm's value, the school ignored the possible conflict that might arise between managers and shareholders. By doing so, the school assumed that managers are working for the sake of shareholders and their main target is to maximize the market value of a firm as emphasized by Crotty (1992). Although, on the empirical level, its assumptions might be applicable to a number of developed countries, in developing countries, where intensity of capital market imperfection is higher, those assumptions are inapplicable. For instance, a number of studies, e.g., Akerlof (1970), Rothschild and Stiglitz (1976), provided evidences on invalidity of the neoclassical assumption of perfect capital market and the absence of asymmetric information. Although the Q-theory has many theoretical advantages, other models empirically perform better, for instance models that are based on the sales accelerator principle, e.g. Abel and Blanchard (1986) and Bierlen and Featherstone (1998). The latter models are based on the idea that firm's fundamentals are more important.

On the other hand, the neo-Keynesian School showed that the financial sector and real activities are integral. They work together through the liquidity preferences' channel. In addition, the school attracted the attention to the significant role of credit markets, instead of money supply assumed by the Monetarism, and financial markets as an important factor in their analysis of real-financial nexuses. In addition, the school provided a more appealing theory of a firm, which takes into consideration more realistic assumptions such as agency conflict, imperfect capital market, and asymmetric information. Through those assumptions, they emphasized the important interaction between choices of financing and firm's fundamentals such as the profitability. Although the neo-Keynesian theory is based on assumptions that are more realistic, it has deficiencies, which are emphasized by Sawyer (1998). One of their deficiencies is their assumption of exogeneity of the money stock.

Although the latter assumption helped them in introducing models of real-financial interactions, it ignores the fact that money is driven by the private sector demand.

Regarding the performance of firms with private and state ownership, various researchers supported the improved efficiency of privatized firms after divestiture. Two main reasons explain the deficiency of the SOEs: the inertia in operation of SOEs and the political economy aspect in running SOEs. However, the performance of SOEs can be improved if they adopted the same tools that the private firms use in marketing, purchasing, leadership, entrepreneurship, strategy, and operations as discussed in Kotler and Lee (2007). According to the fundamental theorem of privatization, the performance of privatized firms exceeds SOEs in an environment where externalities and natural monopolies do not exist. Although this was supported by a number of empirical evidences, there exist a number of exceptions in cases of strategic industries in France, Britain, Indonesia, and other few countries as discussed in Kikeri et al. (1994).

Although privatization could improve allocation of resources, it may cause various social costs. Moreover, a number of conditions restrict the potential gains from privatization: the existence of market competition and perfect information as emphasized by Bortolotti and Siniscalco (2004). On the empirical level, there may be an overestimation of the gains from privatization. As, those gains may result from different sample selection bias. There are three sources of biases in the relevant empirical research as discussed in Chong et al. (2003). The first bias results from the choice of politicians to privatize the healthiest SOEs. The second bias results from the focus on developed countries in analysis. The third bias results from the exclusion of sampled firms that were bankrupted in post privatization periods.

Chapter 3. Evolution of Privatization and the Financial Sector in

Developing Countries: Facts and Trends

In developing countries, the state ownership dominated most of economic activities such as investment, industrial production, international trade, and the banking and insurance services. During late 1980s and early 1990s, number of developing countries, among them Egypt, adopted structural reform programs in order to tackle the macroeconomic imbalances faced by their economies. In Egypt, the foremost outcome from the nationalization campaigns after 1952 revolution was the dominance of state-owned firms over majority of economic sectors during 1950s and 1970s. However, starting from early 1990s, Egypt followed major trend in developing countries by adopting privatization in order to enhance activities of the private sector in major economic sectors, in particular the banking and non-bank financial services. As its target to enhance activities within the financial sector, Egypt adopted various privatization methods since the first half of 1990s, among them share issue privatization. By adopting those methods, Egypt was able to promote competition, activities, and performance of its financial market, operating banks, and non-bank financial institutions. That was shown in increasing values of domestic credit, market capitalization, returns on financial assets, and liquidity ratios.

This chapter reports recent trends of the evolution of privatization and activities within the financial sector in developing countries, particularly Egypt. This chapter is organized as follows. Section 3.1 briefly reports recent trends of privatization and the financial sector in developing countries. Section 3.2 details recent trends of privatization and the financial sector in Egypt. Finally, section 3.3 provides concluding remarks.

3.1. Privatization and Evolution of the Financial Sector in Developing Countries

Major privatization transactions were implemented in developing countries in early 1990s because of the prescription of the World Bank and IMF to tackle their macroeconomic imbalances. The divestiture of SOEs was one of major policies that were adopted by developing countries in order to alleviate, mainly, their budget deficits.

In developing countries, the upper middle-income countries followed by lower middle-income countries implemented most of privatization transactions during the period of 1988-2008 with average proceeds per country estimated at USD 584.7 and USD 363 million, respectively. That represented about 78 % of the total average privatization proceeds occurred during that period. As shown in Table 3-1, the average growth rates of privatization proceeds were higher among the upper middle-income group with an estimated growth rate at 6.5% compared to the other income groups. This was mainly due to the high growth rates of privatization proceeds in Croatia, Lithuania, Serbia, Turkey, and Venezuela.

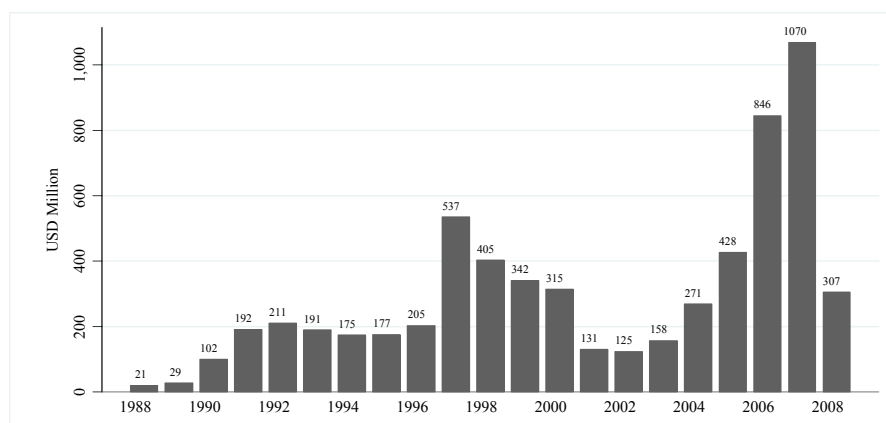
Table 3-1 Average Privatization Proceeds and Associated Growth Rates by Income Groups in Developing Countries, 1988-2008

Income group	Proceeds (USD Million)	Growth Rate (%)
High	228.9	5.3
Upper Middle	584.7	6.5
Lower Middle	362.7	4.2
Low	31.8	5.2
Total	1208.1	5.3

Source: Author's calculation based on the World Bank Privatization Database, 2010

The average annual proceeds per country of privatization during 1990s were estimated at USD 223.1 million. As shown in Figure 3-1, although the average annual proceeds per country were low during the first half of 1990s, they gradually increased during the second half of 1990s before starting to decline significantly in early 2000s.

Figure 3-1 Average Annual Privatization Proceeds per Country in Developing Countries, 1988-2008



Source: Author's calculations based on the World Development Indicators, 2010

The average annual privatization proceeds per country during the first half of 1990s were estimated at USD 175 million, while they were estimated at USD 372 million during the second half of 1990s. Compared to the period of 1988-2000, the average annual privatization proceeds per country doubled during 2000-2008, which exceeded USD 405 million. This was because of the large annual proceeds of privatization achieved during the second half of 2000s, which were estimated at USD 663 million during that period.

Regarding privatization methods, in the early stages of the implementation of privatization, they were mainly captured by using initial public offering and voucher schemes. This was shown in the large volumes of proceeds using those methods during the period of 1988-1995. The large usage of voucher schemes was due to the large number of privatization transactions implemented among Eastern European countries. During the second half of 1990s, as Table 3-2 shows, privatization proceeds were mainly captured by using the following methods: auction, bids, tenders, and initial public offering. Although most of privatization proceeds were captured by using auctions, bids, and tenders during 1990s, which were estimated at USD 100 billion, during 2000s, privatization proceeds were mainly captured by using initial public offering and secondary market, which were estimated at USD 114 billion.

Table 3-2 Average Privatization Proceeds in Developing Countries by Method, 1988-2008

Privatization Method (USD Billion)	1988- 1995	1996-2000	2001-2005	2006-2008
Auction, Bids, and Tenders	12.45	87.14	11.15	4.23
Concessions, Lease, Future Investments	17.57	14.30	18.58	30.57
Employee Share Association	0.04	0.16	0.07	0.00
IPO and Secondary Market	42.20	40.77	15.01	99.32
Debt-Equity Swap	0.20	0.01	0.00	0.00
Partial Share Issue Sales	0.16	0.84	1.15	78.72
Private and Direct Sale	6.77	36.18	38.68	0.85
Voucher	41.06	6.61	20.23	9.31
Others	13.81	32.42	29.37	47.76
Total	134.27	218.42	134.22	270.76

Source: Author's calculations based on the World Bank Privatization Database, 2010

Table 3-3 reports major countries that adopted privatization since its start. In those countries, privatization proceeds evolved significantly from USD 0.69 billion during 1988-

1994 to USD 1.6 billion and USD 1.9 billion during the periods of 1995-2000 and 2001-2008, respectively.

Latin American countries, namely Mexico, Argentina, and Brazil had the larger volumes of proceeds, while Russia, Egypt, and Morocco had the lowest volumes of privatization proceeds during the first half of 1990s. On the other hand, during the second half of 1990s, the largest volumes of privatization proceeds were captured by Latin American countries, namely Brazil, Argentina, and Mexico. In addition, China and a number of eastern European countries increased their privatization transactions significantly during the second half of 1990s. Although China, Russia, Turkey, Check Republic, and Egypt had witnessed a modest start of privatization plans, they crucially increased the volumes of transactions during 2000s.

Table 3-3 Average Privatization Proceeds in Selected Developing Countries, 1988-2008

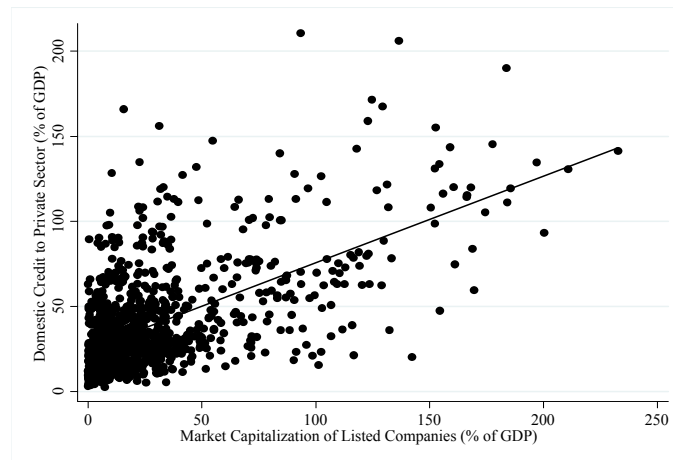
Country (USD Billion)	1988-1994	1995-2000	2001-2008
Argentina	3.098	3.816	0.001
Brazil	1.294	11.932	0.947
Chile	0.183	0.286	0.130
China	0.907	4.087	20.057
Colombia	0.105	0.992	0.619
Czech Republic	0.366	0.628	1.489
Egypt	0.073	0.662	1.406
Hungary	0.815	1.480	0.890
India	0.628	0.770	1.197
Indonesia	0.283	0.711	0.351
Malaysia	0.948	0.595	0.279
Mexico	3.881	1.278	0.761
Morocco	0.089	0.765	0.726
Pakistan	0.220	0.075	0.944
Peru	0.454	0.875	0.141
Philippines	0.458	0.163	0.500
Poland	0.288	2.722	1.241
Russia	0.033	1.393	6.522
South Africa	0.331	0.318	0.095
Thailand	0.149	0.379	0.340
Turkey	0.358	0.832	3.983
Venezuela	0.353	0.600	0.000
Total	0.696	1.607	1.937

Source: Author's calculation based on the World Bank Privatization Database, 2010

Figure 3-2 shows the relationship between the changes of ratios of market capitalization of stock markets as percentages of GDP and the changes of ratios of domestic

credit provided by the banking sector to the private sector as percentages of GDP. For a number of countries, increases in ratios of the market capitalization were associated with increases in ratios of the domestic credit.

Figure 3-2 Association between Average Ratios of Credit to Private Sector and Market Capitalization in Developing Countries, 1988-2009



Source: Author's calculations based on the World Development Indicators, 2010

Figure 3-3 and Figure 3-4 show the relationship between the changes in average ratios of the privatization proceeds as percentages of GDP and the changes in average ratios of both the market capitalization and the domestic credit provided to the private sector.

Figure 3-3 Association between Average Ratios of Market Capitalization and Privatization Proceeds, 1988-2009

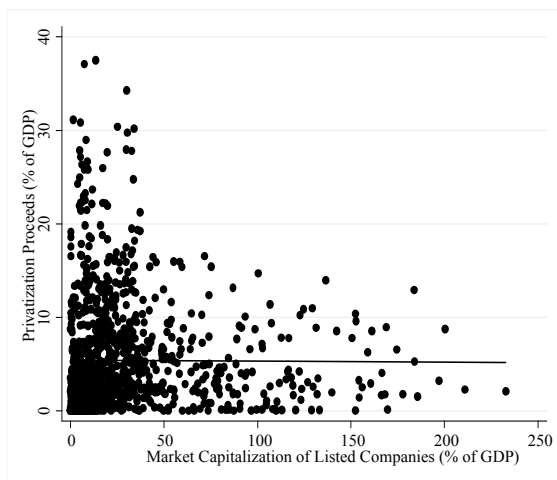
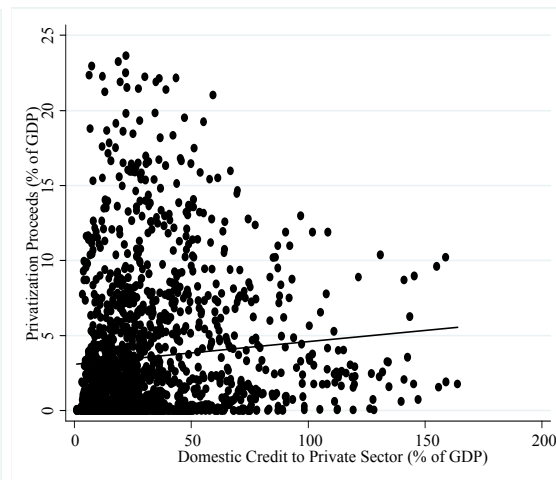


Figure 3-4 Association between Average Ratios of Domestic Credit to Private Sector and Privatization Proceeds, 1988-2009

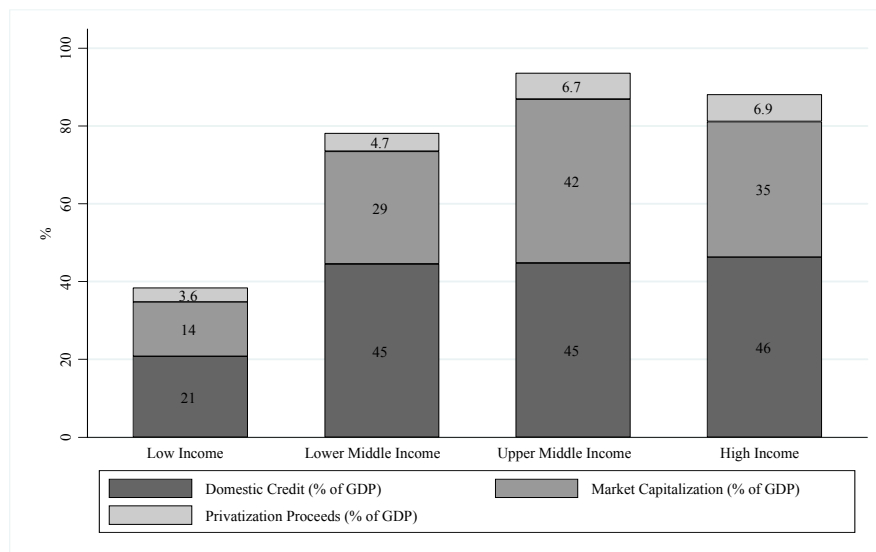


Source: Author's calculations based on the World Development Indicators, 2010

For a number of countries, increases in average ratios of the privatization proceeds as percentages of GDP were associated with increases in average ratios of the market capitalization as percentages of GDP, as shown in Figure 3-3. In addition, for a number of countries, increases in average ratios of the privatization proceeds as percentages of GDP were associated with increases in average ratios of the domestic credit as percentages of GDP, as shown in Figure 3-4. This could be explained by the increases in the participation of the private sector associated by adoption of privatization in economic activities.

By exploring variations of ratios of privatization proceeds among different income groups during the period of 1988-2008, as shown in Figure 3-5, it is noted that average ratios of privatization proceeds as percentages of GDP were highest in the high-income group, followed by the upper middle-income group. Notably, the higher the income, the higher the ratio of privatization proceeds. The average ratios of privatization proceeds as percentages of GDP were estimated at 6.9% and 6.7% for the high-income group and the upper middle-income group, respectively.

Figure 3-5 Average Ratios of Domestic Credit, Market Capitalization, and Privatization Proceeds as Percentages of GDP by Income Groups, 1988-2009



Source: Author's calculations based on the World Development Indicators, 2010

On the other hand, financial indicators, which are measured by ratios of market capitalization and domestic credit as percentages of GDP, were the highest among the high-

income and upper middle-income groups. The high-income group achieved the highest domestic credit ratio provided to the private sector, which was estimated at 46%. It was followed by upper middle-income and lower middle-income groups, which was estimated at 45% and 45%, respectively. With respect to the market capitalization ratio, the upper middle-income group achieved the highest ratio, which was estimated at 42%, followed by the high-income group, which was estimated at 35%.

3.2. Privatization and Evolution of the Financial Sector in Egypt

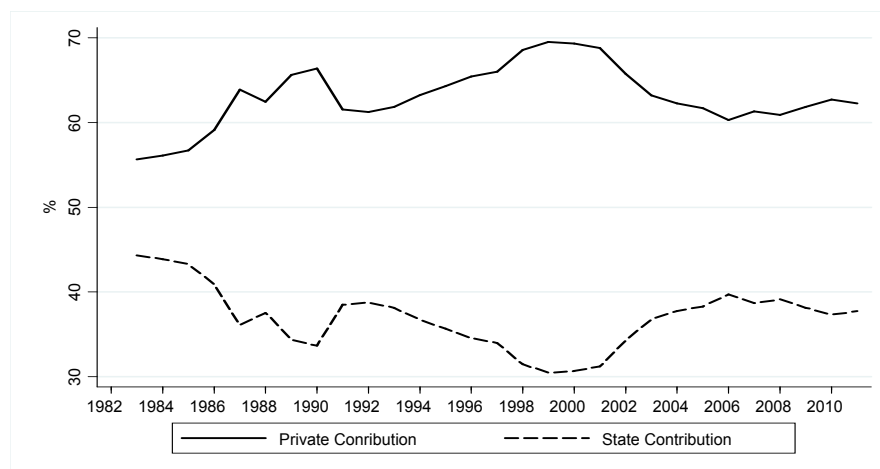
The Evolution of the Privatization in Egypt

Although before 1952, the private sector controlled major economic activities in Egypt, a crucial change in the structure of the Egyptian economy occurred after the revolution of 1952, which changed the ruling system from a kingdom into a presidential system. This led to a drastic change in the economic system in favor of state intervention. The government controlled the majority of the economic activities, in particular within the strategic industries. This led to a creation of large numbers of state-owned firms that were characterized by losses, inefficiency, and lack of competitiveness.

A step towards encouraging the participation of the private sector in economic activities was taken in mid-seventies when Egypt adopted an open door policy, i.e. the so-called “*Infetah*”. This policy led to improvements in various macroeconomic indicators, such as GDP growth, and major liberalization of activities of the financial sector. In addition, as shown in Figure 3-6, Egypt witnessed a significant increase in the contribution of the private sector in GDP.

Despite that, the economy in late eighties suffered from major macroeconomic imbalances in the mid-eighties. That was represented in low output growth rates, high budget deficit, high inflation rate, and deficit in the balance of payment. All those imbalances compelled the government to accept the prescription of the World Bank and IMF for economic reform and adjustment program in early 1991. Then, the government started implementation of the privatization in late 1990.

Figure 3-6 Percentages of the Contribution of the Private Sector and State in GDP,
1982-2010



Source: Ministry of State for Economic Development, Egypt, 2010

According to the Egyptian Ministry of Investment (2008), the government announced five main objectives from privatization. The first objective was to improve operating efficiency of firms. The second objective was to enhance the contribution of the private sector in GDP. The third objective was to restructure the remaining state-owned firms regarding their financial policies, technical activities, and managerial capacities. The fourth objective was to increase revenues of the central government by stopping the incremental financial losses of SOEs, which were resulted from the increased number of loss-making SOEs¹⁸. The fifth objective was to develop the financial sector.

Consistently, the government distributed privatization proceeds in order to achieve the previously mentioned objectives. Regarding the objective regarding increasing revenues of the central government, as shown in Table 3-4, most of the proceeds were directed to the ministry of finance and then to the bank of debt settlements. These proceeds were estimated at 45% and 31%, respectively. These proceeds were used mainly to finance the budget deficit and debt arbitration.

¹⁸ According to PCSU (2002), by 1990, there were around 56 SOEs classified as loss-making firms.

Their accumulated volume of losses was about LE 2.37 billion and their indebtedness was about LE 47 billion.

Table 3-4 Privatization Proceeds and their Percentages by Usages in Egypt since 1991

The Institutions	Proceeds (LE Billion)	Percentage
Transfer to Ministry of Finance	6.628	45%
Bank of Debt Settlements	4.488	31%
Early Retirement, Pensions, and Salaries	2.683	18%
Advances to Holding Companies for Restructuring	0.554	3%
Balance of Restructuring Fund	0.307	2%
Total	14.660	100%

Source: PCSU (2002)

Regarding the objective of restructuring the remaining state-owned firms, 5% of the proceeds were directed to restructure SOEs before their divestiture in forms of advances to holding companies and balance of restructuring fund. The main purpose of those amounts of proceeds was to deregulate SOEs by gathering them under the control of main holding companies. Notwithstanding the efforts done for restructuring the remaining SOEs, they suffered from losses. Table 3-5 shows losses of the state-owned firms in main holding companies. During 2005-2008, the largest volumes of the losses were borne by textile and fabric industries, which were estimated, on average, at LE 2061 million. Followed by textile and fabric industries, the chemical and mineral industries were borne big volumes of losses, which were estimated, on average, at 155 million and 117 million, respectively.

Table 3-5 Annual Losses of State-Owned Firms in Egypt, 2005-2008

The Holding Company (LE Million)	2005	2006	2007	2008
Mineral industries	159.5	86.4	64.7	158.8
Textile and fabric industries	2184.4	2298.2	1750.9	2011.3
Chemical industries	163.5	195.0	112.4	147.7
Food industries	17.4	12.2	20.5	20.7
Pharmaceutical industries	0.0	24.5	0.0	0.0
Building and Construction	88.8	65.0	86.4	72.5
Tourism, hotel and cinema	143.8	143.5	2.8	0.0
Sea and land transportation	104.2	142.5	93.4	80.2
Retail or commercial industry	0.0	0.0	0.0	0.0
Total	2861.7	2967.3	2131.0	2491.1

Source: Business Sector Information Center, Egypt, 2010

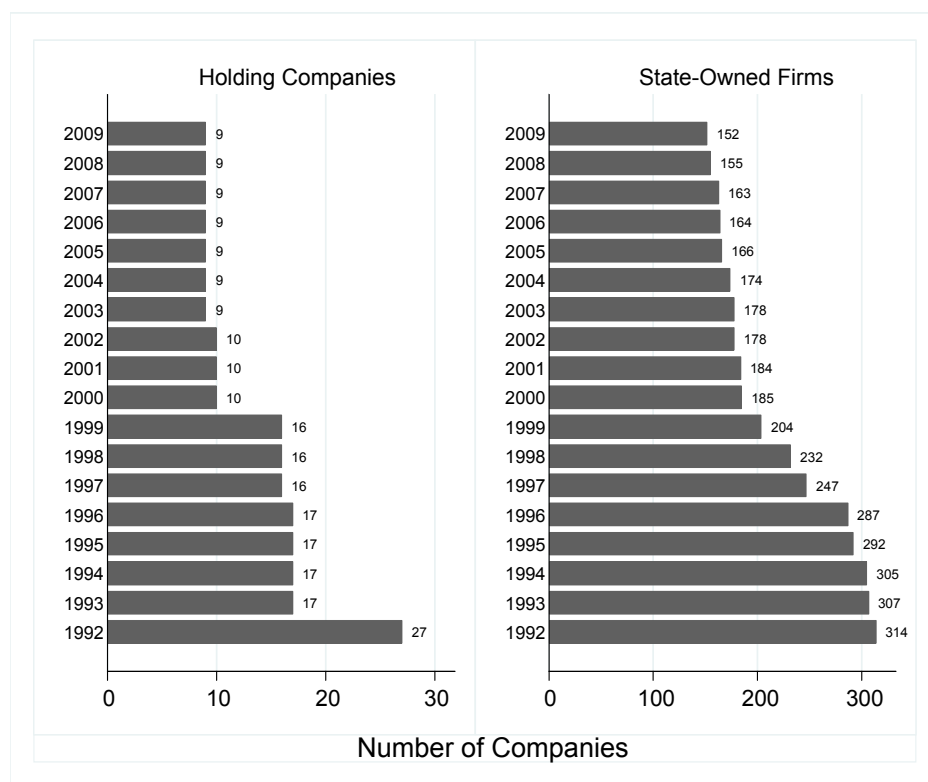
Other proceeds were directed to face the socio-economic cost of privatization represented in compensations of the early retirement scheme, which were estimated at 18% of the privatization proceeds, as shown in Table 3-4.

In order to achieve the previously mentioned objectives, various legal reforms were required. Thus, number of new laws, sub-laws, and amendments were enacted in order to replace the old ones¹⁹, which hindered the participation of the private sector in the economy. According to PCSU (2002), the first step was the Law No. 203 in June 1991, which paved the way for privatization. According to that law, the notion of holding companies was introduced as a replacement for state-owned firms. It was determined that 314 state-owned firms were under authority of 27 holding companies, with total assets about LE 104 billion and LE 1.08 million employees. Egypt aimed at expanding privatization by implementing it to all state-owned holding companies and their subsidiaries²⁰. Figure 3-7 shows the number of state-owned firms and associated number of holding companies since 1992. All those state-owned firms were candidates for privatization. According to Awadalla (2003), Eighty-five firms that operated in strategic industries were banned from privatization. The second step was the approval of the Capital Market Law No. 95 by the parliament in 1992. Accordingly, the Capital Market Authority was established in order to monitor the legal, institutional, and operational rules of the stock market.

¹⁹ Among those laws was Law No. 258 in 1956, which organized nationalization of private entities, and Law No. 20 in 1957, which introduced the notion of public projects (PCSU, 2002).

²⁰ According to the Egyptian Ministry of Investment (2008), the state-owned firms, which were candidates for privatization, were subjected to the following three criteria. The first criterion included all companies that were owned by the holding companies and established under the Law No. 203 in 1991. The second criterion included all companies that possessed shares owned by the holding companies or their subsidiaries, which were established under the Law No. 159 in 1981 and the Law of Investment Incentives, No. 8 in 1997. The third criterion included all properties that were possessed by the holding companies and subsidiaries such as land, production lines, etc.

Figure 3-7 Annual Changes in the Total Number of Holding Companies and State-Owned Firms in Egypt, 1992-2009



Source: Business Sector Information Center, Egypt, 2010

With regard to the evolution of the privatization in Egypt, it could be split into four phases based on its progress. Phase one covered the period from 1991 to 1995. During that phase, the privatization encountered a slow start²¹. Phase two covered the period from 1995 until 2000. During that phase, the privatization began a new dynamic stage by enhancing the

²¹ This was because of its early implementation faced a number of difficulties, which can be represented in the following four obstacles (Khattab, 1999; Pripstein, 1999). The first obstacle is represented in difficulties in setting the privatization strategy, which resulted from the lack of political cooperation among different authorities at ministerial level. The second obstacle is represented in difficulties in getting the public acceptance due to the negative social cost of privatization. The third obstacle is represented in difficulties in legislation due to the lack of proper legal framework. The fourth obstacle is represented in the fear of foreign intervention in the economy, which was a major obstacle to the implementation of the privatization. That fear stemmed from the long history of colonialism in Egypt.

transactions within the stock market through share issue privatization. Phase three covered the period from 2000 until 2004. During that phase, the privatization was negatively affected by the international macroeconomic imbalances that hit the world in early 2000s. The last phase covered the period from 2004 until 2011. During that phase, privatization was reactivated because of the appointment of a new liberal government in 2004. That new government committed to adopt a comprehensive reform of the financial sector and achieve progress in the divestiture of the remaining SOEs. Table 3-6 shows the annual evolution of the number of privatized firms, privatization proceeds, and their associated percentages since the beginning of the privatization.

Table 3-6 Evolution of the Number of Privatized Firms and Privatization Proceeds in Egypt, 1991-2010

Year	Firms- Law No.203				Joint venture*				Total			
	NO.	%**	Proceeds	%**	NO.	%**	Proceeds	%**	NO.	%**	Proceeds	%**
1991-1994	11	3.3	418	1.7	0	0.0	0	0.0	11	2.7	418	1.0
1995	14	4.1	867	3.6	0	0.0	0	0.0	14	3.4	867	2.0
1996	12	3.6	977	4.1	0	0.0	0	0.0	12	2.9	977	2.3
1997	29	8.6	4595	19.2	0	0.0	0	0.0	29	7.1	4595	10.8
1998	23	6.8	2487	10.4	0	0.0	0	0.0	23	5.6	2487	5.8
1999	33	9.8	1824	7.6	0	0.0	0	0.0	33	8.0	1824	4.3
2000	39	11.5	4694	19.6	1	1.4	14	0.1	40	9.7	4708	11.1
2001	11	3.3	252	1.1	7	9.5	118	0.6	18	4.4	370	0.9
2002	7	2.1	73	0.3	3	4.1	879	4.7	10	2.4	952	2.2
2003	6	1.8	49	0.2	1	1.4	64	0.3	7	1.7	113	0.3
2004	9	2.7	428	1.8	4	5.4	115	0.6	13	3.2	543	1.3
2005	16	4.7	824	3.4	12	16.2	4819	25.9	28	6.8	5643	13.3
2006	47	13.9	1843	7.7	17	23.0	7647	41.1	64	15.6	9490	22.3
2007	45	13.3	2774	11.6	7	9.5	1559	8.4	52	12.7	4333	10.2
2008	20	5.9	745	3.1	16	21.6	3238	17.4	36	8.8	3983	9.4
2009	15	4.4	1130	4.7	2	2.7	83	0.4	17	4.1	1213	2.8
2010	0	0.0	0	0.0	4	5.4	50	0.3	4	1.0	50	0.1

Source: Ministry of Finance, Egypt, 2011

* All figures of joint venture firms represent values of public sector share.

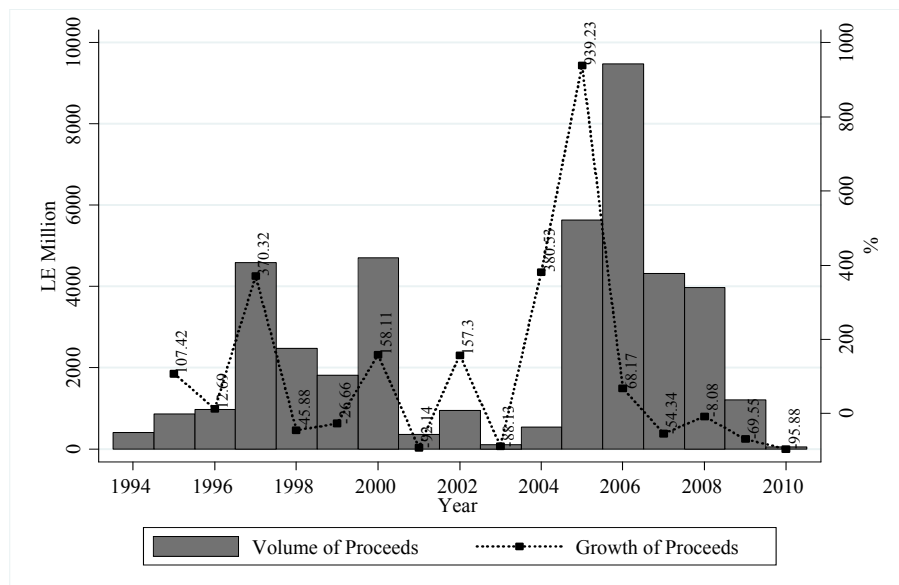
** These ratios represent percentages out of the total numbers or proceeds.

As mentioned during the period of 1991-1995, i.e. phase one, Egypt witnessed a modest start of privatization. Until 1995, Egypt privatized 11 SOEs that were subject to the Law No. 203 in 1991 with volumes of proceeds estimated at LE 418 million. During the

second phase of privatization, i.e. during 1995-2000, the volumes of privatization proceeds were estimated at LE 10750 million and gathered from selling 111 SOES subjected to the Law No. 203 in 1991. During the third phase, i.e. during 2000-2004, government began selling joint venture companies in addition to SOEs subjected to the Law No. 203. Despite that, the prevailing macroeconomic imbalances that hit the world during that period caused a drop in the proceeds, which were estimated at LE 6143 million gathered from selling 12 joint venture companies and 63 SOEs. By an appointment of a new liberal government in 2004, i.e. the fourth phase, the ministerial cabinet aimed at reviving the privatization by selling 152 SOEs subjected to the Law No. 203 and 62 joint venture companies. As a result, the privatization proceeds rose to LE 25255 million.

Figure 3-8 shows annual privatization proceeds and their associated growth rates. It is noted that the annual growth rates of privatization proceeds significantly increased during 2003 and 2004. This was due to the appointment of the new liberal government, which adopted a comprehensive reform in the financial sector and announced new plans of privatization. However, the annual growth rates of privatization proceeds began to decline again starting from 2005.

Figure 3-8 Annual Privatization Proceeds and Associated Growth Rates, 1994-2010



Source: Ministry of Investment, Egypt, 2010

Regarding the privatization methods, Egypt applied number of privatization methods since 1991 such as sales to an anchor investor, employee share associations, and initial public offering. However, in terms of volumes of proceeds, privatization through an anchor investor performed well compared to other methods of privatization like initial public offering or privatization through employee share associations.

Figure 3-9 shows percentages of the number of transactions for each privatization method during 1991-2009. The contribution of the method of sales to an anchor investor, out of total privatization proceeds, was estimated at 30.1% followed by the method of asset sale, which was estimated at 15.6%. With respect to the method of majority and minority IPO, their contributions, out of the total privatization proceeds, were estimated at 13.5% and 8.2%, respectively. The contribution of the method of employee share associations, out of the total privatization proceeds, was estimated at 11.7%.

Figure 3-9 Percentages of the Accumulated Privatization Proceeds in Egypt by Method, 1991-2009

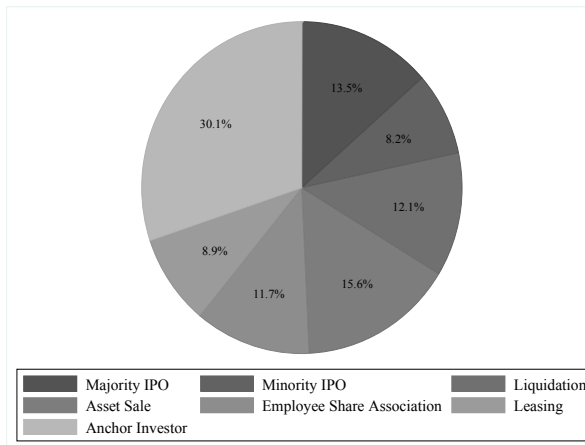
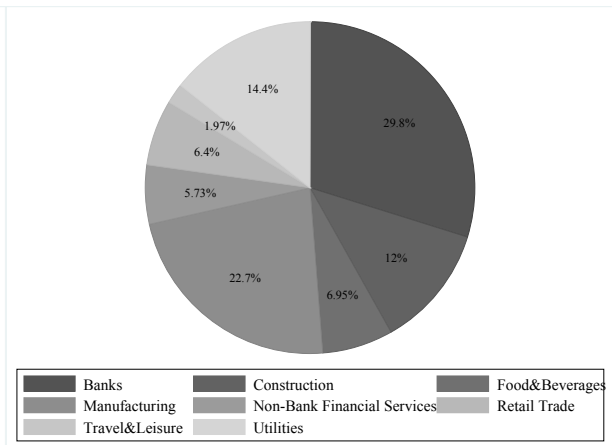


Figure 3-10 Percentages of the Accumulated Privatization Proceeds in Egypt by Sector, 1991-2009



Source: Author's calculations based on data collected from Egypt for Information Dissemination

Center, monthly bulletins, 2009

Regarding the sectoral distribution of the privatization, privatization was applied to main economic sectors in Egypt such as manufacturing, banking sector, non-bank financial services, construction, trade, tourism, and utilities. Among these sectors, the financial sector

received a large share in the total privatization proceeds during the period 1991-2009. As shown in Figure 3-10, the contribution of privatization proceeds obtained from privatizing state owned and joint venture banks, out of the total proceeds, was estimated at 30%. Following the banking sector, the manufacturing sector was in the second rank with estimated ratio estimated at 22.7%. Sectors of travel and non-bank financial services received the smallest shares out of the total privatization proceeds, which were estimated at 1.9% and 5.7%, respectively.

The Evolution of the Financial Sector in Egypt

The financial sector leads the economic growth in Egypt by mobilizing savings and credits required for investment. Egypt represents a typical case of an emerging economy, which financial system is a bank-based. That is, the banking sector dominates most of its financial activities.

On the other hand, the stock market plays a significant role in providing required funds for investment. The Egyptian stock exchange was established in 1883, namely Alexandria Stock Exchange. It is considered one of the oldest stock exchanges in the Middle East. In 1903, Egypt established Cairo Stock Exchange to operate together with Alexandria Stock Exchange. According to the Egyptian Exchange (2011), the stock exchanges in Egypt in early 1900s were among the fifth most active stock exchanges worldwide; however, after the nationalization campaign during 1960s, their pace slowed down drastically.

Before analyzing recent trends in the financial sector in Egypt, it is useful to introduce main reforms that were implemented and obstacles that were faced by the sector since early 1950s. Before the revolution of 1952, the banking sector was dominated by foreign private ownership. However, after 1952, the move was towards a state control economy. As a result, according to Bahaa-Eldin and Mohieldin (1988), activities of banks were controlled and concentrated in main five state-owned commercial banks and three state-owned specialized banks. In 1975, the government approved the Law No. 120 in order to allow private banks to operate within the banking sector. However, the latter reform did not participate in enhancing

the contribution of the private sector in the banking sector. According to Arestis (2003), the five state-owned banks continued to dominate around 80 percent of activities of the banking sector until early 1990s, when the government aimed at liberalizing activities of the banking sector by committing to privatize state-owned banks. According to Abu-Bader et al. (2008), the state control over the financial sector was responsible for gradual increments of bad loans, i.e. non-performing loans, and inefficiencies in the operation within the financial sector.

On the other hand, stock market activities witnessed a slow progress after 1952, which continued until early 1990s, when the government aimed through privatization at reviving its major role in financing investments (Bolbol et al., 2005).

Notwithstanding its vital role in providing funds, a number of obstacles hindered the progress of the sector (Nasr, 2009). First, inefficiency of financial reports of financial institutions prevents financial analysts from evaluating their progress, which, in turn, hampered the access to credit. Second, creditors were not confident about the quality of reporting data of operating firms. That was due to the poor auditing standards, which are not compatible with the international standards. As a result, there was a difficulty in obtaining reliable information concerning the creditworthiness of operating firms. Third, significant entry and exist barriers harmed competition within the financial sector, which resulted from the control of the state over the financial sector through owning the largest shares in operating banks.

The previously mentioned obstacles hindered financial institutions from making efficient credit decisions. In addition, those obstacles were considered as main barriers for firms to access the credit market. According to the World Bank (2011), access to credit was one of the major constraints that were faced by operating firms in Egypt, which is ranked no. 84 in 2008 in terms of the ease of access to the credit worldwide.

Consequently, a reform of the financial sector was necessary for restructuring and curing distortion within the sector. By curing its distortions, the financial capacity of firms could be improved.

With respect to the recent reforms implemented in the financial sector since 1990s, according to Arestis (2003), three stages of reforms could be identified. The first stage was during the first half of 1990s in accordance with the structure reform program of IMF. That reform included three main pillars: reducing monetary restraints, liberalizing financial sector, and structuring the Egyptian stock market. In addition, a new capital market law, i.e. Law No. 95 in 1992, was approved in order to pave the way to facilitate public listing in the stock market. The second stage was during the second half of 1990s. During that stage, state continued liberalizing the financial sector and promoting the private sector participation through privatizing state-owned banks. The government aimed at restructuring the financial sector by reducing the high concentration and market power of state-owned banks. This occurred by selling shares of 14 joint venture banks²². In addition, according to Bolbol et al. (2005), the government announced a plan of selling shares of the remaining joint venture banks. Moreover, share issue privatization was adopted for reviving the financial activities in the stock market. The third stage was during the second half of 2000s. During that stage, the government adopted a comprehensive reform of the financial sector. According to Nasr (2009), the later reform had five main pillars: reforming the banking sector, restructuring the insurance sector, deepening the capital market, developing the mortgage market, and activating non-bank financial services. Those reforms covered issues of mergers and acquisitions, quality of services, cost reduction, improving capital adequacy, and privatization. In 2005, the government established Misr for Central Clearing, Depository, and Registry, where all transactions of Cairo and Alexandria stock exchange were unified. In 2006, the government privatized Bank of Alexandria, which was the fourth largest state-owned bank in

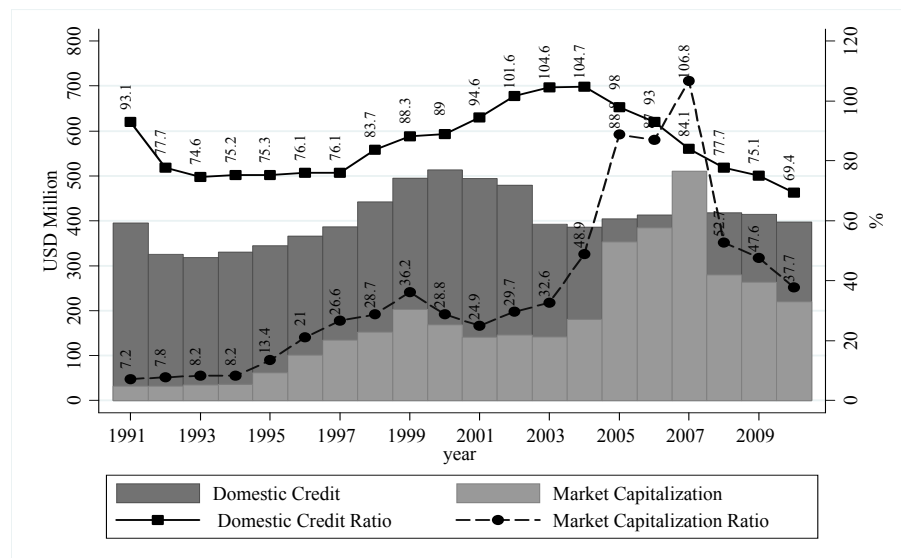
²² Those banks are Credit International d’Egypt, Export Development, Alexandria Commercial and Maritime, Bank du Caire, Egyptian American, Misr Exterior, Misr International, NSGB, Suez Canal, Commercial International, Misr Romania, National Bank for Development, and Cairo Barclays and Egyptian Commercial Bank (Omran, 2007).

Egypt. In 2010, the Egyptian market authority launched a market of medium and small firms, namely Nilex, which permitted small and medium firms to access the stock market. In the latter market, according to the Central Bank of Egypt (2011), ten companies were listed with total value traded of shares and market capitalization estimated at LE 83 million and LE 407 million in 2010, respectively.

All the previously mentioned reforms partially helped in facilitating activities of the banking sector and stock market during 1990s and 2000s. Figure 3-11 shows the annual values of real domestic credit, real market capitalization, domestic credit ratio as percentages of GDP, and market capitalization ratio as percentages of GDP. The total real domestic credit provided by banks increased during 1992-2000. However, since 2001, it started to slightly decline until 2003. After 2003, its volumes, on average, were around USD 400 million.

Figure 3-11 Evolution of the Real Domestic Credit and Market Capitalization in

Egypt, 1991-2009



Source: Author's calculations based on the World Development Indicators, 2011

On the other hand, the value of the real market capitalization increased during the period under consideration. Furthermore, the gap between the value of total domestic credit and market capitalization was diminishing gradually. In addition, the share of market capitalization in GDP increased and the gap between the share of market capitalization and total domestic credit in GDP was tightened.

In 2007, the share of market capitalization in GDP exceeded the share of the total domestic credit in GDP, before it started to decrease again during the period of 2008-2010.

Moreover, the financial sector reform affected concentration, lending, and financial and operating performance of the banking sector. Regarding the concentration of the banking sector, Egypt had three types of banks: commercial, specialized, and investment banks²³.

Table 3-7 describes the structure of the banking sector in Egypt.

Table 3-7 The Structure of the Egyptian Banking System, 1990-2009

Year	No. of Commercial Banks*				Total**	
	State-owned Banks		Joint Venture Banks		Banks	Branches
	Banks	Branches	Banks	Branches		
1990	4	663	40	221	81	1882
1991	4	663	40	221	81	1882
1992	4	772	40	254	81	2121
1993	4	811	26	253	66	2150
1994	4	831	24	261	64	2191
1995	4	851	24	273	64	2241
1996	4	866	24	288	64	2285
1997	4	883	24	298	64	2325
1998	4	908	24	312	63	2391
1999	4	918	24	323	63	2434
2000	4	913	24	340	62	2481
2001	4	921	24	367	62	2536
2002	4	919	24	375	62	2561
2003	4	917	24	383	62	2582
2004	4	2153	35	571	61	2783
2005	4	2185	34	607	52	2841
2006	3	2222	29	674	43	2944
2007	3	2074	28	930	41	3056
2008	3	2089	27	1145	40	3297
2009	3	2088	27	1270	39	3443

Source: Central Bank of Egypt, annual economic reviews, various issues

* Egyptian banks abroad are not included; also, two banks established under private laws are not registered with CBE, namely the Arab International Bank and Nasser Social Bank.

** The total includes specialized banks.

²³ Commercial banks are those that mainly deal with deposits payable on demand. They are prohibited from undertaking activities in properties or owning shares in more than 40% of the paid-up capital of any joint-venture firms. Specialized banks undertake financing activities of real estate, agriculture, and manufacturing. Investment banks undertake foreign trade operations, and any operation related to promoting savings required by national development plans (Bahaa-Eldin and Mohieldin, 1988).

By examining the recent trends of the number of operating banks, the banking sector became partially concentrated in a lower number of banks. By 2009, the banking sector consisted of 39 banks, of which 30 banks were commercial and nine banks were non-commercial. The state-owned banks included Banque du Caire, Banque Misr, and National Bank of Egypt. The drop in the total number of operating banks since 1990 was due to numerous cases of mergers and acquisitions. In addition, the cases of exists of foreign banks participated in the decline in the total number of operating banks. For example, according to the Central Bank of Egypt (2011), fifteen development banks were merged into the National Bank for Development in 1992 and 1994. In addition, in 1993, Bank of Credit and Commerce was merged into Misr Bank in 1993. The Egyptian Real Estate Bank was merged into the Arab Real Estate Bank in 1999. In 2005, seven foreign banks ended their business.

Regarding the contribution of the credit of banking sector in GDP versus the contribution of financial activities of insurance companies in GDP, in general, the operating banks had higher contribution in GDP compared to the insurance companies. As shown in Table 3-8, in general, state-owned banks and state-owned insurance companies had bigger share in GDP compared to other private counterparts.

Table 3-8 Annual Percentages of the Contribution of the Financial Sector in GDP in Egypt, 2000-2010

Year	Private Ownership (%)		State Ownership (%)	
	Banks	Insurance	Banks	Insurance
2000	2.97	0.12	12.57	0.21
2001	3.16	0.07	11.31	0.43
2002	3.15	0.08	10.10	0.39
2003	3.01	0.08	9.21	0.35
2004	2.95	0.08	8.88	0.33
2005	2.87	0.08	8.12	0.31
2006	2.19	0.12	6.54	0.69
2007	2.09	0.12	6.23	0.67
2008	2.00	0.19	6.28	0.55
2009	1.95	0.18	6.32	0.59
2010	1.80	0.18	6.10	0.57

Source: The Central Bank of Egypt, monthly statistical bulletins, various issues

During the period 2000-2010, state-owned banks witnessed negative growth rate of its contribution in GDP, which was estimated, on average, at -6%, compared to positive growth

rate of the contribution of other private banks, which was estimated, on average, at -4.5%. However, state-owned insurance companies witnessed a higher increase in its growth rate of the contribution in GDP, which was estimated, on average, at 18%, compared to the growth rate of the contribution of the private insurance companies, which was estimated, on average, at 7.5% during the period under consideration.

Regarding the lending activities of the banking sector, Table 3-9 shows volumes of lending and non-lending activities of the banking sector during the period of 2000-2008. Banks granted credits for both state-owned firms and privately owned firms. The volume of credit provided by banks for private firms exceeded the volume provided for state-owned firms. It is noted that the annual growth rate of the volume of loans directed for state-owned firms decreased by -12% and -25% in 2006 and 2007, respectively.

Table 3-9 Annual Volumes of Lending and Non-Lending Activities of the Banking Sector in Egypt, 2000-2010

LE Million

Year	Directed for SOEs			Directed for Private Sector		
	Securities	Loans	Total	Securities	Loans	Total
2000	264	32119	32383	11705	150467	162172
2001	245	28940	29185	13591	165006	178597
2002	252	30891	31143	15114	185116	200230
2003	101	34886	34987	14361	199946	214307
2004	158	35430	35588	17265	205831	223096
2005	179	37242	37421	22500	205695	228195
2006	246	32642	32888	24662	214676	239338
2007	258	24188	24446	29294	239312	268606
2008	245	26652	26897	33633	258086	291719
2009	266	32880	33146	36585	267885	304470
2010	173	29812	29985	39202	287148	326350

Source: The Central Bank of Egypt, monthly statistical bulletins, various issues

In addition to the lending activities of the banking sector, securities portfolio within banks, which consists of shares belong to private firms, was bigger compared to the security portfolio that consists of shares belong to state-owned firms. Table 3-10 shows the shares of the security portfolio of banks that belong to SOEs and private firms during the period of 2000-2010. In general, banks held larger volumes of securities that belong to private firms compared to securities that belong to SOEs. During that period, the growth rate of holding securities that belong to both SOEs and private firms was estimated, on average, at 22%.

Table 3-10 Securities Portfolio at Banking Sector, Except CBE in Egypt, 2000-2010

LE Million				
Year	State-Owned Firms	Private Firms	Others*	Total Securities
2000	939	14825	45054	60818
2001	927	16397	53818	71142
2002	814	18131	68781	87726
2003	648	17203	93487	111338
2004	630	19691	103778	124099
2005	666	25009	144984	170659
2006	859	28380	164726	193965
2007	761	32042	143295	176098
2008	1414	36523	163921	201858
2009	1338	39287	291972	332597
2010	1052	39991	364852	405895

Source: The Central Bank of Egypt, monthly statistical bulletins, various issues

* Others include notes of government, external sector, and CBE.

The annual financial performance indicators of banks, which are represented in domestic credits and deposits as percentages of GDP, as shown in Table 3-11, dropped gradually after 2004. Moreover, the annual gap between domestic credits and deposit was declining at increasing rates. This was associated with high annual liquidity ratios during that period. The annual profitability ratios are represented in return on assets and return on equity. Those ratios were estimated, on average, at 0.7 and 12.7, respectively, during the period under consideration. However, in 2003 and 2004, those returns witnessed a significant drop. After 2004, the average returns on assets and equity increased. During the period of 2005-2010, the average return on assets and return on equity were estimated at 0.8 and 13, respectively, compared to 0.7 and 12 during the period of 2000-2004, respectively.

Table 3-11 Performance Indicators of the Banking Sector in Egypt, 2000-2010

%							
Year	Domestic Credit/GDP	Domestic Deposits/GDP	Equity to Assets	Return on Assets	Return on Equity	Liquidity Ratio	Deposits / Assets
2000	86.20	78.65	5.40	0.90	16.00	24.70	67.10
2001	90.78	82.52	5.20	0.80	13.70	25.70	68.00
2002	92.18	87.67	4.80	0.70	12.40	28.40	68.80
2003	84.91	88.79	5.30	0.50	8.90	31.00	69.80
2004	83.32	91.52	5.10	0.50	9.80	28.50	72.90
2005	80.32	89.78	5.30	0.60	10.60	34.90	73.70
2006	71.73	80.44	5.60	0.70	12.30	38.00	74.70
2007	62.12	76.96	5.10	0.80	14.30	27.90	69.30
2008	57.44	76.02	6.20	0.80	14.10	34.50	78.40
2009	60.43	71.28	6.40	0.80	13.00	43.40	82.40
2010	59.19	62.61	6.70	1.00	14.30	44.70	81.00

Source: The Central Bank of Egypt, monthly statistical bulletins, various issues

With respect to the Egyptian stock market, the implemented reforms, particularly share issue privatization, supported activities of the stock market. This could be observed from various performance indicators, as shown in Table 3-12. On average, the total value traded ratio as a percentage of GDP had positive rate of growth during the period of 2000-2010, which was estimated, on average, at 49.7%. In particular, growth rate of the value-traded ratio increased after 2004, compared to the period from 2000-2003. Moreover, the market capitalization ratio as a percentage of GDP witnessed an average positive growth rate during the period of 2000-2010, which was estimated, on average, at 3.3%. After 2004, the annual growth rate of the market capitalization increased gradually. The annual price earnings ratios grew during the period of 2000-2010, which was estimated, on average, at 8.5%. The latter ratio, which is a good measure for predicting the expected earnings growth in stock market, increased during the period of 2004-2010, compared to the period of 2000-2003.

Table 3-12 Ratios of Performance Indicators of the Stock Market in Egypt, 2000-2010

Year	Total value Traded/GDP	Market Capitalization/GDP	Price Earnings Ratio
2000	0.81	36.01	8.01
2001	0.89	31.11	7.4
2002	0.98	30.38	7.36
2003	1.13	32.92	7.18
2004	0.38	34.13	11.81
2005	1.99	58.00	15.19
2006	1.74	53.08	14.31
2007	3.81	70.36	21.87
2008	4.80	81.82	15.73
2009	5.32	40.30	11.47
2010	3.23	31.31	12.64

Source: The Central Bank of Egypt, monthly statistical bulletins, various issues

3.3. Conclusion

Since the start of privatization in developing countries, upper middle-income countries followed by lower middle-income countries implemented most of privatization transactions during the period of 1988-2008. The latter two groups achieved relatively higher growth rates of volumes of privatization proceeds compared to the high-income group and low-income groups.

In developing countries, most of privatization proceeds, which occurred during the second half of 1990s, were captured by adopting a certain privatization methods, namely auction, bids, tenders, and initial public offering.

On the other hand, developing countries witnessed a positive improvement in their activities of the financial sector, which were represented in two main financial indicators: domestic credit provided by the banking sector and stock market capitalization.

Egypt was considered among developing countries that witnessed an economic structural change since 1991. This was represented in the implementation of the privatization and various reforms of its financial sector. The progress of privatization was not stable since its start in 1991. That is, periods of momentums and slowdowns could be observed.

One of the major obstacles that faced the progress of the privatization was the fear of foreign intervention. Although foreign investors owned enough capital to expand capital of privatized firms, the fear from foreign intervention caused a national worry against privatization. As a result, the government divested majority of its SOEs to Egyptian investors who lack of sufficient funds. In addition, other legal, political, social, and regulatory obstacles hindered the progress of the Egyptian privatization.

Regarding the sectoral distribution of privatization, privatization was applied to main economic sectors such as manufacturing, banking sector, non-bank financial services, construction, trade, tourism, and utilities. Among those sectors, the financial sector received a large share in the total privatization proceeds since its start.

Regarding the financial sector, the reform, e.g. privatization, within the sector participated in improving the financial activities within the sector. This was observed in a number of financial indicators, such as the reduction in the degree of concentration and the increase in lending and non-lending activities.

In addition, one of the objectives of privatization was to participate in enhancing the financial activities within the stock market. Privatization participated in improving the

financial activities of the stock market. This was observed in a number of financial indicators, such as the increase in the total value traded and market capitalization.

Chapter 4. Theoretical Framework for Empirical Studies

In order to examine the impact of privatization on the development of the financial sector, the empirical studies in this thesis utilize a variety of theoretical models, empirical techniques, and datasets. In particular, the studies aim at scrutinizing the impact of privatization on the development of the banking sector, the development of the stock market, the financial sector structure, the overall financial sector performance, choices of financing, and the performance of individual banks and non-bank financial institutions.

This chapter is organized as follows. Section 4.1 demonstrates the theoretical models. Section 4.2 illustrates the empirical analysis. Finally, section 4.3 describes the datasets.

4.1. Theoretical Framework

The theoretical framework is based on the neo-Keynesian approach by assuming interconnection between privatization and the financial sector. The framework consists of three parts. The first part reviews theories of the financial sector development, which are utilized in Chapter 5. The second part reviews theories of the determinants of choices of financing, which are utilized in Chapter 6. The third part reviews theories of financial intermediaries, which are utilized in Chapter 7.

Theories of the Development of the Financial Sector

Various macroeconomic factors and government policies affect development of the financial sector. As mentioned in Chapter 2, the impact of those factors is controversial among schools of economic thought. In order to scrutinize the impact of privatization on development of the financial sector, various theoretical models, which are based on the neo-Keynesian approach, are utilized. Those models are based on modified versions of IS-LM model, which incorporate financial institutions into its framework.

For the purpose of the empirical analysis, those models are categorized into three groups. The first group analyzes factors that affect the stock market development, which include Blanchard (1981) and Rajan and Zingales (2003). The second group analyzes factors that affect the banking sector development, which include Bernanke and Blinder (1988) and

Boyd et al. (2001). The third group analyzes factors that affect the financial structure and overall financial sector development, which include Boyd and Smith (1998) and Calderon and Liu (2003). Furthermore, two main hypotheses regarding factors that affect the development of banks and stock market are explained, namely the hypothesis of Rajan and Zingales (2003) and the hypothesis of Song and Thakor (2010).

Model of Blanchard (1981)

Theoretical analyses of the development of the financial market are based on the IS-LM model and its extensions. These models emphasize the significant role of economic policies on variations of stock market. Among them is the model of Blanchard (1981), which demonstrates the impact of level of income and monetary policy on the value of the stock market. Blanchard built his general framework on two important premises: one, aggregate demand determines the output level and, two, prices move to their equilibrium levels. For simplicity, his model, initially, is based on a number of assumptions: a closed economy case, a constant physical capital stock, perfect substitutability of non-monetary financial assets²⁴, and a rigidity of prices. In addition, his model allows further relaxations of these assumptions for more realistic ones such as cases of an open economy and flexible prices. According to his model, the changes in the level of income and monetary policy are main determinant of the value of stocks traded in the financial market. In his model, the stock portfolio balance is described by the conventional LM curve in an inverse form, which is described as follows:

$$i = cy - h(m - P), \quad c > 0; h > 0, \dots\dots\dots (1)$$

where i is the short-term interest rate, y is the income level, m is nominal money supply, and P is the price level.

In addition, the short-term real interest rate equals the short-term nominal interest rate minus the anticipated inflation rate, which is described as follows:

²⁴ This assumption implies that the non-monetary financial assets have the same short-term rate of return (Blanchard, 1981).

$$r^* \equiv i - p^*, \dots\dots\dots (2)$$

where r^* is the anticipated short-term real interest rate, i is the short-term nominal interest rate, and p^* is the anticipated inflation rate.

By assuming fixed prices and rational expectations, the real interest rates equals nominal interest rates (r), i.e. ($r^* \equiv r \equiv i$). From (1), this implies that:

$$r = cy - h(m - P), \dots\dots\dots (3)$$

By assuming perfect substitutability among non-money assets, the expected real rate of return of holding shares equals:

$$r^* = \frac{\dot{q}^*}{q} + \frac{\pi}{q}, \dots\dots\dots (4)$$

where q is the real value of the stock market, \dot{q}^* is the anticipated value of the stock market, and π is the real profits.

In his model, the real profits (π) from holding shares are assumed an increasing function of income. That is, the real profit (π) is described as follows:

$$\pi = \alpha_0 + \alpha_1 y, \quad \alpha_1 \geq 0. \dots\dots\dots (5)$$

From (4) and (5), the expected return of holding shares equals:

$$r^* = \frac{\dot{q}^*}{q} + \frac{\alpha_0 + \alpha_1 y}{q}, \dots\dots\dots (6)$$

In the steady state, where ($\dot{q}^* = 0$), and by assuming rational expectations, which implies that anticipated values equal the actual values, i.e. ($r^* = r$), the expected real rate of return from holding shares equals:

$$r = \frac{\alpha_0 + \alpha_1 y}{q}, \dots\dots\dots (7)$$

From equation (7) and (5), the value of the stock market equals:

$$q = \frac{\pi}{r} = \frac{\alpha_0 + \alpha_1 y}{r}$$

The previous equation represents the equilibrium condition in the stock market. That is, the stock market value depends on the ratio of profits (π) and the interest rate (r), which is a function of the level of income (y) and interest rate (r). Therefore, two structural equations are identified:

$$q = f(y, r),$$

$$r = f(y, (m - p)).$$

Consequently, the nominal money supply negatively affects the interest rate, while the price level positively affects it. The effect of output is ambiguous as the output increases profits and, synchronically, output increases the interest rate. The impact of output on stock market value depends on whether the impact of output on the interest rate is higher or lower than the output effect on profits.

Model of Bernanke and Blinder (1988)

Bernanke and Blinder (1988) adjusted the IS-LM model to incorporate the impact of bank loans on the LM function. In their three asset model (i.e. money, bonds, and loans), they assumed a perfect substitutability among financial assets. They showed that the demand on loans is determined by the gross national product and the interest rates, which is described as follows:

$$L^d = L(\rho, i, y), \dots\dots\dots (1)$$

where L^d is the demand for loans, ρ is the interest rates on financial assets, i is the interest rate on loans, and y is the GNP.

They showed that the interest rate on financial assets (ρ) is negatively associated with the demand for loans. The higher interest rate on loans (i) is positively associated with the demand for loans. In addition, the gross national product (y) is positively associated with the demand for loans. On the other hand, the supply function of loans is a function of interest rates and liquid reserves, which is described as follows:

$$L^s = \lambda(\rho, i,)D(1 - \tau)\dots\dots\dots (2)$$

where L^s is the supply of loans, D is bank deposits, τ is the required reserves ratio, and $D(1 - \tau)$ is the total available reserves.

They showed that higher interest rate on financial assets (ρ) increases the supply of loan by banks, while the interest rate on loans (i) reduces the supply of loans. In addition, the supply of loans is an increasing function in the total available reserves.

From (1) and (2), the equilibrium condition of loans provided by banks is described by the following equation:

$$L(\rho, i, y) = \lambda(\rho, i, y)D(1 - \tau). \dots\dots\dots(3)$$

Thus, from equation (3), the equilibrium condition of loans is a function of prevailing interest rates on loans and shares, gross national product, and total available reserves. The impact of gross national product reflects the transactions demand for credit. With respect to the impact of monetary policy, they showed that the significant impact of the monetary policy on bank loans is realized through its impact on bank available reserves.

Model of Boyd et al. (2001)

Following Blanchard (1981) and Bernanke and Blinder (1988), Boyd et al. (2001), in their comprehensive analysis of the impact of inflation on financial sector, found a significant nonlinear impact of inflation on the development of the stock market and banking sector. This nonlinearity is due to the adverse impact of inflation on real rate of return on financial assets, which, in turn, adversely affects banks and stock market activities. However, the impact of inflation on banks and stock markets is gradually diminishing. That is, up to moderate levels of inflation, the inflation has a negative significant impact on both stock markets and the banking sector. They proposed two possible ways for treating nonlinearity: one, by integrating different thresholds of inflation into the regression model and, two, by taking the inverse of inflation as an explanatory variable²⁵.

Model of Boyd and Smith (1998)

In their growth model, Boyd and Smith (1998) showed an increasing role of stock markets as economy grows. By scrutinizing components of the evolution of the financial system, the authors showed that access to stock markets is limited in early stages of economic

²⁵ The nonlinearity impact of inflation on the financial sector is supported by other studies, e.g., Azariadas and Smith (1996), Choi et al. (1996), Boyd and Smith (1998), and Huybens and Smith (1999).

development²⁶. In general, countries with higher GDP per capita and low level of state intervention have larger activities in stock markets compared to countries with lower GDP per capita and higher state intervention. The premises of their model are based on the following sequence. As an economy moves along its growth path, capital is accumulated. As a result, the relative price of capital is falling. Due to the presence of costly state verification²⁷, higher monitoring costs arise as a result of the capital expansion. That implies large resources are devoted to the requirement of state verification. As a result, investors will employ more volumes of high return capital technology. Due to the incremental increases in the monitoring cost, it will be cheaper for investors to issue equities. In that situation, the economy will detect positive level of activities in the equity market at the expense of the debt market. In general, the previous sequence characterizes developed economies. Contrary, countries with lower GDP per capita heavily utilize investment projects with low return capital technology, which are associated with low monitoring costs and higher debt finance.

Consistent with Boyd and Smith (1998), Chakraborty and Ray (2006, 2007) identified, in their theoretical growth model, the growth rate of GDP per capita as a main determinant of the changes in financial structure. According to the authors, as an economy goes through its growth path, there is a tendency of being more market-based financial structure.

Calderon and Liu (2003)

Calderon and Liu (2003) showed that higher economic growth stimulates financial sector development. The economic growth affects the financial sector development through the demand-following hypothesis introduced by Patrick (1966). According to the latter

²⁶ This was noted in the empirical studies of Levine and Zervos (1998b), Demirgüç-Kunt and Levine (1999), and Demirgüç-Kunt and Maksimovic (2002).

²⁷ Costly state verification might arise in the financial sector due to the cost of monitoring by financial institutions due to costly information disclosure about debtors. One can expect that as an economy grows, the monitoring cost increases (Boyd and Smith, 1998).

hypothesis, as an economy grows, the demand for financial services increases, which, in turn, enhances the development of the financial sector.

Hypothesis of Rajan and Zingales (2003)

In addition to the impact of level of income and real money supply on the stock market, the degree of openness, through its impact on capital flows, is an important determinant of the development of the stock market. This was emphasized by Rajan and Zingales (2003) in their hypothesis concerning the influence of trade on the development of local stock markets. The authors showed that trade and financial openness are key determinants of the development of the banking sector and stock markets. However, they emphasized the importance of the financial openness, e.g. openness of the capital account, together with trade openness in order to capture the gains from liberalization.

Hypothesis of Song and Thakor (2010)

This hypothesis shows an existence of coevolution between the banking sector and stock markets. According to the hypothesis, the development of the banking sector has a spillover effect on stock market through improving bank screening, which, in turn, enhances the credit quality in stock markets. On the other hand, the development of stock markets has a spillover effect on the banking sector by reducing the cost of bank equity capital. That leads banks to hold more capital, which, in turn, results in more lending.

Theories of Determinants of Choices of Financing

As mentioned in Chapter 2, two different approaches explain the relationship between choices of financing and real decisions of firms. The first approach is based on The Modigliani and Miller theorem (1958), which assumes perfect capital market. As a result, there is no association between financing decisions and real activities of firms. The second approach is based on either the pecking order theory (Myers and Majluf, 1984) or the tradeoff theory (Jensen, 1986), which supports the interconnection between financing decisions and real activities of a firm. The latter theories are based on assumptions of asymmetric information and agency conflict between managers and shareholders. The latter assumptions

are results of the premise that managers have better information about the firm than shareholders do²⁸. Thus, firm's fundamentals, e.g. value of the assets, investment opportunities, growth of sales, and availability of internal cash, matter for financing decisions, even though these decisions may contradict with the preferences of shareholders.

Building the frameworks of the tradeoff and the pecking order theories, Brav (2009) scrutinized factors that influence financing decisions of firms. The author combined the two theories in order to compare the choices of financing among private and publicly listed firms. Two main effects on choices of financing are identified: a level effect and a sensitivity effect. The level effect reflects the fact that the cost of raising funds through stock markets is higher than the cost of raising funds from banks. According to this effect, firms with less information disclosure and limited ownership structure depend more on bank-based finance. The sensitivity effect reflects the fact that the choice of bank-based finance is more sensitive to operating performance of firms.

The author identified six major variables that affect choices of financing among firms: size, asset tangibility, growth, profitability, capital expenditure, and age. By comparing the choices of financing of private and publicly listed firms, variations of choices of financing are explained by differences in ownership structure and asymmetric information. The extent to which each type of firms is controlled by their shareholders affects choices of financing. This is because limited ownership structure, i.e. few shareholders, raises an agency conflict between managers and major shareholders, which, in turn, lead to a higher monitoring cost from the financial market. Thus, the fewer number of shareholders are, the more dependence of a firm on bank-based finance, and the less dependence on market-based finance. In addition, the access to market-based finance for limited ownership firms depends mainly on their operating performance.

²⁸ In addition, managers have a tendency to allow their firms to grow beyond its optimal size. As growth increases, the available resources under control of managers decrease (Jensen, 1986).

Moreover, asymmetric information and lack of information disclosure increase the cost of raising funds from market-based finance. This is because equity issue is very sensitive to information asymmetry between insider, i.e. managers, and outsider, i.e. shareholders, of a firm compared to the debt issue (Myers and Majluf, 1984). On the other hand, firms with wider ownership structure, lower information asymmetry, and better information disclosure depend more on market-based finance.

These previous relationships are consistent with the predictions of the pecking order theory, which predicts that firms with less asymmetric information depend more on market-based finance, and the tradeoff theory, which predicts that the operating performance of firms affects their access to market-based finance.

Theories of Financial Intermediaries

Theories of financial intermediaries scrutinize the lending behavior of banks by analyzing their financial portfolio structures. These theories showed how diversification of bank lending is essential for reducing the exhibited economic risks. This is because loan diversification among different sectors works as a stabilizer against sectoral business cycles. In addition, diversification among different sectors reduces their chances of costly financial bankruptcy. These effects of lending diversification were demonstrated by two main theories: financial intermediary theory of Diamond (1984) and financial intermediary theory of Cerasi and Daltung (2000).

The financial intermediary theory introduced by Diamond (1984) provided implication for the portfolio structure of banks. Building on an agent-single principal model and assumption of imperfect information, the theory predicts that well-diversified banks with a capital structure consisting of deposits are exposed to a low probability of default. In addition, the theory shows that diversification is a key element for improving the performance of banks by minimizing costs. Providing loans by banks as delegated monitors is subject to costs of monitoring. The latter costs could be reduced through diversification, which mitigates the incentive problem between borrowers and lenders. That is, the less

diversified a bank is, the higher the delegation cost incurred by banks, while the higher diversified a bank is, the lower the expected delegation costs. In addition, diversification allows better gathering of information required for granting credit. As a result, it helps in reducing the asymmetry of information between entrepreneurs and lenders. The latter findings are also emphasized by Boyd and Prescott (1986). They showed that given the tradeoff between risk sharing and incentive problem, and the tradeoff between incentive problem and asymmetric information, the reduction in the asymmetric information reduces risk sharing with entrepreneurs. Furthermore, diversification increases the probability that banks have sufficient resources to repay claims by depositors. As a result, it reduces the bankruptcy cost. On the other hand, diversification increases the costs that are incurred by monitoring more projects.

Building on Diamond (1984), Cerasi and Daltung (2000) provided a theory of diversification of banks. They compared between gains and losses from diversification. They showed that gains from diversification stem from improving incentives of monitoring by banks. This causes an increase in the number of projects that are monitored by banks. The costs from diversification stem from the growing size of portfolios needed to achieve diversification. The cost of diversification can be shown in the cost disadvantage of large banks. This is because of the growing number of projects that have to be monitored by these banks. In addition, they distinguished between the consequences of diversification on the asset side, i.e. lending diversification, and the liability side, i.e. sources of financing diversification, of banks. The diversification on the asset side increases the size of a bank, which, in turn, increases the ability of a bank to repay its debt. Regarding the diversification on the liability side, they showed that the best financial structure of banks is to depend on deposits rather than other sources of financing in their portfolio. That is, they limited the gains from diversification to a case of a financial structure that depends more on deposits.

In line with Cerasi and Daltung (2000), Rossi et al. (2009) showed that diversification positively affects performance of banks in terms of risk reduction and profit efficiency. In

addition, diversification across industries reduces capital requirements. Notwithstanding its benefits, diversification can generate losses in terms of a reduction in cost efficiency compared to the focus in the same line of business. The reduction in cost efficiency is due to the deterioration in managerial efficiency²⁹.

4.2. Empirical Analysis

In establishing the methodologies for the empirical studies, a variety of empirical techniques are considered.

In the empirical study of Chapter 5, a dynamic panel estimator is considered. The study applies two generalized method of moments (GMM) estimators: system GMM and orthogonal deviation GMM. The study uses GMM for its advantages over other methods. It incorporates both unobserved individual-specific effects and time-variant disturbances in the regression model. It is considered a superior method used for examining the dynamics of adjustment in panel data with no strong assumption regarding the distributions of disturbances and the unobserved panel-level effects. Differently from other formulations of panel data analysis³⁰, GMM works well for panel models where heteroskedasticity and autocorrelation exist (Baltagi, 2009). Two main versions of GMM can be distinguished: system GMM introduced by Arellano and Bond (1995) and orthogonal GMM introduced by Arellano and Bover (1995) and Blundell and Bond (1998). Building on Hansen (1980) and Anderson and Hsiao (1981), who developed an estimator based on moment conditions, Arellano and Bond (1991) proposed an asymptotically efficient first-differenced GMM estimator. This estimator includes a finite number of moment restrictions and control for serial correlation in both balanced and unbalanced panel data sets. The advantage of the first-

²⁹ For more analysis about the advantages and disadvantages of diversification, refer to the following papers: Jensen (1986), Berger and Ofek (1996), Denis et al. (1997), and Servaes (1997).

³⁰ Those formulations include error-component regression models, seemingly unrelated regressions with error-components, and simultaneous equations with error-components (Biglaiser and Brown, 2003).

differenced transformation is the elimination of the individual-specific effects. The resulting estimator will be consistent even if the autocorrelation and heterogeneity among panels exist; however, there is no guarantee for efficiency. Arellano and Bover (1995) and Blundell and Bond (1998) proposed an improvement on the standard first-differenced GMM estimator. Arellano and Bover (1995) developed an efficient IV estimator based on forward orthogonal deviation by specifying an IV matrix, which is not correlated with the individual effects by including all individual moment restrictions. Blundell and Bond (1998) extended the linear GMM estimator by proposing an asymptotically efficient estimator that has good finite sample properties and does not require homoscedasticity assumption. In addition, it can be adopted with existence of weak or strong exogenous variables and weak assumption of stationarity.

Since the empirical study of the chapter uses panel data, two kinds of statistical problems may arise, namely heteroskedasticity and autocorrelation. This is because of subgroup differences among countries represented in different income groups, which may lead to a standard error bias. In addition, the choice of explanatory variables in the study may raise endogeneity problem due to the potential bidirectional relationship between some of those variables and the dependent variables. Specifically, with respect to the main variable of interest, i.e. privatization, governments consider prevailing economic conditions, particularly the healthiness of its financial system, before taking the divestiture decision as emphasized by Bortolotti et al. (2007). That is, privatization might be determined simultaneously with activities of the financial sector. This can be explained by the following two cases. One, governments might divest during periods of high stock prices, while avoid divesting during periods of low stock prices. Two, the increase of confidence in the financial sector in post privatization period, which is resulted from the effect of privatization on the degree of liberalization and capital flows, stimulates further privatization transactions. In that case, GMM estimation can solve the potential simultaneity and endogeneity biases by allowing for incorporating lagged dependent variables and endogenous variables, while getting robust

standard errors after controlling for autocorrelation in the idiosyncratic errors ³¹ (Christopoulos and Tsionas, 2004; Baltagi, 2009).

The empirical study of Chapter 6 adopts three strategies to examine the differences of financing decisions of privatized firms. In particular, the study is divided into three parts. The first part uses an exploratory analysis to identify the main differences in choices of financing among firms with different ownership structures. The study claims that these differences can be explained partially by differences in the ownership structure. The second part uses nonparametric tests, namely the Wilcoxon signed-rank and Jonckheere-Terpstra tests, to test whether there is a statistically significant difference of the mean of choices of financing among firms with different ownership structure. Three groups of firms are examined: privatized firms, well-established publicly listed firms, and SOEs. In particular, the study tests two questions. One, is there a statistical significant difference of the mean short-term debt, long-term debt, and total liabilities among firms with different ownership structure? Two, is there a statistical significant difference of the mean access to external finance among firms with different ownership structure? The third part of the empirical study uses fixed effect (within) regression to identify main determinants of choices of finance among the different types of firms.

The empirical study of Chapter 7 uses operating and financial indicators in order to describe, measure, and compare performance of privatized banks and non-bank financial institutions. In addition, the study compares these indicators with other privatized firms that belong to other economic sectors. The empirical study of that chapter is divided into three

³¹ Another two alternatives that deal with endogeneity problems are two stage least square regression with instrumental variables (Bortolotti et al., 2007; Boubakri and Hamza, 2007) and regression with panel-corrected standard errors (Biglaiser and Brown, 2003). However, the empirical study of Chapter 5 uses GMM-estimation for its advantages over the other mentioned alternatives in serving the purpose of the study (Baltagi, 2009).

parts. The first part applies a qualitative analysis in order to analyze the evolution of activities of privatized banks. The second part qualitatively scrutinizes the lending behavior of banks and their usage of financial instruments. The third part measures performance indicators of privatized banks, non-bank financial institutions, and privatized non-financial institutions. In the latter part, the study uses a non-parametric test, namely Kruskal-Wallis test, in order to test whether there is a statistically significant difference of the median of performance indicators among banks, non-bank financial institutions, and privatized non-financial institutions. In particular, the study tests whether there is a statistically significant difference of the median of return on assets, return on equity, debt-asset, debt-equity, sales-asset, and z-scores among the different institution groups.

4.3. Data Collection

In order to examine the impact of privatization on development of the financial sector and the financial system structure, which will be analyzed in Chapter 5, the study collects data from the following sources: World Development Indicators, financial indicators' dataset of Beck et al. (2010), and the World Bank Privatization Database. Data includes developing countries from six geographical regions: East Asia and Pacific, South Asia, Europe and Central Asia, Latin America and Caribbean, Middle East and North Africa, and Sub-Saharan Africa. See Table I-1 in Appendix-I for more details about the sampled countries and their respective income group.

For analyzing choices of financing of privatized firms, which will be examined in Chapter 6, the study constructs a unique dataset that includes data collected from annual balance sheets and income statements of Egyptian firms during the period of 2004-2009. The data are collected for the following firm groups³²: privatized firms, well-established publicly

³² Following common practice in literature, e.g. Rajan and Zingales (1995), of examining determinants of choices of financing, the study eliminates banks (SIC Codes 6000–6299), insurance companies (SIC Codes 6300–6400), and regulated utilities (SIC Codes 4900–4971).

listed firms, and state-owned firms. The dataset is constructed based on the following sources: Emerging Markets Information Services (EMIS), the Arab Capital Market Resource Center, and the Egyptian for Information Dissemination Center. Data about state-owned firms are collected from the Egyptian Business Sector Information Center.

In order to accomplish the research objectives of Chapter 7, the study constructs a unique dataset that includes a sample of Egyptian banks and non-bank financial institutions during the period of 2000-2009. In addition, in order to compare the performance of privatized banks and financial institutions with their counterparts in other economic sectors, the study collects data about privatized non-financial firms, which belong to the following sectors: construction, telecommunication, manufacturing, trade, and utilities. The latter data, which are constructed based on financial statements, are collected from three main sources: Arab Capital Market Resource Center, Thomson Reuters³³, and the Egyptian for Information Dissemination Center. Table II-1 in Appendix-II describes the list of sampled banks, financial institutions, and privatized non-financial firms that are used in the study.

In all the previously mentioned empirical studies, the method of blocked adaptive computationally efficient outlier nominators (BACON) is used for detecting outliers at 10th percentile. The method was developed by Billor et al. (2000). It detects multivariate outliers in multivariate models. Compared to other standard methods, BACON provides more reliable and robust outlier detection for multivariate models.

³³ The data from Thomson Reuter, which are used in the comparison between privatized financial banks and non-bank financial institutions versus non-financial privatized firms, are collected from Takada, Tomomi's lab, Kobe University.

Chapter 5. The Impact of Privatization on Development of the Financial Sector: Evidence from Developing Countries

5.1. Introduction

This chapter empirically examines the impact of spread of privatization on enhancing the development of the financial sector and the financial system structures across developing countries. From a sample of developing countries, financial indicators are used to evaluate the impact of privatization on the development of stock markets and banks. In addition, the study demonstrates the impact of privatization on the financial system structures as well as overall financial sector performance. Dynamic panel models are used to scrutinize these impacts.

Studying the relative dominance of banks as opposed to stock markets within the financial sector has been long debated in the economic literature, e.g., Demirgüç-Kunt and Levine (1999). Nevertheless, studying different determinants of development of the financial structure has received less attention. Recent interest on the determinants of the financial structure arises because of the growing role of private participation in economic activities, which, in turn, could enhance the development of the financial sector. In general, the freer an economy is, the more developed the financial sector is. Thus, privatization could enhance the activities of the financial sector by freeing economic resources out of the control of the state. In other words, privatization encourages new private capital inflows in an economy. Privatization affects the financial sector through three channels. The first channel occurs when governments choose share issue privatization as a method of divestiture. The second channel occurs when governments perform direct sales to a private entrepreneur, who, in turn, expands his business by issuing shares or bonds. The third channel occurs when the state sells state-owned banks.

However, the growing participation of the private sector might lead to greater improvement in stock markets than banks. This is because one of the substantial targets of the private sector is profit maximization through efficiently allocating economic resources and

diversifying investments. This pushes the private sector to undertake riskier economic activities to reap rapid and instant profits. Although stock markets encompass high-risk financial instruments, it may become more attractive to private entrepreneurs to finance their projects using such instruments (Song and Thakor, 2010). This is because financial markets provide various alternatives of financial instruments with various degrees of riskiness, which could be attractive for private firms with various degrees of credit worthiness. On the contrary, SOEs have higher tendency to borrow from bank, particularly state-owned banks, in order to finance their losses. This is because of the guarantee provided by the central government for those firms regardless of their operating and financial performance. This can be observed in relatively high volumes of non-performing loans in countries with powerful state intervention.

Given the rationale mentioned above, this empirical study questions the followings. (1) Does privatization enhance the development of the banking sector and stock markets? (2) Does privatization benefit more stock markets at the expense of banks? (3) Does privatization enhance the development of the overall financial sector?

The study contributes to the relevant literature in two ways. First, by examining the impact of privatization on the financial system structure, the study provides more evidence on how privatization might benefit more either stock markets or banks. Previous empirical evidences focused mainly on the impact of privatization on the development of stock markets through share issue privatization and the performance of individual banks. However, those evidences did not investigate such impact on the financial system structure. Second, this study provides more evidences on the real-financial nexus through a privatization channel.

This study is organized as follows. After introduction, section 5.2 demonstrates the methodology of the study. Section 5.3 describes the data and variables. Section 5.4 reports the results of the study. Section 5.5 analyzes the implications of the study. Section 5.6 shows the conclusion of the study.

5.2. Methodology

The study argues that privatization enhances the development of the financial sector and affects the financial system structure. However, it might benefit more either stock markets or banks. The study attempts to answer the following questions. (1) Does privatization enhance the development of the banking sector and stock markets? (2) Does privatization benefit more stock markets at the expense of banks? (3) Does privatization enhance the development of the overall financial sector? In order to answer these questions, the study uses different specifications based on the theoretical models explained in Chapter 4.

This study is based on number of assumptions of the neo-Keynesian approach. Three main assumptions are assumed: (1) the volatilities in the financial sector are caused by different macroeconomic factors; (2) the financial sector is integrated with economic activities; and (3) fiscal and monetary policies are required to achieve stability in the financial sector. Those assumptions are good for representing the important role of the macroeconomic policies in developing country on facing their macroeconomic imbalances. By considering those assumptions, the study is able to examine the development of the supply side of the financial activities.

In the empirical analysis, the study uses log-linear model by employing GMM estimators. Two main GMM estimators are used: system GMM and orthogonal deviation GMM. The study treats explanatory variables as endogenous in order to avoid the potential of bidirectional relationship between the dependent and explanatory variables, as discussed in Chapter 4.

For the purpose of the study, the empirical analysis is divided into four specifications. The first specification analyzes the impact of privatization on the stock market development. The second specification analyzes the impact of privatization on the banking sector development. The third specification analyzes the impact of privatization on the financial system structure. Finally, the fourth specification analyzes the impact of privatization on the overall financial sector development.

Stock Market Development - Specification I

Specification I attempts to examine the impact of privatization on the stock market development. According to the discussion in Chapter 4, different theoretical models are used to examine the development of the stock markets. In his model, Blanchard (1981) identified interest rate and income level as main determinants of the stock market value. The value of stock market is described as follows:

$$q = \frac{\pi}{r} = \frac{\alpha_0 + \alpha_1 y}{r},$$

where π is the value of profits from holding shares, r is the interest rate, and y is the income level.

Following Scott (1966) in his procedures in estimating LM curve, the study transforms the previous equation into a linear form by taking natural logarithm and assuming $\alpha_0 = 0$ for simplicity. Thus, the empirical equation is described as follows:

$$\ln q = \alpha_1 \ln y - \alpha_2 \ln r,$$

where q is the value of the stock market, y is the income level, and r is the interest rate.

However, the interest rate (r) is a function of the level of income (y) and the real money supply. This imposes an endogeneity problem. Following Scott (1966) and Arellano and Bond (1991), the study solves that by treating r as an endogenous variable. This is considered by using the lagged income level and real money supply as instrumental variables. Thus, the empirical equation is described as follows:

$$\ln q_t = \alpha_1 \ln y_t - \alpha_2 \ln y_{t-1} - \alpha_3 \ln \left(\frac{M}{P} \right)_t,$$

where q_t is the current value of the stock market, y_{t-1} is the one-year lagged income level, and $\left(\frac{M}{P} \right)_t$ is the real money supply.

In order to extend the previous model, the study takes into consideration the hypothesis of Rajan and Zingales (2003), which shows that the trade openness is a key determinant of the development of stock markets. This is because of the importance of trade openness in enhancing liberalization in an economy, which, in turn, stimulates activities in

the stock market. In addition, the study adds a measure of banking sector development as hypothesized by Song and Thakor (2010). The latter hypothesis shows that the development of the banking sector has a spillover effect on stock markets. That is, as banks develop, credit screening in the financial system is enhanced, which, in turn, boosts high quality credit in stock markets. That causes increments in the number of firms that participate in stock markets. The study adds annual privatization proceeds ratio as the variable of interest.

On the basis of the previous studies (Blanchard, 1981; Rajan and Zingales, 2003; Song and Thakor, 2010), the empirical equation (1) is used as Specification I in order to examine the relationship between the value of the stock market and privatization, which is described as follows:

$$\ln MC_{it} = \ln \beta_0 + \beta_1 \ln MC_{it-1} + \beta_2 \ln GDP_c_{it} + \beta_3 \ln GDP_c_{it-1} + \beta_4 \ln \left(\frac{M}{P}\right)_{it} + \beta_5 \ln \left(\frac{M}{P}\right)_{it-1} + \beta_6 \ln Priv_t + \beta_7 \ln Priv_{t-1} + \beta_8 \ln DC_{it} + \beta_9 \ln DC_{it-1} + \beta_{10} \ln T_t + \beta_{11} \ln T_{t-1} + u_{it}, \quad (1)$$

where MC is the market capitalization used as a proxy for stock market value, GDP_c is the GDP per capita, $\frac{M}{P}$ is the real money supply ratio that equals aggregate money supply over inflation, $Priv$ is the ratio of annual privatization proceeds to GDP, DC is total domestic credit provided by the banking sector, and T is the trade ratio.

In the previous specification, there are two main control variables: the GDP per capita and the real money supply. The trade ratio and the total domestic credit are commonly used variables. Privatization ratio is the variable of interest.

Banking Sector Development - Specification II

Specification II attempts to examine the impact of privatization on the banking sector development. As mentioned in Chapter 4, Bernanke and Blinder (1988) adjusted the IS-LM model to incorporate the role of bank credits. They incorporated bank loans with economic activities through what is so-called bank-loan channel. According to their model, the equilibrium condition in the banking sector is determined by:

$$L(\rho, i, y) = \lambda(\rho, i, y)D(1 - \tau),$$

where L is the lending by the banking sector, ρ is the interest rate of government bonds, i is the lending interest rate, y is the changes in GDP, and $D(1 - \tau)$ is the total available reserves within the banking sector.

Thus, the equilibrium condition depends on three main variables: GDP growth, interest rates, and available reserves within the banking sector. The log-linear transformation of the previous model can be described as follows:

$$\ln L = \alpha_0 + \alpha_1 \ln R + \alpha_2 \ln LR,$$

where L is the volume of loans provided by the banking sector, R is the real interest rate that reflects the real changes in the prevailing interest rates, and LR is the available liquid reserves within the banking sector.

In order to extend the previous model, the study adds the impact of inflation as suggested by Boyd et al. (2001). The inflation affects the supply of loans within the banking sector through their impact on real rate of return on the financial assets. In addition, the study adds the impact of stock market development as suggested by Song and Thakor (2010). That is, the development of stock markets has a spillover effect on the banking sector. The development of stock markets enhances supply of loans by allowing banks to raise their equity capital easily to meet their capital requirements. The study adds annual privatization proceeds ratio as the variable of interest.

On the basis of the previous studies (Bernanke and Blinder, 1988; Boyd et al., 2001; Song and Thakor, 2010), the empirical equation (2) is used as Specification II in order to examine the relationship between the credit provided by the banking sector and privatization, which is described as follows:

$$\begin{aligned} \ln DC_{it} = & \beta_0 + \beta_1 \ln DC_{it-1} + \beta_2 \ln GDP_g_t + \beta_3 \ln GDP_g_{t-1} + \beta_4 \ln R_{it} + \beta_5 \ln R_{it-1} + \\ & \beta_6 \ln LR_{it} + \beta_7 \ln LR_{it-1} + \beta_{10} \ln Priv_t + \beta_{11} \ln Priv_{t-1} + \beta_8 \ln MC_t + \beta_9 \ln MC_{t-1} + \beta_{12} \ln P_t + \\ & \beta_{13} \ln P_{t-1} + u_{it}, \end{aligned} \quad (2)$$

where DC is the domestic credit provided by the banking sector, GDP_g is growth rate of GDP, R is real interest rates, LR is bank liquidity reserves, $Priv$ is annual privatization ratio, MC is the market capitalization, and P is inflation.

In the previous specification, there are three main control variables: GDP growth rate, interest rates, and bank liquid reserves. Inflation and market capitalization are commonly used variables. Privatization ratio is the variable of interest.

Financial Structure (FS) - Specification III

Specification III attempts to examine the impact of privatization on the financial system structure. The financial system structure measures the relative dominance of stock markets compared to banks over financial activities in an economy. According to the discussions in Chapter 4, Boyd and Smith (1998) and Chakraborty and Ray (2006) showed that as an economy goes through its growth path, there is a tendency for relying more on stock markets, i.e. market-based finance. As an economy moves along its growth path, capital is accumulated. As a result, the relative price of capital falls and the monitoring cost arises. This implies that large resources are devoted to the requirement of monitoring process. In turn, investors will employ more volumes of high return capital technology and it will be cheaper for them to issue equities instead of debts. In that situation, the economy will detect positive level of activities in the equity market at the expense of the debt market. Thus, in general, countries with higher GDP per capita heavily utilize investment projects with high return capital technology, which are associated with higher monitoring costs and higher market-based finance. Accordingly, GDP per capita is a main determinant of the changes in the financial system structure.

On the basis of the previous studies (Boyd and Smith, 1998; Chakraborty and Ray, 2006), the relationship between the financial system structure and GDP per capita is described as follows: $FS(y) = \lambda(y)$, where FS is the financial system structure, and y is the GDP per capita.

In order to extend the previous model, the study adds other potential factors that affect both stock markets and banks. That is, the study adds inflation as suggested by Boyed et al. (2001) and trade as suggested by Rajan and Zingales (2003). Inflation is an impact factor on the financial system structure through its effect on real rate of returns of financial assets, which, in turn, adversely affects activities of banks and stock markets. Moreover, the degree of openness is an important determinant of the development of the financial system structure through its impact on enhancing capital flows. In addition, the study adds annual privatization proceeds ratio as the variable of interest.

On the basis of the previous studies (Boyd and Smith, 1998; Boyed et al., 2001; Rajan and Zingales, 2003; Chakraborty and Ray, 2006), the empirical equation (3) is used as Specification III in order to examine the relationship between the financial system structure and privatization, which is described as follows:

$$\ln FS_{it} = \beta_0 + \beta_1 \ln FS_{it-1} + \beta_2 \ln GDP_c_t + \beta_3 \ln GDP_c_{t-1} + \beta_4 \ln Priv_{it} + \beta_5 \ln Priv_{it-1} + \beta_6 \ln P_t + \beta_7 \ln P_{t-1} + \beta_8 \ln T_t + \beta_9 \ln T_{t-1} + u_{it}, \quad (3)$$

where FS is financial structure ratio, GDP_c is GDP per capita, $Priv$ is annual privatization ratio, P is inflation, and T is trade ratio.

In the previous specification, three indicators measure the financial structure ratio: structural activity ratio (SAR), structural size ratio (SSR), and structural efficiency ratio (SER) The definition of the previous variables will be described in section 5.3.

In the specification, GDP per capita is the control variable. Inflation and trade ratio are commonly used variables. Privatization ratio is the variable of interest.

Overall Financial Sector Development (FD) - Specification (IV)

Specification IV attempts to examine the impact of privatization on the overall financial sector development. As discussed in Chapter 4, Calderon and Liu (2003) showed that higher economic growth stimulates financial sector development. The authors showed that the economic growth affects the financial sector development through the demand-following hypothesis introduced by Patrick (1966). According to the latter hypothesis, as an

economy grows, the demand for financial services increases, which, in turn, enhances the development of the financial sector. That is the development of the financial sector is demand driven by increases in the demand for the financial services resulted from the growth of an economy.

In addition, the study adds the degree of financial and trade openness as main determinants of the overall financial sector development as suggested by Baltagi et al. (2009). The financial and trade openness enhances activities within the financial sector through its impact on capital flows.

Accordingly, the empirical study uses GDP growth, trade ratio, and financial liberalization as main determinants of the overall financial sector development. In addition, the study adds annual privatization proceeds ratio as the variable of interest.

On the basis of the previous studies (Calderon and Liu, 2003; Baltagi et al., 2009), the empirical equation (4) is used as Specification IV in order to examine the relationship between the overall financial sector development and privatization, which is described as follows:

$$\ln FD_{it} = \beta_0 + \beta_1 \ln FD_{it-1} + \beta_2 \ln GDP_g_t + \beta_3 \ln GDP_g_{t-1} + \beta_4 \ln T_{it} + \beta_5 \ln T_{it-1} + \beta_6 \ln FL_t + \beta_7 \ln FL_{t-1} + \beta_8 \ln Priv_t + \beta_9 \ln Priv_{t-1} + u_{it}. \quad (4)$$

where FD is the overall financial sector development, GDP_g is the growth rate of GDP, T is the trade ratio, FL is the financial liberalization, and $Priv$ is the privatization ratio.

In the previous specification, three indicators measure the overall financial sector development: finance activity ratio (FAR), finance size ratio (FSR), and finance efficiency ratio (FER). The definition of the previous variables will be described in section 5.3.

In the specification, GDP growth, trade ratio, and financial liberalization are the main control variables. Privatization is the variable of interest.

5.3. Data and Variables

Data

The study uses a sample of 66 developing countries from six geographical regions: East Asia and Pacific, South Asia, Europe and Central Asia, Latin America and Caribbean, Middle East and North Africa, and Sub-Saharan Africa. All these countries have adopted various privatization plans. For more details about the sampled countries and their respective income group, see Table I-1 in appendix-I.

Data are collected from the World Development Indicators, financial indicators' dataset of Beck et al. (2010), and the World Bank Privatization Database.

The selection of countries is based on three criteria: the geographical spread and privatization history. All those countries have adopted various privatization methods, among them share issue privatization. The study examines the link between privatization and the development of the financial sector during the period of 1988-2009.

Variables Definition and Descriptive statistics

Empirically, measuring financial sector development might be a complicated issue due to the multidimensional nature of the financial sector, whose size, activities, and efficiency are influenced by various factors (Ang and McKibbin, 2007; Calderon and Liu, 2003). In order to measure the impact of privatization on the development of the financial sector, the study decomposes indicators of financial sector development into four components: stock market development, banking sector development, financial system structure, and overall financial sector development.

The study analyzes the impact of privatization on each of the previously mentioned components separately. In the forgoing specifications described in section 5.2, there are four main dependent variables: stock market development, banking sector development, financial system structure, and overall financial sector development. The study uses measures of bank and stock market development as suggested by Levine and Zervos (1998a) and Beck and Levine (2004). In particular, the study uses market capitalization and domestic credit as

measures of stock market and banking sector development, respectively. Market capitalization, which is used as a measure of the stock market development, has advantage in reflecting the overall size of the market. Market capitalization as defined in Beck et al. (2010) equals the value of traded securities divided by GDP. As defined in Beck et al. (2010), the total domestic credit includes demand, time, and saving deposits as share of GDP. As suggested by Gregorio and Guidotti (1995), Calderon and Liu (2003) and Baltagi et al. (2009), the domestic credit is a better proxy for the development of the banking sector than other monetary aggregates such as M1 and M2.

Regarding measuring the development of the financial system structure and the overall financial sector development, as indicated in Specification III and Specification IV, respectively, the study uses measures included in the framework of Levine (2002). These measures reflect three aspects of the financial system (Demirgüç-Kunt and Levine, 1999; Levine, 2002): activities, size, and efficiency. Activities within the financial sector show the volume of credit provided by banks and stock markets to entrepreneurs. Two main measures reflect the activities within the financial sector: total value traded and bank credits as percentages of GDP, which show the volume of financial instruments provided by stock markets and banks, respectively. Regarding the size of the financial sector, market capitalization and bank credits as percentages of GDP are used to reflect size of stock markets and the banking sector, respectively. With respect to measuring the efficiency within the financial sector, the turnover ratio and overhead cost ratio are widely used as measures of market efficiency and bank efficiency, respectively. The turnover ratio is defined as the value of traded securities as a percentage of market capitalization. Overhead cost is a measure of banking sector efficiency calculated as the operating expenses divided by total assets of banks. Based on the previously mentioned measures of activities, size, and efficiency, indicators of the financial system structure and overall financial sector development are defined as suggested in Levine (2002).

With respect to the financial system structure, it measures the relative dominance of stock markets compared to the banking sector within the financial sector. According to Levine (2002), three main indicators identify it: structure activity ratio (SAR), structure size ratio (SSR), and structure efficiency ratio (SER). Structure activity ratio measures activities of stock market relative to activities of the banking sector, which is described as follows: $SAR = \ln\left(\frac{TVT}{DC}\right)$, where SAR is the structure activity ratio, TVT is the total value traded of shares in the stock market, and DC is the total domestic credit provided by the banking sector. Structure size ratio measures size of stock markets relative to size of the banking sector, which is described as follows: $SSR = \ln\left(\frac{MC}{DC}\right)$, where SSR is the structure size ratio, MC is the market capitalization as a percentage of GDP, and DC is the total domestic credit provided by the banking sector. Finally, structure efficiency ratio measures efficiency of stock markets relative to efficiency of the banking sector, which is described as follows: $SER = \ln(TVT * OC)$, where SER is the structure efficiency ratio, TVT is the total value traded of shares in the stock market, and OC is the overhead cost within the banking sector.

With respect to the overall financial sector development, it measures the overall evolution of both banks and financial markets in terms of activities, size, and efficiency. According to Levine (2002), three main indicators identify it: finance activity ratio (FAR), finance size ratio (FSR), and finance efficiency ratio (FER). Finance activity ratio is a conglomerate measure of activities of stock markets and the banking sector, which is described as follows: $FAR = \ln(TVT * DC)$, where FAR is the finance activity ratio, TVT is the total value traded of shares in the stock market, and DC is the total domestic credit provided by the banking sector. Finance size ratio is a conglomerate measure of size of stock markets and the banking sector, which is described as follows: $FSR = \ln(MC * DC)$, where FSR is the finance size ratio, MC is the market capitalization as a percentage of GDP, and DC is the total domestic credit provided by the banking sector. Finally, finance efficiency ratio is a conglomerate measure of efficiency of stock markets and the banking sector, which is described as follows: $FER = \ln\left(\frac{TVT}{OC}\right)$, where FER is the finance efficiency ratio, TVT is the

total value traded of shares in the stock market, and *OC* is the overhead cost within the banking sector.

With respect to the explanatory variables used in the forgoing specifications of the study, they are described as follows. The study uses real interest rate, which explains big variations in activities of the banking sector. This is consistent with the hypothesis of McKinnon-Shaw, which states that the real interest rate reflects the scarcity of the capital in a country (McKinnon, 1973; Shaw, 1973). In addition, real interest rates stimulate savings and the credit provided by the banking sector. Although nominal interest rates may have poor explanatory power for variations of activities within the banking sector, real interest rates perform better. That is because nominal interest rates do not take into account other factors that affect the marginal productivity of capital, e.g., changes in inflation and lack of credibility of economic policies, while real rates take into consideration those factors (Gregorio and Guidotti, 1995). Following Ang and McKibbin (2007), the study uses real GDP per capita as a proxy for the status of economic development in a country. Year 2000 is used as a base year in the calculations of the real values. The study controls for the impact of the degree of openness by using the trade ratio calculated as the sum of export and imports relative to GDP of a particular country. As suggested by Baltagi et al. (2009), the study uses net foreign assets ratio, which is defined as foreign assets held by monetary authorities and deposit money banks minus foreign liabilities (Beck et al., 2010). By considering changes in deposit money banks, the latter variable reflects the status of financial liberalization and gives a better measure for financial liberalization than the gross private capital flows.

In addition, the study uses bank liquid reserves as suggested by Bernanke and Blinder (1988) and Giorgio (1999). Bank liquid reserves as in Beck et al. (2010) includes available currency holdings and claims on governments, non-financial public firms, the private sector, and other banking institutions. Following Blanchard (1981), the study uses the real money supply, which is calculated as the aggregated money supply adjusted by the inflation. The real money supply is an important factor in explaining variations in stock markets. Inflation as

suggested by Boyd et al. (2001) is considered because of its potential negative impacts on activities of the banking sector. Following Bortolotti et al. (2003) and Kikeri et al. (1994), the study uses annual privatization proceeds ratio, which is calculated as percentages of GDP, as the main variable of interest. This measure reflects the volume of transaction that generates revenues to governments.

The tables below describe the definitions of variables and summary statistics of variables used in the previously mentioned specifications³⁴.

Table 5-1 Definition of Main Variables Used in Examining the Development of the

Financial Sector	
Variable	Definition
Market Capitalization Ratio	Total Stock Market Capitalization/GDP
Domestic Credit	Demand, Time and Saving Deposits in Deposit Money Banks and other Financial Institutions as a Share of GDP
Trade Ratio	(Exports-Imports)/GDP
Real Money Supply	Aggregate Money Supply/Inflation
Inflation	Inflation Rate
Annual Privatization Ratio	Annual Privatization Proceeds/GDP
Lending Interest Rate	Lending Interest Rate
Bank Liquid Reserves	Currency Holdings and Deposits/Claims on other Governments, Non-financial Public Firms, the Private Sector, and other Banking Institutions
Net Foreign Assets	Foreign Assets Held by Monetary Authorities +Deposit Money Banks-Foreign Liabilities
Structure Activity Ratio	Ln(Total Value Traded Ratio/the Bank Credit Ratio)
Structure Size Ratio	Ln(Market Capitalization Ratio/the Bank Credit Ratio)
Structure Efficiency Ratio	Ln(Total Value Traded Ratio*Overhead Cost)
Finance Activity Ratio	Ln(Total Value Traded Ratio*the Private Credit Ratio)
Finance Size Ratio	Ln(Market Capitalization* the Private Credit Ratio)
Finance Efficiency Ratio	Ln(Total Value Traded Ratio/Overhead Cost)

³⁴ Various tables for the summary statistics are required. This is because the study adopts a method of multivariate outlier detection, namely blocked adaptive computationally efficient outlier nominators (BACON), as described in Chapter 4.

Table 5-2 Summary Statistics of Main Variables Used in Examining the Impact of Privatization on the Development of the Stock Market

Variable	Average	S.D	Min.	Max.	Obs.
Ln Stock Market Capitalization	2.66	1.41	-5.49	5.80	983
Ln GDP Per-Capita	7.46	1.08	4.87	10.17	983
Ln (M/P)	22.58	3.60	1.39	31.61	983
Ln Domestic Credits by Banks	3.76	0.66	1.59	5.41	983
Ln Trade Ratio	4.22	0.53	2.61	5.40	983
Ln Annual Privatization/GDP	0.68	1.52	0.00	12.81	983

Table 5-3 Summary Statistics of Main Variables Used in Examining the Impact of Privatization on the Development of the Banking Sector

Variable	Average	S.D	Min.	Max.	Obs.
Ln Domestic Credits by Banks	3.77	0.68	1.59	5.40	730
Ln GDP Growth	1.49	0.77	-3.55	2.93	730
Ln Real Interest Rate	0.86	0.81	-1.54	4.68	730
Ln Bank Liquid Reserves	2.23	0.83	-0.95	4.36	730
Ln Stock Market Capitalization	2.75	1.40	-2.29	5.80	730
Ln Annual Privatization/GDP	0.69	1.53	0.00	11.77	730
Ln GDP Deflator	2.02	0.95	-3.09	5.94	730

Table 5-4 Summary Statistics of Main Variables Used in Examining the Impact of Privatization on the Development of the Financial Structure

The Dependent Variable is the Structural Activity Ratio					
Variable	Average	S.D	Min.	Max.	Obs.
Structural Activity Ratio	-3.13	1.97	-12.80	1.08	965
Ln GDP Per-Capita	7.46	1.08	4.87	10.17	965
Ln GDP Deflator	2.19	1.21	-3.09	8.83	965
Ln Annual Privatization/GDP	0.66	1.43	0.00	11.31	965
Ln Trade Ratio	4.22	0.54	2.61	5.40	965
The Dependent Variable is the Structural Size Ratio					
Variable	Average	S.D	Min.	Max.	Obs.
Structural Size Ratio	-1.09	1.22	-8.74	1.81	982
Ln GDP Per-Capita	7.46	1.08	4.87	10.17	982
Ln GDP Deflator	2.20	1.21	-3.09	8.83	982
Ln Annual Privatization/GDP	0.65	1.43	0.00	11.31	982
Ln Trade Ratio	4.22	0.53	2.61	5.40	982
The Dependent Variable is the Structural Efficiency Ratio					
Variable	Average	S.D	Min.	Max.	Obs.
Structural Efficiency Ratio	2.18	2.04	-6.93	6.53	817
Ln GDP Per-Capita	7.50	1.07	4.87	10.17	817
Ln GDP Deflator	2.12	1.16	-3.09	8.03	817
Ln Annual Privatization/GDP	0.70	1.45	0.00	11.31	817
Ln Trade Ratio	4.23	0.53	2.62	5.40	817

Table 5-5 Summary Statistics of Main Variables Used in Examining the Impact of Privatization on the Development of the Overall Financial Sector

The Dependent Variable is Finance Activity Ratio					
Variable	Average	S.D	Min.	Max.	Obs.
Finance Activity Ratio	4.48	2.61	-4.24	10.47	784
Ln GDP Growth	1.54	0.69	-3.55	2.93	784
Ln Trade Ratio	4.26	0.53	2.61	5.40	784
Ln Net Foreign Assets	2.36	1.00	-3.66	4.30	784
Ln Annual Privatization/GDP	0.67	1.44	0.00	11.31	784
The Dependent Variable is Finance Size Ratio					
Variable	Average	S.D	Min.	Max.	Obs.
Finance Size Ratio	6.52	1.82	-0.13	10.99	793
Ln GDP Growth	1.54	0.69	-3.55	2.93	793
Ln Trade Ratio	4.26	0.53	2.61	5.40	793
Ln Net Foreign Assets	2.36	1.00	-3.66	4.30	793
Ln Annual Privatization/GDP	0.66	1.44	0.00	11.31	793
The Dependent Variable is Finance Efficiency Ratio					
Variable	Average	S.D	Min.	Max.	Obs.
Finance Efficiency Ratio	-0.54	2.38	-8.29	5.39	681
Ln GDP Growth	1.56	0.68	-3.55	2.93	681
Ln Trade Ratio	4.27	0.52	2.69	5.40	681
Ln Net Foreign Assets	2.42	0.91	-3.11	4.30	681
Ln Annual Privatization/GDP	0.71	1.44	0.00	11.31	681

5.4. Results

As outlined in section 5.2, the empirical analysis of the impact of privatization on the development of the financial sector consists of four specifications. Table 5-6 reports the results of Specification I, which describes the determinants of the development of the stock market. The study has found that one-year lagged value of market capitalization is statistically significant and positively affects the current level of market capitalization at 1% significance level in both system GMM and orthogonal GMM. For both system GMM and orthogonal GMM, there is a positive and statistically significant impact of the growth rate of real GDP per capita on stock market capitalization ratio. This is consistent with the hypothesis states that as an economy grows, large-scale industries and capital-intensive industries gradually replace traditional sectors in an economy. That, in turn, is followed by a movement of the private sector towards market-based finance. The ratio of aggregate money supply to inflation has a positive and statistically significant impact on stock market

capitalization. This is consistent with the view that money promotes growth as assumed by the Monetarism and neo-Keynesians. In addition, the later ratio has a negative and statistically significant one-year lagged effect on stock market capitalization.

Table 5-6 Determinants of the Development of the Stock Market

Dependent Variable	Stock Market Capitalization	
	System GMM	Orthogonal GMM
$\ln(\text{Stock Market Capitalization})_{t-1}$	0.667*** (0.047)	0.705*** (0.037)
$\ln(\text{GDP per capita})_t$	3.758*** (1.095)	1.520** (0.731)
$\ln(\text{GDP per capita})_{t-1}$	-3.739*** (1.039)	-1.492** (0.711)
$\ln(\text{M/P})_t$	0.110** (0.050)	0.082* (0.045)
$\ln(\text{M/P})_{t-1}$	-0.074* (0.041)	-0.054* (0.031)
$\ln(\text{Domestic Credit})_t$	0.147 (0.193)	0.118 (0.153)
$\ln(\text{Domestic Credit})_{t-1}$	-0.196 (0.195)	-0.200 (0.171)
$\ln(\text{Annual Privatization})_t$	0.048*** (0.017)	0.054*** (0.017)
$\ln(\text{Annual Privatization})_{t-1}$	0.009 (0.012)	0.007 (0.009)
$\ln(\text{Trade Ratio})_t$	0.505 (0.343)	0.365 (0.301)
$\ln(\text{Trade Ratio})_{t-1}$	-0.532* (0.274)	-0.314 (0.272)
No.Observations	885	885
No.Countries	66	66
No.Instruments	22	22
Ar1	0.001	0
AR2	0.485	0.522
Sargan test of overid. restrictions (Prob > χ^2)	0.000	0.000
Hansen test of overid. Restrictions (Prob > χ^2)	0.007	0.008

* $p < .10$, ** $p < .05$, *** $p < .01$

Notes: The values reported in Table 5-6 are GMM regression estimates during the period 1988-2009. All variables are transformed using natural logarithm. The dependent variable is the values of stock market capitalization ratio. The independent variables are one-year lagged values of stock market capitalization ratio and current and one-year lagged values of the following variables: ratio of money supply over price level, domestic credits by banking sector, annual privatization proceeds ratio, and trade ratio. The standard deviation is reported in parenthesis. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

In addition, as shown in Table 5-6, the level of domestic credit provided by banks has no statistically significant contemporaneous or one-year lagged impact on stock market capitalization. With respect to privatization, the results show a positive contemporaneous and statistically significant impact on stock market capitalization. This is consistent with the

hypothesis of the study that privatization induces new activities in stock markets. Trade ratio has a positive contemporaneous impact on stock market capitalization; however, it is statistically insignificant. Trade ratio has a negative one-year lagged effect on market capitalization; however, it is statistically insignificant in orthogonal GMM, but statistically significant in system GMM. As reported in Table 5-6, the Arellano-Bond test for AR (2) in first differences shows no proof of a second order autocorrelation and there is no indication of misspecification bias.

Table 5-7 reports the results of Specification II, which describes the determinants of the development of the banking sector. The study has found that one-year lagged value of domestic credit provided by the banking sector is statistically significant and positively affects the current level of the domestic credit at 1% significance level in both system GMM and orthogonal GMM.

The GDP growth has a negative and statistically significant contemporaneous impact on domestic credit ratio. GDP growth has a negative one-year lagged impact on domestic credit ratio; however, it is statistically insignificant. With respect to the ratio of the annual privatization proceeds, it has a negative impact on domestic credit ratio. The one-year lagged effect of privatization on the domestic credit is positive. However, the latter two effects are statistically insignificant. Inflation has a contemporaneous negative and statistically significant impact on domestic credit.

The bank liquid reserves ratio has a contemporaneous negative and statistically significant impact on the domestic credit. However, the ratio has a positive and statistically significant one-year lagged impact on the domestic credit. The overall impact of bank liquid reserves on domestic credit ratio is negative. Market capitalization and real interest rate have no statistically significant impact on domestic credit by the banking sector.

As reported in Table 5-7, the Arellano-Bond test for AR (2) in first differences shows no proof of a second order autocorrelation and there is no indication of misspecification bias.

Table 5-7 Determinants of the Development of the Banking Sector

Dependent Variable	Domestic Credit	
	System GMM	Orthogonal GMM
ln(Domestic Credit) _{t-1}	1.048*** (0.048)	1.042*** (0.027)
ln(GDP Growth) _t	-0.060** (0.026)	-0.032* (0.019)
ln(GDP Growth) _{t-1}	-0.021 (0.016)	-0.002 (0.012)
ln(Real Interest Rate) _t	0.001 (0.022)	-0.016 (0.019)
ln(Real Interest Rate) _{t-1}	-0.003 (0.027)	-0.008 (0.026)
ln(Bank Liquid reserves) _t	-0.083** (0.035)	-0.084*** (0.028)
ln(Bank Liquid reserves) _{t-1}	0.078** (0.031)	0.083*** (0.025)
ln(Stock Market Capitalization) _t	0.051 (0.036)	0.035 (0.027)
ln(Stock Market Capitalization) _{t-1}	-0.006 (0.025)	-0.013 (0.022)
ln(Annual Privatization) _t	-0.004 (0.006)	-0.006 (0.005)
ln(Annual Privatization) _{t-1}	0.006 (0.005)	0.006 (0.004)
ln(Inflation) _t	-0.060** (0.024)	-0.054** (0.022)
ln(Inflation) _{t-1}	-0.003 (0.026)	0.002 (0.024)
No.Observations	602	602
No.Countries	59	59
No.Instruments	26	26
Ar1	0.023	0.025
AR2	0.918	0.907
Sargan test of overid. restrictions (Prob > chi ²)	0.015	0.048
Hansen test of overid. Restrictions (Prob > chi ²)	0.047	0.041

* p<.10, ** p<.05, *** p<.01

Notes: The values reported in Table 5-7 are GMM regression estimates during the period 1988-2009. The dependent variable is the values of total domestic credit ratio. The independent variables are one-year lagged values of domestic credit ratio and current and one-year lagged values of the following variables: GDP growth, net interest margin, bank liquid reserves, and stock market capitalization ratio, annual privatization proceeds ratio, and inflation. The standard deviation is reported in parenthesis. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 5-8 reports the results of Specification III, which describes the determinants of the development of the financial system structure. The annual GDP per capita has a contemporaneous positive and statistically significant impact on structural activity ratio, structural size ratio, and structural efficiency ratio. However, GDP per capita has a negative and significant one-year lagged effect on the previously mentioned ratio of financial structure.

Inflation has neither contemporaneous nor lagged impact on the structural activity, structural size, or structural efficiency ratios.

Table 5-8 Determinants of the Development of the Structure of the Financial System

Dependent Variable	Structural Activity		Structural Size		Structural Efficiency	
	System GMM	Orthogonal GMM	System GMM	Orthogonal GMM	System GMM	Orthogonal GMM
Structural Activity Ratio t_{-1}	0.691*** (0.074)	0.777*** (0.049)				
Structural Size Ratio t_{-1}			0.676*** (0.062)	0.781*** (0.047)		
Structural Efficiency Ratio t_{-1}					0.734*** (0.084)	0.794*** (0.079)
ln(GDP per capita) $_t$	5.020** (2.085)	4.174*** (1.260)	5.986*** (1.671)	3.160*** (0.752)	4.367* (2.456)	3.389** (1.617)
ln(GDP per capita) $_{t-1}$	-5.038** (2.022)	-4.298*** (1.235)	-6.195*** (1.648)	-3.183*** (0.750)	-4.401* (2.394)	-3.466** (1.605)
ln(Inflation) $_t$	0.082 (0.075)	0.071 (0.049)	-0.026 (0.048)	0.021 (0.036)	0.035 (0.076)	0.073* (0.045)
ln(Inflation) $_{t-1}$	-0.035 (0.059)	-0.013 (0.051)	0.065 (0.051)	0.068 (0.052)	-0.029 (0.057)	-0.009 (0.050)
ln(Annual Privatization) $_t$	0.090** (0.037)	0.114*** (0.023)	0.054*** (0.019)	0.089*** (0.017)	0.072** (0.032)	0.071*** (0.025)
ln(Annual Privatization) $_{t-1}$	0.021 (0.024)	0.033** (0.016)	0.002 (0.013)	0.010 (0.010)	0.044* (0.024)	0.047*** (0.018)
ln(Trade Ratio) $_t$	0.362 (0.473)	0.603 (0.417)	0.599** (0.297)	0.190 (0.268)	0.932** (0.401)	0.941** (0.358)
ln(Trade Ratio) $_{t-1}$	-0.615 (0.425)	-0.611 (0.415)	-0.417 (0.296)	-0.285 (0.286)	-0.789** (0.374)	-0.756** (0.378)
No.Observations	868	868	884	884	724	724
No.Countries	65	65	66	66	64	64
No.Instruments	18	18	18	18	18	18
Ar1	0.000	0.000	0.001	0.000	0.000	0.000
AR2	0.464	0.438	0.815	0.804	0.027	0.03
Sargan test of overid. restrictions (Prob > chi ²)	0.001	0.002	0.001	0.000	0.000	0.003
Hansen test of overid. Restrictions (Prob > chi ²)	0.337	0.374	0.023	0.027	0.008	0.04

* p<.10, ** p<.05, *** p<.01

Notes: The values reported in Table 5-8 are GMM regression estimates during the period 1988-2009. The dependent variables are structure activity ratio (SAR), structure size ratio (SSR), and structure efficiency ratio (SER). The independent variables are one-year lagged values of SAR, SSR, and SER and current and one-year lagged values of the following variables: GDP growth, ratio of money supply over the price level, annual privatization proceeds ratio, and trade ratio. The standard deviation is reported in parenthesis. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

As shown in Table 5-8, the current trade ratios positively affect the structural efficiency ratio; and it is statistically significantly. However, the latter ratios have negative and statistically significant one-year lagged effect on the structural efficiency ratio. The annual privatization ratio has a contemporaneous positive and statistically significant impact on the structural activity ratio, structural size ratio, and structural efficiency ratio. Moreover,

privatization has a positive one-year lagged effect on the three structural ratios, but it is statistically significant only for structural efficiency ratio. The latter ratio is statistically significant for the structural activity ratio when using orthogonal GMM.

As reported in Table 5-8, the Arellano-Bond test for AR (2) in first differences shows no proof of a second order autocorrelation and there is no indication of misspecification bias for structural activity and structural size ratios. However, the Arellano-Bond test for AR (2) shows a second order autocorrelation for the structural efficiency ratio.

Table 5-9 reports the results of Specification IV, which describes the determinants of the development of the overall financial sector. The study has found that GDP growth has a contemporaneous positive impact on the development of the finance activity, finance size, and finance efficiency ratios. The previous impacts are statistically significant for all estimators except for system GMM when the dependent variable is the finance activity and finance efficiency ratios. The GDP growth has a negative one-year lagged effect on finance activity and finance efficiency ratios. However, it is only statistically significant for finance efficiency ratio. Nevertheless, GDP growth has a positive one-year lagged effect on the financial size ratio; however, it is statistically insignificant. In addition, trade openness and financial liberalization have positive contemporaneous impact on the development of the three measures of overall financial development. However, the sign is negative for the impact of financial liberalization on finance size ratio when using system GMM estimator. Contrary, the one-year lagged effect of trade and financial openness negatively affect the overall financial development. The latter effect is statistically significant for the impact of trade on finance activity ratio. Privatization has a statistically significant contemporaneous positive impact on the finance activity, finance size, and finance efficiency ratios. In addition, privatization has a positive one-year lagged effect on the three measures of the overall financial development; however, it is statistically insignificant.

As reported in Table 5-9, the Arellano-Bond test for AR (2) in first differences shows no proof of a second order autocorrelation and there is no indication of misspecification bias

for finance efficiency ratio. However, the Arellano-Bond test for AR (2) shows a second order autocorrelation for the finance size ratio. Hansen and Sargan tests failed to meet the identification restrictions.

Table 5-9 Determinants of the Development of Overall Financial System

Dependent Variable	Finance Activity		Finance Size		Finance Efficiency	
	System GMM	Orthogonal GMM	System GMM	Orthogonal GMM	System GMM	Orthogonal GMM
Finance Activity Ratio _{t-1}	0.799*** (0.075)	0.799*** (0.065)				
Finance Size Ratio _{t-1}			0.700*** (0.070)	0.857*** (0.046)		
Finance Efficiency Ratio _{t-1}					0.982*** (0.083)	0.978*** (0.059)
ln(GDP growth) _t	0.038 (0.079)	0.125* (0.065)	0.091* (0.049)	0.143*** (0.041)	0.100 (0.089)	0.173*** (0.056)
ln(GDP growth) _{t-1}	-0.110 (0.080)	-0.047 (0.057)	0.021 (0.046)	0.014 (0.031)	-0.164* (0.096)	-0.104* (0.060)
ln(Trade Ratio) _t	1.902*** (0.624)	1.727*** (0.558)	0.729 (0.509)	0.415 (0.406)	0.970 (0.642)	1.129* (0.646)
ln(Trade Ratio) _{t-1}	-1.663*** (0.623)	-1.592*** (0.541)	-0.315 (0.543)	-0.234 (0.372)	-0.940 (0.633)	-1.141* (0.638)
ln(Net Foreign Assets) _t	0.078 (0.081)	0.131* (0.070)	0.052 (0.088)	-0.008 (0.048)	0.196 (0.159)	0.202** (0.096)
ln(Net Foreign Assets) _{t-1}	-0.073 (0.085)	-0.016 (0.072)	-0.024 (0.067)	-0.007 (0.057)	-0.140 (0.095)	-0.171* (0.090)
ln(Annual Privatization) _t	0.077** (0.034)	0.058** (0.024)	0.041* (0.020)	0.046*** (0.016)	0.103** (0.042)	0.073*** (0.026)
ln(Annual Privatization) _{t-1}	0.050 (0.036)	0.030 (0.027)	0.023 (0.019)	0.014 (0.015)	0.046 (0.043)	0.016 (0.029)
No.Observations	668	668	675	675	576	576
No.Countries	65	65	65	65	62	62
No.Instruments	18	18	18	18	18	18
Ar1	0.001	0.000	0.000	0.000	0.001	0.001
AR2	0.64	0.628	0.005	0.009	0.421	0.393
Sargan test of overid. restrictions (Prob > chi ²)	0.237	0.362	0.005	0.003	0.081	0.012
Hansen test of overid. Restrictions (Prob > chi ²)	0.853	0.514	0.133	0.063	0.152	0.028

* p<.10, ** p<.05, *** p<.01

Notes: the values reported in Table 5-9 are GMM regression estimates during the period 1988-2009. The dependent variables are finance activity ratio (FAR), finance size ratio (FSR), and finance efficiency ratio (FER). The independent variables are one-year lagged values of FAR, FSR, and SER and current and one-year lagged values of the following variables: GDP growth, trade ratio, net foreign assets, and annual privatization proceeds ratio. The standard deviation is reported in parenthesis. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

5.5. Implication of the Study

The study has a number of theoretical and empirical implications. The theoretical implication of this study is represented in the following two points. First, the importance of not treating the financial development in a country as an aggregate phenomenon; instead, it

should be disaggregated into sub-dimensions. This is because different factors have a relatively different impact on the various dimensions of the financial sector, mainly: size, activities, and efficiency. Second, researchers should consider the impact of the growth on the financial sector development. Although this result might not be new as shown in Calderon and Liu (2003), the findings in this study provide more evidence on the long debate regarding the potential growth impact on the financial sector.

On the practical side, the study has showed a number of interesting results that are useful for policy makers. First, privatization positively affects the development of the financial sector, in particular local stock markets. Second, trade openness is an essential factor that increases volume of transactions within the financial sector, measured by total value traded and domestic credit. Third, income level is an important factor in evolving market-based financial structures.

The previous three main results have major implications for policy makers. First, by empowering the private sector in an economy and increasing its participation in economic activities, activities of the financial sector can be developed. This has an implication for developing countries that aim at improving activities, size, and efficiency within the financial sector. That is, government should support policies that encourage the participation of the private sector to engage more in economic activities, which, in turn, stimulates financial sector development. For countries that aim at reviving its local stock markets, e.g. Egypt, it should consider privatizing its remaining SOEs, which could help in encouraging capital accumulation and investments and, in turn, accelerating the developmental pace of the financial sector. However, when setting up a privatization plan, government should consider a potential loss in activities of the banking sector. Second, income level of a country is an important factor for financial sector development. Governments aiming at deepening their financial sector should consider policies that support improving income level within a country. That is, a more prosperous economy is, a more deepening its financial sector is. Finally, government in developing countries should set up a strategy for more liberalization

of its economy. That is because encouraging trade liberalization enables countries to attract foreign investment, which, in turn, stimulates activities within the financial sector.

5.6. Conclusion

The study has shown that privatization has a positive and statistically significant impact on the development of market-based financial structure and the overall financial sector development. This was shown in the statistically significant impact of the annual privatization ratio on ratios of stock market capitalization, structural activity, structural size, structural efficiency, finance activity, finance size, and finance efficiency. This is due to the significant impact of privatization on stock markets, when governments divest their SOEs through share issue privatization. The previous results support the hypothesis that there is a tendency for developing countries toward favoring share issue privatization to develop their financial markets. Share issue privatization plays a major role in increasing the number of publicly listed firms, which, in turn, leads to higher activity, size, and efficiency of stock markets. Another way through which privatization can positively affect the development of the financial market is the growth channel. That is, as an economy grows, it depends more on industrialization and the financial structure tends to be more market-based finance. Privatization supports the growth channel by developing and enhancing activities of manufacturing sectors. One further link between privatization and stock market development is the nature of the ownership. Private investors are more engaged in riskier activities and could raise funds easier from stock markets than the banking sector. This is because financial markets provide various financial instruments with various degrees of riskiness. Contrary, privatization has no statistically significant impact on the banking sector.

This study has shown that banks and financial markets neither compete nor cooperate. This was shown by the statistical insignificance of the association between market capitalization and the domestic credit provided by the banking sector. This partially supports other empirical evidences that showed that banks evolve independently of stock markets.

This study is consistent with other findings with respect to the importance of openness and financial liberalization for the overall financial sector development. However, the study has distinguished between the financial development in terms of activities, size, and efficiency. In this context, the study has found that although trade openness measured by the trade ratio affects the structural efficiency and finance activities ratios, it does not have a statistically significant impact on the finance size or finance efficiency ratios. This is mainly due to the impact of liberalization on increasing the number of market participants; however, it may not have such impact on the volatility of stock prices or the costs of financial services. On the other hand, the study has found that financial liberalization does not have such impact on the overall financial development ratios when compared to the trade ratio.

5.7. Appendix: Examining the Impact of Privatization on the Development of the Financial Sector after Excluding Former Communist and Socialist Countries

This section reports results of the previously mentioned specification of the study regarding the impacts of privatization on the financial after excluding former communist and socialist countries from the sample. Table 5-10 reports the results of Specification I, which describes the determinants of the development of the stock market.

Table 5-10 Determinants of the Development of the Stock Market after Excluding Former Communist and Socialist Countries

Dependent Variable	Stock Market Capitalization	
	System GMM	Orthogonal GMM
ln(Stock Market Capitalization) _{t-1}	0.643*** (0.062)	0.734*** (0.049)
ln(GDP per capita) _t	1.144 (0.801)	0.817 (0.513)
ln(GDP per capita) _{t-1}	-1.321* (0.767)	-0.839* (0.491)
ln(M/P) _t	0.099** (0.039)	0.049 (0.029)
ln(M/P) _{t-1}	-0.05 (0.031)	-0.029 (0.020)
ln(Domestic Credit) _t	0.329* (0.193)	0.309** (0.147)
ln(Domestic Credit) _{t-1}	-0.271* (0.156)	-0.397** (0.157)
ln(Annual Privatization) _t	0.048 (0.031)	0.073*** (0.019)
ln(Annual Privatization) _{t-1}	0.018 (0.026)	0.02 (0.019)
ln(Trade Ratio) _t	0.407 (0.392)	0.373 (0.335)
ln(Trade Ratio) _{t-1}	-0.154 (0.360)	-0.17 (0.344)
No.Observations	627	627
No.Countries	43	43
No.Instruments	22	22
Ar1	0.000	0.000
AR2	0.885	0.978
Sargan test of overid. restrictions (Prob > chi ²)	0.000	0.003
Hansen test of overid. Restrictions (Prob > chi ²)	0.049	0.074

* p<.10, ** p<.05, *** p<.01

Notes: The values reported in Table 5-10 are GMM regression estimates during the period 1988-2009 after excluding former communist and socialist countries. All variables are transformed using natural logarithm. The dependent variable is the values of stock market capitalization ratio. The independent variables are one-year lagged values of stock market capitalization ratio and current and one-year lagged values of the following variables: ratio of money supply over price level, domestic credits by banking sector, annual privatization proceeds ratio, and trade ratio. The standard deviation is reported in parenthesis. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

As shown in Table 5-10, the one-year lagged value of market capitalization is statistically significant and positively affects the current level of market capitalization at 1% significance level in both system GMM and orthogonal GMM. For both system GMM and orthogonal GMM, there is a negative and statistically significant impact of the one-year lagged values of growth rate of real GDP per capita on stock market capitalization ratio. The ratio of aggregate money supply to inflation has a positive impact on stock market capitalization; however, it is statistically significant only for system GMM. In addition, the later ratio has a negative one-year lagged effect on stock market capitalization; however, it is statistically insignificant. The level of domestic credit provided by banks has a positive and statistically significant contemporaneous impact on stock market capitalization. Moreover, the previous ratio has a negative and statistically significant one-year lagged impact on stock market capitalization. Trade ratio has no statistically significant impact on stock market capitalization. With respect to the privatization ratio, the results show a positive contemporaneous and one-year lagged impact on stock market capitalization; however, it is significant only for orthogonal GMM.

As reported in the table, the Arellano-Bond test for AR (2) in first differences shows no proof of a second order autocorrelation and there is no indication of misspecification bias.

Table 5-11 reports the results of Specification II, which describes the determinants of the development of the banking sector. The one-year lagged value of domestic credit is statistically significant and positively affects the current level of domestic credit at 1% significance level in both system GMM and orthogonal GMM. The GDP growth has a negative and statistically significant contemporaneous impact on the domestic credit ratio. GDP growth has a negative one-year lagged impact on domestic credit ratio; however, it is statistically significant only for system GMM. Annual privatization proceeds ratio has a negative contemporaneous impact on domestic credit ratio; however, it is statistically insignificant. The one-year lagged effect of privatization on the domestic credit is positive;

but it is statistically insignificant. Inflation has a contemporaneous negative and statistically significant impact on the domestic credit.

Table 5-11 Determinants of the Development of the Banking Sector after Excluding Former Communist and Socialist Countries

Dependent Variable	Domestic Credit	
	System GMM	Orthogonal GMM
ln(Domestic Credit) _{t-1}	0.978*** (0.043)	0.994*** (0.023)
ln(GDP Growth) _t	-0.074** (0.027)	-0.039* (0.023)
ln(GDP Growth) _{t-1}	-0.030* (0.016)	-0.002 (0.013)
ln(Real Interest Rate) _t	-0.009 (0.025)	-0.015 (0.020)
ln(Real Interest Rate) _{t-1}	0.006 (0.025)	0.008 (0.027)
ln(Bank Liquid reserves) _t	-0.055* (0.032)	-0.072** (0.029)
ln(Bank Liquid reserves) _{t-1}	0.089*** (0.031)	0.098*** (0.025)
ln(Stock Market Capitalization) _t	0.083** (0.037)	0.057 (0.036)
ln(Stock Market Capitalization) _{t-1}	-0.014 (0.037)	-0.024 (0.036)
ln(Annual Privatization) _t	-0.005 (0.007)	-0.006 (0.007)
ln(Annual Privatization) _{t-1}	0.002 (0.006)	0.007 (0.006)
ln(Inflation) _t	-0.037* (0.021)	-0.043* (0.023)
ln(Inflation) _{t-1}	0.019 (0.024)	0.017 (0.026)
No.Observations	412	412
No.Countries	37	37
No.Instruments	26	26
Ar1	0.047	0.049
AR2	0.926	0.409
Sargan test of overid. restrictions (Prob > chi ²)	0.087	0.409
Hansen test of overid. Restrictions (Prob > chi ²)	0.386	0.430

* p<.10, ** p<.05, *** p<.01

Notes: The values reported in Table 5-11 are GMM regression estimates during the period 1988-2009 after excluding former communist and socialist countries. The dependent variable is the values of total domestic credit ratio. The independent variables are one-year lagged values of domestic credit ratio and current and one-year lagged values of the following variables: GDP growth, net interest margin, bank liquid reserves, and stock market capitalization ratio, annual privatization proceeds ratio, and inflation. The standard deviation is reported in parenthesis. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

In addition, as shown in Table 5-11, bank liquid reserves ratio has a contemporaneous negative and statistically significant impact on the domestic credit. However, the ratio has a positive and statistically significant one-year lagged impact on the domestic credit. The

overall impact of bank liquid reserves on domestic credit ratio is positive. Real interest rate has no statistically significant impact on domestic credit provided by the banking sector. Market capitalization has a positive and statistically significant impact on the domestic credit; however, it is statistically significant only for system GMM.

As reported in Table 5-11, the Arellano-Bond test for AR (2) in first differences shows no proof of a second order autocorrelation and there is indication of misspecification bias for orthogonal deviation GMM.

Table 5-12 reports the results of Specification III, which describes the determinants of the development of the financial system structure. The one-year lagged values of structural activity, structural size, and structural efficiency ratios have positive and statistically significant impact on the current values of financial structural ratios. The annual GDP per capita has a contemporaneous positive and statistically significant impact on structural activity, structural size, and structural efficiency ratios. However, GDP per capita has a negative and statistically significant one-year lagged effect on the previously mentioned ratios of the financial structure. Inflation has neither contemporaneous nor lagged statistically significant impact on the structural activity and structural size ratios. With respect to the impact of inflation on the structural efficiency ratio, inflation has a positive contemporaneous and statistically significant effect only when considering orthogonal deviation GMM. Current trade ratios positively affect the structural efficiency ratio; and it is statistically significantly. However, the latter ratios have negative and statistically significant one-year lagged effect on the structural efficiency ratio. The overall impact of the trade ratio is positive. The annual privatization ratio has a contemporaneous positive and statistically significant impact on the structural activity ratio, structural size ratio, and structural efficiency ratio. Its impact is statistically significant on all measures of the financial structural ratios with the exception of its impact on structural size ratio when considering system GMM. Moreover, privatization has a positive one-year lagged effect on the three structural ratios, but it is statistically

significant only for structural efficiency ratio and the structural activity ratio when considering system GMM.

Table 5-12 Determinants of the Development of the Structure of the Financial System
after Excluding Former Communist and Socialist Countries

Dependent Variable	Structural Activity		Structural Size		Structural Efficiency	
	System GMM	Orthogonal GMM	System GMM	Orthogonal GMM	System GMM	Orthogonal GMM
Structural Activity Ratio t_{-1}	0.689*** (0.087)	0.755*** (0.070)				
Structural Size Ratio t_{-1}			0.663*** (0.055)	0.784*** (0.047)		
Structural Efficiency Ratio t_{-1}					0.785*** (0.110)	0.763*** (0.116)
ln(GDP per capita) $_t$	3.238* (1.866)	3.839*** (1.127)	2.350** (0.884)	1.787*** (0.477)	4.929** (2.144)	3.725*** (1.212)
ln(GDP per capita) $_{t-1}$	-3.334* (1.908)	-4.005*** (1.109)	-2.600*** (0.866)	-1.842*** (0.471)	-5.015*** (2.183)	-3.753*** (1.159)
ln(Inflation) $_t$	0.068 (0.078)	0.068 (0.050)	-0.031 (0.037)	0.014 (0.023)	0.007 (0.067)	0.077* (0.045)
ln(Inflation) $_{t-1}$	-0.058 (0.064)	-0.033 (0.057)	0.035 (0.029)	0.03 (0.023)	-0.069 (0.071)	-0.029 (0.057)
ln(Annual Privatization) $_t$	0.144*** (0.039)	0.117*** (0.032)	0.05 (0.031)	0.087*** (0.021)	0.130*** (0.035)	0.076** (0.036)
ln(Annual Privatization) $_{t-1}$	0.052** (0.022)	0.023 (0.019)	0.006 (0.026)	0.012 (0.019)	0.074** (0.028)	0.039*** (0.014)
ln(Trade Ratio) $_t$	0.578 (0.631)	0.738 (0.536)	0.435 (0.418)	0.227 (0.333)	1.502*** (0.550)	1.278** (0.509)
ln(Trade Ratio) $_{t-1}$	-0.633 (0.612)	-0.635 (0.521)	-0.069 (0.388)	-0.206 (0.315)	-1.248** (0.502)	-1.128** (0.450)
No.Observations	613	613	627	627	498	498
No.Countries	42	42	43	43	40	40
No.Instruments	18	18	18	18	18	18
Ar1	0.000	0.000	0.000	0.000	0.001	0.000
AR2	0.917	0.928	0.650	0.681	0.175	0.189
Sargan test of overid. restrictions (Prob > chi ²)	0.024	0.179	0.000	0.006	0.068	0.151
Hansen test of overid. Restrictions (Prob > chi ²)	0.412	0.254	0.102	0.04	0.424	0.290

* p<.10, ** p<.05, *** p<.01

Notes: The values reported in Table 5-12 are GMM regression estimates during the period 1988-2009 after excluding former communist and socialist countries. The dependent variables are structure activity ratio (SAR), structure size ratio (SSR), and structure efficiency ratio (SER). The independent variables are one-year lagged values of SAR, SSR, and SER and current and one-year lagged values of the following variables: GDP growth, ratio of money supply over the price level, annual privatization proceeds ratio, and trade ratio. The standard deviation is reported in parenthesis. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

As reported in Table 5-12, the Arellano-Bond test for AR (2) in first differences shows no proof of a second order autocorrelation and there is no indication of misspecification bias for structural activity, structural size, and structural efficiency when

considering system GMM. In addition, there is no indication of misspecification bias for structural size ratio when considering orthogonal deviation GMM. However, there is a misspecification bias for structural activity and structural efficiency when considering the orthogonal deviation GMM.

Table 5-13 reports the results of Specification IV, which describes the determinants of the development of the overall financial sector. The one-year lagged values of finance activity, finance size, and finance efficiency ratios have positive and statistically significant impact on the current values of the ratios of the development of the overall financial sector. The GDP growth has a contemporaneous positive impact on the development of the finance activity, finance size, and finance efficiency ratios. The previous impacts are statistically significant for all estimators except for system GMM when the dependent variable is the finance activity and finance efficiency ratios. The GDP growth has a negative one-year lagged effect on finance activity and finance efficiency ratios. However, it is only statistically significant for finance efficiency ratio when considering orthogonal deviation GMM. Nevertheless, GDP growth has a positive one-year lagged effect on the finance size ratio; however, it is statistically insignificant. The trade openness and financial liberalization have positive contemporaneous impact on the development of the three measures of overall financial sector development. However, they are statistically significant only for the impact of trade on the finance activity ratio and the impact of the financial liberalization on the finance efficiency ratio. Contrary, the one-year lagged effect of trade and financial openness negatively affect the overall financial sector development with the exception of the impact of trade on the finance size ratio. The latter effects are statistically significant for the impact of trade on finance activity ratio and the impact of financial liberalization on finance efficiency ratio in both system and orthogonal deviation GMM and finance size ratio when considering orthogonal deviation GMM. Privatization ratio has positive and statistically significant contemporaneous impact on the finance activity, finance size, and finance efficiency ratios. However, it is only statistically insignificant for its impact on the finance efficiency ratio

when considering orthogonal deviation GMM. In addition, privatization ratio has a positive one-year lagged effect on the three measures of the overall financial sector development; however, it is statistically significant only for structural activity ratio and structural efficiency ratio when considering system GMM.

Table 5-13 Determinants of the Development of Overall Financial System after
Excluding Former Communist and Socialist Countries

Dependent Variable	Finance Activity		Finance Size		Finance Efficiency	
	System GMM	Orthogonal GMM	System GMM	Orthogonal GMM	System GMM	Orthogonal GMM
Finance Activity Ratio _{t-1}	0.841*** (0.098)	0.809*** (0.089)				
Finance Size Ratio _{t-1}			0.647*** (0.087)	0.858*** (0.079)		
Finance Efficiency Ratio _{t-1}					1.080*** (0.068)	1.094*** (0.075)
ln(GDP growth) _t	0.047 (0.090)	0.156** (0.059)	0.102* (0.059)	0.147*** (0.042)	0.119 (0.106)	0.187*** (0.061)
ln(GDP growth) _{t-1}	-0.128 (0.090)	-0.035 (0.059)	0.02 (0.054)	0.008 (0.039)	-0.181 (0.114)	-0.132* (0.073)
ln(Trade Ratio) _t	1.709** (0.795)	1.645** (0.751)	0.274 (0.747)	0.111 (0.525)	0.991 (0.952)	1.117 (1.008)
ln(Trade Ratio) _{t-1}	-1.485* (0.808)	-1.488** (0.729)	0.271 (0.689)	0.106 (0.442)	-0.943 (0.932)	-1.096 (0.992)
ln(Net Foreign Assets) _t	0.054 (0.088)	0.096 (0.078)	0.066 (0.086)	0.049 (0.048)	0.248* (0.139)	0.279*** (0.093)
ln(Net Foreign Assets) _{t-1}	-0.102 (0.121)	-0.077 (0.072)	-0.039 (0.061)	-0.111** (0.048)	-0.289** (0.133)	-0.342*** (0.110)
ln(Annual Privatization) _t	0.088** (0.040)	0.056* (0.029)	0.055* (0.028)	0.053*** (0.019)	0.117** (0.053)	0.054 (0.036)
ln(Annual Privatization) _{t-1}	0.075* (0.042)	0.052 (0.034)	0.041 (0.026)	0.025 (0.019)	0.094* (0.050)	0.03 (0.034)
No.Observations	481	481	492	492	409	409
No.Countries	42	42	42	42	40	40
No.Instruments	18	18	18	18	18	18
Ar1	0.007	0.005	0.002	0.001	0.008	0.010
AR2	0.407	0.415	0.044	0.062	0.268	0.254
Sargan test of overid. restrictions (Prob > chi ²)	0.056	0.212	0.000	0.011	0.510	0.370
Hansen test of overid. Restrictions (Prob > chi ²)	0.414	0.499	0.042	0.314	0.098	0.127

* p<.10, ** p<.05, *** p<.01

Notes: the values reported in Table 5-13 are GMM regression estimates during the period 1988-2009 after excluding former communist and socialist countries. The dependent variables are finance activity ratio (FAR), finance size ratio (FSR), and finance efficiency ratio (FER). The independent variables are one-year lagged values of FAR, FSR, and SER and current and one-year lagged values of the following variables: GDP growth, trade ratio, net foreign assets, and annual privatization proceeds ratio. The standard deviation is reported in parenthesis. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

As reported in Table 5-13, the Arellano-Bond test for AR (2) in first differences shows no proof of a second order autocorrelation and there is no indication of

misspecification bias for finance efficiency ratio. However, the Arellano-Bond test for AR (2) shows a second order autocorrelation for the finance size ratio. Sargan test failed to meet the identification restrictions for the specification when finance efficiency ratio is considered. In addition, Sargan test failed to meet the identification restrictions for the specification when finance activity ratio, in case of the orthogonal deviation GMM, is considered.

Chapter 6. Privatization and the Choice of Financing: Evidence from

Egypt

6.1. Introduction

This chapter empirically examines the impact of privatization on choices of financing of Egyptian firms. Although it is widely accepted that privatization improves the performance of firms, its impact on the choices of finance is generally ignored. The empirical study in this chapter examines the determinants of choices of financing based on a sample of operating firms in Egypt during the period 2004-2009. In addition, this study scrutinizes differences in choices of financing of three types of firms: privatized firms, state-owned firms, and well-established publicly listed firms. In the relevant literature, empirical analyses, e.g. Rajan and Zingales (1995), Cantillo and Wright (2000), and Jong et al. (2008), provided evidences on determinants of financial constraints of operating firms based on cross-country analysis. Those analyses ignored such issue at a country-level basis, in particular among developing countries.

In the Egyptian context, studies of the privatization (Heller and Schiller, 1989; Aly and Shields, 1999; Awadalla, 2003; Mohieldin and Nasr, 2007; Kenawy, 2009) examined its impact on macroeconomic variables such as employment, budget deficit, and investment. Those studies ignored largely the effects of privatization at firm level, with few exceptions³⁵. However, a number of questions are still needed to be answered. Specifically, what are main determinants of choices of financing of privatized firms? Do privatized firms in the context of choices of financing behave differently when compared to other operating firms?

³⁵ The existing related firm-level studies in Egypt examined the impact of privatization on the operating performance of privatized firms, mainly El-Mahdy et al. (2007), Omran (2007), and Omran (2009). El-Mahdy et al. (2007) and Omran (2007) examined the operating performance of non-financial privatized firms and privatized banks, respectively. Omran (2009) examined the impact of privatization on the concentration of ownership structure in post privatization period. Refer to Chapter 2 for more details.

Privatization could influence the choices of finance of firms through its impact on the performance of financial sector and performance of firms. By promoting competition within the financial sector and widening share ownership through privatization, e.g., Farinós et al. (2007), spillover effects on the capital structure of firms are expected. These effects facilitate access to external finance by alleviating the financial constraints, particularly for small and young firms and those with concentrated ownership structures (Bena and Ondko, 2012). Furthermore, the expected gains from privatization, which are represented in wider ownership structure³⁶ and improved information disclosure standards, mitigate the information asymmetry across firms. This, in turn, facilitates access to external finance. As discussed in Myers and Majluf (1984), Jensen (1986), and Fama and French (2005), the differences among firms in their choices of financing are triggered by the information asymmetry in an environment where imperfect capital market exists.

The information asymmetry among firms has the following two aspects. The first is ascending from the different incentives between lenders, i.e. banks and stock markets, and borrowers, i.e. firms, and second is ascending from the different incentives between insiders, i.e. managers, and outsiders, i.e. shareholders. The first aspect of the information asymmetry between borrowers and lenders, as discussed in Leland and Pyle (1977), arises because of the moral hazard problem that hinders the transfer of information between lenders and borrowers. That is because firms know better about their collateral, profitability, and other fundamentals than lenders. In that context, the differences in the degree of information disclosure across firms amplify the information asymmetry in the credit market. That, in turn, affects choices of financing among firms through affecting their ability to access alternative financial instruments, i.e. bank-based and market-based financial instruments. Thus, poor quality firms,

³⁶ In the context of Egypt, although privatization widened the ownership structure after divestiture, Omran (2009) showed that the state still partially controls over privatized firms. In addition, those firms are characterized by a relatively partial concentration in their ownership structure.

in terms of information disclosure and operating performance, opt for bank-based finance, while high quality firms opt for market-based finance. In that context, firms with abundant cash and collateral and high profitability depend more on market-based finance, while firms with less internal cash and collateral and low profitability depend more on bank-based finance (Cantillo and Wright, 2000). In the privatization context, Knyazeva et al. (2009) showed that the transfer of ownership from the state to the private sector increases the reliance of privatized firms on external finance. This is because of the higher information asymmetry that faced by privatized firms after divestiture compare to firms with an established reputation in the financial market. Thus, those firms are expected to rely more on bank-based finance. The second aspect of information asymmetry results from the different incentives between managers and shareholders. As discussed in Jensen (1986), the payout to shareholders ascends the conflict between managers and shareholders. This conflict mainly arises because the cash payout to shareholders reduces available resources under control of managers. As a result, a cost of monitoring by the capital market rises when managers require new capital. Accordingly, this conflict affects the choices of financing by firms, when they choose to finance their activities through internal finance in order to avoid such monitoring costs. In addition, according to Harvey et al. (2004), the latter conflict affects the choice of financing by recruiting to debt when high agency cost is realized. This is because financing through debt, i.e. bank-based finance, provides signals that those firms do not overinvest. Thus, bank-based finance mitigates overinvestment problem resulted from adopting wasteful investment projects by obliging managers to pay out abundant cash to service the debt (McConnell and Servaes, 1995).

Given the rationale mentioned above, this empirical study attempts to overcome weaknesses in earlier studies by examining the impact of privatization on choices of financing among privatized firms. By utilizing qualitative and quantitative analyses, the primary objective of this study is to scrutinize determinants of choices of financing in Egypt during the period of 2004-2009 for three groups of firms: privatized firms, well-established

publicly listed firms, and state-owned firms. In addition, the study attempts to identify differences in choices of finance among the three groups of firms. This study is based on an assumption that privatized firms face the same challenges, which are faced by new firms once enter a market. Thus, they face costly external finance compared to internal finance and a costly market-based finance compared to bank-based finance.

The study contributes to the relevant literature in four ways. First, the study extends the existing privatization research in Egypt by scrutinizing the determinants of choices of financing of privatized firms. Second, the study employs a larger number of firms from different industries compared to the previous studies in the Egyptian context. Third, by making a distinction between privatized firms, well-established publicly listed firms, and state-owned firms, the study provides a comprehensive and deep analysis of the impact of privatization on the Egyptian economy. Fourth, the study contributes to the literature related to financial sector development by examining the impact of privatization on the access of the external finance. That is, the study considers the demand side of the evolution of the financial services.

The remainder of this chapter is organized as follows. After introduction, Section 6.2 explains the methodology of the study. Section 6.3 describes the data and used variables. Section 6.4 reports the results of the study. Section 6.5 analyzes the implications of the study. Finally, section 6.6 presents the conclusion of the study.

6.2. Methodology

As mentioned in Chapter 4, two main approaches demonstrate the interaction between financing decisions and real decisions of firms. The first approach based on the Modigliani and Miller theorem (1958) shows that financing decisions are independent of real decisions of firms. The second approach based on neo-Keynesian theories, i.e. the tradeoff theory (Jensen, 1986) and the pecking order theory (Myers and Majluf, 1984) emphasizes the associations between financing decisions and real decisions of firms. Based on those two

approaches, various empirical studies, e.g. Fama and French (2005), and Cantillo and Wright (2000), scrutinized the determinants of choices of financing of firms.

This empirical study is based on number of assumptions of the neo-Keynesian approach. Three main assumptions are assumed: 1) the financial structure is driven by choices of financing of firms; 2) choices of financing depend on the desire of firms to involve in riskier activities; 3) a prevailing of symmetric information, agency problem, and imperfect capital markets. In the Egyptian context, those assumptions are good for representing the nature of the Egyptian financial market, where stock prices are not good indicator for firms to consider their investment plans. In addition, by considering asymmetric information and agency problem, this represents the nature of poor auditing standards and corporate governance that characterize Egyptian operating firms. By considering those assumptions, the study is able to examine the development of the demand for the financial activities.

This study is motivated by the recent contribution of Brav (2009), which examined determinants of access to external finance by combining the ideas of the pecking order theory (Myers and Majluf, 1984) and the tradeoff theory (Jensen, 1986). Based on assumption of the information asymmetry and agency conflict, two main effects on choices of financing are identified: a level effect and a sensitivity effect. The framework of the author has two predictions. First, firms with less informational transparency and limited ownership structures depend more on bank-based finance and avoid market-based finance, namely the level effect. This is because equity issue is very sensitive to informational asymmetry, which occurs either between lenders and firms or between shareholders and managers, compared to debt issue. Second, the operating performance of firms affects their bank-based finance, namely the sensitivity effect. That is due to the increased costs of raising funds from market-based finance. In addition, firms with more asymmetric information depends less on information-sensitive instruments such as market-based finance. The existing information asymmetry and agency cost depend on main firm level characteristics such as sizes and ownership structure (Holod and Peek, 2007).

This empirical study attempts to answer the following questions. (1) Do privatized firms in the context of choices of financing behave differently compared to other operating firms? (2) What are main determinants of choices of financing across privatized firms? The distinction is made for three types of firms: privatized firms, well-established publicly listed firms, and state-owned firms. The distinction among the three groups of firms stems from the differences in the informational asymmetry and ownership structure. Information asymmetry is a binding constraint of firms, especially among firms with limited ownership structure. Although privatized firms have operated under a state ownership, privatization widens their ownership structure (Omran, 2009). Thus, in post privatization period, the financial institutions willing to provide funds evaluate their creditworthiness differently compared to pre divestiture period (Knyazeva et al., 2009).

The study adopts three strategies to examine the differences in financing decisions across firms. First, the study adopts a qualitative analysis to identify differences in choices of financing between the different types of firms. In the latter analysis, the study classifies firms according to their sizes. Second, the study employs a nonparametric test in order to test for the statistical significance of the change in central values of main financial variables. In particular, the study uses the Wilcoxon rank sum and Jonckheere-Terpstra tests to test the following. (1) Is there a statistically significant difference of the mean short-term debt, long-term debt, and total liabilities across firms? (2) Is there a statistically significant difference of the mean measure of a financial constraint across firms? Third, the study uses fixed effect (within) regression to identify main determinants of choices of finance across firms. The study used the Hausman-test to test the null hypothesis of no systematic difference between the estimates obtained from random effect regression and fixed effect (within) regression. It rejected the null hypothesis. That is, using the random effect regression will generate an inconsistent estimator. Therefore, results obtained from fixed effects models will be reported. Based on Brav (2009), six main control variables are used, which will be explained in section 6.3.: size, growth, profitability, capital expenditure, age, and asset tangibility. In

addition, the study uses cash holding as a commonly used variable (Gaud et al., 2007; Lin et al. 2011). Specifically, the study estimates two main regression models: a base model, which incorporate the previously mentioned sets of variables, regardless of the ownership type; and an extended model, which considers the impact of ownership type. On the basis of the previous studies (Myers and Majluf, 1984; Jensen, 1986; Gaud et al., 2007; Brav, 2009; Lin et al. 2011), the empirical equation (1) is used as the base model, i.e. Specification I, in order to examine the relationship between the choices of financing and firm specific characteristics, which is described as follows:

$$FIN = \beta_0 + \beta_1 size_{it} + \beta_2 GR_{it} + \beta_3 Prof_{it} + \beta_4 CEXP_{it} + \beta_5 Age_{it} + \beta_6 Atan_{it} + \beta_7 CH_{it} + \beta_8 u_{it}, \quad (1)$$

where *FIN* is choices of financing, *size* is the firm's size, *GR* is sale growth ratio, *Prof* is the profitability measured by return on assets, *CEXP* is the capital expenditure, *Age* is the number of operating years, *Atan* is tangible assets, and *CH* is cash holdings.

In the extended model, i.e. Specification II, the study considers the interaction term between ownership type and three main variables: size, sales, and profitability, which will be explained in section 6.3, while controlling for four main variables capital expenditure, age, asset tangibility, and cash holding. The latter variables are potential factors relevant to variations in ownership type (Bougheas et al., 2006; Holod and Peek, 2007; Brav, 2009; Knyazeva et al., 2009; Omran, 2009). Those variables reflect the degree of asymmetric information and agency conflict of firms, which, in turn, affects their choices of financing. This is because equity issue is very sensitive to informational asymmetry and agency problem compared to debt issue. Size is considered as a proxy for the degree of information asymmetry and access to capital market, while the operating performance measured by sales and profitability is considered a proxy for the degree of agency conflict within a firm. On the basis of the previous studies (Bougheas et al., 2006; Holod and Peek, 2007; Brav, 2009; Knyazeva et al., 2009; Omran, 2009), the empirical equation (2) is used as the extended

model, i.e. Specification II, in order to examine the relationship between the choices of financing and ownership type, which is described as follows:

$$FIN = \beta_0 + \beta_1 CEXP_{it} + \beta_2 Age_{it} + \beta_3 Atan_{it} + \beta_4 CH_{it} + \beta_5 size_{it} * D_i + \beta_6 GR_{it} * D_i + \beta_7 Prof_{it} * D_i + \beta_8 u_{it}. \quad (2)$$

where *FIN* is choices of financing, *CEXP* is the capital expenditure, *Age* is the number of operating years, *Atan* is tangible assets, *CH* is cash holdings, *size* is the firm's size, *GR* is sale growth ratio, *Prof* is the profitability measured by return on assets, and *D_i* is a dummy variable to describe the type of firms.

With respect to the choices of financing in both base and extended models, three indicators are used: debt ratio I, debt ratio II, and debt ratio III, as defined in the following section.

6.3. Data and Variables

Data

The study collects detailed information from annual financial statements of Egyptian firms to examine the choices of financing during the period 2004-2009. The sampled firms belong to the following sectors: construction (SIC codes 1521-1799), manufacturing (SIC codes 2011-3999), real estate (SIC codes 6512-6553), touristic services (SIC codes 7011-7041), transport (SIC codes 4011-4971), and trade (SIC codes 5012-5199). The data consists of 285 firms. Types of firms include 87 privatized firms, 73 other publicly listed firms, and 125 state-owned firms. The annual financial statements are collected from the following sources: Emerging Markets Information Services (EMIS), Arab Capital Market Resource Center, and Egyptian for Information Dissemination Center. Data about state-owned firms are collected from Egyptian Business Sector Information Center.

Variables

In order to examine the impact of privatization on the choices of financing, the study uses various commonly used variables based on (Rajan and Zingales, 1995; Booth et al., 2001; Brav, 2009). For the purpose of describing and defining used variable in this empirical

study, variables are classified into two main categories: variables describing financial choices and variables describing firm-specific characteristics. All these variables are used throughout the empirical analysis. With respect to the choices of financing, the study adopts five commonly used measures of leverage³⁷: short-term debt ratios, total liabilities to total assets, the total debt ratio (debt ratio I), the short-term debt to total debt ratio (debt ratio II), and the total net debt ratio (debt ratio III). Regarding firm-specific characteristics, the study uses size, growth, profitability, capital expenditure, age, tangibility, and cash ratio. In addition, the study uses two other measures: ownership and financial constraint. The definitions of these variables are demonstrated as follows.

Variables of the Financial Choice

The study uses two variables to proxy for access to market-based finance: the total debt ratio (debt ratio I) and the total net debt ratio (debt ratio II). According to Bougheas et al. (2006) and Brav (2009), those measures are considered good proxies for market-based finance since they include other forms of long-term liabilities such as bonds and other long-term financial instruments obtained from the financial market. The total debt ratio (debt ratio I) is calculated as the summation of short-term debt and long-term debt scaled by total assets (Brav, 2009). Although this measure does not include accounts payable and other liabilities such as notes payable, it is considered an appropriate measure of leverage as discussed in Rajan and Zingales (1995). Total net debt-asset ratio (debt ratio II) is calculated as the summation of short-term debt and long-term debt minus total cash scaled by total assets (Brav, 2009). The two previously mentioned measures are used as proxy for market based-finance as suggested by Bougheas et al. (2006). The study uses short-term debt to total debt ratio (debt ratio III) as a proxy for the bank-based finance (Brav, 2009), since majority of

³⁷ The study uses a variety of financial indicators in order to avoid some weakness in each measure of financial leverage as discussed in Rajan and Zingales (1995).

short-term debt consists of loans provided by banks. It is calculated as short-term debt divided by the summation of short-term debt and long-term debt.

The study adopts other three variables of leverage: short-term debt, long-term debt, and total liabilities ratios as discussed in Rajan and Zingales (1995) and Jong et al. (2008). Short-term debt ratio is calculated as the short-term loans scaled by total assets. It shows the volume of assets financed by debt. This ratio is considered a good indicator of leverage, which reflects a financial risk of a firm in the short-term (Rajan and Zingales, 1995), and a proxy for bank based-finance. Long-term debt ratio is calculated as total long-term debt scaled by total asset. This measure is a proxy for market-based finance. According to Jong et al. (2008), this measure is a good proxy for financial stability of a firm compared to short-term debt because it does not include tradable credits. Thus, it gives a more precise measure of leverage. Total liability scaled by total assets is used to proxy for cash left for shareholder in case of liquidation. That is, it is considered a measure of stock leverage (Rajan and Zingales, 1995). In all the previously mentioned three variables, the study considers scaling them by total liability, in addition to total assets, since dividing only by total assets does not account for the relative importance of debt to the value of a firm. In that case, the adjusted three measures of leverage by total equity shows the portion of debt that firms can use to finance changes in the net worth of the firm as discussed in Rajan and Zingales (1995).

Variables of Firm-Specific Characteristics

The study uses six main measures for firm-specific characteristics (Brav, 2009): profitability, growth, size, age, asset tangibility, and capital expenditure. In addition, the study uses cash ratio as a commonly used variable. Return on assets (ROA), as a commonly used measure, is used to proxy for profitability. In addition, it is considered as a good proxy for the financial insolvency and the true productivity of assets (Altman, 1968; Gaud et al., 2007; Jong et al., 2008). It is calculated as net income divided by total assets. The study uses turnover ratio to proxy for sales growth (Brav, 2009; Lin, et al., 2011). This ratio is calculated as current turnover divided by one-year lagged turnover. As suggested by Bougheas et al.

(2006) and Holod and Peek (2007), two variables are used to account for the existing of information asymmetry and agency cost: size and age. In finance literature, the log of total assets is a common used proxy for the size of a firm³⁸ (Brav, 2009; Lin et al., 2011). In addition, it is considered a good proxy for controlling for the degree of information asymmetry and access to capital market (Bougheas et al., 2006). Age is calculated as the logarithm of the number of operating years (Brav, 2009; Bougheas et al., 2006). In order to control for the financial collateral, the study uses the tangible assets (Rajan and Zingales, 1995; Bougheas et al., 2006; Jong et al., 2008); Brav, 2009). It is calculated as the volume of fixed assets scaled by total assets. The study uses cash and cash equivalent as a proxy for the available liquidity (Gaud et al., 2007; Brav, 2009; Lin et al. 2011). The capital expenditure ratio is used to control for the incremental increase in physical assets of firms such as net property, plant, and equipment (Brav, 2009; Lin et al., 2011).

In addition to the previously mentioned variables, the study adopts two other variables of firms-specific characteristics: ownership and financial constraints. The study uses a dummy variable to identify the ownership of the three sampled groups of firms, i.e. privatized, well-established publicly listed, and state-owned firms. The study uses three measures of financial constraints: KZ index, as constructed by Kaplan and Zingales (1997), WW index, as constructed by Whited and Wu (2006), and IG index as constructed by Demirgüç-Kunt and Maksimovic (2002). KZ index sorts firms according to the degree of financial constraints. It is based on the idea that financially constrained firms have less collateral to meet their financial obligations. Thus, they face a difficulty in accessing the external finance. The original formulation for this index is represented by a linear combination of cash flow to book asset ratio, total long-term debt to book asset ratio, total dividends to book asset ratio,

³⁸ In the Egyptian context, according to the Law No. 141 in 2004, firms are classified into small, medium, and large firms based on the volume of labor and/or total assets (The Economic Research Forum (ERF), 2004; Ministry of Foreign Trade, Egypt, 2004).

stock of cash to book asset ratio, and Tobin's-Q. A firm is considered financially constrained, if it requires an external fund but faces different cost burdens due to asymmetric information in the capital market. Given the differences across firms with various ownership structures, the differences of financial constraints are expected. The study constructs KZ index with exclusion of Q-term as suggested by Baker et al. (2003) and Hennessy et al. (2007). Then, the study calculates the average of KZ index grouped by quantiles of the size of firms. KZ index is calculated as following:

$$KZ = -1.001909 CF + 3.139193 TLTD - 39.36780 TDIV - 1.314759 CASH,$$

where *CF* is cash flow to book asset ratio, *TLTD* is total long-term debt to book asset ratio, *TDIV* is total dividend to book asset ratio, and *CASH* is the stock of cash to book asset ratio. Associated numbers in the equation are commonly used scales (Hennessy et al., 2007).

Another alternative to KZ index in measuring the degree of financial constraints is WW index. The WW index is calculated as follows.

$$WW = -0.091 CF - 0.062 DIVPOS + 0.021 TLTD - 0.044 LNTA + 0.102 ISG - 0.035 SG,$$

where *CF* is cash flow to book asset ratio, *DIVPOS* is a dummy variable equals one if a firm pays dividend and equals zero otherwise, *TLTD* is total long-term debt to book asset ratio, *LNTA* is the natural logarithm of total assets, *ISG* is the industry sale growth, and *SG* is a sales growth of a firm. Associated numbers in the equation are commonly used scales (Hennessy et al., 2007).

In addition, the study uses the internally financed growth index as suggested by Demirgüç-Kunt et al. (2002). This index measures the portion of growth internally financed, which is calculated as follows:

$$IG_t = \frac{ROA_t}{(1-ROA_t)}$$

where *IG* is the internally financed growth index, and *ROA* is the return on assets.

Table 6-1, Table 6-2, Table 6-3, and Table 6-4 report definitions of main variable used in the analysis and their summary statistics, respectively.

Table 6-1 Definition of Main Variables Used in Examining the Choices of Financing

Variable	Definition
Age	Logarithm of Operating Years
Capital Expenditure	Changes in the Physical Assets /Total Assets
Cash ratio	(Cash and Cash Equivalents)/Total Assets
Debt Ratio I	(Short-Term Debt + Long-Term Debt)/Total Assets
Debt Ratio II	(Short-Term Debt+ Long-Term Debt-Cash and Cash Equivalents)/Assets
Debt Ratio III	Short-Term Debt/(Short-Term Debt + Long-Term Debt)
Growth	Turnover _t /Turnover _{t-1}
IG Index	ROA/(1-ROA)
KZ Index	A Linear Combination of the following Ratios: Cash Flow, Total Long-Term Debt, Total Dividends, and Stock of Cash
Long-Term Debt To Total Assets	Long-Term Debt/Total Assets
Long-Term Debt To Total Equity	Long-Term Debt/ Shareholders' Equity
Return on Assets	Net income/ Total Assets
Short-Term Debt to Total Assets	Short-Term Debt/Total Assets
Short-Term Debt To Total Equity	Short-Term Debt/ Shareholders' Equity
Size	The Natural Logarithm of Total Assets
Tangible Assets	Fixed Asset/Total Assets
Total Liabilities to Total Assets	Total Liabilities/ Total Assets
Total Liabilities to Total Equity	Total Liabilities/ Shareholders' Equity

Table 6-2 Summary Statistics of Main Variables Used in Examining the Determinants of the Choices of Financing: the Base Model

The Dependent Variable is the Debt Ratio I					
Variable	Average	S.D	Min.	Max.	Obs.
Debt Ratio I	0.14	0.29	0.00	2.55	760
Size	13.16	2.25	8.83	23.03	760
Growth	0.93	1.43	-8.90	15.54	760
Return on Assets	0.03	0.23	-2.01	0.73	760
Capital Expenditure	0.02	0.27	-1.95	1.04	760
Age	3.65	0.68	0.69	5.02	760
Tangible Assets	0.41	0.26	0.00	1.79	760
Cash Ratio	0.12	0.12	0.00	0.69	760
The Dependent Variable is the Debt Ratio II					
Variable	Average	S.D	Min.	Max.	Obs.
Debt Ratio II	0.02	0.34	-0.68	2.52	760
Size	13.16	2.25	8.83	23.03	760
Growth	0.93	1.43	-8.90	15.54	760
Return on Assets	0.03	0.23	-2.01	0.73	760
Capital Expenditure	0.02	0.27	-1.95	1.04	760
Age	3.65	0.68	0.69	5.02	760
Tangible Assets	0.41	0.26	0.00	1.79	760
Cash Ratio	0.12	0.12	0.00	0.69	760
The Dependent Variable is the Debt Ratio III					
Variable	Average	S.D	Min.	Max.	Obs.
Debt Ratio III	0.81	0.33	0.00	1.00	516
Size	13.38	2.60	8.83	23.03	516
Growth	0.97	2.62	-18.75	39.34	516
Return on Assets	0.02	0.23	-1.95	0.73	516
Capital Expenditure	0.02	0.27	-1.95	1.00	516
Age	3.57	0.70	0.69	5.02	516
Tangible Assets	0.41	0.28	0.00	1.79	516
Cash Ratio	0.10	0.11	0.00	0.69	516

Table 6-3 Summary Statistics of Main Variables Used in Examining the Determinants of the Choices of Financing: the Extended Model

The Dependent Variable is the Debt Ratio I					
Variable	Average	S.D	Min.	Max.	Obs.
Debt Ratio I	0.15	0.32	0.00	3.81	768
Capital Expenditure	0.01	0.32	-3.72	1.04	768
Age	3.65	0.68	0.69	5.02	768
Tangible Assets	0.41	0.26	0.00	1.79	768
Cash Ratio	0.12	0.12	0.00	0.69	768
Size*PF	3.85	6.33	10.44	23.03	768
Size*WEPL	2.40	5.45	8.83	22.68	768
Growth*PF	0.40	3.28	-18.75	74.31	768
Growth*WEPL	0.15	0.47	0.00	8.65	768
Profitability *PF	0.02	0.11	-1.95	0.53	768
Profitability*WEPL	0.02	0.07	-0.47	0.73	768
The Dependent Variable is the Debt Ratio II					
Variable	Average	S.D	Min.	Max.	Obs.
Debt Ratio II	0.02	0.36	-0.68	3.73	768
Capital Expenditure	0.01	0.32	-3.72	1.04	768
Age	3.65	0.68	0.69	5.02	768
Tangible Assets	0.41	0.26	0.00	1.79	768
Cash Ratio	0.12	0.12	0.00	0.69	768
Size*PF	3.85	6.33	10.44	23.03	768
Size*WEPL	2.40	5.45	0.00	22.68	768
Growth*PF	0.40	3.28	-18.75	74.31	768
Growth*WEPL	0.15	0.47	0.00	8.65	768
Profitability *PF	0.02	0.11	-1.95	0.53	768
Profitability*WEPL	0.02	0.07	-0.47	0.73	768
The Dependent Variable is the Debt Ratio III					
Variable	Average	S.D	Min.	Max.	Obs.
Debt Ratio III	0.81	0.33	0.00	1.00	517
Capital Expenditure	0.02	0.31	-3.08	1.00	517
Age	3.57	0.70	0.69	5.02	517
Tangible Assets	0.41	0.28	0.00	1.79	517
Cash Ratio	0.10	0.11	0.00	0.69	517
Size*PF	4.94	6.89	10.44	23.03	517
Size*WEPL	3.57	6.32	0.00	22.68	517
Growth*PF	0.35	2.11	-18.75	39.34	517
Growth*WEPL	0.22	0.55	0.00	8.65	517
Profitability *PF	0.02	0.12	-1.95	0.40	517
Profitability*WEPL	0.03	0.08	-0.47	0.73	517

Table 6-4 Summary Statistics of Main Variables Used in Examining the Comparison between Privatized, Publicly Listed, and State-owned Firms

Variable	Average	S.D	Min.	Max.	Obs.
Short-Term Debt to Total Assets	0.12	0.29	0.00	2.55	789
Debt Ratio III	0.15	0.30	0.00	2.55	789
Debt Ratio II	0.03	0.35	-0.68	2.52	789
WW Index	-0.63	0.20	-2.40	1.26	789
KZ Index	0.06	0.61	-4.36	5.47	789
IG Index	0.06	0.19	-0.67	1.54	789

6.4. Results

As outlined in section 6.2, the empirical analysis of this chapter consists of three analyses: an exploratory analysis, non-parametric tests, and regression analysis. The study starts reporting results obtained from the exploratory analysis, and then results of non-parametric tests and regression analysis are reported.

Figure 6-1 until Figure 6-4 explore the choices of finance of privatized firms compared to well-established publicly listed firms (WEPLs) and state-owned firms (SOEs). The figures show the average source of finance categorized by firm sizes. Q₁ until Q₄ in each figure indicates first to fourth quantiles of size based on the total assets.

Figure 6-1 and Figure 6-2 describe the average short-term debt ratio and total debt ratio scaled by total assets, respectively. The former figure shows that small size privatized firms depend less on short-term debt ratio, which implies lower dependence on bank loans. With the exception of the fourth quantile, the larger the size of privatized firms is, the higher the degree of dependence on short-term debt is, since the large portion of short-term debt takes the form of bank's loans. However, in the largest size group, indicated by the fourth quantile, the short-term debt ratio declines.

Figure 6-1 Average Short Term Debt to Asset Ratio by Ownership Type, 2004-2009

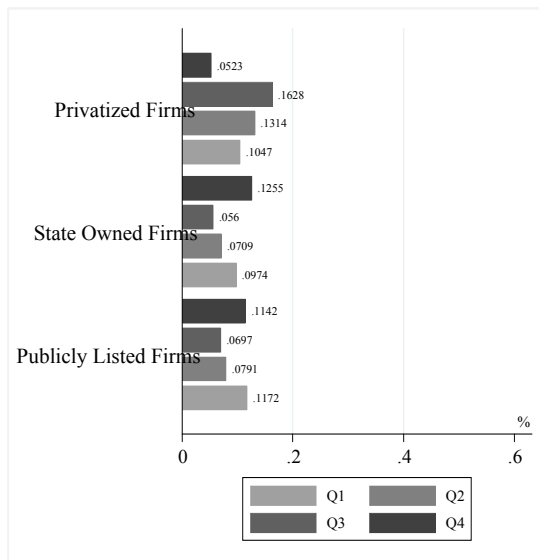
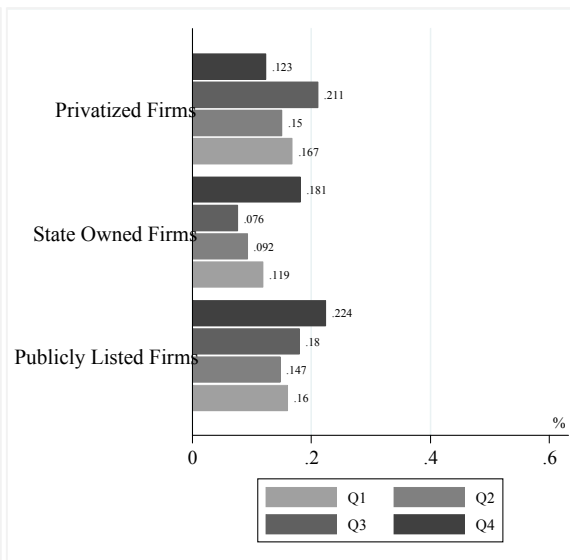


Figure 6-2 Average Debt Ratio I by Ownership Type, 2004-2009



As noted in Figure 6-2, compared to WEPLs, the short-term debt to asset ratio is higher in the second and third quantiles, while the ratio is lower in the first and fourth quantiles. Compared to SOEs, small and medium size firms, indicated by Q₁ until Q₃, depend more on short-term debt, while the fourth quantile groups depend less on short-term debt.

Debt ratio I, which measures the total debt scaled by total assets, is higher among privatized firms in Q1 until Q3 compared to SOEs. Contrary, the fourth quantile group has lower debt ratio I. Compared to WEPLs, debt ratio I of privatized firms is almost similar in lower quantiles, indicated by Q1 until Q3, while it is lower in the fourth quantile.

Debt ratio II, in Figure 6-3, which measures the total debt minus cash scaled by total assets, is almost similar to SOEs for first quantiles. In the third quantile, the ratio is higher for privatized firms, while it is lower in the second and fourth quantile.

Compared to WEPLs, the ratio among privatized firms is higher in the first and third quantiles. However, it is notable that the ratio among WEPLs substantially exceeds the privatized firms in fourth and second quantiles.

Figure 6-3 Average Debt Ratio II by Ownership Type, 2004-2009

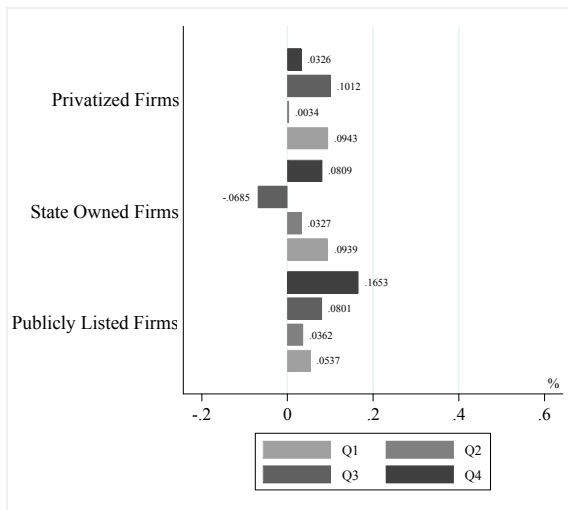
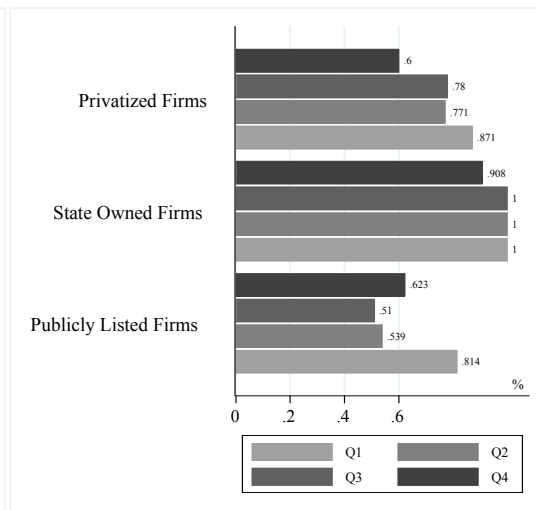


Figure 6-4 Average Debt Ratio III by Ownership Type, 2004-2009



Debt ratio III, in Figure 6-4, measures the short-term debt divided by the total debt. It implies utilization of bank-based finance of a firm. For small size firm groups, indicated by

Q1 until Q3, the ratio is higher among privatized firms compared to WEPLs. Across all quantiles, the ratio is lower among privatized firms compared to SOEs.

Table 6-5 until Table 6-7 show results of nonparametric tests. Table 6-5 reports the results obtained from the comparison between privatized firm and well-established publicly listed firms (WEPLs). As shown in Table 6-5, privatized firms have lower short-term debt to asset ratio compared to WEPLs. The ratio among privatized firms is lower by 1.68 percentage point compared to WEPLs and it is statistically significant at 5%.

Table 6-5 Mean and Mean-Difference of Selected Variables: A Comparison between Privatized Firms and Well-Established Publicly Listed Firms

Variable	Privatized Firms	Well-Established Publicly Listed Firms	Difference
Short-Term Debt to Total Assets	0.0655	0.0823	-0.0168**
Debt Ratio I	0.1597	0.1871	-0.0274**
Debt Ratio II	0.0384	0.1014	-0.0630***
Debt Ratio III	0.9210	0.8791	0.0418***
WW Index	-0.6572	-0.6424	-0.0147
KZ Index	-0.0143	0.1325	-0.1467***
IG Index	0.0873	0.1020	-0.0147**

* p<.10, ** p<.05, *** p<.01

With respect to debt ratio I and debt ratio II, they are indicators of market-based finance. The lower ratios among privatized firms compared to WEPLs indicates lower dependence of privatized firms on market-based finance. Privatized firms have lower ratios compared to WEPLs. The average debt ratio I if a firm was a privatized is 15.97%; and if a firm was SOEs is 18.7%. Debt ratio I among privatized firms is less by 2.7 percentage points compared to WEPLs. It is statistically significant at 5%. Debt ratio II of privatized firms is less by 6.3 percentage points compared to WEPLs and statistically significant at 1%.

This is consistent with the presumption that privatized firms are still lack of reputation in the equity market and the market-finance is still costly for them. Another explanation for lower ratios among privatized firms is that firms with more tangible assets are less likely to raise funds from equity market and opt for bank-based finance. The study estimated the

average asset tangibility, which equals fixed assets scaled by total assets, for privatized firms, WEPLs, and SOEs at 45%, 43%, and 39%, respectively.

With respect to debt ratio III as an indicator of bank-based finance, it is higher among privatized firms by 4.2 percentage points compared to WEPLs and it is statistically significant at 1%. There are two explanations why the ratio is higher among privatized firms compared to WEPLs. One is because of the relatively high asset tangibility among privatized firms makes access to bank' loan easier than equity markets. Second, privatized firms are relatively credit constrained making it difficult to access market-based finance.

Regarding to the financial constraints indicators, privatized firms have higher KZ and IG indices compared to WEPLs, which implies higher financial constraints and higher reliance on internal funds among privatized firms compared to WEPLs. WW index is lower among privatized firms; however, it is statistically insignificant.

Table 6-6 reports the results obtained from the comparison between privatized firm and SOEs. As shown in the table, privatized firms have higher short-term debt to asset ratio compared to state-owned firms. Short-term debt to asset ratio of privatized firms is higher by 3.1 percentage point compared to SOEs and it is statistically significant at 1%.

Table 6-6 Mean and Mean-Difference of Selected Variables: A Comparison between

Privatized Firms and State-Owned Firms

Variable	Privatized Firms	State-owned Firms	Difference
Short-Term Debt to Total Assets	0.0655	0.0346	0.0309***
Debt Ratio I	0.1597	0.1537	0.0060
Debt Ratio II	0.0384	-0.0741	0.1125***
Debt Ratio III	0.9210	1.0000	-0.0790***
WW Index	-0.6572	-0.6395	-0.0177
KZ Index	-0.0143	-0.1237	0.1094***
IG Index	0.0873	0.0301	0.0572***

* p<.10, ** p<.05, *** p<.01

With respect to debt ratio I and debt ratio II, privatized firms have higher ratios Compared to SOEs. Debt ratio I among privatized firms is higher by 0.6 percentage point compared to SOEs. However, it is statistically insignificant. Debt ratio II of privatized firms is higher by 11.2 percentage points compared to SOEs and is statistically significant at 1%.

With respect to debt ratio III, it is lower among privatized firms compared to SOEs. The ratio is lower among privatized firms by 7.9 percentage points compared to SOEs and it is statistically significant at 1%. The latter result can be explained by the measures of financial constraints.

As shown in the table, privatized firms have higher KZ and IG indices compared to SOEs, which implies higher financial constraints and higher reliance on internal funds among privatized firms compared to SOEs. Although WW index is lower among privatized firms, it is statistically insignificant.

Table 6-7 reports the results obtained from comparison between private ownership and state ownership. As shown in the table, firms with private ownership have higher ratios of short-term debt to asset ratio by 3.8% compared to state ownership. Debt ratio I and debt ratio II are higher among private firms by 1.7% and 13.9% respectively. The difference is statistically significant for debt ratio I, but statistically insignificant for debt ratio II. Private firms have lower debt ratio III by -9.6% compared to firms with state ownership.

Table 6-7 Mean and Mean-Difference of Selected Variables: A Comparison between

Private Ownership and State Ownership			
Variable	Private Ownership	State Ownership	Difference
Short-Term Debt to Total Assets	0.0728	0.0346	0.0382***
Debt Ratio I	0.1711	0.1537	0.0174
Debt Ratio II	0.0650	-0.0741	0.1391***
Debt Ratio III	0.9038	1.0000	-0.0962***
WW Index	-0.6514	-0.6395	-0.0119
KZ Index	0.0447	-0.1237	0.1684***
IG Index	0.0933	0.0301	0.0632***

* p<.10, ** p<.05, *** p<.01

With respect to financial constraints indices, as indicated by KZ index, IG index, and WW index, private firms have higher KZ and IG indices compared to firms with state ownership. KZ index is higher by 16.4% and is statistically significant. This implies higher financial constraints that private firms face compared to firms with state ownership. In addition, private firms have higher IG index by 6.3% and is statistically significant. This

implies that private firms rely more on internal funds compared to state ownership firms. Although private firms have lower WW index, it is statistically insignificant.

Table 6-8 and Table 6-9 report results of the regression analysis, which describes factors that influence choices of finance by firms. In particular, results obtained from Table 6-8 give predictions of the baseline regression, i.e. Specification I, regarding the overall determinants of choices of financing of operating firms, regardless of the ownership type, as measured by the three debt ratios: debt ratio I, debt ratio II, and debt ratio III. On the other hand, results obtained from Table 6-9 give predictions of the extended model, i.e. Specification II, regarding the determinants of choices of financing by considering ownership type. In the latter table, the study considers the interaction term between ownership type and three main variables: size, sales, and return on assets (ROA).

As shown in Table 6-8, the log of total assets used as a proxy for size has statistically significant impact on debt ratio I, debt ratio II. This suggested the important role of size in mitigating the asymmetric information between the firm and the market, which facilitates market-based finance. The latter result is consistent with other earlier studies (Bougheas et al., 2006; Holod and Peek, 2007). Although the size positively affects debt ratio III, it is statistically insignificant. The positive relationship between size and debt ratio III emphasizes that bank-based finance and market-based finance are not perfect substitutes. This result is consistent with the finding of Bernanke and Blinder (1988). In general, larger firms have easier access to external finance. The larger a size is, the more transparent a firm is, which, in turn, facilitates the access to external finance. This is consistent with the finding of Holod and Peek (2007).

Furthermore, sales growth positively affects debt ratio I, debt ratio II, and debt ratio III. However, it is statistically insignificant. Profitability and capital expenditure are negatively associated with debt ratios. This is consistent with the predictions of the tradeoff theory (Brav, 2009).

Table 6-8 Base Model of Factors that Influence Debt Ratios

Dependent Variables	Fixed Effects (Within) Regression		
	Debt ratio I	Debt ratio II	Debt ratio III ^(a)
Size	0.032** (0.015)	0.101*** (0.016)	0.019 (0.013)
Sales Growth	0.009 (0.007)	0.009 (0.007)	0.005 (0.003)
ROA	-0.664*** (0.095)	-0.661*** (0.097)	0.097 (0.081)
Capital Expenditure	-0.130*** (0.048)	-0.123** (0.049)	-0.109** (0.046)
Age	-0.208 (0.147)	-0.139 (0.150)	0.225* (0.136)
Tangible Assets	0.136 (0.097)	0.234** (0.099)	-0.489*** (0.084)
Cash and Cash Equivalent	-0.033*** (0.012)	-0.095*** (0.012)	-0.006 (0.010)
Constant	0.782 (0.546)	0.100 (0.556)	0.017 (0.492)
Number of Observations	760	760	516
Number of Firms	233	233	190

* p<.10, ** p<.05, *** p<.01

Notes: The values reported in Table 6-8 are fixed effect (within) regression estimates during the period 2004-2009. The dependent variables are debt ratio I, debt ratio II, and debt ratio III. The independent variables are size, sales growth, ROA, capital expenditure, age, tangible asset, and cash ratio. The standard deviation is reported in parenthesis. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

^(a) Debt ratio III is a proxy for debt obtained from banks, which is different from Debt ratio I and Debt ratio II, which are proxies for market-based finance because of their inclusion of other long-term financial instruments such as bonds.

In addition, as shown in Table 6-8, return on assets, as a measure of profitability has a negative and statistically significant impact on the choice of market-based finance measured by debt ratio I and debt ratio II. However, this is positive and statistically insignificant for debt ratio III. With respect to capital expenditure, the study found that it has a negative and statistically significant impact on debt ratios I, II, and III. Age has a positive and statistically significant impact on debt ratio III. The positive sign is expected since mature firms are expected to be less financially constrained compared to younger firms that, in turn, facilitates access to debt finance. The latter result is consistent with the finding of Bougheas et al. (2006).

Tangible assets, as a measure of collateral, have a negative and statistically significant impact on debt ratio III but a positive and statistically significant impact on debt ratio II. The latter result is consistent with predictions of Bougheas et al. (2006), who showed that lower collateral is associated with investment financed by bank-based finance. Contrary, large

collateral is associated with market-based finance. Finally, cash and cash equivalent has a negative and statistically significant impact on debt ratio I and II. In general, large available cash holdings reduce the required amount of external finance.

Table 6-9 reports the results from regression analysis after taking into consideration the type of the firm. With respect to the control variables, capital expenditure has a negative and statistically significant impact on all debt ratios. Age has a positive and statistically significant impact on debt ratio III, but negative and statistically significant impact on debt ratio I. Tangible assets have a negative and statistically significant impact on debt ratio III, but a positive and statistically insignificant impact on debt ratio I and III. Cash and cash equivalent negatively affects all debt ratios and it is statistically significant.

Considering the ownership type, size has a positive and statistically significant impact on debt ratio I, and debt ratio II, across privatized firms. This suggested large size firms have easier access to bank-based finance and market-based finance. Contrary to other empirical evidences, e.g. Bougheas et al. (2006) and Brav (2009), the large size facilitates access to both bank-based finance and market-based finance. This is because large size ascends the agency cost within a firm. As a result, a number of firms opt for bank-based finance to alleviate the agency cost problem, particularly in emerging market, as discussed in the recent investigation of Harvey et al. (2004). The latter result may indicate a possible high agency problem that a number of Egyptian privatized firms face. In turn, those firms chooses debt finance as a way to mitigate the agency problem. In addition, this implies a potential of overinvestment problem that firms face, as stated in McConnell and Servaes (1995). In addition, this highlights the possible differences in bank-lending channel and financing decision between developing countries, where the agency cost is higher, and developed countries, where the agency cost is lower. The impact of size among WEPLs on the debt ratios is positive and statistically significant.

Table 6-9 Extended Model of Factors that Influence Debt Ratios

Dependent Variables	Fixed Effects (Within) Regression		
	Debt ratio I	Debt ratio II	Debt ratio III ^(a)
Capital Expenditure	-0.234*** (0.042)	-0.221*** (0.042)	-0.086* (0.045)
Age	-0.321* (0.166)	-0.256 (0.168)	0.252* (0.143)
Tangible Assets	0.121 (0.101)	0.157 (0.103)	-0.462*** (0.078)
Cash and Cash Equivalent	-0.037*** (0.014)	-0.100*** (0.014)	-0.021* (0.011)
Priv*Size	0.045** (0.019)	0.113*** (0.019)	0.041*** (0.014)
WEF*Size	0.033* (0.018)	0.098*** (0.019)	0.030** (0.013)
Priv*Sales	-0.001 (0.003)	-0.001 (0.003)	0.008* (0.004)
WEF*Sales	-0.106*** (0.036)	-0.110*** (0.037)	-0.062** (0.028)
Priv*ROA	-0.025 (0.151)	-0.007 (0.154)	0.017 (0.113)
WEF*ROA	0.134 (0.322)	0.189 (0.327)	0.033 (0.222)
constant	1.419** (0.609)	1.273** (0.620)	0.017 (0.509)
Number of Observations	768	768	517
Number of Firms	233	233	190

* p<.10, ** p<.05, *** p<.01

Notes: The values reported in Table 6-9 are fixed effect (within) regression estimates during the period 2004-2009. The dependent variables are debt ratio I, debt ratio II, and debt ratio III. The independent variables include four control variables: capital expenditure, age, tangible asset, cash ratio, and variables of interest: interaction term between type of the firm and three measures: size, sales, and ROA. The standard deviation is reported in parenthesis. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

^(a) Debt ratio III is a proxy for debt obtained from banks, which is different from Debt ratio I and Debt ratio II, which are proxies for market-based finance because of their inclusion of other long-term financial instruments such as bonds.

Furthermore, as shown in Table 6-9, growth of sales has a positive and statistically significant impact on debt ratio III among privatized firms. Contrary, among WEPLs, the growth of sales has a negative and statistically significant impact on debt ratio III. This is consistent with the presumption of the study that privatized firms are treated as new entity in the credit market. Thus, they face costly market-based finance and, in turn, they rely more on bank-based finance. Although the growth of sales is positively associated with easier access to financial markets (Jong et al., 2011), the negative sign is an implication of the relatively higher financial constrained of privatized firms. In addition, this could be an implication of the proposition of tradeoff theory that states that a firm increases leverage until it reaches a target debt level, but once a firm passes its target level, the relation should be negative. That

is, regardless of their growth, privatized firms opt for bank-based finance as a cheaper way of raising external finance until they could reach their target debt level. Contrary, sales are negatively associated with debt ratio I and debt ratio II among privatized and WEPLs. However, such impact is statistically significant only among WEPLs.

Return on assets among privatized firms has a negative impact on debt ratio I, and debt ratio II, but a positive impact on debt ratio III. The latter impacts on the three debt ratios are statistically insignificant. On the other hand, return on assets among WEPLs has a positive impact on the three debt ratios, but it is statistically insignificant.

6.5. Implication of the Study

The study has a number of theoretical and empirical implications. The theoretical implication of this study is represented in the emphasis on the applicability of the tradeoff theory in the Egyptian context. In this context, the study has highlighted the long debate regarding the nature of the relationship between market-based finance and bank-based finance. The study has shown that both sources of financing are not perfect substitutes. Firms could choose the two sources depending on their costs. This provides more evidence on supporting the tradeoff theory against the pecking order theory. Three main channels support the previously mentioned argument: the growth channel, the profitability channel, and size effect channel. The growth of a firm stimulates an easy access to both sources of financing. Moreover, profits are negatively associated with both market-based and bank-based finance, which is consistent with the predictions of the tradeoff theory. Regarding the size effect channel, the prevailing of positive association between size and leverage ratio shows that privatized firms did not yet reach their targeted debt level. That is, regardless of the growing privatized firms, they opt for bank-based finance as a cheaper way of raising external funds. This is an implication of the preposition of tradeoff theory that states that a firm increases leverage until it reaches the targeted debt level, but once a firm passes its target level, the association between size and leverage should be negative in favor of market-based finance.

On the practical side, the study has highlighted the potential of the following three environments in the Egyptian market. First, privatized firms face a high agency cost. Second, privatized firms encounter an overinvestment problem. Third, the possible differences in bank-lending channel exist between firms operating in the Egyptian market compared to firms operating in other emerging economies in terms of the degree of agency cost. That is, Egyptian privatized firms face high agency cost that, in turn, enforces them to rely more on debt finance, even if their size grows.

The previously mentioned environments have various implications for the Egyptian economy. This can be represented in the following four issues. First, priorities should be given to privatize larger firms, which are able to face the challenges in the Egyptian market represented in high burdens of accessing the external finance. Second, it should be considered improving the auditing standards within operating firms in order to alleviate the asymmetric information problem. Third, it should be considered sectoral diversification in the privatization process instead of divesting firms belong to specific sector. This can help in reducing the overinvestment problem resulted from low investment opportunities. Fourth and finally, before further privatization, it should be considered the capacity of the financial sector in providing sufficient financial services to new divested firms.

6.6. Conclusion

The study has emphasized on the differences in financial decisions of firms based on differences in the ownership structure. Overall, privatized firms rely more on bank-based finance in funding their investments. Moreover, the size is an important factor that influences the access to external finance among privatized firms. The study has shown that the smaller the size of privatized firms, the lower reliance on bank-based finance. This is because of the higher cost that small firms face in accessing the market-based finance. Contrary, the larger the size of privatized firms is, the higher access to external finance is, particularly the bank-based finance.

In addition, the study has emphasized on the different influence of the size based on the differences on the ownership structure. Although larger privatized firms depend more on bank-based finance, large size well-established publicly listed firms depend more on market-based finance. By comparing between privatized firms and state-owned firms, the study has found that privatized firms rely relatively more on internal finance rather than debt-finance, particularly among small size ones, while state-owned firms rely more on debt in financing their investments.

Overall, privatized firms relatively rely more on debt-finance when compared to well-established publicly listed firms, which depends mainly on market-based finance in funding their investments. In addition, privatized firms relatively rely more on internal finance when compared to SOEs. This implies the difficulty of privatized firms in accessing external finance due to a number of factors. One, privatized firms are still lack of reputation in the equity market and the market-based finance is still costly for them. Two, privatized firms have more tangible assets and are less likely to raise funds from equity market. Three, privatized firms are relatively credit constrained. That represents a difficult condition for privatized firms to access the equity market. Four, privatized firms find internal finance cheaper when compared to external finance. That is internal finance has a relatively cost advantage over external finance for privatized firms. Five, the high reliance of state-owned firms on debt-finance emerges from their tendency to finance their losses by obtaining loans from state-owned banks.

With respect to the determinants of choices of financing, the study has shown that, irrespective of the ownership structure, size is an important factor. It plays a main role in mitigating the asymmetric information between lenders, i.e. financial institutions and borrowers, i.e. firms. Thus, the larger size a firm is, the easier access to external finance is. This is because size has a positive impact on the auditing transparency of large firms.

Although the age of a firm has a positive and statistically significant impact on bank-based finance, it has no statistically significant impact on the market-based finance. On the

other hand, other factors such as size, profitability, and capital expenditure have more influence on market-based finance.

By taking into consideration the ownership structure, the study has found that size of privatized firms is an important factor in determining their access to external finance. This is mainly because large size ascends the agency cost within a firm. As a result, a number of privatized firms opt for bank-based finance to alleviate their agency cost problem. The latter result might indicate a possible high agency problem that a number of Egyptian privatized firms face. In turn, those firms choose debt-finance as a way to mitigate such problem. In addition, the study has found an important role of sales growth in facilitating access to bank-based finance among privatized firms.

Chapter 7. Privatization and the Development of the Financial Sector:

Evidence from Egypt

7.1. Introduction

In Egypt, the financial sector plays a central role in the economy through funding large industries and big business. One of the characteristics of that sector is the dominance of the state intervention over its financial activities, particularly before 1990s. However, state control over the financial sector has diminished gradually since 1990s. This was mainly because of the privatization plans, which targeted liberalizing the sector.

The government committed to implement a reform in the financial sector through privatizing a number of banks and non-bank financial institutions, as discussed in Chapter 3. Since 1990s, the government aimed at selling shares of joint ventures and commercial state-owned banks. This resulted in a significant evolution of the financial sector in terms of stability, size, lending, and risk-taking behavior, which led to increase competition within the financial sector. Until 2010, Egypt sold shares of 14 joint venture banks out of 17, and divested one of its largest state-owned banks, namely Bank of Alexandria. In addition, a number of non-bank financial institutions were privatized.

A number of empirical evidences, (e.g., Bonin et al., 2005; Boubakri et al., 2005; Clarke et al., 2005b; Otchere, 2005; Berger et al., 2009), found that private ownership outperformed the state ownership in the banking sector. However, the expected improvement in performance of privatized banks may differ from non-financial firms. Megginson (2005) showed that the expected improvement in the performance of privatized financial institutions was far less than the expected improvement in performance of privatized non-financial institutions.

However, those studies ignored another important aspect with respect to the relationship between privatization and behavior of banks. In particular, they ignored the impact of privatization on lending and risk-taking behavior of privatized banks. Privatization encourages foreign entry of banks, which, in turn, has a potential crowding out effect on

lending behavior and risk-taking of operating financial institutions (Clarke et al., 2005b). In addition, privatization has a potential impact on the usage of financial instruments. Beck et al. (2005) found that privatized banks that invest more in government bonds and other non-lending activities outperformed banks that depend mainly on lending activities. In addition, privatized banks may relatively favor non-lending activities compared to state-owned banks. This is because of the ability of the latter banks to charge lower lending interest rates (Sapienza, 2004).

In the Egyptian context, empirical evidence, e.g. Omran (2007), ignored the impact of privatization on the lending and risk-taking behavior of privatized firms. Omran (2007) analyzed the changes in operating performance of 12 privatized banks during the period of 1996-1999. His study mainly focused on the analysis of the change in the performance of privatized banks rather than examining the sources of improvement. In addition, the existing literature does not compare the performance between privatized financial institutions and privatized non-financial institutions, given the potential improvement differences between financial and non-financial institutions as discussed in Megginson (2005).

This empirical study extends the existing relevant literature in the Egyptian context by focusing on the sources of improvement in performance rather than identifying the trends of the improvement. This empirical study mainly raises questions that were not considered in the previous empirical research. In particular, the study raises the following questions. (1) Do privatized financial institutions differ in their lending behavior compared to other private counterparts? (2) Do privatized financial institutions differ in their performance compared to other non-financial institutions? (3) Do privatized financial institutions differ in their risk-taking behavior compared to other non-financial institutions?

Based on a sample of privatized financial institutions and other private financial institutions during the period of 2000-2009, the study attempts to answer the forgoing questions. The study is based on an idea that improved performance of banks and non-bank financial institutions could affect their lending and risk-taking behavior. For this purpose, the

study adopts a qualitative analysis to scrutinize differences among banks and non-bank financial institutions in the aspects of improved performance. In addition, the study analyzes how these aspects affect their lending and risk-taking behavior.

After introduction, this chapter is organized as follows. Section 7.2 demonstrates the methodology of the study. Section 7.3 describes the data and used variables. Section 7.4 reports the results of the empirical analysis. Section 7.5 analyzes the implication of the study. Finally, section 7.6 shows the conclusion of the study.

7.2. Methodology

As mentioned in Chapter 4, theories of financial intermediaries, as demonstrated by Diamond (1984) and Cerasi and Daltung (2000), provided the essential tools to analyze the lending behavior of banks. According to those theories, bank diversification is essential for reducing the exhibited economic risks and increasing profitability. Thus, bank diversification positively affects performance of banks and reduces the chances of costly financial bankruptcy (Winton, 1999).

The positive effects of bank diversification emerge from its impact on resolving the incentives problem (Diamond, 1984) and mitigating informational asymmetries (Boyd and Prescott, 1986). However, diversification can generate losses that are represented in higher expected operating cost compared to focusing in the same line of businesses. Two aspects of bank diversifications can be identified: sectoral diversification and financial instrument diversification.

Based on the previous theoretical background, this empirical study analyzes the different factors that contribute to improve performance of privatized financial institutions in Egypt, mainly credit efficiency, asset utilization, cost efficiency, and income composition. In addition, the study analyzes the differences across banks in terms of their lending behavior. Then, the study examines the differences in risk-taking and other performance measures between financial institutions vs. non-financial institutions. In all the above-mentioned analyses, the study covers the period of 2000-2009.

This study is based on the assumption that diversification of loans among banks affects their lending and risk-taking behavior by mitigating asymmetry of information and cost of monitoring. This is assumed because of the potential high asymmetric information and cost of monitoring that characterizes developing countries, in general, and the Egyptian economy, in particular. By considering that assumption, the study is able to examine the development of the supply of the financial activities provided by the financial institutions.

For this purpose of examining the previously mentioned issues, the study adopts a qualitative analysis and non-parametric tests. There are three reasons why such analysis might be meaningful. One, it helps elaborating results obtained from financial statements of financial institutions. Two, given that accounting standards may vary across financial institutions and non-financial institutions in Egypt, performance indicators based on annual changes may be more reliable. Three, it helps in following the differences among different categories of institutions that belong to different sectors.

The methodology of the study is divided into three parts. First, the study analyzes the aspects of improved performance of privatized banks. Second, the study scrutinizes the lending behavior of banks. Finally, the study measures the performance indicators of privatized financial institutions and compares them with other non-financial institutions. The demonstration of these parts is described as follows.

In the first part, the study calculates commonly used financial indicators that measure the evolution of credit, capital sufficiency, cost efficiency, and income structure. The study calculates these indicators for two categories of banks: privatized banks (PBs) and other operating private banks (OPBs). For all the previous variables, the distribution among different bank sizes is analyzed. For the latter point, individual banks are classified based on their size measured by total assets into four size groups denoted by Q_1 until Q_4 . Q_1 denotes the first quantile of the sample, which represent the smallest bank size group, while Q_4 denotes the fourth quantile, which represent the largest bank size group.

In the second part, the study analyzes the lending behavior of banks. Two aspects of diversification are concerned: sectoral loan diversification and financial instrument diversification. Regarding the sectoral loan diversification, the study measures the allocation of loans directed for the following sectors: agriculture, banks, households, manufacturing, services, and trade. Regarding the financial instrument diversification, the study scrutinizes the segments of financial instruments in terms of lending activities such as loans and non-lending activities such as treasury bills, securities, and bonds.

In order to measure the degree of diversification of sectoral lending and financial instruments, the study uses *Herfindahl-Hirschman* index (HHI) (Rossi et al., 2009). Two versions of HHI are measured: HHI_L , which measures the degree of loan diversification, and HHI_I , which measures the degree of concentration across financial instruments. HHI_L index equals unity when all loans provided by a bank are granted for a single sector. It is calculated as follows:

$$HHI_L = \sum_{i=1}^n \left(\frac{X_i}{Q} \right)^2,$$

$$Q = \sum_{i=1}^n X_i, 0 < HHI_L < 1$$

where HHI_L is the degree of loan diversification, X_i is the portion of lending that are devoted to sector i , Q is the total volume of lending, and n is the number of sectors.

On the other hand, HHI_I index equals unity when a bank grants credits in a form of a single financial instrument, i.e. treasury bills, securities, or bonds. It is calculated as follows:

$$HHI_I = \sum_{i=1}^{\hat{n}} \left(\frac{\hat{X}_i}{\hat{Q}} \right)^2,$$

$$\hat{Q} = \sum_{i=1}^{\hat{n}} \hat{X}_i, 0 < HHI_I < 1$$

where HHI_I is the degree of financial instrument diversification, \hat{X}_i is the portion of credit in a form of a financial instrument i , \hat{Q} is the total volume of the financial portfolio, and \hat{n} is the number of financial instruments.

In the third part of the empirical analysis, the study measures the performance indicators and risk-taking behavior of privatized financial institutions classified by size groups, i.e. Q_1 until Q_4 . With respect to the performance indicators, the study uses commonly

used measures of operating and financial performance, which give conclusion regarding the financial soundness and solvency of financial institutions. In particular, the study uses ratios of return on assets, return on equity, debt-asset, debt-equity, and revenues-asset.

With respect to the risk-taking behavior, the study uses Z-scores to evaluate banks based on scores of their riskiness, which is described as follows:

$$Z = \frac{ROA+CAR}{\sigma(ROA)},$$

where Z is Z-scores, ROA is return on assets, and CAR is the capital-asset ratio.

In a further step, the study compares the performance and risk-taking measures of privatized financial institutions vs. other private financial institutions and privatized non-financial institutions. In this step, the study uses a non-parametric test, i.e., *Kruskal-Wallis* test, to test for the significance of the difference in central values of the operating and financial performance and risk-taking behavior.

7.3. Data and Variables

Data

In order to accomplish the research objectives, this study collects a unique database on Egyptian banks (SIC codes 6011-6099), non-bank financial institutions (SIC codes 6211-6411), and non-financial privatized firms during the period of 2000-2009. The non-financial privatized firms belong to the following sectors: construction (SIC codes 1521-1799), manufacturing (SIC codes 2011-3999), telecommunication (SIC codes 4812-4899), regulated utilities (SIC 4900–4999), and trade (SIC codes 5012-5199).

The data are collected from three main sources: Arab Capital Market Resource Center, Thomson Reuters, official financial statements. The details of the sampled financial and non-financial institutions are described as follows.

The study utilizes a sample of 109 financial and non-financial institutions, which is described as the following: 16 privatized banks (PBs), 6 privatized non-bank financial institutions (PFIs), 14 other private banks (OPBs), 29 other non-bank financial institutions (OFIs), and 44 privatized non-financial firms (PNFIs).

To date, there are 25 privatized banks and non-bank financial institutions since the start of the privatization in 1991. The study does not include Bank of Cairo, Misr Exterior Bank, and Development and Popular Houses due to lack of data³⁹.

Variables

This section shows, first, the main variables that are used for scrutinizing the effects of privatization on banks activities and lending behavior as measured by financial indicators. Then, the section briefly describes a number of additional variables that are used on the analysis of the performance and risk-taking of financial institutions and non-financial institutions.

Various commonly used indicators are used to gauge activities of banks. In particular, the study uses the total credit ratio to proxy for credit efficiency (Diamond, 1984). The study scales the total credit by total deposits to indicate the efficiency of banks in utilizing their deposits. The total credit includes credits to private sector, household, and the governments. The total deposits include term and demand deposits. The credit to deposit ratio is calculated as follows:

$$CR = \frac{TC}{TD} * 100,$$

where CR is the credit ratio, TC is the total credits, and TD is the total deposits.

Capital to asset ratio (CAR) is used to proxy for asset utilization. This ratio shows the sufficiency of capital in financing assets. That is, it reflects the degree of solvency of a bank. The capital includes funds contributed by owners, reserves, and retained earnings. Following Kishan and Opiela (2000); Mohieldin and Nasr (2007), the study controls for the potential size-effect by dividing by total assets. Thus, the ratio is calculated as follows:

$$CAR = \frac{CS+CR}{TA} * 100,$$

³⁹ Bank Misr acquired Misr Exterior Bank in 2004. Separate financial statements of Misr Exterior bank could not be found.

where CAR is the capital-asset ratio, CS is capital shares, CR is capital reserves, and TA is the total assets.

Cost efficiency (CE) shows the portion of costs that generates income. This ratio reflects the bank ability to utilize its resources efficiently (Lin and Zhang, 2009). Lower ratios indicate better situation of a bank. It is calculated as follows:

$$CE = \frac{TC}{TNI} * 100,$$

where *CE* is the cost efficiency ratio, *TC* is the total cost, and *TNI* is the total net income.

The income structure of banks shows the distribution of net interest income and net non-interest income as a percentage of total net income. Net interest income equals the interest received from assets minus the interest paid on liabilities. Non-interest income includes deposits and transaction fees (Lepetit et al., 2008; Rossi et al., 2009).

In order to scrutinizing the bank lending behavior, the following two measures are used: the sectoral loan diversification (HHI_L) and the financial instrument diversification (HHI_I). According to Rossi et al. (2009), *Herfindahl-Hirschman* index (HHI) is a statistical measure that shows the degree of concentration of bank lending directed for specific sectors or the degree of concentration of a financial instrument within the credit portfolio.

In addition to the previous variables, the study uses a number of additional variables to explore the operating and financial performance of financial institutions and compare them with non-financial institutions. In particular, the study uses five standard financial ratios that are used to measure performance: return on assets, return on equity, debt-equity, debt-assets, and revenues to total assets. Return on assets and return on equity are important measures of profitability of an institution (Mohieldin and Nasr, 2007; Lin and Zhang, 2009). Debt-asset and debt-equity ratios are measures of leverage of an institution (Adrian and Shin, 2010). The latter ratios show volumes of assets or equity that are financed by debt. They are considered good indicators for reflecting the financial risk of an institution in the short term. Revenues to

total assets ratio is a measure of growth of financial institutions (Holod and Peek, 2007). In addition, it measures the efficiency of an institution in utilizing its assets (Stiroh, 2004).

Finally, the study uses Z-scores in order to analyze the risk-taking behavior of financial institutions and compare them with non-financial institutions. This index is a good measure for analyzing the potential of bankruptcy. It ranks institutions based on their riskiness by measuring the statistical distance from insolvency. That is, the higher the score is, the lower the potential of bankruptcy is (Laeven and Levine, 2009). The following table summarizes the used variables and their definition.

Table 7-1 Definition of Main Variables Used in Examining the Impact of Privatization on Banks and Non-Bank Financial Institutions

Variable	Definition
Capital-Asset Ratio	The Sufficiency of Banks Capital in Financing its Asset
Cost-Income Ratio	The Portion of Income that Covers Costs
Credit-Deposit Ratio	The Extent of Utilized Credit per Unit of Raised Deposits
Instrument Concentration	The Degree of Concentration of Financial Instruments within the Credit Portfolio of Banks
Growth Ratio	The Ratio of Total Revenues Divided by Total Assets
Income Structure	The Percentages of Net Interest Income and Non-Interest Income as Percentage of Total Net Income
Lending Concentration	The Degree of Concentration of Bank Loans Directed for Specific Sectors
Leverage	The Portion of Debt that is Used in Financing Assets Measured by Debt-Asset or Debt-Equity Ratios
Profitability	The Portion of Generated Earnings per Unit of Assets
Riskiness	The Degree of Riskiness of a Firm in Operating its Assets Measured by Z-Scores

7.4. Results

As outlined in section 7.2, the empirical study of this chapter consists of three analyses: (1) analysis of aspects of improved performance among privatized banks against other private banks, (2) analysis of the lending behavior among privatized banks against other private banks, (3) analysis of the operating performance and risk-taking of privatized financial institutions against privatized non-financial institutions.

Main Findings of the Aspects of Improved Performance among Privatized Banks

This section reports main results of annual activities of privatized banks (PBs) and other private banks (OPBs) during the period of 2000-2009. In particular, the study analyzes

the following main ratios: credit to deposit, capital to asset, cost-income, and income structure, which are reported in Table II-3 until Table II-7 in appendix II. In addition, the median values and growth rates of these ratios are reported.

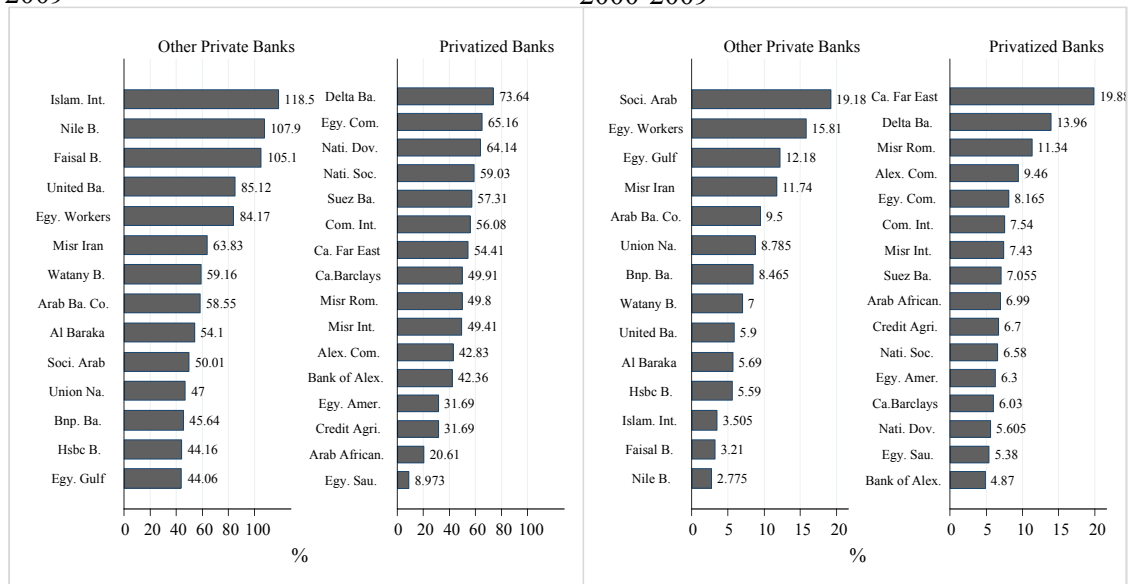
Egypt over the period under scrutiny witnessed a modest improvement in activities of private banks compared to privatized banks. We refer to two tables to make the point clear. The first is Table II-3, which reports the credit to deposit ratio. The second is Table II-4, which reports the capital to asset ratio. Credit to deposit ratio shows the efficiency of banks in utilizing credits per unit of raised deposits. In general, OPBs outperformed PBs with estimated median at 57% compared to 51.9% among PBs. Among PBs group, Delta International, Egyptian Commercial Bank, and National Development were the most active banks in terms of credit to deposit ratio in their annual performance. The data reveals that the average credit-deposit ratio of privatized banks declined from 74.1% in 2000 to less than 46% since 2006. Five OPBs outperformed PBs, namely Islamic International Bank, Nile Bank, Faisal Islamic Bank, United Bank, and Egyptian Workers Bank, which had credit to deposit ratio above 80%. On the other hand, six PBs, namely Egyptian Saudi finance Bank, Arab African International Bank, Egyptian American Bank, Credit Agricole Egypt, Bank of Alexandria, and Alexandria Commercial and Maritime tailed the sampled banks with ratio less than 50%. Nine OPBs had credit to deposit ratio higher than the sample median, which is estimated at 53.5%, while five of them had lower ratio than the sample median. On the other hand, seven PBs had higher ratio than the median, while nine PBs had lower ratio than the median.

The capital to asset ratio is a measure of solvency of banks and is considered a measure of efficiency in credit allocation by banks. The median value is estimated at 7% for the whole sample. PBs had a lower capital to asset ratio estimated at 7% compared to 7.4% for OPBs and 7% for the whole sample during the period under consideration. Eight PBs out of 30 in the whole sample had a ratio less than 8%. Among PBs, nine out of 16 PBs had a ratio less than the median. Among OPBs, seven out of 14 banks had a ratio less than the

median. The data shows that the credit-deposit ratio of privatized banks during 2003-2007, except for 2005, was below the median of the entire period. On the other hand, average of the ratio for OPBs during the period 2000-2004 was below the entire period median, before it rose again since 2005.

Figure 7-1 and Figure 7-2 attempts a comparison of credit-deposit ratio and capital-asset ratio, respectively, for individual banks that belong to OPBs and PBs. Compared to OPBs, PBs were less efficient in utilizing credits per unit of deposit, as shown in Figure 7-1. Among PBs group, Delta Bank had the highest ratio, estimated at 73.4%. The latter ratio was far beyond Islamic International bank (118.5%), Nile bank (107.9%), Faisal Islamic Bank (105%), United Bank (85%), and Egyptian Workers (84%), which belong to OPBs.

Figure 7-1 Average Credit -Deposit Ratios by Privatized and Private Egyptian Banks, 2000-2009
 Figure 7-2 Average Capital -Asset Ratios by Privatized and Private Egyptian Banks, 2000-2009

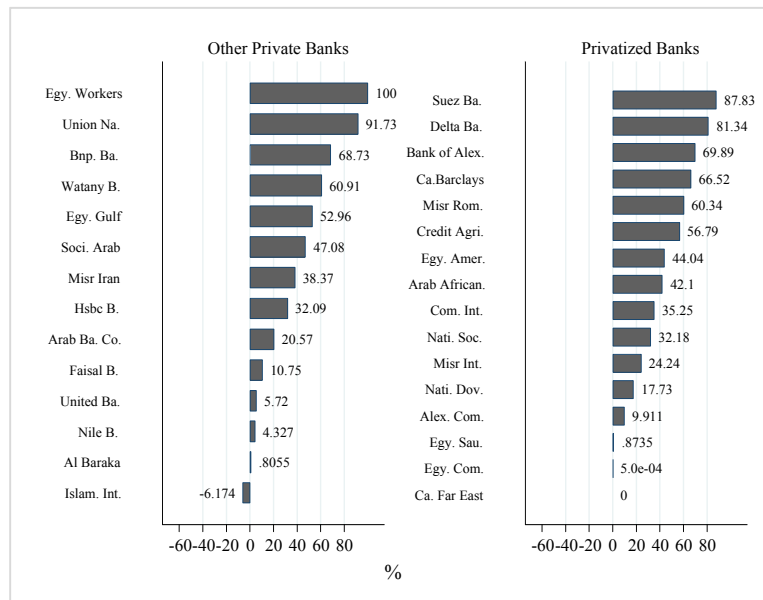


As shown in Figure 7-2, capital-asset ratio for Cairo Far East bank, among the PBs group, had the highest ratio (19.8%) compared to other counterparts. Followed by Cairo Far East Bank, three other banks had high ratios among PBs group, namely Delta Bank, Misr Romania, and Alexandria Commercial and Maritime, with ratios estimated at 14%, 11.3%, and 9.5%, respectively.

Cost-income ratio shows the changes in cost per unit of net income, which is used to assess the financial burden on a bank. Table II-5 shows the ratio for the sampled banks. In general, the cost-income ratio for PBs was higher when compared to OPBs, which is estimated at 35.9% and 30.9%, respectively. The annual change of scheduled privatized banks reveals that the ratio increased above the sample median in 2003, 2004, and 2007. This position slightly improved in 2008. The majority of banks had positive cost-income ratio with the exception of two banks, namely Islamic International Bank (-6.2%), which belongs to OPBs and Cairo Far East Bank (0%), which belongs to PBs.

Figure 7-3 presents the cost-income ratio for the two bank groups. Among the OPBs group, it is notable that Egyptian worker Bank had the highest cost-income ratio estimated at 100%. On the other hand, Islamic International Bank had the lowest ratio, estimated at -6%. Followed by Islamic International Bank, Al Baraka and Nile Bank had competitive cost-income ratio. Among privatized banks group, Egyptian Commercial and Cairo Far East Bank had the lowest ratio, which approached to zero, while Suez Canal had the highest ratio estimate at 87.8%. Followed the Cairo Far East Bank, two other banks had competitive ratios, namely Egyptian Commercial and Egyptian Saudi Finance.

Figure 7-3 Average Cost-Income Ratios by Privatized and Private Egyptian Banks, 2000-2009



Net interest income shows the portion of earning that banks obtain from lending activities, while non-interest income shows the portion of earnings that banks obtain from non-lending activities such as fees and commissions, and returns on tradable instruments, e.g., shares and bonds.

Table II-6 and Table II-7 show the portions of net interest income and non-interest income for each bank group. The data shows that the net interest income for the PBs exceeded the OPBs, which is estimated at 70% and 61%, respectively. Three PBs had relatively high portions of net interest income compared to OPBs. In particular, Misr Romania, which belongs to PBs, led the sample with a ratio of 98%. Al Barka Bank, which belongs to OPBs, tailed the sample with estimated ratio at 0%. Among PBs group, Egyptian Saudi Finance Bank and National Development Bank tailed the sample with estimated ratios at 0% and 27.4%, respectively. On the other hand, Islamic International Bank, Arab Banking, Nile Bank, Misr Iran, and United Bank had the highest net interest income among OPBs group, which are estimated at 93%, 88%, 87%, 86%, and 82%, respectively.

Regarding the non-interest income, in general, the ratio among PBs fell beyond OPBs, which is estimated at 29.7% and 39%, respectively. Among privatized banks, Egyptian Saudi Finance, National Development Bank, and Suez Canal Bank had the highest non-interest income ratios, which are estimated at 100%, 72.6%, and 63.5%, respectively. On the other hand, among OPBs group, Al Barka Bank, Egyptian Workers Bank, and Faisal Islamic Bank had the highest non-interest income ratios, which are estimated at 100%, 68%, and 66%, respectively. The non-interest income of all scheduled privatized banks decreased drastically in 2008 after a significant improvement during 2003-2007.

Figure 7-4 and Figure 7-5 show the percentages of net interest income and non-interest income for the two groups of bank. It is clear that net interest income exceeded non-interest income for majority of privatized banks. On the other hand, OPBs generated more income from non-interest income, namely Al Baraka Bank, Faisal Bank, Egyptian Workers Bank, Union National Bank, and Egyptian Gulf Bank.

Figure 7-4 Average Ratios of Net Interest Income by Privatized and Private Egyptian Banks, 2000-2009

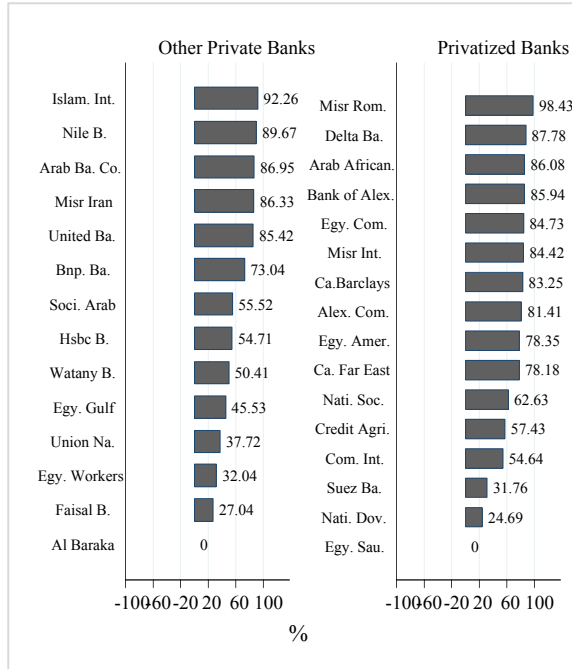


Figure 7-5 Average Ratios of Net Non-Interest Income by Privatized and Private Egyptian Banks, 2000-2009

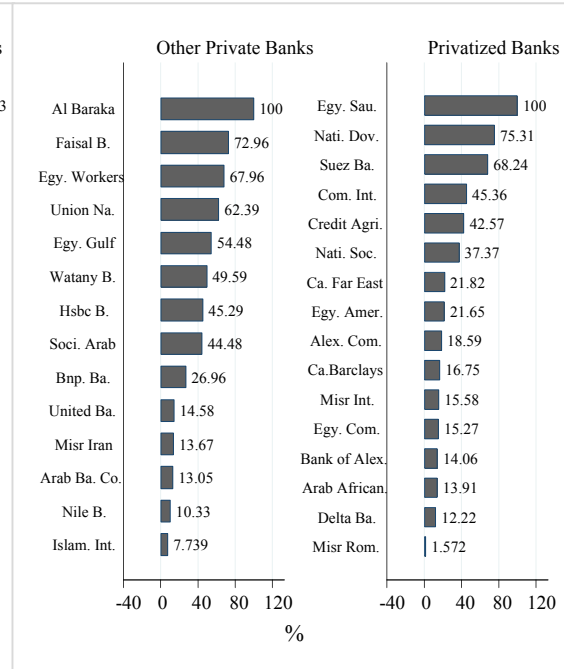


Table 7-2 demonstrates the differences in the previous measures of bank activities classified by different size groups. It is clear that privatized banks had lower credit-deposit ratio compared to OPBs. As shown, the median ratio among privatized banks is estimated at 51.8%, while it is estimate at 57% among OPBs. The small size banks indicated by first and second quantiles within PBs had a relatively lower ratio when compared to OPBs, while the larger size ones indicated by third and fourth quantiles had higher ratios.

The data reveals that the median of capital-asset ratio among privatized banks, i.e. 7.04%, was lower when compared to other private banks with ratios estimated at 7.41%. However, the median difference between the two groups was statistically insignificant. The first quantile of PBs had a ratio higher than the sample median, while all other quantiles had ratios lower than the sample median.

Table 7-2 Quantiles of Average Percentages of Performance Indicators by Privatized
and Private Egyptian Banks and Total Sample, 2000-2009

Variable	Group	Q ₁	Q ₂	Q ₃	Q ₄	Median	SD.	Obs.
Credit-Deposit Ratio	PBs	53.88**	44.65***	52.86	52.95	51.86**	20.81	125
	OPBs	64.40**	57.61***	50.97	49.00	57.04**	28.00	107
	TS	58.56	50.44	51.96	51.98	53.46	25.72	232
Capital-Asset Ratio	PBs	8.51	8.32	6.99	6.72	7.04	4.46	117
	OPBs	8.56	7.54	5.75	5.22	7.41	5.12	83
	TS	8.56	7.87	6.40	6.46	7.15	4.74	200
Cost-Income Ratio	PBs	6.42***	50.36	42.16	42.16***	35.85	54.36	116
	OPBs	45.83***	28.04	36.74	14.28***	30.88	35.08	82
	TS	13.49	37.21	37.75	34.51	34.86	47.24	198
Net Interest Income	PBs	78.18***	78.28	62.90	74.81	70.31***	48.17	120
	OPBs	57.67***	81.33	44.19	40.98	61.00***	75.52	90
	TS	70.00	78.54	61.00	72.55	67.95	61.92	210
Non-Interest Income	PBs	21.82***	21.72	37.10	25.19	29.69**	48.17	120
	OPBs	42.33***	18.67	55.81	59.02	39.00**	75.52	90
	TS	30.00	21.46	39.00	27.45	32.05	61.92	210

Notes: PBs indicates privatized banks, OPBs indicates other private banks, and TS indicates the total sample. Q1 until Q4 indicates first until fourth quantile of the size measured by total assets. The study has applied two-sample equality of median test to test for the significance of the difference in central values between PBs and OPBs. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

With respect to cost-income ratio, its median value was higher with magnitude of 5% among PBs compared to OPBs. For the PBs, the first quantile had a lower ratio compared to the sample median, while all other quantiles had ratios higher than the sample median. Compared to OPBs, with the exception of the first quantile, all privatized banks had higher ratios. The privatized banks group recorded high net interest income among all size groups with median estimated at 70.3% compared to 61% among OPBs. With the exception of the second quantile, all other quantiles within PBs had higher ratios than the sample median. On the other hand, except for the second quantile, the non-interest income was higher across all size groups of OPBs with ratio estimated at 39% compared to 30% among PBs. This is a positive outcome for OPBs, since higher non-lending activities could reduce the risks of the dependence on interest income.

Main Findings of Bank Lending Behavior

This section shows the results of the distribution of sectoral lending for the two groups of banks. In particular, it shows the share of lending for the manufacturing, trade, services, agriculture, banking, and household sectors. In addition, this section shows results

of the distribution of lending instruments across banks. Finally, this section presents results of the concentration of lending activities across banks.

The Distribution of the Sectoral Lending

Table II-8 until Table II-13 report, for each bank groups, the annual sectoral lending for each bank, their respective medians, and growth rates during the period 2000-2009. In the whole sample, the median values of total lending for the manufacturing, trade, services, agriculture, banks, and households are estimated at 27.7%, 31.3%, 18.6%, 0.6%, 0.7%, and 8%, respectively. However, these ratios vary among each bank groups. The ratios of lending for the manufacturing, services, and banking sector were relatively higher among privatized banks, which are estimated at 30%, 23%, and 4.6%, respectively, compared to 25.7%, 11%, and 0% among OPBs group. On the other hand, lending for the trade, agriculture, and household were relatively lower among privatized banks, which are estimated at 23.5%, 0.6%, 7.2%, respectively, compared to 45.9%, 0.7%, and 11.6%, respectively, among OPBs. As shown in the tables, the annual lending activities among PBs for the manufacturing sector outperformed their counterparts in OPBs in all years, with the exception of year 2007. In the latter year, the ratio dropped down to 26%. With respect to the trade sector, after 2002, the lending of PBs for the sector was reduced significantly in favor of more lending for services and the banking sector. Lending for agriculture drastically dropped during 2007-2008 in favor of more lending for the banking sector. In the case of OPBs, the lending for the services sector was reduced in favor of more lending for the trade sector, especially during the period of 2003-2006. Lending for agriculture sector significantly increased since 2008. With respect to lending for household, OPBs granted the sector relatively higher annual loans when compared to PBs. Figure 7-6 summarizes the averages of lending for the previously mentioned sectors by each bank group.

Figure 7-6 Average Percentages of Lending for other Sectors by Private and Privatized Egyptian Banks, 2000-2009

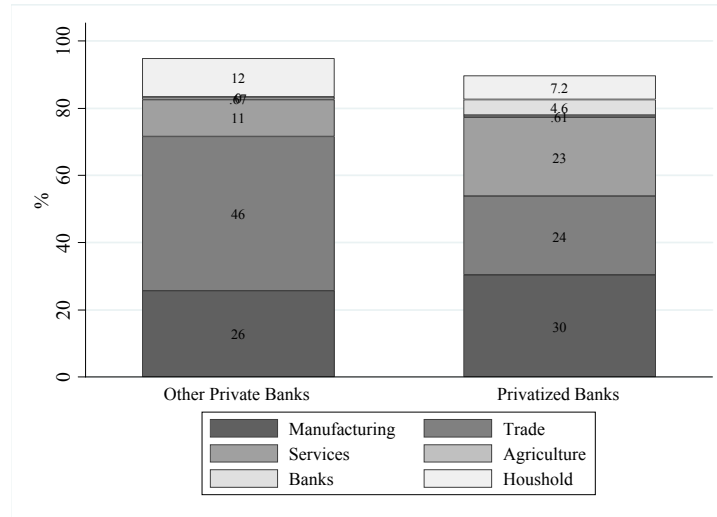


Figure 7-7 until Figure 7-12 describe the sectoral lending behavior for individual banks in each bank group. Figure 7-7 indicates that privatized banks, namely Egyptian American Bank, commercial international bank, National Societe General Egypt, had highest ratios of lending for the manufacturing sector with ratios estimated at 51%, 45%, and 42%, respectively.

Figure 7-7 Average Percentages of Lending for Manufacturing Sector by Private and Privatized Egyptian Banks, 2000-2009

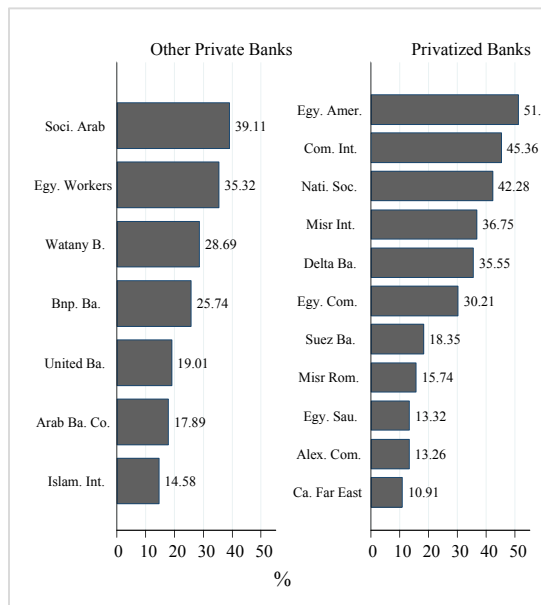
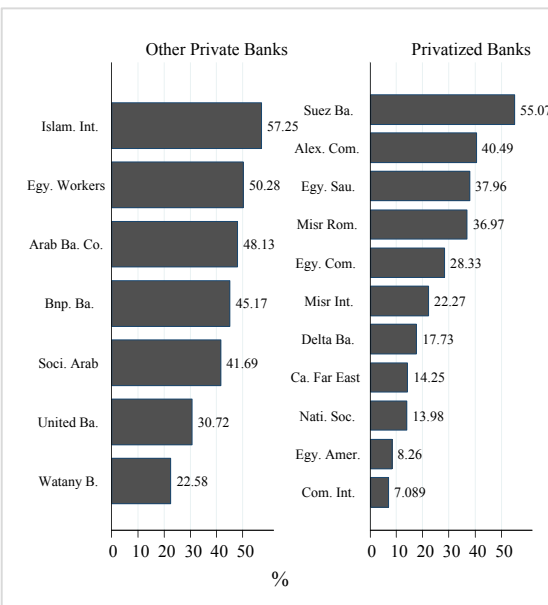


Figure 7-8 Average Percentages of Lending for Trade Sector by Private and Privatized Egyptian Banks, 2000-2009

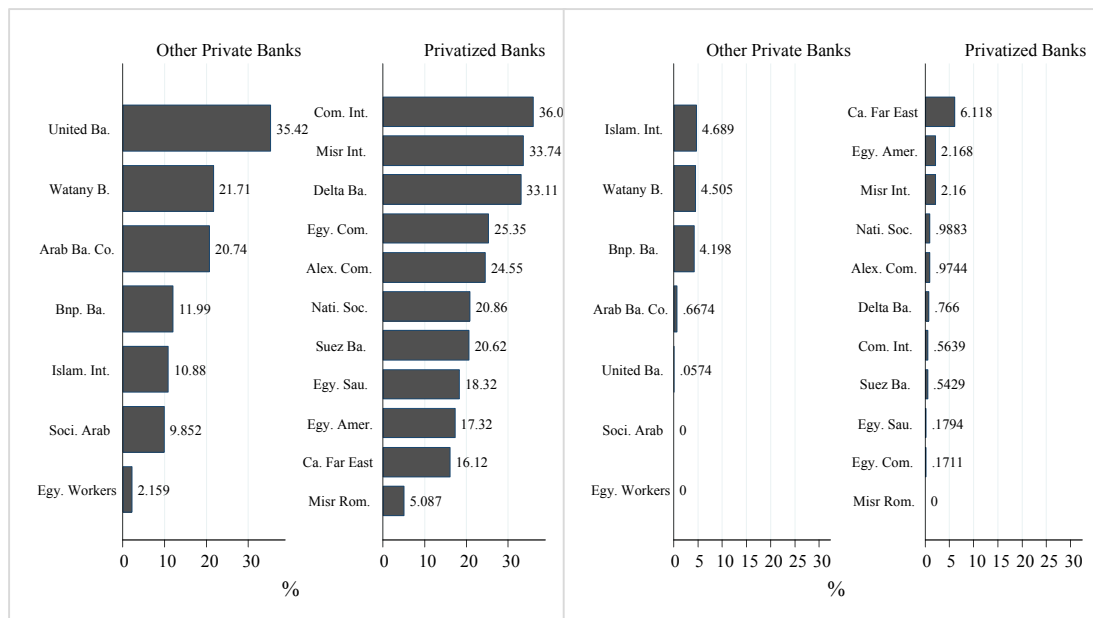


On the other hand, banks of Societe Arab International and Egyptian workers Bank, which belong to OPBs, had high ratios of lending for the sector with estimated ratios at 39% and 35%, respectively. Among privatized banks, Suez Canal Bank and Alexandria Commercial Bank had the highest ratios of lending for the trade sector with ratios estimated at 55% and 40%, respectively. Islamic International Bank and Egypt Worker Bank were among OPBs that competed PBs in their lending for the trade sector with estimated ratios at 57% and 50%, respectively.

According to Figure 7-9, privatized banks led the sampled banks in lending for the services sector. In particular, Commercial International Bank, Misr International Bank, and Delta International Bank led the sampled banks with ratios exceeded 30% of their total loans.

Figure 7-9 Average Percentages of Lending for Services Sector by Private and Privatized Egyptian Banks, 2000-2009

Figure 7-10 Average Percentages of Lending for Agriculture Sector by Private and Privatized Egyptian Banks, 2000-2009



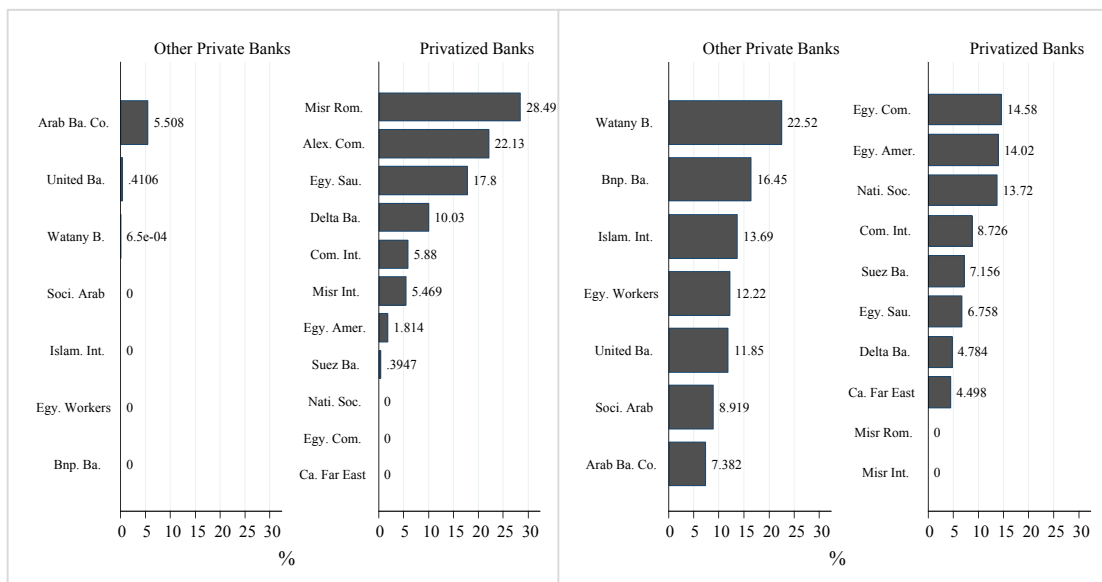
In the case of OPBs, United Bank was ranked first with ratio estimated at 35.4%. Regarding the lending pattern for the agriculture sector, majority of the sampled banks had a lower lending ratio when compared to the other sectors.

Figure 7-10 shows that majority of the sampled banks had ratios less than 7%. Among privatized banks, Cairo Far East Bank and Egyptian American Bank led the other counterparts in their lending for the agriculture sector. On the other hand, Islamic International Bank, El Watany Bank, and BNP Bank led the OPBs in their lending for the sector with ratios exceeded 4% of their lending portfolio. With the exception of the latter banks, the ratio was below 2.5% among other operating Banks.

As shown in Figure 7-11 and Figure 7-12, PBs had relatively high volumes of lending for banks when compared to OPBs. In particular, Misr Romania, Alexandria Commercial, and Egyptian Saudi had highest ratios estimated at 28%, 22%, and 17%, respectively. With the exception of Arab Banking (5.5%), OPBs had a very small lending ratio for banks. With respect to lending for households, OPBs exceeded PBs in their lending for the sector. In particular, El Watany Bank and BNP Bank outperformed their competitors that belong to PBs with ratios exceeded 16%. Egyptian Commercial, Egyptian American Bank, and National Societe were among the top PBs in their lending for the sector with ratios estimated at 14.5%, 14%, and 13.7%, respectively.

Figure 7-11 Average Percentages of Lending for Banking Sector by Private and Privatized Egyptian Banks, 2000-2009

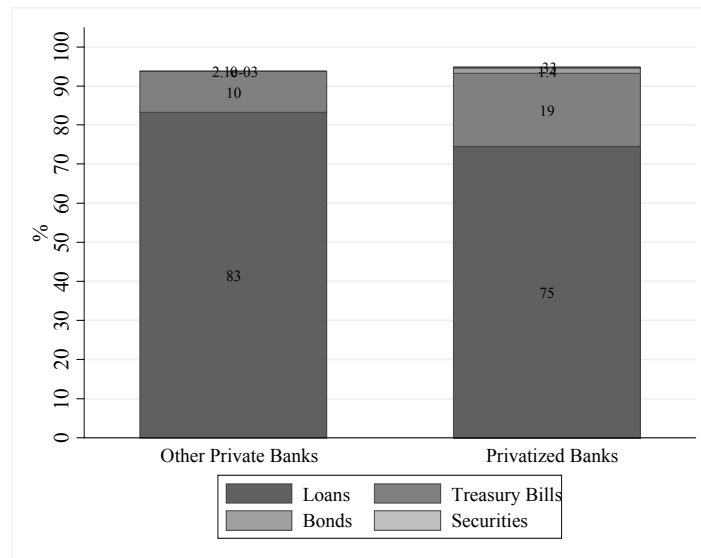
Figure 7-12 Average Percentages of Lending for Household Sector by Private and Privatized Egyptian Banks, 2000-2009



The Distribution of Lending Instruments

For each bank groups, Table II-14 until Table II-17 show results of the lending instruments during the period of 2000-2009. In addition, medians values and growth rates are reported. In the whole sample, the median values of total loans, treasury bills, bonds, and securities are estimated at 78%, 15.8%, 0.4%, and 0.2%, respectively. As shown in Figure 7-13, ratios of loans, treasury bills, bonds, and securities among PBs are estimated at 74.5%, 18.8%, 1.4%, and 0.3%, respectively, compared to 83%, 10%, 0%, and 0.002% among OPBs group.

Figure 7-13 Average Percentages of Lending Instruments by Private and Privatized Egyptian Banks, 2000-2009



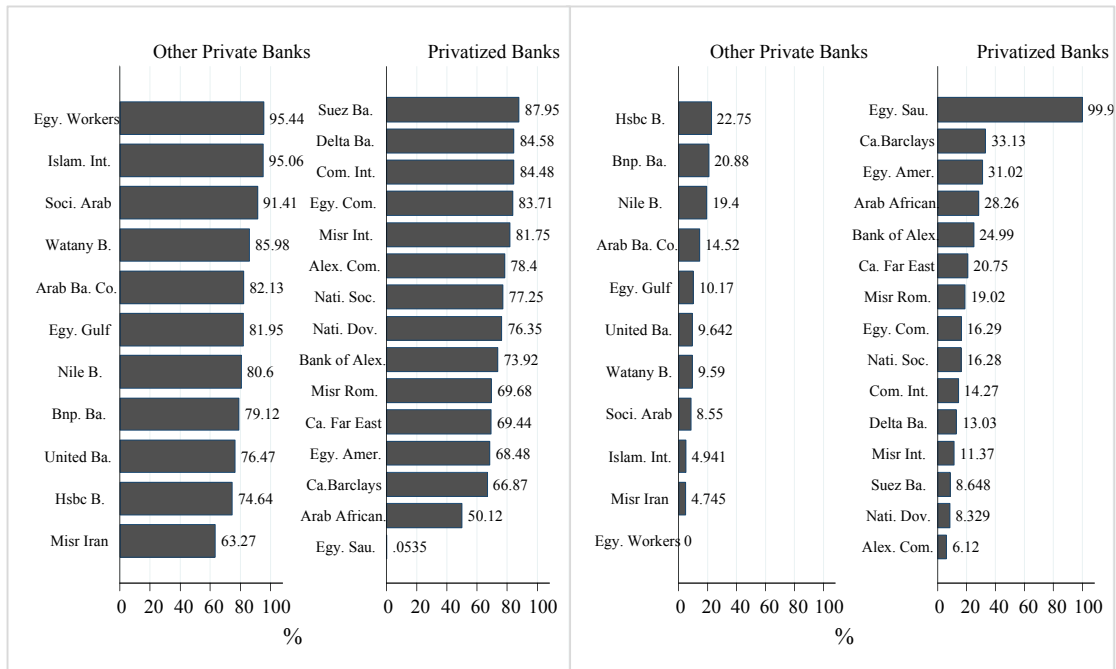
In general, privatized banks were relatively higher in utilizing treasury bills, bonds, and securities compared to OPBs. On the other hand, OPBs exceeded PBs in their usage of loans.

As shown in Figure 7-14, among privatized banks, Suez Canal, Delta Bank, Commercial International, Egyptian Commercial, and Misr International had highest ratios of loans in their portfolio, which exceeded 80%. On the other hand, Egyptian Saudi Finance and Arab African International were among lowest banks in using loans as financial instruments. Among OPBs, seven banks had ratio exceeded 80%, namely Egyptian Workers, Islamic

International, Societe Arab International, El Watany Bank, Arab Bank, Egyptian Gulf Bank, and Nile Bank.

Figure 7-14 Average Percentages of Loans by Private and Privatized Egyptian Banks, 2000-2009

Figure 7-15 Average Percentages of Treasury Bills by Private and Privatized Egyptian Banks, 2000-2009



Privatized banks used relatively higher ratios of treasury bills compared to OPBs. As shown in Figure 7-15, the top five banks that utilized treasury bills belong to the privatized bank group. In particular, Egyptian Saudi Finance, Cairo Barclays bank, Egyptian American, Arab African International, and bank of Alexandria had highest ratios of using treasury bills exceeded 25%. HSCB and BNP were on the top among OPBs that utilized treasury bills in their financial portfolio with ratio exceeded 20%.

With respect to bonds and securities, as shown in Figure 7-16 and Figure 7-17, National Development and Alexandria Commercial Bank were among privatized banks that utilized relatively high volumes of bonds and securities. In particular, 16.6% and 12% of their portfolio were devoted to bonds and securities, respectively. On the other hand, United Bank and Misr Iran were among OPBs group that used relatively high volumes of bonds and securities in the sample. In particular, United Bank devoted 15% and 1.3% of its portfolio to

bonds and securities, respectively, while Misr Iran devotes 4.3% and 1.4% of its portfolio to bonds and securities, respectively.

Figure 7-16 Average Percentages of Bonds by Private and Privatized Egyptian Banks, 2000-2009

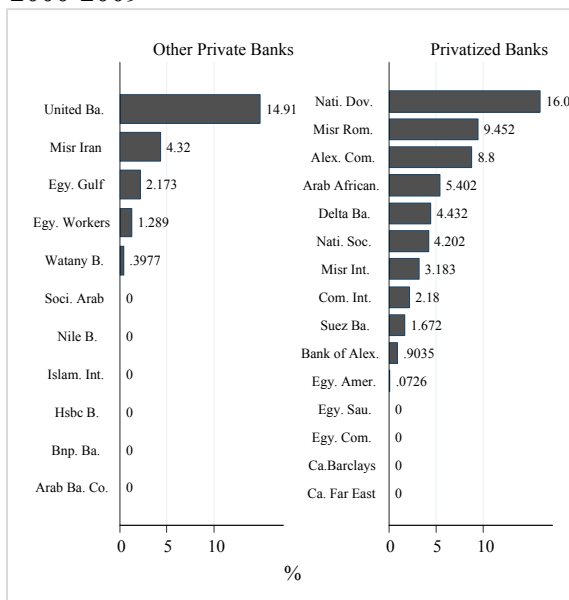
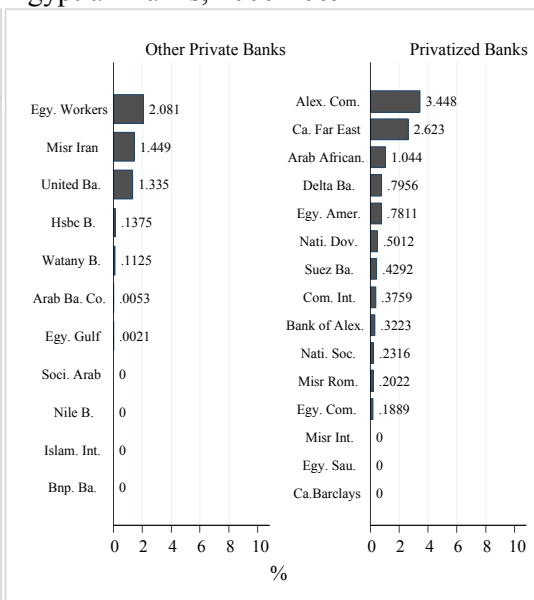


Figure 7-17 Average Percentages of Securities by Private and Privatized Egyptian Banks, 2000-2009



The Concentration of Lending Activities

Table 7-3 reports the results of HHI_L and HHI_I indices. These indices show the degree of concentration of lending. HHI_L shows the degree of concentration of sectoral lending by individual banks. Overall, privatized banks had relatively lower median values of the concentration index compared to other private banks, which are estimated at 0.29 and 0.33, respectively. Suez Canal, Egyptian American, Misr Romania and Commercial International Bank were on top of privatized banks in their sectoral lending concentration with scores estimated at 0.4, 0.39, 0.38, and 0.35, respectively. As shown before, Suez Canal Bank mainly lent for the services (20.6%) and trade sectors (55%). Egyptian American Bank mainly lent for the manufacturing (51%) the services (17%) sectors. Misr Romania Bank mainly lent for the trade (37%) and Banks (29%) sectors. Commercial International Bank mainly lent for the manufacturing (45%) and services (36%) sectors. On the other hand, Egyptian Workers, Islamic International, and Societe Arab International were on the top of

OPBs in their lending concentration with scores estimated at 0.39, 0.38, and 0.35, respectively. Egyptian Workers mainly lent for the manufacturing (35%) and trade (50%) sectors. Islamic International Bank mainly lent for the manufacturing (15%) and trade (57%) sectors. Societe Arab International Bank mainly lent for the manufacturing (39%) and trade (42%) sectors.

Table 7-3 Average HHI Indices by Private and Privatized Egyptian Banks, 2000-2009

Banks	HHI _L Index		HHI _I Index	
	Median	Growth Rate	Median	Growth Rate
Privatized Banks	0.309**	-0.008	0.647***	-0.003
Alex. Commercial	0.290	-0.065	0.634	0.072
Arab African Int.	-	-	0.508	0.027
Bank of Alex.	-	-	0.610	0.168
Cairo Barclays	-	-	0.557	-0.005
Misr Romania	0.380	-0.073	0.566	-0.026
Cairo Far East	0.075	0.000	0.532	0.041
Commercial International	0.350	-0.063	0.733	-0.021
Delta International	0.280	0.000	0.743	0.022
Egyptian American	0.390	0.054	0.565	-0.057
Egyptian Commercial	0.290	-0.065	0.728	0.031
Egyptian Saudi Finance	0.250	-0.043	0.998	0.001
Misr International	0.300	0.033	0.685	-0.054
National Development	-	-	0.624	-0.023
National Soc. Gen.	0.280	0.000	0.639	-0.025
Suez Canal	0.400	0.000	0.785	0.002
Other Private Banks	0.331**	-0.016	0.715***	-0.007
Arab Banking Co.	0.320	-0.028	0.709	0.019
Bnp Paribas	0.330	-0.088	0.670	-0.017
Egyptian Gulf	-	-	0.695	0.148
Egyptian Workers	0.390	0.013	0.912	0.013
El Watany B.	0.235	0.230	0.755	-0.003
Hsbc B.	-	-	0.621	-0.030
Islamic International	0.380	0.000	0.906	-0.002
Misr Iran	-	-	0.499	-0.069
Nile B.	-	-	0.688	-0.095
Societe Arabe Int.	0.350	-0.092	0.843	0.020
United Bank	0.285	0.036	0.611	-0.007

Notes: HHI_L measures the degree of loan diversification, and HHI_I measures the degree of concentration across financial instruments. The study has applied two-sample equality of median test to test for the significance of the difference in central values between PBs and OPBs. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

With respect to the concentration of the financial instruments, as measured by HHI_I index, the results show that privatized banks had lower median values of the concentration index compared to other private banks, which are estimated at 0.6, and 0.7, respectively.

Among privatized banks, Egyptian Saudi Finance, Suez Canal, Delta International, and Commercial International Bank were on the highest rank of the concentration of financial

instruments with scores estimated at 0.99, 0.78, 0.74, and 0.73, respectively. With the exception of Egyptian Saudi Finance, the latter banks depended mainly on loans. As shown previously, Suez Canal, Delta International, and Commercial International Bank mainly granted loans with ratios estimated at 88%, 85%, and 85%, respectively. Saudi Finance Bank mainly provided credits in a form of treasury bills with ratio estimated at 99%. On the other hand, Egyptian Workers Bank, Islamic International Bank, and Societe Arab International had highest concentration ratio among OPBs with scores estimated at 0.91, 0.90, and 0.84, respectively. This is because Egyptian Workers Bank and Islamic International bank utilized 95% of their financial portfolio in a form of loans, while Societe Arab International utilized 91% of its financial portfolio in a form of loans.

Main Findings of the Performance Measures by Privatized Financial Institutions and Privatized Non-Financial Institutions

In this section, the study reports the results of the operating performance and risk-taking behavior across the various types of institutions, i.e. privatized financial institutions (PFIs), other private financial institutions (OPFI), and privatized non-financial institutions (PNFI). The following ratios of operating performance are reported: return on assets, return on equity, debt-asset, and debt-equity. Furthermore, Z-scores as a measure of risk-taking are reported. In a further stage, the study reports the results of the non-parametric test regarding the comparison of the median values of the previously mentioned measures across the different institution types.

Table II-18 until Table II-22 reports the results of the performance indicators of privatized financial institutions (PFIs) and other private financial institutions (OFIs), while Table II-23 until Table II-27 reports the results of these indicators among privatized non-financial institutions. As shown in the tables, privatized financial institutions had the lowest values of return on assets among the sampled institutions. The tables show that the annual performance of PNFIs outperformed PFIs and OFIs in terms of profitability as measured by ROA and ROE. However, the financial efficacy measured by the two leverage ratios of NPFI

was lower compared to PFIs and OFIs. By comparing profitability between PFIs and OFIs, it is clear that OFIs outperformed PFIs. This is indicated by the higher values of ROA and ROE of OFIs. The debt-asset ratio among PFIs was higher when compared to OFIs, while the debt-equity ratio was lower among PFIs compared to OFIs.

As shown in Table 7-4, the median values of ROA among PFIs were estimated at 1.6% compared to 2.1%, and 7.5% for OFIs and PNFIs, respectively. By comparing ROA for different size groups indicated by the four quantiles, the results show that ROA in the second, third, and fourth quantiles of PFIs were lower than the median sample. However, small size group of PFIs indicated by the first quantile had ROA that is above the median sample, which is estimated at 13.4%. Compared to OFIs, PFIs had higher ROA in first, third, and fourth quantiles. Compared to PNFIs, PFIs had a lower ROA in the second, third, and fourth quantile. Return on equity of PFIs is estimated at 12.8% compared to 14%, and 17.7% for OFIs and PNFIs, respectively.

Table 7-4 Quantiles of Average Percentages of Operating Performance by Privatized and Private Financial Institutions, Privatized non-Financial Institutions, and Total Sample

Variables	Firm Group	Q ₁	Q ₂	Q ₃	Q ₄	Median	SD.	Obs.
Return on Assets	PFIs	13.4	1.1****	2.4***	1.2***	1.6***	4.0	171
	OFIs	5.8	2.3***	1.3***	1.1***	2.1***	7.0	306
	PNFIs	6.2	7.5***	9.0***	10.6***	7.5***	9.3	395
	TS	6.3	4.7	3.8	1.5	3.2	8.1	872
Return on Equity	PFIs	33.3	3.9	19.7	12.4	12.8	29.3	171
	OFIs	78.1	12.4	9.0	12.4	14.0	72.0	295
	PNFIs	13.0	17.1	22.5	16.9	17.7	26.1	395
	TS	21.4	15.7	15.6	12.8	16.0	48.7	861
Debt-Asset	PFIs	0.0	10.0	2.2***	2.0***	2.0***	13.6	171
	OFIs	11.8	6.3	8.4***	1.1***	8.6***	21.9	305
	PNFIs	10.0	13.0	12.5***	9.0***	11.0***	17.9	395
	TS	10.0	10.4	8.0	2.3	7.3	19.1	871
Debt-Equity	PFIs	1.0***	23.0**	17.0**	22.2	19.0***	115.8	171
	OFIs	3.1***	6.2**	5.8**	9.8	6.1***	127.2	300
	PNFIs	21.0***	29.0**	22.5**	16.0	22.0***	127.3	394
	TS	6.2	19.9	18.0	17.0	15.0	125.0	865

Notes: PFIs indicates privatized banks and non-bank financial institutions, OFIs indicates other private banks and non-bank financial institutions, PNFIs indicates privatized non-financial institutions, and TS indicates the total sample. Q1 until Q4 indicates first until fourth quantile of the size measured by total assets. The study has applied K-sample equality of median test to test for the significance of the difference in central values between PBs and OPBs. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

In the first and second quantiles, OFIs outperformed PFIs in the values of ROE. In the third quantile, PFIs outperformed OFIs, while the values were similar among OFIs and PFIs

in the fourth quantile. With the exception of the first quantile, PNFIs outperformed PFIs in terms of ROE ratio. With respects to the leverage ratios, the table shows that debt-asset ratio was the lowest among PFIs when compared to the other counterparts. The ratio was lower across all quantiles when compared to PNFIs. Compared to OFIs, the ratio was higher in the second and fourth quantiles. Regarding the debt-equity ratio, it was higher among PFIs when compared to PNFIs and lower when compared to OFIs. With the exception of the first quantile, the debt-equity ratio among PFIs was lower in all other quantiles compared to OFIs. The ratio was lower among PFIs in all size groups compared to PNFIs.

Table 7-5 shows the results of the risk-taking behavior indicated by Z-scores among various firm groups.

Table 7-5 Quantiles of Average Z-Scores of by Privatized and Private Financial Institutions, Privatized non-Financial Institutions, and Total Sample

Quantiles	PFIs	OFIs	PNFIs	TS
Q ₁	0.351*** ^(a)	0.015***	0.058***	0.042
Q ₂	0.025***	0.023***	0.082***	0.066
Q ₃	0.039	0.049	0.070	0.068
Q ₄	0.027**	0.043**	0.078**	0.040
Median	0.032***	0.028***	0.070***	0.052
SD.	0.124	0.097	0.062	0.090
Obs.	170	299	395	864

Notes: PFIs indicates privatized banks and non-bank financial institutions, OFIs indicates other private banks and non-bank financial institutions, PNFIs indicates privatized non-financial institutions, and TS indicates the total sample. Q1 until Q4 indicates first until fourth quantile of the size measured by total assets. The study has applied K-sample equality of median test to test for the significance of the difference in central values between PBs and OPBs. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

^(a) The reported large value of the average Z-score in the first quantile among PFIs is due to the high Z-scores achieved by PFIs. This is because of large values of the capital to asset ratio among that group, which are considered indicators of less efficiency in utilizing the acquired financial resources. The 50th percentile of the Z-scores among the sample of PFIs in the first quantile is related to the institution of United Housing & Development, for which its Z-score is estimated at 0.35.

In the small size group indicated by the first quantile, privatized financial institutions had higher Z-scores compared to the sample median. This indicates a lower risk exhibited. However, in all other size groups, the scores were below the sample median, which implies a higher riskiness. The value of Z-scores in the first quantile is estimated at 0.35, while it is lower in all other size groups, which is estimated at 0.027. By comparing the risk-taking behavior of privatized financial institutions with other financial institutions and privatized

non-financial institutions, the scores achieved across all size groups of PFIs were lower, with the exception of the first quantile.

By looking at the annual Z-scores, as shown in Table 7-6, the study found that there is a tendency of Z-scores of privatized financial institutions to increase slightly over time. There is a major improvement in the Z-scores after 2005. However, by comparing the scores of PFIs with the other counterparts, they had lower growth rates. That is, the growth rate of Z-scores was negative among PFIs, while it was positive among OFIs and PNFIs.

Table 7-6 Annual Z-Scores by Privatized and Private Financial Institutions, Privatized non-Financial Institutions, and Total Sample

Year	PFIs	OFIs	PNFIs	TS
2000	0.026**	0.023**	0.064**	0.042
2001	0.022***	0.025***	0.065***	0.037
2002	0.015***	0.022***	0.066***	0.032
2003	0.034***	0.021***	0.069***	0.044
2004	0.029**	0.025**	0.070**	0.046
2005	0.043**	0.027**	0.064**	0.048
2006	0.033	0.034	0.068	0.053
2007	0.074	0.042	0.076	0.064
2008	0.070	0.051	0.082	0.079
2009	0.069	0.053	0.081	0.079
Median	0.032***	0.028***	0.070***	0.052
SD.	0.124	0.097	0.062	0.090
Obs.	170	299	395	864

Notes: PFIs indicates privatized banks and non-bank financial institutions, OFIs indicates other private banks and non-bank financial institutions, PNFIs indicates privatized non-financial institutions, and TS indicates the total sample. The study has applied K-sample equality of median test to test for the significance of the difference in central values between PBs and OPBs. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 7-7 and Table 7-8 report the results of the non-parametric test, which tests the differences of the median levels of the previous performance indicators across the different institution types. As shown in Table 7-7, measures of profitability, i.e. ROA and ROE were lower among PFIs when compared to OFIs. The median difference is estimated at -0.005%, and -0.013%, respectively, and it is statistically significant at 1%. On the other hand, there exist a negative median difference with respect to debt-asset ratio, which is estimate at -0.064% and it is statistically significant. Although the median difference of debt-equity ratio is positive, it is statistically insignificant. Regarding the Z-scores between the two groups, there is a positive median difference, but it is statistically insignificant.

Table 7-7 Median and Median-Difference of Performance Indicators by Privatized
and Private Financial Institutions

Variable	PFI	OFI	Difference
Return on Assets	0.016	0.021	-0.005***
Return on Equity	0.128	0.140	-0.013***
Debt-Asset	0.020	0.084	-0.064***
Debt-Equity	0.185	0.060	0.125***
Z-Scores	0.032	0.028	0.003

Notes: PFI indicates privatized banks and non-bank financial institutions, OFI indicates other private banks and non-bank financial institutions. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

By comparing profitability between privatized financial institutions and privatized non-financial institutions, the study found a negative difference. As shown in Table 7-8, privatized financial institutions had lower ROA and ROE. This indicates a lower profitability among privatized financial institutions. The median difference is estimated at -0.06%, and -0.05% and it is statistically significant at 1% and 10%, respectively. On the other hand, the leverage ratios indicated by debt-asset and debt-equity ratios show a positive outcome. As, the privatized financial institutions less leveraged compared to privatized non-financial institutions. The estimated median differences are -0.09% and -0.035% for debt-asset and debt-equity ratio, respectively. However, it is only statistically significant for debt-asset ratio. Regarding the Z-scores, the scores are lower among PFI compared to PNFI. The difference is estimated at -0.035 and it is statistically significant.

Table 7-8 Median and Median-Difference of Performance Indicators by Privatized
Financial Institutions and Privatized non-Financial Institutions

Variable	PFI	PNFI	Difference
Return on Assets	0.016	0.075	-0.060***
Return on Equity	0.128	0.177	-0.049*
Debt-Asset	0.020	0.110	-0.090***
Debt-Equity	0.185	0.220	-0.035
Z-Scores	0.032	0.070	-0.039***

Notes: PFI indicates privatized banks and non-bank financial institutions, PNFI indicates privatized non-financial institutions. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

7.5. Implication of the Study

The study has found a number of interesting empirical results in the Egyptian context. In the Egyptian context, those results should be taken into consideration before moving on the privatization within the financial sector, particularly the banking sector. All these results cast serious doubts on the expected gains from the privatization of the banking sector. The findings contradict with other existent evidences that privatization can enhance efficiency and financial efficacy in the financial sector. In particular, the study has emphasized the following five main results. First, privatized banks lagged behind other private banks in terms of credit utilization, insolvency, asset utilization, and cost efficiency. Second, larger privatized banks utilized their resources efficiently when compared to smaller ones. Third, privatized banks were less diversified compared to other private banks. Fourth, privatized financial institutions lagged behind their counterparts in terms of profitability. Fifth, privatized financial institutions exhibited a relatively high risk when compared to other private banks.

Based on the analysis of the study, three main issues should be considered in order to remedy the previously mentioned distortions. First, it should be considered further financial reforms that aim at minimizing the control of the state over the banking sector in Egypt, which might be one of the major obstacles that are faced by privatized financial institutions. By considering the latter reforms, the potential gains from privatization, in terms of improving competition of the market, could be increased. That is because the improvement of the competition is one of major prerequisites that can partially guarantee better performance of privatized firms. Second, it should be considered giving priority to privatize larger banks and postpone privatizing smaller one until a certain degree of competition in the financial sector is realized. Finally, it should be considered implementing further institutional reforms before moving on the privatization in the banking sector; for instance, through adopting new financial innovations by attracting foreign financial institutions to operate in the sector. The latter point will help enhancing the competition within the financial sector and could increase the expected gains from divesting banks and other non-bank financial institutions.

7.6. Conclusion

Egypt over the period under scrutiny witnessed a modest improvement in activities of private banks compared to privatized banks. The study has shown that privatized banks lagged behind other private banks in terms of credit-deposit ratio, capital-asset ratio, and cost-income ratio. The study has found that privatized banks were relatively less efficient in utilizing their deposits. Privatized banks suffered relatively from insolvency when compared to other private banks. Moreover, they exhibited higher costs in operating their activities.

The study has emphasized on the relative importance of interest income in the income structure of privatized banks. The study has shown that privatized banks were relatively less engaging in non-lending activities. Compared to other private banks, the non-lending activities among privatized banks fell beyond. This indicator is important in understanding their vulnerability to the market conditions in terms of fluctuations of interest rates.

When taking the size of banks into consideration, the study has shown that small size privatized banks had a relatively lower credit-deposit ratio when compared to OPBs, while the larger size ones had higher ratios. This implies that larger privatized banks utilized their resources more efficient than small one. In addition, different size group among privatized banks suffered from less capitalization and higher cost burdens. Overall, in all size groups, privatized banks depended more on net-interest income compared to other private banks. This is a negative outcome for privatized banks, since higher non-lending activities could reduce the risks of the reliance on interest income.

Regarding the lending behavior of banks, the study has shown that privatized banks lent mainly for the manufacturing, services, and banking sector, while other private banks focused in lending for the trade, agriculture, and household. Moreover, privatized banks were relatively higher in utilizing treasury bills, bonds, and securities compared to OPBs, while OPBs exceeded PBs in their usage of loans.

Overall, privatized banks focused in specific lines of businesses compared to other private banks. The study has shown that other private banks were better diversified in their

lending and financial portfolio compared to privatized firms. This is a positive outcome for other private banks, since diversification positively affects performance of banks in terms of reducing risk and increases profit efficiency.

In general, privatized financial institutions lagged behind their counterparts in terms of profitability. In addition, the annual performance of privatized non-financial institutions outperformed privatized financial institutions and other private financial institutions in their profitability. However, the financial efficacy of privatized financial institutions and other private financial institutions outperformed privatized non-financial institutions. By comparing between privatized financial institutions and other private financial institutions, the study has found that the latter institutions outperformed the former in terms of profitability. However, privatized financial institutions performed better in terms of financial stability.

By scrutinizing the risk-taking of privatized financial institutions, the study has shown that privatized financial institution exhibited higher risk compared to the other counterparts. The study has found that there was a tendency of Z-scores within privatized financial institutions to improve slightly over time; however, they achieved negative growth rates in number of years. Contrary, other private financial institutions and privatized non-financial institutions achieved positive growth rates of the Z-scores.

Chapter 8. Conclusion

The thesis has highlighted the debatable issue in Egypt concerning the impact of privatization on development of the financial sector. Previous researches on privatization, in the Egyptian context, concentrated on its impact on macroeconomic phenomena such as income distribution, foreign direct investment, and fiscal deficit. In addition, a number of researches had been done on the performance of privatized non-financial institutions. However, those researches ignored, largely, the impact of privatization on the financial sector, in particular the following issues: the financial system structure, choices of financing of firms, and lending and risk-taking behavior of financial institutions.

This thesis has attempted to overcome weaknesses in the previous research about privatization. Although the pre-existing findings, in the Egyptian context, showed that privatization can stimulate and enhance activities within the financial sector on aggregate level, by analyzing the impact of privatization on individual banks, this study has found negative influence of privatization on the banking sector.

In order to get the previous findings, the established methodology of this thesis has been based on the neo-Keynesian economics, which are appealing to the empirical studies included in the thesis by providing more realistic assumptions compared to other schools of economic thought. The neo-Keynesian economics significantly contributed to the understanding of finance and the development of financial institutions through introducing concepts of asymmetric information, agency problem, and adverse selection. By assuming imperfect capital markets, it replaced unrealistic assumptions of neo-classical economics, which has enabled the study to scrutinize the financing behavior of firms that are located in economies with less sophisticated and inefficient capital markets, such as Egypt. By assuming the credit rationing, the study has been able to consider the impact of privatization on the banking credit, not money, which is interconnected with the real economic activities. Thereby, the study has incorporated the financial sector in the analysis of the variations in the economic policies, such as privatization. In addition, taking into account the agency problem,

which results from conflicts between managers and shareholders, has enabled the study to examine the impact of privatization on the demand side of the financial sector, which is represented in the choice of financing by privatized firms.

The main objectives of the thesis have been to highlight the different impacts of privatization on banks and stock markets. In addition, the study has pointed out the expected consequences of privatization on the demand and the supply sides of financial services. In the demand side, it has considered the choices of financing among privatized firms. In the supply side, it has considered the overall evolution of the financial sector and efficiency of privatized financial institutions in providing financial services.

Based on those objectives, the thesis has questioned the following eight main issues. First, does privatization positively affect development of the banking sector and stock markets? Second, does privatization have a significant positive impact on the financial system structure? Third, does privatization positively affect the development of the overall financial sector? Fourth, do privatized firms depend more on internal finance compared to external finance? Fifth, do privatized firms depend more on bank-based finance compared to market-based finance? Sixth, what are the main determinants of choices of financing of privatized firms? Seventh, does privatization affect the performance of privatized banks and non-bank financial institutions? Eighth, does privatization affect the lending and risk-taking behavior of privatized financial institutions?

In establishing the methodologies for the empirical studies included in the thesis, a variety of empirical quantitative and qualitative techniques have been considered. In particular, those studies have utilized dynamic panel data models, fixed effect (within) regression, and non-parametric tests, namely the Wilcoxon signed-rank, Jonckheere-Terpstra, and Kruskal-Wallis tests. In addition, the studies have utilized exploratory analyses based on a number of indicators and indices that measure operating performance, risk-taking, and lending behavior among financial institutions and non-financial institutions.

It is important to mention that the study has suffered from a number of limitations that need to be taken into account, namely the following issues. First, unavailability of a comprehensive privatization dataset that includes all privatization transactions has limited the study from analyzing small privatization transactions. Second, unavailability of data that covers socioeconomic indicators has limited the study from considering the impacts of social impacts of privatization. Third, unavailability of a comprehensive measure of the development of financial sector has limited the study from considering the obstacles that are faced by firms in accessing external finance. Fourth, lack of data about privatized small size firms in Egypt has limited the study from considering the overall impact of privatization. However, some of those limitations could be considered as important elements for future research in the relevant literature. The limitations have brought forth various possible issues for future research. Taking into consideration socioeconomic factors, in addition to privatization, in examining the development of financial sector would enhance the scope of the research in the relevant literature. By considering a more comprehensive dataset that includes detailed information about all privatization transaction would enable better elaboration of elements of privatization and its impact on the development of the financial sector. By constructing a comprehensive indicator of the financial sector development, which takes into consideration the ability of firms to access the financial sector, this would provide a better proxy for the overall financial sector development. By taking into consideration small size firms, in addition to medium and large size firms, this would provide precise evidence regarding the impact of privatization on the financial sector development.

The study has found various new findings that are crucial from the developmental perspectives. The study has shown that privatization has had a positive and statistically significant impact on the development of market-based financial structure and the overall financial sector development. This has been shown in the statistically significant impact of the annual privatization ratio on ratios of stock market capitalization, structural activity, structural size, structural efficiency, finance activity, finance size, and finance efficiency.

This could be justified by the significant impact of privatization on stock markets when governments divest their state-owned firms through share issue privatization. The previous result has supported the hypothesis that there is a tendency for developing countries toward favoring share issue privatization to develop their financial markets. The study has found that although trade openness measured by the trade ratio affects the structural efficiency and finance activities ratios, it does not have a statistically significant impact on the finance size or finance efficiency ratios. This could be mainly due to the impact of liberalization on increasing the number of market participants; however, it might not have such impact on the volatility of stock prices or the costs of financial services. On the other hand, the study has found that financial liberalization does not have a strong impact on the financial structural or overall financial development ratios when compared to the trade ratio. The study has found that there is a positive and statistically significant impact of the growth rate of real GDP per capita on stock market capitalization ratio. This is consistent with the hypothesis states that as an economy grows, large-scale industries and capital-intensive industries gradually replace traditional sectors in an economy. That, in turn, is followed by a movement of the private sector towards market-based finance.

Furthermore, the study has found that privatized firms have had a statistically significant lower short-term debt to asset ratio compared to well-established publicly listed firms. Privatized firms have statistically significant lower ratios of indicators of market-based finance compared to well-established publicly listed firms. Contrary, privatized firms have a statistically significant higher ratio of the indicator of bank-based finance compared to well-established publicly listed firms. Regarding to the financial constraints indicators, privatized firms have statistically significant higher ratios of credit constraint and reliance on internal finance compared to well-established publicly listed firms. Compared to state-owned firms, privatized firms have statistically significant higher ratio of the indicator of the market-based finance. Contrary, privatized firms have a statistically significant lower ratio of the indicator of the bank-based finance compared to state-owned firm. Privatized firms have statistically

significant higher ratios of indicators financial constraints and reliance on internal finance compared to state-owned firms.

Though the financial sector in Egypt received a large share in the total privatization proceeds since its announcement in 1991, this study has found that privatization negatively influenced the sector. Four aspects of distortions characterized the negative impact of privatization on the financial sector in Egypt. First, privatized banks have lower ratios of credit to deposit, capital to asset, and cost to income. Second, privatized banks depend on income structure that are more towards interest bearing income. Third privatized banks have higher concentration ratio of their lending activities compared to other private banks, which have been better diversified. Fourth, privatized financial institutions have lower profitability and higher risk scores when compared to other private financial institutions and privatized non-financial institutions.

The study has provided various theoretical and empirical implications that are crucial for the development of the financial sector. With respect to the theoretical implication, the study has emphasized the following three issues. First, instead of treating the financial development in a country as an aggregate phenomenon, it should be disaggregated into sub-dimensions, namely activities, size, and efficiency. Second, it should be considered the impact of the growth in an economy on activities of the financial sector. Third, the choices of financing among Egyptian privatized firms are more compatible with the presumptions of the tradeoff theory through three main channels: the growth, the profitability, and size effect channels.

In addition to the theoretical implications, in the Egyptian context, the study has found number of new applicable results that are crucial from the developmental perspectives. Those results are considered important for both policy makers and scholars because of their various implications concerning macroeconomic policies, choices of financing among privatized firms, activities of financial institutions, and the lending and risk-taking behavior of financial institutions.

With respect to the implications regarding macroeconomic policies, the study has shown the following issues. First, privatization is an important factor in the development of the financial sector, particularly stock markets. The previous result suggests a tendency of developing countries to favor share issue privatization in order to develop their financial markets. Share issue privatization plays a major role in increasing the number of listed firms in the market. The relative positive impact of privatization on financial markets compared to banks is due to the preferences of new private firms, which engage in more riskier activities, in choosing the market-based finance after privatization, compared to the pre-privatization period. This is because financial markets provide different financial instruments with different degrees of riskiness. In addition, the high usage of share issue privatization, which was adopted in Egypt, helped in enriching activities in its financial market. Furthermore, the study has emphasized the importance of industrialization that can be enhanced through privatization, which encourages private participation in the sector. Thus, as an economy becomes more industrialized, the financial system structure becomes more market-based system. Second, privatization encourages competition, by allowing the operation of new private banks, within the financial sector, which, in turn, improves the financial and operating efficiency of the sector. Third, the study has emphasized possible negative outcomes from privatization on the financial sector. In particular, privatization could harm activities and efficiency of the banking sector. One explanation of the previous result has been the impact of privatization in reducing concentration and, in turn, losing the benefits from economies of scale within the banking sector. Fourth, the study has emphasized the crucial role of macroeconomic policies that work together with privatization. Those policies are important for realizing the potential gains from privatization, namely the trade openness and financial liberalization. Trade openness and financial liberalization increase the number of listed firms in the financial market. However, the study has shown that trade openness matters more than financial liberalization. The study has underlined the nature of the relationship between banks and stock markets. The study has found that there is no statistically significant impact of the

market capitalization on domestic credit. Moreover, there is no statistically significant impact of the domestic credit on market capitalization.

With respect to the implications regarding the choices of financing among privatized firms, the study has highlighted the importance of the ownership structure on the choices of financing of privatized firms. This is because of the deregulation of divested firms during post privatization period in terms of the appointment of the new management, the new auditing standards, and widening the ownership structure. Ownership is an important factor that causes variations in the financing decisions across firms. In particular, the study has emphasized the following seven issues.

First, privatized firms relied more on bank-based finance in funding their investments compared to other well-established publicly listed firms, which relied more on market-based finance. The latter result has suggested that privatized firms faced difficulty in accessing the market-based finance. The difficulty in accessing the market-based finance resulted from number of characteristics that were specific for privatized firms. Those characteristics have been represented in the following issues. The lack of reputation of privatized firms in the equity market hindered their access to the market-based finance, which was a costly source of finance. Privatized firms possessed more tangible assets. That is, they were less likely to raise funds from the equity market. Privatized firms were relatively credit constrained that enforce them to opt for internal funds rather than a relatively expensive external finance. This is because the impact of the size of privatized firms on their access to external finance, which were represented in their lower dependence on market-based finance and the higher dependence of bank-based finance. This is because of the high costs of the stock market. The limited ownership structure of privatized firms, compared to other publicly listed firms, was an obstacle for accessing the equity market. The poor auditing standards within privatized firms reduced the quality of the information disclosure, which is important for gaining credit from the financial institutions. The cost disadvantage that was faced by privatized firms hindered their access the market-based finance.

Second, privatized firms relied more on internal finance rather than debt-finance compared to state-owned firms. This was because of the reliance of the state-owned firms on state-owned banks in financing their activities, even if they were financially fragile. This was due to the guarantee by the central government in repaying backs the loans of state-owned firms. In addition, the large value of tangible assets of privatized firms negatively affected their access to the external finance.

Third, the study has highlighted a possibility of a high agency cost problem within privatized firms. As a result, number of privatized firms opted for bank-based finance to alleviate their agency cost problem.

Fourth, Regardless of the ownership structure, other firm-specific characteristics influenced the financing decision by firms. The study has highlighted the influence of four main firm-specific characteristics on choices of financing by operating firms: size, age, profitability, and capital expenditure. Size was an important factor because of its role in mitigating the asymmetric information problem between firms and financial institutions and improving the informational disclosure within a firm. With respect to the age, although the age of a firm positively influenced the access to the bank-based finance, it had no statistically significant impact on the market-based finance. On the other hand, other factors such as profitability and capital expenditure had more influence on market-based finance.

Fifth, the study has shown that size represented a key factor for the distinction between privatized and other operating firms. Size of privatized firms was an important factor that affects their choices of finance. The smaller the size of privatized firms was, the lower the dependence on bank-based finance and the higher the dependence on internal finance. On the other hand, the larger the size of privatized firms was, the higher the dependence on bank-based finance. Contrary, the smaller the size of well-established publicly listed firms was, the higher the dependence on bank-based finance, while the larger the size of well-established publicly listed firms was, the higher the dependence on market-based finance.

Sixth, sales growth of privatized firms was an important factor in facilitating access to bank-based finance. This is because sales growth is considered an indicator of the good performance of firms. For privatized firms, which had limited ownership structure, the good performance of sales growth facilitated their access to credit from banks.

With respect to the implications regarding activities of the financial institutions, the study has found number of results that have various implications from the developmental perspectives of the financial sector. In particular, the study has highlighted the possible negative impact of privatization on the banking sector. The possible negative impact of privatization on banks has been represented in the following issues. First, privatized banks lagged behind other operating private banks in terms of the credit utilization and asset sufficiency. Second, privatized banks exhibited higher costs in operating their activities. Third, privatized banks suffered from higher degree of insolvency when compared to their rivals. That is because they were less efficient in attracting new deposits due to less innovative financial products that were introduced. In addition, they exhibited higher administrative costs, less loan diversification, less capitalization, and lower profitability. Fourth, privatized banks relied more on interest income rather than non-interest income, such as fees, commissions, and returns on tradable instruments, such as shares and bonds. This contributed to instability in the operation of privatized banks. The higher dependence of privatized banks on interest income has been justified by the following reasons. They were considered risk averse, so engaging in lending activities was less risky for them to get income. They were characterized by the lack of credit worthiness, which was resulted from the lack of reputation of those banks compared to other private banks. Different size groups among privatized banks suffered from less capitalization. In general, the possible negative impact of privatization on the banking sector could stem from the following reasons. First, the regulations associated with the adoption of privatization allowed the free entry and exist of operating banks. This, in turn, affected the activities of those banks. Second, allowing foreign banks, which had higher credit worthiness compared to domestic banks, to operate could

crowd out the activities of the latter banks. Third, the bad reputation of the state-owned banks during the pre-privatization periods, in terms of high bad loans, bad credit rating by international financial organizations, and high dependence of privatized banks in its income structure on interest bearing income, negatively affected their activities.

With respect to the implications regarding the lending and risk-taking behavior of financial institutions, the study has shown number of applicable findings. First, privatized banks lent mainly for the manufacturing, services, and banking sectors. This indicated that those banks were risk averse, and lending to those sectors, which are less vulnerable to shocks compared to the agriculture, trade and household sectors was safer for them. In addition, lending to the former sectors required more capital for big volumes of loans. Second, privatized banks mainly constructed their financial portfolio in forms of treasury bills, bonds, and securities, especially from the government. Those sources of financial portfolio were considered as safe sources of raising income compared to the lending activities. Third, privatized banks were less diversified in their lending activities and financial portfolio compared to the other rivals. This was because different size groups among privatized banks suffered from less capitalization. The latter finding badly affected the performance of those banks by exhibiting higher risk and lower operating efficiency compared to other operating banks. Fourth, size of financial institutions was an important factor in influencing their performance and lending activities. That is, large privatized banks utilized resources efficiently compared to the small ones. Fifth, privatized financial institutions lagged behind their counterparts in terms of profitability and risk-taking. However, the financial efficacy of privatized financial institutions outperformed other private financial institutions and privatized non-financial institutions.

This study has contributed to the relevant literature in five ways. First, the study has provided more evidences on how real activities, such as privatization, affect the development of financial sector. Second, by examining the impact of privatization on financial structure, the study has provided more evidence on how privatization has a relative different impact on

the development of the banking sector compared to the financial market. Third, by applying new theoretical approaches, the study has provided a new analysis on the choices of financing of privatized firms. In the Egyptian context, this could enrich the relevant literature by providing new evidence on how privatization affects the financing decisions of privatized firms. Fourth, the study has contributed to the finance literature by examining the lending and risk-taking behavior of privatized banks. Fifth, a uniqueness of the study has been the identification of main differences among privatized firms, other publicly listed firms, and state-owned firms. In addition, the study has identified the main differences among privatized financial institutions and privatized non-financial institutions. In addition, the study has constructed a new dataset that includes data about privatized firms and institutions.

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Appendix I

Table I-1 the Sampled Countries and their Respective Income Group

Country	Income Group	Country	Income Group	Country	Income Group
Albania	LMI	Georgia	LMI	Pakistan	LI
Algeria	LMI	Ghana	LI	Panama	UMI
Argentina	UMI	Grenada	UMI	Peru	LMI
Armenia	LMI	Guatemala	LMI	Philippines	LMI
Azerbaijan	LMI	Honduras	LMI	Poland	UMI
Bahrain	HI	Hungary	HI	Romania	UMI
Belarus	UMI	India	LMI	Russian Federation	UMI
Bolivia	LMI	Indonesia	LMI	Serbia	UMI
Bosnia	LMI	Jamaica	UMI	Slovak Republic	HI
Brazil	UMI	Jordan	LMI	Slovenia	HI
Bulgaria	UMI	Kazakhstan	UMI	South Africa	UMI
Chile	UMI	Kenya	LI	Sri Lanka	LMI
China	LMI	Kyrgyz Republic	LI	Thailand	LMI
Colombia	LMI	Latvia	UMI	Trinidad and Tobago	HI
Costa Rica	UMI	Lithuania	UMI	Tunisia	LMI
Cote d'Ivoire	LI	Macedonia	LMI	Turkey	UMI
Croatia	UMI	Malaysia	UMI	Ukraine	LMI
Czech Republic	HI	Mexico	UMI	United Arab Emirates	HI
Ecuador	LMI	Moldova	LMI	Uruguay	UMI
Egypt, Arab Rep.	LMI	Morocco	LMI	Uzbekistan	LI
El Salvador	LMI	Nigeria	LI	Venezuela, RB	UMI
Estonia	HI	Oman	HI	Vietnam	LI

Notes: HI is high-income group, UMI is upper middle-income group, LMI is low middle-income group,

and LI is low-income group.

Appendix II

Table II-1 Basic Indicators of the Sampled Egyptian Financial Institutions

Institutions -(Values in LE Millions)	Sector	Total Assets	Total Equity	Net Income
Privatized Financial Institutions				
Alexandria Commercial And Maritime Bank	Ba.	2475.00	269.80	12.94
Arab African International Bank	Ba.	18100.00	1270.46	299.00
Bank of Alexandria	Ba.	33000.00	2325.00	429.97
Barclays Egypt Bank	Ba.	10700.00	801.48	208.17
Blom Bank Egypt	Ba.	4690.25	421.81	8.41
Cairo Far East Bank	Ba.	439.52	76.58	0.87
Commercial International Bank	Ba.	41300.00	3985.71	796.44
Credit Agricole Egypt	Ba.	13000.00	1218.22	220.56
Delta International Bank	Ba.	471000.00	97600.00	22100.00
Egyptian American Bank	Ba.	9064.18	640.86	137.51
Egyptian Commercial Bank	Ba.	5164.72	418.90	-33.61
Egyptian Saudi Finance Bank	Ba.	6013.07	339.26	9.71
Misr International Bank	Ba.	15300.00	1111.07	128.80
National Development Bank	Ba.	8928.57	489.72	-239.71
National Societe Generale Bank (Nsgb)	Ba.	29100.00	2548.07	449.67
Suez Canal Bank	Ba.	13300.00	997.44	-10.26
El Kahera Housing	Fi.	310.25	175.74	8.77
Export Development Bank of Egypt	Fi.	8333.33	832.64	35.76
Heliopolis Housing	Fi.	936.19	209.74	78.61
Medinet Nasr Housing	Fi.	934.53	227.58	67.64
T M G Holding	Fi.	54000.00	22500.00	901.75
United Housing & Development	Fi.	87.38	34.87	12.06
Other Private Financial Institutions				
Al Baraka Bank Egypt Esc	Ba.	6862.50	401.89	8.99
Arab Banking Corporation Egypt	Ba.	3385.71	425.75	28.27
Bnp Paribas	Ba.	8378.29	2536.39	54.76
Egyptian Gulf Bank	Ba.	4037.50	555.30	43.07
Egyptian Workers Bank	Ba.	424.11	66.27	1.32
El Watany Bank of Egypt	Ba.	9800.00	927.23	130.88
Faisal Islamic Bank of Egypt Sae	Ba.	18800.00	865.21	87.17
Hsbc Bank Egypt	Ba.	16000.00	1025.41	385.96
Islamic International Bank for Investment And Development	Ba.	3929.01	36.44	-27.75
Misr Iran Development Bank	Ba.	4673.84	654.39	100.99
Nile Bank	Ba.	2088.02	123.13	7.39
Societe Arabe Internationale De Banque	Ba.	905.74	137.61	14.63
Union National Bank Egvot	Ba.	2900.00	390.93	29.77
United Bank of Egypt	Ba.	4026.50	243.64	15.58
ACE CIIC Insurance Co.	Fi.	53.57	41.72	1.17
Al Ahly for Development And Investment	Fi.	282.74	168.16	0.33
Al Ahram Co Stock Exchange & Securities Brokers	Fi.	27.82	2.75	2.31
Al Arafa Investment And Consulting	Fi.	301.45	55.32	22.34
Arab Gathering Investment	Fi.	165.54	20.67	15.96
Arab Misr Insurance Group	Fi.	171.06	54.59	4.24
Commercial International Investment Company	Fi.	1269.75	195.89	84.33
Delta Insurance	Fi.	517.34	125.86	8.09
Efg Hermes Holding Sae	Fi.	5222.98	3686.81	388.09
Egyptian American Company Securities Brokerage	Fi.	111.14	9.14	9.16
Egyptian Financial & Industrial	Fi.	1106.82	586.27	87.11
Egyptian Financial Group-Hermes Holding Company	Fi.	4581.09	769.37	369.89
Egyptian Kuwaiti Holding	Fi.	536.37	127.72	51.79
Egyptians Abroad for Investment & Development	Fi.	66.34	16.38	5.53
El Ahli Investment And Development	Fi.	285.60	-8.77	-3.04
El Kahera El Watania Investment	Fi.	108.41	-16.21	-1.49
El Watania Investment Sonid	Fi.	307.44	13.06	6.02
Hermes Corporate Finance	Fi.	62.44	29.01	15.84
Housing & Development Bank	Fi.	9837.50	673.70	127.48
Kuwaiti Egyptian Investment	Fi.	114.86	5.04	3.70
Mansour & Maghraby Investment & Development	Fi.	3690.07	923.21	403.45
Misr Financial Investments	Fi.	68.47	8.02	6.41
Mohandes Insurance	Fi.	646.71	126.89	10.67
Nile City Investment	Fi.	943.37	6.95	45.71
Osool Esb Securities Brokerage	Fi.	56.66	3.75	5.90
Prime Investments Fund Managers	Fi.	10.39	3.25	3.15
Prime Securities Stock Brokers	Fi.	177.37	11.73	14.12
Saudi Egyptian Investment & Finance	Fi.	116.31	14.39	10.86
Suez Canal Insurance	Fi.	172.92	17.58	14.06

Notes: Ba. indicates banks and Fi. indicates financial services excluding banks.

Table II-2 Basic Indicators of the Sampled Egyptian Non-Financial Institutions

Institutions -(Values in LE Millions)	Sector	Total Assets	Total Equity	Net Income
Acrow Misr formwork And Scaffolding	Co.	84.76	50.21	8.86
Alexandria Portland Cement Co Sae	Co.	1047.50	528.11	109.04
El Saeed Contracting Co	Co.	163.96	83.63	7.59
El Shams for Housing And Development Co	Co.	198.89	76.99	5.94
Giza General Contracting And Real Estate Investment Co	Co.	282.94	23.93	3.05
Misr Beni Suef Cement Co Sae	Co.	1234.75	596.36	131.29
Nasr Co for Civil Works	Co.	166.86	51.39	12.16
Paints And Chemical Industries Co Sae	Co.	611.56	450.44	77.71
Societe Egyptienne D Entreprises Moukhtar Ibrahim	Co.	1660.00	218.57	57.04
Suez Cement Co Sae	Co.	6010.00	3400.69	572.75
Tourah Portland Cement Co Sae	Co.	1182.25	794.38	248.16
Telecom Egypt Co Sae	In.	31900.00	23800.00	1849.09
Vodafone Egypt Telecommunications Co Sae	In.	5787.50	2525.00	933.99
Alexandria Flour Mills And Bakeries Co	Ma.	236.12	54.20	6.09
Cairo for Oil And Soap Co	Ma.	113.73	43.83	0.46
Delta Sugar Co	Ma.	977.59	711.96	170.65
Egyptian Co for Foods	Ma.	157.26	117.22	22.94
Egyptian Starch And Glucose Manufacturing Co	Ma.	275.47	170.05	16.24
El Nasr Transformers And Electrical Products Co Sae	Ma.	281.23	128.96	30.46
Electro Cable Egypt Co Sae	Ma.	634.81	344.88	-13.85
Extracted Oil And Derivatives Co	Ma.	242.43	104.80	9.23
Ismailia Misr Poultry Co	Ma.	64.66	27.00	-4.93
Middle And West Delta Flour Mills	Ma.	377.76	134.41	36.40
Middle Egypt Flour Mills Co	Ma.	382.01	146.19	22.69
Misr Chemical Industries Co	Ma.	624.22	163.49	33.69
Misr Oils And Soap Co	Ma.	205.24	69.61	13.68
Paper Middle East	Ma.	59.89	25.51	-2.17
Sidi Kerir Petrochemicals Co	Ma.	2985.71	2142.86	825.29
Upper Egypt Flour Mills Sae	Ma.	341.31	156.46	47.24
Rowad Misr for Tourism Investment Co	Os.	316.95	272.74	28.06
Semiramis Hotels Co Sae	Os.	295.60	226.31	81.40
Alexandria Medical Services Co Sae	Re.	41.11	17.80	2.54
Arab Drug Co for Pharmaceuticals And Chemical Industries	Re.	150.57	88.05	16.75
Arabia Cotton Ginning Co Sae	Re.	1032.83	698.67	57.50
Eastern Company Sae	Re.	3690.00	1636.77	467.44
Egypt Free Shops Co	Re.	155.87	106.64	33.87
El Nasr Clothing And Textiles Co	Re.	757.10	380.42	2.97
General Co for Silos And Storage	Re.	524.23	195.12	39.21
Memphis Pharmaceuticals And Chemical Industries	Re.	226.08	108.17	23.15
Nile Co for Pharmaceuticals And Chemical Industries	Re.	318.17	132.62	40.21
Nile Cotton Ginning	Re.	531.51	282.67	13.97
Unirab Polvara Spinning And Weaving Co	Re.	757.06	549.91	1.18
Alexandria Mineral Oils Co Sae	Ut.	2728.57	1664.12	522.93
Asec Co for Mining Sae	Ut.	242.82	141.25	18.35

Notes: Co. indicates constructions and materials, In. indicates information and technology, Ma. indicates manufacturing, Re. indicates retail trade, Ut. indicates utilities, and OS. indicates other services.

Table II-7 Income Structure of Egyptian Banks: Percentage of Net Non-Interest

Income												
Institutions - (%)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR.
Privatized Banks												
Alex. Commercial	14.4	17.1	18.0	19.2	30.0	37.2	34.3	29.8	9.4	9.1	24.5	5.8
Arab African Int.	4.7	-68.5	-76.4	32.3	30.1	32.3	13.9	25.2	5.9	-	25.2	-31.9
Bank of Alex.	-	-	-	50.8	25.7	17.8	0.0	10.3	-177.5	-	14.1	-49.3
Cairo Barclays	-	-	12.1	21.2	24.9	30.5	32.5	10.7	12.3	10.9	16.7	16.2
Misr Romania	-	-	-	-	-	7.0	-3.9	48.5	-32.6	-	1.6	-167.2
Cairo Far East	-	0.0	0.0	22.9	29.5	21.8	-	-	-	-	22.4	1.4
Commercial	46.8	51.0	45.5	42.8	44.3	39.7	48.5	50.4	45.2	39.3	43.6	3.5
Credit Agricole	-	-	-	63.9	55.5	43.8	42.6	39.2	32.2	22.2	39.2	-13.2
Delta International	12.1	11.5	9.9	10.6	12.7	25.1	31.3	25.9	12.1	12.3	12.5	1.0
Egyp. American	9.7	14.4	20.3	21.7	25.3	34.3	35.7	-	-	-	25.3	26.3
Egyp.Commercial	24.7	5.2	13.0	16.4	21.7	35.9	18.9	12.5	14.2	9.5	15.3	19.7
Egyptian Saudi	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.0
Misr International	9.6	10.0	15.5	17.9	15.6	24.5	31.0	-	-	-	17.9	21.2
Nati. Development	-	-	-	88.2	72.6	68.7	75.3	365.9	117.5	32.5	72.6	-5.4
National Soc. Gen.	38.2	37.9	37.1	40.4	37.6	34.9	35.3	31.9	45.5	27.5	35.1	-0.8
Suez Canal	-	-	54.7	70.0	75.2	84.3	72.7	60.5	66.5	36.5	63.5	8.7
Other Private Banks												
Al Baraka	100	100	100	100	100	100	100	100	100	100	100.0	0.0
El Watany B.	-	49.6	67.2	63.6	68.6	55.8	38.6	39.4	34.5	29.6	47.6	-5.5
Arab Banking Co.	12.5	15.6	13.7	11.1	19.0	27.9	24.1	10.6	7.7	8.7	12.4	-13.0
Bnp Paribas	49.6	59.7	41.0	33.3	23.6	0.0	16.5	27.0	0.0	-	23.6	-23.9
Egyptian Gulf	65.5	79.3	76.0	95.5	62.1	46.9	35.9	35.8	41.8	28.0	44.3	-0.2
Egyptian Workers	-	-	-	421.9	550.5	80.8	2.2	55.1	15.9	-	68.0	-71.1
Faisal B.	79.0	84.3	79.2	98.5	87.9	59.7	65.2	59.3	58.7	66.9	66.0	-3.5
Hsbc B.	-	-	-	188.8	30.9	59.7	11.0	66.1	25.0	-	45.3	-62.1
Islamic	7.4	8.1	3.2	3.9	9.7	11.9	-	-	-	-	6.8	22.4
Misr Iran	-	-	-	-	-	-	13.7	-43.4	20.4	-	13.7	-282.4
Nile B.	3.2	5.3	8.1	12.6	13.5	16.1	-	-	-	-	13.1	53.3
Societe Arabe Int.	-	-	-	64.7	55.0	56.4	44.5	43.7	39.9	33.5	43.7	-8.6
Union National	-	-	-	74.9	91.5	91.4	62.4	51.2	-25.2	35.2	51.2	-18.0
United Bank	4.5	12.1	18.7	17.1	-	-	-	-	-	-	17.9	54.3

Table II-8 Lending for the Manufacturing Sector by Egyptian Banks

Institutions - (%)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR.
Privatized Banks												
Alex. Commercial	-	-	-	-	-	-	-	13.3	11.4	15.1	13.3	9.4
Misr Romania	-	14.9	14.0	15.7	13.2	15.1	21.9	18.9	32.4	30.6	15.7	3.2
Cairo Far East	-	-	26.6	12.5	6.2	9.3	-	-	-	-	10.9	-50.1
Commercial International	-	51.4	49.0	48.4	45.4	51.9	45.3	40.0	37.4	36.6	45.4	-5.5
Egyptian American	-	48.7	51.2	57.9	61.7	35.3	-	-	-	-	51.2	5.8
Delta International	-	-	26.7	27.8	26.6	32.8	38.8	40.8	38.3	50.5	35.6	5.1
Egyptian Commercial	24.3	30.2	36.6	34.4	28.9	23.3	39.1	32.5	27.7	-	30.2	-10.4
Egyptian Saudi Finance	-	10.5	13.3	11.0	9.0	15.5	17.5	15.0	16.2	1.9	13.3	-3.0
Misr International	-	36.9	35.5	36.8	32.3	36.7	40.3	-	-	-	36.8	3.6
National Soc. Gen.	49.5	47.8	43.0	41.5	39.0	40.4	39.2	39.3	54.9	56.4	42.3	-3.0
Suez Canal	19.6	18.2	17.3	14.5	15.0	16.2	18.9	18.5	25.2	23.4	18.3	-2.1
Other Private Banks												
Arab Banking Co.	-	17.9	17.3	16.4	19.7	17.6	14.4	23.4	25.5	26.9	17.9	1.1
Bnp Paribas	-	35.4	36.8	42.6	45.5	25.7	19.2	16.7	13.0	8.0	25.7	-17.6
Egyptian Workers	-	45.6	35.3	26.3	30.9	28.6	37.5	38.0	-	-	35.3	-3.0
El Watany B.	-	-	-	-	-	-	-	-	25.7	31.7	28.7	23.6
Islamic International	14.4	16.1	14.7	13.4	13.5	15.0	-	-	-	-	14.6	0.8
Societe Arabe Int.	-	-	38.1	35.9	46.2	39.5	36.8	41.1	38.7	40.6	39.1	-5.6
United Bank	19.2	26.4	17.9	18.8	-	-	-	-	-	-	19.0	5.0

Table II-9 Lending for the Trade Sector by Egyptian Banks

Institutions - (%)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR.
Privatized Banks												
Alex. Commercial	-	-	-	-	-	-	-	45.5	40.5	38.8	40.5	-7.6
Misr Romania	-	73.8	72.8	62.3	58.2	26.2	37.0	36.4	16.5	23.1	37.0	-4.1
Cairo Far East	-	-	31.2	12.8	14.2	14.3	-	-	-	-	14.2	0.8
Commercial International	-	7.1	7.4	7.6	7.1	6.2	3.7	4.4	9.3	1.8	7.1	-1.6
Egyptian American	-	11.3	9.0	7.2	8.3	3.2	-	-	-	-	8.3	-20.1
Delta International	-	-	27.4	25.4	24.1	18.6	16.9	5.0	7.7	5.4	17.7	-9.2
Egyptian Commercial	50.7	50.2	45.5	28.3	28.5	26.4	28.3	12.5	13.0	-	28.3	-4.3
Egyptian Saudi Finance	-	61.9	51.3	40.3	35.6	31.3	28.4	33.3	40.2	38.0	38.0	-10.5
Misr International	-	23.6	23.3	23.4	21.2	19.1	19.4	-	-	-	22.3	-1.2
National Soc. Gen.	21.4	21.3	19.4	15.7	13.9	10.3	14.0	12.9	11.2	9.5	14.0	-11.1
Suez Canal	52.0	50.2	45.3	58.1	58.7	59.3	58.2	59.2	27.6	39.1	55.1	0.9
Other Private Banks												
Arab Banking Co.	-	41.0	48.1	51.9	51.9	52.5	53.4	24.8	17.9	11.2	48.1	0.6
Bnp Paribas	-	47.1	41.5	35.7	33.9	45.2	41.8	49.6	45.9	48.9	45.2	-6.3
Egyptian Workers	-	40.0	50.5	53.6	47.0	50.2	50.3	53.8	-	-	50.3	6.6
El Watany B.	-	-	-	-	-	-	-	-	23.1	22.0	22.6	-4.6
Islamic International	51.9	59.9	56.5	58.3	58.0	55.1	-	-	-	-	57.3	-0.5
Societe Arabe Int.	-	-	51.4	58.7	42.2	45.0	41.2	25.0	28.0	23.6	41.7	-8.4
United Bank	38.0	31.5	27.2	29.9	-	-	-	-	-	-	30.7	-13.7

Table II-10 Lending for the Service Sector by Egyptian Banks

Institutions - (%)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR.
Privatized Banks												
Alex. Commercial	-	-	-	-	-	-	-	24.6	25.0	22.6	24.6	-3.9
Misr Romania	-	1.5	1.4	1.9	5.8	5.1	12.7	7.0	4.3	5.7	5.1	12.3
Cairo Far East	-	-	34.2	13.9	13.7	18.3	-	-	-	-	16.1	-1.4
Commercial International	-	30.5	30.2	30.5	30.8	36.0	37.8	37.3	37.1	44.4	36.0	1.0
Egyptian American	-	25.7	22.1	17.3	12.0	4.1	-	-	-	-	17.3	-26.1
Delta International	-	-	31.1	32.2	34.0	28.4	34.3	38.6	39.3	25.0	33.1	3.6
Egyptian Commercial	1.8	13.6	12.7	28.2	28.0	19.1	44.7	25.3	30.3	-	25.3	9.5
Egyptian Saudi Finance	-	7.1	12.8	24.2	22.9	22.3	19.6	18.3	14.8	15.7	18.3	-4.1
Misr International	-	20.5	33.6	33.7	38.4	35.8	33.8	-	-	-	33.7	0.3
National Soc. Gen.	8.0	9.5	17.4	24.1	27.1	24.2	26.9	26.0	17.3	17.6	20.9	10.9
Suez Canal	26.5	33.0	28.1	18.2	17.5	18.5	17.4	16.3	22.8	28.8	20.6	-4.2
Other Private Banks												
Arab Banking Co.	-	19.6	21.5	24.1	20.7	13.7	10.3	31.5	37.1	10.8	20.7	-2.2
Bnp Paribas	-	15.7	12.0	6.9	8.5	10.1	13.9	10.7	14.7	13.5	12.0	5.3
Egyptian Workers	-	9.2	2.0	2.7	1.6	2.2	1.8	2.2	-	-	2.2	2.1
El Watany B.	-	-	-	-	-	-	-	-	21.9	21.5	21.7	-1.6
Islamic International	22.4	10.8	11.1	9.9	9.7	10.9	-	-	-	-	10.9	-1.6
Societe Arab Int.	-	-	5.7	3.0	7.5	9.3	10.4	18.6	16.2	18.9	9.9	17.0
United Bank	31.8	27.8	39.0	39.6	-	-	-	-	-	-	35.4	1.6

Table II-11 Lending for the Agriculture Sector by Egyptian Banks

Institutions - (%)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR.
Privatized Banks												
Alex. Commercial	-	-	-	-	-	-	-	1.2	1.0	0.9	1.0	-13.2
Misr Romania	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cairo Far East	-	-	2.1	0.8	10.1	15.6	-	-	-	-	6.1	54.1
Commercial Int.	-	0.6	0.7	0.6	0.6	0.7	0.4	0.3	0.3	0.2	0.6	-9.9
Egyptian American	-	3.2	2.1	2.7	2.2	1.7	-	-	-	-	2.2	-20.7
Delta International	-	-	0.1	0.0	0.9	1.2	1.4	0.4	0.6	2.1	0.8	27.9
Egyptian Commercial	0.2	0.1	0.1	0.0	0.0	11.4	1.2	0.7	0.6	-	0.2	-21.5
Egyptian Saudi Finance	-	0.8	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	-5.1
Misr International	-	2.6	2.4	2.0	2.2	2.0	2.1	-	-	-	2.2	-5.0
National Soc. Gen.	1.8	1.8	1.4	0.7	0.9	0.5	1.2	1.1	0.9	0.8	1.0	-13.3
Suez Canal	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.5	0.2	1.8	0.5	-6.5
Other Private Banks												
Arab Banking Co.	-	0.7	1.0	0.7	0.7	0.7	4.8	0.0	0.0	0.0	0.7	0.9
Bnp Paribas	-	0.0	6.9	8.3	4.1	2.5	2.9	4.2	5.9	5.4	4.2	15.1
Egyptian Workers	-	0.0	0.0	0.0	0.0	-	0.0	0.0	-	-	0.0	0.0
El Watany B.	-	-	-	-	-	-	-	-	5.1	3.9	4.5	-22.9
Islamic International	3.0	4.5	3.8	4.9	5.0	5.1	-	-	-	-	4.7	2.6
Societe Arab Int.	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United Bank	0.1	1.3	0.0	0.0	-	-	-	-	-	-	0.1	-93.4

Table II-12 Lending for the Banking Sector by Egyptian Banks

Institutions - (%)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR.
Privatized Banks												
Alex. Commercial	-	-	-	-	-	-	-	15.4	22.1	22.5	22.1	22.7
Misr Romania	-	9.8	11.8	20.1	22.7	53.5	28.5	37.8	46.8	40.6	28.5	22.0
Cairo Far East	-	-	0.0	0.0	0.0	0.0	-	-	-	-	0.0	0.0
Commercial Int.	-	3.8	4.9	5.9	8.3	1.8	5.1	8.5	7.3	8.3	5.9	23.8
Egyptian American	-	0.8	0.8	13.9	1.8	4.6	-	-	-	-	1.8	76.0
Delta International	-	-	11.4	11.5	10.7	14.0	4.1	5.0	6.6	9.3	10.0	22.4
Egyptian Commercial	0.0	0.0	0.0	0.0	0.0	0.3	1.3	1.2	0.1	-	0.0	-11.9
Egyptian Saudi Finance	-	14.3	17.8	17.6	25.7	23.4	27.4	22.9	16.6	12.5	17.8	-5.1
Misr International	-	6.4	5.1	4.1	5.8	6.4	4.4	-	-	-	5.5	-18.9
National Soc. Gen.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Suez Canal	2.5	1.0	0.4	0.8	0.6	0.0	0.0	0.0	0.4	0.4	0.4	-59.5
Other Private Banks												
Arab Banking Co.	-	16.5	5.5	0.0	1.2	8.2	8.9	9.9	3.2	0.0	5.5	-66.7
Bnp Paribas	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Egyptian Workers	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0
El Watany B.	-	-	-	-	-	-	-	-	0.0	0.0	0.0	-97.3
Islamic International	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	0.0	0.0
Societe Arab Int.	-	-	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-100.0
United Bank	0.0	0.1	0.8	0.7	-	-	-	-	-	-	0.4	941.0

Table II-13 Lending for the Household Sector by Egyptian Banks

Institutions - (%)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR.
Privatized Banks												
Alex. Commercial	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0
Misr Romania	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cairo Far East	-	-	5.9	2.6	3.1	11.4	-	-	-	-	4.5	20.3
Commercial International	-	6.5	30.2	7.1	7.8	9.5	7.7	9.5	8.7	8.8	8.7	5.8
Egyptian American	-	11.1	15.0	1.0	14.0	51.1	-	-	-	-	14.0	149.8
Delta International	-	-	3.2	3.2	3.5	5.0	4.5	10.3	7.5	7.7	4.8	3.5
Egyptian Commercial	7.2	5.9	5.1	9.2	14.6	19.5	28.7	25.3	28.3	-	14.6	22.8
Egyptian Saudi Finance	-	5.4	4.7	6.8	6.7	7.3	6.9	1.0	12.0	14.4	6.8	3.9
Misr International	-	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	0.0	0.0
National Soc. Gen.	9.6	10.9	10.4	9.9	11.8	15.7	18.8	20.8	15.7	17.5	13.7	12.0
Suez Canal	10.3	10.6	8.4	7.9	7.8	5.6	5.1	5.5	5.7	6.6	7.2	-1.3
Other Private Banks												
Arab Banking Co.	-	4.3	6.7	6.9	5.9	7.4	8.3	10.4	16.9	21.7	7.4	25.7
Bnp Paribas	-	1.7	2.8	6.4	8.1	16.4	22.1	18.8	20.5	24.2	16.4	30.4
Egyptian Workers	-	5.2	12.2	17.4	20.5	19.0	10.5	6.0	-	-	12.2	5.3
El Watany B.	-	-	-	-	-	-	-	-	24.3	20.8	22.5	-14.3
Islamic International	8.2	8.7	14.0	13.6	13.8	13.8	-	-	-	-	13.7	1.4
Societe Arab Int.	-	-	4.3	2.3	4.1	6.3	11.6	15.4	17.0	13.9	8.9	32.6
United Bank	10.9	12.8	15.0	10.9	-	-	-	-	-	-	11.8	17.1

Table II-14 The Portion of Credit in a Form of Loans by Egyptian Banks

Institutions - (%)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR.
Privatized Banks												
Alex. Commercial	-	-	-	-	-	-	-	78.4	81.6	43.4	78.4	-21.4
Arab African Int.	66.3	67.5	25.3	54.0	36.9	62.7	46.2	77.7	5.4	6.9	50.1	1.7
Bank of Alex.	-	-	-	-	-	-	54.8	71.4	78.0	76.5	73.9	9.4
Cairo Barclays	-	-	76.4	77.0	65.2	65.6	59.8	69.4	68.2	48.9	66.9	-1.7
Misr Romania	73.9	74.8	71.9	68.5	68.6	49.9	69.0	80.2	70.4	37.6	69.7	-3.9
Cairo Far East	-	48.7	48.7	69.4	71.7	73.2	-	-	-	-	69.4	2.7
Commercial International	91.5	91.1	86.4	84.9	84.6	84.4	80.5	83.2	64.3	62.9	84.5	-1.8
Egyptian American	96.9	93.9	68.5	79.3	63.6	60.3	52.4	-	-	-	68.5	-9.1
Delta International	85.9	86.6	84.7	84.5	74.2	73.2	42.2	73.4	84.8	90.6	84.6	-0.2
Egyptian Commercial	86.7	88.0	90.6	85.6	75.4	77.6	93.3	74.2	81.8	77.4	83.7	1.4
Egyptian Saudi Finance	0.6	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	-22.8
Misr International	96.9	94.7	68.9	81.7	81.8	77.8	65.5	-	-	-	81.7	-3.6
National Development	77.8	73.6	74.9	74.1	73.2	80.1	92.6	85.9	78.2	69.6	76.4	-1.1
National Soc. Gen.	87.2	82.9	81.7	77.7	76.2	76.8	64.4	76.7	84.5	68.3	77.3	-2.0
Suez Canal	93.7	91.6	99.7	97.5	78.8	81.1	84.3	98.5	71.0	70.7	87.9	-0.4
Other Private Banks												
Arab Banking Co.	98.2	70.0	78.4	85.9	74.4	88.8	89.2	90.5	51.7	53.6	82.1	1.5
Bnp Paribas	-	84.4	83.5	77.4	73.6	79.1	94.1	78.2	80.3	62.0	79.1	-3.0
Egyptian Gulf	80.0	80.6	70.1	76.9	83.3	92.5	60.6	88.9	95.9	89.9	82.0	7.8
Egyptian Workers	-	81.1	100.0	98.1	95.6	-	92.2	95.2	-	-	95.4	0.7
El Watany B.	89.4	86.4	80.0	90.8	83.4	85.5	92.8	96.8	80.9	67.0	86.0	-3.4
Hsbc B.	86.9	87.5	90.9	71.7	60.2	72.0	81.6	77.3	70.0	65.3	74.6	-5.3
Islamic International	90.8	89.3	96.5	96.4	93.7	97.3	-	-	-	-	95.1	-0.1
Misr Iran	98.1	99.7	98.3	69.0	66.8	53.1	56.3	59.8	52.1	56.4	63.3	-1.4
Nile B.	96.7	87.1	78.4	82.8	77.1	76.5	-	-	-	-	80.6	-6.8
Societe Arab Int.	91.8	92.7	93.8	82.2	91.0	72.0	84.2	95.3	62.4	100.0	91.4	1.3
United Bank	78.5	81.0	74.4	74.2	-	-	-	-	-	-	76.5	-0.3

Table II-15 The Portion of Credit in a Form of Treasury Bills by Egyptian Banks

Institutions - (%)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR.
Privatized Banks												
Alex. Commercial	-	-	-	-	-	-	-	5.3	6.1	52.7	6.1	387.7
Arab African Int.	16.7	16.1	7.6	4.1	61.2	36.5	51.5	20.0	87.5	87.1	28.3	-3.6
Bank of Alex.	-	-	-	-	-	-	42.3	27.0	21.0	22.9	25.0	-22.4
Cairo Barclays	-	-	23.6	23.0	34.8	34.4	40.2	30.6	31.8	51.1	33.1	3.9
Misr Romania	14.4	14.8	18.8	19.3	18.3	31.3	31.0	16.8	29.6	62.3	19.0	2.7
Cairo Far East	-	48.7	48.7	20.8	18.9	18.6	-	-	-	-	20.8	-5.3
Commercial International	6.1	6.6	10.5	11.2	14.1	14.5	18.7	16.1	30.4	25.2	14.3	9.4
Egyptian American	3.0	6.1	31.0	19.9	31.6	37.5	44.8	-	-	-	31.0	39.2
Delta International	11.0	10.7	9.8	10.0	18.9	15.8	44.2	15.4	15.1	9.4	13.0	-2.4
Egyptian Commercial	13.1	11.8	7.7	14.4	22.1	19.5	3.2	23.8	18.2	22.6	16.3	-10.3
Egyptian Saudi Finance	98.4	99.2	99.9	99.9	99.9	99.9	100.0	100.0	96.8	100.0	99.9	0.0
Misr International	2.9	3.5	20.6	8.9	11.4	19.0	33.1	-	-	-	11.4	47.3
National Development	0.5	8.0	5.8	8.6	9.4	4.0	6.9	13.5	21.8	30.4	8.3	47.2
National Soc. Gen.	12.6	13.7	16.7	21.5	21.7	15.9	27.6	9.8	10.1	22.5	16.3	8.9
Suez Canal	3.1	3.7	0.0	0.7	18.1	16.5	13.6	0.2	27.1	27.9	8.6	-3.1
Other Private Banks												
Arab Banking Co.	0.8	14.9	21.6	14.1	24.9	10.5	10.7	9.5	48.3	46.4	14.5	1.8
Bnp Paribas	-	15.6	16.5	22.6	26.4	20.9	5.9	21.8	19.7	38.0	20.9	11.4
Egyptian Gulf	4.2	1.5	18.6	16.7	14.2	5.3	39.4	10.2	4.1	10.1	10.2	-15.1
Egyptian Workers	-	12.9	0.0	0.0	0.0	-	0.0	0.0	-	-	0.0	-100.0
El Watany B.	10.4	13.5	8.8	4.1	8.0	11.4	6.4	3.2	19.1	33.0	9.6	29.3
Hsbc B.	5.6	5.6	9.1	28.3	39.8	22.9	18.1	22.6	29.8	34.6	22.8	24.7
Islamic International	9.2	10.7	3.5	3.6	6.3	2.7	-	-	-	-	4.9	3.5
Misr Iran	0.0	0.0	0.5	24.5	16.2	3.9	10.2	0.3	7.3	5.6	4.7	-23.2
Nile B.	3.3	12.9	21.6	17.2	22.9	23.5	-	-	-	-	19.4	32.7
Societe Arab Int.	8.1	7.3	6.2	17.8	9.0	28.0	15.8	4.7	37.6	0.0	8.5	-15.6
United Bank	9.5	0.0	9.8	11.7	-	-	-	-	-	-	9.6	-40.4

Table II-16 The Portion of Credit in a Form of Bonds by Egyptian Banks

Institutions - (%)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR.
Privatized Banks												
Alex. Commercial	-	-	-	-	-	-	-	11.9	8.8	3.9	8.8	-41.0
Arab African Int.	16.1	15.5	60.2	38.3	1.0	0.2	1.3	1.2	5.8	5.0	5.4	-6.7
Bank of Alex.	-	-	-	-	-	-	2.4	0.9	0.9	0.5	0.9	-39.6
Cairo Barclays	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Misr Romania	11.0	9.8	9.1	12.1	12.8	17.9	0.0	3.0	0.0	0.0	9.5	-7.9
Cairo Far East	-	0.0	0.0	8.4	9.2	0.0	-	-	-	-	0.0	-45.1
Commercial International	2.4	2.2	2.4	2.1	1.3	1.0	0.4	0.2	4.7	11.5	2.2	-10.9
Egyptian American	0.1	0.0	0.0	0.0	3.3	0.9	1.5	-	-	-	0.1	-72.5
Delta International	2.8	2.5	4.5	4.4	6.1	10.2	12.5	10.0	0.0	0.0	4.4	10.5
Egyptian Commercial	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-100.0
Egyptian Saudi Finance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Misr International	0.0	1.8	10.5	9.3	6.8	3.2	1.4	-	-	-	3.2	-18.8
National Development	20.6	17.6	18.9	16.8	16.9	15.4	0.0	0.0	0.0	0.0	16.1	-10.1
National Soc. Gen.	0.0	3.2	1.4	0.5	1.7	5.2	6.1	11.9	5.3	9.0	4.2	44.1
Suez Canal	2.0	1.8	0.0	1.8	3.0	2.2	1.6	1.3	0.9	0.6	1.7	-28.2
Other Private Banks												
Arab Banking Co.	0.0	14.6	0.0	0.0	0.6	0.7	0.0	0.0	0.0	0.0	0.0	-100.0
Bnp Paribas	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Egyptian Gulf	13.7	16.2	11.3	6.4	2.2	2.2	0.0	0.0	0.0	0.0	2.2	-43.3
Egyptian Workers	-	3.8	0.0	0.9	2.5	-	1.7	0.3	-	-	1.3	-80.7
El Watany B.	0.0	0.0	9.3	2.8	8.5	2.6	0.8	0.0	0.0	0.0	0.4	-69.3
Hsbc B.	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	-100.0
Islamic International	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	0.0	0.0
Misr Iran	0.4	0.3	0.9	6.1	16.3	41.5	31.8	37.6	2.4	2.5	4.3	18.0
Nile B.	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	0.0	0.0
Societe Arab Int.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United Bank	8.3	16.4	15.7	14.1	-	-	-	-	-	-	14.9	-3.8

Table II-17 The Portion of Credit in a Form of Securities by Egyptian Banks

Institutions - (%)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR
Privatized Banks												
Alex. Commercial	-	-	-	-	-	-	-	4.3	3.4	0.1	3.4	-59.1
Arab African Int.	0.9	1.0	6.9	3.6	0.9	0.6	1.0	1.1	1.3	1.0	1.0	4.1
Bank of Alex.	-	-	-	-	-	-	0.5	0.7	0.1	0.1	0.3	-43.9
Cairo Barclays	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Misr Romania	0.7	0.5	0.2	0.2	0.3	0.9	0.1	0.0	0.0	0.0	0.2	-33.9
Cairo Far East	-	2.6	2.6	1.4	0.2	8.2	-	-	-	-	2.6	-23.0
Commercial International	0.0	0.0	0.7	1.8	0.1	0.2	0.3	0.4	0.6	0.4	0.4	45.0
Egyptian American	0.0	0.0	0.5	0.8	1.5	1.4	1.2	-	-	-	0.8	38.8
Delta International	0.3	0.3	1.0	1.1	0.7	0.8	1.2	1.1	0.1	0.0	0.8	-5.7
Egyptian Commercial	0.1	0.3	0.0	0.0	2.5	2.8	3.5	2.0	0.0	0.0	0.2	-25.6
Egyptian Saudi Finance	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	-100.0
Misr International	0.1	0.0	0.1	0.0	0.0	0.0	0.0	-	-	-	0.0	-100.0
National Development	1.1	0.8	0.3	0.5	0.5	0.5	0.5	0.6	0.0	0.0	0.5	-11.9
National Soc. Gen.	0.2	0.2	0.2	0.2	0.4	2.2	1.9	1.6	0.2	0.2	0.2	-12.2
Suez Canal	1.2	2.9	0.3	0.0	0.0	0.2	0.5	0.0	1.0	0.9	0.4	-14.2
Other Private Banks												
Arab Banking Co.	1.0	0.4	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	-100.0
Bnp Paribas	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Egyptian Gulf	2.1	1.8	0.0	0.0	0.3	0.0	0.0	0.8	0.0	0.0	0.0	-57.9
Egyptian Workers	-	2.3	0.0	1.1	1.9	-	6.1	4.4	-	-	2.1	-27.5
El Watany B.	0.1	0.1	1.9	2.3	0.1	0.4	0.1	0.0	0.0	0.0	0.1	-55.1
Hsbc B.	7.5	6.8	0.0	0.0	0.0	0.0	0.3	0.2	0.2	0.1	0.1	-8.3
Islamic International	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	0.0	0.0
Misr Iran	1.5	0.0	0.3	0.3	0.7	1.4	1.7	2.3	38.3	35.4	1.4	30.1
Nile B.	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	0.0	0.0
Societe Arab Int.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-78.3
United Bank	3.7	2.7	0.0	0.0	-	-	-	-	-	-	1.3	-69.2

Table II-22 Revenues to Total Assets Ratio of Egyptian Financial Institutions

Institutions- (%)		Sec. 2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR.
Privatized Financial Institutions													
Alex. Commercial	Ba	4.18	3.68	3.18	3.16	2.25	3.03	2.54	4.59	3.23	2.34	3.17	-0.14
Arab African Int.	Ba	5.00	4.16	3.18	4.55	3.16	4.68	2.69	3.69	0.99	1.34	3.44	-0.17
Bank of Alex.	Ba	-	-	-	-	-	-	3.55	6.84	9.03	7.50	7.17	0.32
Cairo Barclays	Ba	-	-	4.86	5.07	4.80	5.28	3.06	2.24	4.12	3.68	4.46	-0.05
Misr Romania	Ba	4.66	5.03	3.82	4.00	2.59	3.42	4.02	3.06	2.89	1.73	3.62	-0.06
Cairo Far East	Ba	-	1.06	4.19	5.37	3.06	3.01	-	-	-	-	3.06	0.13
Commercial International	Ba	-	-	-	5.83	5.71	6.67	6.05	6.25	6.67	6.25	6.25	0.01
Credit Agricole	Ba	-	-	-	5.93	3.98	6.29	5.85	6.19	6.82	6.09	6.09	-0.01
Delta International	Ba	6.86	6.29	5.57	5.76	5.42	5.71	0.53	0.49	3.81	3.70	5.50	-0.06
Egyptian American	Ba	4.79	4.36	4.37	3.98	4.87	5.84	2.12	-	-	-	4.37	-0.04
Egyptian Commercial	Ba	3.49	2.54	3.15	2.87	2.67	2.77	4.01	2.15	1.99	2.42	2.72	-0.07
Egyptian Saudi Finance	Ba	2.70	3.02	1.71	2.87	2.18	1.97	1.71	2.17	2.44	2.93	2.31	0.12
Misr International	Ba	4.01	3.71	3.40	3.18	3.71	4.38	1.92	-	-	-	3.71	-0.07
National Development	Ba	-	-	-	6.86	6.71	6.88	6.19	3.69	5.80	5.09	6.19	-0.06
National Soc. Gen.	Ba	-	-	7.72	6.56	7.25	6.47	6.67	6.38	6.96	6.42	6.62	-0.04
Suez Canal	Ba	-	-	7.10	5.84	5.29	6.63	6.55	6.34	7.14	5.82	6.44	-0.03
El Kahera Housing	Fi	33.98	17.37	11.14	13.45	6.92	6.15	7.41	8.65	2.86	4.44	8.03	-0.11
Export Development	Fi	-	-	-	1.41	1.78	1.89	-	-	-	-	1.78	0.16
Heliopolis Housing	Fi	-	-	21.65	15.82	13.42	14.36	16.90	29.22	23.35	11.03	16.36	-0.15
Medinet Nasr Hous.	Fi	8.17	4.03	7.59	6.22	18.11	11.21	18.68	17.22	24.70	45.99	14.21	0.43
T M G Holding	Fi	-	-	-	-	-	-	-	-	10.93	8.89	9.91	-0.19
United Housing	Fi	17.66	16.85	22.99	19.51	24.05	21.02	19.14	21.92	23.52	20.25	20.64	-0.05
Other Private Financial Institutions													
Al Baraka	Ba	-	-	7.82	6.90	6.30	6.55	6.32	6.64	7.65	6.90	6.77	-0.04
Arab Banking Co.	Ba	-	-	2.49	3.31	3.57	4.09	5.34	2.32	3.31	-	3.31	0.23
Bnp Paribas	Ba	-	2.81	1.42	2.66	2.31	2.29	2.01	1.71	4.39	0.90	2.29	-0.13
Egyptian Gulf	Ba	-	-	6.40	4.49	5.37	5.46	6.40	6.18	7.09	6.41	6.29	0.02
Egyptian Workers	Ba	-	8.69	5.44	4.36	2.48	-	0.00	0.00	-	-	3.42	-0.37
El Watany B.	Ba	-	-	8.03	7.19	6.63	6.79	9.00	7.94	9.23	7.33	7.64	-0.08
Faisal B.	Ba	-	-	4.48	3.53	3.38	4.65	4.96	5.45	5.83	4.64	4.64	0.07
Hsbc B.	Ba	4.86	4.29	4.59	4.32	4.46	4.85	5.05	5.01	4.04	5.41	4.72	0.03
Islamic International	Ba	0.38	0.59	0.40	1.74	-0.34	-1.15	-	-	-	-	0.39	0.57
Misr Iran	Ba	6.49	5.55	3.95	6.81	3.85	4.26	3.03	3.77	4.15	2.73	4.05	-0.14
Nile B.	Ba	7.16	6.36	2.13	1.46	1.30	1.03	-	-	-	-	1.79	-0.21
Societe Arabe Int.	Ba	8.06	8.33	7.38	6.79	6.18	6.47	6.59	6.32	8.09	7.52	7.08	-0.04
Union National	Ba	-	-	-	6.82	6.46	6.06	5.45	6.32	6.68	6.21	6.32	-0.06
United Bank	Ba	2.99	2.52	2.38	0.31	-	-	-	-	-	-	2.45	-0.16
CIIC Insurance Co.	Fi	-	15.23	-1.12	2.49	2.08	2.62	-	-	-	-	2.49	-1.00
Al Ahly Development	Fi	-	-	-	2.30	3.35	12.11	6.69	13.11	-7.49	9.56	6.69	0.00
Al Ahram Co Stock Exchange	Fi	-	-	-	12.87	15.69	10.08	32.03	19.37	41.34	-	17.53	0.22
Al Arafa Investment	Fi	-	-	-	-	-	-	120.30	102.33	78.38	-	102.33	-0.19
Arab Gathering	Fi	-	-	0.60	5.53	2.72	10.44	10.11	3.97	24.39	-	5.53	1.40
Arab Misr Insurance	Fi	-	-	0.61	1.36	1.94	2.18	1.94	2.25	4.57	1.09	1.94	0.16
Commercial International	Fi	-	6.75	7.32	5.86	11.75	0.26	0.60	0.16	0.11	-	3.23	-0.20
Delta Insurance	Fi	0.20	0.24	0.39	1.01	2.79	2.69	2.94	3.49	-0.39	0.32	0.70	0.19
Efg Hermes	Fi	2.55	1.38	1.35	1.25	0.99	0.78	0.79	2.04	1.91	1.19	1.30	-0.08
Egyptian American-Securities	Fi	-	-	-	-	-	12.46	29.75	30.05	42.28	-	29.90	0.41
Egyptian Financial & Industrial	Fi	20.37	26.50	28.13	34.61	40.78	37.23	32.93	37.50	46.57	-	34.61	0.16
Hermes Holding	Fi	23.21	10.28	8.21	10.05	20.23	33.22	9.77	13.08	15.45	-	13.08	0.20
Egyptian Kuwaiti Ho.	Fi	0.00	1.30	2.05	3.89	0.34	17.13	12.52	15.84	23.11	-	3.89	0.46
Egyptians Abroad	Fi	-	2.72	14.61	6.04	2.94	16.51	1.58	3.36	9.36	-	4.70	1.13
El Ahli Investment	Fi	-	-	1.71	0.82	2.52	5.98	1.10	2.48	6.17	-	2.48	1.31
El Kahera El Watania	Fi	-	1.28	6.68	15.79	0.23	0.97	0.93	1.85	14.37	-	1.57	1.36
Sonid	Fi	1.07	-	2.38	1.48	5.00	4.06	3.41	4.89	-	-	3.41	-0.16
Hermes Co.	Fi	-	-	-	70.90	43.12	96.97	69.10	0.00	-	-	69.10	-0.34
Housing & Development	Fi	-	-	8.42	7.85	7.93	8.30	7.83	7.48	8.78	4.86	7.89	-0.05
Kuwaiti Egyptian Investment	Fi	-	-	0.41	0.30	0.02	0.19	10.49	3.16	-	-	0.36	-0.27
Mansour & Maghrabyent	Fi	-	-	2.77	0.16	8.00	0.00	0.00	10.39	10.00	-	2.77	-0.49
Misr Financial Investments	Fi	-	-	1.04	2.81	6.51	17.12	11.45	12.20	16.94	-	11.45	0.85
Mohandes Insurance	Fi	-	4.53	5.15	1.99	1.83	1.61	1.44	2.30	1.08	0.92	1.83	-0.11
Nile City Investment	Fi	-	-	-	-	0.00	19.98	18.94	7.71	-	-	13.33	-0.32
Osool Esb Securities	Fi	-	-	17.29	25.05	24.59	14.41	55.36	23.30	48.62	-	24.59	0.22
Prime Investments	Fi	-	-	-	-	-	-	38.26	101.43	115.01	-	101.43	0.89
Prime Securities	Fi	-	-	-	-	-	11.44	12.64	28.29	-	-	12.64	0.67
Saudi Egyptian Investment	Fi	-	-	0.00	6.42	6.18	8.25	30.98	5.37	4.07	-	6.18	-0.04
Suez Canal Insurance	Fi	-	-	20.15	20.46	16.04	17.32	2.85	12.06	9.33	8.46	14.05	-0.09

Notes: Ba. indicates banks and Fi. indicates financial services excluding banks.

Table II-23 Return on Assets Ratio of Egyptian Privatized Non-Financial Institutions

Institutions-	(%)Se	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR.
Acrow Misr	Co	8.12	8.27	7.88	7.49	6.33	12.18	9.95	8.86	12.42	13.29	8.56	-0.05
Alexandria	Co	-	-	-	-4.03	5.50	19.41	17.23	14.59	21.79	24.07	17.23	0.00
El Saeed	Co	-	1.58	1.44	0.32	-2.86	0.62	1.89	2.27	3.76	11.01	1.58	0.06
El Shams For	Co	4.57	3.78	3.56	4.24	4.37	4.64	5.50	-13.42	5.58	5.27	4.47	-0.06
Giza General Contracting	Co	-	-	-	-	0.39	0.21	0.42	0.49	1.46	2.71	0.45	0.86
Misr Beni Suef	Co	-	3.26	-6.07	2.85	6.70	17.07	23.55	13.80	12.65	19.53	12.65	0.15
Nasr Co for Civil	Co	10.40	9.46	9.57	6.93	6.33	1.98	3.71	4.46	7.63	8.84	7.28	0.01
Paints Che.	Co	11.47	9.02	9.82	12.05	12.41	12.85	14.33	16.43	15.64	12.67	12.54	0.04
Moukhtar	Co	3.08	2.21	2.78	3.14	1.99	3.07	3.01	3.88	3.81	5.26	3.07	0.13
Suez Cement	Co	9.56	2.81	1.83	7.25	11.55	8.45	8.57	10.90	10.75	13.54	9.07	0.02
Tourah Portland	Co	15.41	6.29	0.49	6.33	15.55	47.69	23.85	34.98	23.10	26.29	19.33	0.14
Telecom Egypt	In	6.15	5.00	2.64	3.33	3.03	5.63	6.67	7.14	8.24	9.69	5.89	0.15
Vodafone Egypt	In	-2.71	13.70	5.62	10.64	21.15	15.87	22.08	20.83	-	-	14.79	-0.06
Alexandria Mills	Ma	5.18	0.35	0.98	0.30	1.73	3.86	4.39	1.88	4.62	3.64	2.76	0.14
Cairo Oil	Ma	-	-	-	9.00	8.25	2.43	-4.67	-16.21	-4.79	2.20	2.20	-0.71
Delta Sugar	Ma	5.56	11.06	16.96	18.74	19.41	20.65	25.24	26.73	16.05	9.29	17.85	0.06
Egyptian Co. for	Ma	22.49	24.70	20.83	16.45	14.16	0.99	11.79	13.40	17.87	11.63	15.30	-0.14
Egyptian Starch	Ma	17.41	17.25	17.01	17.35	12.21	11.23	4.82	3.85	3.53	0.29	11.72	-0.08
El Nasr Transformers	Ma	-	-	3.64	3.80	5.35	8.28	11.07	10.60	23.34	10.56	9.42	0.34
Electro Cable	Ma	-6.62	-16.79	-6.49	0.57	-0.59	-1.19	-3.34	-3.54	6.18	8.54	-2.26	0.06
Extracted Oil	Ma	-	5.82	5.32	6.52	7.26	4.76	-4.75	1.32	4.44	4.22	4.76	-0.07
Ismailia Misr	Ma	0.74	0.84	-8.55	-24.32	0.49	2.04	2.05	-29.48	-27.44	0.87	0.62	-0.07
Middle -West	Ma	-	13.21	9.36	8.08	7.52	6.53	10.31	12.91	11.49	9.52	9.52	-0.12
Middle Egypt	Ma	-	7.53	10.74	9.14	3.67	5.28	5.58	4.87	5.30	4.14	5.30	-0.03
Misr.Chemical	Ma	-	-	-	3.34	4.68	5.29	3.12	6.58	4.70	11.99	4.70	0.27
Misr Oils	Ma	8.50	8.86	9.19	7.82	6.39	6.89	4.67	5.29	4.56	2.43	6.64	-0.14
Paper Middle	Ma	-2.40	-8.03	-2.78	-4.93	0.33	-2.35	-4.49	3.54	1.96	-16.87	-2.59	-0.65
Sidi Kerir	Ma	-	-	-	12.53	26.23	26.49	29.41	35.29	29.41	29.22	29.22	0.06
Upper Egypt	Ma	13.47	11.88	14.67	12.74	11.57	12.92	12.51	13.23	15.84	16.58	13.08	0.05
Alexandria	Re	0.00	0.00	0.00	1.87	4.52	5.10	5.31	6.92	10.15	9.54	4.81	0.21
Arab Drug Co.	Re	-	-	-	-	8.06	10.57	13.19	15.34	12.29	8.38	11.43	0.16
Arabia Cotton Ginning	Re	6.65	4.61	3.20	2.16	3.69	5.68	4.27	10.66	9.15	0.93	4.44	-0.25
Eastern Company	Re	11.57	11.58	12.07	11.37	10.23	12.94	13.03	16.18	13.18	12.21	12.14	0.00
Egypt Free Shops	Re	15.87	15.31	13.92	19.77	14.49	15.75	23.43	33.01	34.31	23.40	17.82	0.04
El Nasr Clothing	Re	2.69	3.33	2.89	4.08	-3.38	-7.57	2.54	0.39	-0.80	-0.55	1.47	-0.30
General Silos &	Re	-	6.22	7.54	7.51	7.99	8.38	8.56	5.86	8.80	6.48	7.54	0.03
Memphis	Re	-	14.49	14.03	9.59	9.88	9.91	11.61	10.78	9.54	3.87	9.91	-0.05
Nile for	Re	-	-	14.06	10.58	8.43	9.99	14.30	13.92	14.55	13.68	13.80	-0.03
Nile Cotton	Re	-	2.23	-1.06	-1.68	-4.02	2.24	-6.06	0.28	23.07	4.35	0.28	-0.93
Unirab Polvara	Re	1.48	1.54	1.91	2.62	2.69	1.71	1.47	0.11	-5.08	-6.75	1.51	0.03
Alexandria	Ui	-	-	-	0.11	4.53	20.70	27.43	27.98	27.81	16.43	20.70	0.17
Asec Co.	Ui	-	-	6.05	10.86	15.80	20.16	12.51	12.87	5.82	2.17	11.68	0.03
Rowad Misr	Os	-	-	-	-	-	-	7.56	8.78	9.18	9.51	8.98	0.05
Semiramis Hotels	Os	27.42	25.46	20.86	24.93	27.18	26.51	30.09	28.43	33.46	26.71	26.94	-0.02

Notes: Co. indicates constructions and materials, In. indicates information and technology, Ma. indicates manufacturing, Re.

indicates retail trade, Ut. indicates utilities, and OS. indicates other services.

Table II-24 Return on Equity Ratio of Egyptian Privatized Non-Financial Institutions

Institutions- (%)		Sec. 2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR
Acrow Misr	Co	9.65	10.22	10.90	9.89	8.38	19.90	17.91	20.03	26.06	21.61	14.40	0.06
Alexandria Portland	Co	-	-	-	-22.12	23.69	46.76	32.09	25.20	28.90	32.58	28.90	-0.04
El Saeed Contracting	Co	-	12.30	12.92	2.64	-32.01	7.79	21.39	22.83	4.61	13.22	12.30	-0.37
El Shams For Housing	Co	15.97	12.60	9.85	10.76	10.81	10.85	11.16	-35.95	13.42	12.15	11.00	-0.09
Giza Contracting	Co	-	-	-	-	4.36	2.66	4.92	6.24	16.85	30.18	5.58	0.79
Misr Beni Suef Cement	Co	-	8.19	-19.79	10.20	19.77	35.37	39.60	27.35	24.07	27.90	24.07	0.00
Nasr Civil Works	Co	43.80	36.64	32.87	21.92	18.64	5.44	10.52	11.44	25.90	29.60	23.91	-0.10
Paints & Chemical	Co	19.92	13.27	13.81	15.42	15.93	16.63	17.72	20.59	20.91	17.37	17.00	0.04
Moukhtar Ibrahim	Co	32.51	23.31	22.66	23.93	12.53	19.12	24.36	30.08	27.95	35.56	24.14	0.06
Suez Cement	Co	48.84	7.96	4.66	14.50	20.94	16.89	14.06	17.83	16.39	18.57	16.64	-0.08
Tourah Portland	Co	25.07	12.96	0.84	7.86	23.06	54.50	38.97	51.20	35.27	35.92	30.17	0.02
Telecom Egypt	In	8.00	6.36	3.59	4.78	4.35	7.83	9.60	9.62	10.37	11.48	7.91	0.08
Vodafone Egypt	In	-6.17	30.83	13.87	23.21	45.83	35.71	51.52	49.02	-	-	33.27	-0.05
Alexandria Mills	Ma	22.35	1.97	4.96	1.34	8.22	16.02	16.26	8.08	18.38	11.86	10.04	0.02
Cairo Oil	Ma	-	-	-	21.09	18.03	6.35	-9.33	-45.87	-17.31	7.53	6.35	-0.64
Delta Sugar	Ma	10.84	19.37	26.45	27.07	26.47	30.16	31.77	32.08	19.26	11.11	26.46	0.02
Egyptian Co. for Foods	Ma	39.85	42.06	37.95	23.79	16.79	1.22	13.79	15.73	21.19	17.26	19.22	-0.10
Egyptian Starch	Ma	25.38	25.31	25.34	26.64	23.14	25.17	7.18	6.54	5.47	0.47	24.16	-0.09
El Nasr Transformers	Ma	-	-	9.75	9.67	13.76	20.54	26.53	24.49	45.21	17.30	18.92	0.29
Electro Cable	Ma	-11.16	-33.86	-15.11	1.33	-1.31	-2.78	-8.28	-7.51	7.44	10.20	-5.14	-0.09
Extracted Oil	Ma	-	22.54	20.23	22.47	19.10	14.72	-21.16	1.97	6.24	5.22	14.72	-0.16
Ismailia Misr Poultry	Ma	1.18	1.36	-15.96	-70.11	0.74	3.04	3.20	-77.45	-363.62	-97.09	-7.61	0.05
M&W Delta Mills	Ma	-	33.58	27.14	22.10	24.32	26.13	27.81	27.84	29.97	24.56	27.14	0.03
Middle Egypt Mills	Ma	-	24.53	24.59	22.14	14.12	16.48	13.80	10.31	12.95	9.28	14.12	-0.13
Misr Chemical	Ma	-	-	-	15.08	22.35	21.56	13.92	26.01	15.21	28.00	21.56	0.22
Misr Oils	Ma	28.29	29.57	30.29	27.91	17.85	20.40	14.79	13.05	10.86	5.72	19.12	-0.12
Paper Middle East	Ma	-4.04	-16.57	-5.54	-10.77	0.81	-6.37	-12.95	8.93	4.84	-69.96	-5.95	-0.67
Sidi Kerir Petro	Ma	-	-	-	22.16	40.80	37.84	41.67	46.15	40.00	33.03	40.00	0.01
Upper Egypt Mills	Ma	33.17	30.92	29.61	24.67	23.96	25.32	25.43	27.77	36.86	37.10	28.69	0.00
Alexandria Medical	Re	0.00	0.00	0.00	4.88	10.22	9.96	10.20	12.72	18.57	16.70	10.08	0.14
Arab Drug Co.	Re	-	-	-	-	22.39	19.02	23.27	22.41	17.74	12.04	20.70	-0.15
Arabia Ginning	Re	21.93	25.86	3.94	2.97	4.66	12.28	4.69	12.60	14.65	1.52	8.49	0.16
Eastern Company	Re	33.78	31.30	29.20	26.87	25.57	32.34	26.74	30.26	27.83	26.79	28.51	-0.07
Egypt Free Shops	Re	23.51	23.75	23.45	29.27	34.00	26.51	35.99	41.18	44.03	27.19	28.23	0.07
El Nasr Clothing	Re	3.69	6.51	5.35	7.12	-6.12	-14.05	4.90	0.81	-1.84	-1.40	2.25	-0.24
General Silos	Re	-	13.52	16.62	13.77	18.59	24.48	22.81	17.84	28.05	25.09	18.59	0.08
Memphis	Re	-	29.61	31.77	21.31	21.01	23.15	25.90	18.19	19.46	7.97	21.31	0.03
Nile Pharmaceuticals	Re	-	-	38.82	28.61	23.49	27.93	37.71	30.55	31.64	26.30	29.58	-0.17
Nile Cotton Ginning	Re	-	12.18	-2.16	-3.39	-8.05	4.34	-13.10	0.64	33.52	5.54	0.64	-0.94
Unirab Polvara	Re	4.38	2.52	2.88	3.99	3.87	2.41	1.78	0.12	-5.78	-7.68	2.47	-0.26
Alexandria Oils	Ui	-	-	-	0.30	10.78	36.96	41.87	39.43	38.24	23.00	36.96	0.05
Asec Co.	Ui	-	-	22.45	36.19	41.67	38.70	29.94	17.36	8.44	3.73	26.20	-0.23
Rowad Misr	Os	-	-	-	-	-	-	8.21	9.65	11.35	11.49	10.50	0.18
Semiramis Hotels	Os	31.31	31.64	28.53	33.63	34.60	36.65	41.79	40.24	43.77	32.65	34.12	0.03

Notes: Co. indicates constructions and materials, In. indicates information and technology, Ma. indicates manufacturing, Re.

indicates retail trade, Ut. indicates utilities, and OS. indicates other services.

Table II-25 Debt to Assets Ratio of Egyptian Privatized Non-Financial Institutions

Institutions- (%)	Sec	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR.
Acrow Misr	Co	0.00	0.00	0.37	2.30	0.00	12.06	19.06	36.42	33.64	15.17	7.18	0.25
Alexandria Portland	Co	51.83	39.55	39.61	21.53	30.51	43.29	33.17	23.46	1.14	0.20	31.84	-0.24
El Saeed Contracting	Co	-	58.72	64.08	66.10	71.99	78.14	78.69	73.01	10.74	0.00	66.10	0.02
El Shams For Housing	Co	12.21	12.79	13.60	13.10	12.43	11.26	11.01	11.82	11.10	9.34	12.01	-0.04
Giza General Contracting	Co	-	-	-	-	54.59	51.51	54.67	51.98	44.22	32.51	51.74	-0.06
Misr Beni Suef Cement	Co	-	56.39	59.31	45.54	42.70	25.80	7.66	13.14	3.23	2.54	25.80	-0.22
Nasr Co for Civil Works	Co	0.00	0.00	0.00	0.22	3.54	5.46	5.67	3.29	2.11	5.87	2.70	0.29
Paints & Chemical Industries	Co	19.68	19.80	14.11	6.19	7.10	5.22	1.08	1.30	6.03	7.32	6.65	0.01
Moukhtar Ibrahim	Co	15.40	16.19	9.58	6.51	13.28	6.27	8.99	1.72	4.18	2.95	7.75	-0.29
Suez Cement	Co	14.11	16.87	8.45	0.94	2.98	8.23	2.58	6.40	1.83	0.34	4.69	-0.50
Tourah Portland	Co	16.49	38.88	24.31	0.86	1.08	0.00	0.00	0.00	0.00	0.00	0.43	-0.37
Telecom Egypt	In	10.00	8.93	12.16	15.34	14.85	13.36	17.20	9.16	4.73	2.70	11.08	-0.10
Vodafone Egypt	In	42.14	40.04	45.53	31.38	19.43	13.29	5.75	9.17	-	-	25.40	-0.31
Alexandria Flour Mills	Ma	24.72	15.17	16.18	21.24	28.65	7.03	8.73	24.24	7.63	6.59	15.67	0.07
Cairo Oil	Ma	-	-	-	32.89	7.73	13.69	33.80	40.36	40.79	41.40	33.80	0.10
Delta Sugar	Ma	38.85	28.84	21.72	18.61	9.79	4.56	2.27	0.00	0.00	0.00	7.18	-0.49
Egyptian Co. for Foods	Ma	0.00	0.50	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.29	0.00
Egyptian Starch	Ma	0.83	1.04	0.00	0.00	16.01	27.85	22.62	21.41	27.61	29.38	18.71	0.06
El Nasr Transformers	Ma	-	-	12.34	14.34	15.07	11.70	0.00	0.00	0.00	0.00	5.85	-0.09
Electro Cable	Ma	28.18	34.59	37.91	40.87	45.41	44.79	46.30	42.01	7.88	3.51	39.39	0.03
Extracted Oil	Ma	-	59.07	54.50	53.15	39.30	46.36	47.10	17.07	4.94	0.00	46.36	-0.17
Ismailia Misr Poultry	Ma	2.86	9.23	18.25	32.07	11.36	3.16	3.20	23.63	29.48	22.18	14.80	0.25
Middle & West Delta Mills	Ma	-	9.91	24.56	13.34	2.10	1.26	1.23	0.81	0.13	0.00	1.26	-0.43
Middle Egypt Flour Mills	Ma	-	12.74	19.63	13.83	32.55	10.94	3.45	14.18	14.49	15.35	14.18	0.04
Misr Chemical Industries	Ma	-	-	-	63.63	67.45	65.38	70.81	65.01	58.30	31.63	65.01	-0.06
Misr Oils	Ma	36.03	39.57	37.93	41.40	38.17	42.80	39.43	40.94	42.50	23.87	39.50	0.04
Paper Middle East	Ma	20.49	22.30	24.85	28.59	36.42	40.88	42.52	36.89	38.00	48.32	36.66	0.11
Sidi Kerir Petrochemicals	Ma	-	-	-	24.24	13.19	11.65	5.25	0.35	0.21	0.17	5.25	-0.43
Upper Egypt Flour Mills	Ma	0.08	0.07	3.94	3.48	1.33	0.14	0.12	0.10	0.07	0.05	0.11	-0.20
Alexandria Medical Services	Re	5.26	31.64	24.65	20.71	18.29	15.15	6.26	0.81	1.69	0.64	10.70	-0.17
Arab Drug Co.	Re	-	-	-	-	10.89	4.67	1.88	4.03	0.82	1.77	2.95	-0.57
Arabia Cotton Ginning	Re	45.51	55.41	9.34	17.47	10.77	6.09	3.19	0.16	12.76	10.86	10.81	-0.38
Eastern Company	Re	2.91	0.00	0.00	0.00	1.78	0.00	0.00	0.00	9.44	9.89	0.00	-1.00
Egypt Free Shops	Re	0.57	0.46	1.55	0.67	2.65	1.95	0.80	0.77	0.99	1.86	0.90	-0.04
El Nasr Clothing	Re	17.18	28.68	27.15	28.32	29.93	28.30	7.81	13.89	17.21	19.36	23.26	0.06
General Silos & Storage	Re	-	31.20	29.01	28.54	37.90	29.20	28.75	23.62	18.29	14.33	28.75	-0.12
Memphis	Re	-	3.69	3.69	3.69	2.66	1.34	0.80	0.00	0.00	0.04	1.34	-0.34
Nile for Pharmaceuticals	Re	-	-	6.75	6.01	8.15	1.39	0.47	0.02	0.00	0.00	0.93	-0.75
Nile Cotton Ginning	Re	-	55.04	26.17	29.86	22.06	32.16	35.51	38.74	1.70	7.64	29.86	0.10
Unirab Polvara	Re	41.11	26.14	14.21	15.48	15.95	16.59	5.85	2.17	2.83	0.89	14.85	-0.36
Alexandria Mineral Oils	Ui	-	-	-	47.83	50.00	32.89	24.49	19.28	14.34	13.47	24.49	-0.23
Asec Co.	Ui	-	-	19.34	13.91	12.18	2.94	0.82	0.00	16.03	15.32	13.05	-0.50
Rowad Misr	Os	-	-	-	-	-	-	0.00	0.01	0.20	4.52	0.10	24.60
Semiramis Hotels	Os	0.00	0.00	4.75	0.00	0.00	1.15	0.00	0.47	0.00	0.05	0.00	-1.00

Notes: Co. indicates constructions and materials, In. indicates information and technology, Ma. indicates manufacturing, Re.

indicates retail trade, Ut. indicates utilities, and OS. indicates other services.

Table II-26 Debt to Equity Ratio of Egyptian Privatized Non-Financial Institutions

Institutions- (%)	Sec.	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR.
Acrow Misr	Co	0.00	0.00	0.51	3.04	0.00	19.70	34.32	82.39	70.60	24.67	11.37	0.30
Alexandria Portland	Co	172.84	102.91	180.26	118.22	131.39	104.31	61.77	40.52	1.52	0.27	103.61	-0.34
El Saeed Conrac.	Co	-	457.99	574.79	550.01	806.85	980.38	892.94	735.01	13.15	0.00	574.79	-0.07
El Shams For Ho.	Co	42.66	42.67	37.68	33.27	30.74	26.31	22.35	31.66	26.70	21.55	31.20	-0.12
Giza Contracting	Co	-	-	-	-	616.62	656.68	644.02	667.06	511.45	362.72	630.32	-0.02
Misr Beni Suef Ce.	Co	-	141.63	193.52	163.17	126.07	53.49	12.88	26.06	6.15	3.63	53.49	-0.32
Nasr Civil Works	Co	0.00	0.00	0.00	0.68	10.42	15.00	16.07	8.43	7.15	19.64	7.79	0.26
Paints & Chemical	Co	34.20	29.11	19.85	7.93	9.11	6.76	1.33	1.63	8.06	10.04	8.59	-0.15
Moukhtar Ibrahim	Co	162.56	171.12	78.02	49.70	83.76	39.12	72.71	13.32	30.72	19.94	61.21	-0.35
Suez Cement	Co	72.08	47.80	21.52	1.88	5.40	16.46	4.22	10.47	2.79	0.47	7.94	-0.55
Tourah Portland	Co	26.84	80.10	41.39	1.07	1.61	0.00	0.00	0.00	0.00	0.00	0.53	-0.48
Telecom Egypt	In	13.00	11.36	16.58	22.00	21.30	18.59	24.77	12.34	5.95	3.20	14.79	-0.13
Vodafone Egypt	In	95.77	90.08	112.49	68.46	42.09	29.89	13.42	21.57	-	-	55.28	-0.29
Alexandria Mills	Ma	106.61	86.86	82.09	96.22	136.48	29.16	32.33	103.97	30.40	21.49	84.48	-0.05
Cairo Oil	Ma	-	-	-	77.02	16.90	35.80	67.60	114.23	147.32	141.59	77.02	0.49
Delta Sugar	Ma	75.76	50.52	33.89	26.88	13.35	6.66	2.86	0.00	0.00	0.00	10.01	-0.50
Egyptian Co. Foods	Ma	0.00	0.84	2.42	0.00	0.00	0.00	0.00	0.00	0.00	15.27	0.00	0.44
Egyptian Starch	Ma	1.21	1.53	0.00	0.00	30.33	62.45	33.70	36.37	42.84	48.14	32.01	0.12
El Nasr Transf.	Ma	-	-	33.04	36.51	38.80	29.03	0.00	0.00	0.00	0.00	14.52	-0.09
Electro Cable	Ma	47.54	69.76	88.25	95.92	101.59	104.88	114.64	89.15	9.48	4.19	88.70	0.06
Extracted Oil	Ma	-	228.75	207.11	183.17	103.47	143.44	209.97	25.54	6.95	0.00	143.44	-0.28
Ismailia Poultry	Ma	4.56	14.94	34.07	92.46	17.22	4.71	5.00	62.08	390.68	-2485.05	16.08	1.28
M&W Delta Mills	Ma	-	25.17	71.24	36.50	6.79	5.05	3.33	1.75	0.34	0.00	5.05	-0.48
Middle Flour Mills	Ma	-	41.50	44.92	33.53	125.24	34.13	8.52	30.01	35.41	34.39	34.39	0.03
Misr Chemical	Ma	-	-	-	287.56	322.26	266.37	315.64	256.92	188.53	73.87	266.37	-0.18
Misr Oils	Ma	119.95	132.12	125.03	147.84	106.64	126.80	125.02	100.95	101.13	56.27	122.48	-0.01
Paper Middle East	Ma	34.53	46.03	49.48	62.47	90.06	110.81	122.59	92.96	94.03	200.45	91.51	0.23
Sidi Kerir Petros	Ma	-	-	-	42.88	20.52	16.65	7.44	0.45	0.28	0.19	7.44	-0.45
Upper Egypt Mills	Ma	0.19	0.19	7.95	6.74	2.76	0.27	0.24	0.20	0.16	0.10	0.22	-0.17
Alexandria Medical	Re	18.18	138.90	69.91	54.07	41.32	29.62	12.02	1.49	3.09	1.12	23.90	-0.28
Arab Drug Co.	Re	-	-	-	-	30.27	8.40	3.31	5.89	1.18	2.54	4.60	-0.61
Arabia Cotton	Re	150.00	310.81	11.51	24.00	13.60	13.18	3.51	0.19	20.42	17.71	15.65	-0.13
Eastern Company	Re	8.51	0.00	0.00	0.00	4.45	0.00	0.00	0.00	19.94	21.68	0.00	-1.00
Egypt Free Shops	Re	0.85	0.72	2.61	1.00	6.22	3.28	1.23	0.96	1.28	2.16	1.25	-0.16
El Nasr Clothing	Re	23.60	56.16	50.27	49.41	54.17	52.55	15.07	28.79	39.85	49.18	49.30	0.10
General Silos	Re	-	67.87	63.91	52.36	88.15	85.30	76.63	71.93	58.30	55.47	67.87	-0.06
Memphis	Re	-	7.54	8.36	8.20	5.66	3.13	1.78	0.00	0.00	0.07	3.13	-0.37
Nile Pharma.	Re	-	-	18.65	16.27	22.74	3.88	1.23	0.05	0.00	0.00	2.56	-0.76
Nile Cotton	Re	-	300.61	53.47	60.40	44.20	62.45	76.73	87.28	2.47	9.72	60.40	0.13
Unirab Polvara	Re	121.41	42.84	21.36	23.56	22.98	23.38	7.08	2.45	3.22	1.02	22.17	-0.50
Alexandria Oils	Ui	-	-	-	133.42	119.00	58.73	37.38	27.17	19.72	18.85	37.38	-0.27
Asec Co.	Ui	-	-	71.71	46.36	32.14	5.65	1.97	0.00	23.24	26.27	24.75	-0.50
Rowad Misr	Os	-	-	-	-	-	-	0.00	0.01	0.25	5.46	0.13	26.12
Semiramis Hotels	Os	0.00	0.00	6.50	0.00	0.00	1.58	0.00	0.66	0.00	0.06	0.00	-1.00

Notes: Co. indicates constructions and materials, In. indicates information and technology, Ma. indicates manufacturing, Re.

indicates retail trade, Ut. indicates utilities, and OS. indicates other services.

Table II-27 Revenues to Total Assets Ratio of Egyptian Privatized Non-Financial

		Institutions											
Institutions- (%)	Sector	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Me.	GR.
Acrow Misr	Co	63.35	55.30	65.42	75.98	83.56	96.87	96.86	86.82	113.28	91.44	85.19	0.10
Alexandria Portland	Co	-	-	-	26.83	37.02	41.19	44.85	44.38	76.74	83.25	44.38	0.10
El Saeed Contrac.	Co	-	53.02	56.68	40.94	36.84	24.03	43.93	43.52	24.76	38.01	40.94	-0.05
El Shams For Hous.	Co	8.95	5.82	6.81	7.06	10.15	10.76	12.22	13.00	10.63	8.65	9.55	0.06
Giza Contracting	Co	-	-	-	-	95.80	92.44	73.76	58.44	82.36	81.58	81.97	-0.04
Misr BeniSuef Ce.	Co	-	17.22	15.66	25.26	38.08	52.17	57.66	42.02	41.25	41.78	41.25	0.06
Nasr Civil Works	Co	79.00	61.81	69.40	58.77	61.30	51.94	60.40	53.68	56.86	126.74	60.85	0.04
Paints & Chemical	Co	38.46	36.14	42.37	54.21	70.53	77.47	84.04	85.05	86.72	89.46	74.00	0.08
Moukhtar Ibrahim	Co	59.84	57.28	75.78	68.93	59.95	78.57	68.75	86.36	95.65	107.69	72.36	0.11
Suez Cement	Co	41.94	32.35	39.29	46.15	51.72	26.09	42.68	46.67	59.14	66.67	44.42	0.13
Tourah Portland	Co	55.77	31.41	41.94	58.74	59.28	44.31	89.95	83.50	91.67	115.39	59.01	0.10
Telecom Egypt	In	21.92	21.79	20.67	21.82	23.33	26.25	26.39	28.57	29.41	31.25	24.79	0.06
Vodafone Egypt	In	37.26	47.22	45.24	45.83	63.46	69.84	76.62	67.50	-	-	55.34	0.10
Alexandria Mills	Ma	148.40	109.63	111.57	126.01	125.97	133.19	134.96	178.31	164.67	154.44	134.08	0.01
Cairo Oil	Ma	-	-	-	229.06	202.19	122.67	139.15	151.03	144.88	147.39	147.39	-0.01
Delta Sugar	Ma	36.89	52.98	51.46	51.42	65.86	90.91	76.94	83.33	57.56	90.90	61.71	0.08
Egyptian Foods	Ma	91.10	90.49	95.52	73.76	76.54	41.95	69.54	94.32	128.76	110.48	90.79	0.04
Egyptian Starch	Ma	110.14	110.83	125.33	136.85	132.73	96.32	39.07	49.92	60.29	45.46	103.23	0.01
El Nasr Transfor.	Ma	-	-	74.62	84.45	79.53	107.70	117.36	117.79	107.95	96.26	101.98	0.00
Electro Cable	Ma	30.75	37.21	37.97	51.71	48.94	42.47	51.25	32.91	69.26	58.58	45.71	0.02
Extracted Oil	Ma	-	107.66	114.80	138.51	91.83	83.76	84.74	75.71	100.69	96.95	96.95	-0.01
Ismailia Poultry	Ma	99.71	106.47	96.07	111.84	87.09	89.85	98.17	142.61	54.92	63.53	97.12	0.07
M&Wt Delta Mills	Ma	-	202.66	217.23	240.11	236.13	139.61	195.16	298.74	287.09	241.87	236.13	0.03
Middle Egypt Mills	Ma	-	135.30	225.72	210.79	160.81	161.63	152.65	148.67	151.40	132.06	152.65	-0.04
Misr Chemical	Ma	-	-	-	18.72	23.03	24.27	18.72	17.40	23.08	34.88	23.03	0.14
Misr Oils	Ma	180.39	160.38	200.21	180.74	158.17	164.26	123.98	153.14	189.08	163.09	163.67	-0.10
Paper Middle East	Ma	31.51	36.68	34.91	54.20	59.75	63.52	68.42	78.68	92.20	62.58	61.16	0.10
Sidi Kerir Petro	Ma	-	-	-	43.48	60.71	56.67	58.82	61.76	61.76	65.38	60.71	0.04
Upper Egypt Mills	Ma	170.81	167.53	237.25	255.67	260.82	241.30	225.61	231.70	204.79	192.32	228.65	-0.02
Alexandria Medical	Re	0.00	0.00	0.00	39.16	49.10	51.52	63.84	77.98	88.44	92.77	50.31	0.18
Arab Drug Co.	Re	-	-	-	-	78.07	96.85	99.50	111.09	105.36	92.63	98.17	0.03
Arabia Ginning	Re	22.21	57.13	34.49	34.70	49.60	30.72	12.16	3.25	37.50	25.02	32.61	-0.33
Eastern Company	Re	86.96	91.67	95.83	100.00	100.00	97.14	89.74	83.72	66.67	58.82	90.71	-0.03
Egypt Free Shops	Re	122.27	119.61	121.97	124.04	140.74	147.94	146.81	184.38	200.27	129.69	135.22	0.02
El Nasr Clothing	Re	22.62	27.19	30.14	28.22	31.02	24.19	32.35	31.85	14.36	26.20	27.70	0.10
General Silos	Re	-	30.68	39.02	44.10	48.84	51.10	49.52	47.86	83.99	61.58	48.84	0.08
Memphis	Re	-	65.61	61.70	61.78	68.43	70.95	77.58	78.92	106.61	179.82	70.95	0.07
Nile Pharma	Re	-	-	99.64	97.55	92.59	93.71	94.64	91.48	88.15	85.61	93.15	-0.03
Nile Cotton Ginning	Re	-	23.53	7.87	6.06	4.18	5.96	4.48	3.79	4.73	2.04	4.73	-0.24
Unirab Polvara	Re	30.88	27.12	36.32	40.87	42.80	38.15	28.10	26.51	28.27	27.33	29.58	-0.03
Alexandria Oils	Ui	-	-	-	11.62	39.49	108.00	137.93	132.26	190.91	167.86	132.26	0.36
Asec Co.	Ui	-	-	90.58	103.01	144.22	167.15	120.20	93.98	58.06	66.52	98.49	0.14
Rowad Misr	Os	-	-	-	-	-	-	11.74	12.15	11.23	17.80	11.94	0.04
Semiramis Hotels	Os	27.29	29.36	32.93	36.11	41.90	38.66	41.06	38.41	41.95	34.42	37.26	0.08

Notes: Co. indicates constructions and materials, In. indicates information and technology, Ma. indicates manufacturing, Re.

indicates retail trade, Ut. indicates utilities, and OS. indicates other services.