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Japanese Firms' Overpayments for Cross-border Acquisitions

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Abstract:

US and European research suggests that firms tend to overpay when acquiring cross-border targets. Our research focuses on an Asian setting. We find that Japanese acquirers pay significantly higher premiums for cross-border targets than for domestic ones. We also find that, in the case of acquisitions of domestic firms, acquirers that are laden with debt or that have higher market-to-book ratios (which signals their attractiveness) pay lower premiums. By contrast, we find that in the case of cross-border acquisitions, neither variable has a significant impact on premiums, which suggests that premiums are not set efficiently for cross-border acquisitions.

Keywords:

Mergers and acquisitions; Japan; acquirer leverage; acquirer market-to-book ratio; domestic acquisitions; cross-border acquisitions; premiums; overpayment.

1. Introduction

Overpayment is one of the main causes of value destruction in acquired cross-border targets (Mateev & Andonov, 2018). Paying a high premium can have an adverse impact on acquirer performance since overpayment can outweigh the benefits of synergies created by the acquisition (Moeller, Schlingemann, & Stulz, 2004; Shams & Gunasekarage, 2019). Sirower & Sahni (2006) found that the negative effects of high target premiums can impact financial performance for up to four years. Research on premiums is a popular topic in the United States (Cheng, Li, & Tong, 2016; Starks & Wei, 2013), with early research finding that cross-border acquirers overpay relative to domestic acquisitions (Harris & Ravenscraft, 1991). Mateev & Andonov (2018) emphasize the US-centric point that "…the market expects cross-border deals to have a higher chance of succeeding, and consequently values those deals more than domestic ones" (p. 531). This trend has been observed in the US and other developed countries (Moeller, Schlingemann, & Stulz, 2004).

Research on Asian mergers and acquisitions (M&A) with respect to domestic versus cross-border acquisition premiums is scarce (for exceptions, see Urbšienė, Nemunaitytė, & Zatulinas, 2015). Therefore, this study aims to investigate the phenomenon of overpayments by acquirers from Japan, the world's third-largest economy. To the best of our knowledge, research on overpayments by Japanese acquirers is limited. Takechi (2011) examined M&A in the electronics industry and found that low-technology firms tended to acquire domestic targets while technology-intensive firms acquired US (cross-border) targets. Arikawa & Miyajima (2007) note that the debt-asset ratio for the target firm is negatively related to the likelihood of a takeover in domestic M&A. Anecdotal evidence suggests that Japanese firms also regularly overpay for cross-border targets in the form of high premiums. For example, the premiums paid by Dentsu and Fuji Film for their US acquisitions were 166% and 108% above the US stock-exchange prices, respectively (Dentsu Aegis, 2014; Fujifilm, 2015). Similarly, there were open complaints from US shareholders of Ocata Therapeutics (a Massachusetts-based firm involved in human embryonic stem cell research) that the Japanese acquirer Astella Pharmaceutics did not offer a sufficient premium, despite paying 79% above the listed price at the time of the deal (Garde, 2016).

The secondary aim of this study is to examine the deal type (cross-border versus domestic) in influencing two distinct acquirer variables on premium, namely the leverage and the market-to-book ratio of the acquirer. These two variables feature prominently in the cross-border acquisition literature. For example, Chidambaran, Krishnakumar, & Sethi (2018) found that acquirers with low leverage and high market-to-book ratio are more likely to conduct a cross-border acquisition than a domestic one. The acquirer leverage, measured as the ratio of debt to assets (Cotei & Farhat, 2009), signals the level of acquirer financial risk. In contrast, the acquirer market-to-book ratio, measured as the ratio of assets to the market price, signals the attractiveness of the acquirer. In previous research, these were either taken as control variables (such as in Mateev & Andonov, 2016) or investigated in an M&A context, but did not concern premiums. Our study of Japanese acquirers focuses on the following two research questions: Do Japanese cross-border acquirers overpay for their targets? Furthermore, how do acquirers' variables (*i.e.,* the extent of acquirer leverage and the extent of acquirer market-to-book ratio) influence premium payments in domestic versus cross-border acquisitions?

First, we found that Japanese acquirers pay substantially higher premiums for cross-border acquisitions than for domestic ones. Second, we found preliminary evidence in our sample that acquirers appear to act rationally only when acquiring domestic targets, paying premiums that are as low as possible, especially if the acquirer firms are laden with debt. Moreover, when acquirer firms are attractive (with a high market-to-book ratio), they can take over domestic target firms for low premiums. In stark contrast, neither variable seems to correlate in cross-border M&A deals; that is, they do not affect premium payments in cross-border acquisitions.

The remainder of this paper is organized as follows. First, we present the conceptual framework and develop testable hypotheses. Next, we discuss the research methodology, measures, and data, followed by this study's empirical findings. We then present a discussion, and the final section offers some conclusions.

2. Conceptual Framework and Hypotheses Development

Conceptually, premiums are defined as overpayments relative to stock listed prices. For a more thorough investigation of premium payments, we selected signaling theory to provide the underlying theoretical framework for our discussion. According to signaling theory, one party (the acquirer) credibly conveys information about itself to another party (the target). Drawing from the seminal work of Nobel prize laureate Michael Spence, weak signals are sufficient for participants in the market to act (Spence, 1973). Since acquiring a foreign target generally includes more effort concerning preparation and integration, a higher premium payment seems justifiable (Cheng, Li, & Tong, 2016). Draper & Paudyal (2008) analyzed a sample of takeover announcements in the United Kingdom (UK) and found that, when information asymmetry was severe, undervalued firms chose a more rapid takeover period to attract the attention of market participants. Understandably, information asymmetry is a less serious problem for domestic deals than for cross-border acquisitions.

Other factors can also determine the amount of premium acquirers pay. Acquirers pay higher premiums when competing firms are involved in the bidding process (Haspeslagh & Jemison, 1991). Dimopoulos & Sacchetto (2014) found that stronger resistance by target firms in M&A negotiations can lead to higher premium payments. Haunschild (1994) proposes that interlocks and professional partners influence premium payments. While Malhotra, Zhu, & Reus (2015) show that acquirer managers anchor their premium payments on previous recent takeover prices, Kim, Haleblian, & Finkelstein (2011) argue that acquirers pay higher premiums when their organic growth possibility is low. In addition to being driven by excitement at the prospect of a successful bid, acquirer managers could be ill-advised by their investment bankers to look for long-term profits and thus be prepared to pay higher premiums for their cross-border acquisitions (Golubov, Petmezas, & Travlos, 2012). Premiums vary according to the geographical location of the firms involved (Alexandridis, Petmezas, & Travlos, 2010; Lim, Makhija, & Shenkar, 2016; Urbšienė et al., 2015). For example, Urbšienė et al. (2015) found that Chinese firms investing in Europe pay comparatively higher premiums than their European counterparts in M&A deals. Cheng et al. (2016) concluded that the market tends to agree to a higher target valuation if information

asymmetry is high. Arguments that support the signaling theory suggest that Japanese acquirers pay higher premiums for cross-border targets. Hence, we state our fundamental baseline Hypothesis 1 as follows:

H1. Japanese acquirers pay higher premiums for cross-border targets than for domestic ones.

In addition to investigating overpayments for cross-border acquisitions, we are keen to understand the underlying behavior of acquirers. M&A literature commonly refers to two acquirer variables that influence acquisition outcomes: acquirer leverage and acquirer market-to-book ratio (e.g., Chidambaran, Krishnakumar, & Sethi, 2018; Bargeron, Lehn, & Smith, 2015). Therefore, we have expanded our study on premiums to include these two factors.

Acquirers with high leverage (indicating the degree of debt, with a high value pointing toward a higher risk) have a small financial buffer. Since they already have high debts to bear, they must choose their target carefully and offer as low a premium as possible. Jory, Ngo, & Wang's (2016) study demonstrating that highly leveraged firms are less likely to overpay for their targets supports this viewpoint. In contrast, low-leveraged firms can pay higher premiums because they can still increase their debt. However, it should be noted that these firms take on a relatively high debt level, possibly as an accounting instrument, to decrease their cost of capital (Sagner, 2007). With regard to the acquirer leverage, banks play a pivotal role (Weinstein & Yafeh, 1998). Higher acquirer leverage means that banks have, *ceteris paribus*, a greater influence over their clients. This is especially true in Japan, where the cross-holdings' networks between banks and firms are historically strong (Aoki, Patrick, & Sheard, 1994). Banks hesitate to support clients interested in domestic acquisitions because the domestic market (especially in Japan) is often already highly competitive, and an increase in sales or market share is not a realistic scenario (Cheng et al., 2016).

Another notion is that acquirers tend to act rationally when taking over domestic firms. However, when acquiring cross-border targets, we argue that rational thinking diminishes. Rather than considering the risks and costs involved, bidder managers prefer to look primarily at the potential advantages that cross-border acquisitions could offer. Roll's (1986) hubris theory, where over-optimistic managers explain overpayments, became a popular theory. In summary, while highly leveraged acquirers usually offer low premiums for domestic targets, they tend to throw caution to the wind, so to speak, when making bids for cross-border targets. Such irrational behavior is evident when cross-border acquirers seem to be in a hurry to close the deal instead of taking the time to negotiate a fairly priced premium. They focus more on seizing the opportunity to acquire a foreign target and gaining access to a new market (Mateev & Andonov, 2018). Hence, we expect that the impact of acquirer leverage on premiums will be stronger for domestic acquisitions than for cross-border ones.

H2a: The negative effect of acquirer leverage on the premium is weaker for cross-border acquisitions than domestic ones.

Another variable in this study is the acquirer market-to-book ratio that describes a firm's value concerning its assets (Manickam & Senthilkumar, 2011). In a narrower sense, this value is expressed by factors such as (but not limited to) the firm's ability to manage cash flows, the managers' perceived competencies, and good corporate governance. Aras & Yilmaz (2008) argued

that the market-to-book ratio could be used to predict strong returns as a proxy for future cash flows. We compared different variables and found that the market-to-book ratio was the most accurate predictor of performance. Similarly, Manickam & Senthilkumar (2011) concluded that the market-to-book ratio could consistently explain and predict returns. Jordan, Rice, Sanchez & Wort (2011) reported a positive association between cost efficiency and market-to-book value ratio. To summarize, stronger firms are expected to have a higher market-to-book ratio (Bargeron, Lehn, & Smith, 2015).

With regard to domestic acquisitions, high market-to-book ratio acquirers are often well-known and are sometimes "famous" and higher valuated firms. Rationally, a domestic target would be more willing to accept a lower premium by an outstanding acquirer firm (i.e., by a firm with a high market-to-book ratio) than by an acquirer with a low market-to-book ratio. Shareholders of the target firm would speculate about a more prosperous future when a high market-to-book ratio acquirer takes over. Therefore, they are quite willing to give their consent for the takeover, even when a relatively low premium is offered. Moreover, high market-to-book ratio acquirers usually are strong competitors with higher stock returns (Aras & Yilmaz, 2008). Since less competitive firms in the home market face increasing difficulty due to keen competition, they may end up being acquired, albeit at lower than expected premiums.

The situation differs for cross-border acquisitions. The effect of the acquirer market-to-book ratio on premiums for foreign targets is significantly reduced because a strong acquirer image is important only in the domestic market; it may not apply to firms abroad because they are less aware of the popularity or fame of the bidder. Apart from these arguments, since cross-border acquisitions also involve high information asymmetry, acquirers with high market-to-book ratio tend to overpay for cross-border targets due to overconfidence (Roll, 1986; Cheng et al., 2016). Accordingly, we expect that the acquirer's market-to-book ratio would lead to a lower premium for a domestic target, but not so much for a cross-border one. Hence, we formulate the following hypothesis:

H2b: The negative effect of the acquirer market-to-book ratio on premiums is weaker for cross-border acquisitions than domestic ones.

3. Methodology

3.1. Data Sources and Sample

We obtained the sample of M&A transactions from the Bloomberg database. The acquirer region was Japan, and the study period was from January 1, 2001, to December 31, 2017. Additionally, since the leverage and the acquirer's market-to-book ratio must be available to conduct a multivariate regression analysis, acquirers were limited to publicly listed firms. Subsequently, we shortlisted the deals further based on the following criterion: acquirers did not hold more than 10% of the target shares before the given deal but obtained more than 50% of the target shares after the deal. This shortlisting method is in line with that detailed in the study by Alexandridis et al. (2010) and ensured that earlier large ownership transfers did not influence premium payments for the most

recent deals. As a final step in the data collection procedure, we deleted transactions where unique deal characteristics could have impacted the premium payment decisions. For example, when transactions involved convertibles, going private, management buyout, private equity, recapitalization, reversed merger or squeezed out situations, etc. The final sample consisted of 253 deals.

Of the 253 transactions, 170 were domestic deals, and 83 were cross-border ones. The latter comprised 46 deals with target firms in the US, and the remaining acquisitions were spread globally. Therefore, roughly half of all cross-border acquisitions represented target firms from the US. Among the 37 non-US foreign targets, 8 were in Singapore, 7 in Britain, 5 in Australia, 3 in Malaysia; 2 each in Canada and Israel; 1 each in France, Switzerland, Ireland, Kenya, Germany, Sweden, Italy, Netherlands, South Africa, and Taiwan. This result was comparable to the Japanese outward foreign direct investment (FDI) statistics reported in a study by Kiyota (2015), highlighting the attractiveness of US assets for Japanese outward FDI. All continuous variables were centered and winsorized at the 1st and 99th percentiles to reduce outliers from the sample. We employed the R software package for the quantitative analysis.

3.2. Model and Variables

Following the ordinary least squares linear regression procedure, we present our base model plus controls for analyzing premium payments.

Base Model 1

$$\begin{aligned} Premium = {} & \beta_0 + \beta_1(Acquirer\ market - to - book) + \beta_2(Acquirer\ leverage) \\ & + \beta_3(Acquirer\ ROA) + \beta_4(Host\ country\ experience) \\ & + \beta_5(Target\ market - to - book) + \beta_6(Target\ leverage) + \beta_7(Target\ ROA) \\ & + \beta_8(Relative\ transaction\ value) + \beta_9(Cash\ payment) + \beta_{10}(Toehold) \\ & + \beta_{11}(Intra - industry) + \beta_{12}(Competing\ bid) + \beta_{13}(Tender\ offer) + \varepsilon \end{aligned}$$

Dependent variable:

The premium paid by the acquirer is the dependent variable. Studies differ regarding the calculation of the (base) pre-acquisition share price (Huang, Jiang, Lie, & Yang, 2014). While some studies used time measures of up to 4 weeks (Alexandridis et al., 2010), others such as Uysal (2011) used 40 trading days, Jeon & Lee (2014) 43, and Demirtas (2017) 64. Some studies used a shorter time measure. For example, Kim & Canina (2013) analyzed a time frame of just one day before the acquisition. For this study, we used premium figures reported by the Bloomberg database for "announced premiums" based on a 20-day average stock price of the target company before the announcement date.

Our independent and control variables are in line with those in the literature (Cheng et al., 2016). This study controlled for three variables for the acquirer and target, namely, leverage, market-to-book ratio, and return on assets (ROA). We also included the acquirer's host country experience as a control variable, measured as the acquirer's number of investments made in the same host country before the focal transaction. Concerning the deal characteristics, we controlled for six

variables: relative transaction value, cash payment, toehold deal, intra-industry deal, competing bid deal, and the likelihood of a tender offer deal (Chow, Klassen, & Liu, 2016). In Table 1, we provide the definitions of all variables. We included year-fixed effects using dummy variables and applied White's (1980) robust standard errors.

Insert Table 1 here

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4. Results

4.1. Descriptive Statistics

Table 2 reports the descriptive analysis and correlation matrix, which reveal several intriguing correlation results. The acquirer leverage was significantly negatively correlated with premiums, but the acquirer market-to-book ratio correlated positively (but without significance). Additionally, cash payments, host country experience, and tender offers showed a significantly positive correlation with premiums.

Insert Table 2 here.

Although a few correlation figures were in the bracket of 0.5 to 0.7, the variance inflation factor (VIF) figures were under the critical value of 5, so multicollinearity was not a concern. Table 3 illustrates comparisons of mean premiums for different groups related to the scope of this study. The mean premiums for cross-border targets were higher than those for domestic ones.

Insert Table 3 here.

From the results, premiums paid by highly leveraged acquirers (identified as acquirers with above-mean leverage) for domestic targets were 9.71%, while the premiums paid by low-leveraged acquirers (identified as acquirers with below-mean leverage) for domestic targets were 24.68%. A similar tendency was visible in the market-to-book ratio, which is -1.38% for domestic acquirers above the mean and 25.74% for domestic acquirers with below-mean leverage. The t-test statistics for the mean difference of both comparisons were significant at the 1% level. Although this table does not contribute to the formal hypothesis testing, the reported values lend support to the premise that the acquirer's leverage and market-to-book ratio correlate with premium payments in domestic deals (Table 3). To analyze the actual impact of these variables on the number of premiums, we employed a multivariate ordinary least squares (OLS) regression technique, which we discuss in the next section.

4.2. Regression Results

The base model, Model 1 (Table 4), took into account the control variables as acquirer, target, and deal characteristics, along with industry dummies and year dummies. The R-square and F-test

results for Model 1 were 36.34% and 3.311, respectively. Remarkably, the R^2 was higher than in many previous studies using an OLS regression with premiums as the dependent variable (Bugeja, Matolcsy, Mehdi, & Spiropoulos, 2017; Demirtas, 2017; Huang et al., 2014; Uysal, 2011). Model 2 included cross-border deals with a significant positive coefficient, thus supporting Hypothesis 1.

In Model 3, we included the interaction term of the acquirer leverage and cross-border deals, and in Model 4, we included the interaction term of the acquirer market-to-book ratio and cross-border deals. Both interaction terms were positive and significant. In Model 5, the coefficient of the interaction term of the acquirer market-to-book ratio was $\beta = 0.2532$, and that of the acquirer leverage was $\beta = 0.5067$, both significant at the 1% level.

Insert Table 4 here.

Our results show that acquirer leverage was negatively associated with the premium paid for the overall sample. Also, the negative relationship was weaker for cross-border acquisitions than for domestic ones. We depict this scenario in a plot (Fig. 1), showing that both cross-border and domestic acquirers maintained similar levels with regard to premium payments by acquirers with low leverage. However, acquirers with high leverage (one standard deviation above the mean) are more likely to pay lower premiums for domestic targets. See Fig. 1.

Insert Fig. 1 here

Similarly, the acquirer market-to-book ratio corresponded to a decrease in premium. This relationship was slightly positive for cross-border acquisitions. Only domestic acquirers with a high market-to-book ratio could benefit from paying a significantly low premium. We depict this scenario in a plot (Fig. 2). Hence, the results support Hypotheses 2a and 2b.

Insert Fig. 2 here

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We conducted simple slope tests for a more detailed understanding of the interaction plots, (Kim & Ployhart, 2018; Koros, Korir, & Maru, 2020; Liu & Hou, 2019; Sun & Wei, 2019). While the interaction term in the regression analysis represents the *difference* between the slopes, a simple slope analysis reveals the *actual* slope of the individual lines (Robinson, Tomek, & Schumacker, 2013). For domestic acquisitions, both variables (acquirer leverage and acquirer market-to-book ratio) were negatively associated with acquisition premium, significant at the 1% level. In contrast, for cross-border acquisitions, the simple slopes of both variables were not statistically different from zero. In other words, lines representing the effect of the cross-border acquirer on leverage and market-to-book ratio (Fig. 1 & Fig. 2, respectively) are essentially horizontal, although the former has a downward slope and the latter an upward slope.

4.3. Robustness Check

The variable "cross-border targets" is a heterogeneous group in terms of host countries and can bias the results. To address this concern, we opted for a robustness check, similar to that of Takechi (2011), who focused solely on the distinction between US cross-border versus domestic targets in the context of Japanese electronics firm acquirers. Since approximately half of the cross-border targets in this study were located in the US, we restricted the sample to the US to limit country heterogeneity bias. Although the resulting regression was based on a smaller sample size (170 deals with domestic targets and 46 deals for US targets), we found sufficient evidence to validate our study's general findings (Table 5). The results were similar to those for the whole sample (Table 4), thus supporting the argument that Japanese acquirers make no distinction when targeting firms in the US or elsewhere.

Insert Table 5 here

In a further analysis (not presented here), we checked the stability of our results by employing robustness tests to control for two outlier variables, namely acquirer ROA and target ROA[i]. First, we winsorized these two variables at more conservative cutoffs of 5% (Betermier, Calvet, & Sodini, 2017) and 10% levels (Beyhaghi, D'Souza, & Roberts, 2014). Alternatively, we log-transformed the variables. Since these variables had both negative and positive values, and the natural logarithm of negative values is not defined, we first added a constant value (equal to the minimum value of the variable plus one) to all observations and then took the natural logarithm (Gomulya, Jin, Lee, & Pollock, 2019). All our hypotheses were fully supported, using either methodology, as in the main analysis[ii].

5. Conclusion

In this study, we focused on acquirer premiums for cross-border versus domestic targets. We further explored the moderating influence of deal type (domestic versus cross-border) on two variables: acquirer leverage on premium and acquirer market-to-book ratio on premium. In line with previous studies (e.g., Mateev & Andonov, 2018), we found that Japanese acquirers pay higher premiums for cross-border targets than domestic ones. Moreover, our findings indicate a negative effect of both acquirer variables, though only for domestic acquisitions. When the acquirer leverage and market-to-book ratios are high, lower premium payments are only seen in domestic deals. Our findings have practical and policy implications.

We developed and expanded on signaling theory to explain that a positive signal (acquirer market-to-book ratio) and a negative signal (acquirer leverage) conveyed by Japanese acquirers to their targets have heterogeneous effects on premiums depending on the deal type. A higher market-to-book ratio of acquirers attracts domestic targets for takeover by accepting lower premiums. We also expanded on a previous study by Arikawa & Miyajima (2007) on the leverage of targets. We demonstrated that high leverage of bidders decreases the premium, but only for domestic deals. The results support our interpretation, attributing these overpayments to higher information

asymmetry between Japanese acquirers and their cross-border targets. Moreover, Japanese banks play a central role in cross-border acquisitions. The seemingly irrational behavior of premium payments for foreign targets can be explained by the fact that banks view these acquisitions more favorably than domestic ones. One reason is that Japanese firms get access to new markets. Thus, loans are more readily available for clients involved in cross-border deals (Aoki et al., 1994). This could explain why an increase in leverage corresponds to lower premiums in domestic deals, but no such relationship exists in cases of cross-border acquisitions.

The findings of this study have policy implications. We recommend that policymakers and regulators incentivize firms to evaluate premiums for cross-border targets more rigorously. Assistance may be needed to increase understanding of the target regions and to ascertain whether firms can realistically take advantage of synergies with foreign targets. Firms should also be encouraged to obtain information on foreign markets through new think tanks specializing in cross-border M&A issues to supplement existing agencies such as the Japanese External Trade Organization (JETRO). Not only will the firms being taken over benefit from cross-border acquisitions, but all stakeholders will benefit through proper premiums being paid. Additionally, corporate governance guidelines can suggest maximum debt leverage for a firm attempting to take over foreign firms. Governmental regulators could encourage firms first to obtain minority shares and then increase the number of shares after the Japanese management becomes more familiar with the non-Japanese target management style. Acquirers should carefully weigh their cross-border investment decisions over time, making sure that they fully understand the intentions of the target management and the environment of the target country.

While this study makes considerable contributions to the literature on cross-border acquisitions and premiums, it also has some limitations that could guide further research. The study sample focuses only on a single country (Japan), and we use a relatively small sample size (Arikawa & Miyajima 2007; Takechi, 2011). Contrary to US-centered studies (e.g., Cheng et al., 2016), we perceive some advantages of using a sample of only Japanese acquirers. This idea is in line with the limitations highlighted by Lee et al. (2019), who studied US-centered CEOs' pay inequity: "It is also possible that the findings of our study may reflect an effect that is specific to the U.S. context" (Lee, Cho, Arthurs & Lee, 2019, p. 114). A multi-country study with longitudinal data would further enhance the research. Perhaps future researchers could also focus more closely on the role of banks, especially those that lend money to highly leveraged acquiring firms. It would be interesting to investigate the influence of bank managers' past or current associations with managers of bidding firms in greater depth. Studies could also analyze the possible impact of cross-holdings on premiums, a phenomenon applicable especially to Japanese domestic acquisitions. In general, finding similar, relevant proxy variables for the mechanisms that we explain in this study would provide a more in-depth understanding of overpayments.

Figure Legends

Table 1 (Definitions of variables)

Premium	The percentage difference between the share price paid by the acquirer and the 20-day average share price of the target at the time of the takeover.
Cross-border deals	Dummy variable which takes the value of one if the target firm is from outside Japan, and takes the value of zero otherwise.
Leverage	(Long term debt+Debt in current liabilities)/ Total assets.
Market-to-book ratio	(Total assets - Book equity + Market value of equity)/ Total assets.
ROA	Return on assets (ROA) measured as net income divided by average total assets in percentage terms. We subtracted the firm's mean ROA from the industry ROA to adjust for industry effects.
Host country experience	Number of acquisitions made by the acquirer in the same host country prior to the focal transaction.
Relative transaction value	Transaction value / Acquirer market value of equity.
Cash payment	Dummy variable which takes the value of one if the method of payment is cash, and takes the value of zero otherwise.
Toehold	Dummy variable which takes the value of one if the acquirer has more than 5% shares of the target company prior to the given deal, and takes the value of zero otherwise.
Intra-industry	Dummy variable which takes the value of one if the acquirer and the target are from the same industry, and takes the value of zero otherwise.
Competing bid	Dummy variable which takes the value of one if the target company is approached by two or more acquirers, and takes the value of zero otherwise.
Tender offer	Dummy variable which takes the value of one for tender offers as identified by Bloomberg and takes the value of zero otherwise.

Table 2 (Descriptive statistics and correlation matrix)

	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Premium	0.2671	0.3670	1													
(2) Acquirer leverage	0.5207	0.2365	-0.32**	1												
(3) Acquirer market-to-book ratio	1.2810	0.6510	0.04	-0.06	1											
(4) Acquirer ROA	0.2704	13.5570	-0.05	-0.14*	-0.28**	1										
(5) Host country experience	4.1940	7.1646	0.24**	0.02	-0.06	0.04	1									
(6) Target leverage	0.5066	0.1940	-0.09	0.32**	-0.20**	0.17	0.20	1								
(7) Target market-to-book ratio	1.4380	1.0440	0.03	-0.04	0.19**	-0.17**	0.05**	-0.188**	1							
(8) Target ROA	-812	7054	-0.07	0.07	-0.17**	-0.01**	0.04	0.08	0.02	1						
(9) Relative transaction value	13.3159	9.4974	-0.15*	0.56**	-0.21**	-0.06	0.01	0.28**	-0.15*	0.03	1					
(10) Cash payment	0.6126	0.4881	0.36**	-0.20**	0.30**	-0.12	0.22**	-0.14*	0.17**	-0.09	-0.28**	1				
(11) Toehold	0.0632	0.2439	-0.04	0.02	-0.07	-0.05	0.09	0.01	-0.08	0.03	-0.02	-0.06	1			
(12) Intra-industry	0.6680	0.4719	-0.01	0.05	0.03	-0.04	0.00	0.01	0.14*	-0.02	0.07	-0.04	-0.09	1		
(13) Competing bid	0.0158	0.1250	-0.04	-0.11	-0.02	-0.07	-0.03	-0.06	-0.03	0.01	-0.07	0.10	-0.03	-0.05	1	
(14) Tender offer	0.4111	0.4930	0.25**	-0.09	0.13*	-0.01	0.23**	-0.05	0.13*	-0.02	-0.20**	0.66**	-0.02	-0.08	0.02	1
(15) cross-border deals	0.3281	0.4704	0.40**	-0.32**	0.36**	-0.08	0.02	-0.19**	0.06	-0.17**	-0.25**	0.56**	-0.11	-0.01	0.18**	0.10

Note: ** and * represents significance at 1% and 5% level respectively. SD refers to standard deviation.

Table 3 (Comparison of premium for related groups)

Domestic targets 16.49%	Cross-border targets 47.64%***
Acquirers with below-mean leverage (domestic deals) 24.68%	Acquirers with above-mean leverage (domestic deals) 9.71%**
Acquirers with below-mean leverage (cross-border deals) 48.69%	Acquirers with above-mean leverage (cross-border deals) 46.34%
Acquirers with below-mean market-to-book ratio (domestic deals) 25.74%	Acquirers with above-mean market-to-book ratio (domestic deals) -1.38%***
Acquirers with below-mean market-to-book ratio (cross-border deals) 44.60%	Acquirers with above-mean market-to-book ratio (cross-border deals) 53.02%

Note: *** and ** represents significance at 0.1% and 1% level respectively.

Table 4 (OLS regression for premium on all targets)

	Model 1	Model 2	Model 3	Model 4	Model 5
Acquirer market-to-book ratio * Cross-border acquisitions				0.2673***	0.2532***
				(0.0600)	(0.0580)
Acquirer leverage * Cross-border acquisitions			0.5721***		0.5067***
			(0.2056)		(0.1939)
Cross-border (CB) acquisitions		0.2338***	0.2614***	0.2025***	0.2286***
		(0.0669)	(0.0670)	(0.0635)	(0.0640)
Acquirer market-to-book ratio	-0.0447	-0.0725**	-0.0647*	-0.2225***	-0.2077***
	(0.0398)	(0.0365)	(0.0346)	(0.0429)	(0.0428)
Acquirer leverage	-0.5326***	-0.4639***	-0.7100***	-0.4275***	-0.6476***
	(0.1232)	(0.1193)	(0.1352)	(0.1140)	(0.1362)
Acquirer ROA	-0.0025	-0.0028	-0.0025	-0.0025	-0.0024
	(0.0023)	(0.0021)	(0.0021)	(0.0020)	(0.0021)
Host country experience	0.0071*	0.0089**	0.0089**	0.0091**	0.0090**
	(0.0037)	(0.0037)	(0.0036)	(0.0036)	(0.0035)
Target market-to-book ratio	-0.0065	-0.007	-0.0025	0.0041	0.0075
	(0.0280)	(0.0274)	(0.0264)	(0.0260)	(0.0251)
Target leverage	0.0907	0.065	0.0843	0.0619	0.0791
	(0.1105)	(0.1070)	(0.1068)	(0.1025)	(0.1027)
Target ROA	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Relative transaction value	0.0044	0.0044	0.0070**	0.0029	0.0052
	(0.0036)	(0.0035)	(0.0035)	(0.0034)	(0.0034)
Cash payment	0.2210***	0.0533	0.0603	0.0878	0.0921
	(0.0721)	(0.0842)	(0.0796)	(0.0841)	(0.0803)
Toehold	-0.0511	-0.0274	-0.038	-0.0488	-0.0571
	(0.0832)	(0.0866)	(0.0848)	(0.0822)	(0.0812)
Intra-industry	0.0103	0.0084	0.0186	0.0172	0.0258
	(0.0408)	(0.0397)	(0.0389)	(0.0376)	(0.0376)
Competing bid	-0.3888***	-0.4630***	-0.4424***	-0.3933***	-0.3788***
	(0.1042)	(0.0986)	(0.0988)	(0.0982)	(0.0980)
Tender offer	-0.0037	0.094	0.0879	0.0713	0.0671
	(0.0734)	(0.0720)	(0.0694)	(0.0704)	(0.0681)
(Intercept)	-0.0489	-0.0584	-0.0362	-0.1000	-0.0781
	(0.1083)	(0.1073)	(0.1072)	(0.1082)	(0.1088)
Industry dummies	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
R Square	36.34%	40.03%	41.96%	43.95%	45.45%

Note: Heteroscedasticity-consistent robust standard errors (White, 1980) are reported in parenthesis. ***, ** and * represent statistical significance at 1%, 5% and 10% level respectively.

Table 5 (Robustness check for premiums only on domestic and US-targets)

	Model 1	Model 2	Model 3	Model 4	Model 5
Acquirer market-to-book ratio * US-target acquisitions				0.2194**	0.1708**
				(0.0941)	(0.0862)
Acquirer leverage * US-target acquisitions			0.8301***		0.7396***
			(0.2781)		(0.2725)
US-target acquisitions		0.3654***	0.4421***	0.2864***	0.3722***
		(0.0806)	(0.0880)	(0.0924)	(0.1038)
Acquirer market-to-book ratio	-0.0505	-0.1284***	-0.1310***	-0.2033***	-0.1891***
	(0.0484)	(0.0416)	(0.0360)	(0.0407)	(0.0387)
Acquirer leverage	-0.5397***	-0.4033***	-0.6398***	-0.4065***	-0.6165***
	(0.1353)	(0.1360)	(0.1384)	(0.1302)	(0.1379)
Acquirer ROA	-0.0002	-0.0008	0.0001	0.0001	0.0006
	(0.0026)	(0.0023)	(0.0023)	(0.0023)	(0.0023)
Host country experience	0.0072*	0.0068*	0.0061	0.0071*	0.0065*
	(0.0040)	(0.0040)	(0.0039)	(0.0039)	(0.0038)
Target market-to-book ratio	-0.0057	-0.0057	0.0024	-0.0001	0.006
	(0.0298)	(0.0298)	(0.0282)	(0.0281)	(0.0271)
Target leverage	0.0358	0.0224	0.0455	0.0312	0.0498
	(0.1177)	(0.1157)	(0.1138)	(0.1127)	(0.1123)
Target ROA	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Relative transaction value	0.0058	0.0053	0.0077**	0.0044	0.0067*
	(0.0037)	(0.0036)	(0.0035)	(0.0035)	(0.0034)
Cash payment	0.1649*	-0.0678	-0.0742	0.0031	-0.0183
	(0.0876)	(0.0902)	(0.0840)	(0.1029)	(0.0976)
Toehold	-0.0335	0.0089	-0.0001	-0.0005	-0.0064
	(0.0833)	(0.0827)	(0.0842)	(0.0823)	(0.0837)
Intra-industry	0.0003	-0.022	-0.0173	-0.0075	-0.0066
	(0.0459)	(0.0441)	(0.0417)	(0.0423)	(0.0413)
Tender offer	0.0813	0.2679***	0.2771***	0.1982**	0.2218**
	(0.0893)	(0.0845)	(0.0816)	(0.0957)	(0.0930)
(Intercept)	-0.0492	0.0850	0.0491	-0.1053	-0.0688
	(0.1144)	(0.1125)	(0.1119)	(0.1132)	(0.1128)
Industry dummies	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
R Square	38.35%	44.83%	48.08%	46.66%	49.15%

Note: Heteroscedasticity-consistent robust standard errors (White, 1980) are reported in parenthesis. ***, ** and * represent statistical significance at 1%, 5% and 10% level respectively.

Figure 1: Interaction plot between acquirer leverage and deal type on premium

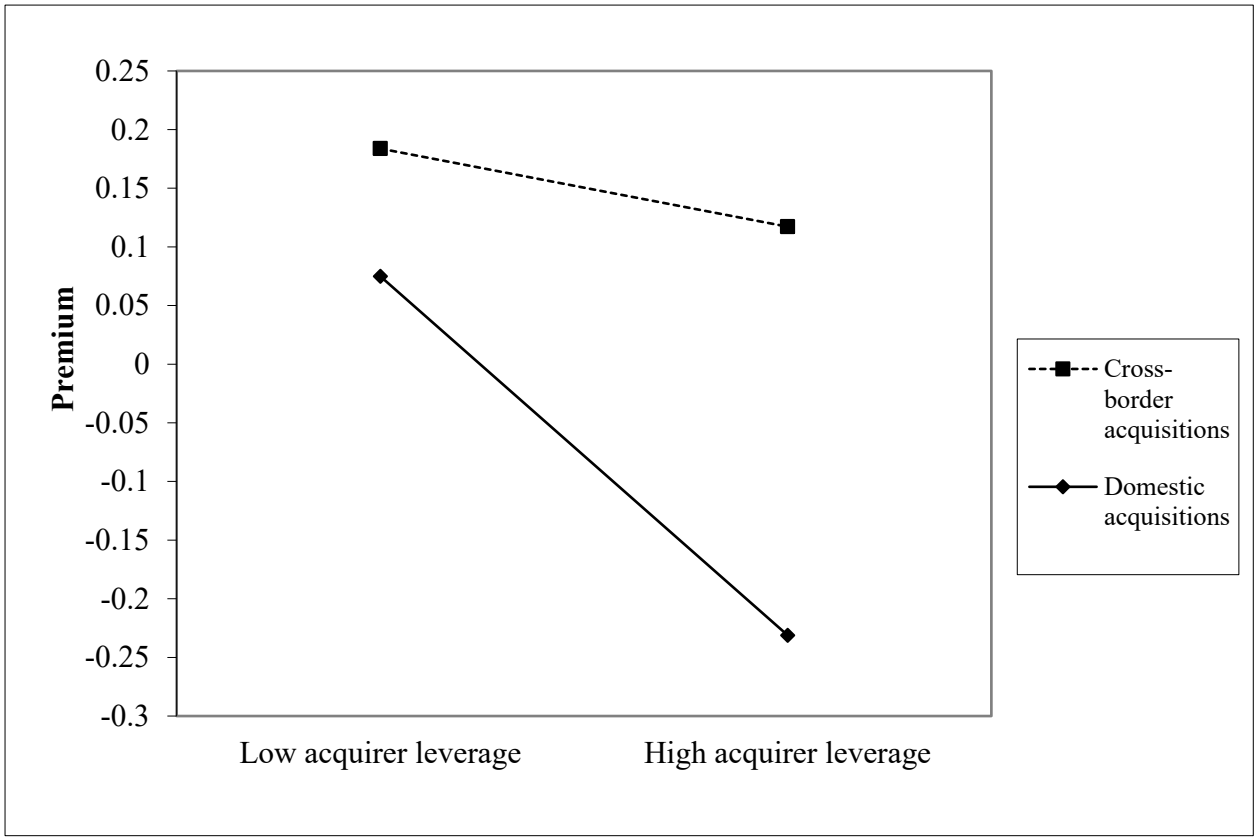
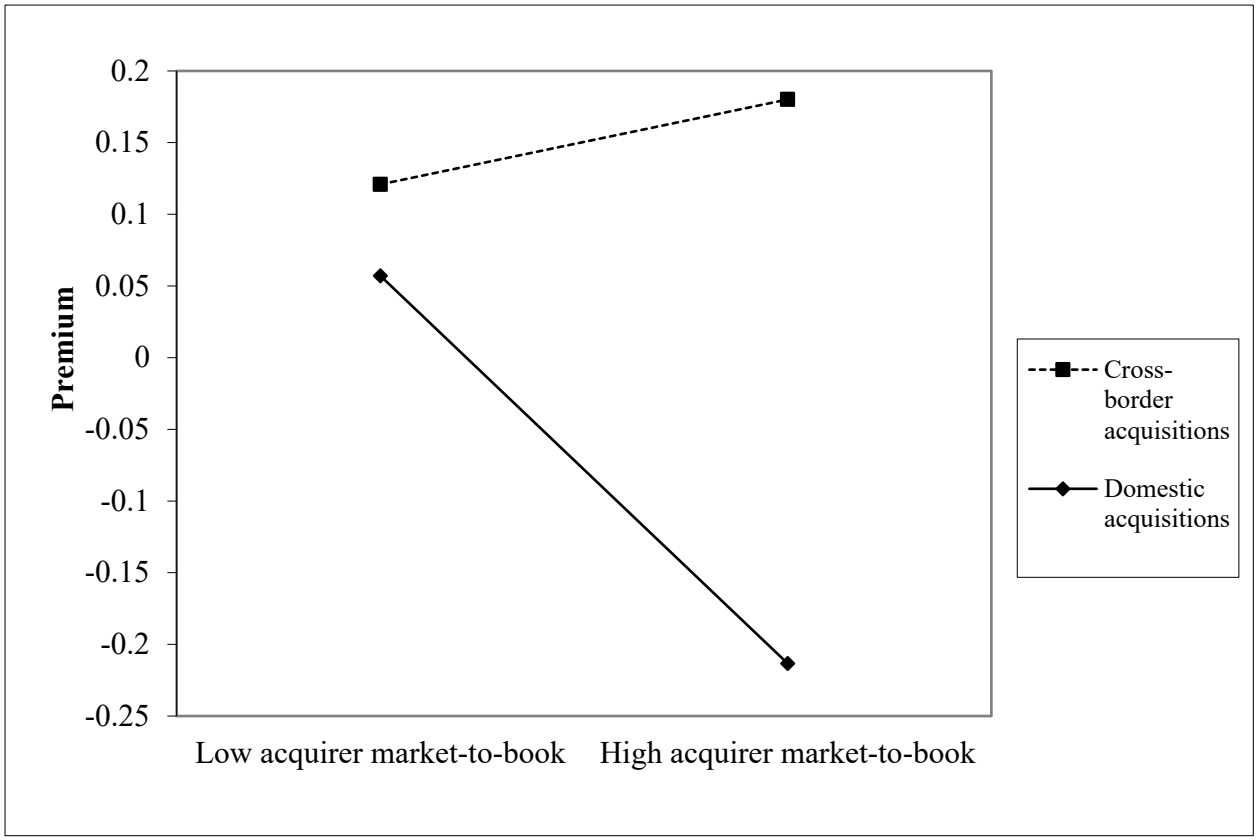


Figure 2: Interaction plot between acquirer market-to-book ratio and deal type on premium



Data Availability Statement

Data supporting the findings of this study are available from the authors upon request.

[i] We would like to thank an anonymous reviewer for highlighting this issue.

[ii] We additionally performed a generalized least squares (GLS) regression analysis upon receiving consistent results. Owing to space limitations, however, GLS results are not tabulated here but are available from the authors upon request. Reflecting the financial crisis period, we also controlled for macro-economic heterogeneity across time. In this regard, we removed year dummies and included a dummy variable for the years 2007 and 2008. The results remained the same even when we further extended the crisis period from 2007 to 2011.

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References.

Alexandridis, G., Petmezas, D., & Travlos, N. G. (2010). Gains from mergers and acquisitions around the world: New evidence. *Financial Management*, 39(4), 1671-1695.

Aoki, M., Patrick, H., & Sheard, P. (1994). The Japanese Main Banking System: an introductory overview. In: Aoki, M., & Patrick, H. (Eds.), *The Japanese Main Bank System: Its Relevance for Developing and Transforming Economies*. Oxford University Press, pp. 3-50.

Aras, G., & Yilmaz, M. K. (2008). Price-earnings ratio, dividend yield, and market-to-book ratio to predict return on stock market: Evidence from the emerging markets. *Journal of Global Business and Technology*, 4(1), 18.

Arikawa, Y., & Miyajima, H. (2007). Understanding the M&A boom in Japan: What drives Japanese M&A?. Research Institute of Economy, Trade and Industry (RIETI) Discussion Paper No. 07-E-042, 1-38.

Bargeron, L., Lehn, K., & Smith, J. (2015). Employee–management trust and M&A activity. *Journal of Corporate Finance*, 35, 389-406.

Betermier, S., Calvet, L. E., & Sodini, P. (2017). Who are the value and growth investors? *The Journal of Finance*, 72(1), 5-46.

Beyhaghi, M., D'Souza, C., & Roberts, G. S. (2014). Funding advantage and market discipline in the Canadian banking sector. *Journal of Banking & Finance*, 48, 396-410.

Bugeja, M., Matolcsy, Z., Mehdi, W., & Spiropoulos, H. (2017). Is non-executive directors' pay or industry expertise related to takeover premiums, abnormal returns and offer price revisions? *Australian Journal of Management*, 42(3), 355-375.

Cheng, P., Li, L., & Tong, W. H. (2016). Target information asymmetry and acquisition price. *Journal of Business Finance & Accounting*, 43(7-8), 976-1016.

Chidambaran, N. K., Krishnakumar, D., & Sethi, M. (2018). Cross-border vs. domestic acquisitions: Evidence from India. *Journal of Economics and Business*, 95, 3-25.

Chow, T., Klassen, K. J., & Liu, Y. (2016). Targets' Tax Shelter Participation and Takeover Premiums. *Contemporary Accounting Research*, 33(4), 1440-1472.

Cotei, C., & Farhat, J. B. (2009). The trade-off theory and the pecking order theory: are they mutually exclusive? *North American Journal of Finance & Banking Research*, *3*(3).

Demirtaş, G. (2017). Board involvement in the M&A negotiation process. *International Review of Financial Analysis*, 50, 27-43.

Dentsu Aegis (2014). Network to Acquire MKTG, INC. for $2.80 per Share in Cash. *PRNewswire*. [online] https://www.prnewswire.com/news-releases/dentsu-aegis-network-to-acquire-mktg-inc-for-280-per-share-in-cash-260816921.html (Accessed 25 July 2018).

Dimopoulos, T., & Sacchetto, S. (2014). Preemptive bidding, target resistance, and takeover premiums. *Journal of Financial Economics*, 114(3), 444-470.

Draper, P., & Paudyal, K. (2008). Information asymmetry and bidders' gains. *Journal of Business Finance & Accounting*, 35(3-4), 376-405.

Fotis, P. N. (2013). Merger enforcement: law and statistical evidence worldwide. *International Journal of Economics and Business Research*, 5(3), 272-285.

Fujifilm (2015). Japan's Fujifilm agrees to buy Cellular Dynamics for $307 million. *Reuters* [online] https://www.reuters.com/article/us-fujifilm-cellular-dynamics/japans-fujifilm-agrees-to-buy-cellular-dynamics-for-307-million-idUSKBN0MQ0O620150330 (Accessed July, 25th 2018)

Garde, Damian. (2016). Astellas finally wraps up its $379M deal for Ocata. *Fierce Biotech*. [online] https://www.fiercebiotech.com/financials/astellas-finally-wraps-up-its-379m-deal-for-ocata (Accessed July, 25th 2018)

Gomulya, D., Jin, K., Lee, P. M., & Pollock, T. G. (2019). Crossed wires: Endorsement signals and the effects of IPO firm delistings on venture capitalists' reputations. *Academy of Management Journal*, 62(3), 641-666.

Harris, R. S., & Ravenscraft, D. (1991). The role of acquisitions in foreign direct investment: Evidence from the US stock market. *The Journal of Finance,* 46(3), 825-844.

Haspeslagh P.C. and Jemison D.B.1991. Managing Acquisitions. Creating Value through Corporate Renewal. The Free Press, New York

Haunschild, P. R. (1994). How much is that company worth? Interorganizational relationships, uncertainty, and acquisition premiums. *Administrative Science Quarterly,* 391-411.

Huang, Q., Jiang, F., Lie, E., & Yang, K. (2014). The role of investment banker directors in M&A. *Journal of Financial Economics*, 112(2), 269-286.

Jeon, J. Q., & Lee, C. (2014). Effective Post-Signing Market Check or Window Dressing? The Role of Go-Shop Provisions in M&A Transactions. *Journal of Business Finance & Accounting*, 41(1-2), 210-241.

Jordan, D. J., Rice, D., Sanchez, J., & Wort, D. H. (2011). Explaining bank market-to-book ratios: Evidence from 2006 to 2009. *Journal of Banking & Finance*, 35(8), 2047-2055.

Jory, S. R., Ngo, T. N., & Wang, D. (2016). Credit ratings and the premiums paid in mergers and acquisitions. *Journal of Empirical Finance*, 39, 93-104.

Kim, J. Y., & Canina, L. (2013). Acquisition premiums and performance improvements for acquirers and targets in the lodging industry. *Cornell Hospitality Quarterly*, 54(4), 416-425.

Kim, J. Y., Haleblian, J., & Finkelstein, S. (2011). When firms are desperate to grow via acquisition: The effect of growth patterns and acquisition experience on acquisition premiums. *Administrative science quarterly*, 56(1), 26-60.

Kim, Y., & Ployhart, R. E. (2018). The strategic value of selection practices: antecedents and consequences of firm-level selection practice usage. *Academy of Management Journal*, 61(1), 46-66.

Kiyota, K. (2015). Trends & Characteristics of Inward & Outward Foreign Direct Investment in Japan. *Japan Spotlight*, 34, 18-21

Koros, L. C., Korir, M., & Maru, L. (2020). Effect of Equity Financing Strategy on Service Quality; Does Bed Capacity Matter; Evidence from Healthcare Providers in Kenya. *Journal of Finance and Accounting*, 4(1), 39-53.

Lee, G., Cho, S. Y., Arthurs, J., & Lee, E. K. (2019). CEO pay inequity, CEO-TMT pay gap, and acquisition premiums. *Journal of Business Research,* 98, 105-116.

Lim, J., Makhija, A. K., & Shenkar, O. (2016). The asymmetric relationship between national cultural distance and target premiums in cross-border M&A. *Journal of Corporate Finance*, 41, 542-571.

Liu, H., & Hou, C. (2019). Does trade credit alleviate stock price synchronicity? Evidence from China. *International Review of Economics & Finance*, 61, 141-155.

Malhotra, S., Zhu, P., & Reus, T. H. (2015). Anchoring on the acquisition premium decisions of others. *Strategic Management Journal,* 36(12), 1866-1876.

Manickam & Senthilkumar. (2011). Stock Return, Size and Market-to-Book Ratio: Evidence from Selected Indian Industries. *Finance India*., Vol. 25 Issue 2, p415-427

Mateev, M., & Andonov, K. (2018). Do European bidders pay more in cross-border than in domestic acquisitions? New evidence from Continental Europe and the UK. *Research in International Business and Finance*, 45, 529-556.

Moeller, S. B., Schlingemann, F. P., & Stulz, R. M. (2004). Firm size and the gains from acquisitions. *Journal of financial economics*, 73(2), 201-228.

Robinson, C. D., Tomek, S., & Schumacker, R. E. (2013). Tests of moderation effects: Difference in simple slopes versus the interaction term. *Multiple Linear Regression Viewpoints*, 39(1), 16-24.

Roll, R. (1986). The hubris hypothesis of corporate takeovers, *Journal of Business,* Vol. 59, 1986, pp. 197–216.

Sagner, J. S. (2007). Why working capital drives M&A today. *Journal of Corporate Accounting & Finance*, 18(2), 41-45.

Shams, S., & Gunasekarage, A. (2019). Competition in the acquisition market and acquirers' long‐run performance. *International Finance*, 22(3), 399-421.

Sirower, M. L., & Sahni, S. (2006). Avoiding the "synergy trap": Practical guidance on M&A decisions for CEOs and boards. *Journal of Applied Corporate Finance*, 18(3), 83-95.

Spence, M. (1973). Job Market Signaling. *Quarterly Journal of Economics,* 87(3), 355–374.

Starks L. and Wei, K.D. (2013). Cross-border mergers and differences in corporate governance. International Review of Finance, 13 (3), pp. 265-297

Sun, F., & Wei, X. (2019). Pension discount rate and investor sentiment. *Managerial Finance*.

Takechi, K. (2011). R&D intensity and domestic and cross-border M&A of Japanese firms before domestic M&A deregulation. *Japan and the World Economy*, 23(2), 112-118.

Urbšienė, L., Nemunaitytė, V., & Zatulinas, A. (2015). Comparison of premiums of Chinese and European companies in mergers and acquisitions in Europe. *Organizations and Markets in Emerging Economies*, 6(2), 67-102.

Uysal, V. B. (2011). Deviation from the target capital structure and acquisition choices. *Journal of Financial Economics*, 102(3), 602-620.

White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica.* Journal of the Econometric Society, Vol. 48, No. 4, 817-*838.*

Weinstein, D. E., & Yafeh, Y. (1998). On the costs of a bank-centered financial system: Evidence from the changing main bank relations in Japan. *The Journal of Finance*, 53(2), 635-672.