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Abstract:

In this paper, we investigated the affect of tender offer transactions in Japan from four perspectives. The first one is in regards to the Pecking Order Theory, and the second one concerns the Method-of-Payment Hypothesis. Both of these first two perspectives are related to manager payment method decisions, such as cash versus stocks. The third perspective is taken from the Financial Slack Hypothesis, which is very similar to the Free Cash Flow Hypothesis, and the last perspective takes into account the Misvaluation Hypothesis. These latter two perspectives are similarly related to the subsequent responses from investors that follow the announcements of tender offers.

We found strong evidence supporting the Pecking Order Theory, because managers are deeply motivated to select cash payments when they have an extensive amount of financial slack, free cash flow, representative of cash or cash equivalent. Unfortunately, on the other hand, we could not find any empirical data to fully support the Method-of-Payment hypothesis which was originally introduced and supported empirically in the U.S.

Evidence from our research for the Financial Slack or Free Cash Flow and Misvaluation hypotheses proved that investor reactions in Japan are similar to those in the U.S. A Japanese market with an increase in tender offer transactions contributes to the wealth of both acquiring and target firms, despite the stock market responding negatively to investments from acquiring firms with an extensive amount of financial slack or free cash flow. Furthermore, our B/P ratio conclusions reaffirm the propositions of Shleifer and Vishny (2003), while the V/P ratios support Dong, et al. (2006) who used the Residual Income Model.

1. Introduction

(1) Purpose

The following study investigates the affect of tender offer transactions in Japan from four perspectives. The first one regards the Pecking Order Theory, and the second one concerns the Method-of-Payment Hypothesis. Both of these first two perspectives are related to manager decisions about payment methods, such as cash versus stocks. The third perspective is in regards to the Financial Slack Hypothesis, which is very similar to the Free Cash Flow Hypothesis, and the last perspective takes into account the Misvaluation Hypothesis. These latter two perspectives are similarly related to the subsequent responses from investors that follow the announcements of tender offers.

In Japan, the new corporate situation and resulting legal climate further stimulated activity within the tender offer market, and created a much needed shift in financing from lending, especially main banking lending, towards direct funding from the capital market. Shareholders often require corporate managers to maximize the firms' value, unlike conventional creditors, and therefore, inadvertently promote the stock swap scheme of 1999. Firms have to focus on their business, and allocate resources carefully in order to be more efficient maximizing their value. In these cases, tender offer transactions are used as an enhancement to shorten the 'focus' process without having to restructure the business internally.

Firstly, we investigated whether an acquiring firm with a great amount of financial slack or abundant cash or cash equivalents is more inclined to choose cash payment, as proposed by the Pecking Order Theory. We also investigated if firms with a high debt ratio are more inclined to choose the stock payment option.

Secondly, we investigated whether managers are motivated to increase the stockholder value by acquiring relatively under-valued companies using their own stocks as payment when their stocks are over-valued, outlined by the Method-of-Payment hypothesis introduced by Shleifer and Vishny (2003).

Thirdly, we investigated whether managers who have an extensive amount of financial slack have a tendency to over-invest in poor opportunities originally suggested by Myers and Majluf (1984) and Lang et al. (1991). We also investigated whether managers with an expendable cash stock or cash equivalent also have a tendency to over-invest in poor opportunities, which is more commonly known as the Free Cash Flow hypothesis (Jensen, 1986).

Lastly, we assessed the difference between the fundamental value and the market value of firms (Misvaluation). Investors will buy the acquiring firm's stock when the acquirers and/or targets are undervalued, and furthermore, consistently sell the stock of acquiring firms when the acquirers and/or targets are overvalued. The fundamental value was calculated according to the Residual Income Model (RIM) using the stock holders' equity value and the expected future net income of the firm's value.

(2) Composition

The composition of this paper is as follows:

Section 2 reviews previous research published on the short-term stock performance of tender offer transactions. We especially highlight the differences in the post-tender offer stock performance between the U.S. and Japan.

Section 3 describes hypotheses related to manager decisions on payment methods, such as cash versus stocks. The first and second hypotheses are the Pecking Order hypothesis, and the Method-of-Payment hypothesis.

Section 4 describes hypotheses, such as the Financial Slack or Free Cash Flow, and Misvaluation hypothesis, related to investor subsequent responses following the announcement of tender offers.

Section 5 provides a general overview of our data sample, sample characteristics, and the method used to estimate the fundamental value of a firm, which is qualified to test the Method-of-Payment and Misvaluation hypothesis.

Section 6 presents our investigation results with respect to the payment method (cash vs. stock) and the subsequent cross-sectional stock returns performing univariable tests.

Section 7 presents our investigation results with respect to the payment method (cash vs. stock) and the subsequent cross-sectional stock returns performing multivariable tests.

Section 8 provides our main conclusions and future research goals.

2. Short-term Stock Performance of Tender Offer Transactions

(1) Previous Research on the Short-term Stock Performance of Tender Offer Transactions

In the U.S., the economic effect of tender offer transactions has been thoroughly investigated with event study methodology for more than thirty years. Bhagat et al. (2005) reported an average positive 0.18% on five-day Cumulative Abnormal Returns (CARs, equal-weighted) for the acquiring firms (not significant), an average positive 30.01% on five-day CARs for the target firms (1% significant level), and an average positive 5.27% on five-day CARs for the combined acquiring and target firms (1% significant level) calculated using the value-weighted average of acquirer and target CARs.

In Japan, the number of tender offer transactions has been far less than in the U.S., up until the early 1990s. Usui (2001) examined the period from 1989 to 1999 and reported an average positive 0.24% on three-day CARs for Japanese acquiring firms (not significant), and an average positive 5.81% on three-day CARs for Japanese target firms (1% significant level).

(2) Measuring the Economic Significance of Tender Offer Transactions

In this paper, we adopted a standard event study methodology to measure the tender offer announcement's economic effect on the acquiring firms, the target firms, and the total economic wealth of the acquirer and target firms calculated with the value-weighted average of acquirer and target CARs. Table 1 shows the CARs for various periods around the

announcement day of tender offers, signified by a (0),, including 217 tender offer transactions from January 1996 to December 2007 [Source: Recof Ltd. MARR M&A data CD-ROM]. In order to eliminate small cases, the sample is compromised of tender offers where both the acquirer and target firm are listed on the Japanese Stock Market. We excluded cases where either the acquirer or target is a financial institution, and cases where a bailout takeover is a result of the target being in financial distress. The term financial distress can be defined by targets who fall into bankruptcy and firms that are saved at a below-market price.

According to Fuller et al. (2002), the abnormal returns of the acquirer and target are calculated with the market adjustment model based on NYSE index data, and, in our study, we used the Topix indicator as a market portfolio. In concern to acquirers, we found average short-term positive abnormal returns for the following time periods: 1.4025% (1% significant level) around the announcement day (-1, +1); 1.5751% (5% significant level) around the announcement day (-3, +3); and 0.7905% (1% significant level) around the announcement day (-5, +5). If we extend the announcement period from (-1, +1) to (-1, +3) or (-1, +5), the short-term positive abnormal returns are likely to be 1.5013% and 1.4950% respectively. This means the announcement effect persists for tender offers, and investors incorporated the tender offer effect immediately following the tender offer announcement.

In considering targets, we found a short-term positive abnormal return of 10.7814% (1% significant level) around the announcement day (-1, +1), 12.6155% (1% significant level) around the announcement day (-3, +3), and 12.9358% (1% significant level) around the announcement day (-5, +5). These returns are considerably larger than those of acquiring firms. These results show that stockholders of target firms benefit substantially more than acquiring firm stockholders. The announcement effect also persists for target firms. The abnormal return 10.7817% around the announcement day (-1, +1) does not diminish even if we extend the announcement period to (-1, +5). The positive abnormal returns continued at 11.6946% for (-1, +3) and 11.3508% for (-1, +5).

When considering the combined wealth of stockholders of the acquiring and target firms, we found a short-term positive abnormal return of 1.8097% (1% significant level) around the announcement day (-1, +1), 1.9806% (1% significant level) around the announcement day (-3, +3), and 2.3846% (1% significant level) around the announcement day (-5, +5).

In Japan, the combined wealth of stockholders in both the acquiring and target firms is far less than their counterparts in the U.S. In Japan, acquiring firm stockholders obtain benefits from tender offers, which is contrary to the U.S. findings. The stockholders of target firms, on the other hand, obtain smaller benefits in comparison to their U.S. counterparts, despite the irony that Japanese target firm stockholders still receive much greater benefits than Japanese stockholders of acquiring firms.

3. Hypotheses Regarding the Means of Payment

According to previous researchers, the positive effect of a regulated management counterbalanced by the negative effects of agency problems have a significant impact on tender offer transactions and the subsequent stock performance of the acquiring firms. Regulated management, which requires an adherence to shareholder directives, involves the effective appropriation of funds into (1) new businesses with a potential synergistic effect with the acquiring firm's core business, and/or (2) businesses characterized by economies of scale, economies of scope, and involvement in acquisition of new technologies.

(1) The Pecking Order Hypothesis

Brealey et al. (2007) introduced the pecking order theory. The pecking order theory illustrates the effects of asymmetric information between internal firms and external investors upon choices between in-house finances, such as cash or cash equivalents, new issues of debt, and equity securities. The choices available for funding consequently lead to a preference amongst firm managers to initially finance a new investment with internal funds, followed by

new issues of debt, and finally with new issues of equity. Therefore, new issues of equity are a last resort used only when the company reaches the maximum debt ratio.

Brealey et al. (2007) introduced the optimal debt ratio using the tax shield concept, which indicates the benefit of the debt in accounting terms when a firm is able to deduct the interest rate on the debt from the taxable income of the firm. Brealey et al. (2007) demonstrated that the tax shield has a positive effect for high debt ratios up until the debt ratio reaches the optimal debt ratio level. Beyond the optimal debt ratio level, however, the negative debt effect from bankruptcy costs outweighs the positive tax benefits for the firm.

Therefore, we can hypothesize that an acquiring firm who has a great amount of financial slack or abundant cash or cash equivalents is more inclined to choose cash payment. However, if a firm has a high debt ratio, acquiring firms are inclined to choose stock payment. Hence, we propose the following two consequential hypotheses:

Hypothesis 1: The more financial slack or cash ratio within the acquiring firm, the higher the cash payment ratio.

Hypothesis 2: The higher the debt ratio for an acquiring firm, the higher the stock payment ratio.

(2) The Method-of-Payment Hypothesis

Shleifer and Vishny (2003) reported that managers are motivated to increase the stockholder value by acquiring relatively under-valued companies using their own stocks as payment when their stocks are over-valued. Under these circumstances, the subsequent stock performance of the acquiring firm is negative. Managers are also motivated to use cash payments when their own stocks are reasonably-valued or under-valued, in which case, the subsequent stock performance of the acquiring firm is positive. Shleifer and Vishny (2003) concluded that managers will attempt to increase stockholder values by positively acquiring

relatively under-valued target firms in two ways: (1) using stock payments with their own relatively over-valued stocks, or (2) using cash payments when their own stocks are relatively under-valued. These two transactions are considered to be "stock market driven acquisitions," and is widely known as the Method-of- Payment hypothesis.

> Hypothesis 3: The Method-of-Payment hypothesis predicts that managers use stock payments positively when their own stocks are relatively over-valued in the capital market, and, furthermore, they use cash payments positively when their own stocks are reasonable or relatively under-valued in the capital market.

4. Hypotheses Regarding the Subsequent Stock Performance

(1) The Financial Slack or Free Cash Flow Hypothesis

According to the findings of Myers and Majluf (1984) and Lang et al. (1999), firms' managers who have an extensive financial slack, defined as the operating income plus depreciation after any interest, taxes, and dividends, have a tendency to over-invest in poor opportunities. Jensen (1986) also introduces the opportunistic behaviors of firm managers within investment decisions given that their firm has an abundant amount of cash or cash equivalents, known as the free cash flow hypothesis, or is also referred to as the manager's entrenchment behavior (Shleifer and Vishny, 1986). Jensen (1986), Shleifer and Vishny (1986) pointed out that the managers make use of M&A transactions as a means for pursuits of personal profits, and managers tend to invest free cash flow in inefficient assets (over-investment) or target firms that will strengthen their managerial powers.

Therefore, we hypothesize that firms with a large amount of financial slack or cash and cash equivalents are also more inclined to obtain a non-suitable target firm due to decisions made by goal-driven managers. The entrenchment behavior of managers leads to the proposal of the following hypothesis:

Hypothesis 4: The more financial slack or cash ratio of the acquiring firm, the lower the subsequent stock performance of the acquiring firm.

(2) The Misvaluation Hypothesis

Frankel and Lee (1998) pioneered research in capital market misvaluations. They examined the investment strategies of hedging portfolios using RIM[1] in U.S. M&A transactions between 1975 to 1993, which reported a positive long-term excess return. The fundamental value of the firm was estimated from the future earning value and the long term growth rate forecast given by financial analysts in the I/B/E/S data base for RIMs. Quintile portfolios were constructed and sorted according to the V/P ratio. The organization facilitated Frankel and Lee's estimation that the fifth quintile (the highest V/P ratio) consisted of the most under-valued firms whose subsequent stock performance would ironically be the highest. The first quintile (the lowest V/P ratio), on the other hand, represents the most over-valued firms whose subsequent stock performance is lowest.

The cumulative performance of hedging portfolios (long-short portfolios) is defined by the encouragement for long-term acquisition of firms in the fifth portfolio (the highest V/P ratio) and the simultaneous short-term possession of first portfolio firms (the lowest V/P ratio). This strategy outperforms the conventional hedging portfolio strategy that merely relies on the B/P ratio or size (market value).

Hypothesis 5: The difference between the firms' fundamental value and market price has an impact on the subsequent stock performance of acquiring firms. The more under-valued the acquirer and the target firms are, the higher the stock performance of both firms around the tender offer announcement date.

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[1] Dechow, *et al*. (1999) and Lee, *et al*. (1999), etc also reported the results of investment strategy following this V/P anomaly.

5. Characteristics of Sample Data and Methodology

(1) Characteristics of Sample Data

Our study focuses on the payment method (cash vs. stock) and the short-term stock returns of the acquiring firms around the announcement day of tender offer transactions, and tests the hypotheses addressed in Section 3 and 4. Our sample includes tender offer transactions from January 1996 to October 2007, available in the database of RECOF MARR CD-ROM, that satisfy the following criteria:

    (a) Acquirer and/or target firms were not financial institutions, nor involved in a bailout takeover where the transaction was a result of the target being in financial distress, etc.

    (b) Both acquiring and target firms were listed in the stock exchange in order to exclude small cases.

    (c) The payment method of the tender offer transaction (cash vs. stock) was identified by Nikkei Telecom 21, Nikkei Newspaper digital Ltd., or MARR M&A data CD-ROM by Recof Ltd.

    (d) Stock price and financial data were available from the Nikkei NEEDS-Financial QUEST by Nikkei Media Marketing, Inc., in order to calculate the B/P ratio.

    (e) Financial analyst forecast value of future profit was available from the I/B/E/S or Toyo Keizai data base, in order to calculate the V/P ratio.

    (f) Monthly returns were available for at least twenty-four months in order to calculate the cost of the equity capital.

    Table 2 shows our sample characteristics for tender offers by calendar year. The number of tender offer transactions in Japan has increased dramatically since the revision of corporate law introduced the stock swap scheme in 1999. This scheme has led to an increase in tender offer transactions, because more listed acquiring firms bid on the listed targeting firms with the option of stock swapping as payment. Therefore, the number of listed firm tender offer cases has overall increased dramatically, jumping from the single digits into the

double digits simply due to the change in policy implemented by the stock swap scheme in 1999. The level exceeded thirty in 2005 and 2006.

We presented the following financial attributes of our sample: market equity (which represents firm size), book-to-market ratio, leverage, and ROE. We calculated these figures based on the data that was available on the tender offer announcement dates.

The median market equity value of the acquiring firms (¥204,336 million) is 25.39times greater than the medium market value of the target firms (¥8,049 million). The acquirers in our sample have a considerably higher median stock value than the median firm value listed on the stock exchange (¥204,336 million vs. ¥15,342 million).

Regarding the book-to-market ratio, the medium of the acquirer is 0.6497, and that of the target is 1.0693. Regarding financial leverage, the medium of the acquirer is 0.6509, and that of the target is 0.5872. Regarding ROE, the medium of the acquirer is 5.44%, and that of the target is 2.87%. The book-to-market is widely interpreted as the proxy variable of the firm's growth. The medium 0.6497 of the acquirer is much less than the medium book-to-market ratio 1.119 of all the listed firms, and the medium ROE 5.44% of the acquirer is much higher than the medium ROE 3.93% of all listed firms. Therefore, the acquirers in our sample are composed of firms that are highly profitable and have the characteristics of growth stocks (i.e., low book-to-market stocks), in other words, possessing high qualified growth opportunities.

Table 2 shows our sample characteristics by year and Table 3 shows them by industry. Tender offers in Japan are concentrated because only four sectors account for 43% of all tender offers in our sample. These four sectors are: retail trade (11.52%), electric & electric devices (11.06%), service (11.06%), and wholesale trade (9.68%). Construction (5.99%) and chemicals (5. 99%) were the fifth and sixth ranked sectors. In the service, retail trade, and food sectors, tender offers were within the across sectors (diversified) as opposed to same sectors (non-diversified). On the other hand, in electric & electric devices, wholesale trade,

and construction industries, diversified and non-diversified tender offers were found in equal proportions.

(2) The Residual-Income Valuation Model

We estimate the firm's value based on the residual income earned after the explicit forecasting period. Lee et al. (1999) reported the predictive power of V_t estimates using three different forecast horizons beyond three years, and V_t estimates were not sensitive to the number of the forecast periods or the cost of equity capital. Thus we used three period forecast horizons following Dong et al. (2006),

$$V_t = B_t + \frac{E_t[(ROE_{t+1} - r_e) * B_t]}{1 + r_e} + \frac{E_t[(ROE_{t+2} - r_e) * B_{t+1}]}{(1 + r_e)^2} + \frac{E_t[(ROE_{t+3} - r_e) * B_{t+2}]}{(1 + r_e)^2 * r_e},$$

where

B_t = the book value of common equity at date t,

$E_t[\cdot]$ = the expectation operator at date t,

r_e = the cost of equity capital,

ROE_{t+i} = the after-tax return on common equity for the period ending at date $t+i$,

and the last term discounts the period $t+3$ residual income in perpetuity.

Forecast ROEs are calculated as

$$ROE_{t+i} = EPS_{t+i}/\bar{B}_{t+i-1},$$

where

EPS_{t+i} = the forecasted earnings per share (EPS) for the period ending at date $t+i$,

$\bar{B}_{t+i-1} = (B_{t+i-1} + B_{t+i-2})/2,$

If we assume that the firm's book value increases with a sustainable growth rate, then the future book values of common equity at date $t+i$ are calculated as

$$B_{t+i} = B_{t+i-1} + (1 - k)EPS_{t+i},$$

To estimate the sustainable growth rate k, RIM calls for an estimate of the expected proportion of earnings to be paid out in dividends. We estimated this ratio by dividing actual dividends from the current fiscal year by the same time period;

$$k = \frac{D(t)}{EPS(t)}.$$

We excluded stock repurchases due to the practical problems associated with determining the likelihood of their occurrence in future periods, following Lee et al. (1999). For firms with negative earnings for period t, we assumed their payout ratio was 0.06 times the stockholders' equities because historically the long term return-on-equities (ROE) in Japan is approximately 6%[2].

(3) Estimation of the Cost of Equity Capital

The cost of equity capital r_e for each firm (annual rate) was estimated using the Capital Asset Pricing Model (CAPM). β at the time of t was estimated monthly using the estimation window from minus 60 months to minus 1 month of the announcement day. We required minimal return data of at least 24 months preceding the announcement date. We estimated the cost of equity capital for each firm as 4.4%, assuming that the risk premium of the market portfolio equaled the average annual rate of Topix[3].

(4) Estimation of the Fundamental Value

Our study estimated the fundamental value of firms by using the forecast value of the future profit and the long term growth rate by financial analysts in the I/B/E/S data base (or Tokyo

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[2] The long-run return-on-equities (ROE) in Japan is approximately 6%. Therefore we use 6% of ROE as a proxy for normal earnings levels when current earnings are negative. Lee et al. (1999) and Dong et al. (2006) use 6% of return-on-total-assets, which is approximately the same as the long-run performance of the United States, as a proxy for normal earnings levels when current earnings are negative.

[3] Average TOPIX risk premium for 30 years, from January 1976 to December 2005, was 4.4% [Source: Stocks Risk Premium Report of Japan (version in fiscal year 2006) by Ibottoson Associates Japan Ltd.]

Keizai data base if the forecast value was not available in the I/B/E/S data base) for RIM[4].

From Table 4 to Table 6 show the V/P ratio (fundamental value to market value ratio) and B/P ratio (book-to-market ratio) of both acquirers and targets. We identified the payment methods (cash vs. stock) of 217 transactions within our sample from Nikkei Telecom 21 by Nikkei Newspaper Digital Ltd. or MARR M&A data CD-ROM by Recof Ltd. We calculated V/P ratios for 217 cases by using the financial analyst forecast value of the future profit and estimating the cost of equity capital by CAPM. Our sample required that both acquirer and target were listed in the stock exchange in order to eliminate small cases.

6. Results of our Univariable Tests

Using univariable tests, we investigated the statistical differences amongst payment methods and CARs between low financial attributes, such as the financial slack, the cash ratio, leverage, comparing them against high financial attributes. We also investigated the statistical differences amongst payment methods and CARs between low and high ranking V/P groups, and low and high ranking B/P groups. Table 4 summarizes the results of this differential test on mean values, and the z value for the differential ratio test and t value for the differential number test are reported given the assumption of independent samples.

(1) The Univariable Test for the Pecking Order Hypothesis within Acquiring Firms

First, we focused on the cash payment ratio differences between acquiring firms categorized as having low financial slack and cash ratios, and acquiring firms who have a high amount of

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[4] The I/B/E/S updates the fiscal year-end of all their forecasts (that is, FY1, FY2, and FY3) in the month that actual annual earnings are announced. If EPS forecast for any horizon is not available, it is calculated by multiplying the long-term growth rate (provided by the I/B/E/S) by EPS forecast for the previous period. If the long-term growth rate is not available in the I/B/E/S, it is substituted by the first preceding available EPS forecast, following a constant forecast model (see Dong et al. (2006)). Contrary to the United States, the book value of the equity for the most recent fiscal year end is also available in Earnings announcement by firms in Japan, where the Tokyo Stock Exchange requires listed firms to report the financial result in their Earnings announcements within 45 days of a fiscal year-end, and which are the highlight of annual report, together with the summary of financial statements.

financial slack and cash ratios. The pecking order hypothesis insists that firms with a high amount of financial slack and/or cash ratio have the tendency of using cash payments when acquiring target firms.

The first and second rows of Panel (A) show the results of the univariable test comparing firms with a low amount of financial slack and/or cash ratio (the first tertile) against firms with a high amount of financial slack and/or cash ratio (the third tertile). Our results are consistent with the aforementioned hypotheses 1 and 2.

The low financial slack firms (the average financial slack = 0.60%) have a cash payment ratio at 48.78%, which is significantly lower than the cash payment ratio of high financial slack firms (the average financial slack = 17.57%) who are at a calculated 66.67% (5% level, one-tailed). However, Martin (1996) showed contradictory empirical results in the U.S. (4.85% financial slack cash payment measures versus 3.23% financial slack stock payment measures with a 1% significance level).

Low cash ratio firms (the average cash ratio = 4.57%) also have a significantly lower cash payment ratio of 44.19% compared to the 57.58% cash payment ratio found in high cash ratio firms (the average cash ratio = 32.57%, 10% level, one-tailed). This finding, on the other hand, is consistent with Martin's (1996) empirical findings in the U.S. (2.86% cash ratio cash payment measures versus 3.23% cash ratio stock payment measures, and the difference has a 5% significant level).

Secondly, we focused on the cash payment ratio differences between acquiring firms categorized as having a low debt ratio and acquiring firms with high debt ratios. The Pecking Order hypothesis insists that firms who exceed an optimal debt ratio have the tendency of issuing new stocks when acquiring target firms. Therefore, we expect a low cash payment ratio for firms with high debt ratios.

The third row of Panel (A) shows the results of the univariable test that compares low leverage acquiring firms (the first tertile) with high leverage acquiring firms(the third tertile). We could not find any significant differences between low and high leverage acquiring firms,

even though Harford et al. (2009) did find empirical differences consistent with our hypothesis 2. They found a negative association between the deviation from the optimal leverage and the use of cash payment by estimating the optimal leverage according to the tobit model shown in Kayhan and Titman (2007).

(2) The Univariable Test for the Method-of-Payment Hypothesis within Acquiring Firms

In this step, we focused on the cash payment percentage differences between the low V/P ratio ranking group and the high V/P ratio ranking group. Furthermore, we investigated the cash payment percentage differences between the low B/P ratio ranking group and the high B/P ratio ranking group, because the B/P ratio is commonly used as a conductive corporate valuation proxy for the V/P ratio.

The fourth and fifth rows of Panel (A) show the results of the univariable test that compares acquiring firms with a low valuation ratio (relatively expensive: the first tertile) with acquiring firms with a high valuation ratio (relatively cheap: the third tertile). We found that if the acquirer's V/P ratio is high, then the B/P ratio is also high (10% significant level)[5]

The low V/P ratio firms (the average V/P ratio = 0.5251) have a 55.22% cash payment ratio which is higher than (not significantly) the high V/P ratio firms (the average V/P ratio = 1.8985) who have a 47.46% cash payment ratio. While these results do not support our hypothesis 3, it also does not completely disprove our theory. The proxy valuation measure, the B/P ratio, also showed a contradictory result with hypothesis 3 (54.76% cash payment for low B/P ratio groups versus 35.71% cash payment for high B/P ratio groups at a 5% significance level, one-tailed).

(3) The Univariable Test for the Financial Slack and Free Cash Flow Hypothesis within Acquiring Firms

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[5] The covariance (14.26%) between these two ratios is not high. Therefore, the V/P and B/P ratios can be considered only marginally correlated.

In this following step, we focused on the CAR (-3, +3) differences between acquiring firms categorized as having low financial slack and cash ratios, and acquiring firms with a high amount of financial slack and cash ratios independently. The Financial Slack and/or Free Cash Flow hypotheses insist that firms with a high amount of financial slack and/or cash ratio have the tendency of investing in poor opportunities, including non-suitable target firms.

The first and second rows of Panel (B) show the results of the univariable test comparing low financial slack and/or cash ratio firms (the first tertile) with   high amount financial slack and/or cash ratio firms (the third tertile). Our results are consistent with hypotheses 4.

Low financial slack firms (the average financial slack = 0.71%) have a 4.09% CAR (-3, +3) which is significantly higher than the high financial slack firms (the average financial slack = 17.76%) with a 0.80% CAR (-3, +3) (10% level, one-tailed) also supporting hypothesis 4. Low cash ratio firms (the average cash ratio = 4.60%) also have a significantly higher CAR (-3, +3) at 2.31% compared to the high cash ratio firms' (the average cash ratio = 31.93%) who have a CAR (-3, +3) at -1.54% (10% level, one-tailed), which is further consistent with hypothesis 4.

(4) The Univariable Test for the Misvaluation Hypothesis within Acquiring Firms

In this perspective, we focused on the CAR (-3, +3) differences between the low V/P ratio ranking group and the high V/P ratio ranking group for both acquiring and target firms. We also investigated the CAR (-3, +3) differences between the low B/P ratio ranking group and the high B/P ratio ranking group for both acquiring and target firms. We executed the univariable test with consideration to CAR (-3, +3) differences by using CARs that were estimated through the market model. The fourth and fifth rows of Panel (B) show the results of the univariable test that compares acquiring firms with a low valuation ratio (relatively expensive: the first tertile) against acquiring firms with a high valuation ratio (relatively cheap: the third tertile). The sixth and seventh rows of Panel (B) show the results of the

univariable test that compares acquiring firms with low target firms valuation ratios against acquiring firms with a high target firms valuation.

Low acquiring firmV/P ratio groups (the average V/P ratio = 0.5174) have a -0.74% CAR (-3, +3), which is significantly lower than the high acquiring firm V/P ratio groups (the average V/P ratio = 1.8672) 3.65% CAR (-3, +3) (1% level, one-tailed). These results support hypothesis 5. The proxy valuation measure, B/P ratio, also showed a consistent result supporting hypothesis 5 with a -0.87% CAR (-3, +3) for low acquiring B/P ratio groups versus a 5.50% CAR (-3, +3) for high B/P ratio groups at a 1% significance level, one-tailed.

We also found consistent results with hypothesis 5 in regards to target firm valuations. The low target firms' V/P ratio groups (the average V/P ratio = 1.0821) have a significantly lower CAR (-3, +3) at 0.60% compared to the high target firms' V/P ratio groups (the average V/P ratio = 1.1911) CAR (-3, +3) at 3.81% (1% level, one-tailed). Similarly, low target firms' B/P ratio groups (the average B/P ratio = 0.4045) 1.02% CAR (-3, +3) is also significantly lower than the high target firms' B/P ratio groups (the average B/P ratio = 2.6349) CAR (-3, +3) at 4.27% (5% level, one-tailed).

For both univariable tests for the Financial Slack/Free Cash Flow and Misvaluation hypothesis, CAR (-3, +3) differences were taken into account by using CARs that were estimated through the market model as a robustness check. We present these results in Appendix 1, and they are shown to be consistent with Panel (B) of Table 4.

7. Results of our Multivariable Tests

Table 5 shows the results of the logit multivariable regression. The Pecking Order hypothesis is tested by examining the relationship between the financial attributes, such as financial slack, cash ratio, and leverage, and payment methods, either cash or stocks, after controlling other variables. The Means of Payment hypothesis is tested by examining the relationship between the V/P ratio and payment methods given the control of all other variables.

Table 6 displays the results from the ordinary multivariate regression. The Financial Slack or Free Cash Flow hypotheses can be tested by examining the relationship between the financial slack or the cash ratio and the subsequent stock performance of the acquirer given that all other variables are controlled. The Misvaluation hypothesis can be tested by examining the relationship between the V/P ratio and the subsequent stock performance of the acquirer while controlling all other variables. We regressed the cumulative abnormal returns of the acquirer (-3, +3) with respect to the financial slack, the cash ratio, and acquiring firm V/P ratios.

In tables 5 and 6, we included the following control variables: the diversification Dummy, the logarithm of relative equities, the acquirer's logarithm of equities, and the target's logarithm of equity.

The control variables in our study are defined as follows:

The diversification dummy = 1, if the target is outside the acquirer's industry; diversification dummy = 0, if they are both in the same industry.

Relative equity is the ratio of the acquirer's market equity to the target's market equity.

Equity is the market value of common stockholders.

The second column in the tables gives the expected coefficient signs in accordance with our hypotheses. The first row gives the coefficient, and the second row gives the p-value in parentheses (The coefficient is followed by the p-value in parentheses).

(1) The Multivariable Test for the Pecking Order Hypothesis within Acquiring Firms

The Pecking Order hypothesis suggests that managers will choose a cash payment if their firm has a great amount of financial slack, abundant cash, or cash equivalents. However, the Pecking Order hypothesis also suggests that, if a firm has a high amount of leverage, managers will be more inclined to choose stock payments. In the 6th column of Table 5, the coefficient of the acquiring firms' financial slack is 7.1783 (5% significant level), and the coefficient of the acquiring firms' cash ratio is 3.2986 (10% significant level), which are both

consistent with hypothesis 1. However, the coefficient of the acquiring firm's leverage at 0.5024 is not significantly positive. This result is contradictory with our expectations in hypothesis 2.

(2) The Multivariable Test for the Method-of-Payment Hypothesis within Acquiring Firms

The Method-of-Payment hypothesis predicts that managers will select stock payments when the acquiring firm is overvalued in the market. In the last column of Table 5, the coefficient of acquirers' V/Ps at -0.3291 is not significantly negative. This result is also contradictory with our expectations outlined in hypothesis 3. The coefficient for the acquirers' B/Ps, which is the alternative corporate valuation variable, is also not significantly negative at-0.4692. Similarly, this result also contradicts our predictions presented in hypothesis 3.

(3) The Multivariable Test for the Financial Slack and Free Cash Flow Hypotheses within Acquiring Firms

The Financial Slack hypothesis predicts that the stock market will respond negatively to investments from acquiring firms which have an extensive amount of financial slack. The Free Cash Flow hypothesis similarly suggests that the stock market will respond negatively to investments from acquiring firms which have an expendable stock of cash or cash equivalents. In the 6th column of Table 6, the coefficient for the acquiring firms' financial slack is -0.1883 (5% significant level), while the coefficient of the acquiring firms' cash ratio is -0.2944 (10% significant level), and both of which are consistent with the hypothesis 4.

(4) The Multivariable Test for the Misvaluation Hypothesis within Acquiring Firms

The Misvaluation hypothesis suggests that positive excess returns for the acquiring firms will be detected around the announcement day of tender offer transactions if the acquirer and/or target are undervalued in the market. In the farthest right column in Table 6, the coefficients

of the acquiring firms V/P and target firms V/P are significant at a 5% and 10% level respectively, supporting our fifth hypothesis. The target firm's V/P coefficient, 0.0105, on average, is one-third of the acquiring firm's V/P coefficient, 0.0334.

Furthermore, we continued to consider the alternative valuation measure, B/P, in the ordinary multivariate regressions. In the farthest right column in Table 6, the coefficient of the acquiring firm's B/P is not significantly positive, while the coefficient of the target firm's B/P is contrastingly significantly positive at a 1% level. Both of these findings are consistent with hypothesis 5.

We found that these results are surprisingly similar over various periods for the dependent variable, CARs, of the acquirers, including (-10, +10), (-5, +5), (-3, +3), (-1, +1), (-1, +3), and (-1, +5), which were not included in our original analyses.

Similar to the univariable tests in section 6, we also considered the CAR (-3, +3) estimated by the market model in the multivariable tests for the Financial Slack/Free Cash Flow and Misvaluation Hypotheses as a robustness check. These results are also consistent with Table 4, and are displayed in Appendix 2.

8. Concluding remarks

In this paper, we investigated the effects of tender offer transactions in Japan from four perspectives during the sample period from 1996 to 2007. The first perspective is in regards to management payment decisions, such as cash versus stocks. We found strong evidence supporting the Pecking Order Theory as managers are deeply motivated to select cash payments when they have an extensive amount of financial slack or free cash flow, representative of cash or cash equivalent. Unfortunately, we could not find any empirical data to fully support the Method-of-Payment hypothesis that was originally introduced and later repeatedly supported empirically in the U.S.

The second angle we investigated was the investor's subsequent response following tender offer announcements. Evidence in this step of our research proved that reactions in

Japan are similar to those in the U.S., and predicted by the Financial Slack, the Free Cash Flow Ratio Hypothesis, and the Misvaluation Hypothesis. The first piece of evidence we found that supports this conclusion is within the Japanese market where an increase in tender offer transactions contribute to the wealth of both acquiring and target firms, even though the stock market responds negatively to investments from acquiring firms with an extensive amount of financial slack. In conclusion, our results are consistent with the findings of Myers and Majluf (1984), Smith and Kim (1994), Lang et al. (1999), and Bowers et al. (2000), and empirical data from the U.S., Furthermore, our B/P ratio conclusions reaffirm the propositions of Shleifer and Vishny (2003), while the V/P ratios support Dong et al. (2006) who used the Residual Income Model.

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Table 1 Acquirer and target announcement period cumulative abnormal returns (CAR)

(1) Acquirer Announcement Period CAR

Period	ALL Tender Offers		Tender Offers (stock payment)		Tender Offers (cash payment)
CAR (-10, +10)	1.5589%	*	0.4935%	**	0.8498%
CAR (-5, +5)	0.7905%	***	3.2544%	***	1.1174%
CAR (-3, +3)	1.5751%	**	3.4075%	***	0.3636%
CAR (-1, +1)	1.4025%	***	2.4667%	***	0.3321%
CAR (-1, +3)	1.5013%	**	2.9998%	***	0.3288%
CAR (-1, +5)	1.4950%	**	2.3604%	***	0.9141%
CAR (-1, +10)	1.2082%		2.1815%	**	0.4043%
N	217		100		93

(2) Target Announcement Period CAR

Period	Tender Offers		Tender Offers (stock payment)		Tender Offers (cash payment)	
CAR (-10, +10)	13.2873%	***	13.0501%	***	16.6361%	***
CAR (-5, +5)	12.9358%	***	12.3522%	***	16.0449%	***
CAR (-3, +3)	12.6155%	***	12.0437%	***	15.5219%	***
CAR (-1, +1)	10.7814%	***	10.7501%	***	13.1573%	***
CAR (-1, +3)	11.6946%	***	11.0506%	***	14.6614%	***
CAR (-1, +5)	11.3508%	***	10.6905%	***	14.6033%	***
CAR (-1, +10)	11.1181%	***	10.3334%	***	14.7260%	***
N	217		100		93	

(3) Acquirer and Target Announcement Period CAR

Period	Tender Offers		Tender Offers (stock payment)		Tender Offers (cash payment)
CAR (-10, +10)	2.1189%	**	3.6714%	***	1.2169%
CAR (-5, +5)	2.3846%	***	3.7735%	***	1.6681%
CAR (-3, +3)	1.9806%	***	3.6682%	***	1.0213%
CAR (-1, +1)	1.8097%	***	2.6203%	***	1.1280%
CAR (-1, +3)	1.8641%	***	3.3665%	***	0.8942%
CAR (-1, +5)	1.8040%	***	2.8540%	***	1.3146%
CAR (-1, +10)	1.5239%	**	2.9117%	***	0.5976%
N	217		100		93

Table 1 shows Cumulative Abnormal Returns for various periods around the announcement (day 0) of the acquisition. Our sample includes tender offer transactions from January 1996 to December 2007, taken from the RECOF MARR CD-ROM database, that satisfy the following criteria:

   (a) Acquirer and/or target firms were not financial institutions, nor involved in a bailout takeover that was a result of the target being in financial distress.
   (b) Both acquiring and target firms were listed in the stock exchange, in order to exclude small cases.
   (c) The payment method of the tender offer transaction (cash vs. stock) is identifiable by the Nikkei Telecom 21, Nikkei Newspaper digital Ltd., or MARR M&A data CD-ROM by Recof Ltd.
   (d) The financial analyst forecast for the future profit value is available from the I/B/E/S or Toyo Keizai data base, in order to calculate the V/P ratio to test the Method-of-Payment and Misvaluation hypotheses
   (e) Monthly return amounts are available for at least twenty-four months prior to the announcement month, in order to calculate the cost of the equity capital.
***, **, * denote that the difference in mean values is significant at the 1%, 5%, and 10% level (one-tailed) respectively, based on the two-sample t-test.

Table 2 Descriptive statistics of tender offer transactions by calendar year

		Acquirer				Target											
												(median)		(%)	(%)		
year	N of tender offers	Market equity (¥mln)	book-to-market ratio	leverage	ROE	Market equity (¥mln)	book-to-market ratio	leverage	ROE	transaction value	Total transaction value(¥ mln)	% of completed Acquisitions	Premium (%)	Non Diversifi-cation	Diversifi-cation	Cash payment	Stock payment
1997	1	211,759	0.4341	0.8801	-0.21%	109,725	0.3804	0.7972	5.75%	2,420	2,420	100%	-81.42%	1	0	0	1
1998	3	563,479	0.6146	0.6643	3.67%	13,050	1.0723	0.5294	5.92%	8,858	49,258	100%	30.69%	1	2	3	0
1999	13	219,937	0.7553	0.4876	2.17%	4,962	0.5480	0.4590	-4.31%	8,130	190,723	100%	-2.75%	6	7	4	8
2000	29	223,817	0.5744	0.7478	2.73%	8,049	1.5408	0.5267	0.76%	2,900	48,898	100%	4.25%	4	7	3	6
2001	17	98,770	0.8063	0.5349	4.69%	5,434	1.3457	0.6008	1.28%	4,993	198,509	100%	12.77%	7	10	4	13
2002	24	153,253	1.0084	0.6890	3.36%	2,411	3.0378	0.6564	-9.28%	1,723	111,774	100%	11.57%	13	11	3	20
2003	28	150,321	0.9049	0.7467	0.76%	5,720	1.2108	0.6334	4.43%	2,919	333,796	96.43%	17.46%	15	13	11	12
2004	29	175,702	0.6726	0.5802	5.65%	8,024	1.2139	0.5872	2.53%	4,771	314,896	100%	7.47%	18	11	10	16
2005	31	164,641	0.4687	0.7167	7.04%	7,311	0.7343	0.6158	3.21%	5,045	327,282	96.77%	2.97%	18	13	19	9
2006	36	550,383	0.5858	0.5774	7.68%	16,189	0.8722	0.4812	4.71%	11,837	1,305,087	86.11%	14.91%	12	24	19	10
2007	24	680,180	0.6021	0.6584	8.55%	12,462	1.0761	0.5717	4.30%	5,537	751,338	95.83%	13.97%	10	14	17	5
Total	217	204,336	0.6497	0.6509	5.44%	8,049	1.0693	0.5872	2.87%	4,908	3,633,981	96.31%	9.83%	105	112	93	100

Market equity, book-to-market ratio, leverage, and ROE of both acquirer and target, transaction value, % of completed M&A, Non Diversification, Diversification, cash payment, and stock payment are reported as medium values, by calendar year. Our sample includes tender offer transactions from January 1996 to December 2007, taken from the RECOF MARR CD-ROM database, that satisfy the following criteria:

(a) Acquirer and/or target firms were not financial institutions, nor involved in a bailout takeover that was a result of the target being in financial distress.

(b) Both acquiring and target firms were listed in the stock exchange, in order to exclude small cases.

(c) The payment method of the tender offer transaction (cash vs. stock) is identifiable by the Nikkei Telecom 21, Nikkei Newspaper digital Ltd., or MARR M&A data CD-ROM by Recof Ltd.

(d) The financial analyst forecast for the future profit value is available from the I/B/E/S or Toyo Keizai data base, in order to calculate the V/P ratio to test the Method-of-Payment and Misvaluation hypotheses

(e) Monthly return amounts are available for at least twenty-four months prior to the announcement month, in order to calculate the cost of the equity capital.

Table 3 Descriptive statistics of tender offer transactions by industry

(median)

Acquirer's industry	N of tender offers	Acquirer Market equity (¥mln)	book-to-market ratio	leverage	ROE	Target Market equity (¥mln)	book-to-market ratio	leverage	ROE
Foods	10	610,275	0.6421	0.4416	5.62%	23,655	0.9072	0.4195	6.82%
Textile Products	7	116,775	1.1875	0.7633	-6.67%	1,320	1.0940	0.8513	6.70%
Pulp & Paper	5	571,455	0.8094	0.7382	2.93%	7,302	1.1204	0.7401	-3.72%
Chemicals	13	155,705	0.6497	0.7141	4.79%	8,503	1.0723	0.5125	3.06%
Drugs	1	63,244	0.6775	0.3221	11.80%	46,531	1.2139	0.3402	8.76%
Petroleum	1	555,930	1.1806	0.7481	1.48%	60,258	0.5480	0.8229	-33.21%
Rubber Products	1	18,083	0.4337	0.7953	8.20%	1,071	1.7807	0.7566	3.98%
Stone, Clay & Glass Products	4	94,340	1.2195	0.6111	3.86%	3,040	1.8217	0.6520	-18.22%
Iron & Steel	5	114,931	1.3357	0.6320	0.48%	2,470	4.9413	0.6750	-2.05%
Non ferrous Metal & Metal Products	9	258,822	0.8436	0.4876	1.34%	4,951	1.0626	0.5101	1.55%
Machinery	8	313,288	0.4920	0.6430	6.85%	9,848	1.1778	0.5268	3.88%
Electric & Electronic Equipment	24	856,200	0.6459	0.5184	4.75%	7,869	1.0257	0.5481	0.72%
Shipbuilding & Repairing	1	164,087	1.0222	0.8622	3.75%	10,555	1.7053	0.5281	1.10%
Motor Vehicles & Auto Parts	7	8,340,398	0.8945	0.6037	8.14%	47,679	1.1835	0.6403	6.45%
Precision Equipment	2	314,762	0.5333	0.5450	13.75%	37,144	0.6295	0.6632	7.05%
Other Manufacturing	6	77,000	0.8058	0.4589	4.89%	4,697	1.4286	0.3766	4.16%
Fish & Marine Products	1	71,372	0.4781	0.8451	13.14%	30,904	0.5421	0.8474	12.64%
Mining	1	29,520	0.5744	0.9438	21.05%	6,208	1.7848	0.5260	-2.72%
Construction	13	693,322	0.7590	0.5614	6.27%	8,130	1.1456	0.7286	3.59%
Wholesale Trade	21	200,620	0.6651	0.7478	6.50%	6,250	1.1240	0.6195	4.71%
Retail Trade	25	109,849	0.5759	0.6526	6.66%	7,523	1.2423	0.5675	4.15%
Real Estate	3	443,191	0.2249	0.7685	9.01%	11,497	0.4117	0.6340	-8.32%
Railroad Transportation	9	351,114	0.4349	0.8852	0.26%	17,684	1.2623	0.7603	-2.65%
Trucking	5	74,448	2.9563	0.4901	1.38%	5,617	3.4742	0.2092	2.19%
Sea Transportation	4	575,944	0.4753	0.7781	18.88%	7,270	0.7833	0.7785	18.91%
Air Transportation	1	572,909	0.2780	0.9132	-55.64%	26,481	0.3956	0.6890	10.36%
Warehousing & Harbor Transportation	1	150,632	0.9288	0.4005	3.42%	6,940	1.4109	0.5526	6.98%
Communication Services	1	34,123	0.5328	0.7129	-87.67%	14,758	1.0188	0.7207	-2.53%
Utilities - Electric	4	1,422,822	0.9976	0.7526	8.13%	5,281	1.4696	0.6306	-20.14%
Services	24	75,290	0.3096	0.5338	6.45%	10,980	0.5469	0.5344	0.74%
Total	217	204336.1	0.6497	0.6509	5.44%	8,049	1.0693	0.5872	2.87%

Market equity, book-to-market ratio, leverage, and ROE of both acquirer and target, transaction value, % of completed M&A, Non Diversification, Diversification, cash payment, and stock payment are reported as medium values, by calendar year. Our sample includes tender offer transactions from January 1996 to December 2007, taken from the RECOF MARR CD-ROM database, that satisfy the following criteria:
  (a) Acquirer and/or target firms were not financial institutions, nor involved in a bailout takeover that was a result of the target being in financial distress.
  (b) Both acquiring and target firms were listed in the stock exchange, in order to exclude small cases.

Table 3 (*Continued*)

<div align="center">(median)</div>

Acquirer's industry	transaction value	Total transaction value (¥mln)	% of completed Acquisitions	Premium (%)	Non Diversification	Diversification	Cash payment	Stock payment
Foods	28,388	613,312	100%	28.83%	1	9	5	3
Textile Products	1,053	21,388	86%	-1.76%	4	3	1	5
Pulp & Paper	16,485	121,059	80%	8.34%	1	4	1	4
Chemicals	4,488	108,577	100%	12.97%	6	7	5	7
Drugs	18,332	18,332	100%	18.70%	1	0	1	0
Petroleum	26,136	26,136	100%	-13.25%	0	1	1	0
Rubber Products	105	105	100%	-41.26%	0	1	1	0
Stone, Clay & Glass Products	2,843	12,249	100%	4.99%	1	3	1	3
Iron & Steel	1,209	36,530	80%	-0.55%	2	3	1	4
Non ferrous Metal & Metal Products	3,865	75,861	100%	2.74%	6	3	1	5
Machinery	2,821	55,837	100%	2.44%	4	4	5	2
Electric & Electronic Equipment	4,717	431,090	100%	4.78%	13	11	10	14
Shipbuilding & Repairing	6,599	6,599	100%	-59.48%	1	0	0	1
Motor Vehicles & Auto Parts	3,800	60,759	100%	5.48%	2	5	4	3
Precision Equipment	20,558	41,115	100%	0.85%	1	1	1	0
Other Manufacturing	2,873	14,437	100%	20.32%	5	1	5	0
Fish & Marine Products	38,283	38,283	100%	15.05%	0	1	0	1
Mining	-	-	100%	-	1	0	1	0
Construction	9,314	391,304	100%	7.35%	9	4	3	9
Wholesale Trade	4,058	170,928	100%	21.93%	12	9	9	8
Retail Trade	4,497	372,646	88%	17.93%	5	20	11	11
Real Estate	2,442	9,783	100%	-11.77%	3	0	3	0
Railroad Transportation	7,244	444,248	100%	1.10%	8	1	0	6
Trucking	12,572	61,912	100%	11.50%	2	3	0	5
Sea Transportation	2,109	26,095	100%	-0.81%	2	2	2	2
Air Transportation	-	-	100%	-	1	0	0	0
Warehousing & Harbor Transportation	5,660	5,660	100%	34.41%	1	0	1	0
Communication Services	13,829	13,829	100%	-	1	0	1	0
Utilities - Electric	1,723	20,519	100%	23.75%	4	0	2	2
Services	11,356	435,388	91.67%	10.03%	8	16	17	5
Total	4,908	3,633,981	96.31%	9.83%	105	112	93	100

(c) The payment method of the tender offer transaction (cash vs. stock) is identifiable by the Nikkei Telecom 21, Nikkei Newspaper digital Ltd., or MARR M&A data CD-ROM by Recof Ltd.

(d) The financial analyst forecast for the future profit value is available from the I/B/E/S or Toyo Keizai data base, in order to calculate the V/P ratio to test the Method-of-Payment and Misvaluation hypotheses

(e) Monthly return amounts are available for at least twenty-four months prior to the announcement month, in order to calculate the cost of the equity capital.

Table 4 Result of Univariable Test

Panal (A)

Rank	1	2	3	Difference 3 - 1		z-statistics	p-value (one-tailed)
Acquirer financial slack	0.0060	0.0849	0.1757				
N	41	88	60				
% of Cash Payment	48.78%	34.09%	66.67%	17.89%	**	1.7095	0.0437
Acquirer cash ratio	0.0457	0.1145	0.3257				
N	86	70	33				
% of Cash Payment	44.19%	47.14%	57.58%	13.39%	*	1.3089	0.0953
Acquirer leverage	0.3471	0.5732	0.7932				
N	54	45	90				
% of Cash Payment	50.00%	44.44%	47.78%	-2.22%		-0.1262	0.4498
Acquirer V/P	0.5251	1.0619	1.8985				
N	67	63	59				
% of Cash Payment	55.22%	39.68%	47.46%	-7.77%		-0.8704	0.19205
Acquirer B/P	0.4248	0.8702	1.9228				
N	84	77	28				
% of Cash Payment	54.76%	44.16%	35.71%	-19.05%	**	-1.7457	0.04045
Target V/P	0.0387	1.0438	2.5781				
N	75	57	57				
% of Cash Payment	49.33%	49.12%	43.86%	-5.47%		-0.6242	0.26625
Target B/P	0.3996	1.0478	2.6461				
N	45	66	78				
% of Cash Payment	60.00%	48.48%	39.74%	-20.26%	**	-2.1677	0.0151

Panel (B)

Rank	1	2	3	Difference 3 - 1		t-statistics	p-value (one-tailed)
Acquirer financial slack	0.0071	0.0843	0.1776				
N	51	101	65				
Acquirer CAR [-3, +3]	4.09%	0.81%	0.80%	-3.29%	*	-1.4293	0.0778
Acquirer cash ratio	0.0460	0.1141	0.3193				
N	99	81	37				
Acquirer CAR [-3, +3]	2.31%	2.10%	-1.54%	-3.85%	*	-1.3398	0.0937
Acquirer leverage	0.3555	0.5709	0.8079				
N	61	51	105				
Acquirer CAR [-3, +3]	2.37%	0.52%	1.63%	-0.75%		-0.3646	0.35815
Acquirer V/P	0.5174	1.0465	1.8672				
N	76	77	64				
Acquirer CAR [-3, +3]	-0.74%	2.14%	3.65%	4.39%	***	2.4522	0.0078
Acquirer B/P	0.4188	0.8663	2.0574				
N	98	86	33				
Acquirer CAR [-3, +3]	-0.87%	2.86%	5.50%	6.37%	***	2.8026	0.00295
Target V/P	1.0821	1.0412	1.1911				
N	87	64	66				
Acquirer CAR [-3, +3]	-0.60%	2.23%	3.81%	4.41%	***	2.6595	0.00435
Target B/P	0.4045	1.0301	2.6349				
N	56	79	82				
Acquirer CAR [-3, +3]	1.02%	-0.83%	4.27%	3.24%	**	2.2714	0.01235

The sample includes tender offers in which both acquirer and target were listed on the Japanese Stock Market during 1996-2007, but excludes cases where either acquirer or target is a financial institution, or a bailout takeover where the transaction is as a result of the target being in financial distress, where the data is needed (1) recognize the method of payment (cash vs. stock), and (2) calculate V/P and B/P available.

Financial slack is accounting free cash flow defined as operating income plus depreciation minus, taxes, and dividends, as a ratio to total assets. Cash ratio is cash equivalent plus short-term investments, as a ratio to Leverage = acquirer's total debt / total assets. V/P is the fundamental value-to-price ratio. The fundamental value V is estimated using the residual income model (RIM) where the discount rate is based on firm-specific CAPM. B/P is the book-to-price ratio.

***, **, * denotes the significance level in mean values between low ranking and high ranking, at the 1%, and 10% (one-tailed) respectively, based on the two-sample tailed t-test.

Table 5 Results of Logistic Regressions

	[expected sign]	Dependent Variable (=1 [cash payment], 0 [stock payment])												
Acquirer financial slack	[+]	6.6887	**	7.0554	**	7.3621	**	7.1783	**	-		-		-
		(0.049)		(0.036)		(0.020)		(0.026)						
Acquirer cash ratio	[+]	2.8602	*	3.4024	*	3.2338	*	3.2986	*	-		-		-
		(0.055)		(0.071)		(0.100)		(0.100)						
Acquirer leverage	[-]	-		0.4889		0.5312		0.5024		-		-		-
				(0.691)		(0.660)		(0.678)						
Target V/P		-		-		-		-		-0.0031		-0.0129		-0.0106
										(0.979)		(0.917)		(0.933)
Acquirer V/P	[+]	-		-		-		-		-0.3697		-0.3340		-0.3291
										(0.183)		(0.245)		(0.270)
Target B/P		-		-		-		-		-0.2265		-0.1376		-0.1309
										(0.208)		(0.447)		(0.489)
Acquirer B/P	[+]	-		-		-		-		-0.2682		-0.4725		-0.4692
										(0.365)		(0.112)		(0.117)
Divesification		-		-		-0.4795		-0.4717		-		-0.4104		-0.4098
						(0.157)		(0.165)				(0.223)		(0.224)
Ln relative equity		-		-		-0.1498		-		-		-0.1683		-
						(0.165)						(0.134)		
Acquirer ln equity		-		-		-		-0.1182		-		-		-0.1639
								(0.298)						(0.160)
Target ln equity		-		-		-		0.2091		-		-		0.1798
								(0.169)						(0.288)
Intercept		-1.3889		-1.7432		-0.9937		-3.1505		0.2838		0.6953		0.3084
		(0.051)		(0.103)		(0.422)		(0.375)		(0.747)		(0.395)		(0.938)
N		189		189		189		189		189		189		189
Year Dummy		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Pseudo-R^2		0.1857		0.1865		0.1998		0.2015		0.1612		0.1736		0.2259

The sample includes tender offers in which both acquirer and target were listed on the Japanese Stock Market during 1996-2007. However we exclude cases where either acquirer or target is a financial institution, or a bailout takeover where the transaction is as a result of the target being in financial distress, where the data is needed to calculate V/P and B/P available.

Financial slack is accounting free cash flow defined as operating income plus depreciation minus, taxes, and all dividends, as a ratio to total assets. Cash ratio is cash equivalent plus short-term investments, as a ratio to assets. Leverage = acquirer's total debt / total assets. V/P is the fundamental value-to-price ratio. The fundamental value V is estimated using the residual income model (RIM) where the discount rate is based on firm-specific CAPM. B/P is the book-to-price ratio. For each valuation ratio, we require that both acquirer and target have known values. Diversification =1 if the acquirer and target are not in the same industry (There are 33 industrial sectors on the Tokyo Stock Exchange); 0 otherwise. Relative size is the acquirer's market value / target's market value. Target size = target's market value of equity.

The first row reports coefficient, and the second row in parentheses reports the p-value. ***, **, * denote significant at the 1%, 5%, and 10% level respectively.

Table 6 Results of OLS Regressions

	[expected sign]							
		Dependent Variable (=Acquirer CAR [-3,+3])						
Acquirer financial slack	[-]	-0.1612 *	-0.2026 **	-0.1971 **	-0.1883 **	-	-	-
		(0.069)	(0.032)	(0.032)	(0.039)			
Acquirer cash ratio	[-]	-0.2079 **	-0.2878 **	-0.2929 **	-0.2944 *	-	-	-
		(0.028)	(0.010)	(0.011)	(0.011)			
Acquirer leverage		-	-0.0803 **	-0.0786 **	-0.0780 **	-	-	-
			(0.035)	(0.039)	(0.039)			
Target V/P	[+]	-	-	-	-	0.0097 *	0.0098 *	0.0105 **
						(0.053)	(0.054)	(0.042)
Acquirer V/P	[+]	-	-	-	-	0.0296 **	0.0321 **	0.0334 **
						(0.037)	(0.037)	(0.034)
Target B/P	[+]	-	-	-	-	0.0134 **	0.0160 ***	0.0180 ***
						(0.015)	(0.007)	(0.007)
Acquirer B/P	[+]	-	-	-	-	0.0125	0.0072	0.0093
						(0.320)	(0.585)	(0.482)
Divesification		-	-	0.0047	0.0041	-	-0.0007	-0.0004
				(0.754)	(0.786)		(0.962)	(0.978)
Ln relative equity		-	-	-0.0030	-	-	-0.0055	-
				(0.484)			(0.273)	
Acquirer ln equity		-	-	-	-0.0045	-	-	-0.0037
					(0.345)			(0.464)
Target ln equity		-	-	-	0.0003	-	-	0.0097
					(0.953)			(0.165)
Intercept		0.1874 ***	0.2613 ***	0.2617 ***	0.3673 ***	0.1618 ***	0.1667 ***	0.1574
		(0.000)	(0.000)	(0.000)	(0.005)	(0.000)	(0.000)	(0.947)
N		189	189	189	189	189	189	189
Year Dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R^2		0.1199	0.1402	0.1434	0.1462	0.1427	0.1494	0.1543

Acquirer Announcement Period Cumulative Abnormal Returns (CAR) are measured over the 7 days (-3, 3) around the announcement (day 0) of the acquisition. The sample includes tender offers in which both acquirer and target were listed on the Japanese Stock Market during 1996-2007. However we excludes cases where either acquirer or target is a financial institution, or a bailout takeover where the transaction is as a result of the target being in financial distress, where the data is needed to calculate V/P and B/P available.

Financial slack is accounting free cash flow defined as operating income plus depreciation minus, taxes, and all dividends, as a ratio to total assets. Cash ratio is cash equivalent plus short-term investments, as a ratio to assets. Leverage = acquirer's total debt / total assets. V/P is the fundamental value-to-price ratio. The fundamental value V is estimated using the residual income model (RIM) where the discount rate is based on firm-specific CAPM. B/P is the book-to-price ratio. For each valuation ratio, we require that both acquirer and target have known values. Diversification =1 if the acquirer and target are not in the same industry (There are 33 industrial sectors on the Tokyo Stock Exchange); 0 otherwise. Relative size is the acquirer's market value / target's market value. Target size = target's market value of equity.

The first row reports coefficient, and the second row in parentheses reports the p-value. ***, **, * denote significant at the 1%, 5%, and 10% level (two-tailed) respectively.

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Appendix 1 Result of Univariable Test

Rank	1	2	3	Difference 3 - 1		t-statistics	p-value (one-tailed)
Acquirer financial slack	0.0071	0.0843	0.1776				
N	51	101	65				
Acquirer CAR [-3, +3]	4.24%	0.84%	-0.40%	-4.64%	**	-1.9030	0.0299
Acquirer cash ratio	0.0460	0.1141	0.3193				
N	99	81	37				
Acquirer CAR [-3, +3]	2.56%	1.81%	-2.89%	-5.45%	*	-1.6819	0.0506
Acquirer leverage	0.3555	0.5709	0.8079				
N	61	51	105				
Acquirer CAR [-3, +3]	1.92%	-0.48%	1.85%	-0.07%		-0.0313	0.4876
Acquirer V/P	0.5174	1.0465	1.8672				
N	76	77	64				
Acquirer CAR [-3, +3]	-1.33%	2.08%	3.30%	4.63%	**	2.2483	0.0134
Acquirer B/P	0.4188	0.8663	2.0574				
N	98	86	33				
Acquirer CAR [-3, +3]	-1.26%	2.96%	4.72%	5.98%	***	2.4707	0.0075
Target V/P	1.0821	1.0412	1.1911				
N	87	64	66				
Acquirer CAR [-3, +3]	-1.33%	2.65%	3.45%	4.78%	***	2.6668	0.0043
Target B/P	0.4045	1.0301	2.6349				
N	56	79	82				
Acquirer CAR [-3, +3]	0.41%	-1.11%	4.26%	3.85%	***	2.3842	0.0093

We considered the CAR (-3, +3) estimated by the market model in the univariable tests for the Financial Slack/Free Cash Flow and Misvaluation Hypotheses as a robustness check. These results are also consistent with Table 4.

The sample includes tender offers in which both the acquirer and target were listed on the Japanese Stock Market from 1996-2007, but excludes cases where either the acquirer or target is a financial institution, or where a bailout takeover is a resulting transactions from the target being in financial distress, where the data is needed to (1) recognize the method of payment (cash vs. stock), and (2) calculate V/P and B/P available.

Financial slack is accounting free cash flow defined as operating income plus depreciation minus, taxes, and all dividends, as a ratio to total assets. Cash ratio is cash equivalent plus short-term investments, as a ratio to assets. Leverage = acquirer's total debt / total assets. V/P is the fundamental value-to-price ratio. The fundamental value V is estimated using the residual income model (RIM) where the discount rate is based on firm-specific CAPM. B/P is the book-to-price ratio. ***, **, * denotes the significance level in mean values between low ranking and high ranking, at the 1%, 5%, and 10% (one-tailed) respectively, based on the two-sample tailed t-test.

Appendix 2 Results of OLS Regressions

	[expected sign]														
		Dependent Variable (=Acquirer CAR [-3,+3])													
Acquirer financial slack	[-]	-0.1875	*	-0.2275	**	-0.2229	**	-0.2153	**	-		-		-	
		(0.055)		(0.028)		(0.029)		(0.033)							
Acquirer cash ratio	[-]	-0.2311	**	-0.3104	***	-0.3172	**	-0.3181	***	-		-		-	
		(0.021)		(0.009)		(0.010)		(0.009)							
Acquirer leverage		-		-0.0808	*	-0.0781	**	-0.0765	*	-		-		-	
				(0.051)		(0.059)		(0.063)							
Target V/P	[+]	-		-		-		-		0.0112	**	0.0116	**	0.0124	**
										(0.035)		(0.033)		(0.024)	
Acquirer V/P	[+]	-		-		-		-		0.0310	*	0.0355	*	0.0363	**
										(0.053)		(0.051)		(0.047)	
Target B/P	[+]	-		-		-		-		0.0157	***	0.0196	***	0.0217	***
										(0.007)		(0.003)		(0.003)	
Acquirer B/P	[+]	-		-		-		-		0.0127		0.0054		0.0083	
										(0.324)		(0.689)		(0.546)	
Divesification				-		0.0100		0.0091		-		0.0019		0.0033	
						(0.545)		(0.587)				(0.917)		(0.854)	
Ln relative equity				-		-0.0036		-		-		-0.0079		-	
						(0.469)						(0.202)			
Acquirer ln equity				-		-		-0.0049		-		-		-0.0052	
								(0.391)						(0.408)	
Target ln equity				-		-		0.0015		-		-		0.0131	
								(0.791)						(0.107)	
Intercept		0.1889	***	0.1848	***	0.2617	***	0.3496	**	0.1601	***	0.1668	***	-0.0388	
		(0.000)		(0.000)		(0.000)		(0.022)		(0.000)		(0.000)		(0.821)	
N		189		189		189		189		189		189		189	
Year Dummy		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Adj-R^2		0.1506		0.1700		0.1757		0.1771		0.1657		0.1777		0.1838	

We considered the CAR (-3, +3) estimated by the market model in the multivariable tests for the Financial Slack/Free Cash Flow and Misvaluation Hypotheses as a robustness check. These results are also consistent with Table 6.

Acquirer Announcement Period Cumulative Abnormal Returns (CAR) are measured over the 7 days (-3, 3) around the announcement (day 0) of the acquisition.

The sample includes tender offers in which both the acquirer and target were listed on the Japanese Stock Market from 1996-2007. However we excluded cases where either the acquirer or target is a financial institution, or where a bailout takeover transaction is a result of the target being in financial distress etc., where the data is needed to calculate V/P and B/P available.

Financial slack is accounting free cash flow defined as operating income plus depreciation minus, taxes, and all dividends, as a ratio to total assets. Cash ratio is cash equivalent plus short-term investments, as a ratio to assets. Leverage = acquirer's total debt / total assets. V/P is the fundamental value-to-price ratio. The fundamental value V is estimated using the residual income model (RIM) where the discount rate is based on firm-specific CAPM. B/P is the book-to-price ratio. For each valuation ratio, we require that both acquirer and target have known values. Diversification =1 if the acquirer and target are not in the same industry (There are 33 industrial sectors on the Tokyo Stock Exchange); 0 otherwise. Relative size is the acquirer's market value / target's market value. Target size = target's market value of equity.

The first row reports coefficient, and the second row in parentheses reports the p-value. ***, **, * denote significant at the 1%, 5%, and 10% level (two-tailed) respectively.

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