

# **Deferred Gratification: Acquirers' Earnings Management during the Interim Period of Acquisitions**

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## **Abstract**

This study investigates the pattern of acquirers' earnings management over the period between the acquisition announcement and the deal completion. This window is longer than a quarter on average and is likely to be a hotbed for earnings management. It shows that acquirers manage their earnings downwards between the announcement and the completion dates of a deal. This temporary decline in earnings is positively correlated with the hike of earnings immediately after the deal completion. This effect is accentuated for stock-for-stock deals. We also find that this earnings management is negatively correlated with earnings surprises. Further analysis reports that acquirer's temporary interim-period earnings understatement does not relate to the likelihood of a deal completion. This study highlights that acquirers exercise their influence to lower both acquirer and target earnings during the interim period, in hopes of boosting post-merger earnings and retrospectively justifying the merger deal.

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## **1. Introduction**

This paper studies the earnings management in the context of mergers and acquisitions, particularly focusing on the period between the acquisition announcement and the deal completion dates (the interim period). This window has been paid less attention in the existing relevant literature. However, earnings of acquirers and target firms are sensitive during this period and thus it is vital to study how acquirers and targets manage their earnings over this window. Earnings management during corporate restructuring events has been a critical area not only for academic researchers (Healy 1985; McNichols and Wilson 1988; Smith 1992), regulators (Dechow and Skinner 2000) but also for market evaluation of corporate events (Degeorge et al. 1999; Payne and Robb 2000; Graham et al. 2005). Managers may decide to use income-increasing management to meet or beat market expectations (Brown 1999; Bartov et al. 2002), maximize bonus plan payouts (Healy 1985), or to maintain their job security (Fudenberg and Tirole 1995). They may also use income-decreasing management to increase stock option values (Baker et al. 2003), reduce political costs (Watts and Zimmerman 1978), increase import relief (Jones 1991) or, similar to income increasing management, to maximize their current or future bonus plan (McNichols and Wilson 1988).

Since these corporate restructuring events are heterogeneous in nature, managers have incentives to engage in earnings management during the period between the beginning and the end of the event. For example, prior to seasoned equity offerings

(SEOs), managers tend to manage their earnings upwards and issue new stocks at inflated price in order to mitigate the degree of underpricing (Teoh et al. 1998; Kim and Park 2005; Jo and Kim 2007); in the case of initial public offerings (IPOs), previous evidence suggests that managers engage in earnings management before, during, and immediately after IPOs (Friedlan 1994; DuCharme et al. 2001; Teoh et al. 1998b), though the evidence is mixed regarding the direction of earnings management (Ball and Shivakumar 2008; Teoh et al. 1998b). In the specific area of mergers and acquisitions, previous literature finds income-increasing management ahead of merger agreement (Copeland and Wojdak 1969; Erickson and Wang 1999; Louis 2004) as well as income-decreasing management prior to management buy-outs (Wu 1997).

Mergers and acquisitions process consists of three periods: a pre-announcement period, an interim period and a post-acquisition period. The interim period refers to the window between the acquisition announcement date and the acquisition completion date. Despite giving widespread attention to pre-announcement earnings management (Copeland and Wojdak 1969; Erickson and Wang 1999; Louis 2004), prior studies seem to overlook the interim period, possibly due to the status change of the merger process. However, this interim period could present a distinct earnings management pattern that affects the market's evaluation of the merger deal. Our study investigates whether there is a distinct pattern of the acquirer and target earnings management over this window compared to other periods. This interim period has been paid less attention in the relevant

literature. Chen, Thomas and Zhang (2016) (henceforth CTZ (2016)) is the study that is closest to ours. However, their focus is on the target's earnings management while we assess the acquirer's earnings management pattern. In addition, we advance to consider whether deal types play a different role affecting the relation between the acquirer's interim-period earnings and the post-acquisition earnings.

CTZ (2016) point out that target firms understate their earnings in order to pass the wealth transfer onto acquirers in the post-acquisition period. The situation is more complex for the acquirers than for target firms for two reasons. First, target firms cease to exist immediately after the merger, alleviating their concern for lower future stock returns caused by lower reported earnings, while acquirers need to consider the market evaluation of their performance during and after this period. Second, target firms are less likely to undertake pre-announcement earnings management (except for in anti-takeovers), which makes their earnings management alone during the interim period easier to analyze, while acquirers might show different patterns of earnings management in the pre-announcement and the interim period, and thus confound the effects on post-acquisition earnings. However, both complications make acquirers' earnings management during the interim period even more deserving for examination.

We propose and test two competing hypotheses about the pattern of acquirers' earnings management during the interim period: on the one hand, market attention to the deal increases around the acquisition announcement but declines afterwards. Investors

turn to await the reported earnings of the newly combined firm instead of following closely the process of completion (CTZ 2016). This situation is consistent with the temporary income-decreasing accounting method (also known as the ‘big-bath’ accounting method)<sup>1</sup>. In addition, the income-decreasing method is applied to build a favorable impression among investors in the quarters that follow (Godfrey et al. 2003) and thereby the firm’s market value is enhanced (Kellogg and Kellogg 1991). Moreover, firms incur merger charges when purchasing another company, for which investors tend to be more tolerant of lower earnings during this period. This is attributed to their fixation on bottom line earnings (Sloan 1996) and the confirmation bias that leads investors to believe that lower earnings is caused by merger charges<sup>2</sup> (McMillan and White 1993; Nickerson 1998). We will refer to this hypothesis as the *downward earnings management hypothesis*.

On the other hand, managers have strong incentives to meet or beat market expectations (Brown 1999; Bartov et al. 2002) and to maintain a steadily increasing

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<sup>1</sup> When facing significantly bad news or during management turnover, acquirers report lower current period earnings in order to shift more losses onto the “bad news” or onto the previous management, and at the same time use this lowered earnings benchmark to show easy improvement in future earning streams (Healy 1985; McNichols and Wilson 1988). This temporary income-decreasing accounting method is referred to as the “big bath” accounting.

<sup>2</sup> Even though the earnings used in this study are earnings before special items excluding merger charges, naïve investors may not distinguish the earnings decrease due to earnings management and the decrease due to merger charges. Ball and Brown (1968), Dhaliwala et al. (1999), and Sloan(1996) show that net income is critical for investors and that naïve investors tend to fixate on total reported earnings, we assume that investors focus more on the bottom line income and feel more tolerant towards lower earnings in the interim period.

earnings stream. This income smoothing management is driven by managers' incentives to maintain job security (Fudenberg and Tirole, 1995) and to boost stock market returns (Bergstresser and Philippon 2006; Graham et al. 2006). In the context of mergers and acquisitions, managers may prefer to inflate earnings in order to maintain stockholder confidence and market reputation. For example, Copeland and Wojdak (1969) find that firms maximize their future income through a pooling accounting method. We will refer to this hypothesis as the *upward earnings management hypothesis*.

The above arguments suggest that the pattern of acquirers' earning management is theoretical ambiguous. In this paper, we propose to examine this issue empirically. Our analysis provides strong evidence in support of the *downward earnings management hypothesis*. We find that acquirers lower their earnings during the interim period, and this temporary decline in earnings is positively correlated with the hike of earnings immediately after the completion of a deal. This finding indicates that, contrary to the upward earnings management during the pre-announcement period, acquirers intentionally understate their earnings to boost post-acquisition earnings.

Next, we examine whether certain groups of merger deals show a lesser degree of earnings management than others (DeFond and Park 1997). Managers face a tradeoff between positive post-acquisition earnings surprises and investor confidence between the announcement and the completion of a deal. We investigate by looking at special deal characteristics such as deal attitude (whether the deal is friendly or hostile deal), deal

diversification (whether the deal is outside the acquirer's two-digit major industry), and the payment method (whether the deal is a stock-for-stock deal). In line with the literature (Singh and Montgomery, 1987; Hull 2017; Louis 2004; Moehrl 2002), stock-for-stock deals show stronger effects of the acquirer's interim-period earnings understatement on the combined firm's post-acquisition earnings.

Moreover, we examine whether the "big bath" method supports the effect of increasing post-acquisition earnings surprises by deflating market's expectations (Louis 2004). If by lowering earnings during the interim period, managers create the illusion of a positive post-acquisition earnings surprise, the analyst forecast for the quarters immediately after the acquisition should be further lower than actual earnings. Overall, we find that the consensus analyst forecast errors for the quarters immediately after the merger completion are negatively related to the magnitude of earnings understatement during the interim period.

Finally, we investigate whether earnings understatement during the interim period affects the likelihood of a merger deal completion. The evaluation of the deal by stockholders and management affects the decision to withdraw deals (Bates and Lemmon 2003; Hunter and Jagtiani 2003; Chen et al. 2007). When stockholders and the management team of both acquirers and targets evaluate the deal negatively or these firms receive negative advices from their own institutional investors and the third party advisors (Chen et al. 2007; Hunter and Jagtiani 2003), the deal is less likely to be carried



through. We find evidence that stock-for-stock deals with greater earnings understatement are less likely to be completed.

This paper contributes to the literature on earnings management and mergers and acquisitions (M&A) in a number of ways. First, in line with CTZ (2016), we show that earnings management in M&A deals does not stop at the announcement date. Instead, acquirers' earnings management during the interim period has a significant impact on post-acquisition earnings management. Second, we show that, the effect of earnings management on post-acquisition earnings or analyst forecast errors is more significant in some deal types due to the particular incentives for earnings management presented. Third, this study provides evidence that acquirers manage their earnings downward during the interim period in order to achieve positive earnings surprises, which echoes the 'big-bath' accounting method.

The remainder of this paper is organized as follows. Section 2 discusses the relevant literature and develops our hypotheses. Section 3 presents the data. Section 4 presents the empirical analysis and the results. Section 5 concludes.

## **2. Literature review and hypothesis development**

The varying features of and the competing incentives within different stages of M&A deals are what motivate our study. Previous literature provides evidence that firms manage their earnings at the expense of economic values or to deliver desired earnings

(Graham, Harey and Rajgopal 2006; Louis 2004; Shleifer and Vishny 2003). However, the direction and the degree of earnings management may be determined by how firms react to different incentives they face in the specific acquisition stage.

During the interim period of the mergers and acquisition process, managers face competing incentives. On the one hand, CTZ (2016) show that investors pay less attention to the interim period than to post-acquisition earnings. It is possible that investors pay little attention to the current period earnings and the pressure of smoothing earnings is reduced, thus stock market reactions to current earnings is weak. Due to the lower investor attention (CTZ 2016) and the possible large acquisition charges (Doyle et al. 2003), managers sense the opportunity to lower their current period reported earnings to the maximum in order to be able to present higher earnings in the near future (Kirschenheiter and Melumad 2002). We refer to this as the *acquirers' downward earnings management hypothesis*. On the other hand, to smooth earnings streams in order to maintain the outside look of a stable business operation and investor confidence over time or to signal a positive future with the acquisition is a pressure (Graham, Harey and Rajgopal 2005; DeFond and Park 1997). Managers have a concern to adjust their earnings largely downward otherwise it sends a negative signal to financial markets. We refer to this situation as the *acquirers' upward earnings management hypothesis*. To this end, we propose two competing hypotheses:

*Hypothesis 1<sub>0</sub>: Acquirers manage earnings downwards to boost post-acquisition earnings.*

*Hypothesis 1<sub>a</sub>: Acquirers manage earnings upwards during the interim period to maintain market confidence.*

We test the above arguments and find our results support our hypothesis H1<sub>0</sub> that acquirers lower their earnings during the interim period. We further investigate the effect of the interim-period downward earnings management, its conditions with the various acquisition packages, and the consequences after the post-acquisition period.

Due to the coexistence of various incentives, not all firms manage their earnings to the same extent (DeFond and Park 1997). It has been established that diversifying deals attract more investor scrutiny. This is because investors may not trust acquirers to make profitable business outside their industry comfort zones (Singh and Montgomery, 1987; Hull 2017) and turn to follow the deal process closely. In this situation, lower earnings may be interpreted as a signal of incapability to make profits and diversifying acquirers may limit their earnings understatement to avoid negative image. In stock-for-stock deals, after managing their earnings upwards before the merger announcement (Louis 2004), managers may fear that further inflated earnings would aggravate the price reversal effect in the post-acquisition period (Moehrle 2002), thus engage more in earnings deflation by reporting lower earnings during the interim period. In friendly deals, earnings management by acquirers is less likely to meet resistance from stockholders from either

acquirers or targets. Therefore, acquirer earnings understatement may be greater in friendly deals. In view of these incentives, we hypothesize that the downward earnings management is accentuated in deals financed with stock exchange and in friendly deals.

***Hypothesis 2:** For stock for stock and friendly deals, the effect of acquirer earnings management will be higher compared to non-stock-exchange deals and non-friendly deals.*

Our hypothesis H1<sub>0</sub> proposes that acquirers lower their reported earnings to meet analyst forecasts and to create positive earnings surprises afterwards (Roychowdhury 2006), it fits to examine whether this lowered earnings portion actually lowers market expectations for the coming period and is correlated with post-acquisition earnings surprises (Louis 2004; CTZ 2016). Following our hypothesis H2 and consistent with the suggestion in Ahern and Sosyura (2014) that financial media coverage may be biased by firms seeking to manipulate their stock price, we hypothesize that earnings forecasts for firms with less earnings management (diversifying deals in this sample) are more accurate while forecasts for firms with more earnings management (friendly deals) are less accurate:

***Hypothesis 3:** The greater acquirer earnings understatement, the further the acquirer post-acquisition earnings surpass their analyst forecasts.*

Next, we examine how acquirers' earnings management affects the possibility of the merger deal to be withdrawn. Lowered earnings may be interpreted as a sign of low

profitability of the acquirer, leading the target to consider not to affiliate with the acquirer, or the acquirer's stockholders to reconsider the cost of purchasing another firm fearing that even lower earnings will hurt the stock price.<sup>3</sup> Even though, earnings during the interim period seems to be a transition to investors, thus the market reactions to earnings management are likely to be weak. We therefore propose the downward earnings management is less related to the likelihood of a deal complete by examining the impact of such earnings management on the likelihood of completing a merger deal:

***Hypothesis 4:** The likelihood of deal completion is not affected by the transit interim-period acquirer earnings understatement.*

### **3. Sample and data**

The data on mergers and acquisitions deals are collected from Security Data Corporation (SDC) Platinum database. Acquirer and target fundamentals and earnings data is collected from Compustat. Stock returns data is obtained from CRSP and analyst forecasts data is collected from Thomson Reuters' Institutional Brokers' Estimate System (IBES).

Our sample consists of merger deals between 1979 and 2015. We require the deals to have a transaction value above \$100 million, the acquirer to control 100% of the target

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<sup>3</sup>A deal could be withdrawn for several reasons, e.g., a target strongly opposes to the deal due to management concerns or higher market valuation for targets; Federal Trade Commission(FTC) consider the deal a monopolist threat to free market competition; or that an acquirer decided to withdraw the deal due to financing concerns.

stock after the acquisition and both acquirers and targets to be U.S. public firms. We also require at least one fiscal quarter ends during the interim period for both acquirers and targets and that seasonally differenced earnings per share (EPS) before special items are available for quarters in the interim period and the quarter before. After imposing these restrictions, our baseline sample consists of 870 completed merger deals. After matching the merger sample with IBES data, we have 799 deals in the analyst forecast sample. We obtain 955 deals for our test on the likelihood of deal completion.

[Insert Table 1 here]

Table 1 presents descriptive statistics for our sample (See Appendix A.1 for variable definitions). The first row in Panel A shows that the mean (median) pre-acquisition target market value, T\_MV, is \$2.320 billion (\$544 million), the mean (median) target book-to-market ratio, T\_BM, is 0.41 (0.37), and the mean (median) transaction value is \$3.394 billion (\$771 million). This is consistent with CTZ (2016) who explain that transaction values exceed pre-acquisition target market values because of the premiums paid by acquirers. On average, cash (stock) represents 38 (51) percent of the total consideration paid in these acquisitions. The mean (median) length of the interim period between announcement and completion, Ndays, is 161 days (134 days) indicating that on average a merger deal is completed within 5 to 6 months.

Panel B presents descriptive statistics for variables of our main interest. The acquirer's earnings understatement (A\_dEU) has a mean slightly lower than zero. We run

*t*-tests on the mean value against zero of these four variables. The target's earnings understatement (T\_dEU) is significantly lower than zero, consistent with CTZ (2016) who find that targets tend to downward manage earnings. Both combined firm (after the acquisition) inverted seasonally differenced earnings (C\_dE) and combined firm analyst forecast error for the first quarter post-merger is significantly greater than zero, consistent with our hypotheses H2 and H3 regarding the boosted post-merger performance and increased earnings surprises.

Panel C shows the distribution of acquisitions over the years. The most active years for mergers and acquisitions are the period between 1996 to 2010. In general, Table 1 shows that the deal characteristics in our sample are consistent with prior literature and with our hypotheses.

## **4. Empirical analysis and results**

### **4.1 Interim-period earnings understatement and post-acquisition earnings boost**

Figure 1 and 2 present the trend of acquirers' mean and median seasonally differenced earnings (A\_dE) by quarter. Seasonally differenced earnings are lower than previous quarter, indicating a possibility of earnings understatement. We find that acquirers' earnings decline during the interim period and increase right after the acquisition until the fifth post-acquisition quarter. These patterns support our hypothesis H1<sub>0</sub> that the acquirer's earnings management is downward during the interim period and the

combined firm's earnings management is upward after the completion of a deal. The lowest point in quarter 1 could be attributed to acquisition-related charges not categorized into special items. The highest point in quarter 5 is consistent with the assumption in CTZ (2016) that most earnings boost occurs during the first four post-acquisition quarters.

[Insert Figure 1 and Figure 2 here]

Next, we empirically test our first hypothesis set ( $H1_0$  and  $H1_a$ ). To analyze the relation between the interim-period acquirer's earnings management and the post-acquisition earnings, we estimate the following regression:

$$\begin{aligned}
 \text{Acquirers' post acquisition earnings} & \quad (1) \\
 & = \beta_0 + \beta_1 * A\_dEU + \beta_2 * T\_dEU + \beta_3 * T\_dEU * POOLING + \beta_4 \\
 & \quad * PCTSTOCK + \beta_5 * LOGDEAL + \beta_6 * RELSIZE + \beta_7 * A\_BM + \beta_8 \\
 & \quad * PRE\_ACC + \varepsilon_t
 \end{aligned}$$

where acquirers' post-acquisition earnings are defined in four ways: first quarter ( $C\_dE1$ ), second quarter ( $C\_dE2$ ), an average of first two quarters ( $C\_dEf2$ ) and an average of the first four quarters ( $C\_dE$ ). Following CTZ (2016), our dependent variables ( $C\_dE$ ,  $C\_dE1$ ,  $C\_dE2$ ,  $C\_dEf2$ ) refer to the combined entity's inverted seasonal difference in earnings before special items, measured as earnings in  $q+4$  minus earnings in  $q$  (for the measure of  $C\_dE$  and  $C\_dEf2$ , it is the average of the differences over the corresponding quarters). For instance,  $C\_dE1$  is defined as the combined firm's inverted seasonal difference in earnings between the fifth post-acquisition quarter and the first



post-acquisition quarter.  $C\_dEf2$  is the average of the sixth post-acquisition quarter minus the second post-acquisition and the fifth post-acquisition quarter minus the first post-acquisition. We highlight that a lower value of acquirer's post-acquisition earnings indicates greater earnings boost after the deal completion compared to its post 4 quarters.  $A\_dEU$  is defined as the difference between the acquirer's interim-period earnings and its pre-announcement earnings. A lower  $A\_dEU$  indicates greater earnings understatement.  $T\_dEU$  measures the target's earnings understatement during the interim quarter and refers to target's seasonally differenced earnings before special items.  $A\_dEU$ ,  $T\_dEU$ , and all dependent variables are deflated by  $CBV$  (defined as the acquirer's equity book value per share as of the end of the first post-acquisition quarter). We also control for acquirer's pre-announcement accrual management, target's interim period earnings understatement, and a set of deal characteristics.  $POOLING$  is an indicator variable set to 1 when the acquisition is accounted for as a pooling of interests.  $PCTSTOCK$  is the fraction of the deal value paid as stock.  $LOGDEAL$  is the logarithm of deal value.  $RELSIZE$  is deal value relative to that of the acquirer.  $A\_BM$  is the book-to-market ratio of the acquirer.  $PRE\_ACC$  is abnormal annual accruals made by the acquirer over the three years before the acquisition. The details of variable definitions are provided in the Appendix A.1. A positive (negative) relation between  $A\_dEU$  and acquirers' post-acquisition earnings should be captured by less (more) positive inverted post-acquisition earnings.

Table 2 presents our baseline OLS regression (equation (1)). In column 1, we find significant and positive coefficient for T\_dEU (0.196), quantitatively similar to the finding (0.169) in CTZ (2016) and confirming that target firm understatement is correlated with hiked post-merger earnings. We do not observe this effect lasts for the post second quarter, the average of the post two quarters, and the average of post four quarters (columns 2 to 4).

[Insert Table 2 here]

The results in columns 5 to 8 support our first hypothesis H1<sub>0</sub> (the *acquirers' downward earnings management hypothesis*) that the post-acquisition earnings hike immediately after the merger completion is positively related to the acquirer's earnings understatement during the interim period. This is especially significant for the second post-acquisition quarter, where the highly significant coefficient 0.313 indicates that 31 cents for each dollar understated during the interim period is reflected in the post-merger quarter earnings. These results imply that acquirers prioritize higher post-acquisition earnings to retrospectively justify their deal decisions over a smooth earnings stream (Kirschenheiter and Melumad 2002).

#### **4.2 The effect of stock exchange and friendly deals on earnings management effect**

We extend our baseline model including independent variables STOCKDEAL (equal to 1 if the payment is made through exchange of stocks and 0 otherwise), DIVERSIFY (1 if the target firm is outside acquirer firm's two-digit SIC industry and 0 otherwise),

FRIENDLY (1 if the deal is friendly and 0 otherwise), POOLING (1 if the deal is recorded under pooling method and 0 otherwise), and their respective interaction terms with acquirers' interim-period earnings. To gain further insight into the combined impact of the stock-for-stock deal (as well as friendly deal) and the acquirer's interim-period earnings on the effect of acquirer's earnings management, we fit the following regressions:

Acquirers' post acquisition earnings (2)

$$\begin{aligned}
&= \beta_0 + \beta_1 A\_dEU + \beta_2 STOCKDEAL + \beta_3 STOCKDEAL * A\_dEU \\
&+ \beta_4 DIVERSIFY + \beta_5 DIVERSIFY * A\_dEU + \beta_6 POOLING \\
&+ \beta_7 POOLING * T\_dEU + \beta_8 T\_dEU + \beta_9 PCTSTOCK + \beta_{10} LOGDEAL \\
&+ \beta_{11} RELSIZE + \beta_{12} A\_BM + \beta_{12} PRE\_ACC + \varepsilon_t
\end{aligned}$$

Acquirers' post acquisition earnings (3)

$$\begin{aligned}
&= \beta_0 + \beta_1 A\_dEU + \beta_2 STOCKDEAL + \beta_3 STOCKDEAL * A\_dEU \\
&+ \beta_4 FRIENDLY + \beta_5 FRIENDLY * A\_dEU + \beta_6 DIVERSIFY \\
&+ \beta_7 DIVERSIFY * A\_dEU + \beta_8 POOLING + \beta_9 POOLING * T\_dEU \\
&+ \beta_{10} T\_dEU + \beta_{11} PCTSTOCK + \beta_{12} LOGDEAL + \beta_{13} RELSIZE \\
&+ \beta_{14} A\_BM + \beta_{15} PRE\_ACC + \varepsilon_t
\end{aligned}$$

Table 3 presents results for equation (2). Our results show that the coefficients on acquirer earning understatement (A\_dEU) and the interaction terms of STOCKDEAL and A\_dEU are generally significantly positive. The acquirer's interim-period earnings

management in stock deals has a higher impact on combined firm earnings than that in non-stock deals. For example, the results of column 2 and 3 of Table 3 show that for each dollar that acquirers understate during the interim period, post-acquisition earnings increase by 21 (25) cents in non-stock deals and 67(68) cents in stock deals. This effect is more prominent for the second quarter post-acquisition (column 2) but weak or insignificant for the first quarter. We also find that acquirer earnings management effect still persists in the post two and four acquisition quarters (see columns 3 and 4).

[Insert Table 3 here]

Parallel to Table 3, Table 4 presents the estimated test results of equation (3). The results show that in addition to stock deals, the friendly deal characteristic also increases the effect of acquirer earnings understatement on post-merger earnings hike. The coefficients on STOCKDEAL and acquirer earnings understatement interaction term are 0.434 and 0.387 in column 2 and 4, respectively, quantitatively similar to results in Table 3. Furthermore, the coefficients on friendly dummy in column 1 and 3 are positively significant, indicating that friendly deals usually have high earnings immediately after acquisition. These results are consistent with those in Loughran and Vijh (1997) who observe high post-merger returns and their subsequent decline in stock mergers and friendly mergers. However, the coefficients on the interaction term of friendly dummy and acquirer earnings understatement, FRIENDLY\*A\_dEU, are insignificant. This indicates that acquirers' interim-period earnings understatement has no incremental

impact on post-merger earning overstatement in friendly deals than in non-friendly deals. These results partially support our hypothesis H2 in that acquirer earnings management has a greater impact in stock-for-stock deals, but not in friendly deals. These results are also consistent with our hypotheses that in diversifying deals, acquirers are concerned about the heightened investor attention and scrutiny, as a result, the extent of their earnings management are insignificant.

[Insert Table 4 here]

### **4.3 Interim-period earnings understatement and positive earnings surprises**

We propose that the boosted post-acquisition earnings management is a method to justify the merger deal. It is natural to expect that the upward post-acquisition earnings management is to meet or beat market expectations. To analyze whether this acquirer earnings understatement is correlated to positive earnings surprises, we follow CTZ (2016) and use analyst forecast errors (defined as the actual earnings minus median analyst forecast in the last month of the fiscal quarter, scaled by combined firm book value of equity for the quarter immediately after merger completion) to proxy for the earnings surprises. A higher analyst forecast error indicates lower market expectations.

Figure 3 shows the trend of average analyst forecast errors over the pre one quarter and the post four acquisition quarters. The analyst forecast errors experience a significant drop from positive to negative during the interim period and remain relatively steady for the four subsequent quarters. This change is consistent with analysts' attitude change

from pessimistic to optimistic about the deal success. However, it does not show positive earnings surprises in the post-acquisition period.

[Insert Figure 3 here]

Table 5 present the effect of the interim-period acquirer's earnings management on the market's expectations for future earnings. The dependent variable is analysts forecast errors (C\_FE for the first post-acquisition quarter and C\_FE2 for second post-acquisition quarter). If acquirer's earnings management is intended to lower earnings expectations and boost post-acquisition earnings, then the forecast errors, the difference between the actual EPS and consensus analysts forecast, should be larger for more severe earnings management. We expect the coefficient on A\_dEU and its interaction terms to be negative.

[Insert Table 5 here]

The results show that acquirer's earnings understatement is negatively correlated with analysts forecast errors through diversifying deals. The coefficient on the interaction term between diversify dummy and acquirer earnings management is negatively significant at 10% level across four specifications (see columns 1 to 4) for first quarter analyst forecast errors. These results indicate that in diversifying deals, greater earnings understatement (lower A\_dEU) is correlated to positive earnings surprises (higher C\_FE). Equivalently, diversifying deals with greater earnings management receive more accurate analyst forecast, i.e., the analysts underestimate company earnings due to diversification,

possibly because analysts are more skeptical of diversifying deals (Singh and Montgomery 1987). When we consider the analyst forecast errors for second quarter post-merger (C\_FE2) as dependent variable, the coefficients on A\_dEU are negatively significant in columns 5 to 8. These results support our hypothesis H3. The coefficients on the interaction term of diversify dummy and the acquirer's interim-period earnings understatement (DIVERSIFY\*A\_dEU) are negatively significant at a 5% level in columns 5 to 8. The results indicate that the more the acquirer depresses earnings for the interim period, the higher the analyst forecast error is, creating the illusion of positive earnings surprises or earnings hike in the post-acquisition period. Surprisingly, the coefficients on interaction term of friendly dummy and A\_dEU are positively significant, indicating that in friendly deals, greater earnings understatement during the interim period is correlated with smaller analyst forecast errors. Interestingly, the channels through which acquirer earnings understatement affects post-acquisition earnings (STOCKDEAL and FRIENDLY in Table 3 and Table 4) are not quite the same as the channel through which it affects analysts forecast here. Financial analysts seem not to particularly care about those factors affecting firm earnings.

#### **4.4 Interim-period earnings understatement and deal completion**

In this section, we investigate whether the acquirer's interim-period earnings management affects the likelihood of merger deal completion. Since investor attention is rather weak during this period as investors know that the firms (acquirer and target) are

going to be combined, a deal should normally be carried out to process during this period because the earnings understatement is expected to be temporary. Table 7 presents the effect of the acquirer's interim-period earnings understatement and deal types on the likelihood of a deal completion. The dependent variable is a dummy equal to 1 if the deal is eventually completed and 0 if the deal is not. The independent variables are the same as in the expanded regressions above. The results show that there is no significant relation between the acquirer's interim-period earnings and the likelihood of a deal completion. These results are also robust to the inclusion of the interactions between deal types and the acquirer's interim-period earnings. The results show that friendly deals are more likely to succeed, while larger deals are less likely to succeed. Larger deals attract more attention from the market and thus the uncertainty of completing a deal is higher given that analysts and investors provide evaluation on their future performance after the acquisition.

[Insert Table 6 here]

## **5. Conclusions**

In this paper, we investigate the acquirer's earnings management pattern during the period of the acquisition announcement and its completion date (the so-called interim period). We argue that acquirer have incentives to either lower or boost their earnings during this interim period. To this end, we test the hypothesis of the acquirer's downward earnings management against the upward earnings management during the interim period.



We show strong evidence that the acquirer's interim-period earnings are downward. Such earnings understatement is positively associated with post-acquisition earnings boost, indicating that acquirers defer recording positive earnings to post-acquisition period in order to justify the merger deal.

Furthermore, we find that the acquirer's interim-period downward earnings management effect on the combined firm's post-acquisition earnings is particularly related to stock-for-stock deals and friendly deals. One of the explanations is that stock-for-stock deals face more market scrutiny during the interim period and need to maintain investor confidence by keeping a exhibiting higher earnings, while earnings management is more feasible in friendly deals. In addition, we find that acquirers' earnings understatement during the interim period is negatively related to post-acquisition analyst forecast errors, providing evidence that acquirers understate earnings to create positive post-acquisition earnings surprises. Finally, we find that acquirer earnings understatement in the interim period is not significantly related to the likelihood of merger deal completion.

Overall, this study contributes to the literature on the link between earnings management and mergers and acquisition deals during the interim period. In line with Chen et al. (2016), we show that earnings management in M&A deals is a significant issue not only at the announcement date but also during the window between the acquisition announcement and the completion of a deal. We show that the acquirer's

interim-period earnings understatement has a significant impact on the combined firm's post-acquisition earnings. We also investigate whether this pattern exists for all kinds of deals or is particularly significant in certain type of deals. Finally, we advance the literature on the "big bath" accounting method by showing that analysts underestimate earnings when the acquirer has a downward managed interim-period earnings.

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**Figure 1.** Acquirers' seasonally differenced earnings around interim period (mean)

Figure 1 presents a two-way line chart of the acquirer's seasonally differenced earnings A\_dE (mean value) from 1 quarter before the announcement to 8 quarters after the completion. Seasonally differenced earnings are defined as the acquirer's earnings per share during the quarter minus earnings per share four quarters before, scaled by the acquirer's book value of equity per share four quarters before (see definition details in the Appendix A.1). This definition enables the comparison of earnings between quarters around the acquisition. The unit of A\_dE is dollar per share. The variable is winsorized at the 1st and 99th percentiles. \*, \*\*, and \*\*\* indicate significant difference at the 10, 5, and 1 % levels, respectively.



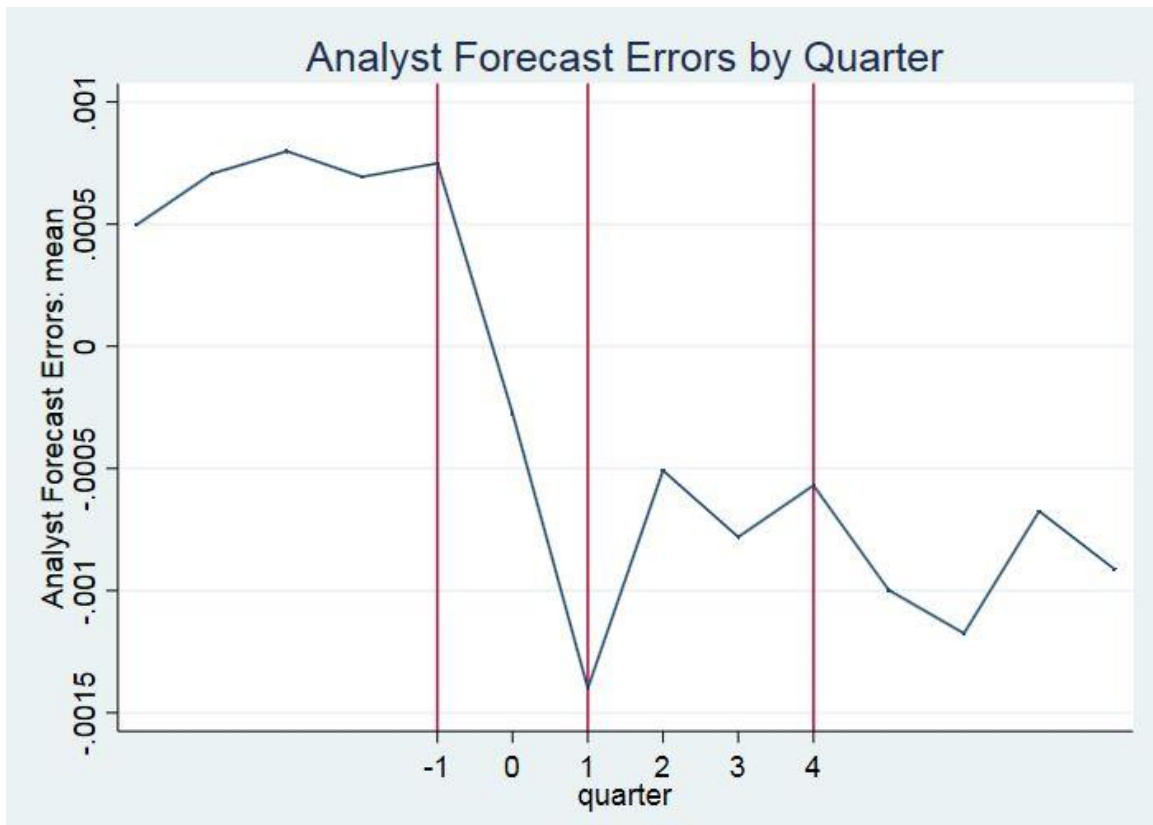
**Figure 2.** Acquirers' seasonally differenced earnings around interim period (median)

Figure 2 presents a two-way line chart of the acquirer's seasonally differenced earnings A\_dE (median value) from 1 quarter before the announcement to 8 quarters after the completion. Seasonally differenced earnings are defined as the acquirer's earnings per share during the quarter minus earnings per share four quarters before, scaled by the acquirer's book value of equity per share four quarters before (see definition details in the Appendix A.1). This definition enables the comparison of earnings between quarters around the acquisition. The unit of A\_dE is dollar per share. The variable is winsorized at the 1st and 99th percentiles. \*, \*\*, and \*\*\* indicate significant difference at the 10, 5, and 1 % levels, respectively.



**Figure 3.** Acquirers' analyst forecast errors around interim period (mean)

Figure 3 presents a two-way line chart of the acquirer's analyst forecast errors C\_FE (mean value) from 5 quarter before the announcement to 8 quarters after the completion. C\_FE is a ratio defined as the difference between the acquirer's actual earnings and the consensus forecast as of the last month of the fiscal quarter, scaled by the combined entity's book value of equity per share in quarter +1 (see definition details in the Appendix A.1). The variable is winsorized at the 1st and 99th percentiles. \*, \*\*, and \*\*\* indicate significant difference at the 10, 5, and 1 % levels, respectively.





**Table 1.** Description of acquisition transactions

This table presents summary statistics for our full sample, which consists of 870 mergers and acquisitions completed between 1979 and 2015 covered by Security Data Corporation that satisfy the following conditions: both the acquirer and target are U.S. firms, transaction values exceed \$100 million, the acquirer achieves complete control of the target, for both the acquirer and the target at least one fiscal quarter ends during the interim period (between announcement and completion of the deal), and seasonally differenced target earnings are nonmissing for both the interim quarter and the quarter before. The prefixes T\_, A\_ and C\_ in the variable names refer to the target before the acquisition, the acquirer before the acquisition and the combined entity (acquirer) after the acquisition. In Panel A, MV and BM refer to market value of equity and book-to-market ratio of equity. DEAL refers to the transaction value in million US dollars. PctCash and PctStock refer to the percentage of total consideration paid as cash and stock, and Ndays refers to the number of days between the acquisition announcement date and completion date. In Panel B, dEU refer to the difference in seasonally differenced earnings between interim quarter and the quarter before announcement, C\_dE refers to inverse seasonally differenced earnings for the combined entity, and C\_FE refers to the forecast error between actual earnings and last consensus analyst forecast in the last month of the quarter. We apply t-tests on these variables against zero. Panel C lists the number of acquisitions by year in our sample. Additional details of variables are provided in the Appendix A.1. All variables except for PctCash, PctStock, and Ndays are winsorized at the 1st and 99th percentiles of their respective cross-sectional distributions. \*, \*\*, and \*\*\* indicate significant difference at the 10, 5, and 1 % levels, respectively.

Panel A: General Data relating to the acquisition							
	Mean	SD	Min.	Q1	Median	Q3	Max.
T_MV (in million)	2320	6115	15	184	544	1727	59190
T_BM	0.41	0.29	0.01	0.02	0.37	0.52	3.33
DEAL	3394	8574	100	101	771	2668	89167
PCTCASH	37.51	42.10	0	0	15.85	83.95	100
PCTSTOCK	51.31	43.48	0	0	55.31	100	100
Ndays	161	95	30	104	134	189	776

Panel B: Discriptive statistics of key variables							
	Mean	SD	Min.	Q1	Median	Q3	Max.
T_dEU	-0.002**	0.025	-0.150	-0.003	-0.000	0.001	0.111
A_dEU	-0.0002	0.023	-0.093	-0.002	-0.000	0.001	0.144
C_dE	0.003***	0.036	-0.154	-0.006	0.004	0.013	0.146

C\_FE                    -0.002\*\*\*    0.013    -0.064    -0.003    0.000    0.003    0.036

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Panel C: Distribution of the number of acquisitions by year

Year	Frequency	%	Year	Frequency	%	Year	Frequency	%
1979	1	0.11	1992	15	1.71	2005	45	5.14
1980	2	0.23	1993	13	1.49	2006	38	4.34
1981	1	0.11	1994	26	2.97	2007	49	5.60
1982	2	0.23	1995	26	2.97	2008	24	2.74
1983	7	0.80	1996	32	3.66	2009	28	3.20
1984	8	0.91	1997	46	5.26	2010	33	3.77
1985	15	1.71	1998	46	5.26	2011	22	2.51
1986	16	1.83	1999	58	6.63	2012	24	2.74
1987	16	1.83	2000	49	5.60	2013	21	2.40
1988	9	1.03	2001	47	5.37	2014	30	3.43
1989	15	1.71	2002	25	2.86	2015	3	0.34
1990	14	1.60	2003	27	3.09			
1991	6	0.69	2004	36	4.11			

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**Table 2.** Baseline Regressions

This table reports results from regressing acquirers' post-acquisition performance on corresponding performance measure understatement by targets (column 1-3) and by both acquirers and targets (column 4-6) during the interim quarter and various control variables. The interim quarter refers to all quarters ending between announcement and completion of the acquisition, and values reported for the interim quarter are means for all quarters included in the interim period. The prefixes C\_ (T\_, A\_) in the variable names refer to the combined entity after the acquisition (target before the acquisition, acquirer before the acquisition). T\_dEU (A\_dEU) measure the target's (acquirer's) performance understatement during the interim quarter and refer to target's (acquirer's) seasonally differenced earnings before special items. For acquirers, C\_dE(C\_dE1, C\_dE2, C\_dEf2) refers to inverted seasonal difference in earnings before special items, measured as earnings in q+4 minus earnings in q for the average of quarter +1 to +4 (quarter+1, quarter+2, quarter +1 to +2). T\_dEU, A\_dEU, and all dependent variables are deflated by CBV, which is the acquirer's equity book value per share as of the end of quarter q. The control variables we consider are as follows. POOLING is an indicator variable set to 1 when the acquisition is accounted for as a pooling of interests. PCTSTOCK is the fraction of the deal value paid as stock. LOGDEAL is the logarithm of deal value. RELSIZE is deal value relative to that of the acquirer. A\_BM is the book-to-market ratio of the acquirer. PRE\_ACC is abnormal annual accruals made by the acquirer over the three years before the acquisition. Higher target(acquirer) performance understatement results in more negative values of the target(acquirer) variables, and higher acquirer performance overstatement results in smaller values for earnings. According to H1<sub>0</sub>, if target (acquirer) performance understatement explains acquirer performance overstatement, the coefficients on target (acquirer) performance understatement should be positive. The sample consists of 870 mergers and acquisitions with nonmissing A\_dE and T\_dE between 1979 and 2015. All variables are winsorized at the 1st and 99th percentiles of the cross-sectional distribution. See Appendix A.1 for details of variables. \*, \*\*, and \*\*\* indicate significant difference at the 10, 5, and 1 % levels, respectively. The *t*-statistics are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	C_dE1	C_dE2	C_dEf2	C_dE	C_dE1	C_dE2	C_dEf2	C_dE
A_dEU					0.287*	0.313***	0.296**	0.273***
					[1.72]	[3.11]	[2.52]	[2.94]

T_dEU	0.196**	-0.011	0.090	0.062	0.153*	-0.058	0.046	0.021
	[2.08]	[-0.11]	[0.99]	[0.61]	[1.89]	[-0.60]	[0.57]	[0.25]
POOLING	-0.001	-0.002	-0.001	-0.007	0.000	-0.001	-0.000	-0.006
	[-0.11]	[-0.22]	[-0.19]	[-1.11]	[0.02]	[-0.08]	[-0.03]	[-0.95]
POOLING*T_dEU	-0.474***	-0.039	-0.256*	-0.267	-0.502***	-0.070	-0.286*	-0.294
	[-4.08]	[-0.21]	[-1.91]	[-1.06]	[-4.07]	[-0.32]	[-1.82]	[-1.32]
PRE_ACC	0.050	0.031	0.040	0.001	0.057	0.039	0.047*	0.007
	[1.52]	[1.15]	[1.54]	[0.05]	[1.67]	[1.36]	[1.75]	[0.44]
PCTSTOCK	0.000	-0.000	0.000	0.000	0.000	-0.000	0.000	0.000
	[0.80]	[-0.30]	[0.38]	[0.91]	[0.85]	[-0.31]	[0.44]	[0.98]
LOGDEAL	0.003*	0.001	0.002*	0.001	0.003*	0.001	0.002	0.001
	[1.91]	[1.06]	[1.68]	[0.68]	[1.84]	[1.05]	[1.60]	[0.69]
RELSIZE	-0.006	-0.003	-0.004**	-0.002	-0.006	-0.003	-0.004	-0.001
	[-1.56]	[-1.11]	[-2.02]	[-1.03]	[-1.34]	[-0.90]	[-1.56]	[-0.82]
A_BM	-0.011	-0.001	-0.006	-0.000	-0.009	0.001	-0.005	0.001
	[-1.37]	[-0.13]	[-0.83]	[-0.06]	[-1.21]	[0.06]	[-0.61]	[0.15]
Constant	0.019	-0.034**	-0.008	-0.002	0.017	-0.037***	-0.011	-0.005
	[1.49]	[-2.59]	[-0.67]	[-0.19]	[1.23]	[-2.71]	[-0.88]	[-0.40]
Observations	870	864	864	870	870	864	864	870
R-squared	0.145	0.105	0.133	0.141	0.157	0.122	0.155	0.163
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 3.** Effect of stock deals

This table reports results from regressing acquirers' post-acquisition performance on corresponding performance measure understatement by both acquirers and targets during the interim quarter, the interaction terms between acquirers' earnings understatement and deal types and various control variables. STOCKDEAL is an indicator variable set to 1 if the acquisition is a stock swap deal. DIVERSIFY is an indicator variable set to 1 if the target is outside the acquirer's two-digit industry group. POOLING is an indicator variable set to 1 when the acquisition is accounted for as a pooling of interests. PctStock is the fraction of the deal value paid as stock. According to our hypothesis H2, if acquirer performance understatement explains acquirer performance overstatement more in certain deal types, the coefficients on the interaction terms should be positive. Further details on variable definitions can be found in Table 2 and Appendix A.1. \*, \*\*, and \*\*\* indicate significant difference at the 10, 5, and 1 % levels, respectively. The *t*-statistics are reported in brackets.

	(1)	(2)	(3)	(4)
	C_dE1	C_dE2	C_dEf2	C_dE
A_dEU	0.311 [1.46]	0.208* [1.70]	0.254* [1.76]	0.208 [1.43]
STOCKDEAL	-0.002 [-0.30]	0.002 [0.25]	0.000 [0.04]	-0.003 [-0.32]
STOCKDEAL*A_dEU	0.397 [1.19]	0.463** [2.34]	0.427* [1.92]	0.298* [1.70]
DIVERSIFY	0.001 [0.25]	0.004 [0.77]	0.002 [0.59]	0.001 [0.34]
DIVERSIFY*A_dEU	-0.206 [-0.77]	-0.123 [-0.59]	-0.156 [-0.82]	-0.012 [-0.07]
POOLING	-0.004 [-0.42]	-0.003 [-0.35]	-0.003 [-0.43]	-0.008 [-1.22]
POOLING*A_dEU	-1.170*** [-4.23]	-0.814*** [-3.43]	-0.987*** [-4.71]	-0.694*** [-4.52]
T_dEU	0.150** [2.26]	-0.063 [-0.68]	0.042 [0.61]	0.012 [0.15]
POOLING*T_dEU	-0.267 [-1.44]	0.070 [0.40]	-0.098 [-0.68]	-0.149 [-0.57]
PRE_ACC	0.049 [1.61]	0.036 [1.36]	0.042* [1.75]	0.004 [0.27]
PCTSTOCK	0.000	-0.000	0.000	0.000

	[0.90]	[-0.69]	[0.27]	[1.11]
LOGDEAL	0.003*	0.001	0.002	0.001
	[1.98]	[1.02]	[1.67]	[0.76]
RELSIZE	-0.006	-0.003	-0.005*	-0.002
	[-1.44]	[-1.02]	[-1.69]	[-1.10]
A_BM	-0.008	0.001	-0.004	0.002
	[-1.10]	[0.12]	[-0.54]	[0.21]
Constant	0.013	-0.042***	-0.015	-0.008
	[0.95]	[-3.02]	[-1.19]	[-0.68]
Observations	870	864	864	870
R-squared	0.185	0.141	0.190	0.183
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

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**Table 4.** Effect of stock deals and friendly deals

This table reports results from regressing acquirers' post-acquisition performance on corresponding performance measure understatement by both acquirers and targets during the interim quarter, the interaction terms between acquirers' earnings understatement and deal types and various control variables. FRIENDLY is an indicator variable set to 1 if the deal attitude is recorded as friendly. Further details on variable definitions can be found in Table 2 and Appendix A.1. \*, \*\*, and \*\*\* indicate significant difference at the 10, 5, and 1 % levels, respectively. The *t*-statistics are reported in brackets.

	(1)	(2)	(3)	(4)
	C_dE1	C_dE2	C_dEf2	C_dE
A_dEU	-0.144 [-0.34]	-0.234 [-1.01]	-0.192 [-0.72]	-0.203 [-0.83]
STOCKDEAL	-0.001 [-0.22]	0.006 [0.75]	0.002 [0.39]	-0.001 [-0.20]
STOCKDEAL*A_dEU	0.411 [1.07]	0.434** [2.35]	0.418 [1.61]	0.387* [1.89]
FRIENDLY	0.019*** [2.94]	0.002 [0.44]	0.010** [2.39]	0.005 [1.09]
FRIENDLY*A_dEU	0.420 [1.17]	0.373 [1.38]	0.393 [1.57]	0.319 [1.33]
DIVERSIFY	0.002 [0.37]	0.004 [0.83]	0.003 [0.71]	0.001 [0.32]
DIVERSIFY*A_dEU	-0.174 [-0.61]	-0.038 [-0.19]	-0.096 [-0.46]	0.008 [0.05]
POOLING	-0.005 [-0.51]	-0.003 [-0.34]	-0.004 [-0.48]	-0.009 [-1.30]
POOLING*A_dEU	-1.161*** [-3.78]	-0.738*** [-3.25]	-0.943*** [-4.06]	-0.689*** [-3.91]
Constant	-0.011 [-0.66]	-0.040** [-2.51]	-0.026* [-1.74]	-0.004 [-0.25]
Observations	860	854	854	860
R-squared	0.188	0.128	0.185	0.180
Control variables	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

**Table 5.** Analyst Forecast Errors

This table reports results from regressing acquirers' post-acquisition analyst forecast error for quarter +1 on corresponding performance measure understatement by both acquirers and targets during the interim quarter, the interaction terms between acquirers' earnings understatement and deal types and various control variables. For acquirers, C\_FE is the forecast error for quarter +1 relative to the consensus forecast as of the last month of the fiscal quarter. C\_FE2 is the forecast error for quarter +2 relative to the consensus forecast as of the last month of the fiscal quarter. According to our hypothesis H3, if acquirer performance understatement explains acquirer performance overstatement more in certain deal types, the coefficients on acquirer firm performance understatement and those interaction terms should be negative for forecast errors. Further details on variable definitions can be found in Appendix A.1. \*, \*\*, and \*\*\* indicate significant difference at the 10, 5, and 1 % levels, respectively. The *t*-statistics are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	C_FE	C_FE	C_FE	C_FE	C_FE2	C_FE2	C_FE2	C_FE2
A_dEU	0.068 [0.54]	0.029 [0.34]	0.029 [0.34]	0.042 [0.44]	-0.170** [-2.12]	-0.171* [-1.93]	-0.171* [-1.93]	-0.174** [-2.07]
DIVERSIFY	-0.002** [-2.15]	-0.002* [-1.89]	-0.002* [-1.89]	-0.001* [-1.68]	-0.001 [-0.82]	-0.001 [-0.85]	-0.001 [-0.85]	-0.001 [-0.88]
DIVERSIFY*A_dEU	-0.160* [-1.70]	-0.161* [-1.83]	-0.161* [-1.83]	-0.142* [-1.94]	-0.178** [-2.13]	-0.180** [-2.14]	-0.180** [-2.14]	-0.190** [-2.58]
FRIENDLY	-0.001 [-0.42]	-0.001 [-0.28]	-0.001 [-0.28]	-0.001 [-0.21]	0.003 [1.17]	0.003 [1.19]	0.003 [1.19]	0.003 [1.20]
FRIENDLY*A_dEU	-0.018 [-0.15]	-0.010 [-0.12]	-0.010 [-0.12]	0.004 [0.05]	0.236** [2.66]	0.240** [2.62]	0.240** [2.62]	0.216** [2.18]
POOLING		-0.001 [-0.82]	-0.001 [-0.82]	-0.001 [-0.82]		-0.001 [-0.83]	-0.001 [-0.83]	-0.001 [-0.99]
POOLING*A_dEU		0.166**	0.166**	0.192*		-0.017	-0.017	-0.032



		[2.07]	[2.07]	[1.85]		[-0.25]	[-0.25]	[-0.42]
STOCKDEAL				-0.002				-0.004
				[-1.28]				[-1.45]
STOCKDEAL*A_dEU				-0.060				0.046
				[-0.92]				[0.73]
Constant	-0.013**	-0.013**	-0.013**	-0.013**	-0.017***	-0.017***	-0.017***	-0.018***
	[-2.50]	[-2.57]	[-2.57]	[-2.57]	[-4.10]	[-4.22]	[-4.22]	[-4.33]
Observations	789	789	789	789	789	789	789	789
R-squared	0.174	0.186	0.186	0.188	0.146	0.147	0.147	0.154
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 6.** Earnings management and the likelihood of a deal success

This table reports results from the logit regression of merger success on corresponding performance measure understatement by both acquirers and targets during the interim quarter, the interaction terms between acquirers' earnings understatement and deal types and various control variables. The interim quarter refers to all quarters ending between announcement and completion of the acquisition, and values reported for the interim quarter are means for all quarters included in the interim period. Complete is an indicator variable set to 1 if the deal is eventually completed and 0 otherwise. Further details on variable definitions can be found in Appendix A.1. \*, \*\*, and \*\*\* indicate significant difference at the 10, 5, and 1 % levels, respectively. The *t*-statistics are reported in brackets.

	(1) Complete	(2) Complete	(3) Complete	(4) Complete
A_dEU		-5.473 [-1.36]	5.353 [0.49]	7.476 [0.86]
T_dEU	5.744 [0.92]	6.220 [1.03]	4.934 [0.73]	1.637 [0.23]
POOLING	0.382 [1.23]	0.347 [1.09]	0.358 [1.11]	0.130 [0.35]
POOLING*T_dEU	-9.345 [-0.96]	-8.405 [-0.86]	-5.777 [-0.53]	-9.122 [-0.70]
PRE_ACC	-2.988* [-1.88]	-3.045* [-1.94]	-3.046* [-1.95]	-2.417 [-1.39]
PCTSTOCK	-0.000 [-0.05]	0.000 [0.00]	-0.002 [-0.43]	-0.006 [-1.45]
LOGDEAL	0.020 [0.27]	0.016 [0.21]	0.024 [0.32]	0.089 [1.26]
RELSIZE	-0.396*** [-3.30]	-0.396*** [-3.23]	-0.391*** [-3.18]	-0.385*** [-2.94]
A_BM	-1.019*** [-2.89]	-1.055*** [-2.79]	-1.016*** [-2.69]	-1.102*** [-2.75]
POOLING*A_dEU			-0.745 [-0.06]	0.119 [0.01]
STOCKDEAL			0.179 [0.59]	0.060 [0.17]
STOCKDEAL*A_dEU			-12.633 [-1.12]	-10.066 [-0.95]

DIVERSIFY			0.319	0.347
			[1.01]	[1.35]
DIVERSIFY*A_dEU			-5.859	-0.434
			[-0.93]	[-0.05]
FRIENDLY				2.841***
				[8.64]
FRIENDLY*A_dEU				-8.777
				[-0.53]
Constant	0.155	0.253	-0.151	-2.469*
	[0.11]	[0.18]	[-0.10]	[-1.70]
Observations	955	955	955	955
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

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## Appendix A.1. Variable definitions

Variables	Description
A_BM	Acquirer's book-to-market ratio at the end of the last fiscal quarter ending before the completion date
ABV	Acquirer's book value of equity per share ( $CEQQ/CSHOQ*AJEXQ$ )
A_dE	Acquirer's seasonally differenced earnings, measured as $(E_q - E_{q-4})/ABV_{q-4}$
A_dEU	Measure of acquirer's income understatement in interim period, defined as the average acquirer's seasonally differenced earnings before special items ( $E_q - E_{q-4}$ ) for the interim period minus that for the quarter before the acquisition announcement date multiplied by the number of quarters in the interim period, scaled by CBV for the first quarter after deal completion
CBV	Combined entity's book value of equity per share ( $CEQQ/CSHOQ*AJEXQ$ ), where combined entity represents the acquirer after the deal is completed
CBV	Combined entity's book value of equity per share ( $CEQQ/CSHOQ*AJEXQ$ ) for the first quarter after deal completion, where combined entity represents the acquirer after the deal is completed
C_dE	The average of the combined entity's inverted seasonal differences for earnings before special items over the first four post-acquisition quarters. The difference is measured as $(E_{q+4} - E_q)/CBV_q$ , q is the corresponding quarter, i.e. 1, 2, 3, and 4.
C_dE1	Combined entity's inverted seasonal difference for earnings before special items, measured as $(E_{q+4} - E_q)/CBV_q$ and q is for the first post-acquisition quarter
C_dE2	Combined entity's inverted seasonal difference for earnings before special items, measured as $(E_{q+4} - E_q)/CBV_q$ , q is for the second post-acquisition quarter
C_dEf2	The average of the combined entity's inverted seasonal differences for earnings before special items over the first two post-acquisition quarters. The difference is measured as $(E_{q+4} - E_q)/CBV_q$ , q is the corresponding quarter, i.e. 1 and 2.
C_FE	Combined entity's EPS analyst forecast error (I/B/E/S actual minus median consensus forecast as of the last month of the fiscal quarter) for the first quarter after the deal completion scaled by $CBV_q$
C_FE2	Combined entity's EPS analyst forecast error (I/B/E/S actual minus median consensus forecast as of the last month of the fiscal quarter) for the second quarter after the deal completion scaled by $CBV_q$
Complete	Indicator variable = 1 if acquisition is eventually completed and 0 otherwise

DEAL	Deal size, value paid for target (in millions of dollars)
DIVERSIFY	Indicator variable = 1 if the target is not in the acquirer's two-digit industry group and 0 otherwise
E	Earnings before tax-adjusted special items per share $[IBQ-SPIQ*(1-35\%)]/CSHOQ*AJEXQ]$
FRIENDLY	Indicator variable = 1 if the deal attitude is friendly and 0 otherwise
LOGDEAL	The logarithm of deal value
Ndays	Number of days in the interim period, between the acquisition announcement date and the completion date
PCTCASH	The percentage of cash to total consideration paid for target
PCTSTOCK	The percentage of stock to total consideration paid for target
POOLING	Indicator variable = 1 if acquisition accounted for as pooling and 0 otherwise
PRE_ACC	Abnormal accruals made by the acquirer during the 3 years before the acquisition, computed as average abnormal annual accruals, where abnormal accruals is the modified Jones model estimated for each two-digit SIC industry. The deflator is the lagged total assets for all variables in the modified Jones model.
RELSIZE	Size of deal relative to acquirer market value at the end of the last fiscal quarter before completion of the acquisition
STOCKDEAL	Indicator variable = 1 if acquisition accounted for as stock swap deal and 0 otherwise
TBV	Target's book value of equity per share $(CEQQ/CSHOQ*AJEXQ)$
T_BM	Target's book-to-market ratio at the end of the quarter before the acquisition announcement date
T_dE	Target's seasonally differenced earnings, measured as $(E_q - E_{q-4})/TBV_{q-4}$
T_dEU	Measure of target's income understatement in interim period, defined as the average target's seasonally differenced earnings before special items $(E_q - E_{q-4})$ for the interim period minus that for the quarter before the acquisition announcement date multiplied by the number of quarters in the interim period, scaled by CBV for the first quarter after deal completion
T_MV	Target's market value of equity (in millions of dollars) at the end of the quarter before the acquisition announcement date. $(CSHOQ*PRCCQ)$

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