Do financial bidders exploit underpricing?

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This version: January 2017

Abstract

This paper examines if financial bidders exploit underpricing in acquisitions. To separate stand-alone firm revaluation from market valuation related to envisioned acquisition, we study acquisition bids that fail to complete. By estimating market reaction from bid offer to bid failure, we find a 30-percent cumulative abnormal return to firms that are targeted by financial bidders and subject to severe information asymmetry. This revaluation effect does not revert to prior-bid price level, suggesting that mispricing is a relevant acquisition motive by financial bidders and, in some cases, the ripped benefits can be substantial. We compare the results to the market reactions around fail bids by strategic bidders and find that strategic bidders fall short to reap this advantage. It seems that financial bidders are specialized or more skilled in identifying and exploiting mispricing opportunities. We perform a battery of tests that confirm the robustness of our findings. This paper successfully tackles a long-standing empirical challenge to separate value-selection versus value-creation motives for acquisitions and provides evidence that one of the motives for financial investors to acquire firms is to benefit from mispricing.

JEL classification: G14, G32, G34

Keywords: Market efficiency, Mispricing, Acquisitions, Financial acquirers

Preliminary Version

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1. Introduction

Financial bidders pay an average premium of about 35 percent in acquisitions even though they do not benefit from operational synergies with target firms.[1] How do they justify such premiums? Their ability to unlock significant value is typically attributed to two main factors. First, to the operational improvements that financial acquirers can implement after the acquisition. Existing studies show that financial bidders are especially good at acquiring mismanaged firms and improving their operations and governance (Gorbenko and Malenko, 2014; Hege, Lovo, Solvin, and Sushka, 2013). And second, to the benefit they obtain from the heavy use of debt financing at favorable terms (Axelson, Jenkinson, Stömberg, and Weisbach, 2013; Guo, Hotchkiss, and Song, 2011; Martos-Vila, Rhodes-Kropf, and Harford, 2013). An alternative plausible hypothesis is that financial bidders are skilled at identifying mispriced targets whose prospects are not clearly understood by the market. Under this hypothesis, mispricing creates a profit opportunity and financial acquirers can benefit[2] by acquiring firms whose market value is below its fundamental value.[3] Although theoretically appealing, in practice, it is not clear whether such opportunities exist, whether they can be successfully exploited and if so, are financial acquirers the smart investors. To bring an answer is important because it helps us understand better economic effects of this investor class who, as described by Gompers, Kaplan, and Mukharlyamov (2016), are graduates of top business schools and with extremely high incentive to perform. Is their contribution to economy solely attributed to value-enhancing, or they also enhance market efficiency by revealing firm prospect that are not readily obvious to others? Therefore, in this paper, we aim to evaluate if financial bidders explore and eventually benefit from mispricing.

Opportunities may exist to the extent that market values deviate from intrinsic values. Market values should reflect intrinsic values though there can be moments where the two are misaligned and watchful investors could benefit from that. In this respect, Edman, Goldstein, and Jiang (2012) use mutual fund redemptions as a non-fundamental shock to stock prices and shows that the resulting price falls have a positive impact on takeover activity thus providing evidence that attentive investors do exploit price deviations from intrinsic values.[4] Even if non-fundamental shocks may affect the stock price of any firm, deviations

[1] For instance, both Bargeron, Schlingemann, Stulz, and Zutter (2008) and Gorbenko and Malenko (2014) document a premium of 35 percent offered by financial bidders.
[2] In this paper acquirer refers indistinctively to bidder who fails or succeeds in completing a takeover bid. And undervaluation refers indistinctively to mismanagement and/or mispricing.
[3] Gaughan (2014) "Private equity market" of Chapter 8; Damondaran (2001), "Motives for acquisitions" of Chapter 25,
[4] In a robustness check, they show that takeover probabilities increase more for financially driven acquisitions.

from intrinsic values may be more prevalent in less efficient markets or when information asymmetries are particularly important. Thus, if financial bidders can successfully benefit from mispricing, we would expect that they do so especially in acquisitions where the target is subject to larger information asymmetries or when acquiring private firms.

In the absence of synergistic gains, financial bidders may specialize or may be more skilled at exploiting mispricing. Dittmar, Li, and Nain (2012) suggest that financial bidders are particularly skilled at identifying undervalued targets. That financial acquirers are good at identifying undervalued targets is also prevalent in professional circles.[5] Alternatively, financial bidders may enjoy an information advantage that makes them be better placed to benefit from price deviations. In contrast, strategic acquirers focusing on synergistic gains may neglect other sources of gains or simply may not be so skilled at detecting mispricing. In this sense, Dessaint, Foucault, and Frésard (2016) gives support to the later as they show that managers are not always able to filter out noise in prices and to distinguish fundamental from no fundamental changes in stock prices. Both under the view that each type of bidder specializes in different sources of gains (Gorbenko and Malenko, 2014) or that it has differential skills (Dittmar et al., 2012), financial bidders are more likely to exploit mispricing.

Testing our hypothesis is challenging because measuring mispricing is not straightforward. In that direction, some studies demonstrate that the premium offered in acquisitions by financial acquirers is negatively associated with target valuation ratios such as the market-to-book ratio after controlling for a number of other variables (Renneboog, Simons, and Wright, 2007). Other studies evaluate whether target valuation ratios impact the likelihood of being an acquisition target (Edmans et al., 2012) and show that low target valuations increase acquisition probabilities. With these findings, existing studies conclude that undervaluation is one of the sources of expected gains for financial acquirers. Their main limitation is the use of valuation ratios that are both correlated to poor management and mispricing. As a consequence, they can only make a vague use of the term undervaluation to refer indistinctively to mispricing and mismanagement but fail to identify which drives financial acquirer's acquisition gains.

To circumvent this challenge we study acquisition bids that fail to complete. If target underpricing is among acquisition motives and the market recognizes it,[6] targets should be revalued by the market and their stock prices at bid failure would not fully revert to pre-

[5] For example, *The Strategic Secret of Private Equity*, Harvard Business Review, September 2007.
[6] Of course if the market does not recognize it, we should not observe any revaluation effect even if mispricing is a driving source of acquisition gains.

announcement level.[7] By construction, such revaluation should be unrelated to value-creation hypotheses because any envisioned value to be added by takeover becomes invalid once the takeover attempt fails. To estimate a potential revaluation, we evaluate the market reaction from the offer to the failure of the bid. To further evaluate whether mispricing as an acquisition motive is related to the identity of the acquirer, we compare the revaluation effect around failed bids by financial bidders to that of strategic bidders. In this set up, according to our hypothesis, we would expect a larger revaluation effect for financial acquirers.

Our dataset includes a panel of 789 bids that failed over the period 1980-2015. According to the identity of the bidder, 258 bids are initiated by financial acquirers and 531 by strategic acquirers. To start with we conduct an event study on target firm stock returns from the announcement of the bid to the announcement of the failure and estimate whether there is any revaluation effect around failed bids. First, consistent with previous studies,[8] we find a revaluation effect associated to the medium of payment, premium, hostile bid attitude, and tender offer. Then to understand if part of revaluation is purely from the identity of acquirers, we compare the revaluation effect of failed bids initiated by financial bidders to that of failed bids initiated by strategic bidders. We find that the revaluation effect is significantly larger around failed bids initiated by financial bidders and when target firms are small. Thus, it seems that financial bidders do exploit mispricing opportunities to a larger extent than strategic bidders. Though, this advantage is only present when information asymmetries are significant.

Our approach is however still subject to some challenges as the revaluation effect could be the product of other forces and not just a reflection of mispricing. First, we should be concerned with selection into bid failure. That is, confounding variables cause bids to fail and simultaneously affect target stock prices. To address this issue, we collect information on failure reasons and separate bids by whether their causes of failure are related to target stock prices. We find the higher revaluation of small firms targeted by financial bidder stay significantly positive in the subsample where failure reasons are unrelated to target stock prices. Furthermore, we ensure that, even when selection into failure exists, its presence has similar distribution for deals involving financial bidders' targets with large information

[7] Different from the medium of payment examined in Malmendier et al. (2016), in this context it is the identity of the acquirer that conveys information to the market upon the announcement of an acquisition.
[8] In particular, Bradley, Desai, and Kim (1983), Safieddine and Titman (1999) , Savor and Lu (2009), and Malmendier et al. (2016).

asymmetries and other failed deals. In a word, our findings is unlikely to be driven by confounding factors related simultaneously to bid failures and target stock prices.

Second, the revaluation effect that we uncover could be the outcome of anticipation effects. Bradley, Desai, and Kim (1983) show that the revaluation effect could reflect the anticipation of future takeovers. The higher revaluation effect of small firms and financial bidders may simply reflect future takeovers at a faster speed or with a higher offer price. To address the speed concern, we perform survival analysis and do not find evidence that the higher gain exploited by financial bidders from small firms is driven by a higher rate of subsequent takeovers. To clear the offer-price doubt, we assess if the higher revaluation predicts a higher future offer price and do not find any support. Alternatively, the revaluation effect could simply reflect future operational improvements by the current management (Hirshleifer and Titman, 1990; Safieddine and Titman, 1999). To deal with this concern, we exclude cases pertaining to future operational improvement, i.e. hostile bids and failed due to rejection of target board of directors and still obtain significant results for small firms and financial bidders. All in all, we do not find evidence that would support alternative explanations for the revaluation effect that we uncover for financial bidder- small target related deal failures.

Our analysis contributes to several strands of the literature. First, we add to the literature that explores the sources of acquisition gains and, in particular, how can financial acquirers justify their acquisition premiums. Previous studies document value gains from improvement in sales and operating margin (Acharya, Gottschalg, Hahn, and Kehoe, 2013), favorable debt financing terms (Axelson et al., 2013; Martos-Vila et al., 2013), realized tax benefits and sector returns (Guo et al., 2011). This paper show that to exploit firm mispricing is another important channel to justify acquisition premium. Financial bidder are particularly advantageous in benefiting this opportunity from firms suffering severe information asymmetry.

We also contribute to the literature that explores the rational of the revaluation effect that remains after takeover attempts fail. This complements the findings in (Malmendier et al., 2016) who show that revaluations are also explained by the information embedded in the medium of exchange. We show a revaluation is present in takeover attempts by financial acquirers and where the target is subject to large information asymmetries. Thus, part of the revaluation seems to be due to purely informational effects related to the identity of the acquirer. However the signaling effects related to the identity of the buyer seem to be more

relevant than those conveyed by the medium of exchange when information asymmetries are significant.[9]

In addition, our results enrich the branch of studies that examine the differences between financial and strategic bidders. Gorbenko and Malenko (2014) show that the two types of acquirers target at different firms in auctions, which imply they pursue distinct investment motives in acquisitions. Our paper reveals that to exploit underpricing is one motive that is more pronounced to financial bidders. The higher revaluation of small targets of financial bidders indicates that they may be more engaged in the business of fishing underpriced firms and in turn be particularly watchful in poor information environment. Our findings also complement Edmans et al. (2012) and show, while both types of acquirers act on a bargain purchase, it is financial acquirers that can eventually pocket a greater gain when information environment is extremely poor.

The rest of the paper is organized as follows. In section I, we explain how we construct our sample and the variables that we used in the tests. In section II we describe the empirical method that we implement to test our main hypothesis and we present the main empirical results. In section III, we discuss some empirical challenges that could question our interpretation and provide additional analysis that confirm our main findings. We conclude in Section IV.

2. Data

2.1. Sample construction

We start collecting acquisition bids from SDC Mergers and Acquisition database for the period 1980 to 2015 with deal status not labeled as "Completed" or "Pending".[10] We note that those bids involve bidders and targets from different countries and exclude bids where the target is a private firm.

Then we retain bids that comply with the following restrictions. First, we can identify announcement and withdrawal dates. Second, the targets involved had a free float of more

[9] Our results also strengthen the role of informational effects as opposed to Bradley et al. (1983). Contrary to the results of their study, the informational effects seem to be larger than the synergy effects. If synergies would be the main driver of the revaluation effects then we should have observed stronger revaluation for strategic acquirers.

[10] At this stage, these bids include "Withdrawn", "Discontinued Rumored", "Seek Buyer Withdrawn", and "Intention Withdrawn". But 99 percent of our cleaned sample for estimation consist with "Withdrawn" and 1 percent with "Intention Withdrawn".

than 50 percent before the bid.[11] And third, we retain bids in which bidders would obtain more than 50 percent and up to 100 percent of targets if deals were completed.[12] This is to ensure a real change of ownership after takeover. As our research of interest is to test selection skill of financial bidders, we exclude bids where target management or employees are involved. This is to filter noise posed by target insiders.

Then, we identify the type of the bidders, financial or strategic, by looking at the acquirers' 4-digit SIC code. We classify an acquirer as a financial bidder if her SIC code is between 6000 and 6900. A strategic bidder has a SIC code either below 6000 or greater than 6999. As for target firms, we exclude financial service firms, i.e. targets' SIC code is between 6000 and 6999.[13] This is to construct a sample where the undervaluation hypothesis is mostly relevant, i.e. financial acquirers have little operational synergy.

Finally, we exclude bids that involve a third party offer for the target while this original bid was pending. With this choice, we aim to reduce noise caused by valuation effect of the third party ' outbid. This screening leads us to a sample of 1277(2538) failed financial (strategic) bids.

Next for every target firm involved in the deal, we obtain stock prices and financial data from Datastream and Worldscope databases, our matching variables are Datastream code, firm name, and country of primary listing.[14] As Datastream codes for U.S. firms in SDC are largely missing, we complete our sample by matching U.S. targets to CRSP/Compustat using the 6-digit CUSIP and firm name. Till this step, our sample to 1019(1926) failed financial (strategic) bids. We drop bids in which target stock price data is not available 275 days prior to bid announcement. Till this step, our sample to 948 (1458) failed financial (strategic) bids. Next, we drop deals where the offer price is lower than the market price. That leads our sample to 877(1327) failed financial (strategic) bid.

[11] This step excludes bids where the target is a private firm. SDC consider firms with more than 50 percent free-float as public firms.
[12] Tough undervaluation hypothesis may also apply to minority interest bid, we use takeover bids for two reasons. First, a takeover bid catches much more market attention than a minority purchase and enable us to see more clearly corrections and reversion in price from bid news to withdrawal news. Second, the sample size of minority bid failures is too small to provide statistical significance once we require disclosed premium and listed targets.
[13] As a robustness check (not reported), we re-conduct all estimation, including bids where targets are from the financial service sector and acquirers are strategic. Our results do not change.
[14] Datastream assigns different DS codes to cross-listed firms by stock exchange. Matching by DS code assigned to primary stock exchange, we neglect trades on other stock exchanges. But this does not impose major distortion in measuring cumulative abnormal returns for a multiple-week event window because price parity deviation incurs in multi-market intraday trading (Gagnon and Karolyi, 2010). Datastream also assign different DS codes for a single firm from countries in which different classes of shares are issued to citizens and foreigners, such as China. Accounting for only 1 percent of our sample, this again should not cause any big problem.

Finally, we keep bids that have non-missing observations for variables that are shown by previous literature to affect target revaluation. We use them as our control variables for empirical estimation. They are the medium of payment, offer price, indicator for hostile attitude, market capitalization of the target, and an indicator for tender offer.[15] The medium of payment refers to percentage of deal value to be paid in cash, common stock share, and others. Shliefer and VIshny (2003) predict that deals involving a target underpriced relative to its intrinsic value are more likely to be paid in cash. Empirically, Malmendier et al. (2016) show that to pay in cash is a driver for the revaluation effect. Then we include bid premium expresses as offer price over target stock price four weeks prior bid announcement (*Premium*). The offer price, once announced, immediately sets a reference for other investors of the true target value in the eyes of its bidder. Thus it also serves as a benchmark for correction on prior-bid mispricing. Empirical studies, such as Karolyi and Liao (2016) and Malmendier et al. (2016) indeed document a positive association between premium and short-run stock market reaction. A hostile takeover bid, even though unsuccessful, can cause market anticipation that target management would improve future operational performance after resisting a hostile takeover (Hirshleifer and Titman, 1990). In a similar vein, a tender offer can build up market expectation of target receiving premium from subsequent offers (Jensen and Ruback, 1983). We include target market capitalization to measure target firm size and to controls for slowly varying firm-level factors that are associated to unobservable acquisition motives as well as their impact on target price. Our final sample consists of 258 financial and 531 strategic failed bids.

We do not consider target valuation measures as a control, such as Market-to-Book, because measures of this kind are commonly used to decompose an intrinsic the mispricing element and then to rank target undervaluation prior to bid.[16] In this sense, our strategy to sue failed bids is an alternative way to gauge prior-bid target underpricing.

As discussed in Section 2, we consider failed bids as counterfactual to completed deals. That requires us to assess the comparability between the failed and the completed. Thus, we follow the same procedures to collect completed financial and strategic bids, except that now we choose the deal status "Completed".

[15] We do not include deal value because it is highly correlated with target firm market capitalization, the key firm-level control variable in our regression. Previous studies (e.g. Malmendier et al., 2016) include deal value to gauge acquisition cost relative to bidders' business scale by scaling deal value by bidder's market capitalization. This is infeasible in our setting because most financial bidders are private.
[16] See for example Rhodes-Kropf, Robinson, Viswanathan (2005), Dong et al., (2006), Edmans et al., (2012), and Fu, Lin, Officer (2013).

2.2. Summary statistics

In Table 1, Panel A reports summary statistics of financial bids and Panel B of strategic bids. Panel A shows that, both completed and failed bids issued by financial bidders, are similar regarding the medium of payment (*Cash, Stock, Other*), days between the announcement and the completion/withdrawal date (*Days*) , market-to-book value (*MB*), premium (*Premium*) and the size of stake sought by the bidder (*StakeSought*). With regard to strategic bids, Panel B shows that strategic completed and failed bids share similarity in terms of market-to-book, premium and the size of stake sought by the bidder. Yet the failed is marginally different from the completed with respect to the medium of payment and days between the announcement and the completion/withdrawal date.

Panel A and B also outline differences between completed and failed bids that are common to financial and strategic bidders. With regard to financial acquirers, failed bids target at slightly larger firms than the completed, reflected by deal value (*DealValue*) and pre-announcement target market capitalization (*TargetSize*). Strategic acquirers also show difference in those two variables but in opposite direction. Both for financial and strategic bids, failed bids are more likely to be hostile (*Hostile*), and less likely to be tender offers (*TenderOffer*), involve target fees in case of termination (*TTerm*), or hold a smaller block size prior to bid (*Toehold*) than completed bids. These findings are consistent with previous studies[17] and highly correlated with failure.[18] Failure predictors may also affect stock price. For example, as argued in Hirshleifer and Titman (1990), while resisting a hostile bid, the target firm may also learn about and take actions to implement policies planned by the bidder and in turn increase target stock price. Thus, it is important to account for such effects in our tests. Therefore we will include these variables as controls in a regression setting described in Section 3.3.

Table 1 Panel C evaluates whether there is any significant difference between financial and strategic bids both for completed and failed subsamples. The medium of payment and the premium offered are significantly different for financial and strategic bidders, regardless if a bid is completed or not. Unlike strategic bidders, financial bidders tend to pay all bids with cash. Malmendier et al. (2016) show that cash payments reveals prior-bid underpricing

[17] See for example Bates and Lemmon (2003).
[18] In unreported table, we double confirmed that they are determinants for failure in a logistic regression setting.

of a firm. Thus, we will need to make sure that our indicator of financial bidder is not actually a proxy for cash payments and make we falsely attach a potential revaluation to the type of bidder. To account for it, we will run our tests controlling for cash offer as well as in a sample of only cash deals. In addition, financial bidders offer on average premiums that are 7.8 percent lower than those offered by strategic bidders.[19] The lower premium could be explained by the absence of operational synergies when a financial acquirer bids for a target firm real sectors[20].

3. Empirical analysis

By looking at failed deals, we aim to evaluate whether there is any revaluation effect. Market revaluation refers to the market reaction from the announcement to the failure of the bid. After the announcement, the prices incorporate deal specific information as the bid advances towards completion or failure. In the case of failure, prices should go back to initial levels unless there is revaluation. Revaluation is most likely due to undervaluation prior to bid but it could also be the result of anticipation of future takeover or operational improvement.

First, we aim to estimate whether there is any revaluation effect and then identify its likely driver.

3.1. Measuring market revaluation for target firms

To estimate market revaluation, we conduct an event study on target firm stock returns around the announcement of the bid and of the withdrawal. The estimation window corresponds to the interval (-275, -25) with respect to the bid announcement. Following standard event study methodology as in Brown and Warner (1985), we compute daily abnormal returns as prediction errors from a market model using local market indices.[21] Stock and local index returns are expressed in home market currency. To account for illiquid stocks, we adjust abnormal returns following the "trade-to-trade" approach of Maynes and Rumsey (1993)[22]and exclude bids where target firms are not traded for more than 225 out of 250 trading days (90 percent of the estimation window).

[19] Focusing on U.S. domestic completed bids after which acquirers own 100 percent stake, Bargeron et al. (2008) find the premium from financial bidders is around 12 percent lower than that from strategic bidders

[20] See Bargeron et al. (2008) for alternative explanations.

[21] In robustness check, we replace local market indices with Datastream value-weighted global market index in U.S. dollar and local market currency exchange rates to U.S. dollar. In addition, we also re-estimate CARs with constant mean model. Our findings are consistent.

[22] We also compute normal return without adjustment to illiquid stocks. Our results do not change.

Then we compute the cumulative abnormal returns (CARs (B-25,F+25)) from 25 days before the announcement of the bid to 25 days after the announcement of the withdrawal following Malmendier et al. (2016). The choice of 25 days before the bid announcement allows us to capture price run-ups caused by rumors Schwert (1996). The choice of 25 days after bid failure allows us to incorporate the possibility that stock markets react slowly to bad (withdraw) news (Chan, 2003).

3.2. Univariate test

Figure 1 provides graphical results for revaluation effect of financial and strategic failed bids. It plots the evolution of target firm CARs (B-25,F+25).[23] The solid line represents the CARs for financial failed bids. The dashed line represents CARs for strategic failed bids. The part of curves from *B-25* to *B* illustrate the average announcement return to the bid and the probability to fail. The market reaction is around 15 percent, only a third to premium documented by previous studies that focus on completed acquisitions. This is in fact consistent with Bhagat, Dong, Hirshleifer, and Noah (2005) that investors incorporates their view on the probabilities of deal consummation into valuation at bid announcement. Thus, we observe a lower magnitude for failed bids. The part on the right, from F to F+25, presents the stock market reaction towards announcements of bid failures. The phase from B to F depicts how the stock market incorporates deal-specific information as the bid advances towards completion or failure. For different bids, this process can last longer or shorter. Therefore, we standardize the window between *B* and *F* following the same approach as in Malmendier et al. (2016). In the absence of a revaluation effect, we would observe CARs falling back to zero. This is the case for firms targeted by strategic bidders. However, we observe that the line of financial bidders stay approximately at the 10 percent level when they hit the failure date "F" in the x-axis. This finding is consistent with a revaluation effect. And therefore undervaluation seems to be a source of value in acquisitions. More importantly, the gap between the two lines is wide and seems to indicate that only financial bidders actually benefit from undervaluation.

Table 2 provides univariate tests. Panel A as well as the first row of Panel B confirm our previous observations. We conduct different tests to address potential non-normality in returns. In Panel B, asterisks next to means and medians indicate the statistical significance

[23] To normalize the length between bid and failure, we follow the same approximation procedure as described in Malmendier et al. (2016).

using skewness-adjusted t-test and Wilcoxon sign-rank test respectively. The columns labeled "*Strategic-Financial*" present test statistics on difference between strategic and financial using skewness-adjusted t-test and rank-sum test. With regard to our main sample, labeled "*Main sample*", around 11 percent (median of 5.9 percent) revaluation effect remains for target firms of financial bidders, whereas targets of strategic bidders retain little wealth change in the end. The difference between the two groups is statistically significant at 10 percent. Up to here, financial acquirers seem to be able to gain from revaluation.

However, around 50 percent of strategic bids involve payment in stock, while almost all financial bids are to be paid in cash. If the choice to pay stock is driven by motives other than target underpriced to its intrinsic value (Shleifer and Vishny, 2003), strategic bids' under-presence in cash bids relative to financial bids may cover an otherwise significant revaluation effect. For this reason, we narrow down our comparison to cash-only deals (*PureCash*),[24] firms targeted by strategic bidders actually continue to possess a 7.7 percent (median of 9.7 percent) upward adjustment on stock price. Difference between the two groups is insignificant. This observation is consistent with Malmendier et al. (2016) that the medium of payment plays a role in revealing prior mispricing. And we show that this channel applies to both financial and strategic bidders.

Though the revaluation difference between the two types of bidders disappears, it could well be that financial bidders only have advantage in less efficient markets or where information asymmetries are more relevant. There they are able to exploit and reap a profit from undervalued firms. To proxy information asymmetry, we use small firms because smaller firms are shown to have poorer information environment (Atiase, 1987). So we rank targets by market capitalization and label *Small(Q1), Q2, Q3, and Big(Q4)* respectively to targets in the lower quartile, between 25 percent to 50 percent, between 50 percent to 75 percent, and in the upper quartile. As expected, small firms targeted by financial bidders gain a 36.6 percent (median of 24.8 percent) CARs, whereas no revaluation effect remains for small targets of strategic bidders. That confirms our prediction that only financial bidders grasp opportunities where mispricing is most likely to occur. Though strategic bidders demonstrate positive revaluation effect for firm size above median, the difference from financial

[24] As discussed in Fu et al. (2013), to focus on pure cash or stock bids captures more clearly acquisition motives, while interpretation on hybrid payments might be arbitrary.

bidders is statistically insignificant. We are going to examine the robustness of these results in a regression setting that controls for other deal-level characteristics

Skills to spot undervalued firms may stem from 1) better private information or 2) better tools or information processing skills. As a proxy for having better information we use domestic (Cooper, 2013). In fact, geographical proximity is shown to be positively associated with information advantage. Investors prefer to capitalize this competitive advantage even if it is tiny. As expected, the row *Domestic* reports significant and higher than *Purecash* revaluation for both financial strategic bids, whereas *Crossborder* does not have any revaluation effect left after bid withdraw. These results on geographic distance demonstrate that both financial and strategic bidders have access to information advantage. Furthermore, financial bids do harvest a significant revaluation in small domestic firms, while strategic bids no longer show any revaluation. Put together, the univariate tests results support our conjecture that financial bidders are more skilled than strategic bidders in finding undervalued firms when information asymmetry is severe.

3.3. *Multivariate test*

To further evaluate our hypothesis and account for deal- and firm-level characteristics we continue with cross-sectional regression. Our base model is specified as below.

$$CAR_i = \alpha + \beta Financial_i + \gamma Deal_i + \delta Log(TargetSize)_i + \varphi Yeardummies + \theta Industrydummies + \varepsilon_i$$

where i indicates the *ith* bid. CAR_i is the cumulative abnormal return for target firms from 25 days before bid announcement to 25 days after bid withdrawal. $Financial_i$ is the independent variable of interest that represents the type of bidder. It is a dummy variable equal to one(zero) if the *ith* bid is initiated by financial(strategic) bidders. Its coefficient, β , captures any target revaluation effect associated with the bidder type "Financials" . We follow previous studies and control for other factors that may impact CAR_i beyond the type of bidder. $Deal_i$ is a vector of deal-level control variables, including *Cash*, *Premium*, *Hostile*, and *TenderOffer*. *Cash* stands for the medium of payment in cash. We define *Cash* as a dummy variable that equals to 1 if no less than 50 percent is to be paid in cash and zero otherwise.[25] *Premium* is bid premium expresses as offer price over target stock price four weeks prior bid announcement. *Hostile* (*TenderOffer*) stands for a dummy is equal to one for takeover bids that are hostile (in the form of tender offer) and zero otherwise. *Log(TargetSize)* is the

[25] In unreported robustness check, we use the percentage of payment in cash. Our results do not change.

natural logarithm of 2014 CPI-adjusted target market capitalization. *Yeardummies* and *Industrydummies* are dummies for bid announcement year and 1-digit SIC industries that control for macroeconomic condition and regulation changes common to all buyers, target firms or certain industries.

Table 3 presents baseline regression results. Column 1 reports the average estimation for *Financial* without any other control. Deals associated with financial bidders show a positive and significant revaluation effect with a CARs of 9.5 percent (t-statistic of 2.59). The significance remains once we introduce year and industry fixed effects, as depicted in Column 2. In Column 3, we add control variables. While the signs of coefficients on control variables are largely consistent with previous studies[26], we observe that the revaluation effect on *Financial* vanishes. This results shows that the identity of the bidder does not impact the revaluation effect. Thus financial bidders do not seem to signal underpricing.

Up to here, we control for the revaluation effect of payment medium by adding a dummy variable of cash payment. As an alternative way of control, we follow Bargeron et al. (2008) and Gorbenko and Malenko (2014) and narrow our sample to cash-only bids. In this way, we account for potential collinearity between the dummy variable of cash payment and that of financial bidders, which may overshadow the explanatory power of the bidder types. The results are the same as before, according to Column 4-6. After controlling for cash payment, there is not a larger revaluation effect associated to financial bidders (*Financial).* Thus, the type of bidder does not seem to have any target revaluation effect incremental to the medium of payment, offer premium, hostile attitude, and tender offer.

3.4. *Information asymmetry*

Till now, our baseline results show that the type of bidder does not impact the revaluation effect. This result may reflect that the average deal in our sample evolves in a highly efficient market where deviations between value and price can be quickly learnt by both types of bidders.[27] In this set up, financial bidders may only show an advantage where information asymmetries are high. In the presence of significant information asymmetries, financial bidders may be able to utilize their skills in processing information and benefit from identifying underpriced firms. To examine this claim and as information asymmetries

[26] Our estimation of the coefficient on *Cash* is 10 percent, similar to the estimation of Malmendier (2016) when both public and private acquirers are included.
[27] For example, Edmans et al. (2012) shows that a non-fundamental discount on stock price attracts both strategic and financial acquirers.

are more likely to be present in small firms, we take firm size as a proxy and create the variable *Small*. *Small* equals 1 if the target market capitalization is in the lower quartile and zero otherwise.

Table 4 presents cross-sectional regressions where Small is interacted with Financial. $Financial \times Small$ captures the revaluation effect associated with bids involving financial bidders and targets subject to larger information asymmetries. In Column 1, we use the main sample and observe a 28.9 percent (t-test 3.20) reevaluation effect of the interaction item. Then in Column2 we add $Strategic \times Small$ to account for deals involving strategic bidders and targets subject to large information asymmetries. This set up allows us to directly compare the two types of bidders when both of them are faced with target firms subject to large information asymmetries. The *F-test* on the two coefficients (a=b) shows that, indeed, only bids involving financial bidders experience a larger target revaluation. To be consistent with baseline regression, we re-run our test in Column 3 and 4 with bids to be paid fully in cash as an alternative way to control for revaluation effect of cash payment. Once again, the greater revaluation effect of financial bidders persists when both types of bidders are ready to pay their offer fully in cash. [28].

If to act on undervaluation opportunities is a non-trivial goal for bidders, they will choose where private information is most exploitable and they have greatest advantages in execution. That would imply revaluation effect is more prominent in domestic bids than cross-border ones (Cooper, 2013). Therefore, to reinforce our findings that financial bidders benefit more from target mispricing than strategic bidders when information asymmetry is severe, we examine whether the subgroup $Financial \times Small$ still stands out from other domestic bids where bidders enjoy similar access to private information. Table 5 displays analysis results. First, as expected, the coefficient of dummy variable, *Domestic*, is consistently significant throughout different specifications. The interaction item, $Domestic \times Financial \times Small$, maintains a significant coefficient of 25 percent for main sample and 30 percent for pure-cash bids. In the case of cash-only bids, this incremental revaluation effect is statistically significant, according to F-test statistics (a=b). When we narrow down to compare $Domestic \times Financial \times Small$ and $Domestic \times Strategic \times Small$, as

[28] In Section 3.3, univariate tests suggest thin evidence that strategic bidders have slightly higher revaluation for targets of medium size. Thus, we replace the *Small* with *Medium* in the two interaction items and do not observe any significance, which indicates valuation effect is driven by other control variables. For reporting brevity, we do not tabulate a column for these two pairs.

shown in Column 7, we see that the type of financial bidders leads to a higher revaluation than strategic bidders, given similar information environment.

Summing up, our results show that financial bidders do have an advantage where information asymmetries are high. They benefit from underpricing in small firms and bring in a larger revaluation than strategic bidders. The magnitude of revaluation unlocked by the bidder identity is 10-15 percent higher than medium of payment as documented in Malmendier et al. (2016).

3.5. *Is underpricing really driving our findings?*

Our tests so far are subject to some challenges and require further examination. In our setup, we should be concerned with selection into bid failure, i.e. the cause of deal termination is related to the valuation of a target. For example, as a defense tactic, firms can release positive news to hype up stock price, squeeze the profit margin for bids, and drive away bidders.[29] In this case, we equally observe a revaluation at bid failure but cannot conclude it is stand-alone firm value that is previously mispriced and then revealed by financial bidders. Therefore, the key to address selection into failure is to set apart bids by whether their failure reasons affect stock price. Specifically, we follow Savor and Lu (2009) and Malmendier et al. (2016) to collect detailed information on failure reasons and group them into exogenous ones, i.e. unrelated to firm stock price, and those endogenously related to firm stock price.[30]

Our objective to use this exogenous-endogenous classification is two-fold. On the one hand, we want to verify whether the differential results between small targets of financial bidders and the rest bids still hold for the exogenous group. On the other hand, we want to ensure that, even if selection into failure exists, its presence has similar distribution for small targets of financial bidders and the remaining bids. If the cause of failure makes the market to react, such stock price reaction should be larger the larger are information asymmetries, leading to an overproportion of small firm bids failing for a reason involving high revaluation. Furthermore, deals by financial bidder are more likely to fail than strategic ones because financial bidders do not enjoy synergies and their negotiation margins are thinner and more easily drop the bid, leading to an overproportion of financial bidder deals failing for

[29] Literature has long established evidence that firms consciously release news to influence stock price. See (Ahern and Sosyura, 2014) for recent evidences.
[30] We use three information sources, SDC deal synopsis, SDC event history and news from Nexis-Lexis.

a reason involving high revaluation. The two, putting together, imply that the greater revaluation of small firms targeted by financial bidders may simply be driven by over-presence of selection into failure for small firms and financial bidders. Alternatively, there could be an overproportion of deals involving strategic bidders failing due to negative news about the target and adversely affects target stock price, such as bidders withdrawing during due diligence.

Table 6 summarize analysis results by failure categories. The very left column of Table 6 lists main failure categories. Categories from row (1) to (4) constitute our exogenous sample because they contain little additional information to the market that affects stock price. The first row is labeled *(1) No more information* because in those bids nothing but the date of bid withdrawal is found in public news resources. The next row, *(2) Term mutually disagree*, contains bids with withdrawal news stating terms are modified but eventually both bidder and target agree to terminate negotiation. No further information is available on what term is modified or what drives both parties agree to drop. In those two categories, there is no more public information than the sheer fact that any value creation of bidder becoming a controlling shareholder is no longer there. In this sense, these two failure categories are the most exogenous to revaluation effect. We also consider two other categories as exogenous. One is *(3) Bidder no financing*, in which news explicitly states that bids are withdrawn because bidders have difficulties to finance the deal. The other is *(4) Regulator reject*, in which bids failed to obtain approval from target country regulatory authorities such as Australian Competition and Consumer Commission, Federal Trade Commission in U.S., European Union, Office of Fair Trading or Competition and Markets Authority in U.K., etc. Those two causes of failure are unlikely to carry underlying information that affects investors' view about a target firm's governance, operation or growth prospect, apart from reversing anticipated value effect of a bid being completed. Putting together, the four failure categories are labeled as *Strict sample* in the last but one row.

The next six categories, from (5) to (10), are considered endogenous because the cause of failure is likely to stimulate stock market reaction. *(5) Bidder withdraw*, refers to bids that are terminated by bidders either during due diligence or at any other phase of the bid negotiation. A bid terminated in this way might signal that the bidder discovers the true but worse than expected situation of its target firm. Convinced by this signal, investors may reverse more than what to be added by the bid. In *(6) Target released news*, other news about the target is released around bid withdrawal, for instance earnings announcement or

other accounting information, plans for new project, updates on court ruling, and so on. This category also includes bids in which bidders say they terminate because of recent released news about its target firm. Good or bad, these confounding news make it hard to distinguish price effect of bid failure. *(7) Price too low* covers bids where target board of directors decline the offer by arguing the offer price is inadequate. It also includes bids where bidders openly reject to sweeten their offer. *(8) Tender failed* contain bids where bidders fail to tender sufficient shares before offer expires. These two categories literally tell the market that shareholders and management of target firms believe the firm fair value should be higher than offer price. In this sense, it actually supports our underlying hypothesis. However, one might argue that the so-called fair price in the mind of target management and shareholders can only be attained if they could learn about and implement policies planned by the bidder. If outside investors are convinced that performance-improving policies are to be executed by target management in place of bidders, they would not reverse initial revaluation at bid announcement. This undermines our conclusion because the observed positive revaluation is in fact anticipation of future operational improvement. We are going to address this anticipation effect in Section 3.7. For now, we simply regard the two categories as endogenous to target price effect. The last two categories, *(9) Board reject* and *(10) Shareholder reject*, stand for bids that are vetoed by target board or shareholders without explicitly stating it is due to inadequate offer price. These two failure causes may disperse market perception on firm value. While some can follow a similar line of thinking to the categories of *Price too low* or *Tender failed*, others might regard it as an indicator for stagnated board or dominant block holder whose interest conflicts with other shareholders.[31] Despite diverse directions of price implications, the aforementioned six failure categories, from *Bidder withdraw* to *Shareholder reject*, all hinder us from cleanly draw conclusion on undervaluation hypothesis. Therefore, we classify them as endogenous failure sample.

Having classified our sample by failure reasons, we further divide the sample into $Financial \times Small$, *Other Financial*, and *Strategic*. They refer to, respectively, small firms targeted by financial bidders, non-small firms targeted by financial bidders, all firms targeted by strategic bidders. Furthermore, we keep cash-only bids. *N*(*% of N*) indicates the number(fraction) of total observations for each of the three subgroups falling into each of

[31] Of course, *Price too low* or *Tender Failed* are not free from governance problems. For example, the former can be viewed as an excuse used by entrenched management. The latter can occur if a majority block holder refuses to tender and hurt minority shareholder interest.

the ten failure categories. In total, the main sample is divided into thirty subgroups. Then we regress CARs on each of these thirty subgroups by fully controlling for *Log(TargetSize)*, *Premium*, *Hostile* and *TenderOffer*.[32] *Coefficient* captures any revaluation effect loaded on each subgroup. It is left empty if there is insufficient observations to run regression.

As results suggest, our two-fold objective is satisfied and our concern of selection into failure is alleviated. First, the distribution patterns of failed bids into each categories are similar across the three subgroups, $ncial \times Small$, *Other Financial*, and *Strategic.* Particularly, in the failure categories prone to endogeneity, i.e. (5)-(10), none of the three subgroups has significantly greater or lower presence. This mitigates our concern that a cluster into either good or bad compounding news drives our results. Second, all three subgroups have around 40 percent of their observations present in the *Strict sample*, the failure categories least contaminated by price-sensitive information. In this exogenous sample, the greater revaluation effect of $Financial \times Small$ persists. In a word, our findings is unlikely to be driven by confounding factors related to both failure and target stock price.

3.6. *Is target revaluation driven by future takeover activities?*

The differential effect observed so far may be alternatively explained by future takeover activities Bradley et al. (1983). That is, the market believe small target firms of financial bidders have a greater probability to be acquired and hence a higher expected value. And this higher likelihood is further decomposed into two dimensions, shorter acquiring time or higher offer premium. For instance, a future bid to be realized within two years is to be valued more than one completed ten years later. Likewise, a 30 percent premium is preferred to a 10 percent premium. We approach the two dimensions separately.

To analyze the time until a successful acquisition, we conduct a survivor analysis.[33] This method is originally used in biology to examine, for instance, whether certain factors accelerate death. As an analogue to it, we test whether a combination of three factors, bidder types as financial acquirers, small firm size and higher market revaluation predicts a shorter survival time to future acquisition. Since our primary interest is the differential effect in revaluation, we focus on the marginal difference in time to acquisition between

[32] We also estimate the coefficient without any control, or dropping collinear control variable such as *TenderOffer* for the failure category *Tender failed*. Estimated results remain the same.
[33] It suits better our setup than a logistic regression because the former accommodates both occurrence and timing, whereas the latter only examines the overall presence and absence of an event. See Allison (2010) for a more detailed discussion on survival analysis techniques.

$Financial \times Small$ and the rest failed bids, instead of comparing to all un-acquired firms in the history.[34]

To begin with, we plot Kaplan-Meier survival curve to visualize the survival paths of $Financial \times Small$, and the rest. For each target firm in our sample, the observation period is measured as the time interval between the withdrawal date and the censoring date. The censoring date is the effective date on which a target firm is successfully acquired. In case no bid is completed, it is the date of officially delisted date. We take June 30 2016, the last trading date of our sample period, as the censoring date for companies stay listed and independent. For each year, survival probability is calculated as the number of firms surviving divided by the number of firms at takeover risk. Firms that are delisted for other reasons are not included in the denominator.

Figure 2 plot the cumulative survival ratios at each year end, calculated as the product of preceding probabilities of surviving a takeover risk in previous years. At first glance, the survivor ratio of small firms targeted by financial bidders drop faster than that of the other firms. For example, after two years following the initial bid failure, the subgroup $Financial \times Small$ is taken over 1.4 times (35 percent vs. 25 percent) faster than the other three groups. Yet such seemingly lower survival ratio turns out to be statistically insignificant, suggested by the large p-value (0.403) of log-rank test on the four categories.

So far we show firms grouped by their size and the type of bidders share similar time to acquisitions. But what we are ultimately interested is whether the higher revaluation associated to $Financial \times Small$ reflects a higher completion speed. Thus, we switch to Cox proportional-hazard regression to accommodate continuous variables, such as revaluation (CARs), and multiple covariates. In fact, all control variables included to estimate revaluation effect would be subject to the same query as the indicator for subgroup of financial small, if the latter is doubted to be driven by the rate of future takeover activities. Using Cox regression to adjust for other covariates, we can set apart the marginal effect of higher revaluation on the rate of future takeover.

Table 7 summarizes regression results. The dependent variable is the rate of subsequent takeovers following a bid failure. The explanatory variable of our primary interest is

[34] Besides its thin relevance to our setting, to include all un-acquired firms in the history may induce a negative bias on the survivor ratio of our sample. As demonstrated by (Malmendier et al., 2016), the survival ratio of recipients of a unconsummated bid is persistently much lower than firms that share similar firm and industry characteristics but never receive an offer for a five-year period before bid announcement. This gap suggests the comparison of future survival in our setting should be conditioned on the set of takeover risks following the very recent bid event.

$Financial \times Small \times Cars$, the revaluation associated to small firms targeted by financial bidders around bid failure. Its coefficient represents a relative increase in the rate of future takeover for one unit increase in revaluation. If the positive revaluation documented in Table 4 reflects faster successful takeover in the future, we would observe a positive and statistically significant coefficient. However, as shown in Column 1, the coefficient is insignificant from zero. That means revaluation possessed by small targets of financial bidders reveals prior mispriced intrinsic value of a firm. Next, in Column 2 of Table 7, we add the same array of control variables as used for estimating revaluation effect in order to set apart the marginal effect of Financial Small Car. We see clearly that it remains insignificant. The cash coefficients, contrary to Malmendier et al. (2016), is significantly positive. But once we follow their sample filtering and restrict to domestic bids in U.S., the coefficient becomes insignificant from zero. This is consistent to Faccio and Masulis (2005) that an alternative role of cash as payment is to secure a bid, which reveals the true market for a targets' shares and in turn reflect future takeover activities. Then in Column 3, we introduce a variable for average *CARs* and an indicator for financial bidder to further understand the role of revaluation and types of bidder respectively. Neither $Financial$ nor $Financial \times Small \times Cars$ possesses a significant coefficient. However, *CARs* becomes highly influential. For every one percent increase in revaluation, there is a 37.2 percent increase in takeover rate ($HR=e^{.316}=1.372$). Once we decompose *CARs* by the type of bidders, i.e. the revaluation allotted respectively to financial and strategic bidders, we see in Column 4 that the significant effect is solely driven by strategic bidders. The strong link between revaluation of firms targeted by strategic bidders and faster future takeover extends (Bradley et al., 1983) that revaluation at bid failure reflects not only synergies brought in by a subsequent successful acquisition but also a shorter waiting time before it eventually happens. In contrast, absent of synergy, the higher revaluation of $Financial \times Small$ is not related to a higher speed of future takeover activities.

Next, we estimate whether this subgroup is related to a higher wealth created by future takeover. We proxy future wealth with the premium of the ultimately completed bid, measured by inflation-adjusted deal value divided by target market capitalization. As a start, in Column 1 of Table 8, we regress this future wealth on $Financial \times Small \times Cars$ without any control. Then in Column 2-4, we account for the medium of payment, premium, bid attitude, and tender offer. The advantage to use the target market capitalization before bid failure to normalize future premium is to be aligned with other control variables in terms of

time. Yet it leads us to imprecise measure for long-term stock return. Thus, we include the time it takes to be eventually acquired (*Years*) to partly control for the long period of estimation. As shown in Column 2-4, $Financial \times Small \times Cars$ does not carry any significant effect. This insignificance lasts when we narrow down the sample to initial cash-only bids. All these evidences demonstrate that future higher offer value is unlikely to drive the higher revaluation of small firms targeted by financial bidders.

To sum up, neither the speed nor the offer price of future takeovers differs significantly between small firms targeted by financial bidders and the rest of firms. The greater revaluation of the former should derive from market correction for a prior underpriced intrinsic firm value. And financial bidders are capable of profiting from it.

3.7. Is financial bidders' revaluation effects on small firms driven by anticipation of future operation improvement?

Another type of anticipation effect, i.e. expectation of future operation improvement, might drive financial bidders' higher evaluation on small firms and invalidate our conclusion. Hirshleifer and Titman (1990) point out the possibility for hostile bids that, after targets firms resist a bid, they could learn about and implement policies planned by the bidder. Predicting this change, stock market can increases their expectation of the firm's prospect. In our setting, one might conjecture that financial bidders could have better policy in mind than strategic bidders. So only those firms targeted by financial bidders preempt policies planned by bidder. If it is financial bidders' superior management skills than strategic bidders that drive differential stock price reaction, we should see positive revaluation effect for all firms targeted by financial bidders. In reality, revaluation on larger firms dissipates at the news of bid withdrawal.

One might also argue that target management, considering financial bidders as corporate raider, successfully resist takeover threat and become more disciplined to improve operation performance Safieddine and Titman (1999). This does not relate to financial bidders' better know-how on corporate governance but can still affect investors' expectation. If it is unwanted bids that wake up target management and make them more engaged, this channel should be most prominent in bids that are hostile or rejected by target board of directors. In fact, financial bids on small firms rejected by directors are less than 10 percent and not associated with any significant positive revaluation, according to our investigation results

on failure reasons reported in Table 6. Furthermore, when estimating financial bidders' revaluation effect on small firms in Table 4, we have already controlled for hostile deal attitude. The positive revaluation effect persist in all specifications. As a matter of fact, less than 15 percent of small firms targeted by financial bidders are hostile. In unreported column of Table 4, we drop those observations and check whether small firms targeted by financial bidders still obtain revaluation in friendly cash-only bids. Results show it is indeed the case.

To sum up, the cases pertaining to future operation improvement are shown to be thinly present in our sample. Evidence overall does not support this anticipation effect.

3.8. Can target undervaluation motive be generalized to completed bids?

Up to this point, we show our findings support undervaluation hypothesis and are not driven by unobservable factors associated simultaneously to failure and target price, or anticipation of future successful takeovers and operation improvement. Yet there is still another potential issue worth discussing. That is, using failed bids as main empirical specification would in fact hinder us from generalize our findings to completed deals, if bids driven by target undervaluation are only found in failed bids. In light of previous empirical evidences, this should not be a major concern. For example, Dong et al. (2006) show bids involving undervalued targets have a completion rate of 73.9 percent, only 8.7 percent lower than the other targets. More recently, Edmans et al. (2012) provide evidence that target undervaluation not only attracts both financial and strategic bidders, but also remains a significant driver when they only keep completed bids in their analysis.[35] In this regard, target undervaluation is neither restricted to a particular type of bidder nor exclusive to failed bids.

4. Conclusion

Acquisitions are attempts by biding firms to exploit not only synergies but other sources of potential gains. Specifically, we show that financial acquirers are able to exploit, among others, information advantages they may have regarding the true value of the target firm. When information is severely asymmetric, financial acquirers show an advantage over strategic acquirers and pocket a higher gain from mispriced targets.

[35] See (Edmans et al., 2012) Internet Appendix Table IA6.

As the next step, we are going to distinguish whether this differential revaluation effect between bidder types is due to financial bidders' better analytical skills or market segmentation, i.e. they are more specialized in the business of exploiting undervaluation opportunities than strategic bidders.

A caveat of our empirical strategy is that we rely on stock price information. That means we are unable to accommodate private target firms, which are probably subject to severe information asymmetry.

Reference

Acharya, V.V., Gottschalg, O.F., Hahn, M., Kehoe, C., 2013. Corporate governance and value creation: Evidence from private equity. Review of Financial Studies. 26, 368–402.

Ahern, K.R., Sosyura, D., 2014. Who writes the news? Corporate press releases during merger negotiations. The Journal of Finance 69, 241–291.

Allison, P.D., 2010. Survival Analysis Using SAS®: A Practical Guide, Second Edition. SAS Institute.

Atiase, R.K., 1987. Market Implications of predisclosure information: Size and exchange effects. Journal of Accounting Research 25, 168–176.

Axelson, U., Jenkinson, T., Strömberg, P., Weisbach, M.S., 2013. Borrow cheap, buy high? The determinants of leverage and pricing in buyouts. The Journal of Finance 68, 2223–2267.

Bargeron, L.L., Schlingemann, F.P., Stulz, R.M., Zutter, C.J., 2008. Why do private acquirers pay so little compared to public acquirers? Journal of Financial Economics 89, 375–390.

Bates, T.W., Lemmon, M.L., 2003. Breaking up is hard to do? An analysis of termination fee provisions and merger outcomes. Journal of Financial Economics 69, 469–504.

Bhagat, S., Dong, M., Hirshleifer, D., Noah, R., 2005. Do tender offers create value? New methods and evidence. Journal of Financial Economics 76, 3–60.

Bradley, M., Desai, A., Kim, E.H., 1983. The rationale behind interfirm tender offers. Journal of Financial Economics 11, 183–206.

Chan, W.S., 2003. Stock price reaction to news and no-news: Drift and reversal after headlines. Journal of Financial Economics 70, 223–260.

Cooper, I., 2013. The Equity Home Bias Puzzle: A survey. Foundations and Trends® in Finance 7, 289–416.

Damodaran, A., 2001. Corporate Finance: Theory and Practice, 2 edition. ed. Wiley, New York.

Dessaint, O., Foucault, T., Frésard, L., Matray, A., 2016. Ripple effects of noise on corporate investment (SSRN Scholarly Paper No. ID 2707999). Social Science Research Network, Rochester, NY.

Dittmar, A., Li, D., Nain, A., 2012. It pays to follow the leader: acquiring targets picked by private equity. Journal of Financial and Quantitative Analysis 47, 901–931.

Dong, M., Hirshleifer, D., Richardson, S., Teoh, S.H., 2006. Does investor misvaluation drive the takeover market? The Journal of Finance 61, 725–762.

Edmans, A., Goldstein, I., Jiang, W., 2012. The real effects of financial markets: The impact of prices on takeovers. The Journal of Finance 67, 933–971.

Faccio, M., Masulis, R.W., 2005. The choice of payment method in european mergers and acquisitions. The Journal of Finance 60, 1345–1388.

Fu, F., Lin, L., Officer, M.S., 2013. Acquisitions driven by stock overvaluation: Are they good deals? Journal of Financial Economics 109, 24–39.

Gagnon, L., Andrew Karolyi, G., 2010. Multi-market trading and arbitrage. Journal of Financial Economics 97, 53–80.

Gaughan, P.A., 2014. Mergers, Acquisitions, and Corporate Restructurings, 5 edition. ed. Wiley, Hoboken, N.J.

Gompers, P., Kaplan, S.N., Mukharlyamov, V., 2016. What do private equity firms say they do? Journal of Financial Economics 121, 449–476.

Gorbenko, A.S., Malenko, A., 2014. Strategic and Financial Bidders in Takeover Auctions. The Journal of Finance 69, 2513–2555.

Guo, S., Hotchkiss, E.S., Song, W., 2011. Do buyouts (still) create value? The Journal of Finance 66, 479–517.

Hege, U., Lovo, S., Slovin, M.B., Sushka, M.E., 2013. Asset sales and the role of buyers: Strategic buyers versus private equity (SSRN Scholarly Paper No. ID 1787465). Social Science Research Network, Rochester, NY.

Hirshleifer, D., Titman, S., 1990. Share tendering strategies and the success of hostile takeover bids. Journal of Political Economy 98, 295–324.

Jensen, M.C., Ruback, R.S., 1983. The market for corporate control. Journal of Financial Economics 11, 5–50.

Karolyi, G.A., Liao, R.C., 2016. State capitalism's global reach: Evidence from foreign acquisitions by state-owned companies. Journal of Corporate Finance forthcoming.
Malmendier, U., Opp, M.M., Saidi, F., 2016. Target revaluation after failed takeover attempts: Cash versus stock. Journal of Financial Economics 119, 92–106.
Martos-Vila, M., Rhodes-Kropf, M., Harford, J., 2013. Financial vs. strategic buyers (Working Paper No. 19378). National Bureau of Economic Research.
Maynes, E., Rumsey, J., 1993. Conducting event studies with thinly traded stocks. Journal of Banking & Finance 17, 145–157.
Renneboog, L., Simons, T., Wright, M., 2007. Why do public firms go private in the UK? The impact of private equity investors, incentive realignment and undervaluation. Journal of Corporate Finance, Private Equity, Leveraged Buyouts and Corporate Governance 13, 591–628.
Rhodes-Kropf, M., Robinson, D.T., Viswanathan, S., 2005. Valuation waves and merger activity: The empirical evidence. Journal of Financial Economics 77, 561–603.
Safieddine, A., Titman, S., 1999. Leverage and corporate performance: Evidence from unsuccessful takeovers. The Journal of Finance 54, 547–580.
Savor, P.G., Lu, Q., 2009. Do stock mergers create value for acquirers? The Journal of Finance 64, 1061–1097.
Schwert, G.W., 1996. Markup pricing in mergers and acquisitions. Journal of Financial Economics 41, 153–192.
Shleifer, A., Vishny, R.W., 2003. Stock market driven acquisitions. Journal of Financial Economics 70, 295–311.

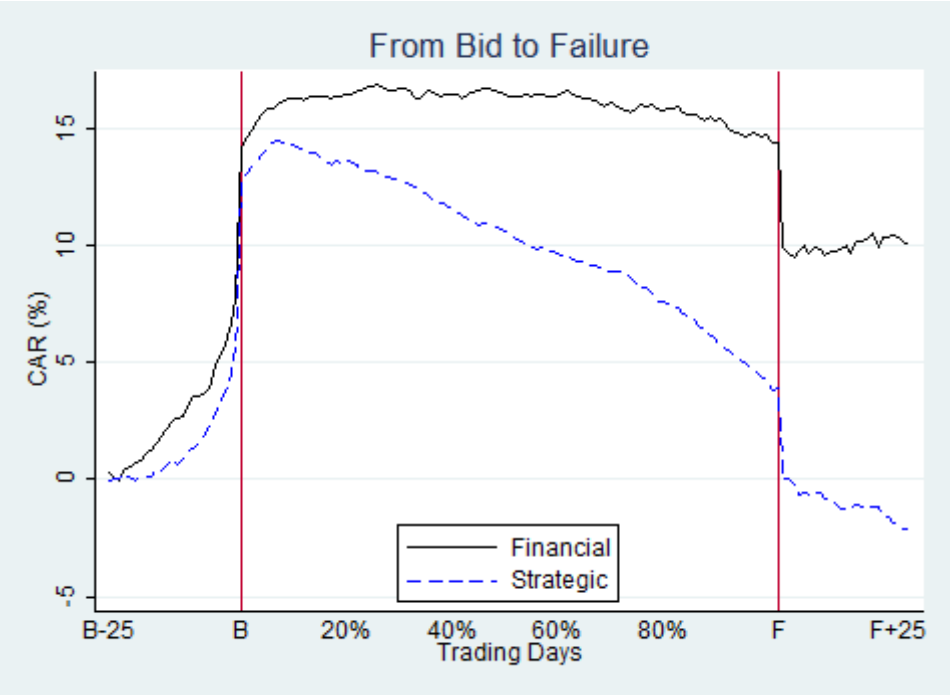

Figure 1. Revaluation effect on target firms This figure depicts cumulative abnormal returns(CARs) from 25 trading days before bid announcement(B) to 25 trading days after failure announcement(F) of our main sample (258 financial failed bids and 531 strategic failed bids).

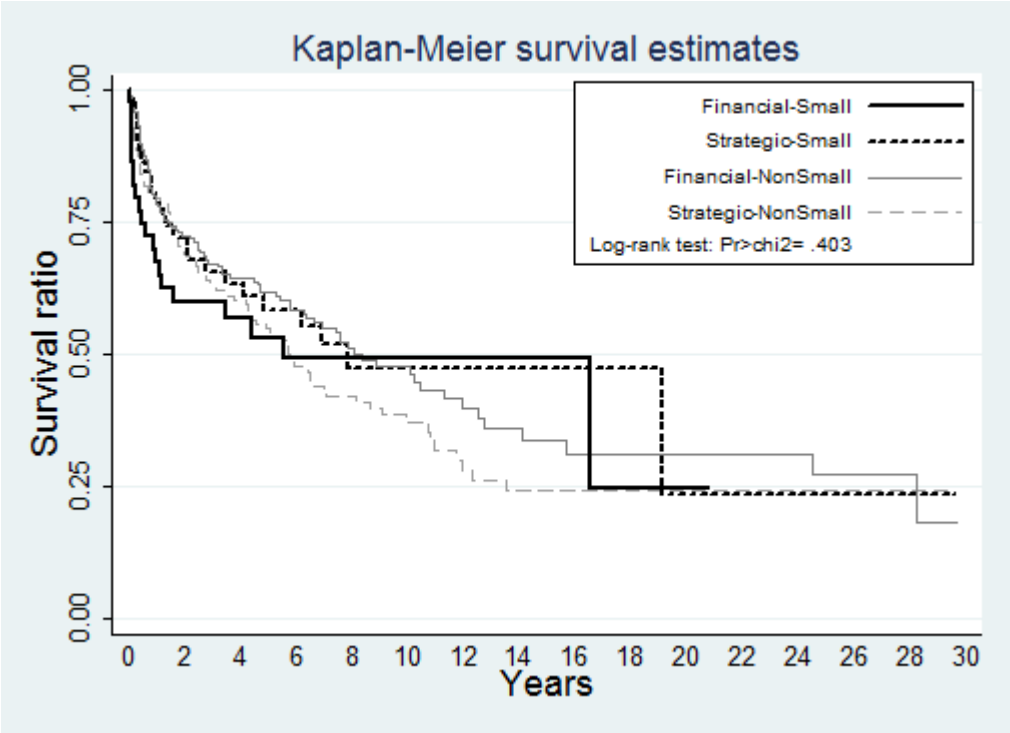

Figure 2. Kaplan-Meier survival estimates. This figure plots the conditional probability of firms surviving takeover threat over time. The pool of observations starting at Years=0 is out cash-only sample (218 financial failed bids and 237 strategic failed bids). The estimates adjust for right censoring such as firms remaining listed and independent at the end of observation period and firms delisted for reasons other than takeover, e.g, bankruptcy or regulator enforcement.

Table 1
Summary statistics

This table reports key deal-level characteristics for the main sample as described in Section3. Panel A displays bids by financial acquirers. Panel B displays those by strategic acquirers. Panel C compares, in groups divided by completed and failed, the difference of deal characteristics between financial and strategic acquirers. *Cash*(*Stock/Other*) is the percent of deal value to be paid in cash(stock/total value minus value paid in cash and stock). *Days* is the number of trading days between announcement date and effective/withdraw date. *DealValue* (*TargetSize*) is the transaction value (target market capitalization four calendar weeks prior to bid announcement) in billions of 2014 dollar using Consumer Price Index Conversion Factors. *MB* is the market-to-book value of target's equity four calendar weeks prior to bid announcement. *Premium* is bidder's offer price divided by target's stock price four calendar weeks prior to bid announcement. It is truncated between zero and two. *Hostile*, *TenderOffer*, *TTerm* and *InvGroup* are dummy variables indicating a bid in which the bidder's attitude is hostile, tender offer is involved, the target is liable to pay a termination fee to the acquirer if a bid is withdrawn, and the acquirer is a group of multiple investors, respectively. *StakeSought* is the percentage of common, or common equivalent, shares outstanding sought by the acquirer in this transaction. *Toehold* is the percent of common, or common equivalent, shares outstanding held by the acquirer as of the announcement date.

Panel A: Financial bidders

	Completed						Failed						
	N	Mean	Median	Std.dev.	Min	Max	N	Mean	Median	Std.dev.	Min	Max	p-value
Cash	1,283	91.82	100.00	24.27	0.00	100.00	258	92.79	100.00	21.08	0.00	100.00	0.55
Stock	1,283	4.38	0.00	19.29	0.00	100.00	258	3.76	0.00	16.85	0.00	100.00	0.63
Other	1,283	3.80	0.00	15.16	0.00	100.00	258	3.45	0.00	12.69	0.00	80.70	0.73
Days	1,283	95	79	63	0	357	258	100	80	80	0	365	0.26
DealValue	1,230	0.22	0.10	0.28	0.00	1.63	247	0.27	0.14	0.34	0.00	2.13	0.01
TargetSize	1,283	0.21	0.09	0.27	0.00	1.74	258	0.25	0.12	0.32	0.00	1.85	0.04
MB	721	2.38	1.47	4.38	0.03	47.76	173	2.36	1.32	5.20	0.03	47.76	0.96
Premium	1,283	40.02	31.71	33.29	0.00	200.00	258	39.54	30.77	33.75	0.00	200.00	0.83
Premium1d	1,277	32.43	25.00	34.27	-37.50	381.93	257	31.43	24.90	31.98	-50.33	248.84	0.67
Hostile	1,283	0.02	0.00	0.13	0	1	258	0.13	0.00	0.34	0	1	0.00
TenderOffer	1,283	0.55	1.00	0.50	0	1	258	0.48	0.00	0.50	0	1	0.03
StakeSought	1,282	86.62	100.00	21.66	1.50	100.00	255	88.84	100.00	18.38	2.60	100.00	0.13
Toehold	361	27.54	28.70	14.18	0.00	80.20	107	18.03	14.70	13.63	0.30	63.50	0.00
TTerm	1,283	0.33	0.00	0.47	0	1	258	0.10	0.00	0.30	0	1	0.00
InvGroup	1,283	0.19	0.00	0.39	0	1	258	0.25	0.00	0.43	0	1	0.03

Table 1 (Cont'd)
Summary statistics

This table reports key deal-level characteristics for the main sample as described in Section3. Panel A displays bids by financial acquirers. Panel B displays those by strategic acquirers. Panel C compares, in groups divided by completed and failed, the difference of deal characteristics between financial and strategic acquirers. *Cash*(*Stock/Other*) is the percent of deal value to be paid in cash(stock/total value minus value paid in cash and stock). *Days* is the number of trading days between announcement date and effective/withdraw date. *DealValue* (*TargetSize*) is the transaction value (target market capitalization four calendar weeks prior to bid announcement) in billions of 2014 dollar using Consumer Price Index Conversion Factors. *MB* is the market-to-book value of target's equity four calendar weeks prior to bid announcement. *Premium* is bidder's offer price divided by target's stock price four calendar weeks prior to bid announcement. It is truncated between zero and two. *Hostile*, *TenderOffer*, *TTerm* and *InvGroup* are dummy variables indicating a bid in which the bidder's attitude is hostile, tender offer is involved, the target is liable to pay a termination fee to the acquirer if a bid is withdrawn, and the acquirer is a group of multiple investors, respectively. *StakeSought* is the percentage of common, or common equivalent, shares outstanding sought by the acquirer in this transaction. *Toehold* is the percent of common, or common equivalent, shares outstanding held by the acquirer as of the announcement date.

Panel B: Strategic bidders

	Completed						Failed						
	N	Mean	Median	Std.dev.	Min	Max	N	Mean	Median	Std.dev.	Min	Max	p-value
Cash	5,300	60.01	100.00	46.22	0.00	100.00	531	51.25	54.99	47.24	0.00	100.00	0.00
Stock	5,300	36.29	0.00	45.76	0.00	100.00	531	44.91	0.00	47.39	0.00	100.00	0.00
Other	5,300	3.70	0.00	12.42	0.00	100.00	531	3.85	0.00	14.57	0.00	100.00	0.81
Days	5,300	96	82	59	0	365	531	87	70	70	0	363	0.00
DealValue	5,002	0.26	0.13	0.31	0.00	1.91	509	0.21	0.11	0.27	0.00	2.09	0.00
TargetSize	5,300	0.23	0.10	0.29	0.00	1.97	531	0.19	0.08	0.27	0.00	2.15	0.01
MB	3,707	2.90	1.76	4.61	0.03	47.76	378	3.07	1.49	6.43	0.03	47.76	0.50
Premium	5,300	47.83	39.34	36.06	0.00	200.00	531	47.30	39.02	37.98	0.00	200.00	0.75
Premium1d	5,270	36.53	29.73	34.07	-86.67	542.86	524	38.40	31.07	36.25	-89.34	300.00	0.23
Hostile	5,300	0.02	0.00	0.13	0	1	531	0.15	0.00	0.36	0	1	0.00
TenderOffer	5,300	0.46	0.00	0.50	0	1	531	0.37	0.00	0.48	0	1	0.00
StakeSought	5,299	93.21	100.00	17.04	1.90	100.00	529	95.53	100.00	12.78	4.10	100.00	0.00
Toehold	915	24.36	24.40	15.59	0.00	87.90	84	16.36	13.65	12.29	0.90	52.40	0.00
TTerm	5,300	0.44	0.00	0.50	0	1	531	0.14	0.00	0.35	0	1	0.00
InvGroup	5,300	0.00	0.00	0.05	0	1	531	0.00	0.00	0.00	0	0	0.22

Table 1 (Cont'd)
Summary statistics

This table reports key deal-level characteristics for the main sample as described in Section 2. Panel A displays bids by financial acquirers. Panel B displays those by strategic acquirers. Panel C compares, in groups divided by completed and failed, the difference of deal characteristics between financial and strategic acquirers. *Cash*(*Stock/Other*) is the percent of deal value to be paid in cash(stock/total value minus value paid in cash and stock). *Days* is the number of trading days between announcement date and effective/withdraw date. *DealValue* (*TargetSize*) is the transaction value (target market capitalization four calendar weeks prior to bid announcement) in billions of 2014 dollar using Consumer Price Index Conversion Factors. *MB* is the market-to-book value of target's equity four calendar weeks prior to bid announcement. *Premium* is bidder's offer price divided by target's stock price four calendar weeks prior to bid announcement. It is truncated between zero and two. *Hostile*, *TenderOffer*, *TTerm* and *InvGroup* are dummy variables indicating a bid in which the bidder's attitude is hostile, tender offer is involved, the target is liable to pay a termination fee to the acquirer if a bid is withdrawn, and the acquirer is a group of multiple investors, respectively. *StakeSought* is the percentage of common, or common equivalent, shares outstanding sought by the acquirer in this transaction. *Toehold* is the percent of common, or common equivalent, shares outstanding held by the acquirer as of the announcement date.

Panel C: Financial v.s. Strategic bidders

	Completed		Failed	
	Financial-Strategic	p-value	Financial-Strategic	p-value
Cash	31.81	0.00	41.54	0.00
Stock	-31.91	0.00	-41.15	0.00
Other	0.10	0.81	-0.39	0.71
Days	-1.73	0.35	12.64	0.02
DealValue	-0.03	0.00	0.07	0.00
TargetSize	-0.02	0.05	0.06	0.01
MB	-0.52	0.01	-0.71	0.20
Premium	-7.81	0.00	-7.76	0.01
Premium1d	-4.10	0.00	-6.97	0.01
Hostile	-0.00	0.67	-0.02	0.48
TenderOffer	0.09	0.00	0.11	0.00
StakeSought	-6.58	0.00	-6.69	0.00
Toehold	3.17	0.00	1.67	0.38
TTerm	-0.11	0.00	-0.04	0.13
InvGroup	0.19	0.00	0.25	0.00

Table 2
Univariate tests

This table reports univariate tests on absolute cumulative abnormal returns (*CARs*) from 25 trading days before bid announcement to 25 trading days after failure announcement. Daily abnormal returns are computed using a market model with parameters estimated over 250 trading days ending 25 trading days prior to the bid announcement. *Financial(Strategic)* is a dummy equals one if a bid is initiated by a financial(strategic) bidder and zero otherwise. *Paid in stock* is a dummy equal to one if a bid is to be paid, either partly or fully, in stock shares and zero otherwise. *PureCash* is a dummy equal to one if a bid is to be paid fully in cash and zero otherwise. *Small(Q1), Q2, Q3,* and *Big(Q4)* are dummies equal to one for bids where the target market capitalization is ranked, respectively, in the lower quartile, between 25 percent to 50 percent, between 50 percent to 75 percent, and in the upper quartile, and zero otherwise. *Domestic(Crossborder)* is a dummy equal to one if both acquirer and target are(not) domiciled in the same country and zero otherwise. *Domestic* × *Small* stands for small firms that are targeted by a domestic bidder. To test whether the cumulative absolute abnormal returns are significantly different from zero as well as between financial and strategic acquirers, we compute skewness-adjusted t-statistic (*Skw.-adj.t)* and z-statistic of Wilcoxon-Mann-Whitney rank-sum test (*Wilcoxon z*). ***, **, and * indicate 1 percent, 5 percent, and 10 percent significance respectively.

Panel A: CARs (B-25d, F+25d)

	N	Mean	Median	Std.dev.	Min	Max
Main sample	789	0.0469	0.0364	0.5081	-1.6121	1.4554
Financial	258	0.1110	0.0590	0.4637	-1.6121	1.4554
Strategic	531	0.0158	0.0314	0.5259	-1.6121	1.4554

Panel B: Financial v.s. Strategic

	Financial			Strategic			Financial - Strategic	
	N	Mean	Median	N	Mean	Median	Skw.-adj. t	Wilcoxon z
Main sample	258	0.111***	0.059***	531	0.016	0.031	-2.59	-1.76*
PureCash	218	0.118***	0.050***	237	0.077**	0.097***	-0.95	-0.09
Paid in stock	8	-0.069	0.069	240	-0.057	-0.037	0.05	-0.74
Within PureCash								
Small(Q1)	44	0.366***	0.248***	53	0.020	-0.036	-2.97	-2.93***
Q2	54	0.039	-0.059	77	0.055	0.118	0.19	0.85
Q3	58	0.033	-0.001	65	0.128**	0.103***	1.26	1.53
Big(Q4)	62	0.091*	0.016*	42	0.109	0.107**	0.22	0.57
Domestic	164	0.134***	0.065***	157	0.112***	0.118***	-0.43	0.50
Domestic×Small	38	0.362***	0.238***	40	0.007	-0.042	-2.83	-2.75***
Crossborder	54	0.069	0.007	80	0.007	0.015	-0.76	-0.64

Table 3
Revaluation: baseline regression

This table reports OLS regression on absolute cumulative abnormal returns (*CARs*) form 25 days before bid announcement to 25 days after failure announcement. *Financial* is a dummy variable equal to one for bids by financial acquirers and zero otherwise. *Log(TargetSize)* is the target market capitalization in billions of 2014 dollar four calendar weeks prior to bid announcement. *Cash* is a dummy equal to one for bids that more than half of deal value is paid in cash. *Premium* is bidder's offer divided by target's market value of equity four calendar weeks prior to bid announcement and truncated between zero and two. *Hostile* and *TenderOffer* are dummy variables indicating a bid in which the bidder's attitude is hostile and tender offer is involved, respectively. Year fixed effect is based on the announcement year. Industry fixed effect is based on 1-digit SIC codes. Column(1)-(3) contain the main sample. Column (4)-(6) examine the subgroup of bids to be paid fully in cash. Heteroskedasticity-robust t statistics are in brackets. ***, **, and * indicate 1 percent, 5 percent, and 10 percent significance respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Financial	0.095***	0.077**	0.050	0.042	0.027	0.045
	[2.59]	[2.09]	[1.29]	[0.95]	[0.60]	[1.01]
Log(TargetSize)			0.010			0.004
			[0.62]			[0.17]
Cash			0.100**			
			[2.33]			
Premium			0.002***			0.002**
			[3.26]			[2.29]
Hostile			0.134***			0.116**
			[3.04]			[1.98]
TenderOffer			0.126***			0.113**
			[3.21]			[2.43]
Constant	0.016	0.039	-0.098	0.077**	-0.031	-0.255
	[0.69]	[0.35]	[-0.97]	[2.50]	[-0.20]	[-1.59]
Observations	789	789	789	455	455	455
Adjusted R-squared	0.006	0.042	0.094	-0.000	0.042	0.080
Year FE	N	Y	Y	N	Y	Y
Industry FE	N	Y	Y	N	Y	Y

Table 4
Revaluation: information asymmetry by target firm size

This table reports OLS regression on absolute cumulative abnormal returns (*CARs*) form 25 days before bid announcement to 25 days after failure announcement. *Financial*(Strategic) is a dummy variable equal to one for bids by financial(strategic) acquirers and zero otherwise. *Small* indicates the group of bids in which the target market capitalization is ranked in the lower quartile. *Log(TargetSize)* is the target market capitalization in billions of 2014 dollar four calendar weeks prior to bid announcement. *Cash* is a dummy equal to one for bids that more than half of deal value is paid in cash. *Premium* is bidder's offer divided by target's market value of equity four calendar weeks prior to bid announcement and truncated between zero and two. *Hostile* and *TenderOffer* are dummy variables indicating a bid in which the bidder's attitude is hostile and tender offer is involved, respectively. Year fixed effect is based on the announcement year. Industry fixed effect is based on 1-digit SIC codes. Column(1)-(2) contain the main sample. Column (3)-(4) examine the subgroup of bids to be paid fully in cash. Heteroskedasticity-robust t statistics are in brackets. ***, **, and * indicate 1 percent, 5 percent, and 10 percent significance respectively.

	(1)	(2)	(3)	(4)
Financial × Small(a)	0.289***	0.322***	0.352***	0.336***
	[3.20]	[3.24]	[3.52]	[2.91]
Strategic × Small(b)		0.094		0.004
		[1.25]		[0.04]
Log(TargetSize)	0.026	0.042*	0.040*	0.045
	[1.60]	[1.88]	[1.77]	[1.39]
Cash	0.080*	0.058		
	[1.93]	[1.35]		
Premium	0.002***	0.002***	0.002**	0.002**
	[3.61]	[3.64]	[2.38]	[2.31]
Hostile	0.128***	0.117***	0.102*	0.108*
	[2.99]	[2.62]	[1.87]	[1.86]
TenderOffer	0.130***	0.151***	0.109**	0.118**
	[3.33]	[3.65]	[2.39]	[2.37]
Constant	-0.142	-0.629***	-0.169	-0.465***
	[-1.30]	[-4.52]	[-1.12]	[-2.59]
Observations	789	789	455	455
Adjusted R-squared	0.112	0.104	0.118	0.127
Year FE	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y
(a)=(b)(p-value)		0.021		0.002

Table 5
Revaluation: information asymmetry by target-bidder geographic proximity

This table reports OLS regression on absolute cumulative abnormal returns (*CARs*) form 25 days before bid announcement to 25 days after failure announcement. *Domestic* is a dummy equal to one if both acquirer and target are domiciled in the same country and zero otherwise. *Financial*(Strategic) is a dummy variable equal to one for bids by financial(strategic) acquirers and zero otherwise. *Small* indicates the group of bids in which the target market capitalization is ranked in the lower quartile. *Log(TargetSize)* is the target market capitalization in billions of 2014 dollar four calendar weeks prior to bid announcement. *Cash* is a dummy equal to one for bids that more than half of deal value is paid in cash. *Premium* is bidder's offer divided by target's market value of equity four calendar weeks prior to bid announcement and truncated between zero and two. *Hostile* and *TenderOffer* are dummy variables indicating a bid in which the bidder's attitude is hostile and tender offer is involved, respectively. Year fixed effect is based on the announcement year. Industry fixed effect is based on 1-digit SIC codes. Column(1)-(2) contain the main sample. Column (3)-(4) examine the subgroup of bids to be paid fully in cash. Heteroskedasticity-robust t statistics are in brackets. ***, **, and * indicate 1 percent, 5 percent, and 10 percent significance respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Domestic(a)	0.119***	0.125***	0.107**	0.109**	0.114**	0.086*	
	[2.78]	[2.81]	[2.39]	[2.24]	[2.26]	[1.72]	
Domestic × Financial × Small(b)			0.251***			0.305***	0.307***
			[2.62]			[2.99]	[2.84]
Domestic × Strategic × Small(c)							-0.058
							[-0.64]
log(TargetSize)	0.004	0.012	0.025	0.003	0.010	0.034	0.026
	[0.29]	[0.79]	[1.56]	[0.16]	[0.43]	[1.46]	[0.96]
Cash	0.141***	0.119***	0.100**				
	[3.56]	[2.88]	[2.41]				
Premium	0.002***	0.002***	0.002***	0.002***	0.002**	0.002**	0.002**
	[3.75]	[3.40]	[3.63]	[2.74]	[2.22]	[2.33]	[2.32]
Hostile	0.086**	0.126***	0.125***	0.061	0.118**	0.112**	0.105*
	[2.14]	[2.89]	[2.93]	[1.23]	[2.06]	[2.06]	[1.94]
TenderOffer	0.172***	0.144***	0.143***	0.127***	0.124***	0.121***	0.114**
	[4.46]	[3.63]	[3.62]	[2.85]	[2.65]	[2.65]	[2.48]
Constant	-0.307***	-0.281**	-0.231**	-0.145**	-0.280*	-0.224	-0.182
	[-5.13]	[-2.51]	[-2.04]	[-2.27]	[-1.79]	[-1.46]	[-1.21]
Observations	789	789	789	455	455	455	455
Adjusted R-squared	0.079	0.104	0.114	0.048	0.089	0.114	0.108
Year FE	N	Y	Y	N	Y	Y	Y
Industry FE	N	Y	Y	N	Y	Y	Y
a=b((p)-value)			0.192			0.064	
b=c((p)-value)							0.002

Table 6
Revaluation: failure categories

This table reports OLS regression on absolute cumulative abnormal returns (*CARs*) form 25 days before bid announcement to 25 days after failure announcement using the same specification as in the column of cash-only bids in Table 3 by failure categories for the subgroups of, *Financial × Small*, *Other Financial*, and *Strategic* after controlling for premium, target size, hostile and tender offer. *N*(*% of N*) reports the number(fraction) of observations for the corresponding subgroup falling into each failure category. *Coefficient* is the revaluation effect loading on each subgroup and left blank if observations are too few. ***, **, and * indicate 1 percent, 5 percent, and 10 percent significance respectively.

	Financial × Small			Other financial			Strategic		
	N	% of N	Coefficient	N	% of N	Coefficient	N	% of N	Coefficient
(1)No more information	17	38.64	0.38***	51	29.31	0.09	75	31.65	-0.19**
(2)Term mutually disagree	0	0.00		1	0.57		2	0.84	0.00
(3)Bidder no financing	0	0.00		3	1.72	0.00	0	0.00	
(4)Regulator reject	2	4.55	0.34	13	7.47	0.27	18	7.59	-0.27
(5)Bidder withdraw	1	2.27		8	4.60	-0.12	10	4.22	-0.02
(6)Target released news	0	0.00		0	0.00		1	0.42	
(7)Price too low	1	2.27		9	5.17	0.24*	14	5.91	-0.23*
(8)Tender failed	16	36.36	0.42***	61	35.06	-0.19**	53	22.36	0.01
(9)Board reject	4	9.09	0.11	22	12.64	-0.13	38	16.03	0.08
(10)Shareholder reject	3	6.82	0.59*	16	9.20	-0.25	18	7.59	0.06
Strict sample (1)-(4)	19	43.18	0.38***	67	38.51	0.10	95	40.08	-0.19***
Full sample (1)-(10)	44	100.00	0.36***	174	100.00	-0.04	237	100.00	-0.07

Table 7
Frequency of future takeovers

This table reports Cox proportional-hazard regression results. It estimates the marginal effect of variables on the rate of subsequent takeovers following a bid failure. *Financial*(Strategic) is a dummy variable equal to one for bids by financial(strategic) acquirers and zero otherwise. *Small* indicates the group of bids in which the target market capitalization is ranked in the lower quartile. *CARs* is the absolute cumulative abnormal returns form 25 days before bid announcement to 25 days after failure announcement. *Log(TargetSize)* is the target market capitalization in billions of 2014 dollar four calendar weeks prior to bid announcement. *Cash* is a dummy equal to one for bids that more than half of deal value is paid in cash. *Premium* is bidder's offer divided by target's market value of equity four calendar weeks prior to bid announcement and truncated between zero and two. *Hostile* and *TenderOffer* are dummy variables indicating a bid in which the bidder's attitude is hostile and tender offer is involved, respectively. Year fixed effect is based on the announcement year. Industry fixed effect is based on 1-digit SIC codes. Column(1)-(4) contain the main sample. Column (5)-(6) examine the subgroup of bids to be paid fully in cash. *z-statistics is in parentheses*. ***, **, and * indicate 1 percent, 5 percent, and 10 percent significance respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Financial × Small × Cars	0.041	0.207	-0.026	0.089	-0.116	-0.633	-0.276
	(0.16)	(0.66)	(-0.07)	(0.19)	(-0.29)	(-1.34)	(-0.51)
Financial × Small			-0.018	-0.021		0.115	0.130
			(-0.06)	(-0.07)		(0.36)	(0.41)
CARs			0.316***			0.507***	
			(2.59)			(2.76)	
Financial × CARs				0.200			0.153
				(0.74)			(0.49)
Strategic × CARs				0.341**			0.661***
				(2.57)			(3.14)
Log(TargetSize)		0.066*	0.061	0.062	0.004	-0.015	-0.008
		(1.72)	(1.50)	(1.53)	(0.07)	(-0.24)	(-0.14)
Cash		0.276**	0.256**	0.259**			
		(2.38)	(2.18)	(2.21)			
Premium		0.002	0.001	0.001	0.003	0.002	0.002
		(1.06)	(0.56)	(0.54)	(1.24)	(0.80)	(0.68)
Hostile		0.300**	0.274*	0.277*	0.261	0.221	0.240
		(1.99)	(1.81)	(1.83)	(1.34)	(1.12)	(1.21)
TenderOffer		-0.383***	-0.433***	-0.435***	-0.188	-0.260	-0.271*
		(-3.16)	(-3.53)	(-3.55)	(-1.20)	(-1.63)	(-1.70)
Observations	789	789	789	789	455	455	455
Year FE	N	Y	Y	Y	Y	Y	Y
Industry FE	N	Y	Y	Y	Y	Y	Y

Table 8
Value of future takeovers

This table reports OLS regression of the deal value (log in billions of 2014 U.S.dollar) that a target firm eventually receives from a successful takeover after initial failed bid. *Financial*(*Strategic*) is a dummy variable equal to one for bids by financial(strategic) acquirers and zero otherwise. *Small* indicates the group of bids in which the target market capitalization is ranked in the lower quartile. *CARs* is the absolute cumulative abnormal returns form 25 days before bid announcement to 25 days after failure announcement.. *Cash* is a dummy equal to one for bids that more than half of deal value is paid in cash. *Premium* is bidder's offer divided by target's market value of equity four calendar weeks prior to bid announcement and truncated between zero and two. *Hostile* and *TenderOffer* are dummy variables indicating a bid in which the bidder's attitude is hostile and tender offer is involved, respectively. Year fixed effect is based on the announcement year. Industry fixed effect is based on 1-digit SIC codes. Column(1)-(4) contain bids from main sample that are ultimately acquired. Column (5)-(6) examine bids from the subgroup of failed cash-only bids that are ultimately acquired. *z-statistics is in parentheses*. ***, **, and * indicate 1 percent, 5 percent, and 10 percent significance respectively. ***, **, and * indicate 1 percent, 5 percent, and 10 percent significance respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Financial × Small × Cars	0.003	-0.673	-0.929	1.183	-1.342	-3.22	-1.354
	[0.00]	[-0.57]	[-0.81]	[0.59]	[-0.81]	[-1.46]	[-0.75]
Financial × Small			-0.228	-0.291		0.501	0.583
			[-0.15]	[-0.19]		[0.31]	[0.36]
CARs			0.583			1.842	
			[0.98]			[1.32]	
Financial × CARs				-1.485			0.016
				[-1.07]			[0.01]
Strategic × CARs				1.145			2.86
				[1.46]			[1.29]
Cash		-0.505	-0.561	-0.501			
		[-0.76]	[-0.85]	[-0.78]			
Premium		2.335***	2.184***	2.206***	2.694*	2.284*	2.256*
		[3.05]	[2.88]	[2.83]	[1.93]	[1.84]	[1.79]
Hostile		0.963	0.857	0.862	2.741	2.54	2.602
		[0.74]	[0.70]	[0.70]	[1.18]	[1.17]	[1.18]
TenderOffer		0.252	0.214	0.169	0.741	0.605	0.557
		[0.46]	[0.41]	[0.33]	[0.75]	[0.69]	[0.65]
Years between		0.379***	0.387***	0.383***	0.458**	0.479**	0.488**
		[2.75]	[2.75]	[2.78]	[2.18]	[2.16]	[2.15]
Constant	2.025***	-0.235	-0.209	-0.352	-2.3	-1.165	-0.678
	[5.96]	[-0.24]	[-0.21]	[-0.33]	[-0.73]	[-0.48]	[-0.32]
Observations	311	311	311	311	189	189	189
Adjusted R-squared)	-0.003	0.114	0.109	0.114	0.177	0.178	0.181
Year FE	N	Y	Y	Y	Y	Y	Y
Industry FE	N	Y	Y	Y	Y	Y	Y