Merger synergies, bidding competition and industry characteristics.

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February 23, 2017

Abstract

Our analysis helps to shed light on the size and distribution of synergies in formal auctions versus informal sales. We use acquirer insiders' views revealed through trading in their firms' stock to evaluate the impact for acquirers of buying firms through fully competitive formal auctions versus less competitive informal sales. Our sample of 705 publicly-listed US acquirers bidding for publicly listed US targets is over the period from 2005 until 2011. Using a difference in differences approach, we show that acquirer insiders sell significantly less and, thus, are more positive about deals they acquire in informal sales. Acquirer insiders are not positive about acquisitions when they participate in formal auctions. Insiders' positive view of participating in informal sales is strengthened when acquiring targets that are less similar to other firms in the market or for acquirers in dynamically changing (fluid) industries where acquirers are trying to escape new competitive pressures by differentiating themselves from peers. We conjecture that in informal sales synergy is created by a unique match in assets and both sellers and buyers share the surplus. Formal full-scale auctions seem to be optimal for sellers to extract large fraction of value created when the fit in assets between buyers and sellers is not specific and many potential bidders are similarly suitable.

Keywords: Mergers and acquisitions; Selling process; Auctions; Insider trading; Acquiring firms
JEL Classification: G34; G14

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1 Introduction

Mergers and acquisitions are among the largest and most important events in a corporation's lifetime. The proper assessment of their value implications, especially for acquirer firms, has been of foremost interest to policymakers and academic researchers alike. This paper sheds new light on the size and distribution of synergies created in competitive full-scale auctions versus informal sales where sellers restrict bidding competition.[1] We provide insights into acquirers' assessment of synergy distribution, which indicate that acquirers are able to capture a part of synergies in informal sales when they face increased competitive pressures in their industry and acquire targets that are relatively unique. In auctions, acquirer insiders are not positive about the merger outcome as they tend to increase their sales and decrease net purchases. They are particularly negative about the merger when they are more similar to other firms ar when they face competitive pressures in their industries.

The current literature deals with the question of the optimality of the selling process from the seller's point of view because the choice of an auction versus informal sale is ultimately in the sellers hands.[2] Regardless of the first initiative coming from an interested bidder or from the selling firm itself, the selling firm's board of directors makes the decision concerning the particular form of the bidding process. A commonly held view is that auctions, in contrast to negotiated sales, yield higher average prices for shareholders of target companies. Sell-side advisors regularly prescribe broad-based auctions whereas acquirers prefer negotiated transactions (Gentry and Stroup, 2014). The theoretical argument for revenue-dominance of auctions for sellers originates in Bullow and Klemperer (1996). Recent empirical evidence, however, disputes the claim by showing that firms sold in negotiations earn at least as high takeover premium as firms sold in auctions (Boone and Mulherin, 2007; Fidrmuc et al., 2012).[3] The question of why would selling firms choose optimally for a selling method with restricted bidding competition still remains unanswered.

In order to provide extra insights concerning the distribution of synergies created in the

[1] Bidding competition is purposefully restricted in one-to-one private negotiations and controlled sales (Boone and Mulherin, 2009).

[2] See, for example, Bullow and Klemperer (1996), Boone and Mulherin (2007), Aktas et al. (2010), Fidrmuc et al. (2012), Dimopoulos and Sacchetto (2014) and Gentry and Stroup (2014).

[3] Indeed Fidrmuc et al. (2012) show that one-to-one private negotiations and controlled sales are associated with significantly higher average takeover premium.

process, the current paper assesses value consequences of the selling process choice from the acquirer point of view. Following Seyhun (1990), we imply value consequences for acquirers by analyzing stock transactions of acquirer insiders around the takeover public announcement as a window into their believes concerning the value implications of the takeover deals.[4] Acquirer insiders' stock transactions before and immediately after merger public announcements suggest that acquirer insiders are in general not positive about deals sold in full-scale auctions, while they are significantly more positive about deals that are organized as informal sales. These results are consistent with a conclusion that sellers are able to extract all rents in full-scale formal auctions while informal sales allow buyers to capture a fraction of synergies for themselves. Given that informal sales exhibit higher takeover premiums, this result indicates that total synergies created are higher in informal sales versus full-scale auctions. Our data set covers 705 US publicly listed acquirers of US publicly listed targets over the period from 2005 until 2011, for which we are able to identify the sale method during the private selling process from SEC company filings. We employ the difference in differences approach as suggested by Agrawal and Nasser (2012) that explores the change in insider trading before versus after learning about the deal while still adjusting for a corresponding change in matched firms.

In the wake of these results, the natural question to ask is why would selling firms want to limit bidding competition in an informal sale rather than organize a fully competitive formal auction? Informal sales seem to be associated with higher potential synergies in the merger. At the same time, high synergies are very likely associated with a unique fit in assets between the buyer and the seller (Shleifer and Vishny, 1992). Both buyers and sellers are aware of the uniqueness of the combination and each other's high bargaining power. The seller has usually a very good information about all potential buyers and will limit the number of bidders to those with good fit in assets. The value created by any extra bidder with relatively low fit in assets will be too small to matter. Moreover, limiting the bidding competition may also encourage the participating bidders with high fit in assets to bid more aggressively (Boone and Mulherin, 2009). In contrast, if no unique fit in assets is necessary, many bidders are suitable and it is

[4]On a sample over 1975-1986, Seyhun (1990) shows small increases in insiders' stock purchases and decreases in insiders' stock sales prior to takeover announcements and argues that his results do not support the hypothesis that top acquirer managers knowingly pay too much for target firms. Boehmer and Netter (1997) do not find any significant effects for their insider transactions in relatively large firms over the period from 1980 until 1988. Song (2007) and Akbulut et al. (2014) analyze acquirer managers' selling patterns in highly valued acquiring firms.

optimal to let them compete in an full-scale auction.

In order to explore this conjecture in the data, we conduct a quasi-experiment. We condition on industry characteristics that should reveal useful asset characteristics. One may expect that industry similarity and fluidity affect motivations to look for potential firm combinations and the matching process in terms of fit in assets (Hoberg and Phillips, 2010; Hoberg et al., 2014). First, acquiring a target that is not very similar to other firms may improve acquirer's product differentiation, competitiveness and future earnings potential (Hoberg and Phillips, 2016). Also, firms with high industry fluidity face rapidly changing industries and the associated threat of weakening future profits (Hoberg et al., 2014). Therefore, they may be highly motivated to fight the changes in their industry by identifying takeovers that will distinguish the firm from its competitors. Nevertheless, Hoberg and Phillips (2010) suggest that more similar firms produce higher synergies when merged. Therefore, we test whether acquirer insiders are more optimistic concerning their deals in informal sales when they acquire targets with low total similarity or when they operate in highly fluid industries (Hoberg et al., 2014). Our tests confirm both conjectures: acquirer insiders are more positive about deals organized as informal sales with more unique targets and in highly fluid industries.

The main contribution of the paper is to add to the discussion about distribution and creation of merger synergies, especially conditional on bidding competition. Our results are in line with the hypothesis that restricted bidder competition in informal sales is associated with both target and acquiring firms sharing in the synergies created in the merger. This particularly the case with a relatively unique fit in assets between targets and bidders, which means that both parties are essential for the combination and enjoy relatively high bargaining power (Capron and Pistre, 2002). Sellers are aware of the situation and restrict bidding competition to bidders with suitable assets. Full-scale auctions, in contrast, are optimal for sellers with general assets when asset fit between bidders and sellers is not important and sellers lever their bargaining power through competition among bidders. Acquiring firms participating in full-scale auctions are not able to capture much of the synergies created. In summary, our analysis confirms the Boone and Mulherin (2009) conclusion of 'one size does not fit all' from yet different point of view. We highlight the unique fit in assets and the associated overall synergy created as important factors in the selling mechanism choice.

The rest of the paper is organized as follows. Section 2 comments on financial regulation in the US concerning insider trading before major material information announcements. Section 3 introduces our data both in terms of acquirer, target and deal characteristics as well as insider trading patterns in acquiring firms and a control group of matched firms without acquisitions. Section 4 presents our results and section 5 concludes.

2 Regulatory issues

In advance of major events, such as mergers, information is a very valuable asset (Lowry et al., 2016). Financial regulation makes sure that insiders who have access to such private information do not take advantage of it at the expense of other uninformed investors. In the US, insider trading is regulated under the Securities Exchange Act of 1934 and the SEC is responsible for enforcing this law (Agrawal and Nasser, 2012). Section 10(b) of the Act and SEC rule 10b-5 prohibit trades based on material, non-public information.[5]

Therefore, acquirer insiders face a threat of legal prosecution when trading in their company shares before public announcements of mergers. As a strategy to avoid this legal jeopardy, acquirer insiders are likely to rely on passive rather than active trading strategies (Agrawal and Nasser, 2012). This means that when insiders are positive about expected NPV of the merger, to profit personally from the merger they are likely to decrease sales of the company stocks rather than increase purchases. Though, it is important to note that legal jeopardy is most likely to be significantly larger for target rather than acquiring firm insiders due to larger value consequences of merger announcements for target firms. Agrawal and Nasser (2012) show that target insiders almost cease to purchase any shares before the deal public announcement. After the public announcement of the merger, insiders are not in possession of material information about the merger any more and, therefore, are more free to trade if they differ in opinion about the merger long-term impact relatively to the market.

[5]Moreover, Section 16b, known as the short-swing rule, requires registered corporate insiders to hand over to the company any profits on round-trip trades (i.e., a purchase followed by a sale or vice-versa) made within a six-month period. Finally, rule 14e-3 prohibits anyone from trading based on material, non-public information about an upcoming tender-offer after the bidder has taken substantial steps toward making the offer.

3 Data

Our main focus is to analyze insider trading in acquiring firms before and after takeover public announcement for formal auctions versus informal sales. The sample includes US M&A deals that were announced between January 2005 and December 2011 and are covered by the Security Database Corporation (SDC) in Thomson ONE Banker. We apply the following 3 selection criteria: (i) both the acquirers and targets are US publicly listed companies; (ii) the acquirers own 100% of targets' shares after the deal; (iii) acquirers have data in COMPUSTAT and CRSP concerning accounting and stock price data and we can find information concerning the selling process from the 'background of the deal' section of DEFM14A, PREM14A, SC14D9, or S-4 filings at the EGDAR filing collection site provided by the SEC. We hand collect information concerning initiation, private date, selling mechanism, number of bidders contacted and the number of bidders signing a confidentiality agreement. We identify 1376 deals in SDC, but are able to find SEC filings on EDGAR only for 794 deals. Furthermore, we are not able to get data from Compustat or CRSP for 167 acquirers. Altogether, the data collection results in a sample of 705 acquirers over the period from 2005 to 2011.

3.1 Deal and acquirer characteristics

Table 1 displays deal, selling process, acquirer and target summary statistics. Columns 1 and 2 show the number of observations and means for all deals and their significance. Columns 3 and 4 show means separately for deals sold through informal sales versus formal full-scale auctions, respectively, and report the significance of the differences in Column 4. We test for differences in means using the t-test allowing for unequal variances. All variable definitions are provided in Appendix A.

- insert Table 1 about here -

Column 2 shows that the transaction value for public acquiring firms is on average USD2.1 billion which is 30% of the acquirer market capitalization at the completion date. The final premium paid to target firms, relatively to the target price 8 weeks before the public announcement, is 36% for the full sample. The premium is slightly smaller (34%) when we consider the initial offer instead of the final offer price. This indicates a slight increase (1%) of final offer price at the completion date relatively to the initial offer price at the public announcement. Table 1 further

shows acquirer abnormal stock returns over 2 and 1 years before initiation and over different windows from the initiation date up to the public announcement. We see positive abnormal stock returns both over the pre-initiation period as well as up to the deal announcement. The announcement abnormal return measured over 3 days around the announcement date is -1% and is significant at the 1-percent level and is in line with the literature on acquisitions of public targets. The market perception of synergy based on the same 3-day window (weighted average dollar return for both target and acquirer as a fraction of combined firm values) is on average positive 1.8% and is significant at the 1-percent level.

The private and public selling processes take on average 351 and 125 calendar days, respectively. The average number of bidders, including the final winning bidders (the acquiring firms), contacted by and signing a confidentiality agreement with our target firms is 13 and 5, respectively. 50% of the deals are paid for in cash and 25% are sold in full-scale auctions. Column 2 also shows that acquirer and targets have similar total similarity and industry fluidity. The acquiring firms are on average very large (USD23 billion in total assets), profitable (6% EBITDA over total assets), with lower book-to-market ratio (0.46) and with leverage of 16% of market value of assets. Target firms are smaller, with higher book-to-market ratio (0.54) and lower profitability (3% EBITDA over total assets).

Columns 3 and 4 show that deals sold through informal sales are notably larger (USD2.5 billion) relatively to formal auctions (USD0.9 billion) while the relative deal sizes are not different. In line with Fidrmuc et al. (2012), acquiring firms pay on average significantly higher premium (38% versus 29%) in informal sales. Acquirers in informal sales have better stock performance over 2 years before initiation, but their performance levels up with acquirers in auctions 1 year before initiation. Abnormal returns are not significantly different over the private selling process. We also do not find any significant differences in the announcement effect and synergies based on the announcement returns. Deals sold through informal sales are on average shorter from the initiation date to the public announcement (313 versus 468 days) but longer from the public announcement to completion (133 versus 101 days). They deal with fewer bidders, both contacted (5 versus 40) and signing a confidentiality agreement (2 versus 14) and are less often paid for by cash (45% versus 66%). Industry characteristics are quite similar, the only significant difference is in total similarity that is larger at the 5-percent level for acquirers in informal sales.

Acquirers in informal sales are larger. Book-to-market ratio, profitability and leverage do not differ significantly across the 2 types of acquirers. Target firms sold in full-scale auctions are smaller and less profitable.

Even though our primary hypothesis concerns partitioning the sample by the selling mechamism into informal sales versus full-scale auctions, in order to explain reasons for restricting the number of bidders in informal sales, we also partition the sample by acquirer-target pair-wise similarity, acquirer and target industry fluidity and total similarity. Table 2 reports all the summary statistics conditional on informal sales and full-scale auctions in Panel A and B, respectively, and then further by high versus low level of 5 industry characteristics: acquirer industry fluidity (Columns 1 and 2), acquirer total similarity (Columns 3 and 4), target total similarity (Columns 5 and 6), target industry fluidity (Columns 7 and 8) and, finally, acquirer-target pair-wise similarity (Columns 9 and 10).

- insert Table 2 about here -

In Panel A for informal sales, partitioning by median of acquirer fluidity in Columns 1 and 2 shows only several significant differences between the two groups. Acquirers in more changing industries purchase targets that are significantly larger relatively to their own size. Their selling process is shorter. They use stock payment more often, but do not involve smaller number of bidders or smaller frequency of auctions. These firms have also higher total similarity and, interestingly, the target firms are also in more fluid industries with higher total similarity. Intuitively, due to tight competition they both the acquirer and the target suffer lower profitability.

The other partitions show that deals with low acquirer and target similarity attain higher takeover premium and acquirers perform better before the deal announcement. They are smaller and more profitable. Target fluidity and pair-wise similarity result in less differences.

3.2 Summary statistics for insider trading

Insider trading is from Thomson Financial Insider Filings Table 1, which contains corporate insider non-derivative transactions required to be reported via Form 4 by Section 16 of the Securities Exchange Act of 1934. We have information on the transaction date, transaction price, number of shares traded, person ID, firm ID, company name, resulting shares held and

transaction code (purchase or sale). We exclude inaccurate or unreasonable filings [6] and transactions labeled as amendments of previous insider transactions [7] (Agrawal and Nasser, 2012). If a transaction price is missing, we replace it with the CRSP closing price on the transaction date. We merge multiple purchases (sales) by one insider within one day in the same company. We are interested in examining insider purchases and sales separately and, therefore, we keep both purchases and sales transacted on the same day separately. However, we also compute insider net purchases (purchases minus sales) per insider-day-firm.

It is very important that we compare insider trades in the pre-(post-)announcement period to a non-event period within the same firm. Bidders start entering the selling process and obtaining information about the deal as off the initiation date. The initiation date, thus, marks the beginning of the selling and bidding process (Boone and Mulherin, 2007) and, so, we add up all insider transactions from the initiation until the public announcement dates and denote it as 'insider trading in the pre-announcement period.' Because frequency of insider trading depends on the length of the pre-announcement period and also varies within a year, the corresponding control period for each deal is placed just before the private date but is matched in length and the time of year to the pre-announcement period.[8] The post-announcement period covers the time from the public announcement up to the completion date. The corresponding control period is again matched in length and time of year just before the initiation date.

The second dimension for comparison is relatively to matched firms that do not experience any takeover and remain publicly listed. The main goal is to adjust the overall change/difference in acquirer insider trading for a 'normal' outcome, that is a change in insider trading in firms that do not experience any information shock but are similar to the treatment/acquiring firms and operate over the same period of time. The change in insider trading from the control period to the event period for the matched firms then measures the 'normal' effect. We use it to adjust the acquiring firm effect to get a clean treatment effect that is free of any time trends. This is the essence of the difference in differences approach.

We match based on industry and acquirer total assets just before the initiation date (Shrieves

[6] Indicated by Cleanse Indicators 'A' or 'S'.

[7] Indicated by Amendment Indicator 'A'.

[8] This means that the control period ends 1 year before the public announcement date for deals with a pre-announcement period shorter than 1 year; 2 years before the announcement date for deals that last up to 2 years, etc.

and Stevens, 1979; Agrawal and Nasser, 2012). Our matching procedure is as follows. From the pool of all potential matching firms with available accounting, stock price and insider trading data, we pick a firm that is in the same Fama-French 30 industry and comes the closest in terms of total assets in the same fiscal year using a +/–25% range. In case we fail to find a matching firm, we repeat the process for the corresponding Fama-French 12 industry. If we still do not have a match, we apply the 4-digit SIC code industry and then the 3, 2 and finally 1-digit SIC code industry. We also require that the same publicly listed firm is not matched repeatedly to different acquiring firms and that those acquirers dropped out from our data set due to unavailable SEC filing data are not included as matched firms.[9]

We focus on trading by top executives and independent directors. Top executives manage their firms' day to day operations and thus should possess the most accurate information in terms of firm value and future prospects (Seyhun, 1986; Fidrmuc et al., 2006). Independent directors should also be informed about the value and prospects of their firms as they monitor top executives' work and are quite pivotal in takeover decisions (Ravina and Sapienza, 2010). Combining the 2 types of insiders creates a well informed and relatively well populated group for our analysis. In Tables 3 and 4, we measure insider trading using the number of shares traded as a fraction of shares outstanding in base points (% equity traded). We believe that scaling the number of shares traded by all shares outstanding provides the best insider trading measure as it incorporates both the trading volume as well as firm size, which is important for the difference in differences approach. For all 4 studied periods, we aggregate all shares bought (sold) by the top executives and independent directors over the whole period and then divide them by the length of the period in months. The monthly re-scaling is necessary because the length of the pre-(post-)announcement period varies from deal to deal and insider trading intensity is sensitive to the trading window length. The variable is winsorized at 1% and 99%.

Table 3 shows insider purchases and sales for the pre-announcement period. Columns 1 and 2 show insider purchases and sales for the pre-announcement versus control period, respectively, for acquiring firms, while Columns 3 and 4 show the corresponding numbers for the matched firms. Columns 5 to 7 report differences in means and their significance and Column 8 shows the difference in differences. We first show means across all deals and then by 6 partitions following

[9] Altogether, 509 acquiring firms are matched based on FF30 industry, 82 based on FF12, 5 based on 4-digit SIC, 4 based on 2-digit SIC and the last 27 based on 1-digit SIC industry.

Table 2: (i) deals sold in informal sales versus formal auctions, (ii) informal sales and auctions with high versus low acquirer fluidity, (iii) informal sales and auctions with high versus low acquirer similarity, (iv) informal sales and auctions with high versus low target similarity, (v) informal sales and auctions with high versus low target fluidity, and finally (vi) informal sales and auctions with high versus low pair-wise similarity.

- insert Table 3 about here -

First, Table 3 shows that insiders purchase fewer shares in the pre-announcement period relatively to the control period even though once controlling for the corresponding effect for matched firms, the decrease in purchase is not significant. Insiders also decrease their sales, but the differences for all deals together are not significant. Insiders of firms in formal auctions significantly increase their sales: the different in differences (in the last column) is significantly positive. Still, when considering industry characteristics, informal sales with high acquirer fluidity or low pair-wise similarity are associated with a significant drop in insider sales both as a first order difference (1 vs. 2) as well as difference in differences. Industry characteristics do not affect insider sales in auctions: they are positive for all 5 partitions and are significant. Finally, combining purchases and sales into net purchases in the bottom part shows negative numbers: insiders are net sellers. Their net sales are smaller in the pre-announcement period relatively to the control period, which means that their net purchases increase. For all deals together, the first order difference is positive but insignificant, while the difference in difference effect is negative and insignificant. Overall, we do not see any change in insider net purchases. However, partitioning of the sample does reveal differences. Focussing on the difference in differences effect in the last column, informal sales are associated with an increase in net purchases while formal sales with a significant decrease. The effect is then repeated when we additionally condition on high acquirer similarity and high nd low pair-wise similarity.

Table 4 reports insider purchases and sales in acquiring firms during the post-announcement period. Similarly to Table 3, we show statistics both across acquiring versus matched firms as well as across the post-announcement versus control periods. For comparison, we also report statistics for the pre-announcement period. All the differences and their statistical significance are reported in Columns 7 to 12.

- insert Table 4 about here -

Insiders increase their purchases in the post-announcement period slightly both relatively to the control as well as the pre-announcement period. This positive effect is not significant for all deals together. Exploring the partitions we do not find significant change in insider's purchases. Insiders decrease their sales significantly relatively to the control period for all deals together, but the difference in differences effect is not significant. It is significantly negative for informal sales with high target fluidity only. Net sales are smaller (net purchase are larger) in the post-announcement period, but the difference in differences is not significant for all deals together. Net purchases increase significantly for informal sales with high acquirer similarity, high target fluidity and high pair-wise similarity.

Table 5 reports insider purchases and sales in acquiring firms during the whole selling period. Similarly to Table 3, we show statistics both across acquiring versus matched firms as well as across the post-announcement versus control periods. All the differences and their statistical significance are reported in Columns 5 to 8.

- insert Table 5 about here -

Insiders decrease their purchases in the whole selling period both relatively to the control period and the matched firms. This negative effect is significant for all deals together. In terms of the 6 partitions, we do not find significant change in the purchases pattern. Insiders increase their sales: the difference in differences (the last column) is positive and insignificant for all deals together. Insider sales are significantly negative for informal sales only and when combined with high acquirer fluidity. Insiders of firms in formal auctions significantly increase their sales regardless of industry characteristics. Finally, combining purchases and sales into net purchases shows that insiders are net sellers. Net sales significantly decrease for informal sales and combined with low target similarity while insiders in firms sold in auctions increase their net sales.

4 Results

Table 6 reports our regression results for insider trading patterns in acquiring firms before and after the public announcement of deals. In all regressions, purchases, sales and net purchases by top executives and independent directors are measured as a fraction of common equity in base points and are re-adjusted on a monthly basis to account for the fact that the event periods

(pre-announcement, post-announcement and the whole selling period) differ in length across different merger deals.[10] To follow the difference in differences approach, we regress this insider trading measure on (i) a dummy variable reflecting the event period insider trading as opposed to insider trading in the control period, (ii) a dummy variable indicating insider trading in acquiring firms as opposed to insider trading in matched firms and (iii) an interaction term between the 2 dummies, 'acquirer x event period', that should reflect the difference-in-differences effect. The difference-in-differences effect is the change in acquirer insider trading in event period relatively to the control period, which is still adjusted for a time trend in form of corresponding change in insider trading in matched firms. This interaction term is our main variable of interest.

All regressions include the following control variables: natural log of market capitalization, book to market ratio, volatility of daily stock returns, change in volatility of daily stock returns, market-adjusted average daily abnormal returns lagged 1, 2, 3 and 4 quarters relatively to the studied period, insider ownership, R&D over total sales, liquidity, takeover transaction value as a fraction of acquirer market value, the pre-(post-)announcement period length and time and industry dummies.[11] Insider purchase and sale regressions are estimated using a left-censored Tobit model while net purchase regressions are estimated using OLS. We report Hubert/White robust standard errors in brackets.

- insert Table 6 about here -

In order to test our main hypothesis concerning acquirer insider trading patterns in informal sales versus formal full-scaled auctions, we run regressions separately for the 2 partitions, which are reported in Panel A and B, respectively. Insiders' positive views of the merger outcome should be reflected in their higher net purchases. However, due to high legal risks insiders may feel quite restricted to purchase extra shares before the merger public announcement. They may still take advantage of their positive signal about the merger passively by selling less than usual (Agrawal and Nasser, 2012). We see this trading strategy in the first 3 columns in Panel A, which focuses on insider trading in informal sales during the pre-announcement period from

[10] Otherwise, we may find more shares traded by insiders only because they can trade over a longer period.

[11] The control variables are included following (Agrawal and Nasser, 2012), but we add the relative transaction size and pre-(post-)announcement period length. Coefficients for control variables are not reported in the result tables to preserve space, but are available on request. The estimated values are consistent with the literature (Seyhun, 1986; Aboody and Lev, 2000; Lakonishok and Lee, 2001; Agrawal and Nasser, 2012).

the deal initiation up to the deal public announcement. Column 2 shows that insiders decrease their selling significantly. The interaction term 'acquirer x pre-announcement' is negative and significant at the 10-percent level. Insiders also decrease their purchases significantly to limit legal jeopardy of actively trading on positive material information: the interaction term in Column 3 is negative and significant at the 10-percent level. The resulting net purchases in Column 1 are not significant, very likely due to the legal threat of trading on material information. Columns 5 to 7 show that insiders tend to intensify their passive strategy of decreasing their sales as the announcement approaches. This is because they are more likely to have more precise information about the deal outcome close to the public announcement of the merger agreement. The coefficient estimate for the interaction term is larger and more significant for insider sales during one month before the public announcement of the merger (Column 7) relatively to insider sales during the period from initiation to one month before the announcement (Column 5). This pattern is not reflected in lower net purchases because insiders simultaneously decrease their purchases to avoid legal jeopardy.[12]

Columns 8 to 10 show insider net purchases, sales and purchases in the post-announcement period until completion. We see that insider trading in the post-announcement period reflects the decrease in legal jeopardy – insiders increase purchases significantly, decrease sales somewhat, which results in a significant increase in their net purchases. These results extend the acquirer insiders' positive view of deals acquired through informal sales from the pre-announcement into the post-announcement period. The last 3 columns in Panel A confirm insiders' positive view of the merger when we join the pre- and post-announcement periods together.

Panel B shows the results for full-scale auctions. We see that insider sales increase marginally over the pre-announcement period in Column 2: the interaction term is positive and significant at the 15-percent level. Purchases do not change significantly (Column 3), which then means that the small increase in sales is not reflected in lower net purchases (Column 1). Further, in Columns 4 to 7 we see that acquirer insiders are more free to increase their sales and decrease their net purchases earlier in the selling period when they face lower legal threat. Net purchases are negative and sales significantly positive in the period up to one month before the announcement (Columns 4 and 5), but insignificant over the last month before the announcement (Columns 6

[12]We do not report purchases in Table 6 to preserve space.

and 7). Columns 8 to 10 show that insiders do not change their trading patterns after the deal public announcement when they participate in auctions. The post-announcement period then also dominates the insignificant results for the whole selling period in Columns 11 to 13.

To summarize our results so far, Table 6 shows that insiders are quite positive about their merger deals when they bid for the target through informal sales, while they are not very positive when they participate in full-scale auctions. These results suggest that the winning buyers are able to participate in synergies created in the merger in informal sales, while full-scale auctions do not leave much of the surplus for the winning buyer. Auctions seem to do well what they are designed to do – lever bidding competition to maximize the premium paid to the target so that the winning buyer is left with no extra value. Moreover, Table 1 shows that auctions on average also result in lower takeover premium paid to target firms.[13] Put together, these results suggest that informal sales relatively to full-scale auctions are associated with higher total synergy created in the merger. But then, why would selling firms with higher potential synergies in the merger want to limit bidding competition in an informal sale rather than organize a fully competitive auction? We conjecture that high synergies are very likely associated with a unique fit in assets between the buyer and the seller (Shleifer and Vishny, 1992). The seller may decide to negotiate only with bidders who exhibit good fit in assets. The value created by any extra bidder with relatively low fit in assets will be too small to matter. Therefore, targets looking for a unique fit in assets, which is associated with high synergies created in the merger, decide to sell through informal sales with limited number of bidders.

In order to test this conjecture, Table 7 partitions all informal sales into groups by industry characteristics that might be associated with differing fit in assets between acquirers and targets. In particular, we run regressions separately for high versus low acquirer industry fluidity, high versus low acquirer total similarity, high versus low target total similarity, high versus low target industry fluidity, and high versus low pair-wise similarity (Hoberg and Phillips, 2010; Hoberg et al., 2014). To support our conjecture, we expect to find higher acquirer insider net purchases (and lower sales) in the subgroup of informal sales with higher uniqueness or unique fit in assets. First, firms with high industry fluidity face rapidly changing industries and the associated threat of weakening future profits (Hoberg et al., 2014). Therefore, they may be highly motivated to

[13]This is in line with previous results in the literature (Boone and Mulherin, 2009; Fidrmuc et al., 2012).

fight the changes in their industry by identifying takeovers that will distinguish the firm from its competitors – with a unique fit in assets. The results in Panel A in Table 7 support this conjecture. It is the group of informal sales with higher than median value of acquirer fluidity that exhibits significantly positive net purchases and significantly negative sales over both the pre- and post-announcement periods. During the post-announcement period, when the legal threat of being sued for trading on material information decreases, we see that also insider purchases are significantly higher. Combining the two periods together in Columns 10 to 12 leads to the most significant results for net purchases and sales. In contrast, acquiring firms in informal sales with lower than median acquirer fluidity do not show any significant change in insider trading patterns. These acquiring insiders are not so positive about the deal.

- insert Table 7 about here -

Second, we check acquiring firms that are very similar to competitors and further confirm our hypothesis. Panel B shows that informal sales with higher than median value of acquirer similarity significantly increase net purchases over the post-announcement period. Insider purchases are also positive and marginally significant. During the pre-announcement period, Columns 4 to 6 show that insiders decrease net purchases and increase their sales in the groups of auctions with high acquirer similarity. In contrast, low acquirer similarity with informal sales is not associated with significant change in insider trading patterns.

Third, even without the threat of high industry fluidity, acquiring a target that is not very similar to other firms may improve acquirer's product differentiation, competitiveness and future earnings potential (Hoberg and Phillips, 2016). Panel C confirms that when acquiring a target with lower than median value of total similarity insiders significantly increase net purchases and decrease their sales. We have strong results for both pre- and post-announcement period as well as when both periods are combined together. Acquirer insiders are positive about the deal when they acquire a target, which is does not resemble other firms in the market, and the seller intentionally limits bidding competition. In contrast, high target total similarity in informal sales is not associated with significant change in acquirer insider trading. Fourth, we test industry fluidity of target firms and include results in Panel D. Insiders of acquiring firms in informal sales with higher than median target fluidity are associated with significantly positive net purchases and significantly negative sales. The results are strong for the post-announcement

and the whole selling period. We also find significantly positive insider purchases over the post-announcement period. In contrast, acquiring firms in informal sales with low target fluidity does not show significant change in acquirer insider trading over the pre- and the post-announcement period.

Further, we combine the effect of higher than median value of acquirer fluidity and lower than median value of target similarity. Panel E confirms our results in Panels A and C. We see that the group of informal sales with high acquirer fluidity and low target similarity significantly increase net purchases and significantly decrease their sales. We have strong results for both pre- and post-announcement period as well as the whole selling period. In contrast, acquiring firms in formal auctions with high acquirer fluidity and low target similarity exhibit significantly negative net purchases and significantly positive insider sales and purchases. Finally, high pair-wise similarity between acquiring and target firms describes good firm network and are very likely to have a unique fit in their assets (Hoberg and Phillips, 2016). Results in Panel F confirms that when acquiring and target firms have higher than median pair-wise similarity, insiders of acquiring firms in informal sales significantly increase net purchases and significantly decrease their sales. We have strong results for both the post-announcement and whole selling period. In contrast, acquiring firms in informal sales with low pair-wise similarity do not exhibit significant difference in acquirer insider trading.

5 Conclusions

The main focus of our analysis is shed new light on the size and distribution of synergies created in competitive full-scaled auctions versus informal sales. We explore this research question using acquirer insider trading patterns around M&A deal announcements with the aim of learning about acquirer views of future prospects of their firms with the acquisition. Providing insights into acquirers view of the selling process adds extra information to the overall picture – size of the pie and its distribution between sellers and buyers.

Our acquirer insider trading analysis on a data set of 705 publicly-listed acquirers over the period from 2005 until 2011 reveals not very positive acquirer insiders' views of deals purchased in formal auctions, which is in a quite sharp contrast to their positive views concerning deals sold through informal sales. These results, together with the empirical fact that informal sales

are associated with higher takeover premiums previously documented in the literature (and confirmed in our data), suggest that the choice of the selling mechanism depends on selling firm characteristics and synergistic fit with potential bidders. The not positive view of formal auctions by acquiring insiders suggests that formal auctions with many bidders extract large fraction of synergies for target shareholders. In contrast, acquirers' positive view of informal sales with higher premiums is consistent with higher synergies created in these deals and acquirers sharing a larger fraction of the synergies despite paying high premiums. Additional analysis involving acquirers in highly fluid industries and targets that are quite unique relatively to other firms in the market supports this conjecture. Dynamically changing industry environment motivates acquirers that threat weakening future profits to look for takeovers that would distinguish them from their pears. Also, acquiring targets that are not very similar to other firms in the market but are similar with acquiring firms may provide a useful competitive edge. These predictions are consistent with our results.

Appendix A Variable definitions

Variable	Definition	Source
% equity	The total fraction of shares outstanding in base points bought or sold by corporate insiders during the pre-announcement, post-announcement or control period and is scaled as monthly basis depending on the length in months of the pre-announcement, post-announcement and control period, respectively.	TIF, OC
$ shares	Total value of shares (transaction price or stock price that trading day if transaction price is unavailable times total number of shares) in USD millions bought or sold by corporate insiders during the pre-announcement, post-announcement or control period and is scaled as monthly basis depending on the length in months of the pre-announcement, post-announcement and control period, respectively.	TIF, OC
Acquirer	Dummy variable equal to 1 for the acquiring firm and 0 otherwise.	OC
Auction	Dummy variable equal to 1 in case the company is sold in a highly organized auction with pre-set rules and 0 otherwise. Based on Hansen (2001).	HC
Bidders contacted	Total number of bidders that the target firm contracts during the selling process.	HC
Bidders with confid. agreement	Total number of bidders that the target firm signs confidentiality agreement with during the private selling process.	HC
Book to market ratio	Book value of equity over market capitalization 1 fiscal year before the beginning of the pre-announcement, post-announcement or control periods.	COMPUSTAT
$CAR(-1,+1)$	The cumulative acquirer abnormal returns from 1 day before to 1 day after the public announcement.	CRSP, OC
$CAR_{1yb.init.,init}$	The cumulative acquirer abnormal stock returns over the 1-year period before the initiation.	CRSP, OC
$CAR_{2yb.init.,init}$	The cumulative acquirer abnormal stock returns over the 2-year period before the initiation.	CRSP, OC
$CAR_{6mb.ann.,1db.ann.}$	The cumulative acquirer abnormal stock returns from 6 months before to 1 day before the public announcement.	CRSP, OC
$CAR_{init.,6mb.ann.}$	The cumulative acquirer abnormal stock returns over period from the initiation date to 6 months before the public announcement.	CRSP, OC
$CAR_{init.,1db.ann.}$	The cumulative acquirer abnormal stock returns over period from the initiation date to 1 day before the public announcement.	CRSP, OC
Cash offer	Dummy variable equal to 1 in case the acquirer offers pure cash as the payment consideration and 0 otherwise.	SDC
Combined $CAR(-1,+1)$	Weighted average of acquirer and target abnormal stock returns 3 days around the public announcement.	CRSP, OC
Control period	A dummy variable equal to 1 in case the observations cover the control period and 0 otherwise. The control period is a period of the same length as the pre-(post-) announcement period and ends 1 year before the public announcement (completion) date in case the length of the pre-(post-)announcement period is shorter than 1 year; ends 2 years before the public announcement (completion) date in case the pre-(post-)announcement period takes between 1 and 2 years, etc.	OC

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Variable	Definition	Source
Fluidity	Changes in a firm's products when the product market around the firm is changing each year. In regressions, we use the dummy variable that equal to 1 for the high than median similarity. Based on Hoberg et al. (2014).	Hoberg-Phillips Data Library
Immediately before announcement	A period of 2 months before the public announcement in case the private selling process lasts at least 2 months and the initiation date to the public announcement in case the length is shorter than 2 months.	OC
Informal sale	Dummy variable equal to 1 in case the sale is not organized as a full-scaled formal auction and 0 otherwise. Based on Boone and Mulherin (2009).	HC
Initial premium	The initial offer price at the announcement date relative to the stock price 8 weeks before the announcement in percentage points.	SDC
Initiation date	The date on which the target starts to consider a potential sale of the firm. Based on Boone and Mulherin (2011).	HC
Insider ownership	The total fraction of shares outstanding owned by the board members and top officers just before the beginning of the pre-announcement, post-announcement or control periods.	TIF, OC
Liquidity	Total number of shares traded 1 fiscal year before the beginning of the pre-announcement, post-announcement or control periods.	COMPUSTAT
Market capitalization	Stock price times shares outstanding 1 fiscal year before the beginning of the pre-announcement, post-announcement or control periods; in the analysis used as a natural log.	CRSP
Market to book ratio	Market capitalization plus book value of debt over total assets.	COMPUSTAT
Net purchase	Purchases minus sales by the same insider over the same period in the same company.	TIF, OC
Offer improvement	The final offer price at the completion date relative to the initial offer price at the initiation date in percentage points.	SDC
Pair-wise similarity	Firm-by-firm pair-wise similarity score for the acquiring and target firms using the 10-K firm product words. In regressions, we use the dummy variable that equal to 1 for the high than median pair-wise similarity. Based on Hoberg and Phillips (2016).	Hoberg-Phillips Data Library
Pre-announcement	Dummy variable equal to 1 for the period from the initiation date to the public announcement and 0 otherwise.	TIF, OC
Premium	The final offer price relative to the stock price 8 weeks before the SDC announcement date in percentage points.	SDC
$PRET_t$	Market adjusted average daily abnormal returns in quarter t before the pre-announcement, post-announcement or control periods; t equals 1, 2, 3 and 4. Based on Agrawal and Nasser (2012).	CRSP, OC
Post-announcement	Dummy variable equal to 1 for the period from the SDC announcement date to the resolution and 0 otherwise.	TIF, OC
Private process length	Length in calendar days from the initiation date to the SDC announcement date; in regressions used as a natural log.	HC
Public process length	Length in calendar days from the SDC announcement date to the completion of the deal; in regressions used as a natural log.	HC
R&D	Research and development expenses divided by total sales.	COMPUSTAT

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Variable	Definition	Source
Relative size	Transaction value as a fraction of acquirer market capitalization shortly before the completion.	SDC, CRSP, OC
Similarity	Cumulative firm-by-firm pairwise similarity score for all peers for the firm's TNIC-3 industry using the 10-K firm product words. In regressions, we use the dummy variable that equal to 1 for the high than median similarity. Based on Hoberg and Phillips (2016).	Hoberg-Phillips Data Library
Stock offer	Dummy variable equal to 1 in case the acquirer offers fully or partially merged firm's shares as a payment consideration and 0 otherwise.	SDC
Stock return variance	The volatility of daily stock returns over the period from 250 to 126 days before the beginning of the pre-announcement, post-announcement and control period, respectively. Based on Agrawal and Nasser (2012).	CRSP, OC
Stock return variance change	The change in volatility of daily stock returns over the period from 125 to 1 day versus the period from 250 to 126 days before the beginning of the pre-announcement, post-announcement and control period, respectively. Based on Agrawal and Nasser (2012).	CRSP, OC
Target initiated	The board of the target firm decides to sell the company and consequently contacts potential buyers.	HC
Top executives and independent directors	Corporate insider group that includes the board members and top officers (CB, CEO, CO, GC, P; AC, AF, CC, CFO, CI, CT, D, DO, EC, FC, GP, H, M, MC, MD, O, OB, OD, OP, OS, OT, OX, S, SC, TR, VC, AV).	TIF, OC
Total assets	Book value of total assets in USD millions; in the analysis used as a natural logarithm.	COMPUSTAT
Total sales	Total amount collected for providing goods and services in USD millions.	COMPUSTAT
Transaction value	Total value paid by the acquirer less fees and expenses in USD millions.	SDC

References

Aboody, D. and B. Lev, 2000: Information asymmetry, R&D and insider gains. *Journal of Finance*, **55**, 2747–2766.

Agrawal, A. and T. Nasser, 2012: Insider trading in takeover targets. *Journal of Corporate Finance*, **18**, 598–625.

Akbulut, M. E., C. Lee, and S. C. Lim, 2014: Insider trading, operating performance, and agency issues in M&A. Working Paper, University of Southern California, Wayne State University and Texas Christian University.

Aktas, N., E. de Bodt, and R. Roll, 2010: Negotiations under the threat of an auction. *Journal of Financial Economics*, **98**, 241–255.

Boehmer, E. and J. M. Netter, 1997: Management optimism and corporate acquisitions: evidence from insider trading. *Managerial and Decision Economics*, **18 (7-8)**, 693–708.

Boone, A. L. and J. H. Mulherin, 2007: How are firms sold? *Journal of Finance*, **62**, 847–875.

Boone, A. L. and J. H. Mulherin, 2009: Is there one best way to sell a company? Auctions versus negotiations and controlled sales. *Journal of Applied Corporate Finance*, **21 (3)**, 28–37.

Bullow, J. and P. Klemperer, 1996: Auctions versus negotiations. *American Economic Review*, **86**, 180–194.

Capron, L. and N. Pistre, 2002: When do acquirers earn abnormal returns? *Strategic Management Journal*, **23**, 781–794.

Dimopoulos, T. and S. Sacchetto, 2014: Preemptive bidding, target resistance and takeover premiums. *Journal of Financial Economics*, **114**, 444–470.

Fidrmuc, J. P., M. Goergen, and L. Renneboog, 2006: Insider trading, news releases and ownership concentration. *Joural of Finance*, **61**, 2931–2973.

Fidrmuc, J. P., P. Roosenboom, R. Paap, and T. Teunissen, 2012: One size does not fit all: Selling firms to private equity versus strategic acquirers. *Journal of Corporate Finance*, **18**, 828–848.

Gentry, M. and C. Stroup, 2014: Entry and competition in takeover auctions. Working paper, London School of Economics.

Hoberg, G. and G. Phillips, 2010: Product market synergies and competition in mergers and acquisitions: A text-based analysis. *Review of Financial Studies*, **23 (10)**, 3773–3811.

Hoberg, G. and G. Phillips, 2016: Text-based network industries and endogenous product differentiation. *Journal of Political Economy*, **124 (5)**, 1423–1465.

Hoberg, G., G. Phillips, and N. Prabhala, 2014: Product market threats, payouts, and financial flexibility. *Journal of Finance*, **69**, 293–324.

Lakonishok, J. and I. Lee, 2001: Are insider trades informative? *Review of Financial Studies*, **14**, 79–111.

Lowry, M., M. Rossi, and Z. Zhu, 2016: Informed trading by adviser banks? A look at option holdings ahead of mergers. Working paper, Drexel University.

Ravina, E. and P. Sapienza, 2010: What do independent directors know? Evidence from their trading. *Review of Financial Studies*, **23**, 962–1003.

Seyhun, H. N., 1986: Insiders' profits, costs of trading, and market efficiency. *Journal of Financial Economics*, **16**, 189–212.

Seyhun, H. N., 1990: Do bidder managers knowingly pay too much for target firms? *Journal of Business*, **63 (4)**, 439–464.

Shleifer, A. and R. Vishny, 1992: Liquidation values and debt capacity: A market equilibrium approach. *Journal of Finance*, **47**, 1343–1366.

Shrieves, R. E. and D. L. Stevens, 1979: Bankruptcy avoidance as a motive for merger. *Journal of Financial and Quantitative Analysis*, **14**, 501–515.

Song, W., 2007: Does overvaluation lead to bad mergers? Working Paper, University of Cincinnati.

Table 1: Informal sales versus full-scale auctions and summary statistics

This table presents summary statistics separately for all deals and for deals sold in informal sales versus full-scale auctions, respectively. All variables are defined in Appendix A. The units for total assets and market capitalization are USD millions. All variables are winsorized at the 1^{st} and 99^{th} percentiles except all dummy variables. We test for difference in means using the t-test. The significance of difference in means between deals sold through informal sale versus sold through full-scale auction is reported in the last column. ^{a}, ^{b} and ^{c} indicate significance at the one-, five- and ten-percent levels.

Variable	1 # obs.	2 All deals	3 Informal sale	4 Full-scale auction
Transaction value (USD millions)	698	2,123	2,528	870^{a}
Relative size	613	0.30	0.32	0.26
Premium	572	35.6%	37.8%	$28.6\%^{c}$
Initial premium	572	34.2%	36.2%	$27.9\%^{c}$
Offer improvement	652	0.8%	0.9%	0.4%
Av.annual $CAR_{2yb.init.,init.}$	535	4.9%	6.0%	$1.5\%^{c}$
$CAR_{1yb.init.,init.}$	534	7.9%	7.0%	10.7%
Annualized $CAR_{init.,1db.ann.}$	563	14.1%	15.1%	11.1%
$CAR(-1,+1)$	540	-1.2%	-1.4%	-0.8%
Combined $CAR(-1,+1)$	413	1.8%	1.9%	1.7%
Annualized $CAR_{ann.,comp.}$	539	0.033%	-0.064%	0.058%
Private process length	648	351	313	468^{a}
Public process length	705	125	133	101^{a}
Bidders contacted	648	13	5	40^{a}
Bidders with confid. agreement	648	5	2	14
(Partial) stock offer	705	0.50	0.55	0.34^{a}
Pair-wise similarity	705	0.065	0.066	0.061
Acq. total similarity	565	1,225	1,299	994^{c}
Acq. fluidity	574	8.6	8.7	8.2
Target total similarity	519	1,162	1,233	932
Target fluidity	534	8.7	8.8	8.6
Acquirer firm characteristics				
Total assets (USD millions)	628	23,161	26,451	$12{,}857^{b}$
Market cap. (USD millions)	628	19,213	21,323	$12{,}606^{b}$
Book to market ratio	604	0.46	0.46	0.47
EBITDA	623	0.059	0.058	0.059
Leverage	623	0.16	0.16	0.15
Target firm characteristics				
Total assets (USD millions)	607	2,353	2,914	702^{a}
Market cap. (USD millions)	607	1,313	1,569	561^{a}
Book to market ratio	587	0.54	0.55	0.51
EBITDA	606	0.025	0.035	-0.005^{b}
Leverage	606	0.16	0.15	0.17

Table 2: Informal sales versus full-scale auctions and summary statistics

This table presents summary statistics separately for deals sold in informal sales in Panel A versus full-scale auctions in Panel B. We further partition the two groups by acquirer and target industry characteristics: total similarity, fluidity and pair-wise similarity. All variables are defined in Appendix A. The units for total assets and market capitalization are USD millions. All variables are winsorized at the 1^{st} and 99^{th} percentiles except all dummy variables. We test for difference in means using the t-test. The significance of the difference in means between high versus low level of the particular industry characteristics is reported in the 'low' column. ^{a}, ^{b} and ^{c} indicate significance at the one-, five- and ten-percent levels.

Variable	1	2	3	4	5	6	7	8	9	10
	acq.fluidity		acq.similarity		tar.similarity		tar.fluidity		pair-wise similarity	
	high	low	high	low	high	low	high	low	high	low
					Panel A: informal sales					
Transaction value (USD millions)	2,645	2,209	2,351	2,679	2,206	3,113	2,370	3,110	2,369	2,698
Relative size	0.36	0.25^a	0.33	0.28	0.31	0.34	0.33	0.31	0.35	0.28^c
Premium	40.9%	35.3%	32.0%	42.7%^{b}	32.7%	43.3%^{b}	37.5%	38.8%	36.7%	39.4%
Initial premium	39.7%	33.0%	31.1%	40.1%^{c}	31.8%	41.7%^{b}	35.9%	37.6%	35.0%	38.0%
Offer improvement	1.0%	1.0%	0.5%	1.4%^{b}	0.6%	1.4%	1.0%	1.0%	1.1%	0.7%
Av.annual $CAR_{2yb.init.,init.}$	7.0%	4.8%	2.9%	7.1%	3.4%	8.8%^{c}	5.4%	6.7%	6.9%	5.0%
$CAR_{1yb.init.,init.}$	7.4%	6.6%	3.2%	9.1%	2.4%	12.1%^{b}	7.5%	6.6%	5.9%	8.2%
Annualized $CAR_{init.,1db.ann.}$	13.2%	14.0%	4.1%	21.1%^{a}	5.5%	19.9%^{b}	7.4%	16.2%	13.4%	17.0%
$CAR(-1,+1)$	-1.4%	-1.2%	-2.0%	-0.6%^{b}	-1.8%	-1.1%	-1.9%	-1.2%	-1.4%	-1.4%
Combined $CAR(-1,+1)$	1.9%	1.8%	0.8%	2.7%^{a}	1.5%	2.5%^{c}	1.9%	1.9%	2.2%	1.4%
Annualized $CAR_{ann.,comp.}$	-0.097%	-0.025	-0.128%	0.007	-0.128%	-0.022	-0.085%	-0.062	-0.077%	-0.048%
Private process length	278	334^c	245	364^a	312	328	273	360^a	332	293
Public process length	141	128^c	149	121^a	135	125	127	134	143	123^a
Bidders contacted	4	5	5	4	5	5	5	4	5	5
Bidders with confid. agreement	2	2	2	2	2	2	2	2	2	2
(Partial) stock offer	0.63	0.47^a	0.69	0.42^a	0.58	0.43^a	0.58	0.45^a	0.61	0.48^a
Pair-wise similarity	0.082	0.058^a	0.092	0.049^a	0.096	0.052^a	0.090	0.059^a	0.125	0.003^a
Acq. total similarity	1,815	811^a	2,393	189^a	1,869	290^a	1,665	627^a	1,394	1,181
Acq. fluidity	11.7	5.7^a	10.4	6.9^a	9.9	7.3^a	10.3	7.0^a	9.1	8.2^b
Target total similarity	1,608	921^a	2,328	322^a	2,246	184^a	1,930	536^a	1,485	879^a
Target fluidity	10.5	7.5^a	10.8	7.2^a	10.7	6.8^a	12.0	5.6^a	9.3	8.1^a
Acquirer firm characteristics										
Total assets (USD millions)	32,308	23,131	34,180	22,767^c	37,988	20,357^a	34,840	23,031^c	20,393	33,153^b
Market cap. (USD millions)	20,065	24,703	20,109	26,701	25,517	20,564	23,888	22,962	15,027	28,288^a
Book to market ratio	0.47	0.46	0.51	0.42^a	0.48	0.47	0.49	0.45	0.49	0.43^c
EBITDA	0.039	0.092^a	0.035	0.095^a	0.051	0.081^b	0.043	0.091^a	0.058	0.059
Leverage	0.17	0.14^c	0.13	0.17^b	0.14	0.18^a	0.17	0.15	0.15	0.16
Target firm characteristics										
Total assets (USD millions)	3,876	2,237^b	4,240	2,044^a	3,442	2,339	3,162	2,774	2,714	3,165
Market cap. (USD millions)	1,895	1,286^c	1,688	1,598	1,511	1,696	1,495	1,825	1,486	1,673
Book to market ratio	0.53	0.53	0.63	0.43^a	0.61	0.50^c	0.56	0.55	0.52	0.58
EBITDA	0.008	0.062^a	0.008	0.062^a	0.001	0.089^a	0.013	0.075^a	0.046	0.020
Leverage	0.16	0.14	0.13	0.16	0.12	0.18^a	0.15	0.14	0.14	0.17

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Variable	1	2	3	4	5	6	7	8	9	10
	acq.fluidity		acq.similarity		tar.similarity		tar.fluidity		pair-wise similarity	
	high	low	high	low	high	low	high	low	high	low
Panel B: full-scale auctions										
Transaction value (USD millions)	1,257	548	1,046	782	786	1,358	1,538	556^{c}	988	730
Relative size	0.28	0.20	0.22	0.26	0.23	0.35	0.36	0.21^{c}	0.26	0.25
Premium	31.3%	27.0%	28.0%	30.1%	26.6%	27.7%	25.9%	31.4%	27.3%	30.3%
Initial premium	31.1%	25.6%	27.3%	29.1%	26.0%	26.7%	25.7%	30.1%	26.9%	29.2%
Offer improvement	0.2%	0.7%	0.6%	0.4%	0.6%	0.4%	0.2%	0.8%	0.3%	0.5%
Av.annual $CAR_{2yb.init.,init.}$	0.7%	2.9%	1.6%	5.3%	0.5%	6.1%	1.4%	3.8%	1.5%	5.3%^{c}
$CAR_{1yb.init.,init.}$	8.6%	11.8%	3.5%	17.5%^{c}	3.3%	18.1%^{c}	4.2%	17.0%^{c}	8.0%	14.0%
Annualized $CAR_{init.,1db.ann.}$	6.1%	13.7%	8.3%	11.8%	15.2%	9.4%	9.7%	13.3%	12.4%	9.6%
$CAR(-1,+1)$	-1.8%	-0.2%^{c}	-1.5%	-0.5%	-1.3%	-0.7%	-1.9%	0.1%^{b}	-1.2%	-0.3%
Combined $CAR(-1,+1)$	1.3%	1.8%	1.4%	1.8%	1.4%	1.6%	1.0%	2.2%	1.7%	1.8%
Annualized $CAR_{ann.,comp.}$	0.079%	0.050%	0.028%	0.088%	-0.052%	0.073%	0.007%	0.083%	0.014%	0.114%
Private process length	407	496	400	505^{c}	441	505	416	535^{c}	478	457
Public process length	118	84^{a}	115	87^{a}	106	98	111	92^{c}	109	91^{c}
Bidders contacted	37	43	38	42	34	40	35	41	35	45^{c}
Bidders with confid. agreement	13	15	12	16	12	17	13	15	12	16
(Partial) stock offer	0.47	0.24^{a}	0.52	0.17^{a}	0.41	0.22^{b}	0.44	0.18^{a}	0.41	0.26^{b}
Pair-wise similarity	0.094	0.040^{a}	0.094	0.042^{a}	0.089	0.050^{a}	0.095	0.042^{a}	0.111	0.003^{a}
Acq. total similarity	1,548	471^{a}	1,831	181^{a}	1,569	243^{a}	1,309	589^{b}	1,247	643^{b}
Acq. fluidity	11.3	5.3^{a}	10.3	6.2^{a}	9.3	7.0^{a}	10.0	6.5^{a}	9.1	7.1^{a}
Target total similarity	1,347	542^{a}	1,745	248^{a}	1,759	183^{a}	1,473	397^{a}	1,267	466^{a}
Target fluidity	10.5	6.8^{a}	10.6	7.0^{a}	10.3	7.0^{a}	11.5	5.7^{a}	9.3	7.6^{a}
Acquirer firm characteristics										
Total assets (USD millions)	15,098	11,239	16,753	9,992	25,545	6,682^{b}	16,835	13,310	14,462	10,926
Market cap. (USD millions)	11,985	14,728	12,759	14,216	22,961	8,802^{b}	15,602	13,910	11,482	13,959
Book to market ratio	0.48	0.46	0.51	0.42^{c}	0.50	0.41	0.45	0.45	0.50	0.44
EBITDA	0.033	0.085^{a}	0.025	0.098^{a}	0.052	0.101^{b}	0.061	0.087	0.047	0.073
Leverage	0.15	0.15	0.13	0.16	0.14	0.18	0.14	0.18	0.13	0.17
Target firm characteristics										
Total assets (USD millions)	1,033	435^{b}	932	549	813	869	1,160	484^{b}	824	552
Market cap. (USD millions)	754	403	670	505	531	838	952	378^{c}	618	490
Book to market ratio	0.53	0.53	0.58	0.49	0.55	0.56	0.56	0.60	0.54	0.47
EBITDA	-0.065	0.048^{a}	-0.064	0.042^{a}	-0.042	0.063^{a}	-0.051	0.060^{a}	-0.044	0.045^{a}
Leverage	0.19	0.13^{c}	0.15	0.16	0.17	0.18	0.19	0.16	0.16	0.17

Table 3: Summary statistics for insider trading in acquiring firms before the public announcement

The table shows mean values of all shares traded by top executives and independent directors scaled by the number of shares outstanding (in base points per month) across acquiring firms separately for the pre-announcement (Column 1) and the control period (Column 2) and matched firms for the pre-announcement (Column 3) and the control period (Column 4). We report insider purchases, sales and net purchases for all deals and a set of partitions. The data covers 705 acquiring and 705 matched firms. All variables are defined in Appendix A and winsorized at the 1^{st} and 99^{th} percentiles. We test for differences in means using the t-test allowing for unequal variances. ^{a}, ^{b} and ^{c} indicate significance at the one-, five- and ten-percent levels.

	Acquiring firms		Matched firms		Mean difference			
	1 Pre-ann.	2 Control	3 Pre-ann.	4 Control	1 vs 2	1 vs 3	3 vs 4	(1-2) vs (3-4)
				Purchases				
All deals	0.355	0.547	0.386	0.377	-0.191^{c}	-0.031	0.009	-0.200
Informal sale	0.328	0.565	0.370	0.348	-0.237^{c}	-0.041	0.022	-0.258
Formal auction	0.438	0.490	0.437	0.467	-0.052	0.000	-0.030	-0.022
Inf.sale & high acq.fluidity	0.385	0.755	0.357	0.327	-0.371^{c}	0.028	0.030	-0.400
Inf.sale & low acq.fluidity	0.198	0.434	0.348	0.190	-0.236	-0.150	0.158	-0.394
Auction & high acq.fluidity	0.722	0.603	0.774	0.638	0.119	-0.052	0.136	-0.017
Auction & low acq.fluidity	0.256	0.507	0.089	0.160	-0.251	0.166	-0.071	-0.180
Inf.sale & high acq.similarity	0.210	0.778	0.410	0.356	-0.568^{a}	-0.201	0.055	-0.622^{b}
Inf.sale & low acq.similarity	0.383	0.410	0.230	0.165	-0.026	0.153	0.065	-0.091
Auction & high acq.similarrity	0.614	0.629	0.637	0.607	-0.014	-0.022	0.030	-0.044
Auction & low acq.similarrity	0.382	0.512	0.237	0.205	-0.131	0.145	0.032	-0.163
Inf.sale & high tar.similarity	0.224	0.612	0.319	0.399	-0.388^{b}	-0.095	-0.080	-0.307
Inf.sale & low tar.similarity	0.437	0.388	0.240	0.248	0.049	0.197	-0.008	0.057
Auction & high tar.similarity	0.526	0.553	0.531	0.438	-0.027	-0.005	0.093	-0.120
Auction & low tar.similarity	0.450	0.545	0.334	0.603	-0.096	0.116	-0.269	0.174
Inf.sale & high tar.fluidity	0.292	0.696	0.333	0.322	-0.404^{c}	-0.040	0.010	-0.414
Inf.sale & low tar.fluidity	0.356	0.288	0.221	0.321	0.068	0.135	-0.100	0.169
Auction & high tar.fluidity	0.708	0.758	0.652	0.385	-0.050	0.056	0.266	-0.316
Auction & low tar.fluidity	0.353	0.394	0.182	0.622	-0.041	0.171	-0.440	0.399
Inf.sale & high pair-wise sim.	0.186	0.570	0.329	0.372	-0.384^{b}	-0.143	-0.042	-0.342
Inf.sale & low pair-wise sim.	0.480	0.560	0.413	0.323	-0.080	0.066	0.090	-0.170
Auction & high pair-wise sim.	0.507	0.674	0.447	0.520	-0.166	0.060	-0.072	-0.094
Auction & low pair-wise sim.	0.358	0.279	0.426	0.407	0.079	-0.068	0.019	0.060
				Sales				
All deals	2.820	3.322	3.033	3.588	-0.502	-0.213	-0.554	0.053
Informal sale	2.601	3.405	3.127	3.162	-0.803	-0.526	-0.035	-0.769
Formal auction	3.493	3.066	2.744	4.897	0.427	0.748	-2.153^{a}	2.580^{a}
Inf.sale & high acq.fluidity	2.363	3.824	2.886	2.867	-1.461^{c}	-0.523	0.019	-1.479^{c}
Inf.sale & low acq.fluidity	2.813	3.617	3.099	3.499	-0.804	-0.287	-0.399	-0.405
Auction & high acq.fluidity	2.507	2.123	2.361	4.267	0.384	0.145	-1.905^{c}	2.289^{a}
Auction & low acq.fluidity	5.136	4.692	3.459	5.423	0.444	1.677	-1.963^{c}	2.407
Inf.sale & high acq.similarity	2.193	3.022	2.612	2.706	-0.829	-0.419	-0.094	-0.735
Inf.sale & low acq.similarity	2.951	4.227	3.406	3.640	-1.276	-0.454	-0.234	-1.041
Auction & high acq.similarrity	3.490	2.400	2.417	4.292	1.090	1.074	-1.875^{c}	2.965^{a}
Auction & low acq.similarrity	4.421	4.614	3.184	5.589	-0.193	1.237	-2.405^{b}	2.212
Inf.sale & high tar.similarity	2.428	2.623	2.551	2.650	-0.195	-0.123	-0.099	-0.096
Inf.sale & low tar.similarity	3.102	4.338	3.419	3.273	-1.236	-0.317	0.146	-1.383
Auction & high tar.similarity	2.808	2.548	2.490	4.515	0.259	0.318	-2.025^{c}	2.284^{b}
Auction & low tar.similarity	4.191	3.660	3.039	5.400	0.532	1.153	-2.361^{c}	2.893^{c}
Inf.sale & high tar.fluidity	2.461	2.981	3.222	2.931	-0.520	-0.761	0.291	-0.811
Inf.sale & low tar.fluidity	3.048	3.946	2.756	2.937	-0.897	0.292	-0.180	-0.717
Auction & high tar.fluidity	3.026	2.696	2.523	4.541	0.330	0.503	-2.018^{c}	2.348^{b}
Auction & low tar.fluidity	3.789	3.609	2.903	5.710	0.180	0.886	-2.807^{b}	2.987^{b}
Inf.sale & high pair-wise sim.	3.081	3.484	3.454	3.702	-0.403	-0.372	-0.249	-0.154
Inf.sale & low pair-wise sim.	2.091	3.320	2.780	2.588	-1.229^{c}	-0.689	0.193	-1.422^{c}
Auction & high pair-wise sim.	3.419	4.183	3.340	5.906	-0.764	0.079	-2.566^{b}	1.802
Auction & low pair-wise sim.	3.578	1.783	2.060	3.738	1.794	1.518	-1.678^{b}	3.472^{a}

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	Acquiring firms		Matched firms		Mean difference			
	1 Pre-ann.	2 Control	3 Pre-ann.	4 Control	1 vs 2	1 vs 3	3 vs 4	(1-2) vs (3-4)
				Net purchases				
All deals	-2.481	-2.734	-2.673	-3.212	0.253	0.192	0.539	-0.286
Informal sale	-2.295	-2.827	-2.787	-2.813	0.532	0.492	0.027	0.505
Formal auction	-3.055	-2.447	-2.325	-4.438	-0.607	-0.730	2.113^{c}	-2.720^{a}
Inf.sale & high acq.fluidity	-2.005	-3.061	-2.589	-2.517	1.056	0.585	-0.073	1.129
Inf.sale & low acq.fluidity	-2.631	-3.149	-2.769	-3.309	0.518	0.138	0.540	-0.022
Auction & high acq.fluidity	-1.785	-1.240	-1.629	-3.647	-0.545	-0.156	2.019^{b}	-2.563
Auction & low acq.fluidity	-4.879	-4.165	-3.370	-5.263	-0.714	-1.509	1.893^{c}	-2.607
Inf.sale & high acq.similarity	-1.984	-2.205	-2.243	-2.326	0.221	0.259	0.083	0.138
Inf.sale & low acq.similarity	-2.611	-3.814	-3.209	-3.475	1.203	0.598	0.267	0.937
Auction & high acq.similarrity	-2.875	-1.751	-1.822	-3.704	-1.125	-1.054	1.882^{c}	-3.007^{c}
Auction & low acq.similarrity	-4.039	-3.825	-2.947	-5.384	-0.214	-1.092	2.437^{b}	-2.651
Inf.sale & high tar.similarity	-2.204	-2.004	-2.248	-2.239	-0.200	0.044	-0.009	-0.191
Inf.sale & low tar.similarity	-2.718	-3.961	-3.206	-3.035	1.243	0.488	-0.171	1.414
Auction & high tar.similarity	-2.282	-1.971	-2.007	-4.077	-0.311	-0.275	2.070^{c}	-2.380
Auction & low tar.similarity	-3.741	-2.816	-2.705	-4.816	-0.925	-1.036	2.111^{c}	-3.036
Inf.sale & high tar.fluidity	-2.183	-2.301	-2.905	-2.583	0.117	0.722	-0.322	0.440
Inf.sale & low tar.fluidity	-2.730	-3.645	-2.562	-2.640	0.915	-0.168	0.078	0.838
Auction & high tar.fluidity	-2.318	-1.916	-1.916	-4.156	-0.402	-0.403	2.240^{b}	-2.642
Auction & low tar.fluidity	-3.436	-2.922	-2.721	-5.107	-0.514	-0.715	2.386^{c}	-2.900
Inf.sale & high pair-wise sim.	-2.902	-2.891	-3.155	-3.311	-0.011	0.252	0.156	-0.167
Inf.sale & low pair-wise sim.	-1.649	-2.759	-2.395	-2.285	1.110^{c}	0.746	-0.111	1.221
Auction & high pair-wise sim.	-2.911	-3.268	-2.926	-5.387	0.357	0.014	2.461^{b}	-2.104^{c}
Auction & low pair-wise sim.	-3.219	-1.505	-1.635	-3.348	-1.715	-1.585	1.713^{b}	-3.428^{b}

Table 4: Basic statistics for insider trading in acquiring firms after the public announcement

The table shows mean values of all shares traded by top executives and independent directors scaled by the number of shares outstanding (in base points per month) across acquiring firms separately during the post-announcement (Column 1), the control (column 2) and the pre-announcement (Column 3) period and matched firms during the post-announcement (Column 4), the control (Column 5) and the pre-announcement (Column 6) period. We report insider purchases, sales and net purchases for all deals and for a set of partitions. The data covers 705 acquiring and 705 matched firms. All variables are defined in Appendix A and winsorized at the 1^{st} and 99^{th} percentiles. We test for differences in means using the t-test allowing for unequal variances. ^{a}, ^{b} and ^{c} indicate significance at the one-, five- and ten-percent levels.

	Acquiring firms			Matched firms			Mean difference					
	1 Post-ann.	2 Control	3 Pre-ann.	4 Post-ann.	5 Control	6 Pre-ann.	1 vs 2	1 vs 3	1 vs 4	4 vs 5	4 vs 6	(1-2) vs (4-5)
						Purchases						
All deals	0.388	0.284	0.355	0.324	0.331	0.386	0.104	0.032	0.063	-0.007	-0.062	0.110
Informal sale	0.441	0.313	0.328	0.281	0.332	0.370	0.129	0.160	-0.051	0.179	-0.089	-0.051
Formal auction	0.266	0.219	0.438	0.422	0.328	0.437	0.048	-0.155	0.094	-0.046	-0.015	0.094
Inf.sale & high acq.fluidity	0.614	0.275	0.385	0.337	0.390	0.357	0.339^{b}	0.277	-0.054	0.393	-0.020	-0.054
Inf.sale & low acq.fluidity	0.259	0.338	0.198	0.165	0.151	0.348	-0.078	0.094	0.015	-0.093	-0.183	0.015
Auction & high acq.fluidity	0.347	0.211	0.722	0.367	0.167	0.774	0.136	-0.019	0.199	-0.063	-0.407	0.199
Auction & low acq.fluidity	0.233	0.324	0.256	0.195	0.195	0.089	-0.092	0.037	0.001	-0.092	0.106	0.001
Inf.sale & high acq.similarity	0.551	0.392	0.210	0.352	0.449	0.410	0.159	0.199^{b}	-0.097	0.256	-0.059	-0.097
Inf.sale & low acq.similarity	0.343	0.218	0.383	0.156	0.098	0.230	0.125	0.187	0.057	0.068	-0.074	0.057
Auction & high acq.similarrity	0.388	0.220	0.614	0.310	0.177	0.637	0.168	0.078	0.132	0.035	-0.327	0.132
Auction & low acq.similarrity	0.201	0.329	0.382	0.213	0.193	0.237	-0.128	-0.012	0.021	-0.149	-0.024	0.021
Inf.sale & high tar.similarity	0.499	0.188	0.224	0.334	0.376	0.319	0.311^{b}	0.165^{c}	-0.042	0.353	0.015	-0.042
Inf.sale & low tar.similarity	0.352	0.346	0.437	0.178	0.179	0.240	0.005	0.174	-0.001	0.006	-0.063	-0.001
Auction & high tar.similarity	0.315	0.186	0.526	0.237	0.242	0.531	0.129	0.078	-0.005	0.134	-0.294	-0.005
Auction & low tar.similarity	0.179	0.366	0.450	0.695	0.566	0.334	-0.187	-0.516	0.129^{c}	-0.316	0.361	0.129
Inf.sale & high tar.fluidity	0.534	0.191	0.292	0.300	0.246	0.333	0.343^{b}	0.234	0.054	0.289	-0.033	0.054
Inf.sale & low tar.fluidity	0.329	0.348	0.356	0.220	0.316	0.221	-0.019	0.109	-0.096	0.077	-0.001	-0.096
Auction & high tar.fluidity	0.257	0.190	0.708	0.244	0.263	0.652	0.067	0.013	-0.019	0.086	-0.408	-0.019
Auction & low tar.fluidity	0.256	0.357	0.353	0.595	0.540	0.182	-0.101	-0.339	0.055	-0.156	0.413	0.055
Inf.sale & high pair-wise sim.	0.367	0.338	0.186	0.281	0.321	0.329	0.029	0.087^{c}	-0.041	0.070	-0.049	-0.041
Inf.sale & low pair-wise sim.	0.519	0.286	0.480	0.282	0.344	0.413	0.233	0.237	-0.062	0.295	-0.131	-0.062
Auction & high pair-wise sim.	0.244	0.349	0.507	0.228	0.274	0.447	-0.105	0.016	-0.046	-0.059	-0.219	-0.046
Auction & low pair-wise sim.	0.287	0.103	0.358	0.595	0.377	0.426	0.184	-0.309	0.219	-0.034	0.170	0.219
						Sales						
All deals	1.842	2.924	2.820	2.259	2.914	3.033	-1.081^{a}	-0.978^{a}	-0.416	-0.655^{b}	-0.775^{b}	-0.426
Informal sale	1.783	2.927	2.601	2.381	2.773	3.127	-1.144^{a}	-0.598^{b}	-0.392^{c}	-0.752	-0.746^{c}	-0.392
Formal auction	1.976	2.916	3.493	1.981	3.232	2.744	-0.940	-0.005^{b}	-1.251	0.311^{b}	-0.764	-1.251
Inf.sale & high acq.fluidity	1.596	3.297	2.363	2.305	2.647	2.886	-1.702^{a}	-0.710	-0.341^{c}	-1.360	-0.581	-0.341
Inf.sale & low acq.fluidity	2.377	2.931	2.813	2.262	2.737	3.099	-0.554	0.115	-0.476	-0.078	-0.838	-0.476
Auction & high acq.fluidity	1.270	3.840	2.507	2.135	3.473	2.361	-2.570^{b}	-0.865^{b}	-1.339	-1.231	-0.227	-1.339
Auction & low acq.fluidity	3.262	3.440	5.136	2.337	3.908	3.459	-0.178	0.925	-1.571	1.392^{c}	-1.122	-1.571

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	Acquiring firms			Matched firms			Mean difference					
	1 Post-ann.	2 Control	3 Pre-ann.	4 Post-ann.	5 Control	6 Pre-ann.	1 vs 2	1 vs 3	1 vs 4	4 vs 5	4 vs 6	(1-2) vs (4-5)
Inf.sale & high acq.similarity	1.310	3.018	2.193	2.124	2.803	2.612	-1.708^{a}	-0.814^{c}	-0.678^{b}	-1.030	-0.488	-0.678
Inf.sale & low acq.similarity	2.718	3.240	2.951	2.486	2.541	3.406	-0.522	0.233	-0.055	-0.467	-0.920	-0.055
Auction & high acq.similarrity	2.154	2.793	3.490	2.328	3.701	2.417	-0.638	-0.174	-1.373	0.734	-0.089	-1.373
Auction & low acq.similarrity	2.134	4.476	4.421	2.192	3.268	3.184	-2.342^{c}	-0.058^{c}	-1.076	-1.266	-0.992	-1.076
Inf.sale & high tar.similarity	0.948	2.555	2.428	1.769	2.641	2.551	-1.607^{a}	-0.821^{a}	-0.872^{a}	-0.735^{c}	-0.782	-0.872
Inf.sale & low tar.similarity	2.344	3.471	3.102	2.862	2.496	3.419	-1.127	-0.518	0.366	-1.494	-0.557	0.366
Auction & high tar.similarity	1.079	2.228	2.808	2.075	3.552	2.490	-1.150	-0.996^{b}	-1.477^{c}	0.327	-0.415	-1.477
Auction & low tar.similarity	3.388	3.960	4.191	2.554	3.269	3.039	-0.573	0.834	-0.715	0.142	-0.484	-0.715
Inf.sale & high tar.fluidity	1.017	3.312	2.461	2.147	2.625	3.222	-2.295^{a}	-1.130^{b}	-0.478^{a}	-1.817	-1.075^{c}	-0.478^{c}
Inf.sale & low tar.fluidity	2.194	2.815	3.048	2.453	2.583	2.756	-0.621	-0.259	-0.130	-0.492	-0.303	-0.130
Auction & high tar.fluidity	2.499	3.924	3.026	2.166	2.489	2.523	-1.424	0.333	-0.322	-1.102	-0.357	-0.322
Auction & low tar.fluidity	1.861	2.047	3.789	2.140	4.735	2.903	-0.186	-0.279^{c}	-2.595	2.409^{b}	-0.763	-2.595
Inf.sale & high pair-wise sim.	1.752	3.414	3.081	2.367	2.556	3.454	-1.662^{a}	-0.615^{b}	-0.189	-1.473	-1.087^{c}	-0.189
Inf.sale & low pair-wise sim.	1.816	2.411	2.091	2.397	3.002	2.780	-0.595	-0.581	-0.606	0.011	-0.384	-0.606
Auction & high pair-wise sim.	2.536	3.782	3.419	2.825	4.176	3.340	-1.246	-0.289	-1.351	0.105	-0.515	-1.351
Auction & low pair-wise sim.	1.475	2.142	3.578	1.226	2.388	2.060	-0.667	0.249^{c}	-1.162	0.496	-0.835^{c}	-1.162
						Net purchases						
All deals	-1.472	-2.648	-2.481	-1.946	-2.576	-2.673	1.177^{a}	1.010^{a}	0.474	0.630^{c}	0.727^{b}	0.546
Informal sale	-1.364	-2.633	-2.295	-2.107	-2.425	-2.787	1.269^{a}	0.743^{b}	0.318^{b}	0.951	0.679	0.318
Formal auction	-1.715	-2.684	-3.055	-1.581	-2.918	-2.325	0.969	-0.134^{c}	1.338	-0.369^{b}	0.744	1.338
Inf.sale & high acq.fluidity	-1.015	-3.044	-2.005	-1.971	-2.213	-2.589	2.029^{a}	0.956^{c}	0.242^{b}	1.787	0.618	0.242
Inf.sale & low acq.fluidity	-2.125	-2.608	-2.631	-2.104	-2.594	-2.769	0.483	-0.021	0.491	-0.007	0.665	0.491
Auction & high acq.fluidity	-0.938	-3.649	-1.785	-1.788	-3.306	-1.629	2.711^{b}	0.850	1.518	1.193	-0.160	1.518
Auction & low acq.fluidity	-3.029	-3.068	-4.879	-2.142	-3.713	-3.370	0.039	-0.887	1.571	-1.532^{c}	1.228	1.571
Inf.sale & high acq.similarity	-0.779	-2.650	-1.984	-1.774	-2.316	-2.243	1.871^{a}	0.995^{b}	0.542^{b}	1.329	0.468	0.542^{c}
Inf.sale & low acq.similarity	-2.398	-3.036	-2.611	-2.337	-2.442	-3.209	0.638	-0.060	0.105	0.534	0.871	0.105
Auction & high acq.similarrity	-1.781	-2.592	-2.875	-2.038	-3.524	-1.822	0.811	0.257	1.486	-0.675	-0.216	1.486
Auction & low acq.similarrity	-1.933	-4.097	-4.039	-1.979	-3.075	-2.947	2.164^{c}	0.046^{c}	1.097	1.067	0.968	1.097
Inf.sale & high tar.similarity	-0.470	-2.383	-2.204	-1.450	-2.272	-2.248	1.913^{a}	0.980^{a}	0.822^{a}	1.092	0.798	0.822
Inf.sale & low tar.similarity	-2.023	-3.151	-2.718	-2.692	-2.317	-3.206	1.127	0.669	-0.375	1.503	0.514	-0.375
Auction & high tar.similarity	-0.779	-2.062	-2.282	-1.858	-3.330	-2.007	1.284	1.080^{c}	1.471^{c}	-0.188	0.149	1.471
Auction & low tar.similarity	-3.209	-3.539	-3.741	-1.898	-2.723	-2.705	0.330	-1.311	0.825	-0.495	0.807	0.825
Inf.sale & high tar.fluidity	-0.513	-3.138	-2.183	-1.856	-2.376	-2.905	2.625^{a}	1.344	0.520^{a}	2.105	1.049	0.520^{c}
Inf.sale & low tar.fluidity	-1.888	-2.493	-2.730	-2.248	-2.276	-2.562	0.605	0.360	0.028	0.576	0.314	0.028
Auction & high tar.fluidity	-2.257	-3.753	-2.318	-1.922	-2.245	-1.916	1.496	-0.335	0.323	1.173	-0.007	0.323
Auction & low tar.fluidity	-1.605	-1.635	-3.436	-1.603	-4.214	-2.721	0.030	-0.002	2.611	-2.582^{c}	1.118	2.611

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	Acquiring firms			Matched firms			Mean difference					
	1 Post-ann.	2 Control	3 Pre-ann.	4 Post-ann.	5 Control	6 Pre-ann.	1 vs 2	1 vs 3	1 vs 4	4 vs 5	4 vs 6	(1-2) vs (4-5)
Inf.sale & high pair-wise sim.	-1.398	-3.092	-2.902	-2.100	-2.245	-3.155	1.695[a]	0.702	0.145	1.550	1.055[c]	0.145[c]
Inf.sale & low pair-wise sim.	-1.328	-2.146	-1.649	-2.115	-2.615	-2.395	0.817	0.786	0.500	0.317	0.280	0.500
Auction & high pair-wise sim.	-2.304	-3.404	-2.911	-2.612	-3.902	-2.926	1.101	0.308	1.290	-0.189	0.313	1.290
Auction & low pair-wise sim.	-1.188	-2.039	-3.219	-0.658	-2.039	-1.635	0.851	-0.530[c]	1.381	-0.530[b]	0.977[c]	1.381

Table 5: Summary statistics for insider trading in acquiring firms over the whole selling period

The table shows mean values of all shares traded by top executives and independent directors scaled by the number of shares outstanding (in base points per month) across acquiring firms separately for the whole selling (Column 1) and the control period (Column 2) and matched firms for the whole selling (Column 3) and the control period (Column 4). We report insider purchases, sales and net purchases for all deals and a set of partitions. The data covers 705 acquiring and 705 matched firms. All variables are defined in Appendix A and winsorized at the 1^{st} and 99^{th} percentiles. We test for differences in means using the t-test allowing for unequal variances. ^{a}, ^{b} and ^{c} indicate significance at the one-, five- and ten-percent levels.

	Acquiring firms		Matched firms		Mean difference			
	1 Whole	2 Control	3 Whole	4 Control	1 vs 2	1 vs 3	3 vs 4	(1-2) vs (3-4)
				Purchases				
All deals	0.454	0.457	0.409	0.388	-0.003	-0.003	0.021	-0.023
Informal sale	0.458	0.445	0.400	0.394	0.013	0.013	0.007	0.006
Formal auction	0.442	0.493	0.438	0.373	-0.050	-0.050	0.065	-0.115
Inf.sale & high acq.fluidity	0.576	0.684	0.345	0.333	-0.107	-0.107	0.012	-0.119
Inf.sale & low acq.fluidity	0.294	0.303	0.354	0.269	-0.009	-0.009	0.084	-0.094
Auction & high acq.fluidity	0.740	0.678	0.790	0.495	0.062	0.062	0.294	-0.232
Auction & low acq.fluidity	0.252	0.443	0.083	0.142	-0.191	-0.191	-0.059	-0.132
Inf.sale & high acq.similarity	0.501	0.541	0.423	0.460	-0.040	-0.040	-0.036	-0.004
Inf.sale & low acq.similarity	0.382	0.450	0.219	0.145	-0.068	-0.068	0.074	-0.142
Auction & high acq.similarrity	0.660	0.684	0.760	0.467	-0.023	-0.023	0.293	-0.316
Auction & low acq.similarrity	0.352	0.467	0.127	0.180	-0.115	-0.115	-0.053	-0.062
Inf.sale & high tar.similarity	0.486	0.371	0.408	0.434	0.115	0.115	-0.026	0.141
Inf.sale & low tar.similarity	0.439	0.319	0.228	0.225	0.120	0.120	0.003	0.117
Auction & high tar.similarity	0.566	0.631	0.487	0.394	-0.065	-0.065	0.093	-0.158
Auction & low tar.similarity	0.424	0.498	0.220	0.460	-0.074	-0.074	-0.240	0.166
Inf.sale & high tar.fluidity	0.576	0.388	0.363	0.266	0.188	0.188	0.097	0.091
Inf.sale & low tar.fluidity	0.334	0.291	0.267	0.386	0.043	0.043	-0.120	0.163
Auction & high tar.fluidity	0.709	0.649	0.504	0.317	0.061	0.061	0.186	-0.126
Auction & low tar.fluidity	0.341	0.467	0.362	0.512	-0.126	-0.126	-0.149	0.023
Inf.sale & high pair-wise sim.	0.341	0.443	0.349	0.413	-0.102	-0.102	-0.064	-0.037
Inf.sale & low pair-wise sim.	0.573	0.448	0.450	0.374	0.125	0.125	0.076	0.049
Auction & high pair-wise sim.	0.539	0.791	0.339	0.395	-0.253	-0.253	-0.056	-0.196
Auction & low pair-wise sim.	0.340	0.175	0.543	0.349	0.165	0.165	0.194	-0.029
				Sales				
All deals	2.755	3.231	2.852	3.490	-0.476	-0.097	-0.637^{c}	0.161
Informal sale	2.598	3.329	2.956	3.116	-0.731^{c}	-0.358	-0.160	-0.571
Formal auction	3.237	2.930	2.534	4.639	0.308	0.703	-2.105^{a}	2.413^{a}
Inf.sale & high acq.fluidity	2.128	3.828	2.870	2.532	-1.700^{a}	-0.742	0.338	-2.038^{a}
Inf.sale & low acq.fluidity	3.143	3.261	2.887	3.716	-0.118	0.256	-0.830	0.712
Auction & high acq.fluidity	2.412	2.654	2.069	4.430	-0.242	0.343	-2.361^{a}	2.119^{a}
Auction & low acq.fluidity	4.578	3.899	3.252	4.844	0.679	1.326	-1.592	2.271
Inf.sale & high acq.similarity	2.026	2.786	2.508	2.631	-0.760	-0.481	-0.123	-0.636
Inf.sale & low acq.similarity	3.216	3.880	3.289	3.563	-0.664	-0.072	-0.275	-0.389
Auction & high acq.similarrity	3.181	2.463	2.171	4.457	0.718	1.009	-2.286^{b}	3.004^{a}
Auction & low acq.similarrity	4.045	4.258	2.987	5.011	-0.212	1.058	-2.024^{c}	1.811
Inf.sale & high tar.similarity	2.100	2.609	2.328	2.606	-0.509	-0.227	-0.278	-0.231
Inf.sale & low tar.similarity	3.192	4.431	3.351	3.335	-1.238	-0.159	0.016	-1.254
Auction & high tar.similarity	2.607	2.330	2.265	4.664	0.277	0.342	-2.399^{b}	2.676^{b}
Auction & low tar.similarity	3.966	3.795	2.856	4.644	0.171	1.110	-1.787	1.958
Inf.sale & high tar.fluidity	2.237	3.312	2.989	2.776	-1.075	-0.752	0.213	-1.289
Inf.sale & low tar.fluidity	3.033	3.686	2.666	3.094	-0.652	0.367	-0.427	-0.225
Auction & high tar.fluidity	2.879	2.654	2.248	4.194	0.224	0.630	-1.946^{b}	2.170^{c}
Auction & low tar.fluidity	3.508	3.383	2.793	5.303	0.125	0.715	-2.510^{b}	2.634^{b}
Inf.sale & high pair-wise sim.	3.145	3.629	3.448	3.443	-0.484	-0.303	0.005	-0.488
Inf.sale & low pair-wise sim.	2.063	3.036	2.474	2.795	-0.973^{c}	-0.411	-0.321	-0.652
Auction & high pair-wise sim.	3.315	4.173	3.066	5.618	-0.858	0.248	-2.552^{b}	1.694
Auction & low pair-wise sim.	3.155	1.606	1.968	3.597	1.549	1.187	-1.629^{b}	3.178^{a}

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	Acquiring firms		Matched firms		Mean difference			
	1 Whole	2 Control	3 Whole	4 Control	1 vs 2	1 vs 3	3 vs 4	(1-2) vs (3-4)
				Net purchases				
All deals	-2.316	-2.745	-2.455	-3.089	0.429	0.139	0.634^{c}	-0.204
Informal sale	-2.160	-2.887	-2.566	-2.706	0.727	0.406	0.139	0.588
Formal auction	-2.795	-2.309	-2.113	-4.268	-0.485	-0.682	2.155^{a}	-2.641^{c}
Inf.sale & high acq.fluidity	-1.579	-3.147	-2.556	-2.159	1.568^{b}	0.977^{c}	-0.397	1.965
Inf.sale & low acq.fluidity	-2.865	-2.958	-2.523	-3.452	0.093	-0.342	0.930	-0.836
Auction & high acq.fluidity	-1.672	-1.706	-1.318	-3.938	0.035	-0.354	2.621^{a}	-2.586
Auction & low acq.fluidity	-4.325	-3.429	-3.169	-4.702	-0.897	-1.156	1.533	-2.430
Inf.sale & high acq.similarity	-1.548	-2.240	-2.092	-2.136	0.692	0.545	0.044	0.649
Inf.sale & low acq.similarity	-2.855	-3.438	-3.086	-3.419	0.583	0.231	0.332	0.250
Auction & high acq.similarrity	-2.520	-1.771	-1.451	-3.994	-0.750	-1.069	2.543^{b}	-3.292^{b}
Auction & low acq.similarrity	-3.693	-3.505	-2.860	-4.831	-0.188	-0.833	1.971^{c}	-2.159
Inf.sale & high tar.similarity	-1.638	-2.249	-1.931	-2.150	0.611	0.293	0.219	0.392
Inf.sale & low tar.similarity	-2.779	-4.118	-3.142	-3.111	1.339	0.363	-0.032	1.370^{c}
Auction & high tar.similarity	-2.041	-1.690	-1.799	-4.270	-0.352	-0.242	2.471^{b}	-2.823
Auction & low tar.similarity	-3.541	-2.989	-2.636	-4.188	-0.553	-0.905	1.552	-2.104
Inf.sale & high tar.fluidity	-1.690	-2.935	-2.631	-2.485	1.245^{c}	0.941	-0.146	1.391
Inf.sale & low tar.fluidity	-2.719	-3.401	-2.424	-2.710	0.682	-0.294	0.286	0.397
Auction & high tar.fluidity	-2.169	-1.997	-1.764	-3.877	-0.173	-0.406	2.113^{b}	-2.286
Auction & low tar.fluidity	-3.166	-2.613	-2.452	-4.795	-0.553	-0.714	2.343^{c}	-2.896
Inf.sale & high pair-wise sim.	-2.823	-3.198	-3.121	-3.015	0.376	0.298	-0.107	0.482
Inf.sale & low pair-wise sim.	-1.511	-2.582	-2.023	-2.403	1.071^{c}	0.512	0.380	0.691
Auction & high pair-wise sim.	-2.776	-3.134	-2.742	-5.224	0.358	-0.034	2.481^{b}	-2.123^{b}
Auction & low pair-wise sim.	-2.815	-1.431	-1.443	-3.251	-1.383	-1.372	1.808^{b}	-3.191^{a}

Table 6: Insider trading in acquiring firms before and after the public announcement: informal sales versus full-scale auctions.

This table reports OLS estimation results for net purchases and Tobit model estimation results for insider sales and purchases by top executives and independent directors (measured as percentage of equity in base points) in acquiring firms before and after the public announcement. Panel A reports results of insider trading for informal sales, while Panel B for full-scaled auctions. Columns 1-3 report results for net purchases, sales and purchases during the pre-announcement period from initiation to the public announcement, Columns 8-10 during the post-announcement period from the public announcement to completion and Columns 11-13 during the whole selling period. Columns 4 and 5 (6 and 7) report results for net purchases and sales during the earlier pre-announcement period from initiation to 1 month before the public announcement (the 1 month immediately before the public announcement period). We report Hubert/White robust standard errors in brackets. All variables are defined in Appendix A and are winsorized at the 1^{st} and 99^{th} percentiles, except for all dummy variables. ^{a}, ^{b}, ^{c} and ^{d} indicate significance at the one-, five-, ten- and fifteen-percent levels.

	1	2	3	4	5	6	7	8	9	10	11	12	13
	pre-announcement			init. to 1mb.ann.		1mb.ann. to ann.		post-announcement			whole selling period		
	net p.	sales	purchases	net p.	sales	net p.	sales	net p.	sales	purchases	net p.	sales	purchases
Panel A: Informal sales													
Acquirer x eventp.	0.862	-1.681^{c}	-0.545^{c}	1.027	-1.685^{d}	0.296	-4.568^{b}	1.042^{c}	-1.052	0.643^{c}	1.112^{c}	-1.819^{a}	-0.182
	(0.672)	(0.857)	(0.327)	(0.764)	(1.034)	(0.769)	(2.001)	(0.625)	(0.877)	(0.374)	(0.609)	(0.670)	(0.246)
Event period	0.014	0.277	0.184	0.064	0.367	0.512	-0.448	0.067	0.097	-0.319	0.185	-0.017	0.068
	(0.455)	(0.592)	(0.220)	(0.528)	(0.723)	(0.565)	(1.419)	(0.403)	(0.591)	(0.261)	(0.398)	(0.446)	(0.178)
Acquirer	-0.496	0.987	0.448^{c}	-0.578	0.933	0.492	-0.162	-0.656	0.817	0.075	-0.892^{c}	1.502^{a}	0.334^{c}
	(0.550)	(0.687)	(0.255)	(0.638)	(0.848)	(0.626)	(1.481)	(0.494)	(0.691)	(0.274)	(0.473)	(0.525)	(0.189)
Constant	-2.996^{d}	-7.946^{a}	-5.305^{a}	-7.205^{a}	-7.348^{b}	-6.062^{b}	-8.496	-4.247^{b}	-7.108^{b}	-7.829^{a}	-2.180	-3.388	-5.515^{a}
	(1.993)	(2.732)	(1.190)	(2.685)	(3.732)	(2.517)	(6.164)	(2.004)	(2.987)	(1.411)	(2.427)	(2.801)	(1.106)
# observations	1,588	1,588	1,588	1,588	1,588	1,588	1,588	1,606	1,606	1,606	1,589	1,589	1,589
F	4.986^{a}	5.404^{a}	2.978^{a}	4.987^{a}	5.554^{a}	2.538^{a}	3.026^{a}	3.031^{a}	2.966^{a}	3.412^{a}	5.500^{a}	5.106^{a}	3.312^{a}
Pseudo R^2	13.90%	3.92%	5.97%	13.30%	3.62%	5.50%	2.48%	6.40%	1.74%	9.04%	12.70%	2.94%	6.31%
Panel B: Full-scale auctions													
Acquirer x eventp.	-1.521	2.081^{d}	-0.132	-1.980^{d}	2.826^{c}	-1.058	0.789	-0.807	1.294	-0.399	-1.334	1.409	-0.133
	(1.176)	(1.290)	(0.524)	(1.313)	(1.470)	(1.543)	(3.846)	(1.202)	(1.767)	(0.789)	(1.122)	(1.147)	(0.497)
Event period	1.389^{c}	-1.310	0.620	1.715^{b}	-1.872^{c}	1.631	-1.350	1.016	-1.474	0.276	1.450^{c}	-1.383^{c}	0.458
	(0.770)	(0.843)	(0.398)	(0.872)	(0.974)	(1.180)	(2.844)	(0.770)	(1.185)	(0.556)	(0.751)	(0.786)	(0.349)
Acquirer	0.415	-0.788	0.094	0.747	-1.100	1.188	-2.275	0.158	-0.791	0.867	0.267	-0.030	0.185
	(0.984)	(1.065)	(0.367)	(1.115)	(1.236)	(1.393)	(3.108)	(1.021)	(1.411)	(0.629)	(0.952)	(0.987)	(0.369)
Constant	-16.275^{a}	16.505^{a}	-3.824^{c}	-21.319^{a}	19.914^{a}	-18.327^{a}	21.712	-8.625^{c}	-2.963	-15.282^{a}	-12.593^{b}	12.039^{b}	-3.679^{c}
	(4.467)	(4.947)	(2.055)	(6.142)	(6.897)	(6.141)	(14.755)	(4.728)	(7.289)	(4.057)	(5.171)	(5.120)	(1.922)
# observations	486	486	486	486	486	486	486	492	492	492	485	485	485
F	3.524^{a}	3.491^{a}	1.288	3.251^{a}	3.060^{a}	1.186	1.340	2.093^{a}	1.803^{b}	1.850^{a}	2.373^{a}	2.500^{a}	1.380^{c}
Pseudo R^2	24.70%	5.07%	5.62%	23.40%	4.56%	13.90%	3.66%	14.90%	3.88%	14.90%	17.80%	3.61%	5.29%

Table 7: Insider trading in acquiring firms around the merger public announcement: industry characteristics.

This table reports OLS estimation results for net purchases and Tobit estimation results for insider sales and purchases by top executives and independent directors (measured as percentage of equity in base points) in acquiring firms before and after the public announcement. We condition for informal sales and auctions. Panel A further conditions on high versus low acquirer fluidity, Panel B for high versus low similarity, Panel C for high versus low target fluidity, Panel D for high versus low target total similarity, Panel E for high versus low pairwise similarity while Panel F for high acquirer fluidity and low target similarity. All five dummies are cut-off at the median value. Columns 1–6 report results for the pre-announcement period from initiation to the public announcement, Columns 7–9 for the post-announcement period from the public announcement to completion and Columns 10–12 during the whole selling period. We report Hubert/White robust standard errors in brackets. All variables are defined in Appendix A and are winsorized at the 1^{st} and 99^{th} percentiles, except for all dummy variables. ^{a}, ^{b}, ^{c} and ^{d} indicate significance at the one-, five-, ten- and fifteen-percent levels.

	1	2	3	4	5	6	7	8	9	10	11	12
	pre-announcement						post-announcement			whole selling period		
	informal sales			auctions			informal sales			informal sales		
	net p.	sales	purcha.	net p.	sales	purcha.	net p.	sales	purcha.	net p.	sales	purcha.
Panel A:						High acquirer fluidity						
Acquirer x eventp.	1.696^{c}	-3.128^{b}	-0.339	-2.312^{c}	3.487^{a}	0.158	2.368^{a}	-2.575^{b}	0.874^{c}	2.292^{a}	-3.155^{a}	-0.075
	(0.962)	(1.273)	(0.496)	(1.287)	(1.330)	(0.907)	(0.852)	(1.193)	(0.519)	(0.837)	(0.946)	(0.369)
Event period	-0.653	1.245^{d}	-0.175	1.563	-1.610	0.907	-0.236	0.414	-0.141	-0.549	0.696	-0.151
	(0.603)	(0.851)	(0.309)	(1.127)	(1.136)	(0.634)	(0.559)	(0.787)	(0.377)	(0.525)	(0.621)	(0.251)
Acquirer	-1.341^{c}	2.320^{b}	0.150	1.828^{c}	-2.593^{b}	-0.333	-1.378^{c}	1.318	-0.293	-1.615^{b}	2.338^{a}	0.232
	(0.797)	(1.005)	(0.390)	(0.962)	(1.022)	(0.657)	(0.727)	(0.987)	(0.370)	(0.661)	(0.747)	(0.283)
Constant	-3.632	-4.892	-3.547^{b}	-6.144^{c}	3.279	-1.834	-3.473	-1.848	-7.100^{a}	-1.951	-1.732	-4.420^{a}
	(4.200)	(4.980)	(1.482)	(3.575)	(4.035)	(2.722)	(2.503)	(3.935)	(2.292)	(3.555)	(3.974)	(1.411)
# observations	773	773	773	216	216	216	798	798	798	771	771	771
F	4.067^{a}	4.443^{a}	2.755^{a}	2.755^{a}	2.483^{a}	1.208	3.029^{a}	2.682^{a}	2.991^{a}	4.057^{a}	4.050^{a}	2.604^{a}
Pseudo R^2	16.30%	4.83%	4.88%	22.20%	6.04%	6.53%	8.30%	2.42%	7.85%	15.60%	3.96%	5.97%
						Low acquirer fluidity						
Acquirer x eventp.	-0.025	-0.493	-0.935^{b}	-0.717	0.282	-0.461	0.053	0.288	0.430	-0.217	-0.420	-0.412
	(0.973)	(1.220)	(0.451)	(1.902)	(2.028)	(0.566)	(0.938)	(1.321)	(0.524)	(0.904)	(0.983)	(0.347)
Event period	0.600	-0.179	0.662^{c}	1.565	-0.865	0.409	0.029	0.073	-0.528	0.906	-0.589	0.341
	(0.736)	(0.907)	(0.350)	(1.277)	(1.340)	(0.394)	(0.604)	(0.906)	(0.380)	(0.649)	(0.697)	(0.283)
Acquirer	0.203	0.216	0.538^{d}	-0.815	1.161	0.467	-0.317	0.881	0.291	-0.207	0.808	0.283
	(0.746)	(0.941)	(0.332)	(1.569)	(1.659)	(0.430)	(0.713)	(0.990)	(0.403)	(0.672)	(0.743)	(0.254)
Constant	-5.652^{b}	-4.759	-6.337^{a}	-28.004^{a}	26.035^{a}	-7.147^{b}	-5.483^{b}	-8.568^{b}	-9.088^{a}	-6.600^{c}	0.817	-6.074^{a}
	(2.327)	(3.344)	(1.971)	(8.826)	(8.936)	(2.761)	(2.407)	(3.532)	(1.875)	(3.732)	(4.094)	(1.712)
# observations	743	743	743	247	247	247	758	758	758	746	746	746
F	3.162^{a}	4.166^{a}	1.852^{a}	2.756^{a}	2.795^{a}	0.908	2.106^{a}	2.360^{a}	2.233^{a}	3.857^{a}	3.950^{a}	2.090^{a}
Pseudo R^2	12.80%	3.50%	7.40%	31.80%	5.30%	7.66%	6.30%	1.68%	7.74%	12.40%	2.51%	5.34%
Panel B:						High acquirer similarity						
Acquirer x eventp.	0.353	-1.353	-0.423	-2.499^{c}	3.463^{b}	0.402	1.930^{b}	-1.513	0.727^{d}	0.757	-1.223^{d}	0.053
	(0.801)	(1.043)	(0.466)	(1.424)	(1.592)	(0.914)	(0.904)	(1.234)	(0.474)	(0.718)	(0.773)	(0.357)
Event period	-0.371	0.826	-0.076	0.973	-0.936	0.483	0.042	-0.199	-0.244	-0.042	-0.003	-0.248
	(0.559)	(0.735)	(0.313)	(1.155)	(1.214)	(0.717)	(0.641)	(0.869)	(0.358)	(0.514)	(0.552)	(0.272)

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	pre-announcement						post-announcement			whole selling period		
	informal sales			auctions			informal sales			informal sales		
	net p.	sales	purcha.	net p.	sales	purcha.	net p.	sales	purcha.	net p.	sales	purcha.
Acquirer	-0.422	0.909	0.438	1.021	-1.078	0.061	-0.977	0.640	-0.189	-0.570	0.789	0.125
	(0.643)	(0.797)	(0.391)	(0.990)	(1.061)	(0.684)	(0.754)	(1.007)	(0.356)	(0.563)	(0.596)	(0.282)
Constant	-1.430	-4.481	-1.729	-10.469^{c}	7.449	-0.826	-0.581	-8.204^{c}	-5.116^{b}	-2.329	0.587	-1.261
	(2.963)	(3.537)	(1.558)	(6.262)	(6.326)	(2.480)	(2.661)	(4.373)	(2.037)	(3.339)	(3.564)	(1.555)
# observations	747	747	747	223	223	223	778	778	778	746	746	746
F	3.252^{a}	3.427^{a}	2.320^{a}	4.270^{a}	3.766^{a}	1.120	2.091^{a}	2.365^{a}	2.761^{a}	2.221^{a}	2.762^{a}	2.297^{a}
Pseudo R^2	17.80%	4.18%	3.80%	27.00%	6.49%	5.67%	7.20%	2.18%	7.69%	11.60%	3.27%	4.72%
	Low acquirer similarity											
Acquirer x eventp.	1.305	-1.882	-0.531	-0.610	0.408	-0.516	0.619	-1.006	0.682	1.223	-2.168^{b}	-0.440
	(1.051)	(1.321)	(0.443)	(1.902)	(2.012)	(0.450)	(0.928)	(1.298)	(0.676)	(0.937)	(1.038)	(0.340)
Event period	0.178	0.071	0.262	1.835^{d}	-1.282	0.663^{d}	-0.364	0.972	-0.561	0.064	0.299	0.272
	(0.757)	(0.966)	(0.303)	(1.264)	(1.286)	(0.402)	(0.541)	(0.853)	(0.447)	(0.628)	(0.719)	(0.214)
Acquirer	-0.455	1.327	0.263	-0.221	-0.141	0.195	-0.820	1.823^{c}	0.367	-0.894	2.044^{a}	0.520^{b}
	(0.810)	(1.023)	(0.304)	(1.599)	(1.658)	(0.260)	(0.699)	(0.991)	(0.462)	(0.691)	(0.780)	(0.248)
Constant	-5.505^{b}	-7.135^{c}	-8.348^{a}	-21.747^{a}	20.882^{a}	-3.744^{c}	-7.299^{a}	-4.370	-12.056^{a}	-5.456^{d}	-1.825	-8.576^{a}
	(2.338)	(3.741)	(1.891)	(6.845)	(7.098)	(1.924)	(2.220)	(3.312)	(2.502)	(3.391)	(4.025)	(1.700)
# observations	754	754	754	232	232	232	755	755	755	755	755	755
F	4.496^{a}	5.497^{a}	2.059^{a}	2.720^{a}	2.895^{a}	1.344	2.338^{a}	2.341^{a}	1.623^{b}	5.537^{a}	5.393^{a}	2.527^{a}
Pseudo R^2	14.00%	4.29%	9.14%	30.20%	5.36%	7.70%	6.40%	1.61%	6.77%	14.70%	3.22%	7.98%
Panel C:						High target similarity						
Acquirer x eventp.	0.296	-0.594	-0.146	-1.269	1.239	0.069	1.863^{b}	-1.829^{d}	1.030^{b}	0.950	-1.426^{c}	0.063
	(0.824)	(1.064)	(0.407)	(1.450)	(1.497)	(0.970)	(0.827)	(1.170)	(0.478)	(0.736)	(0.812)	(0.329)
Event period	-0.504	0.733	-0.119	0.308	0.024	0.361	0.145	0.022	-0.351	-0.048	0.206	-0.003
	(0.596)	(0.772)	(0.260)	(1.165)	(1.174)	(0.760)	(0.592)	(0.827)	(0.368)	(0.519)	(0.573)	(0.231)
Acquirer	-0.436	0.634	0.076	1.096	-0.830	0.349	-0.870	0.810	-0.147	-0.771	1.131^{c}	0.109
	(0.646)	(0.808)	(0.343)	(1.170)	(1.217)	(0.711)	(0.721)	(0.968)	(0.323)	(0.592)	(0.653)	(0.258)
Constant	-0.022	-9.565^{a}	-2.902^{a}	-19.455^{a}	19.595^{a}	-2.325	-1.989	-7.185^{c}	-8.179^{a}	-0.187	-3.623	-3.315^{a}
	(2.521)	(3.427)	(1.105)	(6.353)	(6.350)	(3.534)	(2.655)	(4.298)	(2.059)	(2.732)	(3.262)	(1.100)
# observations	705	705	705	195	195	195	728	728	728	701	701	701
F	3.185^{a}	3.517^{a}	2.184^{a}	3.538^{a}	4.704^{a}	0.684	2.655^{a}	2.159^{a}	2.498^{a}	2.997^{a}	3.540^{a}	2.363^{a}
Pseudo R^2	22.00%	5.05%	4.75%	43.90%	10.00%	5.27%	8.50%	2.33%	9.16%	18.30%	4.54%	5.26%
	Low target similarity											
Acquirer x eventp.	1.852^{d}	-2.759^{c}	-0.379	-1.219	1.995	0.144	1.299	-1.607	0.480	2.176^{b}	-3.055^{a}	-0.314
	(1.139)	(1.423)	(0.529)	(2.112)	(2.206)	(0.661)	(1.003)	(1.347)	(0.682)	(1.038)	(1.145)	(0.389)
Event period	0.067	0.514	0.420	1.159	-1.312	0.696	-0.704	1.234	-0.471	-0.176	0.522	0.295
	(0.784)	(0.981)	(0.390)	(1.310)	(1.301)	(0.524)	(0.625)	(0.907)	(0.425)	(0.676)	(0.753)	(0.282)

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	pre-announcement						post-announcement			whole selling period		
	informal sales			auctions			informal sales			informal sales		
	net p.	sales	purcha.	net p.	sales	purcha.	net p.	sales	purcha.	net p.	sales	purcha.
Acquirer	-1.135	1.850^{c}	0.293	-0.233	-0.764	-0.636	-1.108^{d}	1.960^{c}	0.087	-1.757^{b}	2.776^{a}	0.395^{d}
	(0.883)	(1.095)	(0.381)	(1.680)	(1.697)	(0.559)	(0.737)	(1.014)	(0.478)	(0.744)	(0.840)	(0.273)
Constant	-4.559^{d}	-5.533	-7.514^{a}	-17.859^{b}	20.658^{a}	-2.555	-7.015^{a}	-2.754	-11.152^{a}	-4.797	-0.645	-7.567^{a}
	(2.955)	(4.086)	(2.278)	(7.353)	(7.645)	(3.005)	(2.517)	(3.543)	(2.489)	(4.038)	(4.564)	(2.026)
# observations	628	628	628	200	200	200	654	654	654	632	632	632
F	3.371^{a}	4.388^{a}	2.146^{a}	1.546^{c}	1.781^{b}	0.999	2.922^{a}	2.699^{a}	1.704^{b}	4.380^{a}	4.141^{a}	2.420^{a}
Pseudo R^2	14.10%	4.32%	8.79%	21.90%	4.37%	7.87%	8.00%	2.02%	7.41%	14.80%	3.23%	8.25%
Panel D:						High target fluidity						
Acquirer x eventp.	0.776	-1.605	-0.577	-1.763	1.533	-1.080	2.725^{a}	-3.425^{a}	0.839^{c}	1.609^{c}	-2.490^{b}	-0.181
	(1.017)	(1.361)	(0.489)	(1.372)	(1.438)	(1.181)	(0.892)	(1.259)	(0.473)	(0.906)	(1.043)	(0.351)
Event period	-0.682	1.307	0.021	0.959	-0.476	1.678^{c}	-0.222	0.879	-0.218	-0.492	1.075^{d}	0.162
	(0.732)	(1.006)	(0.294)	(1.244)	(1.228)	(1.006)	(0.576)	(0.817)	(0.339)	(0.603)	(0.714)	(0.238)
Acquirer	-0.438	0.918	0.409	1.025	-0.652	1.183	-1.589^{b}	1.893^{c}	-0.128	-1.015^{d}	1.765^{b}	0.384
	(0.749)	(0.993)	(0.402)	(1.115)	(1.175)	(0.893)	(0.777)	(1.047)	(0.307)	(0.653)	(0.770)	(0.268)
Constant	-1.556	-9.544^{b}	-3.805^{a}	-13.484^{b}	8.429^{c}	-5.067	-3.924^{d}	-4.584	-6.755^{a}	-2.143	-2.694	-3.321^{a}
	(2.697)	(4.116)	(1.340)	(5.426)	(4.728)	(4.547)	(2.622)	(4.369)	(1.949)	(2.825)	(3.584)	(1.209)
# observations	694	694	694	194	194	194	711	711	711	692	692	692
F	3.323^{a}	3.669^{a}	2.074^{a}	4.280^{a}	58.55^{a}	1.458^{c}	2.844^{a}	2.235^{a}	2.516^{a}	3.451^{a}	3.312^{a}	2.510^{a}
Pseudo R^2	15.30%	3.82%	6.25%	41.50%	9.67%	7.23%	10.20%	2.31%	10.80%	12.80%	2.88%	7.39%
						Low target fluidity						
Acquirer x eventp.	1.254	-1.617^{d}	0.028	-0.731	1.432	0.421	0.372	0.174	0.741	1.567^{c}	-1.978^{b}	0.095
	(0.931)	(1.103)	(0.429)	(1.778)	(1.822)	(0.527)	(0.933)	(1.298)	(0.662)	(0.852)	(0.900)	(0.342)
Event period	0.178	-0.061	0.178	1.407	-1.511	-0.100	-0.082	-0.156	-0.734^{d}	0.217	-0.248	0.003
	(0.613)	(0.718)	(0.337)	(1.212)	(1.264)	(0.351)	(0.647)	(0.942)	(0.470)	(0.552)	(0.574)	(0.274)
Acquirer	-1.081	1.520^{c}	0.007	-0.166	-0.335	-0.527	-0.406	0.740	0.104	-1.546^{b}	2.087^{a}	0.024
	(0.753)	(0.894)	(0.311)	(1.457)	(1.480)	(0.426)	(0.718)	(0.965)	(0.491)	(0.675)	(0.714)	(0.258)
Constant	-2.853	-5.636^{c}	-6.189^{a}	-16.097^{c}	17.426^{b}	-2.243	-3.712^{d}	-6.558^{c}	-10.625^{a}	-1.813	-2.331	-7.432^{a}
	(2.307)	(3.203)	(1.948)	(8.512)	(8.300)	(2.123)	(2.430)	(3.765)	(2.361)	(3.717)	(4.013)	(1.810)
# observations	663	663	663	224	224	224	662	662	662	665	665	665
F	3.423^{a}	3.952^{a}	2.679^{a}	2.947^{a}	3.162^{a}	0.798	2.302^{a}	2.140^{a}	1.839^{b}	4.068^{a}	4.132^{a}	2.575^{a}
Pseudo R^2	17.20%	4.63%	6.84%	25.00%	5.17%	7.13%	5.60%	1.55%	7.56%	18.10%	4.00%	7.22%
Panel E:						High acquirer fluidity & low target similarity						
Acquirer x eventp.	2.450	-4.034^{c}	0.026	-4.767^{c}	6.608^{a}	6.342^{c}	3.557^{a}	-3.436^{b}	1.333	3.853^{b}	-4.852^{a}	-0.771
	(1.861)	(2.412)	(0.753)	(2.281)	(1.498)	(3.112)	(1.345)	(1.731)	(1.221)	(1.538)	(1.748)	(0.704)

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	pre-announcement						post-announcement			whole selling period		
	informal sales			auctions			informal sales			informal sales		
	net p.	sales	purcha.	net p.	sales	purcha.	net p.	sales	purcha.	net p.	sales	purcha.
Event period	-0.405	1.504	-0.020	1.247	-2.834^{b}	-3.249	-1.473^{c}	1.612	-0.009	-2.523^{c}	2.787^{c}	0.321
	(1.499)	(1.939)	(0.472)	(1.384)	(1.021)	(2.221)	(0.876)	(1.249)	(0.672)	(1.317)	(1.449)	(0.421)
Acquirer	-0.981	2.387	-0.743^{d}	0.939	-2.288^{b}	-5.801^{b}	-2.071^{b}	2.692^{b}	-0.452	-2.338^{b}	3.511^{a}	0.324
	(1.431)	(1.866)	(0.492)	(2.069)	(0.941)	(2.630)	(0.986)	(1.356)	(0.807)	(0.961)	(1.174)	(0.437)
Constant	-3.520	-3.091	-8.826^{a}	4.894	-15.130^{c}	37.609^{b}	-3.599	5.675	-12.734^{b}	-2.210	-1.708	-9.101^{a}
	(5.834)	(9.055)	(2.923)	(15.805)	(8.570)	(15.746)	(3.100)	(5.137)	(4.936)	(6.714)	(8.270)	(3.278)
# observations	206	206	206	33	33	33	213	213	213	206	206	206
F	2.261^{a}	2.188^{a}	2.180^{a}	14.61^{a}	7.488^{a}	2.711^{b}	2.329^{a}	1.782^{b}	1.195	2.632^{a}	2.229^{a}	1.728^{b}
Pseudo R^2	25.70%	8.22%	19.50%	72.50%	22.10%	18.60%	22.00%	4.95%	10.80%	31.50%	7.39%	15.90%
Panel F:					High pair-wise similarity							
Acquirer x eventp.	0.609	-1.093	-0.255	-0.356	0.290	-0.168	1.948^{b}	-1.971^{c}	0.638	1.400^{d}	-2.032^{b}	-0.119
	(0.940)	(1.217)	(0.376)	(1.739)	(1.879)	(0.760)	(0.806)	(1.136)	(0.512)	(0.852)	(0.940)	(0.305)
Event period	-0.209	0.271	-0.179	1.726^{d}	-1.689	0.862	-0.492	0.824	-0.330	-0.317	0.375	-0.109
	(0.698)	(0.885)	(0.250)	(1.119)	(1.227)	(0.622)	(0.575)	(0.802)	(0.386)	(0.596)	(0.655)	(0.222)
Acquirer	-0.012	-0.078	0.101	-0.219	0.325	0.262	-1.228^{c}	1.333^{d}	0.157	-0.918	1.269^{c}	0.242
	(0.769)	(0.964)	(0.316)	(1.512)	(1.614)	(0.553)	(0.671)	(0.923)	(0.384)	(0.655)	(0.715)	(0.250)
Constant	0.950	-12.233^{a}	-3.761^{a}	-12.094^{a}	8.819^{c}	-4.149^{c}	-1.803	-8.957^{b}	-8.078^{a}	-0.213	-5.324	-4.792^{a}
	(2.382)	(3.643)	(1.142)	(4.160)	(5.113)	(2.312)	(2.291)	(3.932)	(2.027)	(3.414)	(3.910)	(1.173)
# observations	861	861	861	266	266	266	871	871	871	834	834	834
F	4.924^{a}	5.247^{a}	2.807^{a}	4.201^{a}	3.917^{a}	1.081	2.493^{a}	2.515^{a}	2.335^{a}	4.518^{a}	4.607^{a}	2.606^{a}
Pseudo R^2	15.80%	4.06%	4.99%	29.40%	6.16%	5.15%	7.20%	1.85%	6.16%	14.10%	3.08%	5.03%
					Low pair-wise similarity							
Acquirer x eventp.	1.108	-2.348^{b}	-1.001^{c}	-2.432^{c}	3.138^{c}	-0.157	0.006	-0.093	0.615	0.677	-1.512^{d}	-0.352
	(0.959)	(1.195)	(0.543)	(1.455)	(1.617)	(0.599)	(0.963)	(1.336)	(0.514)	(0.862)	(0.938)	(0.393)
Event period	0.337	0.324	0.701^{c}	0.875	-0.569	0.302	0.884^{d}	-0.735	-0.027	0.848^{d}	-0.497	0.332
	(0.570)	(0.749)	(0.392)	(1.092)	(1.198)	(0.419)	(0.583)	(0.886)	(0.336)	(0.518)	(0.587)	(0.290)
Acquirer	-1.231^{d}	2.507^{a}	0.619^{c}	0.856	-1.351	-0.281	-0.189	0.704	-0.262	-0.939	1.860^{b}	0.268
	(0.757)	(0.947)	(0.370)	(1.015)	(1.167)	(0.439)	(0.738)	(1.024)	(0.358)	(0.656)	(0.744)	(0.257)
Constant	-8.207^{a}	-0.836	-4.931^{b}	-19.872^{b}	20.714^{b}	-2.880	-7.556^{a}	-1.944	-9.230^{a}	-5.856^{c}	0.727	-5.643^{a}
	(3.102)	(3.722)	(1.912)	(8.771)	(8.772)	(2.152)	(2.484)	(3.587)	(1.730)	(3.392)	(3.717)	(1.925)
# observations	727	727	727	220	220	220	735	735	735	755	755	755
F	2.660^{a}	3.354^{a}	2.162^{a}	1.385	1.697^{b}	0.747	2.703^{a}	2.790^{a}	2.719^{a}	3.067^{a}	3.174^{a}	1.934^{a}
Pseudo R^2	12.80%	4.03%	7.19%	29.30%	6.00%	8.04%	7.90%	1.98%	11.80%	12.00%	2.92%	6.44%