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Acquiring Acquirers*

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Abstract. Target acquisitiveness stands out as one of the primary drivers of all the key aspects of the market for corporate takeovers: acquisition announcement returns, probability of deal success, propensity to acquire and be acquired. Acquisitive targets, though a small proportion of the sample, are responsible for half of the overall negative acquisition announcement returns. Our large body of empirical evidence consistently supports the view that the motivation behind acquisitions of acquisitive targets is defensive: acquirers ‘eat in order not to be eaten’.

JEL classification: G34, G30

Keywords: Mergers and Acquisitions, Takeovers, Acquirer Announcement Returns

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1. Introduction

The determinants of the cross-section of announcement returns in public-to-public acquisitions are the subject of an ongoing debate in corporate finance. A particular point of contention is the fact that these announcement returns are, on average, significantly negative (e.g. Fuller, Netter, and Stegemoller, 2002; Hackbarth and Morellec, 2008; Harford, Jenter, and Li, 2011; and Betton, Eckbo, and Thorburn, 2008).

Motivated by a neo-agency theory of takeovers, we construct a simple variable called *target acquisitiveness* and find that it is strongly related to acquirer announcement returns. Announcement returns average -0.51% for non-acquisitive targets, -1.67% when the target has made one acquisition over the past three years and drop regularly and markedly to -6.22% when the target has made five or more acquisitions over the past three years (Figure 1).¹ Six out of the ten worst announcement returns during our sample period involve an acquisitive target, while none of the best ten returns involve an acquisitive target.²

Most importantly, our regression results indicate that target acquisitiveness is one of the most significant explanatory variables in determining announcement returns. In particular, recognizing size is an important determinant of announcement returns (Moeller, Schlingemann, and Stulz, 2004), we show that target acquisitiveness is related to announcement returns after controlling for acquirer size and relative size. In addition, we use a large set of control variables proposed in the literature,³ which include year-industry fixed effects. In each specification, irrespective of the control variables, target acquisitiveness is significantly negatively related to acquirer's announcement returns. Moreover, we find that target acquisitiveness is strongly negatively related to the probability of deal completion.

¹ To illustrate, a typical deal, shown in Figure 2, is *Firststar Corporation* announcing its bid to acquire *Mercantile Bancorporation* on April 30, 1999 for \$10 billion, *Mercantile Bancorporation* had completed twelve acquisitions over the previous three years. The stock price of *Firststar Corporation* dropped by 4.75% on that day, while the market rose by 0.23%.

² This result is not tabulated. Acquisitiveness is defined as the number of acquisitions the firm made during the preceding three years. A target is said to be "acquisitive" if it has made one or more acquisitions during the preceding three years.

³ Variable definitions are provided in Appendix Table A.1.

We argue that the ‘eat or be eaten’ theory of Gorton, Kahl, and Rosen (2009), which we label more generally as a neo-agency view of takeovers is consistent with our results. This theory may be seen as a combination of the neoclassical view (e.g., Mitchell and Mulherin, 1996) and the agency view (e.g., Morck, Shleifer, and Vishny, 1990). In a nutshell, the idea is that following a technological shock, some firms start making value-enhancing acquisitions. As a result, these acquisitive firms become larger and could then acquire more firms. A manager concerned with the prospect of becoming a takeover target and the loss of private benefits of control this implies, would then acquire the acquisitive company (i.e. eats in order not to be eaten). Such a ‘defensive’ acquisition should generate negative announcement returns and the acquisitive target is expected to resist more acquisition attempts. This view is, therefore, consistent with the set of findings mentioned above.

To further test this neo-agency view we carry out a series of empirical tests. We begin by studying the size evolution of the target. We find that the average size growth rate of acquisitive targets from one deal to the next is 27%, the average time period between two consecutive deals is six months and an acquisitive target size is 0.6 times that of its acquirer on average. If we extrapolate these figures, then it would have taken a mere twelve months or so for the acquisitive target to be larger than its acquirer. Next, we study whether a company is more under threat to be acquired when there are more companies that are slightly larger. The idea is that the acquisitive target might soon become ‘slightly larger’, but the question becomes: is this the type of firms that constitute a threat?

We find that as the fraction of ‘slightly larger firms’ increases, the probability of being acquired increases. For example, if the fraction of firms that are less than 1.25 times the size of the focal firm goes from 2.6% (the mean) to just 3%, then the probability of being acquired increases by 5%. In fact, we find that the fraction of (publicly-traded) firms that are slightly larger is the main driver of the likelihood of being acquired for any firm in any year. We believe this result is novel and interesting per se. Furthermore, we find that firms that made previous acquisitions are more likely to do new

acquisitions. If the firm has not made any acquisition over the preceding three years, then the probability of making a new acquisition over the following year is 19%. This probability increases to a whopping 68% when the firm has made 5 or more acquisitions over the preceding three years. Thus, firms that made previous acquisitions are more likely to make new acquisitions. Finally, we find that acquirers who fail to acquire an acquisitive firm are more likely to be acquired in the future, while it is not the case for those failing to acquire a non-acquisitive firm. Hence, acquiring an acquisitive firm seems effective at reducing the chances of being acquired.

Taken together, this set of novel empirical results is consistent with the notion that acquisitive targets were a likely threat to their acquirers and thus supports the neo-agency view. In addition, we derive and test hypotheses that are specific to the Gorton, Kahl, and Rosen (2009) model. Consistent with this theory we first find that target acquisitiveness is related to announcement returns only when private benefits of control are large as measured by either a corporate governance index or by the equity ownership of the management. Second, target acquisitiveness is significantly related to announcement returns only in industries where firms are of similar size. The effect is not significant in industries dominated by a few large firms. Third, target acquisitiveness is significantly related to announcement returns in deals where the target and the acquirer are from the same industry. The relationship is also significant if the two firms are not from the same industry but the acquisitive target had made cross industry deals before. The relationship is not significant, however, if it is a cross-industry deal and the target never made a cross industry deal before. Fourth, the effect is significant only when the target is large relative to the acquirer.

Our paper complements the wide literature on the drivers of acquirer's announcement returns (e.g., Harford, 1999; Officer, 2004; Rhodes-Kropf, Robinson, and Viswanathan, 2005; Faccio, McConnell, and Stolin, 2006; Dong, Hirshleifer, Richardson, and Teoh, 2006; Bouwman, Fuller, and Nain, 2009; Cai, Song, and Walkling, 2011; and Cai and Sevilir, 2012). We show that a simple variable,

the number of target's past acquisitions, is related to the acquirer's announcement returns. Our paper also complements the literature on the determinants of acquisition success (e.g., Comment and Schwert, 1995; Bates and Lemmon, 2003; Officer, 2003; Fich, Cai, and Tran, 2011; and Golubov, Petmezas, Travlos, 2012). We show that the number of target's past acquisitions is one of the main explanatory variables for the likelihood of deal completion. Further, we complement the literature studying serial acquirers (e.g., Fuller, Netter, and Stegemoller, 2002; Billett and Qian, 2008; and Aktas, de Bodt, and Roll, 2011). We note that targets can be serial acquirers too, and this attribute appears to be driving the low acquirer announcement returns. Interestingly, Mitchell and Lehn (1990) show that the likelihood of a serial acquirer being targeted is related to the announcement returns on its past deals. In contrast with our study, they do not analyze the relation between target acquisitiveness and either acquirer announcement returns or acquisition success.⁴

Note that our paper focuses on acquirer stock price reactions and has nothing to say about the magnitude of synergy gains in M&A transactions (e.g., Bhagat, Dong, Hirshleifer, and Noah, 2005; Barraclough, Robinson, Smith, and Whaley, 2013). The fact that there are defensive acquisitions does not mean that synergy gains are small overall. This important question is thus outside the scope of this paper. Note also that we do not claim to identify the reason why acquisitions of acquisitive firms are special, but we believe that we have narrowed down the set of potential explanations and as such provide a potential direction for future research.

The remainder of the paper is structured as follows: Section 2 describes the sample and provides descriptive statistics. Section 3 shows the main empirical results. Section 4 is dedicated to the neo-agency view and empirical tests. Section 5 discusses and tests some alternative explanations. In Section 6 we submit our main finding to a set of robustness tests, and Section 7 offers a brief conclusion.

⁴ Another related study is that of Offenberg, Straska, and Waller (2014) who examine the gains from takeovers of companies that previously engaged in a value-reducing acquisition program. Their central finding is that the takeover premium is higher when the value loss from the targets' prior acquisitions is larger.

2. Data and Descriptive Statistics

This section first describes sample and variables construction. It also provides an initial look at the relationship between the number of target's past acquisitions and acquirer announcement returns, and shows descriptive statistics on the differences between the characteristics of the deals where the target has made prior acquisitions and those where it has not.

2.1 The sample

The sample of acquisitions comes from the Securities Data Company's (SDC) U.S. Mergers and Acquisitions Database (as of December 2010).⁵ As in Moeller, Schlingemann, and Stulz (2004), we construct our sample by employing the following eight filters. We include acquisitions in which (1) the acquiring firm ends up with all the shares of the target, and the acquiring firm controls less than 50% of the shares of the target firm before the announcement; (2) the transaction is completed; (3) the deal value is greater than \$1 million; (4) the number of days between the announcement and completion dates is between zero and one thousand; (5) the target is a public or a private firm or a non-public subsidiary of a public or private firm; (6) both the acquirer and the target are based in the US; (7) the acquirer is a public firm listed on both the Center for Research in Security Prices (CRSP) and Compustat during the event window; (8) the deal value relative to the market value of the acquirer is no less than 1%. In addition, (9) we exclude acquisitions made before 1985 (as in Cai, Song, and Walking, 2011) in order to leave enough time to measure accurately the number of past acquisitions of the targets.⁶

Table 1 shows statistics for different samples. The first sample is labeled "Full sample of acquisitions". This is the sample obtained after applying filters (1) to (6). It contains 53,798

⁵ Our study focuses on U.S. domestic mergers and acquisitions only, for evidence of cross-board acquisitions see, for example, Erel, Liao, and Weisbach (2012).

⁶ Note also that the limited coverage of SDC in early years would affect our measure of past acquisition activities.

acquisitions. The sample obtained after applying all nine criteria is called “Full sample of acquisitions matched to CRSP and Compustat” which includes 19,262 observations. Consistent with the sample statistics in Netter, Stegemoller, and Wintoki (2011), this sample is much smaller as it requires the acquirer to be present in both CRSP and Compustat. Finally, we divide this sample into two sub-samples based on whether the target is publicly listed or not, which gives us 14,976 non-public deals and 4,286 public ones.

2.2. Main variables

2.2.1. Acquirer announcement returns

As in Moeller, Schlingemann, and Stulz (2004), acquirer abnormal announcement return is the three-day (-1, +1) cumulative abnormal return (CAR) centered on the announcement date, using the CRSP equal-weighted index return as the market return and with the market model parameters estimated over the 200-day period from event day -205 to event day -6.⁷

The third column of Table 1 shows the average acquirer announcement returns for different samples. Consistent with the literature (e.g., Fuller, Netter, and Stegemoller, 2002; Moeller, Schlingemann, and Stulz, 2004; and Masulis, Wang, and Xie, 2007) the average announcement return for acquirers on the “Full sample matched to CRSP and Compustat” is positive at 1.41%, but it is negative for the sub-sample of public targets (-0.98%).

< Table 1 >

2.2.2. Acquiring acquirers

In the last two columns of Table 1, we report the fraction of targets that made at least one acquisition over the past three or five years. We find that the phenomenon of targeting acquirers is restricted to the sample of publicly listed targets. We also observe little difference between the three-year and five-year

⁷ Results with other approaches used in the literature are shown in the robustness section.

horizons. In the sub-sample of publicly listed targets, 27% of the targets have made at least one acquisition over the previous three years.

In contrast, only 1% of non-public targets have made past acquisitions. This may be because non-publicly traded companies are less prone to make acquisitions, or because the SDC has a lower coverage for this type of company, or both. We thus focus on public targets in the main analysis but will show results on the full sample in the robustness section. We choose the three-year window as default since the same is used by Fuller, Netter, and Stegemoller (2002) to classify serial acquirers.⁸

2.2.3. Number of past acquisitions and announcement returns

Table 2 presents some simple descriptive statistics relating announcement returns to the number of target's past acquisitions. 73% of the targets have not made any acquisitions over the preceding three years and their acquirers have a relatively small negative average announcement return (-0.51%). Restricting the sample to deals where the target has not made any prior acquisitions, therefore, (almost) divides in half the overall average announcement returns (-0.98%). We also note that, as the number of target's past acquisitions increases, the average announcement returns decrease monotonically. When the target has made five or more acquisitions, acquirer announcement returns reach -6.22%. This is, however, a simple descriptive statistic and we investigate this phenomenon more thoroughly by means of regression analysis in the next section.

< Table 2 >

⁸ In the robustness section we show results with a five-year event window, and when using instead of "Target pre3YR num of deals": i) the total dollar value of target's past deals over the preceding three years, and ii) a dummy variable that is one if the target has made acquisitions over the preceding three years and zero otherwise.

2.3. Descriptive statistics: Acquisitions over time and across industries

Appendix Table A.2 Panel A shows the annual distribution of our sample and the fraction of takeovers of acquisitive firms. Consistent with Cai and Sevilir (2012), we see a peak in M&A activity in 1998 and a trough in 2002, bouncing back in 2003 and decreasing slightly until 2007, before falling more sharply throughout the 2008-2010 financial crisis.

The fraction of takeovers of acquisitive firms is stable at around 20% until 1994. It then increases steadily to reach a peak of 38% in 1999, and remains relatively high throughout the following years and peaks again in 2007, in the eve of the financial crisis. Table A.2 also shows the average acquirer announcement returns. In all but 5 of the 26 years, the average announcement return is lower for takeovers of acquisitive firms.

Panel B of Table A.2 shows the industry distribution of our sample based on the acquirer's industry as defined in Fama and French (1997). Industries which have fewer than 50 observations are grouped in the "Rest of the industries" category.⁹ The top three industries ranked by the fraction of acquisitive targets are communications (47%), healthcare (47%), and business services (38%). Four industries (banking, pharmaceutical products, trading, and transportation) have the proportion of acquisitive targets below 20%. In all but three industries, we see that the announcement returns for acquisitive targets are lower than that for the full sample.

2.4. Descriptive statistics: Acquisitive firms versus non-acquisitive firms

We present descriptive statistics in Appendix Table A.3 for (1) the overall sample, (2) acquisitive-target sample, and (3) non-acquisitive-target sample. The selected variables are the most standard ones used in the literature, and are defined in Appendix Table A.1.¹⁰

⁹ Like Harford (2005) and Dong, Hirshleifer, Richardson, and Teoh (2006), we use Fama-French 48-industry classification.

¹⁰ See Masulis, Wang, and Xie (2007) and Betton, Eckbo, and Thorburn (2008) for a thorough discussion of these variables.

Acquisitive firms are 2.5 times larger than non-acquisitive firms and their acquirers are twice as large as the acquirers of non-acquisitive firms. The relative size of target to acquirer is 50% larger for takeovers of acquisitive firms. These characteristics have been shown to be negatively related to acquirer announcement returns (see Asquith, Bruner, and Mullins, 1983; Eckbo, Giammarino, and Heinkel, 1990; Moeller, Schlingemann, and Stulz, 2004; Bayazitova, Kahl, and Valkanov, 2012).

Acquisition of acquisitive firms is less (more) often paid in cash (stock).¹¹ Travlos (1987) shows that deals financed by stock earn lower announcement returns. Cai, Song, and Walkling (2011) show that less anticipated bids earn significantly higher announcement returns. The anticipation-difference is, however, small in our sample (10% of acquisitive-firm takeovers are made after a dormant period of over one year as compared to 14% of non-acquisitive-firm takeovers).¹² Using the merger wave classification of Harford (2005), we see that acquisitive firms are more likely to be taken over during and post merger-waves.

Acquirers of acquisitive firms tend to be acquisitive themselves and have a higher Tobin's q and a lower leverage ratio. Maloney, McCormick, and Mitchell (1993) report a positive relationship between acquirer leverage and its announcement return. Lang, Stulz, and Walkling (1991) and Servaes (1991) find a positive relation between acquirer Tobin's q and the announcement return. Acquisitive targets tend to be older, have lower cash holdings and a higher liquidity index (Schlingemann, Stulz, and Walkling, 2002), and are more likely to include termination fee provisions (Bates and Lemmon, 2003; Officer, 2003) and incorporate in Delaware (Daines, 2001; Cai, Song, and Walkling, 2011).

¹¹ Harford, Klasa, and Walcott (2009) show that firm's cash versus stock decision in acquisition financing is determined by its target leverage. Almeida, Campello, and Hackbarth (2011) show that lines of credit dominate cash in financing liquidity-driven mergers.

¹² If we restrict the sample to deals with acquisitive targets and acquirers in the same four-digit SIC code, we have 818 observations and only 2.4% of acquisitive firm acquisitions follow a dormant period. If we either reduce the acquisition period to one year or increase the dormant period to three years, there are no acquisitive-firm acquisitions that follow a dormant period.

3. Main Empirical Results

This section establishes the main findings. The first sub-section discusses the drivers of acquirer announcement returns and the second sub-section looks at the determinants of acquisition success.

3.1. Announcement returns and the number of target's past acquisitions

As discussed above, takeovers of acquisitive firms differ from the average takeovers along many dimensions that have been shown to be related to announcement returns in the literature. Thus, we ought to run a multiple regression analysis that includes both our main variable and the control variables used in the literature as covariates.¹³

Table 3 shows the results for three specifications. Acquirer announcement return is the dependent variable in each specification. The first specification includes all the deal and acquirer characteristics which are available for all of the observations as explanatory variables. Our main variable (Target pre3YR num of deals) is highly significant and the signs of other control variables are generally in line with those in the literature.¹⁴ The second specification adds acquirer characteristics that require accounting data. Although we lose some observations, our main result is unchanged.

Since the fraction of acquisitive firms among the population of targets varies over time, we ought to control for year fixed effects. It ensures that our results are not skewed by time specific events such as the merger wave of the late 1990s, which was special in terms of both volume and announcement returns (Moeller, Schlingemann, and Stulz, 2005; Betton, Eckbo, and Thorburn, 2008).

¹³ We implicitly assumed that the market reflects and incorporates information efficiently into stock prices. If the market makes systematic mistakes in evaluating acquisition announcements and if this mistake is related to the number of target's past acquisitions, then our results may be spurious. To address this issue, we follow Moeller, Schlingemann, and Stulz (2004) and calculate the three-year calendar-time monthly abnormal returns following the completion of acquisition transactions. In non-tabulated results, we find that these long-term abnormal returns are not statistically different from zero for either the sub-sample of acquisitive-firm acquisitions or for the sub-sample of non-acquisitive-firm acquisitions (nor for the full sample), and there is no significant difference in abnormal returns between these two sub-samples.

¹⁴ Following Petersen (2009), we cluster standard errors by acquisition year. Results with other standard errors are shown in the robustness section.

We observe that the fraction of acquisitive targets varies across industries, and it has been argued that some industries systematically exhibit lower announcement returns. For instance, Masulis, Wang, and Xie (2007) point out that product market competition in each industry matters for announcement returns.¹⁵ More importantly, there may be time varying industry shocks that impact announcement returns. Thus, in the third specification we control for year cross industry fixed effects and use it as the default approach for all the regressions.¹⁶ Our main variable (Target pre3YR num of deals) is statistically significant at the 1% level test across all specifications.¹⁷ It is one of the most statistically and economically significant variable across all three specifications.¹⁸

In non-tabulated results, we run similar regressions as in Table 3 but replacing the dependent variables by either target announcement returns or combined announcement returns (i.e. the weighted average of target and acquirer returns). We find that our variable (Target pre3YR num of deals) is significantly and negatively related to both target and combined returns. This suggests that the acquiring-acquirer deals are not a simple redistribution of surplus between the two merging parties.

< Table 3 >

3.2. Acquisition success and the number of target's past acquisitions

We now investigate the determinants of acquisition success and test whether acquisitive targets resist takeovers or welcome them. For our sample of 5,527 announced public acquisitions, we have a deal completion rate of 78%. This is lower but close to the 83% success rate reported by Officer (2003) and the 82% shown in Fich, Cai, and Tran (2011). The sub-sample for which the target is an acquisitive firm

¹⁵ See also Officer (2003) who shows that the banking industry has had particularly low announcement returns.

¹⁶ In the robustness tests (Table 12 Panel A), we show results with quarter cross industry fixed effects and month cross industry fixed effects. Results are similar.

¹⁷ In order to control for trends in abnormal returns around the event, we follow Golubov, Petmezas, and Travlos (2012) and measure 'stock price run-up' over a 200-day window (-205, -6). In non-tabulated results, we also tried a "pre-event" window of 50, 100, and 150 days, and a post-event window of 50, 100, 150, and 200 days. Our main results are unaffected by the different measurement windows used.

¹⁸ Note that some deal and acquirer characteristics that are not statistically significant are not shown in the table; they are labeled "Other deal characteristics" and "Other acquirer characteristics" and are listed in the table's caption.

has a completion rate of 73%, while it is 80% for the sub-sample of non-acquisitive targets. These simple statistics suggest that target's past acquisition history may influence acquirer's probability of success.

In Table 4, we estimate a Logit model for the probability of deal success (as in, e.g., Officer, 2003; Moeller, Schlingemann, and Stulz, 2004; Fich, Cai, and Tran, 2011; and Golubev, Petmezas, and Travlos, 2012). The dependent variable is equal to one if the announced deal was successfully completed and zero otherwise. The three specifications we run here mirror those of the previous table. We show that the number of target's past acquisitions has a significantly negative effect on acquisition success. The marginal effects (not tabulated) also indicate that its economic magnitude is large. An attempt to acquire a non-acquisitive target has a 20% probability of failing, while the probability rises to 35% if the target has made three prior acquisitions. We interpret this as evidence that acquisitive firms are more reluctant to be acquired.¹⁹

< Table 4 >

3.3. Controlling for other target characteristics

In Tables 3 and 4, we control for various deal and acquirer characteristics and show that the number of target's past acquisitions is negatively related to announcement returns and acquisition success. We have not, however, included other target characteristics mainly to preserve the number of observations and rationing the number of explanatory variables in the main regression analysis. In Appendix Tables A.4 and A.5, we add a large number of target characteristics onto the regressions. Our main results are, however, not affected by adding these additional control variables.

¹⁹ The coefficients of the control variables are overall consistent with the literature (e.g., Officer, 2003; Moeller, Schlingemann, and Stulz, 2004; Fich, Cai, and Tran, 2011; and Golubev, Petmezas, and Travlos, 2012). Larger acquirers, tender offers and cash-financed deals are more likely to succeed. Deals that are hostile or competed are more likely to fail. Higher acquirer past stock returns and a larger number of acquirer prior acquisitions are both associated to higher success rates. Acquirer sigma is negatively associated to the likelihood of deal success. The acquirer is more likely to fail when targeting older firms, firms with no target termination fees, with a higher Tobin's q, and incorporated in Delaware.

4. The Neo-agency View

In this section, we first argue that the recent ‘eat or be eaten’ theory of Gorton, Kahl, and Rosen (2009), which we label as the neo-agency view, is consistent with our results. We then derive additional hypotheses from this theory and test them empirically.

4.1. The “eat or be eaten” theory

The two key assumptions of Gorton, Kahl, and Rosen (2009) are that firms can only acquire companies that are smaller than them, and that firm managers have ‘private benefits of control’. In a nutshell, the idea is that following a technological shock, some firms start making value-enhancing acquisitions. As a result, these acquisitive firms become larger and could then acquire more firms. A manager, concerned with the prospect of becoming a takeover target and hence the potential loss of her private benefits of control, would then acquire the acquisitive company (i.e. eats in order not to be eaten). Such a ‘defensive’ acquisition should generate negative announcement returns because it is motivated by the preservation of private benefits of control rather than being motivated by synergy considerations. In addition, an acquisitive target is more likely to resist takeover attempts for the same reason. This view is consistent with the set of findings described above; but this view is also consistent with the body of evidence supporting the neoclassical view of takeovers (e.g., on merger waves being initiated by technological shocks; see Harford, 2005). In a sense, this is a neo-agency view of takeovers in that it combines the neoclassical view (e.g., Mitchell and Mulherin, 1996) and the agency view (e.g., Morck, Shleifer, and Vishny, 1990).²⁰

²⁰ An article in *The Economist* titled “Battle of the internet giants: Survival of the biggest” (December 1, 2012) may illustrate the neo-agency view: “Three trends alarm those who think the digital giants are becoming too powerful for consumers’ good (...) The third concern is the internet behemoths’ habit of gobbling up promising firms before they become a threat. Amazon, which raised \$3 billion in a rare bond issue this week, has splashed out on firms such as Zappos, an online shoe retailer that had ambitions to rival it. Facebook and Google have made big acquisitions too, such as Instagram and AdMob (...)”.

4.2. Does the acquirer eat in order not to be eaten?

The average relative size between acquisitive targets and their acquirers is 0.605 (Appendix Table A.3). By definition, the acquisitive target would not be able to acquire its acquirer given it is smaller. Yet, as they make new acquisitions, acquisitive firms are growing. In this sub-section, we first get a sense of the time it would take for the acquisitive target to achieve a sufficient size to acquire its acquirer. We then study the likelihood of being acquired as a function of the size of other firms.

First, we investigate the size evolution of the acquisitive targets in the past three years to gain a better understanding of the build-up speed of these firms. We measure the size of the acquisitive target one month prior to each of the acquisition and measure its size growth from one acquisition to the next.

In untabulated results, we find that the average size growth rate per deal is 27% across all previous acquisitions. Since the acquisitive target is already two thirds of the size of the acquirer, the acquirer is just two acquisitions away. Further, the average time period between two consecutive acquisitions made by the acquisitive target is 6 months. It implies that if the acquirer leaves the acquisitive target unchecked, it could become its target in the next 12 months.

These results indicate that acquisitive targets are more threatening because they are growing fast, and would soon be larger than their current acquirer. To complete this picture, we study whether a company is under more threat to be acquired when there are more companies that are slightly larger. The idea is that the acquisitive target might soon become ‘slightly larger’, but is this the type of firms that constitute a threat?

Table 5 shows the results from Logit regressions that model the probability of a given firm being acquired in a given year.²¹ As explanatory variables, we add the ‘fraction of firms that are larger but less than 1.25 times larger’, the ‘fraction of firms that are between 1.25 and 1.5 times larger’ etc. We find that when the fraction of slightly ‘larger firms’ increases, the probability of being acquired significantly

²¹ The first major paper to study this is Palepu (1986) and we use his 9 explanatory variables in our regressions.

increases (specification 1). The more narrowly do we define ‘slightly’ larger, the stronger the effect.²² The fraction of much larger firms (those that are more than 4 times larger) is, in contrast, negatively related to the probability of being acquired; and the fraction of smaller firms is not significant. This shows that the threat comes from firms that are slightly larger, not those that are out of reach (or those that are smaller). The effect appears to be very large both economically and statistically. The fraction of firms that are slightly larger and the fraction of firms that are much larger appear to be the main driver of the likelihood of being acquired for any firm in any year. The result holds also when we include the time-industry fixed effects (specifications 5-8). We believe this result on the likelihood for any firm to be acquired on a given year is novel and interesting per se.

<Table 5>

Further, we examine whether firms that made previous acquisitions are more likely to do new acquisitions. In Table 6 Panel A, we show the fraction of acquirers that make a new acquisition in the next one/three years. We break down the statistics by the number of acquisitions the firm has made over the previous three years. We find a monotone and steep relationship. If the firm has not made any acquisition over the preceding three years, then the probability of making a new acquisition over the following year is 19%. This probability increases up to 68% when the firm has made 5 or more acquisitions over the preceding three years. Results are similar if we look at the next three years instead of the one year window.

<Table 6>

In Panel B, we run Logit regressions similar to those in Table 5 but change the dependent variable from the probability of being acquired to the probability of acquiring a firm. The first variable of interest here is the number of deals made in the past three years. The results are significantly positive

²² Note: We do not include all the buckets at the same time because of severe multicollinearity issue if we do so.

at the 1% level test. This shows that firms that performed previous acquisitions are indeed more likely to make new acquisitions and thus impose a credible threat to other firms.

It is also interesting and important to study whether the firms that fail to acquire an acquisitive target end up being acquired by the firm that they targeted. In the data we found only one such case. While this is surprising at first sight, we argue that this may be an equilibrium outcome. The idea is that if a firm failed to acquire an acquisitive company then it should not remain passive and wait for its fate but instead acquire another firm to get out of reach of the acquisitive company.²³

This idea is empirically testable by looking at whether firms that try but fail to acquire an acquisitive target have a higher propensity to acquire another firm soon after. We find strong empirical support. 70% of the 424 companies that tried but failed to acquire an acquisitive target made a new acquisition attempt over the next three years. The proportion increases monotonically with the number of target's prior acquisitions. A whopping 85% of the companies that tried but failed to acquire a firm that made *five or more* prior acquisitions, made another acquisition over the next three years (non-tabulated). Table 6 – Panel B shows these results in a multiple regressions setting. Specification 2 shows that firms that have failed more acquisitions in the past have a significantly higher likelihood of making a new acquisition. Specification 3 tests the above view more directly. We find that it is the number of failed acquisitions of acquisitive companies that is significant, while the number of failed non-acquisitive companies is not.²⁴ These results fit well with our story and are difficult to explain otherwise.

²³ Consider the following example: there are four firms labelled A, B, C and D. Their respective size is 100, 70, 50, 25. Assume that firm C acquires firm D and its size is now 75. Firm B cannot acquire anymore because it is now the smallest. If firm C acquires firm B then it can next acquire firm A. Firm A is under threat and can try to acquire firm C to avoid being eaten. Let's suppose it tries but fails to do so. As you point out, we may expect to see firm C acquiring firm A at some point in the future (once it has become sufficiently large). However, firm A may not stay passive. Its optimal response is to acquire firm B. In this case, there will be two firms in the economy: Firm A with a size of 170 and firm C with a size of 75. Hence, instead of waiting for its fate, firm A is more likely to acquire another company and to be out of reach from firm C.

²⁴ Note: we need to restrict the sample to firms that attempted an acquisition (whether they failed or not) for specification 3.

Directly related to this issue, we also look at the survival rate of these companies that acquire an acquisitive target. Table 7 Panel A shows that companies which try but *fail* to acquire an acquisitive firm have one-in-five chances of being acquired over the next three years. In contrast, for companies which try and *succeed* in acquiring an acquisitive firm the chances of being acquired is only one-in-ten. Importantly, for companies which try to acquire a non-acquisitive firm, the chance of being acquired is similar, irrespective of whether they fail or succeed at their bids.

<Table 7>

In Panel B, we show results from a Logit regression in which the dependent variable is one if the acquirer is acquired over the next three years and zero otherwise. We use the same sample as in Table 4 and the same three specifications. The above results hold in this context as well. When an acquirer tries but fails to acquire an acquisitive firm, its likelihood of being acquired is significantly higher. The coefficients are statistically different at the 1% level test. Firms that try but fail to acquire an acquisitive target are more likely to be acquired than those firms that try but fail to acquire a non-acquisitive target. Hence, acquiring an acquisitive firm seems effective at reducing the chances of being acquired.

To sum up, we find that acquisitive targets would have soon been slightly larger than their acquirers and the fraction of slightly larger firms in the economy is the primary determinant of the likelihood of being acquired. Further, acquisitive firms have a higher propensity to acquire. This means that among those slightly larger firms, the acquisitive ones are those most likely to make an acquisition. In addition, acquirers who fail to acquire an acquisitive firm are more likely to be acquired in the future, while it is not the case for those failing to acquire a non-acquisitive firm; acquirers who fail to acquire an acquisitive firm are more likely to make another acquisition attempt in the near future. Taken together, this constitutes a new body of empirical evidence indicating that acquisitive targets were a likely threat to their acquirers.

4.3. Further empirical tests: Sub-sample evidence

The neo-agency view offers a few empirical predictions in sub-samples of acquisitions. The most obvious one is that the effect should be more pronounced when acquiring managers have more private benefits. To test this, we use two common corporate governance measures: the corporate governance index of Gompers, Ishii, and Metrick (2003) and the equity ownership of directors and officers (D&Os) as in Cai and Sevilir (2012). We split the sample into ‘dictatorship’ (GIM index of the acquirer is 10 or more) and ‘democracy’ acquirers (GIM index of the acquirer is 9 or less), and run our main specification for each sub-sample. Similarly, we split our sample into two groups based on the equity ownership of acquirer’s directors and officers (D&Os) being above or below the median. Results are shown in Table 8. The effect is significant only for ‘dictatorship’ acquirers and acquirers with below median equity ownership.

An insight of Gorton, Kahl, and Rosen (2009) is that the likelihood of a defensive acquisition depends on the distribution of firm size in an industry. Basically, highly concentrated industries, i.e. those dominated by a few large firms, should not be prone to defensive acquisition.²⁵ The most natural and common proxy for industry concentration is probably the Herfindahl index. We split the sample into two equal groups based on the Herfindahl index. Consistent with the theory, we find that the effect is significant only for the low-concentration industries.

²⁵ We can illustrate this in a simple setting by comparing two industries of five firms each. Industry A has firm sizes distributed as follows: 10 (firm A1), 20 (firm A2), 30 (firm A3), 40 (firm A4) and 50 (firm A5); while industry B firm sizes are respectively: 10 (firm B1), 15 (firm B2), 20 (firm B3), 25 (firm B4), and 80 (firm B5). The total size is the same for each industry but industry B is dominated by a large company. If firm A3 eats A2 then A5 *needs* to eat A3 for defensive reasons. Otherwise, A3 eats either A1 or A4 next and can then move on to A5. A5 thus needs to eat the acquisitive firm immediately, before itself gets eaten (A5 could also eat A4 to protect itself, but if there are more firms than in this simple example, it is more efficient and cost effective for A5 to eat the acquisitive-firm directly because the acquisitive-firm will keep on buying, forcing A5 to keep on buying too). Once A3 is eaten, the acquisitive-firm is dead and A5 has no need to make further defensive acquisitions. If the same happens in industry B, i.e., if B3 eats B2, then even if B3 eats B4 (or B1 or both), B5 is still not seriously threatened and will, therefore, not be pressurized to acquire the acquisitive firm.

Another prediction coming from the theory is that the effect should be stronger when the acquirer and target are from the same industry, and we find it to be the case. Finally, defensive acquisitions should be more likely when the size of the target is close to that of the acquirer. We find this is also the case.

< Table 8 >

5. Alternative Explanations

While our evidence above supports the neo-agency view of takeovers, there are other potential explanations which we discuss and test in this section.

5.1. Differences in bargaining power

Results could be driven by differences in bargaining power between the acquirer and the target. To test this hypothesis, we use five different proxies. First, Rhodes-Kropf and Robinson (2008) argue that: “the market-to-book ratios of the bidder and target are determined by the relative bargaining power of each party during the merger negotiation.” Our proxy for relative bargaining power is then set to target’s market-to-book ratio divided by acquirer’s market-to-book ratio.

Second, Stulz (1988) and Stulz, Walkling, and Song (1990) argue that an acquirer with a larger *toehold* have a stronger bargaining position. Third, if an acquisition is *competed*, the target chooses its acquirer and thus has more bargaining power. Fourth, the existence of target termination fees may be interpreted as a sign that the target has higher bargaining power.²⁶ Fifth, acquisitive targets may have learnt from past acquisitions. Having been on the other side of the table several times may have taught

²⁶ For example, Ahern (2012) writes: “Target firms often commit to a negotiation strategy through the use of termination fees by imposing costs on themselves if they reject a bidder’s offer. These commitments theoretically lead to more aggressive bidding by acquirers (Hotchkiss, Qian, and Song, 2005; Povel and Singh, 2006) and hence greater bargaining power for targets. Empirical evidence supports this hypothesis (Officer, 2003; Bates and Lemmon, 2003; Boone and Mulherin, 2006).”

them the ropes of the M&A business. Thus, a high premium earned by an acquisitive target could proxy for its bargaining power/skills. Results are reported in Table 9. It shows that our central result holds after controlling for any of these variables.

<Table 9>

5.2. Quality of corporate governance

Masulis, Wang, and Xie (2007) find that acquirers' announcement returns differ significantly given the differences in the quality of corporate governance: 'Democracy' acquirers experience positive announcement returns, while 'Dictatorship' acquirers experience negative announcement returns.

To account for the quality of acquirer's corporate governance, we use three different measures: i) the corporate governance index of Gompers, Ishii, and Metrick (2003); ii) the entrenchment index of Bebchuk, Cohen, and Ferrell (2009); and iii) managerial equity ownership (Stulz, 1988; Morck, Shleifer, and Vishny, 1988).²⁷ Results are shown in Table 10. We find that accounting for the quality of corporate governance does not alter our main results.

<Table 10>

5.3. Competition for market share

Since the target has been growing in market shares thanks to its past acquisitions, the acquirer may acquire the acquisitive target, not because it is afraid of being acquired later on but because it is 'concerned' about this acquisitive company's building up of its market share. In addition, when this 'market share concern' becomes the rationale for the acquisition, the stock market may react negatively. The reason could be that such a 'concern' is not necessarily consistent with value-maximization. This model generates empirical predictions that are consistent with most of our results. We then run a horse race between 'target pre3YR num of deals' and the target market share growth over the preceding three

²⁷ As in Cai and Sevilir (2012), among others, we measure managerial equity ownership by the fraction of equity held by directors and officers.

years. We can also use the difference in market share growth between the target and the acquirer, as this measures the relative growth rate between the two.

For each target and acquirer, we calculate its average annual industry-adjusted sales growth over the preceding three years. Results are reported in Table 11. We find that the difference in sales growth is indeed statistically significant. If the target has been growing its sales faster than the acquirer, then the market reacts more negatively to the acquisition. Our main results are, however, unaffected by these market share controls.

<Table 11>

5.4. Hubris and learning hypotheses

Roll's (1986) hubris hypothesis argues that overconfident managers overpay when making acquisitions. Malmendier and Tate (2008) find that overconfident managers make more acquisitions which earn lower announcement returns. Acquisitive firms may be run by CEOs who resist more to takeovers (as shown earlier) and, thus, only overconfident CEOs attempt to acquire acquisitive firms. In a similar context, Moeller, Schlingemann, and Stulz (2004) examine this hypothesis by looking at the determinants of takeover premiums, thereby testing whether a certain type of acquirer (larger ones in their paper) overpay. We test whether takeover premiums increase with the number of target's past acquisitions.

We also test a "learning" hypothesis by looking at the takeover premium. Acquisitive firms may have learnt from past acquisitions and become more experienced at deal bargaining. This could explain why, when the target is an acquisitive firm, takeovers are more likely to fail (it knows how to resist) and announcement returns are lower (it obtains a better price).

We run the same specifications as in Table 3 but with takeover premium as the dependent variable. Results are shown in Appendix Table A.6. We find no significant relation between a target's past acquisition activity and takeover premium.

6. Robustness

To carry out the robustness tests, we choose the third specification of Table 3: the one including most covariates.²⁸ Table 12 presents the results for each robustness test. In order to fit them all in one table, we show only the coefficient of our main variable (labeled as “Acquisitive effect”), which is the coefficient on “Target’s pre3YR num of deals” unless specified otherwise. The first specification is the one from Table 3 (Specification 3), and it is taken as the ‘default results’.

< Table 12 >

6.1. Robustness to changing control variables

6.1.1. *Is the effect distinct from firm size and scope?*

Since firms that made prior acquisitions are larger, it is natural to wonder whether our main variable acts simply as a proxy for firm size. In the same vein, firms that made past acquisitions tend to have had a higher past growth in assets and more market segments (i.e., be more like a conglomerate). We ought to verify that it is not one of these dimensions that our variable is picking up.

One concern is that we may pick up a non-linear effect in firm size. For example, our variable could capture “mega-deals” as proposed by Bayazitova, Kahl, and Valkanov (2012).²⁹ We show that our variable is not affected when controlling for “mega-deal.”

A firm that made prior acquisitions could be more like a conglomerate, i.e., to have more business segments. Since prior research has identified a conglomerate discount (e.g., Lang and Stulz, 1994), acquiring a conglomerate may lead to a decrease in the value of the acquirer (all else equal). Following the conglomerate literature, we use the “Segment Identifier” in Compustat to control for

²⁸ As noted above, the coefficient of our main variable is very stable across specifications. Hence, this choice has no material impact on the outcome of the robustness tests.

²⁹ “Mega-deal” is a dummy variable that is one if the merger is in the top 1% of absolute deal size, and zero otherwise. We have also used target size instead of deal value and found similar results.

target's number of business segments. We show that adding such a control variable does not alter our results.

A firm that made prior acquisitions is likely to go through a period of higher asset growth. Since asset growth is related to a number of patterns in corporate finance (e.g., Cooper, Gulen, and Schill, 2008), we add it as a control variable. We find that it does not affect our results.³⁰

6.1.2. Merger waves and announcement returns

The importance of merger waves has been emphasized extensively (e.g., Mitchell and Mulherin, 1996; Shleifer and Vishny, 2003; Andrade and Stafford, 2004; Rhodes-Kropf and Viswanathan, 2004; Harford, 2005; Rhodes-Kropf, Robinson, and Viswanathan, 2005; Duchin and Schmidt, 2012; and Ahern and Harford, 2014). Although we control for year-industry fixed effects, our findings could still be driven by a wave effect. When a wave occurs, a sub-set of the firms makes more acquisitions and then gets acquired, and this may be at times when announcement returns for *that* sub-set of firms are low for some reasons.

Cai, Song, and Walkling (2011) add to a standard set of control variables three wave variables based on Harford (2005) classification: i) Pre-wave is a dummy variable that equals one if the bid occurs in the 12 months before the start of a Harford wave (zero otherwise), ii) In-wave is a dummy variable that equals one if the bid occurs within 24 months of the start of a Harford wave (zero otherwise), and iii) Post-wave is a dummy variable that equals one for bids that occur within 36 months after the end of a Harford wave (zero otherwise). We expand our analysis by adding these three explanatory variables to the default regression.

Bouwman, Fuller, and Nain (2009) propose another approach to identify waves (see, e.g., Goel and Thakor, 2010, for an implementation). This approach provides an indicator that shows whether a

³⁰ The full regression results for this sub-section are reported in Appendix Table A.4.

month is classified as pre-, in-, or post-wave. We conduct a more stringent test which encompasses this Bouwman-Fuller-Nain wave variable and consists of adding month (instead of year) fixed effects.

The statistical significance of our main variable is not affected when we make any of these changes.

6.2. Robustness to methodological choices

We had to make several empirical choices in our analysis. Although we strive to follow the most ubiquitous choices, it is apparent that different studies use different conventions. In this sub-section, we show results when we change each element of our approach to the most frequently encountered alternative in the literature.

In the main analysis, we count past acquisitions over a three-year window following Fuller, Netter, and Stegemoller (2002). Results for a five-year window are similar, albeit with a higher t-statistic. We also find strong results when using a longer announcement window of plus or minus 2 days (as in Fuller, Netter, and Stegemoller, 2002; Lin, Officer, and Zou, 2011; and Golubov, Petmezas, and Travlos, 2012). Results are also similar if we use the CRSP value-weighted index (as opposed to the equally-weighted one) as the market return; and if we calculate the announcement return by using the market-adjusted model (i.e., assuming $\alpha=0$ and $\beta=1$ as market model parameters, as in Fuller, Netter, and Stegemoller, 2002). Results are also similar if we winsorize returns at the 5th and 95th percentile to reduce the influence of outliers.

We also consider alternative proxies for target acquisitiveness. Instead of “Target’s pre3YR num of deals”, we now use “Target’s pre3YR *value* of deals” and a dummy variable called “Acquisitive target” that equals one if the target is acquisitive and zero otherwise. These alternative proxies are also statistically significant at the 1% level test.

Petersen (2009) argues for the use of double clustering on year and firm when dealing with a typical finance panel dataset. In contrast to most finance datasets, the same firm does not appear every year in our sample and therefore we opted for clustering by year only in our main analysis. Here, we show results with double clustering on year and firm. We observe that the t -statistics (for our variable) are similar independent of the clustering or standard error method.

6.3. Robustness to sample choices

In this sub-section, we show results for several alternative samples to further assess the robustness of our findings. First, we count all of the target's past acquisition attempts (both successful and failed) instead of just the completed ones. Again, the results are similar to those of our main analysis. Second, we note that the literature diverges in terms of the definition of an acquisition. We have followed the definition of Moeller, Schlingemann, and Stulz (2004) who require that all target shares are purchased. Fuller, Netter, and Stegemoller (2002), among others, examine acquisitions in which acquirers obtain more than 50% of the target firm (i.e., a majority stake). This change to sample selection is significant, since it mechanically increases the number of prior acquisitions made by the target and slightly increases the sample size, with the number of observations rising to 4,269, up from 4,111. Despite this, our main result is virtually unaffected.

We also show results separately: (1) for the sub-set for which the method of payment is stock and (2) for the sub-set for which the method of payment is either cash or cash and stock mixed. In these two sub-sets of similar size the acquisitive-firm effect is significant at the 1% level. In terms of economic magnitude, the effect is about twice as large for the 'stock' sub-set.

Next, we divide our sample into three time periods: the pre big-wave period (1985-1997), the big-wave period (1998-2000), and the post big-wave period (2001-2010). This choice is motivated by the observations of Moeller, Schlingemann, and Stulz (2005) and Betton, Eckbo, and Thorburn (2008),

which show that the 1998-2000 period is special due to its exceptionally low announcement returns and high acquisition volumes. Despite this, we find that results are stable across these sub-periods.

Several studies exclude acquisitions made by banking and utility firms (e.g., Fuller, Netter, and Stegemoller, 2002; Cai, Song, and Walkling, 2007). Reasons usually include the different regulatory environment and the different amount of leverage found in these industries. We find that excluding these acquisitions marginally strengthens our result. We also show that results are similar if we exclude conglomerate deals and ‘rest of the industries’ deals (Appendix Table A.2) from the analysis.

Finally, we expand our sample by including targets that are not publicly listed. This sample, as shown in Table 1, contains 19,262 acquisitions. We expand our analysis by adding two explanatory variables to the default regression: i) a dummy variable that equals one if the target is a private firm and zero otherwise; and ii) a dummy variable that equals one if the target is a subsidiary firm and zero otherwise. Our main variable is significantly negative at the 1% level test.

In Table 12 Panel B, we repeat the same robustness tests with the results relating to the probability of acquisition success except for tests related to the computation of abnormal returns as they are not relevant here. We find that the acquisitive-firm effect is robust to any of the changes made.

7. Conclusion

In this paper we show that a key driver of acquirer announcement returns and acquisition success is the number of past acquisitions made by the target. The announcement returns decrease monotonically with the number of target’s past acquisitions, reaching -6.22% when the target has made five or more acquisitions over the preceding three years. Further, the more acquisitions made by the target, the more likely the acquirer is to fail its acquisition attempt. These findings persist when standard control variables are included in the regression analysis and remain robust to changes in methodological and sample selection choices.

The recent “eat or be eaten” theory seems to be consistent with these results. A manager, concerned with the potential loss of private benefits of control, wants to acquire the acquisitive firm before that firm becomes larger and her company ends up being next on the list. Thus, the company ‘eats in order not to be eaten.’ Acquiring an acquirer is, therefore, more likely to be motivated by the preservation of private benefits of control rather than increase in firm value. This would explain why these acquisitions have lower announcement returns and why an attempt to take over an acquisitive firm is more likely to fail.

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Figure 1: Acquirer announcement returns and the number of acquisitions made by the target

This figure shows the average announcement returns for shareholders of acquiring firms as a function of the number of acquisitions made by the target over the previous three years. Announcement returns are measured as the cumulative abnormal returns from one day before to one day after the announcement date, as in Moeller, Schlingemann, and Stulz (2004). The sample comprises 4,286 observations of US public firms (Acquirer) that acquired a US public firm (Target) between 1985 and 2010.

Figure 2: Time series development for the Firststar-Mercantile deal

This figure illustrates the time series development of the Firststar-Mercantile deal. In the first stage, *Mercantile Bancorporation* (the acquisitive target) successfully acquires twelve targets within a three-year event window and the sum of the announcement returns for those deals was -8.39%. In the second stage, the acquisitive target itself is targeted and acquired by *Firststar Corporation*. The announcement return for each deal is reported in parentheses, which is measured as the cumulative abnormal return from one day before to one day after the announcement date, as in Moeller, Schlingemann, and Stulz (2004).

Table 1: Sample selection and announcement returns

This table shows descriptive statistics for four samples. The “full sample of acquisitions” is obtained from the Securities Data Company’s (SDC) U.S. Mergers and Acquisitions database (as of December 2010) after applying the following six criteria: (1) acquisitions in which the acquiring firm ends up with all the shares of the target, and the acquiring firm controls less than 50% of the shares of the target firm before the announcement; (2) the transaction is completed; (3) the deal value is greater than \$1 million; (4) the number of days between the announcement and completion dates is between zero and one thousand; (5) the target is a public or a private firm or a non-public subsidiary of a public or private firm; (6) both the acquirer and the target are based in the US. The next sample is obtained by adding the following three criteria: (7) the acquirer is a public firm listed on both the Center for Research in Security Prices (CRSP) and Compustat during the event window; (8) the deal value relative to the market value of the acquirer is no less than 1%; and (9) the acquisition is made in 1985 or later. This sample gets split in two sub-samples based on whether the target is publicly listed or not. For each sample, the following statistics are displayed: the number of acquisitions, average announcement returns (when available for all observations), the fraction of acquirers that got acquired over the following three or five years, and the fraction of targets that made at least one acquisition over the preceding three or five years.

	Number of acquisitions	Average announcement returns	Fraction of targets that made an acquisition over the past	
			three years	five years
Full sample of acquisitions	53,798	n.a.	4%	4%
Full sample of acquisitions matched to CRSP and Compustat	19,262	1.41% ^a	7%	9%
. Sub-sample of non-public targets	14,976	2.10% ^a	1%	1%
. Sub-sample of public targets	4,286	-0.98% ^a	27%	35%

^a significant at 1%.

Table 2: Target acquisitiveness and announcement returns

This table shows the average announcement returns for the acquirer as a function of the number of prior acquisitions made by the target. The sample comprises 4,286 observations of US public firms (Acquirer) that acquired a US public firm (Target) between 1985 and 2010. Announcement returns are measured as the cumulative abnormal returns from one day before to one day after the announcement date, as in Moeller, Schlingemann, and Stulz (2004).

Number of acquisitions made by the target over the last three years	Number of observations	Fraction of the sample	Average announcement returns
No acquisition	3,122	73%	-0.51% ^a
One acquisition	676	16%	-1.67% ^a
Two acquisitions	236	6%	-1.69% ^a
Three acquisitions	124	3%	-3.39% ^a
Four acquisitions	53	1%	-3.72% ^a
Five or more acquisitions	75	2%	-6.22% ^a

^a significant at 1%.

Table 3: Determinants of acquirer announcement returns

This table shows results from OLS regressions with acquirer announcement return as the dependent variable. The sample comprises 4,286 observations of US public firms (Acquirer) that acquired a US public firm (Target) between 1985 and 2010. All variables used in the table are defined in Appendix Table A.1. Only variables that are at least once significant at a 5% level test are shown in the table. “Other deal characteristics” includes: toehold (1/0), conglomerate (1/0), tender offer (1/0), hostile (1/0), competed (1/0), and acquirer pre3YR num of deals (log). “Other acquirer characteristics” includes: acquirer Tobin’s q and acquirer cash-to-asset ratio. Standard errors are adjusted for heteroskedasticity and clustered by acquisition year; the corresponding *t-statistics* are reported in parentheses.

	Spec 1	Spec 2	Spec 3
Target pre3YR num of deals (log)	-0.0134 ^a (-4.84)	-0.0131 ^a (-5.06)	-0.0133 ^a (-3.95)
Acquirer size (log)	-0.0037 ^a (-2.86)	-0.0020 (-1.59)	0.0003 (0.20)
Relative size	0.0044 ^b (2.57)	0.0043 ^b (2.44)	0.0033 (1.40)
All cash deal (1/0)	0.0187 ^a (4.83)	0.0202 ^a (5.37)	0.0207 ^a (3.60)
All stock deal (1/0)	-0.0092 ^b (-2.30)	-0.0081 ^b (-2.15)	-0.0073 (-1.61)
Dormant period >1 year (1/0)	0.0101 ^b (2.22)	0.0116 ^b (2.14)	0.0048 (0.54)
Acquirer price run-up	-0.0137 ^a (-3.65)	-0.0114 ^a (-3.04)	-0.0147 ^a (-2.96)
Acquirer sigma	0.0343 (1.53)	0.0592 ^b (2.22)	0.1007 ^b (2.68)
Acquirer leverage		0.0155 ^b (2.43)	0.0445 ^a (3.33)
Acquirer past asset growth		-0.0135 ^a (-3.34)	-0.0197 ^a (-3.50)
Constant	0.0051 (0.47)	-0.0173 (-1.22)	-0.0249 (-1.12)
Other deal characteristics	Yes	Yes	Yes
Other acquirer characteristics	No	Yes	Yes
Year * Industry fixed effects	No	No	Yes
Number of Observations	4,286	4,111	4,111
Adjusted R-squared	0.062	0.067	0.096

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Table 4: Determinants of the probability of deal success

This table shows results from Logistic regressions. The dependent variable is a dummy variable that equals one if the bid is classified by SDC as successful, and zero otherwise. The sample contains all offers made by public firms (Acquirer) to acquire other public firms (Target) in the US between 1985 and 2010. All variables used in the table are defined in Appendix Table A.1. Only variables that are at least once significant at a 5% level test are shown in the table. “Other deal characteristics” includes: all stock deal (1/0) and toehold (1/0). “Other acquirer characteristics” includes: acquirer Tobin’s q and acquirer cash-to-asset ratio. Standard errors are adjusted for heteroskedasticity and clustered by acquisition year; the corresponding *z-statistics* are reported in parentheses.

	Spec 1	Spec 2	Spec 3
Target pre3YR num of deals (log)	-0.6864 ^a (-8.43)	-0.6773 ^a (-7.82)	-0.8363 ^a (-7.76)
Acquirer size (log)	0.1351 ^a (5.31)	0.1536 ^a (6.17)	0.1804 ^a (4.94)
Relative size	-0.0538 ^c (-1.92)	-0.0670 ^b (-2.03)	-0.0629 (-1.33)
All cash deal (1/0)	-1.2566 ^a (-6.81)	-1.2936 ^a (-6.34)	-1.6425 ^a (-7.03)
Dormant period >1 year (1/0)	-0.2529 ^a (-2.87)	-0.2392 ^b (-2.51)	0.0227 (0.14)
Conglomerate (1/0)	0.1788 ^c (1.74)	0.2378 ^b (2.33)	0.4287 ^a (2.66)
Tender offer (1/0)	1.2422 ^a (6.94)	1.2720 ^a (6.68)	1.6355 ^a (7.32)
Hostile (1/0)	-2.5266 ^a (-12.10)	-2.5133 ^a (-11.72)	-2.8094 ^a (-9.45)
Competed (1/0)	-0.7158 ^a (-4.89)	-0.7470 ^a (-5.64)	-0.5622 ^a (-3.65)
Acquirer pre3YR num of deals (log)	0.2301 ^a (4.09)	0.2244 ^a (3.82)	0.1136 (1.50)
Acquirer price run-up	0.1090 (1.61)	0.1169 ^c (1.74)	0.2126 ^b (2.53)
Acquirer sigma	-1.1524 ^a (-3.52)	-1.1958 ^a (-3.52)	-1.4310 ^a (-3.98)
Acquirer leverage		0.3854 ^b (2.23)	-0.0318 (-0.09)
Acquirer past asset growth		1.1899 ^b (2.33)	3.1611 ^c (1.74)
Constant	1.2441 ^a (4.41)	0.8974 ^a (2.96)	0.3439 (0.78)
Other deal characteristics	Yes	Yes	Yes
Other acquirer characteristics	No	Yes	Yes
Year * Industry fixed effects	No	No	Yes
Observations	5,527	5,297	4,440
Pseudo R-squared	0.149	0.155	0.263

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Table 5: The probability of being acquired

This table shows results from Logistic regressions that model the probability of a given firm being acquired in a given year. The sample contains all US public firms in the Compustat database between 1984 and 2009. The dependent variable is a dummy variable that equals one if the firm is acquired in the next twelve months from the end of a given fiscal year, and zero otherwise. For each firm in each fiscal year, we measure the fraction of firms that are (1) larger but less than 1.25 times larger, (2) between 1.25 and 1.5 times larger, (3) between 1.5 and 2 times larger, (4) between 2 and 4 times larger, (5) more than 4 times larger, or (6) smaller but more than 0.1 times larger. Following Palepu (1986), we use the following control variables in all regressions: *Return on equity*, *Growth*, *Liquidity*, *Leverage*, *Growth resource (1/0)*, *Industry (1/0)*, *Size*, *Market-to-book ratio*, and *Price-earnings ratio*. All variables used in the table are defined in Appendix Table A.1. Only variables that are at least once significant at a 5% level test are shown in the table. “Other control variables” includes: return on equity, growth, liquidity, leverage, market-to-book ratio, and price-earnings ratio. Standard errors are adjusted for heteroskedasticity and clustered by acquisition year; the corresponding *z-statistics* are reported in parentheses.

	Spec 1	Spec 2	Spec 3	Spec 4	Spec 5	Spec 6	Spec 7	Spec 8
Fraction of firms that are larger; but less than 1.25 times larger	0.2573 ^a (5.18)				0.2216 ^a (5.23)			
Fraction of firms that are between 1.25 and 1.5 times larger		0.2591 ^a (4.12)				0.2186 ^a (3.85)		
Fraction of firms that are between 1.5 and 2 times larger			0.2074 ^a (4.66)				0.1794 ^a (4.54)	
Fraction of firms that are between 2 and 4 times larger				0.0937 ^a (5.24)				0.0812 ^a (5.44)
Fraction of firms that are more than 4 times larger	-0.0185 ^a (-5.97)	-0.0175 ^a (-5.38)	-0.0213 ^a (-5.67)	-0.0244 ^a (-6.16)	-0.0180 ^a (-6.21)	-0.0170 ^a (-5.63)	-0.0205 ^a (-5.87)	-0.0231 ^a (-6.31)
Fraction of firms that are smaller; but more than 0.1 times larger	0.0104 (1.22)	0.0166 ^c (1.91)	0.0130 (1.42)	0.0162 ^b (2.06)	0.0101 (1.32)	0.0158 ^b (2.02)	0.0124 (1.52)	0.0152 ^b (2.21)
Growth resource (1/0)	-0.0358 (-0.67)	-0.0362 (-0.67)	-0.0357 (-0.66)	-0.0376 (-0.70)	-0.0837 ^b (-2.13)	-0.0837 ^b (-2.13)	-0.0837 ^b (-2.13)	-0.0846 ^b (-2.15)
Industry (1/0)	0.6131 ^a (8.83)	0.6132 ^a (8.79)	0.6129 ^a (8.85)	0.6128 ^a (8.84)	0.3024 ^a (5.10)	0.3020 ^a (5.09)	0.3025 ^a (5.11)	0.3026 ^a (5.10)
Firm size	-0.0136 ^b (-2.11)	-0.0127 ^b (-2.09)	-0.0134 ^b (-2.12)	-0.0131 ^b (-2.13)	-0.0142 ^b (-2.45)	-0.0133 ^b (-2.45)	-0.0140 ^b (-2.48)	-0.0137 ^b (-2.49)
Constant	-5.0940 ^a (-19.48)	-5.1594 ^a (-19.42)	-5.0896 ^a (-18.67)	-5.1075 ^a (-19.33)	-4.1165 ^a (-22.38)	-4.1871 ^a (-22.91)	-4.1211 ^a (-21.21)	-4.1306 ^a (-22.40)
Other control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year * Industry fixed effects	No	No	No	No	Yes	Yes	Yes	Yes
Number of Observations	153,950	153,950	153,950	153,950	122,120	122,120	122,120	122,120
Pseudo R-squared	0.031	0.031	0.031	0.032	0.065	0.065	0.066	0.066

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Table 6: Are acquisitive firms more likely to do new acquisitions?

Panel A shows the fraction of companies making an acquisition in the next 1 (3) year following an acquisition. The sample comprises 4,286 observations of US public firms (Acquirer) that acquired a US public firm (Target) between 1985 and 2010. Deals are sorted based on the number of acquisitions made in the preceding three years. Panel B shows results from Logistic regressions that model the probability of a given firm acquiring a firm in a given year. The dependent variable is a dummy variable that equals one if a firm acquires a company in next twelve months from the end of a given fiscal year, and zero otherwise. *No. of deals made in pre3YR (log)* is the natural logarithm of (one plus) the number of acquisitions made by the acquirer over the past three years. The counting is performed on the sample of public targets. *No. of failed acquisitive deals made in pre3YR (log)* is the natural logarithm of (one plus) the number of failed acquisitions of acquisitive companies over the past three years. Control variables are defined in Appendix Table A.1. Only variables that are at least once significant at a 5% level test are shown in the table. “Other control variables” includes: return on equity, growth, liquidity, leverage, growth resource (1/0), and market-to-book ratio. Standard errors are adjusted for heteroskedasticity and clustered by acquisition year; the corresponding *z-statistics* are reported in parentheses.

Panel A: Simple statistics

Number of acquisitions made by the acquirer in the past three years preceding the deal	Number of firms	Fraction of firms making another deal in the next	
		One year	Three years
No acquisition	1,669	19%	38%
One acquisition	1,023	29%	52%
Two acquisitions	562	40%	64%
Three acquisitions	345	52%	74%
Four acquisitions	244	57%	79%
Five or more acquisitions	443	68%	83%

Panel B: Logit regression: Probability of acquiring a firm

	Spec 1	Spec 2	Spec 3	Spec 4	Spec 5	Spec 6
No. of deals made in pre3YR (log)	2.0555 ^a (35.11)	1.9321 ^a (31.26)		2.0435 ^a (34.79)	1.9290 ^a (30.33)	
No. of failed deals made in pre3YR (log)		1.3432 ^a (13.54)			1.3757 ^a (13.03)	
No. of failed acquisitive deals made in pre3YR (log)			0.3585 ^b (2.17)			0.3342 ^b (2.13)
No. of failed non-acquisitive deals made in pre3YR (log)			-0.1037 (-0.66)			-0.0983 (-0.48)
Leverage	0.0006 (0.58)	0.0006 (0.56)	0.0021 ^b (2.11)	0.0007 (0.55)	0.0007 (0.54)	0.0040 ^b (2.15)
Industry (1/0)	0.7594 ^a (9.15)	0.7555 ^a (9.08)	0.9011 ^a (4.59)	0.5830 ^a (7.41)	0.5759 ^a (7.37)	0.5351 ^c (1.92)
Firm size	0.0087 ^a (6.25)	0.0086 ^a (6.18)	0.0087 ^a (4.11)	0.0109 ^a (7.46)	0.0108 ^a (7.59)	0.0098 ^a (4.51)
Price-earnings ratio	0.0003 ^a (5.17)	0.0003 ^a (4.80)	-0.0004 ^b (-2.42)	0.0004 ^b (2.52)	0.0003 ^b (2.38)	-0.0005 ^a (-3.20)
Constant	-4.8086 ^a (-47.47)	-4.8258 ^a (-47.50)	-3.3208 ^a (-17.77)	-3.9843 ^a (-51.29)	-4.0081 ^a (-50.75)	-1.4250 ^a (-5.73)
Other control variables	Yes	Yes	Yes	Yes	Yes	Yes
Year * Industry fixed effects	No	No	No	Yes	Yes	Yes
Number of Observations	153,950	153,950	8,133	126,922	126,922	5,023
Pseudo R-squared	0.047	0.051	0.019	0.080	0.084	0.084

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Table 7: Acquirer survival

Panel A of this table shows the number and fraction of companies that get acquired in the next 3 years and 5 years after they attempted an acquisition. An acquisitive firm is a company that made at least one acquisition over the past three years. Panel B shows results from Logistic regressions. The dependent variable is a dummy variable that equals one if the acquirer is acquired over the three years following the announcement of an acquisition, and zero otherwise. The sample contains all offers made by public firms (Acquirer) to acquire other public firms (Target) in the US between 1985 and 2010. All variables used in the table are defined in Appendix Table A.1. Only variables that are at least once significant at a 5% level test are shown in the table. “Other deal characteristics” includes: relative size, all cash deal (1/0), toehold (1/0), dormant period >1 year (1/0), tender offer (1/0), hostile (1/0), competed (1/0), acquirer pre3YR num of deals (log), and acquirer price run-up. “Other acquirer characteristics” includes: acquirer Tobin’s q, acquirer leverage, acquirer cash-to-asset ratio, and acquirer past asset growth. Standard errors are adjusted for heteroskedasticity and clustered by acquisition year; the corresponding *z-statistics* are reported in parentheses.

Panel A: Simple statistics

Fraction of companies that get acquired in the next	3 years		5 years	
	N_obs	Fraction	N_obs	Fraction
After it successfully acquired an acquisitive target	109	10%	167	16%
After it tried but failed to acquire an acquisitive target	87	21%	108	26%
After it successfully acquired a non-acquisitive target	348	12%	527	19%
After it tried but failed to acquire a non-acquisitive target	101	14%	149	21%

Panel B: Logistic regression analysis, dependent variable is “Acquirer getting acquired (1/0)”

	Spec 1	Spec 2	Spec 3
Tried but failed to acquire an acquisitive target (1/0)	0.7194 ^a (5.03)	0.7685 ^a (5.62)	1.0335 ^a (5.24)
Tried but failed to acquire a non-acquisitive target (1/0)	0.1778 (1.48)	0.1835 (1.53)	0.5150 ^a (3.58)
Successfully acquired an acquisitive target (1/0)	-0.0314 (-0.28)	-0.0123 (-0.11)	-0.0801 (-0.56)
Acquirer size (log)	-0.1504 ^a (-6.12)	-0.1404 ^a (-4.85)	-0.0926 ^a (-2.82)
All stock deal (1/0)	-0.0226 (-0.21)	-0.0457 (-0.48)	-0.4030 ^a (-3.18)
Conglomerate (1/0)	-0.3700 ^a (-3.19)	-0.3485 ^a (-2.86)	-0.1289 (-0.79)
Acquirer sigma	-1.1117 ^a (-3.93)	-0.8575 ^a (-2.60)	-0.7689 (-1.57)
Constant	-0.7914 ^a (-3.23)	-1.1738 ^a (-3.02)	-1.7044 ^a (-3.24)
Other deal characteristics	Yes	Yes	Yes
Other acquirer characteristics	No	Yes	Yes
Year * Industry fixed effects	No	No	Yes
Observations	5,527	5,297	3,302
Pseudo R-squared	0.024	0.027	0.096

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Table 8: Sub-sample analyses

This table shows results from OLS regressions with acquirer announcement return as the dependent variable. The full sample comprises 4,286 observations of US public firms (Acquirer) that acquired a US public firm (Target) between 1985 and 2010. We split the sample into 5 sets of subsamples: (1) *dictatorship* (the GIM index of the acquirer is 10 or more); (2) *democracy* (the GIM index of the acquirer is 9 or less); (3) *low ownership* (the equity ownership of the acquirer D&Os is below the sample median); (4) *high ownership* (the equity ownership of the acquirer D&Os is above the sample median); (5) *low concentration* (the industry Herfindahl index is below the sample median); (6) *high concentration* (the industry Herfindahl index is above the sample median); (7) *same industry deal* (if the current deal is not a conglomerate); (8) *conglomerate deal * target conglomerate before* (if the current deal is a conglomerate and the target has made a conglomerate deal before); (9) *conglomerate deal * target non-conglomerate before* (if the deal is a conglomerate and the target has never made a conglomerate deal before); (10) *large relative size* (the deal value compared to acquirer size is above the sample median); (11) *small relative size* (the deal value compared to acquirer size is below the sample median). The specification used is always the same as specification 3 in Table 3. Subsamples (5) and (6) are restricted to non-conglomerate deals. The ‘acquisitive effect’ refers to the coefficient of “*Target pre3YR num of deals (log)*”. All variables used in the table are defined in Appendix Table A.1. Standard errors are adjusted for heteroskedasticity and clustered by acquisition year; the corresponding *t-statistics* are reported in parentheses.

	Acquisitive effect	<i>t</i> -statistics	Control variables	Adjusted R-square	Number of observations
<i>Level of corporate governance</i>					
. Dictatorship	-0.0111 ^b	(-2.52)	Yes	0.116	773
. Democracy	-0.0030	(-0.50)	Yes	0.051	775
<i>Equity ownership of the director & officers (D&Os)</i>					
. Low ownership	-0.0218 ^a	(-3.11)	Yes	0.147	470
. High ownership	-0.0109	(-1.05)	Yes	0.104	473
<i>Level of industry concentration</i>					
. Low concentration	-0.0169 ^a	(-3.58)	Yes	0.213	1,710
. High concentration	-0.0104	(-1.21)	Yes	0.030	1,125
<i>Deal is a conglomerate or not</i>					
. Same industry deal	-0.0129 ^a	(-3.25)	Yes	0.166	2,802
. Conglomerate deal * target conglomerate before	-0.0339 ^b	(-2.42)	Yes	0.154	198
. Conglomerate deal * target non-conglomerate before	-0.0124	(-0.75)	Yes	-0.037	1,111
<i>Deal value compared to acquirer size</i>					
. Large relative size	-0.0128 ^b	(-2.02)	Yes	0.215	2,025
. Small relative size	-0.0005	(-0.10)	Yes	0.097	2,086

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Table 9: Differences in bargaining power

This table shows results from OLS regressions with acquirer announcement return as the dependent variable (Panel A) and from Logistic regressions with the dependent variable that equals one if the bid is classified by SDC as successful, and zero otherwise (Panel B). The sample in Panel A comprises 4,286 observations of US public firms (Acquirer) that acquired a US public firm (Target) between 1985 and 2010. The sample in Panel B contains all offers made by public firms (Acquirer) to acquire other public firms (Target) in the US between 1985 and 2010. All variables used in the table are defined in Appendix Table A.1. Only variables that are at least once significant at a 5% level test are shown in the table. In Panel A, “Other deal characteristics” includes: acquirer size (log), relative size, all stock deal (1/0), dormant period >1 year (1/0), conglomerate (1/0), tender offer (1/0), hostile (1/0), and acquirer pre3YR num of deals (log); “Other acquirer characteristics” includes: acquirer Tobin’s q and acquirer cash-to-asset ratio. In Panel B, “Other deal characteristics” includes: all stock deal (1/0), dormant period >1 year (1/0), and acquirer pre3YR num of deals (log); “Other acquirer characteristics” includes: acquirer leverage and acquirer cash-to-asset ratio. Standard errors are adjusted for heteroskedasticity and clustered by acquisition year; the corresponding *t*-statistics and *z*-statistics are reported in parentheses in Panel A and Panel B, respectively.

Panel A: Announcement returns

	Spec 1	Spec 2	Spec 3	Spec 4	Spec 5
Target pre3YR num of deals (log)	-0.0114 ^a (-2.95)	-0.0133 ^a (-3.90)	-0.0133 ^a (-3.93)	-0.0130 ^a (-3.82)	-0.0113 ^a (-3.16)
Target M/B to acquirer M/B ratio	0.0013 (0.18)				
Toehold (1/0)		-0.0108 (-1.23)			
Competed (1/0)			-0.0101 ^c (-1.82)		
Target termination fees (1/0)				-0.0078 ^c (-2.01)	
Takeover premium					-0.0100 ^b (-2.37)
All cash deal (1/0)	0.0262 ^a (4.81)	0.0205 ^a (3.58)	0.0207 ^a (3.59)	0.0199 ^a (3.50)	0.0212 ^a (3.89)
Acquirer price run-up	-0.0132 ^b (-2.20)	-0.0148 ^a (-2.98)	-0.0147 ^a (-2.96)	-0.0149 ^a (-2.98)	-0.0082 ^c (-1.91)
Acquirer sigma	0.0369 (1.20)	0.0995 ^b (2.65)	0.1003 ^b (2.67)	0.0974 ^b (2.61)	0.0185 (0.76)
Acquirer leverage	0.0357 ^b (2.07)	0.0438 ^a (3.25)	0.0443 ^a (3.30)	0.0437 ^a (3.25)	0.0168 (1.18)
Acquirer past asset growth	-0.0141 ^b (-2.66)	-0.0195 ^a (-3.55)	-0.0196 ^a (-3.51)	-0.0198 ^a (-3.65)	-0.0203 (-0.37)
Constant	-0.0029 (-0.10)	-0.0238 (-1.08)	-0.0352 (-1.57)	-0.0346 (-1.55)	0.0404 ^b (2.65)
Other deal characteristics	Yes	Yes	Yes	Yes	Yes
Other acquirer characteristics	Yes	Yes	Yes	Yes	Yes
Year * Industry fixed effects	Yes	Yes	Yes	Yes	Yes
Number of Observations	3,055	4,111	4,111	4,111	3,155
Adjusted R-squared	0.106	0.095	0.095	0.096	0.114

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Panel B: Probability of deal success

	Spec 1	Spec 2	Spec 3	Spec 4	Spec 5
Target pre3YR num of deals (log)	-0.8396 ^a (-7.94)	-0.8284 ^a (-7.50)	-0.8355 ^a (-7.75)	-0.8846 ^a (-8.57)	-0.6644 ^a (-4.85)
Target M/B to acquirer M/B ratio	0.0824 (1.20)				
Toehold (1/0)		-0.1445 (-0.40)			
Competed (1/0)			-0.5625 ^a (-3.65)		
Target termination fees (1/0)				2.4947 ^a (13.84)	
Takeover premium					0.7247 ^a (4.45)
Acquirer size (log)	0.1840 ^a (4.26)	0.1795 ^a (4.94)	0.1803 ^a (4.95)	0.1304 ^a (3.82)	0.2392 ^a (4.17)
Relative size	-0.1421 ^a (-3.03)	-0.0656 (-1.32)	-0.0626 (-1.30)	-0.0749 (-1.32)	-0.1955 ^c (-1.74)
All cash deal (1/0)	-1.9797 ^a (-7.30)	-1.6314 ^a (-6.99)	-1.6439 ^a (-7.01)	-1.3129 ^a (-5.85)	-1.2050 ^a (-5.27)
Conglomerate (1/0)	0.5205 ^a (2.85)	0.4342 ^a (2.74)	0.4274 ^a (2.67)	0.3673 ^b (2.23)	0.1642 (0.82)
Tender offer (1/0)	1.8918 ^a (7.55)	1.5937 ^a (7.16)	1.6348 ^a (7.31)	1.2144 ^a (5.75)	1.3920 ^a (5.96)
Hostile (1/0)	-2.7272 ^a (-7.20)	-2.7800 ^a (-9.12)	-2.8271 ^a (-8.93)	-2.4063 ^a (-8.94)	-2.8902 ^a (-7.92)
Acquirer price run-up	0.2070 ^b (2.18)	0.2035 ^b (2.44)	0.2119 ^b (2.54)	0.2490 ^a (2.91)	0.0340 (0.34)
Acquirer sigma	-1.7060 ^b (-2.48)	-1.4710 ^a (-4.04)	-1.4340 ^a (-3.97)	-1.0023 ^a (-2.76)	-1.1710 ^c (-1.81)
Acquirer Tobin's q	-0.0359 ^c (-1.72)	-0.0254 ^c (-1.94)	-0.0254 ^c (-1.85)	-0.0449 ^b (-2.49)	-0.0366 (-1.36)
Acquirer past asset growth	2.6466 (1.59)	3.2190 ^c (1.81)	3.1646 ^c (1.75)	2.0224 (0.85)	1.8328 ^b (1.98)
Constant	0.6634 (1.05)	0.3705 (0.83)	0.3489 (0.79)	-2.0265 ^a (-5.02)	-0.9940 (-1.40)
Other deal characteristics	Yes	Yes	Yes	Yes	Yes
Other acquirer characteristics	Yes	Yes	Yes	Yes	Yes
Year * Industry fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	3,242	4,440	4,440	4,440	2,979
Pseudo R-squared	0.288	0.260	0.263	0.341	0.257

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Table 10: Quality of corporate governance

This table shows results from OLS regressions with acquirer announcement return as the dependent variable (Panel A) and from Logistic regressions with the dependent variable that equals one if the bid is classified by SDC as successful, and zero otherwise (Panel B). The sample in Panel A comprises 4,286 observations of US public firms (Acquirer) that acquired a US public firm (Target) between 1985 and 2010. The sample in Panel B contains all offers made by public firms (Acquirer) to acquire other public firms (Target) in the US between 1985 and 2010. All variables used in the table are defined in Appendix Table A.1. Only variables that are at least once significant at a 5% level test are shown in the table. In Panel A, “Other deal characteristics” includes: acquirer size (log), all stock deal (1/0), toehold (1/0), dormant period >1 year (1/0), tender offer (1/0), hostile (1/0), competed (1/0), acquirer pre3YR num of deals (log), and acquirer price run-up; “Other acquirer characteristics” includes: acquirer Tobin’s q, acquirer leverage, acquirer cash-to-asset ratio, and acquirer past asset growth. In Panel B, “Other deal characteristics” includes: all stock deal (1/0), toehold (1/0), dormant period >1 year (1/0), competed (1/0), acquirer pre3YR num of deals (log), acquirer price run-up, and acquirer sigma; “Other acquirer characteristics” includes: acquirer cash-to-asset ratio and acquirer past asset growth. Standard errors are adjusted for heteroskedasticity and clustered by acquisition year; the corresponding *t*-statistics and *z*-statistics are reported in parentheses in Panel A and Panel B, respectively.

Panel A: Announcement returns

	Spec 1	Spec 2	Spec 3
Target pre3YR num of deals (log)	-0.0074 ^b (-2.21)	-0.0093 ^b (-2.54)	-0.0149 ^b (-2.25)
Acquirer governance index	-0.0005 (-0.73)		
Acquirer entrenchment index		-0.0002 (-0.13)	
Acquirer managerial equity ownership			0.0002 (0.66)
Relative size	-0.0075 (-1.42)	-0.0134 ^b (-2.32)	-0.0065 (-1.21)
All cash deal (1/0)	0.0231 ^a (5.37)	0.0256 ^a (6.54)	0.0216 ^b (2.47)
Conglomerate (1/0)	-0.0062 ^c (-1.96)	-0.0070 ^b (-2.28)	-0.0027 (-0.55)
Acquirer sigma	-0.0522 ^b (-2.14)	0.0224 (0.41)	-0.0533 (-0.98)
Constant	0.0265 (1.43)	-0.0000 (-0.00)	0.0313 (1.21)
Other deal characteristics	Yes	Yes	Yes
Other acquirer characteristics	Yes	Yes	Yes
Year * Industry fixed effects	Yes	Yes	Yes
Number of Observations	1,548	1,752	943
Adjusted R-squared	0.091	0.090	0.101

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Panel B: Probability of deal success

	Spec 1	Spec 2	Spec 3
Target pre3YR num of deals (log)	-1.0084 ^a (-6.37)	-1.0558 ^a (-7.25)	-0.7626 ^a (-2.78)
Acquirer governance index	0.0571 (1.12)		
Acquirer entrenchment index		0.1977 ^b (2.11)	
Acquirer managerial equity ownership			-0.0448 ^a (-2.91)
Acquirer size (log)	0.3270 ^a (3.17)	0.2676 ^a (2.82)	0.2136 (1.24)
Relative size	-0.7854 ^b (-2.27)	-0.7599 ^a (-3.62)	-0.2708 (-0.95)
All cash deal (1/0)	-2.9282 ^a (-4.72)	-2.6591 ^a (-5.40)	-2.8325 ^a (-4.36)
Conglomerate (1/0)	0.6378 ^b (2.20)	0.6686 ^b (2.02)	0.4190 (1.07)
Tender offer (1/0)	2.4665 ^a (3.93)	2.3467 ^a (4.92)	2.4969 ^b (2.55)
Hostile (1/0)	-4.0956 ^a (-4.82)	-3.3105 ^a (-4.97)	0.0000 (.)
Acquirer Tobin's q	-0.0296 (-0.37)	-0.0367 (-0.74)	-0.1568 ^a (-3.87)
Acquirer leverage	0.0392 (0.05)	0.0339 (0.05)	-3.5345 ^a (-4.32)
Constant	-0.3457 (-0.21)	-0.1254 (-0.09)	5.6006 ^a (3.45)
Other deal characteristics	Yes	Yes	Yes
Other acquirer characteristics	Yes	Yes	Yes
Year * Industry fixed effects	Yes	Yes	Yes
Observations	1,197	1,390	590
Pseudo R-squared	0.393	0.364	0.331

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Table 11: Competition for market share

This table shows results from OLS regressions with acquirer announcement return as the dependent variable (Panel A) and from Logistic regressions with the dependent variable that equals one if the bid is classified by SDC as successful, and zero otherwise as (Panel B). The sample in Panel A comprises 4,286 observations of US public firms (Acquirer) that acquired a US public firm (Target) between 1985 and 2010. The sample in Panel B contains all offers made by public firms (Acquirer) to acquire other public firms (Target) in the US between 1985 and 2010. All variables used in the table are defined in Appendix Table A.1. Only variables that are at least once significant at a 5% level test are shown in the table. In Panel A, “Other deal characteristics” includes: acquirer size (log), relative size, all stock deal (1/0), toehold (1/0), dormant period >1 year (1/0), conglomerate (1/0), tender offer (1/0), hostile (1/0), competed (1/0), and acquirer pre3YR num of deals (log); “Other acquirer characteristics” includes: acquirer Tobin’s q. In Panel B, “Other deal characteristics” includes: toehold (1/0), dormant period >1 year (1/0), and acquirer pre3YR num of deals (log); “Other acquirer characteristics” includes: acquirer Tobin’s q, acquirer leverage, and acquirer cash-to-asset ratio. Standard errors are adjusted for heteroskedasticity and clustered by acquisition year; the corresponding *t*-statistics and *z*-statistics are reported in parentheses in Panel A and Panel B, respectively.

Panel A: Announcement returns

	Spec 1	Spec 2	Spec 3
Target pre3YR num of deals (log)	-0.0129 ^a (-3.93)	-0.0132 ^a (-3.62)	-0.0130 ^a (-3.65)
Acquirer's industry-adjusted sales growth	0.0090 (0.15)		
Target's industry-adjusted sales growth		-0.0043 ^a (-3.52)	
Difference (target-acquirer) of industry-adjusted sales growth			-0.0042 ^a (-3.02)
All cash deal (1/0)	0.0208 ^a (3.61)	0.0266 ^a (4.81)	0.0266 ^a (4.78)
Acquirer price run-up	-0.0150 ^a (-2.97)	-0.0100 ^c (-1.98)	-0.0103 ^c (-2.00)
Acquirer sigma	0.1038 ^b (2.75)	0.0362 (1.16)	0.0395 (1.24)
Acquirer leverage	0.0460 ^a (3.30)	0.0420 ^b (2.71)	0.0447 ^a (2.81)
Acquirer cash-to-asset ratio	0.0580 ^c (1.94)	0.0718 ^c (1.93)	0.0740 ^b (2.07)
Acquirer past asset growth	-0.0277 (-0.50)	-0.0102 ^c (-1.84)	-0.0139 ^b (-2.64)
Constant	-0.0258 (-1.15)	-0.0051 (-0.17)	-0.0094 (-0.30)
Other deal characteristics	Yes	Yes	Yes
Other acquirer characteristics	Yes	Yes	Yes
Year * Industry fixed effects	Yes	Yes	Yes
Number of Observations	4,084	3,067	3,046
Adjusted R-squared	0.099	0.100	0.105

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Panel B: Probability of deal success

	Spec 1	Spec 2	Spec 3
Target pre3YR num of deals (log)	-0.8470 ^a (-8.01)	-0.8376 ^a (-7.50)	-0.8446 ^a (-7.59)
Acquirer's industry-adjusted sales growth	-1.4158 ^b (-2.26)		
Target's industry-adjusted sales growth		0.5698 (0.23)	
Difference (target-acquirer) of industry-adjusted sales growth			1.2367 ^b (2.52)
Acquirer size (log)	0.1719 ^a (4.59)	0.1907 ^a (4.61)	0.1831 ^a (4.16)
Relative size	-0.0539 (-1.13)	-0.1402 ^a (-3.23)	-0.1341 ^a (-3.24)
All cash deal (1/0)	-1.6472 ^a (-7.09)	-1.9892 ^a (-7.45)	-1.9999 ^a (-7.54)
All stock deal (1/0)	0.0953 (0.73)	0.3041 ^b (2.01)	0.3283 ^b (2.05)
Conglomerate (1/0)	0.4361 ^a (2.80)	0.5315 ^a (3.04)	0.5517 ^a (3.20)
Tender offer (1/0)	1.6766 ^a (7.28)	1.9976 ^a (7.62)	2.0098 ^a (7.68)
Hostile (1/0)	-2.8143 ^a (-9.15)	-2.6619 ^a (-7.52)	-2.6356 ^a (-7.29)
Competed (1/0)	-0.6064 ^a (-4.09)	-0.6518 ^a (-4.01)	-0.6634 ^a (-4.18)
Acquirer price run-up	0.2208 ^a (2.79)	0.2027 ^b (2.24)	0.2141 ^b (2.46)
Acquirer sigma	-1.4899 ^a (-3.89)	-1.4118 ^b (-2.31)	-1.4372 ^b (-2.14)
Acquirer past asset growth	1.8264 ^b (2.28)	2.4820 (1.46)	1.4609 ^c (1.65)
Constant	0.5040 (1.09)	0.4425 (0.81)	0.5656 (0.96)
Other deal characteristics	Yes	Yes	Yes
Other acquirer characteristics	Yes	Yes	Yes
Year * Industry fixed effects	Yes	Yes	Yes
Observations	4,367	3,240	3,192
Pseudo R-squared	0.265	0.287	0.289

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Table 12: Robustness to methodology and sample selection

This table shows a series of robustness tests. In Panel A, results are from OLS regressions with the acquirer announcement return as the dependent variable. The specification used is always the same as specification 3 in Table 3. In Panel B, results are from Logistic regressions with acquisition success as the dependent variable. The specification is always the same as specification 3 in Table 4. Each line corresponds to the output where one element of the methodology or the sample selection has been changed, except for “Full sample of acquisitions” where private (1/0) and subsidiary (1/0) are added into control variables. Merger waves includes pre-wave (1/0), in-wave (1/0), and post-wave (1/0). The ‘acquisitive effect’ refers to the coefficient of “*Target pre3YR num of deals (log)*” unless specified otherwise. All variables used in the table are defined in Appendix Table A.1. Standard errors are adjusted for heteroskedasticity and clustered by acquisition year; the corresponding *t*-statistics and *z*-statistics are reported in parentheses for OLS regressions (Panel A) and Logit regressions (Panel B), respectively.

Panel A: OLS regression with acquirer announcement return as the dependent variable

	Acquisitive effect	<i>t</i> -statistics	Control variables	Adjusted R-square	Number of observations
Default specification	-0.0133 ^a	(-3.95)	Yes	0.096	4,111
<i>Changing control variables</i>					
. Controlling for size with ‘Mega deal’ dummy	-0.0132 ^a	(-3.95)	Yes	0.096	4,111
. Controlling for size with ‘target number of segments’	-0.0154 ^a	(-3.32)	Yes	0.051	2,476
. Controlling for size with ‘target past asset growth	-0.0132 ^a	(-3.55)	Yes	0.100	3,072
. Controlling for merger waves	-0.0133 ^a	(-3.89)	Yes	0.095	4,111
. Controlling for year and industry fixed effects	-0.0130 ^a	(-4.55)	Yes	0.088	4,111
. Controlling for quarter and industry fixed effects	-0.0127 ^a	(-4.58)	Yes	0.085	4,111
. Controlling for month and industry fixed effects	-0.0132 ^a	(-4.30)	Yes	0.089	4,111
. Controlling for firm fixed effects	-0.0106 ^a	(-2.84)	Yes	0.570	4,111
. Controlling for quarter cross industry fixed effects	-0.0132 ^a	(-2.87)	Yes	0.281	4,111
. Controlling for month cross industry fixed effects	-0.0114 ^a	(-3.08)	Yes	0.067	4,111
<i>Changing methodology</i>					
. Five year window to count past acquisitions	-0.0111 ^a	(-4.79)	Yes	0.095	4,111
. Use CAR (-2,+2) to measure abnormal returns	-0.0135 ^a	(-3.35)	Yes	0.106	4,111
. Use value-weighted CRSP index	-0.0131 ^a	(-3.87)	Yes	0.098	4,111
. Use market-adjusted model	-0.0142 ^a	(-4.73)	Yes	0.095	4,111
. Winsorize CAR at 5% and 95% percentile	-0.0108 ^a	(-4.93)	Yes	0.096	4,111
. ‘Acquisitive effect’ set to “Target is an acquisitive firm”	-0.0104 ^a	(-2.87)	Yes	0.093	4,111
. ‘Acquisitive effect’ set to “Target pre3YR value of deals”	-0.0024 ^a	(-3.12)	Yes	0.094	4,111
. Use double clustering (firm and year)	-0.0133 ^a	(-3.96)	Yes	0.096	4,111
<i>Changing sample selection</i>					
. Include failed deals when counting past acquisitions	-0.0120 ^a	(-4.01)	Yes	0.095	4,111
. Include acquisitions of majority stake (>50%)	-0.0102 ^a	(-2.92)	Yes	0.089	4,269
. All stock deal	-0.0168 ^a	(-2.93)	Yes	0.351	1,811
. Cash and mixed deal	-0.0067 ^c	(-1.64)	Yes	0.108	2,300
. Include only pre-1997 acquisitions	-0.0126 ^b	(-2.15)	Yes	0.130	1,936
. Include only 1998-2000 acquisitions	-0.0138 ^c	(-1.89)	Yes	0.093	894
. Include only post-2001 acquisitions	-0.0126 ^a	(-2.36)	Yes	0.095	1,281
. Exclude ‘banking’ and ‘utility’ industries	-0.0143 ^a	(-3.35)	Yes	0.040	2,886
. Exclude conglomerate acquisitions	-0.0129 ^a	(-3.25)	Yes	0.166	2,802
. Exclude ‘rest of the industries’ deals	-0.0134 ^a	(-4.09)	Yes	0.099	3,578
. Full sample of acquisitions	-0.0148 ^a	(-4.71)	Yes	0.066	18,284

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Panel B: Logit regression with acquisition success as the dependent variable

	Acquisitive effect	z-statistics	Control variables	Adjusted R-square	Number of observations
Default specification	-0.8363 ^a	(-7.76)	Yes	0.263	4,440
Changing control variables					
. Controlling for size with ‘Mega deal’ dummy	-0.7443 ^a	(-7.34)	Yes	0.257	4,440
. Controlling for size with ‘target number of segments’	-0.4817 ^a	(-3.47)	Yes	0.263	2,572
. Controlling for size with ‘target past asset growth’	-0.6972 ^a	(-7.36)	Yes	0.279	3,266
. Controlling for merger waves	-0.8355 ^a	(-7.76)	Yes	0.263	4,440
. Controlling for year and industry fixed effects	-0.7090 ^a	(-7.88)	Yes	0.186	5,295
. Controlling for quarter and industry fixed effects	-0.7061 ^a	(-7.81)	Yes	0.203	5,295
. Controlling for month and industry fixed effects	-0.7557 ^a	(-7.19)	Yes	0.236	5,064
. Controlling for firm fixed effects	-1.2406 ^a	(-7.03)	Yes	0.310	1,617
. Controlling for quarter cross industry fixed effects	-1.1159 ^a	(-6.89)	Yes	0.299	2,750
. Controlling for month cross industry fixed effects	-1.4302 ^a	(-6.08)	Yes	0.323	1,456
Changing methodology					
. Five year window to count past acquisitions	-0.7803 ^a	(-9.16)	Yes	0.265	4,440
. ‘Acquisitive effect’ set to “Target is an acquisitive firm”	-0.9032 ^a	(-6.53)	Yes	0.261	4,440
. ‘Acquisitive effect’ set to “Target pre3YR value of deals”	-0.2344 ^a	(-9.18)	Yes	0.270	4,440
. Use double clustering (firm and year)	-0.8363 ^a	(-7.74)	Yes	0.263	4,440
Changing sample selection					
. Include failed deals when counting past acquisitions	-0.8997 ^a	(-8.21)	Yes	0.267	4,440
. Include acquisitions of majority stake (>50%)	-0.8140 ^a	(-7.42)	Yes	0.254	4,558
. All stock deal	-0.5038 ^b	(-2.44)	Yes	0.237	1,497
. Cash and mixed deal	-1.1288 ^a	(-6.93)	Yes	0.302	2,312
. Include only pre-1997 acquisitions	-0.6772 ^a	(-6.48)	Yes	0.257	2,226
. Include only 1998-2000 acquisitions	-1.0463 ^a	(-4.79)	Yes	0.353	1,043
. Include only post-2001 acquisitions	-0.9334 ^a	(-3.66)	Yes	0.242	1,172
. Exclude ‘banking’ and ‘utility’ industries	-0.6307 ^a	(-4.61)	Yes	0.249	3,051
. Exclude conglomerate acquisitions	-0.8729 ^a	(-6.49)	Yes	0.288	2,932
. Exclude ‘rest of the industries’ deals	-0.8353 ^a	(-8.29)	Yes	0.260	4,271
. Full sample of acquisitions	-0.7428 ^a	(-8.13)	Yes	0.266	16,922

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Table A.1: Variable definitions

Variable	Definition
Target pre3YR num of deals (log)	The natural logarithm of (one plus) the number of target's mergers and acquisitions made over the past three years. The counting is performed on the "full sample of acquisitions", which contains 53,798 acquisitions (see Table 1).
Target pre3YR value of deals (log)	The natural logarithm of (one plus) the sum of the dollar value of target's recent mergers and acquisitions made over the past three years.
Target is an acquisitive firm (1/0)	A dummy variable that equals one if the target has made mergers or acquisitions over the past three years, and zero otherwise.
Acquisitive firm	A target that made mergers and acquisitions in the preceding three years.
Abnormal announcement returns	The three-day (-1, +1) cumulative abnormal return (CAR) centered on the announcement date, using the CRSP equal-weighted index return as the market return and with the market model parameters estimated over the 200-day period from event day -205 to event day -6.
Acquirer size (log)	The natural logarithm of acquirer's market value of equity calculated as the number of shares outstanding times the stock price one month prior to the announcement.
Relative size	The deal value divided by "Acquirer size."
All cash deal (1/0)	A dummy variable that equals one if the transaction is financed entirely by cash, and zero otherwise.
All stock deal (1/0)	A dummy variable that equals one if the transaction is financed entirely by stock, and zero otherwise.
Toehold (1/0)	A dummy variable that equals one if the acquirer holds at least 5 percent of the target shares, and zero otherwise.
Dormant period > 1 year (1/0)	A dummy variable that equals one if no bidding has been made in the acquirer's industry (based on 4-digit CRSP SIC code) for more than one year preceding the acquirer's bid, and zero otherwise.
Conglomerate (1/0)	A dummy variable that equals one if a deal involves a target with a different two-digit SIC code of the acquirer, and zero otherwise.
Tender offer (1/0)	A dummy variable that equals one if the acquisition technique is a tender offer as defined by SDC, and zero otherwise.
Hostile (1/0)	A dummy variable that equals one if target's response is recorded as hostile by SDC, and zero otherwise.
Competed (1/0)	A dummy variable that equals one if another deal for the same target is announced in SDC during the 12 months prior to the announcement date, and zero otherwise.
Acquirer pre3YR num of deals (log)	The natural logarithm of (one plus) the number of acquirer's recent mergers and acquisitions made over the past three years.
Price run-up	The market-adjusted buy-and-hold abnormal return of the firm's stock over the period beginning 205 trading days and ending 6 trading days prior to the announcement date.
Sigma	The standard deviation of the firm's market-adjusted daily returns beginning 205 and ending 6 trading days prior to the announcement date with CRSP equal-weighted return as the market index.
Tobin's q	The book value of assets minus the book value of equity plus the market value of equity, divided by the book value of assets.
Leverage	Firm's debt (total assets minus the book value of equity) divided by its market value of assets.

Cash-to-asset ratio	Firm's cash holdings divided by the market value of assets, cash includes cash and marketable securities.
Past asset growth	The percentage changes in total assets over one year preceding the acquisition announcement.
Success (1/0)	A dummy variable that equals one if the deal is successful as defined in SDC, and zero otherwise.
Return on equity	The ratio of net income before extraordinary items to the common and preferred equity of a firm, averaged over a three-year period.
Growth	Annual growth rate of firm's net sales, averaged over a three-year period.
Liquidity	The ratio of the net liquid assets to total assets, averaged over a three-year period. The net liquid assets are defined as the cash and marketable securities less the current liabilities.
Leverage	The ratio of the long-term debt to the sum of preferred and common equity, averaged over a three-year period.
Growth resource (1/0)	A dummy variable that equals one if the firm has a combination of either low growth – high liquidity – low leverage or high growth – low liquidity – high leverage, and zero for all other combinations.
Industry (1/0)	A dummy variable that equals one if at least one acquisition occurred in the firm four-digit SIC industry during the preceding year, and zero otherwise.
Size	The number of shares outstanding times the stock price at the fiscal year end.
Market-to-book ratio	The ratio of the market value of the common equity to the book value of the common equity.
Price-earnings ratio	The ratio of a firm's stock price per share to its earnings per share.
Tried but failed to acquire an acquisitive target (1/0)	A dummy variable that equals one if the acquirer withdrawn its acquisition against the target who made at least one mergers and acquisitions in the preceding three years.
Tried but failed to acquire a non-acquisitive target (1/0)	A dummy variable that equals one if the acquirer withdrawn its acquisition against the target who did not make any mergers and acquisitions in the preceding three years.
Successfully acquired an acquisitive target (1/0)	A dummy variable that equals one if the acquirer successfully acquired the target who made at least one mergers and acquisitions in the preceding three years.
Governance index	The corporate governance index in Gompers, Ishii, and Metrick (2003) which is based on 24 anti-takeover provisions.
Entrenchment index	The entrenchment index of Bebchuk, Cohen, and Ferrell (2009) which is based on 6 anti-takeover provisions.
Managerial equity ownership	The total percentage of equity ownership held by directors and officers in the fiscal year before the acquisition announcement.
Industry Herfindahl	The Herfindahl index for a firm's industry at the end of the year prior to the acquisition announcement.
Target M/B to acquirer M/B ratio	Target's market-to-book assets divided by the acquirer's market-to-book assets.
Target termination fee (1/0)	A dummy variable that equals one if the target has a termination fee provision in the merger contract, and zero otherwise.
Takeover premium	Takeover premium is calculated as in Officer (2003) and Cai and Sevilir (2012).
Industry-adjusted sales growth	The average annual industry-adjusted sales growth over the past three years prior to the deal.
Post-wave (1/0)	A dummy variable that equals one if the bid occurs within 36 months

	following the end of a Harford wave, and zero otherwise.
In-wave (1/0)	A dummy variable that equals one if the bid occurs within 24 months of the start of a Harford wave, and zero otherwise.
Pre-wave (1/0)	A dummy variable that equals one if the bid occurs within the 12 months prior to a Harford wave, and zero otherwise.
Private (1/0)	A dummy variable that equals one if the target is a private firm, and zero otherwise.
Subsidiary (1/0)	A dummy variable that equals one if the target is a non-public subsidiary of a public or private firm, and zero otherwise.
Deal value (log)	The natural logarithm of total value of consideration paid by the acquirer, excluding fees and expenses, as reported by SDC.
Mega-deal (1/0)	A dummy variable that equals one if a deal is in the top one percent of distribution in term of stock market capitalization-adjusted deal value, which equals the deal value divided by the total US stock market capitalization on the day of the announcement.
Target number of segments (log)	The natural logarithm of target's number of segments from Compustat Industry Segment database.
Target age (log)	The natural logarithm of the number of calendar months that the target firm has been listed on CRSP.
Liquidity index	Liquidity index for the target is calculated as the value of all corporate control transactions for \$1 million or more reported by the SDC in the target's two-digit SIC code in the year of the merger announcement, divided by the total book value of assets of all Compustat firms in the target's two-digit SIC code in the same year.
Target incorporated in Delaware (1/0)	A dummy variable that equals one if the target is incorporated in Delaware, and zero otherwise.

Table A.2: Sample distribution by year and industry

The sample comprises 4,286 observations of US public firms (Acquirer) that acquired a US public firm (Target) between 1985 and 2010. Panel A sorts the acquisitions by calendar year. Panel B sorts the acquisitions by Fama and French 48-industry classifications. Industries which have less than 50 deals are grouped in the ‘Rest of the industries’ category. Announcement returns are measured as the cumulative abnormal returns from one day before to one day after the announcement date, as in Moeller, Schlingemann, and Stulz (2004).

Panel A: By announcement year

Years	Number of observations	Fraction of targets that are acquisitive targets	Average announcement returns	
			All deals	When an acquisitive target is targeted
1985	123	21%	-1.39%	-2.91%
1986	125	19%	0.09%	0.15%
1987	109	20%	0.75%	0.60%
1988	112	15%	0.29%	-3.24%
1989	95	19%	0.11%	-0.54%
1990	67	13%	-0.21%	-2.06%
1991	86	22%	-0.70%	-0.38%
1992	103	18%	-1.00%	-3.60%
1993	133	19%	0.47%	-0.29%
1994	214	22%	0.63%	-1.29%
1995	247	25%	-1.16%	0.12%
1996	268	26%	0.04%	-1.19%
1997	344	31%	-0.75%	-1.92%
1998	368	35%	-1.48%	-3.01%
1999	308	38%	-1.55%	-3.20%
2000	264	30%	-3.44%	-5.17%
2001	199	33%	-1.84%	-3.06%
2002	134	25%	-0.30%	-2.29%
2003	162	25%	-1.68%	-3.06%
2004	156	29%	-2.06%	-4.08%
2005	146	29%	-1.95%	-3.28%
2006	146	28%	-1.10%	-1.10%
2007	136	33%	-0.28%	-1.76%
2008	74	32%	-3.23%	0.16%
2009	80	21%	0.01%	-3.75%
2010	87	26%	-0.01%	0.96%
All	4,286	27%	-0.98%	-2.24%

Panel B: By Fama-French 48 industries

Industries	Number of observations	Fraction of targets that are acquisitive	Average announcement returns	
			All deals	Acquisitive targets
Banking	1,168	19%	-1.34%	-2.59%
Business Services	465	38%	-2.49%	-4.21%
Chemicals	50	32%	0.59%	0.14%
Communication	182	47%	-0.96%	-1.49%
Computers	171	33%	-2.22%	-3.35%
Consumer Goods	55	20%	0.48%	-3.73%
Electronic Equipment	188	29%	-2.14%	-3.72%
Healthcare	93	47%	-1.88%	-1.95%
Insurance	145	29%	-0.57%	-0.76%
Machinery	92	34%	-0.25%	-0.26%
Measuring and Control Equipment	76	32%	-0.31%	0.07%
Medical Equipment	106	28%	-0.19%	2.47%
Petroleum and Natural Gas	146	35%	-1.00%	-1.79%
Pharmaceutical Products	165	18%	-2.79%	-6.55%
Restaurants, Hotels, Motels	68	31%	1.12%	-5.20%
Retail	127	24%	0.94%	1.20%
Trading	163	17%	-1.02%	-2.50%
Transportation	63	14%	1.61%	-3.18%
Utilities	110	21%	-2.02%	-3.52%
Wholesale	96	36%	-1.00%	-3.11%
Rest of the industries	557	27%	0.98%	-0.36%
All	4,286	27%	-0.98%	-2.24%

Table A.3: Descriptive statistics of deal and firm characteristics

This table shows the average value of the explanatory variables used in regression analyses. The sample of “all acquisitions” comprises 4,286 observations of public firms (Acquirer) that acquire a public firm (Target) between 1985 and 2010 in the US. This sample is divided into two sub-samples. The first sub-sample contains the acquisitions in which an acquisitive firm was targeted. The second sub-sample contains the acquisitions in which a non-acquisitive firm was targeted. All variables are defined in Table A.1.

	All acquisitions (1)	Acquisitive targets (2)	Non-acquisitive targets (3)	Difference (2)-(3)
Deal value (\$ billion)	1.289 ^a	2.475 ^a	0.848 ^a	1.627 ^a
Target size (\$ billion)	1.038 ^a	1.783 ^a	0.701 ^a	1.082 ^a
Acquirer size (\$ billion)	6.117 ^a	10.364 ^a	4.533 ^a	5.830 ^a
Relative size	0.475 ^a	0.605 ^a	0.426 ^a	0.179 ^a
All cash deal (1/0)	0.263 ^a	0.192 ^a	0.290 ^a	-0.097 ^a
All stock deals (1/0)	0.439 ^a	0.466 ^a	0.429 ^a	0.038 ^b
Toehold (1/0)	0.031 ^a	0.028 ^a	0.032 ^a	-0.004
Dormant period >1 year (1/0)	0.132 ^a	0.101 ^a	0.143 ^a	-0.042 ^a
Pre-wave (1/0)	0.086 ^a	0.080 ^a	0.088 ^a	-0.008
In-wave (1/0)	0.243 ^a	0.284 ^a	0.227 ^a	0.057 ^a
Post-wave (1/0)	0.194 ^a	0.226 ^a	0.183 ^a	0.043 ^a
Conglomerate (1/0)	0.319 ^a	0.336 ^a	0.312 ^a	0.024
Tender offer (1/0)	0.157 ^a	0.165 ^a	0.153 ^a	0.012
Hostile (1/0)	0.016 ^a	0.020 ^a	0.014 ^a	0.006
Competed (1/0)	0.059 ^a	0.056 ^a	0.060 ^a	-0.004
Premium	0.629 ^a	0.657 ^a	0.616 ^a	0.040 ^b
Acquirer pre3YR num of deals (log)	0.730 ^a	0.901 ^a	0.666 ^a	0.235 ^a
Acquirer Tobin's q	1.928 ^a	2.148 ^a	1.846 ^a	0.302 ^a
Acquirer leverage	0.484 ^a	0.418 ^a	0.508 ^a	-0.091 ^a
Acquirer cash to asset ratio	0.083 ^a	0.080 ^a	0.085 ^a	-0.005
Acquirer sigma	0.261 ^a	0.259 ^a	0.262 ^a	-0.003
Acquirer price run-up	0.012	0.041 ^c	0.002	0.039 ^c
Acquirer past asset growth	0.007 ^a	0.008 ^a	0.007 ^b	0.000
Target Tobin's q	1.749 ^a	1.918 ^a	1.667 ^a	0.250 ^a
Target leverage	0.464 ^a	0.431 ^a	0.480 ^a	-0.049 ^a
Target age (log)	4.443 ^a	4.499 ^a	4.418 ^a	0.081 ^b
Target cash to asset ratio	0.107 ^a	0.094 ^a	0.113 ^a	-0.019 ^a
Liquidity index for target	0.054 ^a	0.072 ^a	0.047 ^a	0.025 ^a
Target incorporated in Delaware (1/0)	0.410 ^a	0.536 ^a	0.363 ^a	0.173 ^a
Target termination fees (1/0)	0.537 ^a	0.645 ^a	0.497 ^a	0.148 ^a
Target sigma	0.357 ^a	0.333 ^a	0.368 ^a	-0.035 ^a
Target price run-up	-0.017	-0.072 ^a	0.008	-0.080 ^c
Target past asset growth	0.006 ^b	0.005 ^a	0.007	-0.001

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Table A.4: Acquirer announcement returns, deal size and target characteristics

This table is the same as Table 3 but with additional control variables. The sample comprises 4,286 observations of US public firms (Acquirer) that acquired a US public firm (Target) between 1985 and 2010. All variables used in the table are defined in Appendix Table A.1. Only variables that are at least once significant at a 5% level test are shown in the table. “Other deal characteristics” includes: relative size, all stock deal (1/0), toehold (1/0), dormant period >1 year (1/0), conglomerate (1/0), tender offer (1/0), hostile (1/0), competed (1/0), and acquirer pre3YR num of deals (log). “Other acquirer characteristics” includes: acquirer cash-to-asset ratio. “Other target characteristics” includes: target price run-up, target sigma, liquidity index for target, target incorporated in Delaware (1/0), target age (log), target termination fees (1/0), target Tobin’s q, target leverage, and target cash-to-asset ratio. Standard errors are adjusted for heteroskedasticity and clustered by acquisition year; the corresponding *t-statistics* are reported in parentheses. All variables are defined in Table A.1.

	Spec 1	Spec 2	Spec 3	Spec 4	Spec 5
Target pre3YR num of deals (log)	-0.0091 ^b (-2.30)	-0.0132 ^a (-3.95)	-0.0154 ^a (-3.32)	-0.0132 ^a (-3.55)	-0.0124 ^a (-3.63)
Deal value (log)	-0.0040 ^b (-2.75)				
Mega-deal (1/0)		0.0014 (0.16)			
Target number of segments (log)			0.0011 (0.28)		
Target past asset growth				-0.0360 (-1.47)	
Acquirer size (log)					0.0004 (0.22)
All cash deal (1/0)	0.0181 ^a (3.27)	0.0207 ^a (3.64)	0.0267 ^a (3.79)	0.0266 ^a (4.78)	0.0259 ^a (5.13)
Acquirer price run-up	-0.0137 ^b (-2.63)	-0.0147 ^a (-3.02)	-0.0100 ^c (-1.78)	-0.0100 ^b (-2.06)	-0.0143 ^b (-2.27)
Acquirer sigma	0.0799 ^b (2.20)	0.0991 ^a (3.07)	0.0427 (1.39)	0.0361 (1.32)	0.0317 (1.21)
Acquirer Tobin's q	-0.0008 (-0.45)	-0.0012 (-0.61)	-0.0017 (-0.75)	-0.0017 (-0.81)	-0.0040 ^a (-5.27)
Acquirer leverage	0.0422 ^a (3.10)	0.0441 ^a (3.14)	0.0413 ^b (2.23)	0.0430 ^b (2.67)	0.0248 (1.59)
Acquirer past asset growth	-0.0201 ^a (-3.94)	-0.0197 ^a (-3.51)	-0.0145 ^b (-2.44)	0.0197 (0.71)	-0.0146 ^a (-2.82)
Constant	-0.0037 (-0.17)	-0.0233 (-1.15)	-0.0066 (-0.21)	-0.0071 (-0.25)	-0.0241 (-0.61)
Other deal characteristics	Yes	Yes	Yes	Yes	Yes
Other acquirer characteristics	Yes	Yes	Yes	Yes	Yes
Other target characteristics	No	No	No	No	Yes
Year * Industry fixed effects	Yes	Yes	Yes	Yes	Yes
Number of Observations	4,111	4,111	2,476	3,072	2,947
Adjusted R-squared	0.100	0.096	0.051	0.100	0.116

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Table A.5: Probability of deal success, deal size and target characteristics

This table is the same as Table 4 but with additional control variables. The dependent variable is a dummy variable that equals one if the bid is classified by SDC as successful, and zero otherwise. The sample contains all offers made by public firms (Acquirer) to acquire other public firms (Target) in the US between 1985 and 2010. All variables used in the table are defined in Appendix Table A.1. Only variables that are at least once significant at a 5% level test are shown in the table. “Other deal characteristics” includes: all stock deal (1/0), toehold (1/0), and dormant period >1 year (1/0). “Other acquirer characteristics” includes: acquirer leverage and acquirer cash-to-asset ratio. “Other target characteristics” includes: liquidity index for target, target leverage, and target cash-to-asset ratio. Standard errors are adjusted for heteroskedasticity and clustered by acquisition year; the corresponding *z-statistics* are reported in parentheses.

	Spec 1	Spec 2	Spec 3	Spec 4	Spec 5
Target pre3YR num of deals (log)	-0.8095 ^a (-6.97)	-0.7443 ^a (-7.34)	-0.4817 ^a (-3.47)	-0.6972 ^a (-7.36)	-0.7442 ^a (-5.70)
Deal value (log)	0.0986 ^b (2.30)				
Mega-deal (1/0)		0.5031 ^b (2.51)			
Target number of segments (log)			-0.2110 ^a (-2.60)		
Target past asset growth				-1.6067 ^c (-1.81)	
Acquirer size (log)					0.2605 ^a (5.74)
Relative size	-0.1100 (-1.53)	-0.0925 (-1.54)	-0.1592 ^a (-3.37)	-0.1925 ^a (-3.12)	-0.1186 ^b (-2.23)
All cash deal (1/0)	-1.5675 ^a (-7.09)	-1.6335 ^a (-6.79)	-1.9203 ^a (-6.08)	-2.0190 ^a (-7.09)	-1.5969 ^a (-6.02)
Conglomerate (1/0)	0.4307 ^a (2.63)	0.4274 ^a (2.60)	0.4538 ^b (2.43)	0.4867 ^a (2.63)	0.3545 ^c (1.70)
Tender offer (1/0)	1.6475 ^a (7.33)	1.6946 ^a (7.33)	1.9991 ^a (7.26)	1.9929 ^a (7.57)	1.5277 ^a (6.20)
Hostile (1/0)	-2.8741 ^a (-9.92)	-2.8395 ^a (-9.76)	-2.4982 ^a (-7.28)	-2.6752 ^a (-8.01)	-2.1130 ^a (-7.30)
Competed (1/0)	-0.5961 ^a (-3.80)	-0.5674 ^a (-3.60)	-0.6889 ^a (-3.79)	-0.6303 ^a (-3.85)	-0.7098 ^a (-3.54)
Acquirer pre3YR num of deals (log)	0.1820 ^a (2.60)	0.2132 ^a (2.99)	0.1829 (1.59)	0.2213 ^b (2.46)	0.1295 (1.03)
Acquirer price run-up	0.2361 ^a (2.75)	0.2592 ^a (2.85)	0.2735 ^a (2.92)	0.2783 ^a (2.89)	0.1581 (1.14)
Acquirer sigma	-2.0303 ^a (-4.66)	-2.4299 ^a (-5.47)	-2.6100 ^a (-3.46)	-2.6194 ^a (-4.06)	-1.6388 ^b (-2.28)
Acquirer Tobin's q	-0.0161 (-1.31)	-0.0099 (-0.78)	-0.0202 (-1.16)	-0.0183 (-0.99)	-0.0666 ^b (-2.24)
Acquirer past asset growth	3.2851 ^c (1.75)	3.5316 ^b (2.04)	3.0976 (1.50)	2.9845 ^c (1.82)	2.4239 (0.89)
Target price run-up					0.3890 ^b (2.00)
Target sigma					1.6705 ^a (5.12)
Target incorporated in Delaware (1/0)					-0.5154 ^a (-3.97)
Target age (log)					-0.4090 ^a (-6.38)
Target termination fees (1/0)					2.9323 ^a (11.69)
Target Tobin's q					-0.0931 ^a (-2.71)
Constant	1.2832 ^a (3.12)	1.9447 ^a (5.18)	3.0198 ^a (6.19)	2.3017 ^a (4.86)	-1.1757 (-1.47)
Other deal characteristics	Yes	Yes	Yes	Yes	Yes
Other acquirer characteristics	Yes	Yes	Yes	Yes	Yes
Other target characteristics	No	No	No	No	Yes
Year * Industry fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	4,440	4,440	2,572	3,266	3,118
Pseudo R-squared	0.258	0.257	0.263	0.279	0.415

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

Table A.6: Takeover premium

This table shows results from OLS regressions with takeover premium as the dependent variable. The sample comprises 4,286 observations of US public firms (Acquirer) that acquired a US public firm (Target) between 1985 and 2010. The takeover premium is calculated as in Officer (2003) and Cai and Sevilir (2012). All variables used in the table are defined in Table A.1. Only variables, except our main variable ‘target pre3YR num of deals’, that are at least once significant at a 5% level test are shown in the table. “Other deal characteristics” includes: acquirer size (log), relative size, dormant period >1 year (1/0), conglomerate (1/0), hostile (1/0), and competed (1/0). “Other acquirer characteristics” includes: acquirer Tobin’s q. Standard errors are adjusted for heteroskedasticity and clustered by acquisition year; the corresponding *t-statistics* are reported in parentheses.

	Spec 1	Spec 2	Spec 3
Target pre3YR num of deals (log)	0.0118 (0.74)	0.0096 (0.57)	0.0125 (0.74)
All cash deal (1/0)	-0.1544 ^a (-4.29)	-0.1553 ^a (-4.33)	-0.1443 ^a (-4.34)
All stock deal (1/0)	-0.1696 ^a (-6.08)	-0.1658 ^a (-6.16)	-0.1814 ^a (-8.12)
Toehold (1/0)	-0.1723 ^a (-4.53)	-0.1617 ^a (-4.11)	-0.1786 ^a (-5.08)
Tender offer (1/0)	0.1130 ^a (4.16)	0.1084 ^a (3.81)	0.0776 ^a (3.13)
Acquirer pre3YR num of deals (log)	0.0226 ^a (2.85)	0.0279 ^a (3.63)	0.0276 ^a (3.63)
Acquirer price run-up	0.0780 ^a (7.82)	0.0836 ^a (7.33)	0.0918 ^a (8.75)
Acquirer sigma	0.4722 ^a (6.43)	0.3989 ^a (5.34)	0.1223 (1.47)
Acquirer leverage		-0.1256 ^a (-4.40)	-0.0105 (-0.31)
Acquirer cash-to-asset ratio		-0.1705 ^b (-2.20)	-0.1095 ^c (-1.84)
Acquirer past asset growth		-0.4408 ^a (-3.40)	-0.3078 ^c (-1.87)
Constant	0.5325 ^a (11.22)	0.6699 ^a (11.30)	0.6970 ^a (8.66)
Other deal characteristics	Yes	Yes	Yes
Other acquirer characteristics	No	Yes	Yes
Year fixed effects	No	No	Yes
Industry fixed effects	No	No	Yes
Number of Observations	3,272	3,155	3,155
Adjusted R-squared	0.079	0.085	0.124

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.