Quality of investment decisions and disclosure timing

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Abstract

It is well established that firms strategically disclose favorable financial information early and delay unfavorable information. Our study suggests that this insight may not generalize to disclosure of non-financial information. The quality of acquisitions is irrelevant to the timing of bid announcements. Firms announce their acquisition plans early in response only to the demand for prompt disclosure. Holding constant timing, firms withhold information when announcing a good-quality plan. Moreover, revealing lucrative plans and doing so early costs firms reduction in their announcement-period gains. Together, our findings are consistent with firms disclosing their investment plans conservatively due to material proprietary cost.

1. Introduction

A fast growing body of literature reports that firms strategically disclose good news to investors early and delay bad news (e.g., Miller, 2002; Sengupta, 2004; Kothari et al., 2009; Ge and Lennox, 2011).[1] These recent findings are evidence in support of the presence of both cost (loss of proprietary information) and benefit (higher security price) of disclosure which provide incentives for disclosing favorable information and withholding unfavorable information (for a review, see Verrecchia, 2001). Also importantly, as noted by Kothari et al. (2009, p. 243), such strategic disclosure timing "contrasts the conservative recognition rules and outcomes in firms' financial reports". While insightful, the existing literature focuses on disclosure of financial information, such as management forecasts and earnings announcements. The wealth of event studies of corporate decisions suggests that firms also very commonly make disclosure of capital investment decisions, which generate the underlying cash flows that eventually become reported financial results. Since non-financial information fundamentally differs from financial information, it remains unclear whether the existing empirical insight generalizes to disclosure of non-financial information (see also Healy and Palepu, 2001).

Voluntary disclosure of financial information is shortly followed by mandatory disclosure. Thus, financial information can be easily verified through actual earnings realizations (Healy and Palepu, 2001), and the cost of revealing it early is unlikely to be of economic significance (Lang and Sul, 2014). In contrast, disclosure of non-financial information not only is more difficult to verify (Healy and Palepu, 2001), but also has inherently material proprietary cost. Disclosing an investment plan, such as an

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[1] An exception is studies demonstrating that litigation risk provides an incentive for firms to disclose bad news promptly (e.g., Skinner, 1997).

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acquisition attempt, before consummation can generate rumors and competition, leading to loss of the first-mover advantage, or even end up killing the plan altogether. As a testimony of one well established ground rule among M&A practitioners, Copeland et al. (1996, p. 442) point out that "A crucial lesson is that secrecy must be maintained throughout the entire program". This is corroborated by empirical evidence that in making their own plan firms take into serious consideration future investment plans announced by their rivals (see Corona and Nan, 2013). Such material proprietary cost is an economically meaningful counterweight to the benefit of disclosing a lucrative investment plan early, e.g., reduction in asymmetry resulting in a rise in share price.[2] Thus, whether firms expect their investment plan to be good-quality (favorable non-financial information) or to have uncertain prospects (unfavorable non-financial information), in and of itself, may not be an important reason for firms to publicly reveal it voluntarily early. Firms may time disclosure of investment plans in response to factors other than the quality of the plan. The literature suggests that such other factors include litigation risk exposure, expected proprietary cost, expected credibility of disclosure, and economic significance of the plan.

In this study, we examine strategic timing of non-financial information disclosure by analyzing the timing of public announcements of acquisitions of unlisted targets. Public announcements of private acquisitions serve as an appropriate experiment for at least two reasons. First, unlike financial information disclosure, firms can choose to publicly announce their private acquisition attempt long before or to delay it until the time of bid consummation. When the target firm is a publicly listed company, however, an acquirer is required to make a mandatory bid announcement before the deal can be

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[2] It is the inherent proprietary cost that serves as a mechanism to ensure that a bid announcement is a credible disclosure. Other non-mutually exclusive mechanisms to ensure truthful or credible disclosure include potential litigation, reputational concern and distorted capital allocation associated with misrepresentation (for a review, see Verrecchia, 2001).

consummated. This unique feature of private acquisitions allows us to observe the timing of discretionary disclosure in an environment in which firms are much less constrained in their choice of timing. Secondly, the known proprietary cost of revealing an acquisition plan early (see Copeland et al., 1996) and publicly observable acquisition announcements together allow us to address the important issue, as pointed out by Lang and Sul (2014), of identifying a disclosure choice that imposes significant costs on firms' competitiveness.

The strategic timing hypothesis posits that firms publicly announce their acquisition plan before bid completion if they expect their plan to be of good quality, predicting a positive relation between acquisition quality and the length of lead time by which the initial bid announcement date precedes the completion date. In line with the assumption standard in the literature that the true quality of investment decisions is managers' private information, we use acquirer post-acquisition abnormal return as a proxy for acquisition quality, i.e., the quality of an investment decision. For a large sample of private acquisitions announced during the period between 1990 and 2009, we find that there is no relation between acquisition quality and the lead time (i.e., the timing of bid announcements). Firms do not announce their acquisition plan early because the plan is of good quality (i.e., the plan is good news) or delay the bid announcement because the plan has poor prospects (i.e., the plan is bad news). Results also indicate that the irrelevance of acquisition quality to the timing of bid announcements is unlikely to be attributable to firm-specific conditions. Instead, the bid announcement timing is related to exposure to litigation risk, the degree of competition for the target firm, expected credibility of the announcement, and size of the deal relative to the acquiring firm. These relations are consistent with the view that firms

time disclosure of investment plans by trading off between the benefits and costs of meeting the demand for prompt disclosure.

Even if the demand for prompt disclosure serves to ensure timely disclosure of bad news, firms still have room to delay bad news by releasing only the minimum amount of information demanded at the initial public announcement. As long as an investment plan allows managers to extract private benefits, for instance, they have incentives to pursue the plan even if it is a relatively poor-quality investment project for shareholders. To this extent, withholding of bad news implies that there is only little managers can say about such a plan when they are to disclose it. In other words, when firms are demanded to promptly disclose bad news, they will release only a small amount of information at the public announcement. Thus, holding constant the timing of announcements, the size of information content of bid announcements should be larger for good-quality deals than for poor-quality deals. Contrary to this implication of strategic disclosure timing, we find that the amount of information released at the bid announcement is negatively related to deal quality. Firms say less when the acquisition plan they announce is good news. This negative relation supports the view that firms incur greater proprietary cost when revealing a lucrative investment plan to the public.

Our findings deviate from the empirical experience of good news early bad news late from disclosure of financial information, and point out that firms disclose their investment plans conservatively. This deviation is in line with the intuition that while the proprietary cost of releasing good news early is trivial for financial information, it is material for non-financial information. Essentially, this intuition underlies our analyses in this paper. To further understand our findings, we also investigate whether it is costly for firms to announce a good-quality deal early. Consistent with this intuition, firms earn a smaller announcement-period gain (i.e., a smaller net benefit of disclosure) the

earlier they announce their deal and the greater the quality of their deal is. The market punishes firms for leaking proprietary information. Such gain reduction provides a plausible rationale for the findings that firms time the public announcement of their investment plan only in response to the demand for prompt disclosure, and withhold information when their plan is good news.

Our study joins the vast literature on voluntary disclosure by examining the timing of disclosure of acquisition plans, being non-financial information. Our evidence contrasts with the asymmetric behavior of disclosure of financial information reported in prior studies. To the extent that withholding of good news at public announcements of investment plans reflects differential verification of gains and losses, our findings can be viewed as indicating conservatism in recognizing expected future cash flows which are integral to the capital budgeting process and subsequently transform into economic transactions underlying financial reports. The leakage of proprietary information serves as incentive for such conservatism. Our work also complements the existing studies examining disclosure of non-financial information (e.g., Jones, 2007; Dhaliwal et al., 2011; Ellis et al., 2012; see also Simpson, 2010 and references therein). Our study extends this body of literature by providing an understanding of how firms time disclosure of investment decisions.

The rest of our study proceeds as follows. Section 2 presents our data and sample. The results of examining the relation between acquisition quality and the timing of initial bid announcements are reported in section 3. We also discuss our measure of acquisition quality in this section. In section 4, we analyze the relation between acquisition quality and the amount of information firms release at the initial bid announcement. In section 5, we then investigate the valuation impact of revealing good-quality acquisition plans early. Section 6 concludes our work.

2.   Data and sample

Our sample is drawn from domestic takeovers of unlisted targets by publicly traded U.K. acquirers. Domestic U.K. acquisitions provide a suitable setting to examine strategic disclosure timing because the U.K. regulatory environment is uniform across the economy and gives firms a large degree of flexibility in timing the announcement of their bid for an unlisted target. In the U.K., acquisitions of an unlisted entity by a U.K. firm are subject only to the U.K. Companies Act.[3] Under Sections 190 through 194 of the Act, publicly traded firms are required to obtain approval from their shareholders (i.e., to publicly disclose the bid as a material transaction) for their acquisition attempt to become legally effective. Thus, publicly traded U.K. firms need not publicly announce their decision to acquire an unlisted entity until the bid completion, i.e., until the bid is successfully negotiated. Since regulations governing disclosure of capital investment decisions vary across countries, we restrict our sample to domestic acquisitions to ensure that our analysis is subject to a single set of regulations, and hence, manageable.

We include in our sample completed transactions with the initial (i.e., original) bid announcement date between January 1, 1990 and December 31, 2009 as recorded on the Thomson Financial (SDC Platinum) database. As defined in the SDC, the original announcement date (DAO field) is "The date when the target company is first publicly disclosed as a possible takeover candidate." Our sample period ends in 2009 because we estimate post-acquisition abnormal return using a three-year window and the return benchmark data available to us ends in December 2012 (at the time of our data collection). To enter the sample, a deal must have transaction value (excluding fees and

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[3] In the U.S., however, M&A transactions are governed not only by the Federal law, but also by State laws which vary across states. This institutional feature of the U.S. market would introduce unnecessary complications to the analysis of the timing of bid announcements (i.e., voluntary disclosure).

expenses) reported by the SDC, and the acquirer holds less than 49.9% of the shares in the target before the bid announcement. We also require that acquirers have share price available on Datastream at least one month before the announcement date, at least 12 valid monthly returns following the announcement date, and total assets recorded on Worldscope for the fiscal year preceding the initial bid announcement date. Deals in which the target is a joint venture by the acquirer or a privatized firm are excluded. A total of 6,749 deals survive these initial sample criteria.

To minimize the possibility of non-voluntary announcements due to triggered covenants or situations related to insolvency, we omit further 366 deals in which the acquirer has negative book equity or Worldscope reports 0 as the acquirer's book equity. We also omit another 19 deals, which have the completion date preceding the initial bid announcement date. For the 6,364 deals remaining in our final sample, there are 1,958 unique acquirers and 1,328 of which make multiple deals within a three-year period. Such a large proportion of frequent acquirers gives an empirical confirmation that disclosure of non-financial information is a common corporate activity.

As reported in Table 1 and observed in several prior acquisition studies, the number of deals in the final sample fluctuates across years, peaking in the late 1990s and around the turn of the century. Almost one-third (29.2%) of the deals in the full sample are announced before bid consummation, i.e., the completion date. The proportion of deals announced early (i.e., before the completion date) varies between 19.1% in 2007 and 43.5% in 1991. Despite the flexibility in delaying a public bid announcement given by the legislation, a material number of firms choose to disclose their acquisition attempt early. Alternatively, for about two-thirds of the sample acquisition attempts, the initial public announcement is delayed until the completion date. For the deals announced early, the median number of days by which the

announcement date precedes the completion date is 29 days for the full sample, ranging

between 26 in 2003 and 34 in 2004. These lead time statistics empirically indicate that

when bid announcements (i.e., voluntary disclosure of non-financial information) are

made early, they are not shortly followed by mandatory disclosure.

Table 1 also reports the market reaction to bid announcements. We measure a

market reaction as market-adjusted excess return to an acquirer, i.e., acquirer return

minus return on the value-weighted FT All Share index, during the 5-day window

surrounding the bid announcement date.[4] The market reaction is generally significantly

positive. This is consistent with the recent acquisition studies (e.g., Faccio et al., 2006)

and the market generally expecting acquisitions of unlisted targets to be synergistic.

More importantly, the significantly positive market reaction indicates that a bid

announcement is generally credible, and is in line with the benefit of disclosing

favorable information, i.e., a rise in share price. We investigate the payoff from

announcement timing in more detail in section 5.

3.   **Acquisition quality and timing of announcements**

To examine whether the insight that firms release good news early and delay bad

news generalizes to disclosure of non-financial information, we first analyze the relation

between acquisition quality and the lead time between the initial bid announcement

and completion dates. In the subsections below, we describe our measure of acquisition

quality, and then report empirical results.

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[4] As reported above, a large number of acquirers in our sample make multiple deals. Thus, a substantial portion of our sample firms lacks a sufficiently long pre-event period free from the event under analysis, which is needed for estimating the market model parameters. For the same reason, the use of market-adjusted excess returns has previously been adopted by several others (e.g., Fuller et al., 2002). Brown and Warner (1980) show that for short event windows, adjusting for the systematic (beta) risk does not improve precision of the estimated abnormal return. For the reasons discussed in Fuller et al. (2002) and Masulis et al. (2007), we adopt the (-2, +2) window surrounding the announcement date in calculating market-adjusted excess returns.

3.1 Measuring acquisition quality

As a measure of acquisition quality, we estimate acquirer abnormal return as the Jensen alpha in the CAPM. Acquirer monthly return net of the corresponding risk-free return is regressed on the spread between market return and risk-free return during the three-year post-acquisition period.[5] We employ a three-year window in estimating abnormal return because, as discussed in detail by Devos et al. (2009), managers typically expect or claim to realize the expected synergy within three years of acquisition.[6] To avoid insufficient degrees of freedom, each deal must have at least 12 valid monthly returns. Since our measure of acquisition quality is a statistical estimate, one concern is that it is a potentially noisy measure of true quality such that it would tilt our analyses towards finding insignificant results. As reported below in this and following sections, however, our measure is significantly related to lead time, the size of information content of an announcement, and the market reactions to bid announcements. These significant relations suggest that the potential noise is unlikely to be of serious concern.

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[5] Using estimated post-acquisition performance of acquirers as a proxy for acquisition quality is not entirely new (see Goodman et al., 2014). In general, it would also be possible to use the market reaction to bid announcements and post-acquisition operating performance of acquirers as measures of acquisition quality. Although the market reaction (i.e., announcement-period gain) to acquirers represents the market's expectation of the acquisition's NPV, it is problematic for our tests in section 4, and especially, in section 5 where we analyze how the magnitude of market reactions and market reactions, respectively, are related to acquisition quality. While acquisitions are announced throughout a calendar year, the use of operating performance would require annual data from financial statements, which are commonly drawn in December. Further, financial statement data is subject to the conservative recognition rules in financial reporting. These features are likely to introduce material noise to a measure of acquisition quality based on operating performance. As a result, we adopt a market-based measure of acquisition quality using monthly data.

[6] While it is also possible to adopt the five-year post-acquisition window, we would lose two years (2008 and 2009) of data. Although a five-year window would give a greater number of observations in estimating the Jensen alpha, increasing window length also increases the possibility of confounding events and noise entering the window. On balance, we consider a three-year window a reasonable compromise.

We focus on the CAPM in estimating abnormal return. For determining a return benchmark, the CAPM is still most popular among managers (e.g., Bernardo et al., 2007). Further, Da et al. (2012) illustrate and find that the CAPM is a valid model for estimating the cost of capital for individual investment projects although it does not accurately explain stock return on a firm as a collection of current and future projects with complex embedded options. In line with several prior studies reporting post-acquisition losses to acquirers (for a review, see Agrawal and Jaffe, 2000), the average monthly post-acquisition abnormal return (alpha) for our sample acquirers is significantly negative (-1.32%).[7] Nevertheless, we also rerun all of our analyses using the empirically motivated risk factors, i.e., Fama-French three factors (market, size and book-to-market factors) plus the Carhart (1997) momentum factor, and find similar results (untabulated).[8]

3.2   Univariate analysis

To get a preliminary view of the strategic disclosure timing hypothesis, we divide the sample along two dimensions. First, we split the sample into two alpha groups: deals with a positive or negative alpha. Each group is then divided into four groups based on

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[7] Negative post-acquisition abnormal return is not necessarily incompatible with a positive market reaction to bid announcements. As discussed by Houston et al. (2001), firms are known to downplay the negative aspects of their acquisition, and include, possibly deliberately, expected performance enhancements from other activities when announcing their bid. Thus, it is plausible that the market reacts positively a bid announcement and then revises their valuation of the deal during the post-acquisition period as more information arrives in the public domain. To the extent that such production of positive information is systematic across deals, the aggregate information content of bid announcements should allow the market to correctly form expectation about relative deal quality, i.e., to rank deals by quality, at the time of public announcements. If such information production causes significant noise to the market's expectation, our analysis in section 5 will be tilted towards finding insignificant results.

[8] All of our untabulated results are available on request. We use these four factors as recommended by Gregory et al. (2013) and obtain them from the website of the University of Exeter Business School. We are grateful to the authors for generously making the U.K. four factors available on their website: http://business-school.exeter.ac.uk/research/areas/centres/xfi/research/famafrench/files/ . As also the case for the CAPM-based results, monthly returns on the three-month T-Bill are used as a proxy for risk-free return, and the market returns used in constructing the market factor are returns on the value-weighted FT All Share Index.

the timing of announcements: deals announced (i) at the completion date, i.e., late; (ii) during the month preceding the completion date, i.e., month -1; (iii) during the two-month period ending one month before the completion date, i.e., in months -2 or -3; and (iv) more than three months before the completion date, i.e., more than a quarter early. If firms announce good news early and bad news late when disclosing their investment plans, the proportion of acquisitions announced relatively early should be greater among good-quality deals than among poor-quality deals.

Panel A of Table 2 shows that only the proportion of deals announced more than a quarter early is significantly greater for positive-alpha deals (5.56%) than for negative-alpha deals (4.08%). As reported in Panel B, the differences appear more discernible when dividing the sample deals into three alpha groups: deals with a low, medium or high alpha. The proportion of deals announced late is significantly larger for the low-alpha group (72.34%) than for the high-alpha group (69.62%). While there is no difference between the low-alpha and high-alpha groups in terms of the proportions of deals announced in month -1 or during months -2 and -3, the proportion of deals announced more than a quarter early is significantly larger for the high-alpha group (5.24%) than for the low-alpha group (3.72%). Given these significant differences, there are some traces of firms strategically announcing good-quality deals early and poor-quality deals late. Nevertheless, the differences appear economically small.

3.3   Regression analysis

We next assess whether the traces of strategic timing of bid announcements will remain in the presence of other determinants of disclosure timing by regressing lead time on the alpha and other explanatory variables. The literature suggests that in addition to managers' private signal about the quality of their acquisition attempt, there

exists the demand effect on prompt disclosure of non-financial information, i.e., other factors that have important influence on the timing of acquisition bid announcements. The definitions of the control variables are presented in notes to Table 3.

First, we address the potential influence of litigation risk. In an attempt to avoid litigation and/or mitigate damages, firms with relatively large exposure to ex ante litigation risk are likely to disclose information more promptly than those with small exposure to such risk (e.g., Skinner, 1997; for an insightful review, see Field et al., 2005). By supplying the transparency demanded by outside investors, prompt disclosure weakens the ground for, and damages resulting from, a claim that the firm fails to make disclosure in a timely manner.[9] Kim and Skinner (2012) advocate and find that membership of the industries identified in Francis et al. (1994) as having high exposure to litigation, firm size, recent sales growth and recent return volatility together are good predictors of litigation risk. As Kim and Skinner note, larger firms tend to be more exposed to litigation, and litigation risk tends to increase after a period of unusually strong sales growth and more volatile stock returns. We employ these three variables together with a variable indicating whether the firm is in one of the high litigation-risk industries as identified in Francis et al. (1994) and Field et al. (2005).[10] Firm size may also reflect demand for timely disclosure due to investor attention. To the extent that investors pay more attention to large firms (e.g., Bhushan, 1989), the pressure to make

[9] The disclosure literature suggests that, due to litigation costs, firms may actually disclose unfavorable information (i.e., bad news) in a timely manner, (i.e., early). In the section 3.4, we investigate how the relation between acquisition quality and announcement timing varies across firm-specific conditions.
[10] Outside of the industries identified by Francis at al. (1994), Field et al. (2005) report that industries with an SIC code from 7375 through 7379 are sued more often. For the list of high litigation-risk industries adopted in our analysis, see notes to Table 3. By adopting the four litigation risk proxies advocated by Kim and Skinner (2012), we effectively make two implicit assumptions in our study. First, similar to Kim and Skinner (2012), the form of "litigation risk" we assume is the risk of securities class action lawsuits as opposed to the enforcement action by government agencies such as the Financial Services Authority. As Kim and Skinner note, securities class actions typically result from alleged bad outcome and/or failure to make timely disclosure. Second, the litigation risk facing firms is similar between the U.K. and the United States.

a public release of information promptly may well be greater on large firms than on small firms. As reported by several studies, firms respond to such pressure from investors (see Sengupta, 2004).

For a given amount of proprietary information leaked out, the leakage is likely to be more costly to an acquirer when competition for its target is high. With a high level of competition for the target, an early bid announcement may well attract a competing bidder leading to an increase in the required premium and resulting reduction in the expected synergy, or even an unsuccessful bid altogether. Such proprietary cost gives firms an incentive to delay their bid announcement. To address this potential competition effect, we include an index for target industry liquidity constructed following Schlingemann et al. (2002). The index is commonly adopted among acquisition studies as a proxy for the effect of competition for targets on acquirer gains (e.g., Moeller et al., 2004; Masulis et al., 2007).

The literature suggests that how investors perceive the credibility of disclosure is one important incentive for managers to disclose private information (Lennox and Park, 2006). Thus, firms are more likely to disclose their investment plan promptly if they expect that investors will find the announcement credible and react favorably to it. Because the market infers about acquisition quality from acquirers' past performance, it perceives a bid announcement by acquirers with high market valuation, and reacts to it, more favorably than an announcement by low-valuation acquirers (Rau and Vermaelen, 1998). We use the pre-announcement market-to-book equity ratio of acquirers as a proxy for the potential effect of managers' expectation of investor perception.

We also include relative size (transaction value divided by market value of acquirer equity) as an explanatory variable. Ample evidence shows that the larger the deal (relative to the acquirer's firm size) the larger is the value impact, and hence

economic importance, of the acquisition. Thus, the demand for early disclosure should be greater for relatively large deals. As reported above, a large number of the sample acquirers make multiple acquisitions within a three-year period, possibly reflecting an acquisition program. If it is a public announcement of the first deal that transmits most information about the program to the market (Asquith et al., 1983), the demand for prompt disclosure may exist only for the first deal. Such demand may not be material on the subsequent deals. To address this issue, we include a variable indicating whether the acquirer makes a prior deal during the preceding three-year period.

Table 3 reports the regression results. Models (1) through (3) are Tobit regressions where the dependent variable is the natural logarithm of (1 + lead time). Given that firms are required to publicly announce their acquisition plan before the deal becomes legally effective, we left-censor lead time at 0. Because acquisition motives vary across firms, some firms may announce their bid early or late relative to others due to firm-specific reasons. Such unobserved firm-specific factors can bias the coefficient estimates. Since these fixed effects cannot be explicitly incorporated into the Tobit model, we employ a random effects Tobit estimation in an attempt to account for unobserved firm-specific effects. This estimation assumes that unobserved firm-specific factors are uncorrelated to predictors in the regression model. Nevertheless, we also estimate a cross-sectional Tobit specification controlling for industry effects and obtain similar results (untabulated).

If firms announce a relatively good-quality acquisition earlier than a relatively poor-quality acquisition, we expect our explanatory variable of interest (Alpha) to have a significantly positive coefficient. In model (1), Alpha is the only explanatory variable and has a significantly positive coefficient. This result is in line with the univariate findings reported above. The significant coefficient of Alpha also suggests that the

potential noise in our measure of acquisition quality is unlikely to be of serious concern.

Model (2) incorporates the control variables. Given the variations in the proportions of

deals announced early and lead time observed in Table 1, we also include the year-

specific effects, i.e., dummy variables. In the presence of other determinants of

disclosure timing, the coefficient of Alpha becomes small and insignificant. As a result,

the quality of acquisitions in and of itself is not relevant to the timing of bid

announcements. This finding does not support the strategic disclosure timing

hypothesis. Managers do not announce their acquisition attempt early just because the

attempt is known to them to be of good quality (favorable non-financial information) or

announce it late because it has relatively poor prospects (unfavorable non-financial

information).

At variance with the results for Alpha, model (2) also shows that most of the

control variables have a significant coefficient. All of the proxies for litigation risk have

an expected coefficient sign although only firm size (book total assets of acquirers) and

acquirer recent return volatility have a significant coefficient.[11] Together, these results

lend support to the argument that firms with relatively large exposure to litigation risk

announce their acquisition bid relatively early. The positive coefficient of firm size is

also consistent with the view that there is greater demand for timely disclosure on large

firms than on small firms, and firms respond to the demand accordingly. Target

industry liquidity has a significantly negative coefficient. This result is consistent with

leakage of proprietary information being more costly when competition for the target is

high, thereby driving acquirers to delay their bid announcement. The coefficient of the

acquirer market-to-book equity ratio is significantly positive, in line with the conjecture

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[11] The insignificance of the coefficients of the dummy variable indicating that the acquirer is in a high litigation-risk industry (FPS) and acquirer recent sales growth suggests that despite the institutional similarity between the U.S. and U.K., there remain some differences between the two economies in terms of litigation risk.

that firms are more likely to announce their investment decision promptly when they expect that investors will perceive the announcement as credible and will react favorably to it. Relative size has a significantly positive coefficient. Firms face greater demand for an early disclosure when making a relatively large deal. The coefficient of the prior-deal dummy variable is significant, suggesting that the sequence of deals made within a relatively short period of time is unlikely to affect the timing of bid announcement.

Taken together, the significant coefficients of most of the control variables are consistent with firms choosing the timing for disclosure of investment plans by trading off between the benefits and costs of meeting the demand for prompt disclosure. When viewed with the insignificant result for Alpha, this finding suggests that firms disclose their investment plan early only if prompt disclosure is demanded by investors. Firms appear conservative in timing the disclosure of their investment plans.

It should be noted that the inclusion of control variables has reduced the sample size substantially, from 6,364 deals in model (1) to 5,834 in model (2). The reduction is due to a lack of data for calculating recent sales growth, which as described in notes to Table 3 requires sales data from two financial years before the announcement date. Thus, inclusion of recent sales growth eliminates from the analysis acquisitions by young firms, thereby introducing a selection bias to the sample in model (2). To assess to what extent the model (2) results are affected by the bias, we rerun the model (2) without recent sales growth. As shown in model (3), , with a small exception of the prior-deal dummy variable, results for Alpha and all of the remaining control variables remain practically identical to their model (2) counterpart. The coefficient of this dummy variable becomes significant in model (3), but only at the 10% level.

In addition, we rerun models (1) through (3) using a random effects probit estimation. As apparent from Table 2, the number of deals announced early is clustered (more than 50%, i.e., 1,005 out of 1,858) in month -1 with only 16% (296 out of 1,858) announced more than a quarter early. Such an uneven distribution of early announced deals points to the possibility that the relation between lead time and its determinants including Alpha may not be linear as assumed in the Tobit model. To address this possibility, we estimate probit regressions where the dependent variable is a binary variable taking the value of 1(0) if the initial announcement date precedes (is the same as) the completion date. As shown in models (4) through (6), the probit results are consistent with their counterparts in models (1) through (3). We also rerun models (1) through (3) using a random effects logit estimation, and find that the logit results (untabulated) are practically identical to the probit results. Such consistency confirms the finding that firms do not strategically time the disclosure of their investment decision based on the quality of the decision, regardless of whether the relation between the timing and its determinants is assumed to be linear or non-linear. Instead, the results are consistent with firms responding to the demand for prompt disclosure by weighing the benefits against costs of meeting such demand.

3.4   Regression analysis – strategic timing across firm-specific conditions

The literature examining disclosure of financial information suggests that the incentives to disclose good news early and delay bad news may vary across firm-specific conditions. For instance, the expected litigation costs may drive firms with high litigation risk to disclose bad news early in order to minimize the costs (Skinner, 1997). Therefore, firms may engage in strategic timing of non-financial information disclosure

only under certain conditions. We investigate this possibility by analyzing how lead time is related to the interactions between Alpha and firm or deal characteristics.

Due to litigation costs, firms exposed to high litigation risk are likely to announce a poor-quality deal promptly in an attempt to avoid litigation. Only firms with low litigation risk may find it beneficial to announce a good-quality deal early and a bad-quality deal late. To the extent that the proprietary cost of an early announcement is large when competition for the target is high, announcing a high-quality deal early may yield a net benefit for an acquirer only when the level of competition for its target is low. Considering that the market perceives a bid announcement more favorably when an acquirer has high market valuation as discussed above, the acquirer may expect a material payoff from disclosing a good-quality deal early only when its current market valuation is high. Because a relatively small deal carries little economic importance to the firm, the net benefit from announcing a good-quality deal early and a poor-quality deal late may well be material only for a relatively large deal. To the extent that deals preceded by a recent prior deal contain only little information, firms may find it worthwhile to strategically time their bid announcement only for the first acquisition they make after some period of time. In this analysis, we use dummy variables to represent firm size, recent sales growth, recent return volatility, target industry liquidity, acquirer book-to-market equity ratio, and relative size of the deal. The dummy variables take the value of 1(0) if the value of these variables is above their respective median value (otherwise).

The variables of interest are Alpha and its interactions with firm and deal characteristics. The conjecture that firms engage in strategic timing of bid announcements only under certain conditions implies that the interaction terms have a significant coefficient. Results, based on random effects estimations, are reported in

Table 4. Models (1) and (2) are left-censored Tobit and probit regressions, respectively. Models (3) and (4) are models (1) and (2), respectively, rerun without recent sales growth. Across all models, Alpha has an insignificant coefficient. With an exception of Alpha's interaction with recent return volatility, all other interaction terms, including the other three proxies for litigation risk, have an insignificant coefficient across all models. On balance, these results suggest that there is no reliable relation between the timing of bid announcements and the quality of acquisitions regardless of firm or deal characteristics. There is at best weak evidence of litigation risk exposure prompting firms to announce poor-quality deals relatively early.[12] Nor do firms announce a good-quality acquisition early when competition for their target is low or when they anticipate a favorable market reaction to the bid announcement. Even when a deal is large relative to the acquirer or is the first deal the acquirer makes in three years' time, there remains no relation between announcement timing and deal quality.

The results for the dummy variables are consistent with the corresponding results from Table 3. Both the FPS industries dummy variable and recent sales growth have an insignificant coefficient in all models. So does the prior-deal dummy variable also. Across all models, the rest of the dummy variables have a significant coefficient with an expected sign. We also re-estimate all models using a random effects logit specification, and find similar results (untabulated).

Overall, the findings documented in Table 4 suggest that the incentives, or a lack thereof, to disclose good-quality investment decisions early and delay the relatively poor decisions are unlikely to depend on firm-specific conditions. Together with the

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[12] To the extent that return volatility reflects a material aspect of litigation risk exposure for U.K. firms, the significant coefficients of Alpha's interactions with recent return volatility may be viewed as indicating that firms announce their poor-quality deals relatively early when facing high litigation risk. However, this result offers only weak evidence as the linear combination of the coefficients of Alpha and its interaction with recent volatility (untabulated) is insignificant in all models.

persistently insignificant coefficient of Alpha, these findings confirm that firms do not strategically time their bid announcement based on the quality of the acquisition.

4.   Strategic disclosure timing and amount of released information

In this section, we investigate the relation between the quality of acquisitions and the size of information content of bid announcements. To delay disclosure of poor-quality deals while meeting the demand for prompt disclosure, firms may release only a small amount of information about such deals at the initial public announcement.

4.1   Acquisition quality, timing of announcements, and magnitude of market reactions

First, we explore whether the size of information content is an important feature of the timing for disclosure of acquisition plans. Analyzing disclosure of financial information, Kothari et al. (2009) report a larger information content of public announcements for bad news than for good news. Kothari et al. argue that as firms delay bad news and release good news early, there is greater accumulation of bad news than good news at the time of public announcements. Importantly, their finding indicates that the size of information content is a fundamental feature of the timing for financial information disclosure. For disclosure of non-financial information, we are not aware of such an empirical indication. We explore the importance of the size of information content along two dimensions: across acquisition quality and across the timing of bid announcements. Following Kothari et al., we use the magnitude, i.e., absolute value, of market reactions to bid announcements as a proxy for the size of information content. Results are reported in Table 5.

Column 1 shows that the market reaction is significantly larger in both mean and median for deals with a positive alpha than for deals with a negative alpha. In column 2, we divide the sample deals into three quality groups: with a low, medium or high alpha. Although the magnitude of market reactions does not vary monotonically across the groups, it is significantly larger in both mean and median for the low-alpha group than for the high-alpha group. These results are in line with the findings of Kothari et al. (2009) that the information content of public announcements is larger for bad news than for good news. Along the timing dimension, column 3 shows that the market reaction is significantly smaller in both mean and median for deals announced late (i.e., at the completion date) than for deals announced early (i.e., before the completion date). If bad news is delayed and associated with greater accumulation of information at the time of public announcements, this result appears inconsistent with the implication that firms announce poor-quality deals late and good-quality deals early. We also compare the market reaction magnitude across four timing groups as in section 3.2. As reported in column 4, the market reaction magnitude neither varies monotonically across the timing groups nor significantly differs between deals announced late and deals announced more than a quarter early. Instead, untabulated results suggest that the market reaction is significantly smaller in both mean and median for deals announced late than for deals announced during month -1 as well as deals announced during months -2 and -3.

Overall, the discernible differences in the magnitude of market reactions across acquisition quality and timing of bid announcements indicate that the amount of information released at the bid announcement is likely to be an important feature of the timing of disclosure of investment decisions. Interestingly, the results on the timing dimension also suggest that firms release a greater amount of information the earlier

they announce their acquisition plan. Plausibly, the demand for prompt disclosure comes with the demand for a greater amount of information.

4.2   Regression analysis of magnitude of market reactions

If firms withhold unfavorable information about their acquisition decisions, the market reactions to initial bid announcements should be smaller for poor-quality deals than for good-quality deals holding constant the timing of the announcements. To examine this implication of strategic disclosure timing, we regress the magnitude of market reactions on Alpha taking into account the timing of initial bid announcements. Table 6 reports the regression results.

In all models, we incorporate both year and firm fixed effects. In models (1) and (2), only the measure for announcement timing is included as an explanatory variable. In model (1), the measure is lead time, and in model (2) a binary variable taking the value of 1(0) if the initial announcement date precedes (is the same as) the completion date. In both models, the coefficient of the measure is significantly positive confirming the univariate results reported above. With the timing measure in the model, strategic disclosure timing predicts a positive coefficient for Alpha, i.e., firms say more (less) at the initial bid announcement when announcing a good-quality (poor-quality) deal. As shown in both models (3) and (4), Alpha has a significantly negative coefficient with the coefficients of both timing measures remaining virtually unchanged. Holding constant the timing of initial bid announcements, firms release a smaller amount of information when announcing a good-quality deal than when announcing a poor-quality deal. To the extent that firms time their bid announcements in response to the demand for prompt disclosure, the negative coefficient of Alpha suggests that firms withhold information when they are to disclose a good-quality acquisition plan. Firms appear conservative in

how much information to release about their lucrative investment plan. This finding is consistent with the material proprietary cost of revealing a profitable investment plan and stands in sharp contrast to the evidence drawn from disclosure of financial information.

As reported in sections 3.3 and 3.4, the timing of bid announcements is an outcome of factors reflecting the demand for prompt disclosure. In models (5) and (6), we therefore assess robustness of the coefficient of Alpha from models (3) and (4) by replacing both timing measures with the determinants of announcement timing from Table 3. Model (5) includes all of the determinants. The coefficients of most determinants are insignificant. Nevertheless, the variable of interest, Alpha, continues to have a significantly negative coefficient. To address the potential selection bias from sample reduction due to inclusion of recent sales growth, model (5) is rerun without this variable. As shown in model (6), the coefficient of Alpha remains significantly negative. The results from models (5) and (6) therefore support the findings from model (3) and (4) that firms withhold information when they have a good-quality acquisition plan to disclose.

5.   Is it costly to announce of good-quality acquisitions early?

The findings reported above suggest that firms are conservative in timing the announcement of their acquisition plans rather than strategically announce good-quality plans early and poor-quality plans late. Also, firms withhold information when announcing a good-quality plan. These findings are consistent with the assumption that proprietary cost is an economically significant counterweight to the benefit of promptly disclosing favorable investment decisions. To gain a further understanding of the findings, we investigate the empirical existence of this key theoretical component of a

disclosure decision. Specifically, does the market react less favorably when firms announce a good-quality acquisition plan early? To address this fundamental question, we analyze how acquirer announcement-period excess return is related to the timing of bid announcements and to deal quality. Results are reported in Table 7.

In all models, the dependent variable is acquirer announcement-period gain, and the potential effects of standard determinants of acquirer gains (see, e.g., Moeller et al., 2004; Masulis et al., 2007; for definitions of the variables, see Table 7) as well as the year and firm fixed effects are accounted for. The results for the determinants of acquirer gains, i.e., control variables, are broadly consistent across models and are in line with the extant acquisition literature.

Turning to the variables of interest, namely lead time and Alpha. Model (1) shows that both of the variables have a significantly negative coefficient. The negative coefficient of lead time suggests that the market reacts to bid announcements less favorably the earlier firms announce their acquisition plan. Considering that the market generally expects acquisitions to be synergistic as reported in section 2, this result is in line with the view that there is significant cost involved in early disclosure of profitable investment plans. Consistent with the market's expectation of synergistic acquisitions, the result for Alpha shows that the better is the quality of the disclosed deal the less favorably the market reacts to the bid announcement. This result supports the idea that revealing a lucrative investment plan to the public involves significant cost. In model (2), lead time is replaced with a dummy variable indicating whether the deal is announced early or late. The coefficient of this variable is significantly negative with the result for Alpha remaining practically unchanged, confirming the model (1) results.

Models (3) and (4) include the interaction terms between each measure of announcement timing (i.e., lead time and the dummy variable indicating an early or late

announcement) and Alpha. These interaction terms allow us to investigate the possibility that disclosing good-quality deals is more costly when the disclosure is early, which implies a negative coefficient for the interaction terms. Both of the interaction terms have a small and insignificant coefficient whereas the coefficients of the two measures of announcement timing and Alpha remain significantly negative in both of the models. The insignificance of the interaction terms suggests that it is not more costly to disclose good-quality deals relatively early. Importantly, this insignificant result is consistent with the finding reported in section 3 that firms do not time their bid announcements based on deal quality. Given that firms instead time their bid announcements by trading off between the benefits and costs of meeting the demand for prompt disclosure, good-quality and poor-quality deals should be similarly exposed to the effect of information leakage associated with early announcements. Whether early or delayed, in addition, the proprietary cost should be larger the more lucrative the announced deal is. The persistence of the significantly negative coefficients of the timing measures and Alpha in models (3) and (4) are consistent with these connections. The negative coefficient of Alpha also provides rationale for the finding reported in section 4 that firms say less when announcing a good-quality deal: firms say less because saying more would cost them. It also gives a plausible explanation for the observation in Table 1 that two thirds of the sample deals are announced late.

Unlike the analyses in the above sections, the analyses in models (1) through (4) are not subject to the potential selection bias due to the inclusion of recent sales growth. To assess how sensitive the results from these models are to this potential bias, the models are rerun excluding deals that would be omitted if this variable were included. To save space, we tabulate only the results from rerunning models (3) and (4). Models

(5) and (6) show that the results from rerunning these models are similar. The

untabulated results from rerunning models (1) and (2) also remain similar.[13]

6.   Conclusion

While it is well documented that firms strategically disclose favorable financial

information early and delay unfavorable information, relatively little is understood

about such strategic timing for disclosure of non-financial information. In this study, we

examine the strategic disclosure timing hypothesis, which posits that good-quality

investment decisions are announced early and poor-quality decisions late.

We find no evidence that firms announce their acquisition plan early when the

plan is of good quality or delay the announcement of a poor-quality plan. Instead, firms

time bid announcements by trading off between the benefit and cost of meeting the

demand for prompt disclosure. Strategic disclosure timing also implies that firms still

have room to delay bad news by disclosing only little information at the initial bid

announcement. Contrary to this implication, our results indicate that firms withhold

information at the initial bid announcement when they have a good-quality acquisition

to announce. Our study further reveals that the market reacts to bid announcements

less favorably the earlier firms announce their acquisition plan and the greater is the

quality of the announced plan. Thus, firms get punished for leaking out proprietary

information. Taken together, our findings suggest that firms disclose their investment

plans conservatively and that one likely reason for conservative disclosure is the

material proprietary cost.

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[13] The persistently significant coefficient of Alpha across all models also supports the possibility that the information disclosed at the bid announcement allows the market to distinguish between relatively good-quality and poor-quality deals.

Our study provides evidence on the largely unexplored issue of how firms time disclosure of investment plans. As our evidence suggests, the existing insight that firms release good news to investors early and delay bad news may not generalize to disclosure of non-financial information. When it comes to investment decisions, the disclosure timing behavior appears consistent with the conservative recognition rules. Our findings point out that such conservatism in the capital budgeting process is an outcome of the significant cost inherent in leakage of proprietary information. This cost element distinguishes disclosure of investment decisions from disclosure of financial information.

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Table 1
Sample distributions

Deals announced early are deals announced before the bid completion date. For deals announced early, the median lead time (i.e., number of days between the initial bid announcement date and bid completion date) is reported. Percentage acquirer announcement-period excess return (CER) is estimated as market-adjusted excess return over the (-2, +2) window. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

Year	Number	Fraction (%) of deals announced early	Median lead time for deals announced early	Average CER (%)
1990	251	33.47	27	0.31
1991	223	43.50	32	0.72
1992	245	33.47	33	0.58*
1993	280	41.43	31	1.35***
1994	334	35.93	31	0.45
1995	306	35.95	28	0.22
1996	323	32.82	28	1.44***
1997	483	30.85	28	1.02***
1998	528	27.84	28	1.30***
1999	392	29.34	28	2.21***
2000	453	28.92	32	0.33
2001	374	27.01	28	0.89**
2002	283	22.97	32	1.53***
2003	221	28.05	26	1.95***
2004	320	20.31	34	1.31***
2005	316	26.27	28	2.92***
2006	341	24.34	29	1.51***
2007	357	19.05	27	1.62***
2008	219	19.63	27	0.65
2009	115	26.96	27	2.70***
1990-2009	6,364	29.20	29	1.21***

Table 2
Acquisition quality and timing of bid announcements

The proportions (in percent) of deals announced across various timing groups are reported. The sample deals are first divided into groups based on acquisition quality. For each group, deals are further divided into groups based on the timing of initial bid announcements: deals announced (i) at the completion date; (ii) during the month preceding the completion date, i.e., month -1; (iii) during the two-month period ending one month before the completion date, i.e., in months -2 or -3; and (iv) more than three months before the completion date, i.e., before month -3. For each deal, acquisition quality (alpha) is measured as acquirer monthly abnormal return (in percent) estimated during the three-year post-acquisition period. Panel A reports the proportions for deals with a negative or positive alpha. Panel B reports the proportions for deals with a low, medium or high alpha. In parentheses is a *p*-value of the Chi-square statistic for the difference in proportion of deals. In brackets is sample size.

	Average alpha (%)	Announcement timing groups			
		At bid completion	Month -1	Months -2 or -3	Before month -3
Panel A: Negative and positive alphas					
Negative	-2.99	71.36	15.77	8.78	4.08
	[3,918]	[2,796]	[618]	[344]	[160]
Positive	1.34	69.91	15.82	8.71	5.56
	[2,446]	[1,710]	[387]	[213]	[136]
p-value for difference in proportion between negative- and positive-alpha groups					
		(0.215)	(0.959)	(0.921)	(0.007)
Panel B: Low, medium and high alphas					
Low (30%)	-5.21	72.34	16.03	7.91	3.72
	[1,909]	[1,381]	[306]	[151]	[71]
Medium (40%)	-0.65	70.54	14.93	9.62	4.91
	[2,546]	[1,796]	[380]	[245]	[125]
High (30%)	1.66	69.62	16.71	8.43	5.24
	[1,909]	[1,329]	[319]	[161]	[100]
p-value for difference in proportion between low- and high-alpha groups					
		(0.064)	(0.570)	(0.555)	(0.023)

Table 3
Regression analysis of timing of bid announcements

A proxy for the timing of bid announcements is regressed on a set of explanatory variables. Models (1) through (3) are random effects Tobit regressions where the dependent variable is the natural logarithm of (1 + lead time), and lead time is left-censored at 0. Lead time is defined as in Table 1. Models (4) through (6) are random effects probit regressions where the dependent variable is a binary variable taking the value of 1(0) if the initial bid announcement date precedes (is the same as) the completion date. Alpha is a three-year monthly post-acquisition abnormal return (in percent). FPS takes the value of 1(0) if the acquirer's primary SIC code is one of the industries with high incidence of litigation risk as reported by Francis et al. (1994) and Field et al. (2005): i.e., 2833, 2836, 8731-8734, 3570-3577, 3600-3674, 7370-7379, and 5200-5961. Firm size is the natural logarithm of book total assets of the acquirer, which is standardized at each point in time based on the price level of the value-weighted FT All Share Index. Recent sales growth of the acquirer is the first difference in the natural logarithm of sales in year $t-1$ and of sales in year $t-2$. Return volatility is a standard deviation of the acquirer's daily returns during the year ending one month prior to the bid announcement date. The target industry liquidity index is calculated following Schlingemann et al. (2002): the value of all corporate control transactions made within the target's Datastream Level-4 industry and year of acquisition divided by the total book value of assets of all firms in the same industry and year. We match the description of each 2-digit SIC code industry in our sample to the description of Datastream Level-4 classification. MB equity is the acquirer market-to-book equity ratio observed one month before the bid announcement date. Subsequent deal takes the value of 1(0) if the acquirer makes a prior deal (no prior deal) during the preceding three-year period. Relative size is the transaction value divided by market value of the acquirer's equity. The year effects are dummy variables representing individual years from 1991. In parentheses is p-value based on bootstrapped standard errors.

Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)
Alpha	0.068	0.022	0.019	0.017	0.005	0.005
	(0.018)	(0.329)	(0.449)	(0.015)	(0.508)	(0.603)
1 if FPS industries		0.118	0.002		0.038	0.002
		(0.552)	(0.992)		(0.576)	(0.979)
Firm size		0.779	0.715		0.246	0.230
		(0.000)	(0.000)		(0.000)	(0.000)
Recent sales growth		0.081			0.016	
		(0.557)			(0.720)	
Return volatility		0.634	0.726		0.182	0.218
		(0.000)	(0.000)		(0.000)	(0.000)
Target industry liquidity		-0.267	-0.235		-0.078	-0.070
		(0.000)	(0.000)		(0.000)	(0.001)
MB equity		0.580	0.598		0.196	0.205
		(0.000)	(0.000)		(0.000)	(0.000)
Relative size		1.559	1.527		0.511	0.513
		(0.000)	(0.000)		(0.000)	(0.000)
1 if subsequent deal		-0.220	-0.229		-0.071	-0.072
		(0.157)	(0.053)		(0.174)	(0.086)
Constant	-1.895	-10.787	-9.465	-0.531	-3.573	-3.218
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Year effects		Yes	Yes		Yes	Yes
Pseudo R^2 (%)	0.06	9.03	8.93	0.11	18.65	18.59
Left-censored obs.	4,506	4,162	4,506			
Total number of obs.	6,364	5,834	6,364	6,364	5,834	6,364

Table 4
Regression analysis of timing of bid announcements
across firm-specific conditions

A proxy for the timing of bid announcements is regressed on a set of explanatory variables. Models (1) and (3) are random effects Tobit regressions where the dependent variable is the natural logarithm of (1 + lead time), and lead time is left-censored at 0. Lead time is defined as in Table 1. Models (2) and (4) are random effects probit regressions where the dependent variable is a binary variable taking the value of 1(0) if the initial announcement date precedes (is the same as) the completion date. The dummy variables representing large firms, high recent sales growth, high return volatility, high target industry liquidity, high MB equity, and large relative size take the value of 1(0) if the value of these variables is above the median value (otherwise). All other explanatory variables and year effects are defined as in Table 3. In parentheses is *p*-value based on bootstrapped standard errors.

Explanatory variables	(1)	(2)	(3)	(4)
Alpha	0.023	0.002	0.061	0.016
	(0.810)	(0.931)	(0.444)	(0.445)
1 if FPS industries	-0.031	-0.020	-0.140	-0.049
	(0.903)	(0.793)	(0.605)	(0.443)
1 if large firm	1.215	0.330	1.098	0.298
	(0.000)	(0.000)	(0.000)	(0.000)
1 if high recent sales growth	-0.122	-0.022		
	(0.487)	(0.703)		
1 if high return volatility	0.477	0.126	0.520	0.141
	(0.027)	(0.017)	(0.006)	(0.012)
1 if high target industry liquidity	-0.489	-0.139	-0.466	-0.134
	(0.005)	(0.011)	(0.013)	(0.002)
1 if hi MB equity	0.407	0.129	0.385	0.126
	(0.016)	(0.025)	(0.013)	(0.007)
1 if large relative size	3.667	1.065	3.590	1.054
	(0.000)	(0.000)	(0.000)	(0.000)
1 if subsequent deal	-0.117	-0.050	-0.227	-0.075
	(0.444)	(0.318)	(0.143)	(0.091)
FPS industries × Alpha	-0.026	-0.010	-0.037	-0.014
	(0.682)	(0.600)	(0.546)	(0.354)
Large firm × Alpha	0.013	0.005	0.023	0.007
	(0.854)	(0.840)	(0.725)	(0.740)
High recent sales growth × Alpha	0.074	0.025		
	(0.138)	(0.102)		
High return volatility × Alpha	-0.113	-0.036	-0.089	-0.027
	(0.038)	(0.073)	(0.053)	(0.076)
High target industry liquidity × Alpha	0.072	0.020	0.049	0.015
	(0.135)	(0.156)	(0.273)	(0.354)
Hi MB equity × Alpha	0.027	0.008	0.059	0.016
	(0.650)	(0.697)	(0.249)	(0.275)
Large relative size × Alpha	-0.054	-0.010	-0.062	-0.013
	(0.346)	(0.522)	(0.282)	(0.355)
Subsequent deal × Alpha	0.037	0.008	0.027	0.006
	(0.480)	(0.634)	(0.421)	(0.676)

Table 4 – *continued*

Constant	-4.331	-1.298	-4.176	-1.269
	(0.000)	(0.000)	(0.000)	(0.000)
Year effects	Yes	Yes	Yes	Yes
Pseudo R^2 (%)	5.06	10.33	4.84	9.93
Left-censored obs.	4,162		4,506	
Total number of obs.	5,834	5,834	6,364	6,364

Table 5
Magnitude of market reactions to bid announcements

The average and median of absolute values of acquirer announcement-period gains (magnitude of percentage market reactions) is reported for each group of deals. The sample deals are divided into groups based on acquisition quality: deals with (i) a positive or negative alpha; and (ii) a high, medium, or low alpha. The sample deals are also divided into groups based on the timing of initial bid announcements: deals announced (i) before the completion date (i.e., early) or at the completion date (i.e., late); and (ii) at the completion date or during the month preceding the completion date (i.e., month -1) or during the two-month period ending one month before the completion date (i.e., in months -2 or -3), or more than three months before the completion date (i.e., before month -3). Medians are in *italics*. In parentheses is the p-value for the difference in mean (*median*) based on an independent-samples t-test allowing for unequal variances (*the Mann-Whitney U test*).

Across alpha groups				Across timing groups			
[1]		[2]		[3]		[4]	
Negative	4.97	Low (30%)	5.70	Late	4.21	Late	4.21
	2.81		*3.22*		*2.55*		*2.55*
Positive	4.13	Medium (40%)	4.09	Early	5.70	Month -1	5.96
	2.51		*2.44*		*2.96*		*3.01*
		High (30%)	4.34			Months -2 or -3	5.59
			2.58				*3.12*
						Before month -3	5.02
							2.56
p-values for differences							
Negative vs. Positive		Low vs. High		Late vs. Early		Late vs. Before month -3	
(0.000)		(0.000)		(0.000)		(0.558)	
(0.000)		*(0.000)*		*(0.000)*		*(0.815)*	

Table 6
Regression analysis of magnitude of market reactions to bid announcements

The natural logarithm of the absolute value of acquirer announcement-period excess return is regressed on a set of explanatory variables. All models are OLS regressions with year and firm fixed effects. Lead time is defined as in Table 1. Announced early takes the value of 1(0) if the initial announcement date precedes (is the same as) the completion date. All other explanatory variables are defined as in Table 3. In parentheses is p-value based on the White standard errors that are robust to clustering at the acquirer level.

Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)
ln(1 + lead time)	0.040		0.040			
	(0.001)		(0.001)			
1 if announced early		0.168		0.169		
		(0.000)		(0.000)		
Alpha			-0.019	-0.019	-0.033	-0.031
			(0.035)	(0.035)	(0.003)	(0.001)
1 if FPS industries					0.077	0.089
					(0.702)	(0.676)
Firm size					-0.031	-0.036
					(0.537)	(0.417)
Recent sales growth					-0.086	
					(0.043)	
Return volatility					0.167	0.164
					(0.012)	(0.010)
Target industry liquidity					-0.027	-0.033
					(0.207)	(0.112)
MB equity					-0.052	-0.055
					(0.125)	(0.094)
Relative size					0.090	0.093
					(0.000)	(0.000)
1 if subsequent deal					-0.071	-0.069
					(0.175)	(0.154)
Constant	0.717	0.707	0.700	0.690	1.563	1.547
	(0.000)	(0.000)	(0.000)	(0.000)	(0.008)	(0.003)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2 (%)	12.69	12.75	12.78	12.84	13.18	13.89
Total number of obs.	6,364	6,364	6,364	6,364	5,834	6,364

Table 7
Regression analysis of valuation impact of announcement timing
on acquirer announcement-period gains

Acquirer announcement-period excess return is regressed on a set of explanatory variables. All models are OLS regressions with year and firm fixed effects. Lead time is defined as in Table 1. Leverage is book total assets minus book value of common equity scaled by firm market value, where firm market value is calculated as book total assets minus book value of common equity plus market cap. Market cap is the market value of common equity observed one month before the initial announcement date. Free cash flow is the ratio of earnings before interests, taxes and depreciation minus capital expenditure to firm market value: the data required for calculating free cash flow is not available for 134 observations. A proxy for Tobin's q is firm market value divided by book total assets. Equity financed takes the value of 1(0) if the payment method is pure common equity. Diversifying deal takes the value of 1(0) if the acquirer and target do not share (share) the same 2-digit primary SIC code. All other variables are defined as in Table 3. In parentheses is p-value based on the White standard errors that are robust to clustering at the acquirer level.

Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)
ln(1 + lead time)	-0.220		-0.223		-0.188	
	(0.004)		(0.004)		(0.015)	
1 if announced early		-0.549		-0.581		-0.548
		(0.049)		(0.041)		(0.055)
Alpha	-0.189	-0.190	-0.186	-0.181	-0.122	-0.132
	(0.013)	(0.013)	(0.008)	(0.011)	(0.083)	(0.059)
ln(1 + lead time) × Alpha			-0.003		-0.031	
			(0.917)		(0.379)	
Announced early × Alpha				-0.030		-0.064
				(0.786)		(0.592)
Firm size	-1.073	-1.082	-1.073	-1.083	-1.083	-1.082
	(0.005)	(0.005)	(0.005)	(0.005)	(0.001)	(0.001)
Leverage	3.664	3.732	3.664	3.731	2.567	2.593
	(0.067)	(0.062)	(0.067)	(0.062)	(0.144)	(0.140)
Free cash flow	-5.846	-5.831	-5.847	-5.840	-5.507	-5.486
	(0.024)	(0.024)	(0.024)	(0.024)	(0.107)	(0.109)
Tobin's q	-0.576	-0.581	-0.578	-0.585	-0.972	-0.961
	(0.377)	(0.373)	(0.375)	(0.369)	(0.091)	(0.095)
Relative size	0.522	0.490	0.521	0.489	0.469	0.458
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
1 if equity financed	1.297	1.260	1.294	1.255	1.034	1.031
	(0.141)	(0.153)	(0.140)	(0.154)	(0.243)	(0.245)
1 if diversifying deal	0.229	0.230	0.229	0.230	0.177	0.176
	(0.378)	(0.376)	(0.378)	(0.377)	(0.487)	(0.491)
Target industry liquidity	-0.096	-0.094	-0.096	-0.095	-0.124	-0.123
	(0.435)	(0.444)	(0.434)	(0.440)	(0.296)	(0.302)
1 if subsequent deal	-0.031	-0.032	-0.030	-0.031	0.030	0.017
	(0.922)	(0.919)	(0.924)	(0.922)	(0.928)	(0.959)
Constant	9.340	9.401	9.348	9.419	10.234	10.206
	(0.018)	(0.018)	(0.018)	(0.018)	(0.002)	(0.002)

Table 7 – *continued*

Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2 (%)	19.23	19.14	19.21	19.13	18.82	18.76
Total number of obs.	6,230	6,230	6,230	6,230	5,745	5,745