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The effect of bidder conservatism on M&A decisions: Text-based evidence from US 10-K filings*

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Abstract:

This paper examines whether and how bidders' conservative tone in 10-K filings influences the subsequent merger and acquisition (M&A) investment decisions of these US firms from 1996 to 2013. Based on 39,260 firm-year observations, we find, consistent with behavioural consistency theory, that conservative bidders are less likely to engage in M&A deals. Further, those that decide to engage in M&As are likely to acquire public targets and within-industry firms. These bidders are inclined to employ more stock acquisitions than cash acquisitions. Our results also indicate that conservative bidders experience abnormally poor stock returns around the announcements of M&A investments. This provides new insights on the mechanism through which bidders' sentiments influence shareholders' wealth. Overall, these findings highlight the implications of the textual sentiment of corporate disclosure for the forecasting of corporate investment and financing decisions. Our results have practical implications, since they shed light on the value relevance of the information content of major Securities Exchange Commission (SEC)-mandated 10-K filings.

1. Introduction

The textual analysis of corporate disclosure provides insights into managerial expectations and identifies important qualifiers and caveats that are absent from financial measures (Loughran & McDonald, 2015a). Barber and Odean (2008) and Engelberg and Parsons (2011) document that the sentiment of qualitative corporate news drives market trading. Feldman, Govindaraj, Livnat, and Segal (2010) find that the disclosure tone of the 10-K has incremental information content beyond that of financial measures. Loughran and McDonald (2011) observe that firms that convey more negative tones in their 10-K filings experience negative market reactions around the filing dates. Arnold, Fishe, and North (2010) quantify the words used in the risk factors sections of IPO prospectuses and find that they capture most of the IPO returns. Yan (2015) shows that the tone of 10-Ks gives accurate predictions of firms' long-term performance. Thus, extant literature suggests that words selected by managers in textual corporate communications have significant predictive power for firms' future stock returns, earnings, and performance. However, relatively little is known about whether the sentiment of corporate disclosure could be employed to anticipate investment activity. This paper addresses this gap by investigating the impact of textual sentiment on corporate merger and acquisition (M&A) investment decisions.[1]

Further, Ferris, Hao, and Liao (2013) introduce the concept of issuer conservatism, measured as the proportion of negative words in the IPO prospectus. They find that issuer conservatism is inversely related to subsequent operating and stock return performance.[2] We adopt the same proxy of the proportion of negative tone in the 10-K to examine the effect of

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[1] Kearney and Liu (2014) argue that the textual sentiment of corporate disclosure provides a good reflection of firms' internal and external conditions and thus has significant power to explain subsequent corporate investment decisions.

[2] In line with that, Tetlock, Saar-Tsechansky, and Macskassy (2008) find that the proportion of negative words in firms' specific news stories forecast firms' future earnings and returns above and beyond stock analysts' forecasts and historical accounting data.

textual conservatism on M&A decisions. M&A deals constitute one of the most strategic investment decisions, with substantial effects on firms' current and future value (Custódio & Metzger, 2013). The 10-K is a major and critical public document that provides a comprehensive review of corporate policies and practices. It is also more informative than any other business communication (Loughran & McDonald, 2014). Consequently, this paper examines the impact of cautionary language in 10-K reports (henceforth bidder conservatism) on subsequent M&A decisions.[3]

Cronqvist, Makhija, and Yonker (2012) argue that, consistent with the notion of the endogenous matching of managers with firms' mechanisms, firms choose managers with characteristics that fit their own beliefs and behaviours. They find that CEOs who are more conservative in terms of their personal leverage are optimal at managing firms with more conservative debt policies. They further observe that a firm may even replace a CEO with another who has the same attributes and behaviours. Accordingly, examining the information content of the 10-K provides a strong understanding of board, manager and firm-matched traits and their implications for future investment decisions. In view of the nature of M&A deals, which require intense board-manager discussions in the bid for final approval (Levi & Zhang, 2014), such deals constitute an ideal platform on which to test the ex-ante impact of bidder conservatism on M&A investment decisions. These M&A investment decisions include the likelihood of making an acquisition, the type and size of acquisitions (public vs. non-public, within-industry vs. cross-industry targets), the payment method, and how the market perceives those investment decisions.

Behavioural consistency theory states that the behaviour of an individual in one situation could forecast his/her future behaviours in other situations (Funder & Colvin, 1991).

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[3] We focus on the negative tone of firms' 10-K filings, since our main independent variable is bidder conservatism, which is proxied by the ratio of negative words to total words, as in Ferris et al. (2013).

Motivated by this theory, we posit that managers who convey a conservative tone in their 10-K filings can be expected to later make conservative corporate decisions. Conservative behaviour is defined as opposition to change and a tendency toward risk aversion (Wilson, 2013). On the other hand, M&As are viewed as risky investments due to the uncertainty associated with forecasting their outcomes (Levi & Zhang, 2014).[4] Thus, we expect that bidders with a prior conservative tone will be less likely to engage in M&A activities. Further, bidders might have better access to the information needed to estimate the real value of public targets than that required for non-public targets (Capron & Shen, 2007). Consequently, we posit that conservative bidders will want to avoid the uncertainty and asymmetry of information related to acquiring non-public targets. Similarly, we expect that conservative bidders will prefer to acquire familiar and same-industry targets rather than risky industrially diversified acquisitions.[5] Eckbo (2009) documents that bidders prefer stock financing if there is more uncertainty about the target. Consequently, we conjecture that conservative bidders are likely to engage in stock acquisition deals. Prior literature (i.e., Tetlock, 2007; Ferris et al., 2013; Loughran & McDonald, 2011) documents that the market reacts negatively to a conservative tone in different business communications. Accordingly, we expect that conservative bidders will experience negative market reactions around the announcements of M&A deals.

Based on 39,260 firm-year observations over the period between January 1996 and December 2013, we find significant evidence that firms with a more negative tone in their prior 10-Ks are less likely to be involved in subsequent acquisitions and have a small portion of M&A investments. This confirms our conjecture that conservative behaviour is related to risk-

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[4] Potential outcomes of M&As might be positive, negative or even losses that exceed the initial investment value (Christensen, Dhaliwal, Boivie, & Graffin, 2014). For instance, Microsoft Corporation experienced a loss of $12.6 billion in their market value after announcing they had acquired Nokia's mobile phone business for $7.2 billion (Amihud, DeLong, & Golubov, 2013).

[5] Berger and Ofek (1995) report that, in 1995, multiple-segment firms with valuation discounts experienced total value losses of $800 billion. This issue is known as a diversification discount problem.

averse attitudes and a lower tendency to invest in risky investments such as M&As. We further find that, conditional on the making of acquisitions, conservative bidders are more willing to acquire public targets. This might be due to information asymmetry between public and non-public firms (Capron & Shen, 2007). In addition, these firms prefer to pursue within-industry acquisitions. This finding is consistent with the proposition that corporate conservatism is more inclined towards familiar and safe than unfamiliar stimuli (Glasgow, Cartier, & Wilson, 1985). Our results also indicate that conservative bidders prefer stock acquisitions over cash acquisitions. Finally, we find that these firms experience a negative market reaction after engaging in these kinds of investments. This supports the notion that the sentiment of qualitative corporate reports drives market trading (e.g., Barber & Odean, 2008; Engelberg & Parsons, 2011).

Our paper contributes to the area of the information content and value relevance of Securities Exchange Commission (SEC)-mandated filings, the 10-K. To the best of our knowledge, no previous study has explored the link between the sentiment of corporate disclosure and subsequent corporate investment decisions in the context of M&As. We provide novel evidence that cautionary language plays a significant role in predicting the likelihood of a firm making an acquisition, and its value. These findings support the prior premises that conservative behaviour is associated with risk aversion and preserving the status quo. Similarly, we add to the literature by showing that the textual analysis of 10-Ks provides significant predictive power for not only the likelihood, but also the type and size, of subsequent acquisitions. These findings confirm the ability of the non-financial information revealed in the narrative sections of 10-Ks to forecast managers' decisions regarding M&As. They also add to the emerging evidence on the usefulness of SEC filings, including 10-Ks (Loughran & McDonald, 2011, 2014, 2015a).

We contribute to a growing literature that uses text analysis in finance, by investigating the implications of bidders' pre-textual sentiment for the anticipation of sources of finance in M&A deals. We observe that bidders that use a conservative tone in their corporate disclosure also have conservative financing policies. Our findings provide new evidence to support the proposition of behavioural consistency theory that individuals behave in a consistent way across different situations (Funder & Colvin, 1991). Further, this paper provides novel evidence on the interdependence between corporate disclosure and shareholders' wealth. We find evidence that soft information embedded in the descriptive sections of the 10-Ks plays a significant role in how the market evaluates firms' stock returns after they have engaged in M&A events. Collectively, these results confirm that a conservative tone in bidders' 10-Ks conveys information that is economically relevant to the prediction of corporate M&A decisions.

Our findings have several implications for both theory and practice in the area of corporate disclosure and behavioural finance. First, with regard to theory, our results provide some insights on the implications of bidders' sentiment and attitude for future M&A investment choices. Our findings reveal that investors and stakeholders might not be able to fully grasp corporate policies and decisions unless they carefully analyse the sentiment of the narrative sections of the 10-K. This suggests the interesting possibility that major corporate investment decisions are derived from more than traditional economic trade-offs and incentives. It also confirms that the textual sentiment of the 10-K enables us to gain an in-depth understanding of firms' conditions, private information, managers' incentives, and expected behaviours by seeing the world through their eyes. Besides this, managers should comprehend the mechanism through which their corporate communications influence their firms' value and shareholders' wealth. They should assess their prior negative disclosure tone before engaging in M&A deals, since it will have a significant effect on how the market will perceive the deals. Second, for

practice, our findings present new insights for policy makers, showing the incremental valuation-relevance of SEC filings and mandatory disclosures, since the textual sentiment of the 10-K could be used to predict corporate investment actions and their consequences.

The remainder of the paper is organised as follows. Section 2 presents our main hypotheses. Section 3 explains our methodology and empirical models. Section 4 introduces our empirical results. Section 5 reports some robustness checks. Section 6 presents our main conclusions.

2. Hypothesis development

2.1. Bidder conservatism and the likelihood of making an acquisition

Behavioural consistency theory advocates the notion that individuals behave in a consistent way across different situations (Funder & Colvin, 1991). Empirically, Cronqvist et al. (2012) show that managers exhibit consistent behaviour in their personal and corporate leverage policies. Motivated by this theory, we conjecture that bidders that use a conservative tone in their corporate disclosure can be expected to make conservative investment decisions. Conservative behaviour is also associated with a high tendency for uncertainty avoidance and preserving the status quo (Jost, Glaser, Kruglanski, & Sulloway, 2003). According to Schneider and Lopes (1986), individuals can be classified according to their attitude towards risk, into the risk-averse and the risk-seekers. The risk-averse group is driven by a desire for security or avoiding negative outcomes, while the risk-seekers group is driven by a desire for high returns. Using a survey experiment on a sample of 761 individuals, Kam and Simas (2010) observe that individuals with highly risk-averse attitudes have a greater preference for policies with certain outcomes than do individuals with high risk tolerance.

On the other hand, M&A deals are risky investments, since it is hard to predict their outcomes due to their uniqueness, scope, size, value and other factors that will affect the bidders' overall performance (Levi & Zhang, 2014). Bidders might thus experience positive

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outcomes, negative outcomes, or even losses that exceed the initial value of the M&A deal (Christensen et al., 2014). For instance, Rakuten experienced a drop of $2 billion in stock value that exceeded the original $900 million acquisition value of the Viber internet messaging corporation (Yasu & Mukai, 2014). Therefore, motivated by behavioural consistency theory, we expect firms that convey a conservative tone in their 10-Ks are less likely to be involved in subsequent M&A deals. This discussion leads to the following hypothesis:

H1. There is a negative relationship between bidder conservatism and the likelihood of making an acquisition.

2.2 Bidder conservatism and type of acquisition

In the previous section we proposed that conservative bidders might prefer their current status quo and would therefore make fewer M&A transactions. In this section, we review the literature to find out, in the case of conservative bidders that do decide to make M&A deals, which type of M&A they might prefer.

The first aspect of acquisition type is whether the acquired firm is a public or a non-public firm. According to Jost et al. (2003), conservative individuals exhibit a strong disposition towards preserving the status quo and avoiding uncertainty. They also prefer safe and traditional forms of organisation (Wilson, 2013). Conservative bidders' choice between public and non-public targets could be explained by the difference in information availability for those types of target. Officer (2007, p.573) states, *"While information asymmetry is endemic to all mergers or acquisitions, this problem is likely to be most severe ... [for unlisted targets], in which standards for information disclosure are not as high as for publicly traded firms and information about subsidiaries may be obscured by the parent's financial reporting choices".* Thus, managers of non-public firms typically have better control over the information they want to communicate (Reuer & Ragozzino, 2008). The relaxed disclosure requirements for non-public firms increase the uncertainty about their value relative to public

firms (Officer, Poulsen, & Stegemoller, 2009). In contrast, public firms are already priced by the markets and are subject to mandatory disclosure requirements and analysts' coverage (Capron & Shen, 2007). Thus, we presume that a US-quoted conservative bidder might acquire public targets to avoid the increased uncertainty and asymmetric information associated with acquiring non-public targets.[6] This discussion leads to the following hypothesis:

H2. There is a positive relationship between bidder conservatism and the likelihood of making a public acquisition.

The second aspect of acquisition type is whether the target comes from the same industry as the bidder or from a different one. If the target firm operates outside the bidder's industrial segment, the acquisition deal is viewed as an industrially diversified acquisition (Duchin, 2010). Previous studies (i.e., Lang & Stulz, 1994; Lins & Servaes, 1999; Lamont & Polk, 2001) document the negative influence of diversified acquisitions on firms' value. Berger and Ofek (1995) find that, during 1986-1991, US conglomerate firms operating in multiple business segments are priced at a mean discount of about 13% to 15% below the sum of the imputed values of their segments. This is known as the diversification discount. Morck, Shleifer, and Vishny (1990) observe that bidders that acquire targets from a different industry experience negative returns. According to Wilson (2013), a conservative attitude is viewed as opposition to change and a tendency toward risk aversion. Glasgow et al. (1985) note that a conservative person is more inclined toward familiar and safe stimuli than unfamiliar stimuli.

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[6] This conjecture does not contradict previous empirical evidence (e.g., Fuller, Netter, & Stegemoller, 2002; Ang & Kohers, 2001; Moeller, Schlingemann, & Stulz, 2004) that, unlike public acquisitions, non-public acquisitions achieve significant gains around bid announcements and thus could be viewed as less risky investments. Ekkayokkaya, Holmes, and Paudyal (2009) find the superior gains from non-public acquisitions in the short run to be attributable to a lack of information about their value. They also show that those non-public deals suffer a subsequent drop in stock returns in the long run, while the returns on public acquisitions break even over periods of up to three years. These findings support the view that limited information at bid announcements leads the market to overestimate the value effects of non-public acquisitions. However, in the long run, when better-quality information becomes available, the market corrects for its initial overestimation and values non-public acquisition deals downwards. In unreported tables, we run an event study after making a distinction between a short window (3 days around the announcement date) and long windows (12, 24, 36, 48, and 60 months), similarly to Ekkayokkaya et al. (2009), and obtain consistent results.

They have greater sensitivity to the possibility of loss and are more cautious about making major changes (Jost et al., 2003). Consequently, we expect that conservative bidders would prefer to acquire familiar and same-industry targets rather than industrially diversified ones. This discussion leads to the following hypothesis:

H3. There is a negative relationship between bidder conservatism and the likelihood of making an industrially diversified acquisition.

2.3. Bidder conservatism and M&A payment method

Bharadwaj and Shivdasani (2003) observe that debt issuance is the main way of raising the cash required to pursue M&A deals. Hutton, Jiang, and Kumar (2014) find that managers who adopt conservative ideologies are more likely to take more conservative financial decisions, such as lower leverage ratios. Motivated by behavioural consistency theory, we presume that bidders that use cautionary language in their 10-Ks are likely to maintain a conservative debt level. Thus, they are likely to finance their acquisitions using their own stock. In addition, Martin (1996) shows that stock acquisition is preferable when the acquiring firm considers the target a risky investment. According to our previous assumptions, a conservative bidder might view M&A deals as risky investment decisions due to the increased variance in their expected outcomes (Christensen et al., 2014). Collectively, conservative bidders might have conservative debt policies and consider M&A transactions unsafe investments. Thus, we expect that conservative bidders are likely to rely more on their own equity to finance M&A deals. This discussion leads to the following hypothesis:

H4. There is a positive relationship between bidder conservatism and the likelihood of making a stock acquisition deal.

2.4. Bidder conservatism and market reaction

Previous studies (e.g., Baker & Wurgler, 2006; Tetlock et al., 2008) find that soft information embedded in corporate disclosure has a superior impact on the market's evaluation

of firms' stock returns than quantitative measures of firms' fundamentals. Tetlock (2007) finds that the proportion of negative words of firm-specific news significantly explains the movement in the stock market. Ferris et al. (2013) show that the market reacts negatively to IPO prospectuses when the tone of the issuer is conservative. Arnold et al. (2010) quantify the words used in the risk factors section of the IPO prospectus and find that they explain most of the initial and subsequent stock returns. Loughran and McDonald (2011) find that a conservative tone in 10-K filings has a negative effect on firms' stock returns around the filing dates. These studies confirm that firms' stock market prices efficiently incorporate the linguistic information disclosed in corporate reporting. They also show that firms that convey a conservative tone experience poor market reactions. Thus, we expect that the market will react negatively to announcements of M&A transactions by conservative bidders. This discussion leads to the following hypothesis:

H5. There is a negative relationship between bidder conservatism and market reactions around the announcements of M&A deals.

3. Methodology

3.1. Sample

We collect annual 10-K filings of US publicly traded firms from the Electronic Data Gathering, Analysis, and Retrieval (EDGAR) database maintained by the SEC. 10-K filings have a similar basic structure across most firms, as regulated by the SEC. Thus, we exclude amended filings from our sample (Balvers, Gaski, & McDonald, 2015).[7] We further eliminate HTML, encoded images, and tables from each 10-K file, since we are interested in the narrative

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[7] Following Loughran and McDonald (2014), if the 10-K is not available, we use some other type of 10-K such as the 10-K405, 10-KSB, or 10-KSB405. These types represent 9% of our sample. A 10-K405 filing is similar to the 10-K except that it indicates that the CEO did not disclose insider trading activities in time. This form was abolished at the end of 2002. A 10-KSB is an annual report filing designed for small firms and was abolished at the end of March 2009. A 10-KSB405 is a 10-K405 for small US firms and was abolished at the end of 2002.

sections of these reports (Loughran & McDonald, 2014). From May 1996 onwards, all US public firms have been required by the SEC to disclose 10-K reports electronically.[8] Our main independent variables are measured in the fiscal year preceding the announcements of M&A deals. Thus, our 10-K sample covers the period between January 1996 and December 2013.

We then link the 10-K documents with the Compustat and CRSP databases using different identifiers, including the Central Index Key (CIK) number associated with each filing, the Compustat GVKEY and the CRSP PERMNO.[9] This merging reduces the original sample of 10-Ks from 67,681 to 46,410 observations during our sample period. We eliminate financial firms (SIC 6000–6999) and utilities (SIC 4900–4999) from the sample, since words such as risk and causality that have negative connotations for non-financial firms might not be perceived in the same way for financial firms (Jegadeesh & Wu, 2013). Additionally, these firms are subject to regulatory constraints and different accounting considerations (Uysal, 2011). We omit firm-year observations with missing data for any variable that we use in our empirical models during the sample period. The above steps lead to a sample of 39,260 firm-year observations.[10]

From the Thomson One database, we download M&A data for non-financial US public acquirers for the period between 1st January 1997 and 31st December 2014. Following Uysal (2011) and Karampatsas, Petmezas, and Travlos (2014), to be included in our sample a target may be a public, a private or a subsidiary firm. Acquisition deals should be completed and may be either domestic or foreign. The payment method has to be cash, stock, or a combination of

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[8] Electronic filings of 10-Ks were phased in over a three-year period prior to being made compulsory in May 1996. Thus, 10-K filings during those three years were biased toward large firms. We obtain the same results when we start our sample in 1993.

[9] We thank Bill McDonald for affording us access to his data file so that we could create a list of CIK numbers and filing dates for our sample of 10-K reports.

[10] Loughran and McDonald (2014) keep only those 10-K filings with at least 2,000 words. Lehavy, Li, and Merkley (2011) eliminate filings with fewer than 3,000 words to minimise errors arising from filing transmission or incomplete filing. It is notable that excluding those files from our sample does not affect the results.

both. The acquisition deal represents at least 50% of the target. We exclude all transactions labelled as minority stake purchases, acquisitions of remaining interest, privatisations, leveraged buyouts, spinoffs, recapitalisations, self-tenders or exchange offers, and repurchases (Alexandridis, Fuller, Terhaar, & Travlos, 2013). We employ, as a cut-off point, a minimum deal value of $1 million in order to avoid obtaining results generated by very small targets (Uysal, 2011).

3.2. Bidder's conservative tone

Following Ferris et al. (2013), we measure conservative tone as the number of negative words divided by the total number of words in the narrative sections of the 10-K filings, multiplied by 100. We employ Loughran and McDonald's (2011) negative word list, since it is more relevant in a business communication context than other lists (e.g., Harvard's General Inquirer (GI); Diction; Henry, 2008). Harvard GI and Diction's negative word lists are drawn from a broader social science context and thus some of their entries might not have negative connotations in business disclosure (Kearney & Liu, 2014). Loughran and McDonald (2011) report that almost 75% of the Harvard GI's negative words are inappropriate for capturing a negative tone in business applications. Harvard words such as "*tax, cost, capital, board,* and *depreciation*" do not have a negative meaning when used in 10-K reports (Kearney & Liu, 2014). Diction has 920 pessimistic words that can be obtained by combining the three subcategories of blame, hardship, and denial. Using a sample of 77,158 10-Ks, Loughran and McDonald (2015b) report that 70% of Diction's negative words are misclassified and do not generally indicate a pessimistic tone. For instance, the word "vice" is one of Diction's negative words that does not have the same negative effect in regards corporate textual information (Ferris et al., 2013). Henry (2008) introduces a negative list that contains 85 words developed from corporate earnings press releases. The main drawback is the limited number of words included in this list, which means that it misses important negative words such as "loss, losses,

adverse and impairment" (Loughran & McDonald, 2015b). Consequently, we use Loughran and McDonald's (2011) comprehensive negative world list extracted from a large sample of 10-K reports and created specifically for analysing corporate documents.

We also employ a negative word list only, and not a positive one, since we are interested in evaluating the issue of bidder's conservatism. Furthermore, negative words are clearer than positive words. Managers will rarely negate negative words in order to deliver a positive statement. Conversely, many positive words may be employed to make a negative statement (Loughran & McDonald, 2011). Tetlock et al. (2008), Loughran and McDonald (2015a), and Garcia (2013) clarify that a negative word list provides more incremental information and has significantly better explanatory power than a positive list. Loughran and McDonald's (2011) negative list contains 2,329 words commonly used by company managers. Several studies confirm that this negative word list is appropriate for gauging tone in different business contexts, for instance, for analysing the sentiment of the MD&A section of the 10-K report (Feldman et al., 2010), analyst reports (Huang, Zang, & Zheng, 2014), earnings conference calls (Matsumoto, Pronk, & Roelofsen, 2011), and the IPO prospectus (Ferris et al., 2013; Loughran & McDonald, 2013).

Our measure of bidder conservatism using the ratio of negative words to total words has several advantages over a manual scoring of the 10-K documents. It avoids potential misinterpretations or inconsistencies that are associated with a subjective categorisation of 10-Ks (Li, 2010). It is a continuous variable that improves the power of our empirical tests in comparison to the subjective dummy variables used in prior literature (e.g., Christensen et al., 2014; Hutton et al., 2014). It is also divided by the total number of words in the 10-K, which enables comparisons to be made between 10-Ks of different lengths. It is objective and could easily be replicated for large quantities of corporate disclosures, through the power of computer analysis (Rogers, Buskirk, & Zechman, 2011). In contrast, manual content analysis has a small

sample size that affects the power of the analysis and the generalisability of the results (Li, 2010).

Further, our word-list methodology might be better than a complicated technique such as the naïve Bayesian algorithm. The naïve Bayesian methodology is always viewed as a "black box procedure", since little is known about the rules and filters used to analyse the contexts of documents (Loughran & McDonald, 2015a). Usually, a small sample of documents is used to train the program. Then, the naïve Bayesian algorithm starts to classify the tone of the documents according to unseen classification filters (Buehlmaier & Whited, 2014; Antweiler & Frank, 2004). We cannot tell which sentences are classified as positive, negative and neutral, or which phrases or words dominate the analysis (Loughran & McDonald, 2015a). In some cases, texts are manually coded by non-native speakers (see Li, 2010; Huang et al., 2014). Thus, it is hard to replicate the results or test their reliability. Finally, the naïve Bayesian methodology is more time consuming and costly than the word-list approach (Kearney & Liu, 2014).

3.3. Empirical models

We use the estimated prior conservatism of the bidder to investigate its impact on the subsequent M&A investment decisions and economic consequences. First, we combine M&A data with all US public firms from 1996 to 2013 to create a variable that represents the likelihood of a firm undertaking an acquisition. Then, we employ the following probit model to test H1, which addresses the effect of bidder conservatism on the likelihood of pursuing an acquisition:

P (Acquisition=1) = Φ (β_0 + β_1 Bidder conservatism $_{i,t-1}$ + $\sum \beta_i$ Controls $_{i,t-1}$) (1)

Here, Acquisition is a dummy variable that takes the value one if the firm makes an acquisition and zero otherwise. Bidder conservatism is the negative word count scaled by the total number of words in the 10-K with a filing date preceding the announcement date of an

acquisition. To control for firm characteristics, we include several variables based on prior literature. Uysal (2011) finds that firms with higher profitability ratios have a greater ability to acquire other firms. The profitability ratio is measured as earnings before interest, tax and depreciation (EBITD) divided by total assets, at the fiscal year-end preceding the acquisition (Harford, 1999). Uysal (2011) shows that firms with high leverage ratios are less likely to make acquisitions. The firms' market leverage equals total debt divided by the sum of total debt plus the market value of equity (Harford, Klasa, & Walcott, 2009). Large firms are more likely to make acquisitions than smaller firms (Titman & Wessels, 1988). Bidder size is defined as the natural logarithm of sales (Almazan, De Motta, Titman, & Uysal, 2010). Firms with higher market-to-book (MTB) ratios and stock returns have high likelihoods of acquiring other firms in order to reap the benefits of overvaluation (Uysal, 2011). We use the stock return ratio and the MTB ratio at the fiscal year-end preceding the acquisition announcement date to control for the potential confounding impact of these variables.

To control for industry characteristics, following Schlingemann, Stulz, and Walkling (2002), we employ an industry M&A liquidity index to account for corporate asset liquidity in each industry. We define the industry M&A liquidity index as the total acquisition value, for each year and three-digit SIC code, divided by the total assets of all Compustat firms from the same three-digit SIC code and year. Further, Uysal (2011) finds a negative relationship between industry concentration and the likelihood of acquisitions. Industry concentration is measured by the Herfindahl index, which equals the sum of the squares of sales of a firm divided by the sum of sales of all firms sharing the same three-digit SIC code (Hou & Robinson, 2006). We include industry dummies based on Fama and French's 12-industry classification to account for unobserved time-invariant heterogeneity in industry characteristics. We use year-fixed effects in the regression model to control for unobserved effects over time. We employ random-

effects models to control for unobserved heterogeneity that might be correlated with the likelihood of making an acquisition.[11]

As a further check, we construct another dependent variable that equals the sum of the acquisition value divided by total assets, to address the same relationship as is proposed in H1. Then, we regress this variable on the prior conservatism of the bidder and the same control variables as in model (1) using the random-effects Tobit model, since the dependent variable is censored at zero. We do not use Tobit fixed-effects models because the maximum estimates of these models are biased and Tobit models are non-linear models. Moreover, it is difficult to cluster the standard error in the presence of censored data. Thus, in all the estimations, the robust standard errors are clustered at the firm level, except in the random-effects Tobit models where we use bootstrapping. Bootstrapping is a non-parametric randomisation technique that draws N clusters of observations from firm clusters rather than individual firm-year observations. In our Tobit models we employ 500 bootstrap datasets to estimate standard errors that are robust to heteroscedasticity, correlation, and autocorrelation (Efron, 1979).

Next, for those firms that have engaged in acquisition transactions, we test H2 and H3, which explore the impact of bidder conservatism on target type. We adopt the following probit models to address these issues:

$$P \text{ (Public acquisition=1)} = \Phi \left(\beta_0 + \beta_1 \text{ Bidder conservatism}_{i,t-1} + \sum \beta_i \text{ Controls}_{i,t-1} \right) \text{ (2)}$$

$$P \text{ (DIV2SIC= 1)} \qquad = \Phi \left(\beta_0 + \beta_1 \text{ Bidder conservatism}_{i,t-1} + \sum \beta_i \text{ Controls}_{i,t-1} \right) \text{ (3)}$$

The dependent variable in model (2) takes the value one if a firm acquires a public target and zero if it acquires a non-public target. In model (3), the dependent variable DIV2SIC is an industrially diversified acquisition dummy that takes the value one if the bidder's two-

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[11] Due to the small amount of within-firm variation in M&A activity levels, using logit fixed-effects models would exclude more than 50% of our sample observations. In unreported tables, we employ firm-fixed-effects models and standard models and obtain consistent results.

digit SIC code differs from that of the target and zero otherwise (Karampatsas et al., 2014). We further employ a Tobit analysis using the ratio of the acquisition value of each type to the bidders' total assets, since the dependent variable is censored at zero.

We also explore the impact of the conservative ratio on bidders' choice between stock and cash acquisitions. Following Karampatsas et al. (2014), we construct a dependent variable that takes the value one if the deal is financed with more than 50% stock and zero if it is financed with more than 50% cash. We use the following probit model to address H4:

$$P \text{ (Stock dominated=1)} = \Phi \left(\beta_0 + \beta_1 \text{ Bidder conservatism}_{i,t-1} + \sum \beta_i \text{ Controls}_{i,t-1} \right) \quad (4)$$

We also examine the impact of bidder conservatism on the market reaction to the announcement of acquisition deals. We estimate CARs (cumulative abnormal returns) over a three-day event window (one day before and one day after the announcement date) using a market model. We use two benchmark returns, namely, an equally weighted and a value-weighted index of returns. Then, we use these CARs to run the following fixed-effects ordinary least squares (OLS) regression models to test H5:[12]

$$\text{CAR}_{i,t} = \beta_0 + \beta_1 \text{ Bidder conservatism}_{i,t-1} + \sum \beta_i \text{ Controls}_{i,t-1} + \varepsilon_{i,t} \quad (5)$$

Finally, we run all the above models again after replacing the bidder conservatism variable with a highly conservative variable that takes the value one if the conservatism ratio of the bidder is higher than the sample median and zero otherwise. We do so in order to test whether the potential impact of the bidder conservatism ratio highlighted in the previous research questions is identical for highly conservative and less conservative firms.

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[12] We run fixed-effects OLS to control for endogeneity problems resulting from unobserved heterogeneity of a firm-specific and/or time-invariant nature. In unreported tables, estimating standard OLS and random-effects OLS regressions yields qualitatively similar results.

4. Empirical findings

4.1. Descriptive statistics

Panel A of Table 1 reports descriptive statistics for the dependent variables used in our analysis, as described in the previous section and to be discussed in the following sections. The panel shows that 25.3% (9946= 0.253×39260) of US firms, over the sample period of 18 years, make acquisitions, among which 18% (82%) are public (non-public) acquisitions. Around 40% (60%) are industrially diversified (focused) acquisitions. Over the period of the study, on average 24% (76%) of the US firms funded their acquisitions in a stock-dominated (cash-dominated) manner.

Panel B of Table 1 reports the main statistics for the explanatory variables used in our analysis. These descriptive statistics are calculated from a sample of 39,260 firm-year observations. We find that, over the sample period, US non-financial firms' bidder conservatism is on average 1.630, implying the number of negative words relative to total words revealed in the 10-K is 1.63%. The bidder conservatism variable ranges from 0.575 to 2.740, on average, suggesting significant variation in firms' conservative tone over the period of our study. Such variation is further confirmed in Panel C of Table 1, which presents the differences in means for our independent variables, according to whether a firm makes an acquisition. The difference-in-means is tested using the parametric t-statistics. We find that 29,314 firms decide not to make an acquisition, while 9,946 firms make an acquisition during the sample period.

Panel C reports the mean conservative tone for non-acquiring firms as 1.635, while that for acquiring firms is 1.607. The observed difference in conservative tone between non-acquiring and acquiring firms is significant at the 1% level based on a t-test (t= + 4.995), lending preliminary support for our first hypothesis that firms with a more conservative tone would be likely to acquire fewer targets. Panel C reveals that the mean values of market

leverage and the Herfindahl index for non-acquiring firms are significantly greater than those for acquiring firms. In contrast, the mean values of other variables, including profitability, bidder size, MTB, stock return, and industry liquidity, for the non-acquiring group are significantly lower than the mean values for the acquiring group.

Panel D reports the differences between highly conservative and less conservative firms in terms of the means and medians of key variables used in our analysis. It reveals that there are significant differences between highly and less conservative firms regarding their profitability, bidder size, stock return, Herfindahl index, and industry liquidity, at the 1% level, based on a t-test. Our results also show that highly conservative firms have significantly lower levels of market leverage (conservative debt levels) and lower levels of MTB than less conservative firms. Our results suggest that highly conservative firms acquire significantly smaller targets (sum of acquisition/TA) than less conservative firms. Accordingly, highly conservative firms might be interested in acquiring these relatively smaller targets so as to manage their risk levels.

[Insert Table 1]

4.2. Testing H1: Does bidder conservatism influence the likelihood of making an acquisition?

This section investigates whether bidder conservatism affects a firm's decision to make an acquisition. To address this question, we undertake a probit analysis using a dataset of 39,260 firm-year observations. We also run a Tobit model to test whether bidder conservatism affects the size of an acquisition. Table 2 reports the empirical results for the impact of bidder conservatism on the probability of pursuing an acquisition.

[Insert Table 2]

Table 2 reports the coefficient estimates of the probit models in columns 1 and 2 and of the Tobit models in columns 3 and 4. We find that bidder conservatism has a negative association with both the likelihood of engaging in an acquisition and the size of this

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acquisition as reported in columns 1 and 3, respectively. These findings support the premise of the behavioural consistency theory, which states that firms conveying a conservative tone in their corporate annual reporting will exhibit the same behaviour in implementing conservative corporate investment policies. Table 2 reports the average marginal effects to assess the economic significance of the bidder conservatism variable. Given that the average marginal effects of bidder conservatism is -0.021 and its standard deviation is 0.442. Thus, a one-standard deviation increase in bidder conservatism variable is related to a -3.67% (= -0.021×0.442/ acquisition dummy sample mean of 0.253) decline in the likelihood of making an acquisition. These findings imply that bidder conservatism seems to have a reasonable economic impact on the likelihood of M&A investments. Our results are also robust to controlling for firm characteristics, industry characteristics, year-fixed effects and unobserved heterogeneity; this provides evidence in support of H1 in that the disclosure tone of 10-K filings could predict firms' subsequent M&A investment decisions.[13]

Further, we examine the impact of bidder conservatism on the probability of making acquisitions after splitting the effect of highly conservative firms from that of less conservative firms. Column 2 of Table 2 shows that highly conservative firms are less likely to make acquisitions. The marginal effects of the variable for highly conservative firms show that it has a non-trivial economic impact. This shows that moving from a less conservative position to a highly conservative one (the change from 0 to 1) reduces the likelihood of an acquisition by 0.013, a decrease of 5% (0.013/ acquisition dummy sample mean of 0.253) over the sample average. Consistent with the lower likelihood of acquisitions, column 4 observes that highly conservative firms invest less in acquisition transactions than do less conservative firms.

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[13] In unreported analysis, we run standard models and fixed-effects logit models and obtain similar results.

For the other control variables, consistent with Uysal (2011), firms with high leverage ratios are less able to acquire other firms. We find that more profitable firms are more able to make acquisitions. The significant sign of firms' size at the 1% level reveals that bigger firms have a higher probability of acquiring targets than smaller firms. We show that the stock return and the MTB both have significantly positive impacts on the bidder's decision to make an acquisition.

4.3. Testing H2: Does bidder conservatism influence the likelihood of acquiring a public target?

This section examines how a conservative tone affects a firm's decision regarding acquisition type, specifically in terms of public versus non-public acquisitions. Column 1 of Table 3 shows that bidder conservatism has a positive association with the likelihood of undertaking public acquisitions relative to non-public acquisitions. The marginal effects and the standard deviation of the bidder conservatism variable are 0.026 and 0.442, respectively. This indicates that a one-standard deviation increase in bidder conservatism variable is associated with a 6% (0.026× 0.442/ public dummy sample mean of 0.180) larger likelihood of acquiring a public target. These results show that bidder conservatism itself is an economically significant driver of firms' decision over whether to acquire public targets. Further, our findings are in line with the assumption that conservative bidders exhibit greater aversion to ambiguity and uncertainty related to the value of a target. Thus, they prefer public acquisitions in order to avoid the uncertainty and asymmetry of the information associated with non-public acquisitions (Ekkayokkaya et al., 2009). Overall, we accept H2 that there is a positive relationship between a bidder's conservative tone and their likelihood of making a public acquisition.

[Insert Table 3]

Next, we test whether the positive relationship between bidder conservatism and the likelihood of acquiring a public target is identical for both highly and less conservative firms. Column 2 of Table 3 reports that highly conservative firms have a higher tendency to acquire public targets than non-public targets. They also invest in public acquisitions more often than less conservative firms, as reported in column 4. Further, the marginal effects confirm the economic impact of the variable for highly conservative firms. Specifically, column 2 reports that moving from a less conservative position to a highly conservative one (the change from 0 to 1) increases the likelihood of acquiring a public target by 0.019.

4.4. Testing H3: Does a bidder's conservatism influence its likelihood of making an industrially diversified acquisition?

This section investigates the relationship between bidder conservatism and firms' acquisition types, in particular, the likelihood of acquiring industrially diverse versus same-industry targets. Column 1 of Table 4 shows that bidder conservatism reduces the likelihood of making industrially diversified acquisitions. The marginal effects of the bidder conservatism variable indicate that this relation is not only statistically significant, but also economically significant. It suggests that a one-standard deviation increase in bidder conservatism reduces the likelihood of a firm making diversifying acquisitions by 4% (-0.040 ×0.442/ DIV2SIC sample mean of 0.40). This finding is consistent with the conjuncture that conservative firms are more inclined towards familiar and safe than unfamiliar stimuli. Targets from different industries are viewed as unfamiliar stimuli compared to within-industry acquisitions. Column 3 of Table 4 shows that conservative bidders invest less in industrially diversified acquisitions than in focused acquisitions. This confirms Jost et al.'s (2003) view that conservative individuals have a strong resistance to change. Accordingly, we accept H3 that conservative bidders prefer focused acquisitions than acquiring targets from industries outside of their own.

[Insert Table 4]

Next, we address whether the effect of bidder conservatism on the probability of undertaking industrially diversified acquisitions is systematic for highly versus less conservative firms. Column 2 of Table 4 shows highly conservative firms are less likely to acquire targets from other industries. They also invest less in industrially diversified acquisitions than do less conservative firms, as reported in column 4. The marginal effects of the highly conservative variable also confirm the economic significance of our results.

4.5. Testing H4: Does bidder conservatism influence the M&A payment method?

This section examines the impact of bidder conservatism on the financing method for M&A deals. Table 5 indicates that bidder conservatism affects the payment method of an acquisition. In particular, column 1 finds that bidder conservatism increases the probability of using stock as a medium of payment in acquisition deals. The marginal effects in column 1 suggests that a one-standard deviation increase in bidder conservatism variable is related to a 4% (0.023×0.442 / stock dominated sample mean of 0.237) larger likelihood of making stock acquisitions. Similarly, column 3 shows that bidder conservatism variable increases the percentage of stock in the acquisition transaction. These results are in line with the notion that conservative bidders use stock acquisitions in order to reduce the uncertainty associated with the acquisition process outcomes (Levi & Zhang, 2014). The significance of the results is also robust even when controlling for the bidder's stock return and MTB ratio. This suggests that the impact of bidder conservatism is not derived from either the firms' overpricing effect, or the impact of firms' growth opportunities. However, it confirms H4, in that the conservative tone of a 10-K could predict the method of payment used by a bidder in M&A transactions.

[Insert Table 5]

Next, we test whether the effect of bidder conservatism on M&A payment methods is identical for both highly and less conservative firms. Column 2 shows that highly conservative firms prefer stock acquisitions relative to less conservative firms. Column 4 reports that highly

conservative firms use more stock than cash in their acquisition offers. The marginal effects of the highly conservative variable also confirm the economic significance of our results.

For the other control variables, relative size has a significant positive relationship with the likelihood of stock financing at the 1% level. These findings are consistent with Moeller et al.'s (2004) argument that it is difficult to raise sufficient debt for cash offers if the acquisition deal size is larger than the size of the bidder. We also find that bigger firms are more inclined to offer cash for their targets. This relationship is significant at the 1% level. MTB has a positive association with the probability of using stock as a medium of payment for acquisition transactions. Finally, foreign acquisitions are more likely to be financed by cash.

4.6. Testing H5: Does bidder conservatism influence abnormal announcement returns around M&A deals?

This section investigates whether the conservative tone of prior 10-Ks affects how the market perceives the quality of subsequent acquisition events. Consistent with the market efficiency hypothesis, the market should react accurately and in a timely manner to new information such as acquisition announcements (Fama, 1991). Thus, we use an event study to investigate the immediate impact of acquisition announcements by conservative bidders on shareholders' wealth.

[Insert Table 6]

Table 6 presents the impact of bidder conservatism on CARs to the announcements of M&A events. Columns 1 and 3 show that the market reacts negatively when conservative bidder firms announce their M&A deals. In particular, we find that a one-standard deviation increase in bidder conservatism reduces the three-day cumulative abnormal returns around the announcement of an acquisition by approximately 0.0035 (0.008 × 0.442). These results confirm the economic significance of corporate disclosure and its direct impact on how external investors view firms' subsequent investment decisions. Further, columns 2 and 4 show

that highly conservative firms experience more negative stock returns than less conservative firms. Our findings are robust to controlling for firm characteristics, industry characteristics, year-fixed effects, and unobserved heterogeneity, and to using different benchmark returns. This supports H5, that a previous conservative tone could predict the market reaction around subsequent acquisition transactions. It also highlights the mechanism through which bidder sentiment could influence shareholders' wealth.

For the other control variables, Table 6 shows that, consistent with Uysal (2011), highly leveraged firms are likely to be selective and choose the most value-enhancing acquisitions, and thus likely to experience a positive market reaction around M&A events. In line with Moeller et al. (2004) and Uysal (2011), Table 6 finds that the market reacts positively to announcements of acquisitions of targets that are large relative to the acquirer. Further, due to the hubris effect, our results confirm Moller et al.'s (2004) view that the market reacts more negatively to the acquisition announcements of bigger firms than to those of smaller firms. Table 6 documents the market's reaction in favour of M&A deals that are financed totally with cash, and the abnormally poor stock returns experienced by purely stock-financed acquisition deals. These findings are consistent with that of Fuller et al. (2002), in that cash bids usually give a positive signal to the market about the expected future gains from M&A deals. In contrast, the financing of an acquisition entirely with stock might indicate that the bidders are overvalued or the target is a risky investment (Eckbo, 2009).

5. Robustness checks

The foregoing empirical findings section documents that adopting alternative estimation techniques provides robust results. As the previous sections showed, we use different proxies for our dependent variables, i.e., dummy variables, continuous variables as reported in Tables 2 to 5, and different market indices as reported in Table 6. We also estimate our main independent variable using continuous and dummy variables (reported in Tables 2 to

6). Further, we employ different regression models, namely probit and Tobit (see Tables 2 to 5) and OLS (Table 6). We adopt different coefficient estimations: random-effects estimations reported in Tables 2 to 5, fixed-effect estimations reported in Table 6 and standard estimation models, in unreported tables, and obtain similar results. We also run, in unreported tests, fixed-effects estimations for Table 2 and random-effects estimations for Table 6 and again obtain similar findings.

5.1. Multinomial logit for M&A payment method

As a further robustness check, we run a multinomial model in **Appendix B** to test the effect of bidder conservatism on the payment method used for acquisition transactions. We employ this model since our dependent variable has three different categories, namely pure stock acquisitions, pure cash acquisitions, and mixed payment methods. The variable for pure stock acquisitions takes the value one if the whole transaction is paid for in stock and zero otherwise. Pure cash acquisitions takes the value one if the whole transaction is paid for in cash and zero otherwise. Mixed payment methods takes the value one if the transaction is paid for in both cash and stock and zero otherwise. We choose pure cash acquisitions as our reference group. Column 1 shows that bidder conservatism have a positive association with stock acquisitions, relative to cash acquisitions. Column 2 shows that highly conservative firms are more likely to use their own stocks to finance their M&A deals, relative to less conservative firms. Column 3 finds that bidder conservatism is associated with larger likelihood of using a mix of stock and cash, relative to financing the entire M&A deal with cash only. We do not observe any significant relationship for highly conservative firms in column 4. Overall, the estimates of this multinomial logit model confirm our previous findings that bidder conservatism has a positive association with the likelihood of stock acquisitions.

5.2. Standardised conservatism

Tetlock et al. (2008) use a standardised proxy of the fraction of negative words in each firm-specific news story to account for non-stationary negative tone. This non-stationarity in the negative sentiment might be due to changes in regimes, coverage, or styles of business communication. Following Tetlock et al. (2008), we develop two proxies to control for non-stationarity of conservative tone in a firm's 10-K filings. In particular, we use a standardised conservative words proxy and a standardised bidder conservatism proxy. We estimate the standardised conservative words proxy as the number of negative words in the firm's 10-K minus the mean, divided by the standard deviation, where the mean and standard deviation are calculated at the firm level across the sample period. We similarly define standardised bidder conservatism as the bidder conservatism minus its mean, divided by its standard deviation, again at the firm level. We test the impact of our standardised proxies on the likelihood of making an M&A investment and the consequences of such an investment. **Appendix C** shows, consistent with our previous results, that standardised conservatism has a negative association with the probability of acquiring targets. **Appendix D** supports our previous finding that the market reacts negatively to M&A investments by conservative bidders.

5.3. Bidder conservatism and financial crisis

The collapse of major financial institutions during the financial crisis caused a dramatic fall in global credit markets. This fall led to a severe reduction in the availability of external finance and impeded firms' ability to invest (Duchin, Ozbas, & Sensoy, 2010). Grave, Vardiabasis, and Yavas (2012) find a significant decline in M&A activity during the global financial crisis. Accordingly, it is important to explore the possibility that the negative relationship between bidder conservatism and the likelihood of making an acquisition is driven by the financial crisis shock. We control for the financial crisis effects using three variables, representing the periods prior to, during and post the crisis. The financial crisis variable takes

the value one for the years of the financial crisis, 2008 and 2009, and zero otherwise (Frankel & Saravelos, 2012). The dummy variable prior (post) financial crisis takes the value one for the years before (after) the financial crisis period, and zero otherwise. **Appendix E** shows that the expected relationship between bidder conservatism and the likelihood of making an acquisition still exists and is significantly robust to excluding the effects of the financial crisis and the period subsequent to it.

Further, Samarakoon (2011) reports that, during the financial crisis, the US stock market plummeted by 43%. Thus, it is essential to test whether the negative market reaction around the announcements of M&A deals by conservative bidders is driven by the effect of the financial crisis. **Appendix F** shows that M&A transactions by conservative bidders still experience poor stock returns after we exclude the effects of the financial crisis and the period subsequent to it.

6. Conclusion

This paper provides new insights in the area of information content and the value relevance of one of the major SEC-mandated filings, the 10-K. The paper explores whether the qualitative sections of the 10-K could predict future M&A investment decisions and related movements in the stock market. In particular, it examines the effects of bidders' conservatism or cautionary language in 10-Ks on the likelihood of making an acquisition, the type of the acquisition, the financing choice for the acquisition, and the market reaction around the announcement of the acquisition. According to behavioural consistency theory, we posit that firms that convey a conservative tone in their corporate annual reporting would be likely to exhibit the same behaviour in conducting conservative corporate investment and financing policies. Consistent with this assumption, we find that conservative bidders are conservative in undertaking acquisitions.

Our findings present evidence that the textual sentiment of 10-K reports influences the types of investment made. In particular, we find that conservative bidders prefer public targets, which have less information asymmetry than non-public firms. They also prefer to acquire familiar, that is, within-industry, targets rather than those outside their own industry. According to Levi and Zhang (2014), acquisition deals are risky investments due to the uncertainty associated with their expected outcomes. We document that conservative bidders are more inclined to use their stocks as the medium of financing M&A deals. These results are in line with the notion that conservative bidders use stock acquisition in order to reduce the uncertainty associated with the acquisition process. Finally, we investigate how the market perceives M&A investments made by conservative bidders. We find that these conservative firms experience negative abnormal returns around the announcement of M&A deals. This provides direct evidence of the mechanism through which bidder sentiment could influence shareholders' wealth. Collectively, this paper is one of the first to address the predictive power of mandatory 10-K filings regarding subsequent M&A decisions. Our results have several implications for the area of corporate mandatory disclosure. For instance, investors should carefully analyse corporate textual sentiment in order to effectively grasp corporate attitudes and their potential impact on the quality of future M&A investment decisions.

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Table 1. Descriptive statistics of the sample
Panel A: Summary statistics of main dependent variables used in subsequent tables

Variables	N	Mean	Median	Std. Dev.	Min	Max
Acquisition dummy	39,260	0.253	0.000	0.428	0.000	1.000
Sum of acquisitions/TA	39260	0.087	0.000	0.313	0.000	2.253
Public dummy	9,946	0.180	0.000	0.384	0.000	1.000
Sum of public acquisitions/ TA	9,946	0.108	0.000	0.399	0.000	2.810
DIV2SIC	9,946	0.400	0.000	0.490	0.000	1.000
Diversifying acquisitions/ TA	9,946	0.172	0.000	0.518	0.000	3.676
Stock dominated	9,946	0.237	0.000	0.425	0.000	1.000
% of stock	9,946	0.245	0.000	0.390	0.000	1.000
CAR_equally index	9,701	0.008	0.005	0.048	-0.067	0.094
CAR_value index	9,701	0.008	0.004	0.048	-0.068	0.093

Panel B: Summary statistics of full sample

Variables	N	Mean	Median	Std. Dev.	Min	Max
Bidder conservatism	39,260	1.630	1.632	0.442	0.575	2.740
Market leverage	39,260	0.203	0.122	0.232	0.000	0.934
Profitability	39,260	0.010	0.101	0.355	-2.300	0.395
Bidder size	39,260	5.365	5.433	2.315	0.000	10.693
MTB	39,260	3.048	2.073	5.738	-20.363	37.138
Stock return	39,260	0.204	0.039	0.885	-0.926	5.000
Herfindahl index	39,260	0.140	0.099	0.127	0.031	0.794
Industry M&A liquidity	39,260	0.028	0.014	0.041	0.000	0.214

Panel C: Difference in means between acquiring and non-acquiring firms

Variables	Acquiring firms Mean	Non-acquiring firms Mean	Difference t-value
Bidder conservatism	1.607	1.635	-4.995***
Market leverage	0.148	0.218	-24.138***
Profitability	0.079	-0.008	19.973***
Bidder size	5.926	5.217	24.841***
MTB	3.733	2.867	12.175***
Stock return	0.370	0.159	19.159***
Herfindahl index	0.131	0.143	-7.737***
Industry M&A liquidity	0.031	0.027	7.734***
Number of observations	9,946	29,314	

Panel D: Difference in means between highly and less conservative firms

Variables	Highly conservative firms Mean	Less conservative firms Mean	Difference t-value
Market leverage	0.196	0.209	-5.258***
Profitability	-0.022	0.043	-18.268***
Bidder size	5.325	5.404	-3.407***
MTB	2.967	3.128	-2.770***
Sum of acquisitions/ TA	0.082	0.092	-3.212***
Stock return	0.179	0.229	-5.625***
Herfindahl index	0.134	0.147	-10.382***
Industry M&A liquidity	0.027	0.028	1.712***
Number of observations	19,630	19,630	

Panels A, B, C and D of this table give descriptive statistics of all variables as follows: Panel A reports summary statistics of the main dependent variables used in the paper. Panel B reports summary statistics for US public firms with 10-K SEC filings from 1996 to 2013. Panel C reports the t-test on the statistical significance of the difference in means between non-acquiring firms and acquiring firms. Panel D reports t-tests on the statistical significance of the difference in means between highly and less conservative firms. Panels C and D also show the t-values of the differences that are statistically significant at the (*)10%, (**)5%, and (***)1% levels. Variable definitions are given in **Appendix A**. All continuous variables are winsorised at the 1% level.

Table 2. Does bidder conservatism affect the probability of making an acquisition?

	(1) Acquisition dummy	(2) Acquisition dummy	(3) Sum of acquisitions/ TA	(4) Sum of acquisitions/ TA
Bidder conservatism	-0.083***		-0.047***	
[*Marginal effects*]	[-0.021]		[-0.010]	
	(-3.17)		(-2.77)	
Highly conservative firms		-0.052**		-0.029**
[*Marginal effects*]		[-0.013]		[-0.006]
		(-2.40)		(-2.06)
Market leverage	-1.080***	-1.081***	-0.796***	-0.796***
	(-18.60)	(-18.63)	(-19.84)	(-19.86)
Profitability	0.215***	0.222***	0.095***	0.099***
	(4.62)	(4.74)	(3.51)	(3.64)
Bidder size	0.090***	0.089***	0.025***	0.025***
	(12.83)	(12.78)	(5.36)	(5.32)
MTB	0.004**	0.004**	0.004***	0.004***
	(2.44)	(2.45)	(3.90)	(3.91)
Stock return	0.102***	0.102***	0.095***	0.095***
	(9.07)	(9.08)	(13.54)	(13.54)
Herfindahl index	-0.157	-0.164	-0.123	-0.127
	(-1.51)	(-1.57)	(-1.55)	(-1.60)
Industry M&A liquidity	0.064	0.063	-0.056	-0.055
	(0.25)	(0.25)	(-0.33)	(-0.33)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	39,260	39,260	39,260	39,260

This table reports the coefficient estimates of the random-effects probit analysis in columns 1 and 2 and the random-effects Tobit analysis in columns 3 and 4. The dependent variable in the probit models takes the value one if the firm makes an acquisition and zero otherwise. The Tobit analysis estimates the ratio of the sum of the acquisition value to the firm's total assets. Variable definitions are given in **Appendix A**. All continuous variables are winsorised at the 1% level. Marginal effects for bidder conservatism and highly conservative firms are reported in square brackets. *T-statistics* are reported in parenthesis. Standard errors are robust and clustered by firm for the probit models and bootstrapped for the Tobit models. The estimates in the models are statistically significant at the (*)10%, (**)5%, and (***)1% levels.

Table 3. Does bidder conservatism affect the probability of making public versus non-public acquisitions?

	(1) Public dummy	(2) Public dummy	(3) Sum of public acquisitions/TA	(4) Sum of public acquisitions/TA
Bidder Conservatism	0.123***		0.153***	
[*Marginal effects*]	[0.026]		[0.032]	
	(2.59)		(3.57)	
Highly conservative firms		0.093**		0.097***
[*Marginal effects*]		[0.019]		[0.020]
		(2.31)		(2.67)
Market leverage	-0.141	-0.142	-0.138	-0.141
	(-1.15)	(-1.16)	(-1.30)	(-1.33)
Profitability	-0.381***	-0.391***	0.074	0.056
	(-2.92)	(-3.00)	(0.66)	(0.51)
Relative size	0.398***	0.397***	0.567***	0.566***
	(16.57)	(16.57)	(32.37)	(32.31)
Bidder size	0.291***	0.292***	0.230***	0.230***
	(22.39)	(22.43)	(18.95)	(18.99)
MTB	0.004	0.004	0.005	0.005
	(1.01)	(1.03)	(1.59)	(1.61)
Stock return	-0.039*	-0.038	-0.017	-0.016
	(-1.66)	(-1.62)	(-0.86)	(-0.81)
Herfindahl index	-0.743***	-0.739***	-0.810***	-0.809***
	(-3.23)	(-3.21)	(-4.22)	(-4.21)
Foreign acquisition	-0.126**	-0.126**	-0.126***	-0.126***
	(-2.57)	(-2.56)	(-3.00)	(-3.00)
Industry M&A liquidity	-1.519***	-1.513***	-1.432***	-1.427***
	(-3.04)	(-3.03)	(-3.17)	(-3.16)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	9,946	9,946	9,946	9,946

This table reports the coefficient estimates of the random-effects probit analysis in columns 1 and 2 and the random-effects Tobit analysis in columns 3 and 4. The dependent variable in the probit models takes the value one if the firm acquires a public target and zero if it acquires a non-public target. Tobit analysis estimates the ratio of the sum of public acquisition values to the firm's total assets. Variable definitions are given in **Appendix A**. All continuous variables are winsorised at the 1% level. Marginal effects for bidder conservatism and highly conservative firms are reported in square brackets. *T*-statistics are reported in parenthesis. Standard errors are robust and clustered by firm for the probit models and bootstrapped for the Tobit models. The estimates in the models are statistically significant at the (*)10%, (**)5%, and (***)1% levels.

Table 4. Does bidder conservatism affect the probability of the firm making an industrially diversified acquisition versus a same-industry acquisition?

	(1) DIV2SIC	(2) DIV2SIC	(3) Diversifying acquisitions/ TA	(4) Diversifying acquisitions/ TA
Bidder conservatism	-0.105**		-0.043*	
[*Marginal effects*]	[-0.040]		[-0.013]	
	(-2.55)		(-1.79)	
Highly conservative firms		-0.120***		-0.062***
[*Marginal effects*]		[-0.045]		[-0.018]
		(-3.45)		(-2.98)
Market leverage	-0.189*	-0.195*	-0.166***	-0.172***
	(-1.72)	(-1.77)	(-2.91)	(-3.02)
Profitability	-0.431***	-0.433***	-0.345***	-0.350***
	(-4.05)	(-4.06)	(-5.48)	(-5.59)
Relative size	-0.009	-0.009	0.317***	0.317***
	(-0.52)	(-0.52)	(27.25)	(27.25)
Bidder size	0.059***	0.058***	0.017***	0.017***
	(3.92)	(3.90)	(3.13)	(3.09)
MTB	-0.006	-0.006	-0.003*	-0.004*
	(-1.52)	(-1.56)	(-1.75)	(-1.78)
Stock return	-0.024	-0.024	0.017	0.017
	(-1.26)	(-1.31)	(1.50)	(1.47)
Herfindahl index	1.457***	1.449***	0.794***	0.786***
	(8.73)	(8.68)	(9.03)	(8.95)
Foreign acquisition	0.003	0.003	-0.008	-0.008
	(0.07)	(0.07)	(-0.29)	(-0.29)
Industry M&A liquidity	-0.203	-0.192	-0.424	-0.412
	(-0.50)	(-0.47)	(-1.57)	(-1.53)
Year FE	Yes	Yes	Yes	Yes
N	9,946	9,946	9,946	9,946

This table reports the coefficient estimates of a random-effects probit analysis in columns 1 and 2 and a random-effects Tobit analysis in columns 3 and 4. The dependent variable in the probit models takes the value one if the bidder's two-digit SIC code differs from the target's two-digit SIC code and zero otherwise. The Tobit analysis estimates the ratio of the sum of the values of diversifying acquisitions to the firm's total assets. Variable definitions are given in **Appendix A**. All continuous variables are winsorised at the 1% level. Marginal effects for bidder conservatism and highly conservative firms are reported in square brackets. *T*-statistics are reported in parenthesis. Standard errors are robust and clustered by firm for the probit models and bootstrapped for the Tobit models. The estimates in the models are statistically significant at the (*)10%, (**)5%, and ***1% levels. We do not include industry-fixed effects in these models because we wish to observe the impact of bidder conservatism on our main variable of interest, the dependent variable, which is industrially diversified acquisitions.

Table 5. Does bidder conservatism affect the payment method used for M&As?

	(1) Stock dominated	(2) Stock dominated	(3) % of stock	(4) % of stock
Bidder conservatism	0.116**		0.064***	
[*Marginal effects*]	[0.023]		[0.020]	
	(2.20)		(2.68)	
Highly conservative firms		0.076*		0.041**
[*Marginal effects*]		[0.015]		[0.013]
		(1.69)		(1.97)
Market leverage	-0.050	-0.065	-0.008	-0.010
	(-0.37)	(-0.49)	(-0.14)	(-0.16)
Profitability	-1.254***	-1.250***	-0.439***	-0.446***
	(-7.99)	(-8.01)	(-7.66)	(-7.80)
Relative size	0.323***	0.322***	0.138***	0.138***
	(9.70)	(9.62)	(14.11)	(14.08)
Bidder size	-0.059***	-0.065***	-0.067***	-0.067***
	(-4.23)	(-4.69)	(-10.48)	(-10.42)
MTB	0.032***	0.032***	0.015***	0.015***
	(6.70)	(6.70)	(8.54)	(8.55)
Stock return	0.016	0.017	0.012	0.012
	(0.73)	(0.77)	(1.25)	(1.27)
Herfindahl index	-0.758***	-0.769***	-0.303***	-0.300***
	(-3.06)	(-3.10)	(-2.73)	(-2.71)
Foreign acquisition	-0.360***	-0.358***	-0.208***	-0.208***
	(-6.67)	(-6.62)	(-8.18)	(-8.17)
Industry M&A liquidity	0.863	0.871	0.295	0.301
	(1.62)	(1.64)	(1.19)	(1.22)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	9,946	9,946	9,946	9,946

This table reports the coefficient estimates of random-effects probit analysis in columns 1 and 2 and random-effects Tobit analysis in columns 3 and 4. The dependent variable in the probit models takes the value one if the deal is financed with more than 50% stock and zero if it is financed with more than 50% cash. The Tobit analysis estimates the percentage of stock financing in the M&A transactions. Variable definitions are given in **Appendix A**. All continuous variables are winsorised at the 1% level. Marginal effects for bidder conservatism and highly conservative firms are reported in square brackets. *T*-statistics are reported in parenthesis. Standard errors are robust and clustered by firm for the probit models and bootstrapped for the Tobit models. The estimates in the models are statistically significant at the (*)10%, (**)5%, and (***)1% levels.

Table 6. Does bidder conservatism affect the market reaction to M&A deals?

	(1) CAR_equally index	(2) CAR_equally index	(3) CAR_value index	(4) CAR_value index
Bidder conservatism	-0.008*		-0.007*	
	(-1.85)		(-1.71)	
Highly conservative firms		-0.005*		-0.005*
		(-1.70)		(-1.68)
Market leverage	0.027*	0.028*	0.025*	0.025*
	(1.93)	(1.95)	(1.78)	(1.80)
Profitability	-0.005	-0.005	-0.006	-0.006
	(-0.52)	(-0.48)	(-0.63)	(-0.60)
Relative size	0.009**	0.009*	0.011**	0.011**
	(1.98)	(1.95)	(2.33)	(2.30)
Bidder size	-0.008***	-0.008***	-0.008***	-0.008***
	(-3.46)	(-3.41)	(-3.37)	(-3.32)
MTB	-0.002***	-0.002***	-0.002***	-0.002***
	(-2.64)	(-2.64)	(-2.65)	(-2.66)
Stock return	0.001	0.001	0.001	0.001
	(0.69)	(0.69)	(0.83)	(0.83)
Herfindahl index	0.017	0.018	0.019	0.020
	(0.60)	(0.61)	(0.67)	(0.68)
Foreign acquisition	-0.001	-0.001	-0.001	-0.001
	(-0.45)	(-0.45)	(-0.30)	(-0.30)
Industry M&A liquidity	-0.071	-0.071	-0.063	-0.062
	(-1.34)	(-1.34)	(-1.19)	(-1.19)
Competed dummy	0.001	0.001	-0.000	0.000
	(0.09)	(0.10)	(-0.01)	(0.00)
Hostile dummy	-0.021	-0.021	-0.019	-0.019
	(-1.06)	(-1.05)	(-0.96)	(-0.95)
Pure cash acquisition	0.005**	0.005**	0.004	0.004
	(2.05)	(2.07)	(1.52)	(1.54)
Pure stock acquisition	-0.009**	-0.009**	-0.009***	-0.009***
	(-2.44)	(-2.44)	(-2.68)	(-2.68)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
N	9,701	9,701	9,701	9,701

This table reports the coefficient estimates of fixed-effects OLS analyses. The dependent variable is the CAR (cumulative abnormal return) estimated over a three-day event window (from one day before to one day after the announcement date). For columns 1 and 2, the benchmark return is the equally weighted index of returns, and for columns 3 and 4 it is the value-weighted index of returns including dividends for the New York Stock Exchange, American Stock Exchange, and NASDAQ combined. Variable definitions are given in **Appendix A**. All continuous variables are winsorised at the 1% level. The standardised betas for bidder conservatism and highly conservative firms are reported in square brackets. *T*-statistics are reported in parenthesis. Standard errors are robust and clustered by acquiring

firms. The estimates in the models are statistically significant at the (*)10%, (**)5%, and (***)1% levels.

Appendix A. Variable definitions

Variable	Definition	Unit
Acquisition dummy	Takes the value one if the firm makes an acquisition and zero otherwise.	0, 1
Bidder conservatism	Frequency of negative words divided by total number of words in the 10-K, multiplied by 100, using Loughran and McDonald's (2011) word list.	%
Bidder size	Natural logarithm of sales ($million).	LN
CAR_equally index	Cumulative abnormal returns estimated over a three-day event window (from one day before to one day after the announcement date). The benchmark return is the equally weighted index of returns.	%
CAR_value index	Cumulative abnormal returns estimated over a three-day event window (from one day before to one day after the announcement date). The benchmark return is the value-weighted index of returns, including dividends, for the New York Stock Exchange, American Stock Exchange, and NASDAQ combined.	%
Competed dummy	Takes the value one if there is more than one bidder and zero otherwise.	0, 1
DIV2SIC	Dummy variable that takes the value one if the bidder's two-digit SIC code differs from that of the target, and zero otherwise.	0, 1
Diversifying acquisitions/ TA	The ratio of the sum of diversifying acquisition values ($million) to the firm's total assets ($million).	0, 1
During financial crisis	Dummy variable that takes the value one for the years 2008 and 2009 and zero otherwise.	0, 1
During crisis* bidder conservatism	An interaction term between the during financial crisis and bidder conservatism variables.	%
Foreign acquisition	Dummy variable that takes the value one if a firm acquires a foreign target and zero otherwise.	0, 1
Herfindahl index	The sum of the squares of sales ($million) of a firm divided by the sum of sales ($million) of all firms sharing the same three-digit SIC code.	%
Highly conservative firms	Dummy variable that takes the value one if the bidder conservatism ratio for the firm is higher than the sample median and zero otherwise.	0, 1
Hostile dummy	Takes the value one if the deal is a hostile acquisition and zero otherwise.	0, 1
Industry M&A liquidity	Total acquisition value ($million), for each year and three-digit SIC code, scaled by the total assets ($million) of all US firms that share the same three-digit SIC code and year.	%
Market leverage	Total debt ($million) divided by the sum of total debt plus the market value of equity ($million).	%

Mixed payments method	Dummy variable that takes the value one if the acquisition transaction is paid in both cash and stock, and zero otherwise.	0, 1
MTB	Market value ($million) over the book value of total assets ($million).	%
% of stock	Percentage of stock financing in the M&A transactions.	%
Post financial crisis	Dummy variable that takes the value one for years after 2009 and zero otherwise.	0, 1
Post crisis* bidder conservatism	An interaction term between the post financial crisis and bidder conservatism variables.	%
Profitability	Earnings before interest, taxes and depreciations ($million) divided by total assets ($million).	%
Public dummy	Takes the value one if the firm acquires a public target and zero if it acquires a non-public target.	0, 1
Pure cash acquisition	Dummy variable that takes the value one if the whole transaction is paid for in cash and zero otherwise.	0, 1
Pure stock acquisition	Dummy variable that takes the value one if the whole transaction is paid for in stock and zero otherwise.	0, 1
Relative size	Natural logarithm of the ratio of the deal value ($million) to the acquirers' total assets ($million) prior to the announcement date.	LN
Stand. bidder conservatism	Bidder conservatism ratio minus its mean divided by its standard deviation, at the firm level.	%
Stand. conservative words	The number of negative words minus the mean, divided by the standard deviation, at the firm level.	%
Stock dominated	Dummy variable that takes the value one if the deal is financed with more than 50% stock and zero if financed with more than 50% cash.	0, 1
Sum of acquisitions/ TA	The ratio of the sum of the acquisition values ($million) to the firm's total assets ($million).	%
Sum of public acquisitions/ TA	The ratio of the sum of public acquisition values ($million) to the firm's total assets ($million).	%
Stock return	The compounded total stock returns one year prior to a firm's fiscal year-end.	%

Appendix B. Robustness check of the impact of bidder conservatism on the payment method for M&As

	(1) Pure stock vs. pure cash	(2) Pure stock vs. pure cash	(3) Mixed payment vs. pure cash	(4) Mixed payment vs. pure cash
Bidder conservatism	0.215**		0.151**	
	(2.28)		(2.14)	
Highly conservative firms		0.138*		0.068
		(1.66)		(1.17)
Market leverage	-0.767***	-0.788***	0.189	0.167
	(-2.62)	(-2.65)	(1.21)	(1.07)
Profitability	-2.906***	-2.961***	-1.351***	-1.407***
	(-8.68)	(-8.88)	(-4.72)	(-4.92)
Relative size	1.137***	1.137***	0.979***	0.980***
	(8.27)	(8.27)	(7.37)	(7.37)
Bidder size	-0.090***	-0.088***	-0.173***	-0.172***
	(-2.66)	(-2.60)	(-9.78)	(-9.70)
MTB	0.057***	0.058***	0.009	0.009
	(5.20)	(5.20)	(1.25)	(1.28)
Stock return	0.057	0.058	0.070**	0.071**
	(1.36)	(1.38)	(2.13)	(2.16)
Herfindahl index	-1.886***	-1.893***	-0.115	-0.128
	(-4.38)	(-4.39)	(-0.52)	(-0.58)
Foreign acquisition	-0.515***	-0.514***	-0.206***	-0.206***
	(-4.96)	(-4.95)	(-3.14)	(-3.14)
Industry M&A liquidity	0.458	0.479	-0.265	-0.244
	(0.75)	(0.78)	(-0.46)	(-0.42)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	9,946	9,946	9,946	9,946

This table reports the coefficient estimates of the multinomial-logit analysis. The dependent variable has three different categories, namely pure stock acquisitions, pure cash acquisitions and mixed payment methods. Pure stock acquisitions takes the value one if the whole transaction is paid for in stock and zero otherwise. Pure cash acquisitions takes the value one if the whole transaction is paid for in cash and zero otherwise. Mixed payments method takes the value one if the transaction is paid for in both cash and stock and zero otherwise. The estimated coefficients in this table report differences relative to the baseline group of pure cash acquisitions. Columns 1 and 2 report the coefficient estimates for pure stock acquisitions relative to the baseline group. Columns 3 and 4 report the coefficient estimates for mixed payment methods relative to the baseline group. Variable definitions are given in Appendix A. All continuous variables are winsorised at the 1% level. *T*-statistics are reported in parenthesis. Standard errors are robust and clustered by acquiring firms. The estimates in the models are statistically significant at the (*)10%, (**)5%, and (***)1% levels.

Appendix C. Robustness check of the effect of the standardised conservatism on the likelihood of undertaking acquisitions

	(1) Acquisition dummy	(2) Acquisition dummy	(3) Sum of acquisitions/ TA	(4) Sum of acquisitions/ TA
Stand. conservative words	-0.053***		-0.035***	
	(-4.78)		(-5.10)	
Stand. bidder conservatism		-0.054***		-0.044***
		(-4.91)		(-6.35)
Market leverage	-1.064***	-1.066***	-0.783***	-0.781***
	(-18.28)	(-18.40)	(-19.52)	(-19.52)
Profitability	0.212***	0.217***	0.091***	0.093***
	(4.56)	(4.65)	(3.39)	(3.46)
Bidder size	0.090***	0.090***	0.025***	0.025***
	(12.86)	(12.88)	(5.34)	(5.36)
MTB	0.004**	0.004**	0.004***	0.004***
	(2.46)	(2.42)	(3.92)	(3.86)
Stock return	0.102***	0.102***	0.094***	0.094***
	(8.99)	(9.03)	(13.44)	(13.47)
Herfindahl index	-0.169	-0.170	-0.130*	-0.129
	(-1.61)	(-1.63)	(-1.65)	(-1.63)
Industry M&A liquidity	0.090	0.099	-0.037	-0.026
	(0.36)	(0.39)	(-0.22)	(-0.15)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	39,209	39,209	39,209	39,209

This table reports the coefficient estimates of random-effects probit analysis in columns 1 and 2 and random-effects Tobit analysis in columns 3 and 4. The dependent variable in the probit models takes the value one if the firm makes an acquisition. The Tobit analysis estimates the ratio of the sum of all the acquisition values to the firm's total assets. Variable definitions are given in Appendix A. All continuous variables are winsorised at the 1% level. *T-statistics* are reported in parenthesis. Standard errors are robust and clustered by firm for the probit models and bootstrapped for the Tobit models. The estimates in the models are statistically significant at the (*)10%, (**)5%, and (***)1% levels.

Appendix D. Robustness check of the effect of the standardised conservatism on acquirers' cumulative abnormal returns

	(1) CAR_equally index	(2) CAR_equally index	(3) CAR_value index	(4) CAR_value index
Stand. conservative words	-0.003*		-0.003*	
	(-1.91)		(-1.81)	
Stand. bidder conservatism		-0.002*		-0.002**
		(-1.82)		(-2.14)
Market leverage	0.014	0.018**	0.010	0.017**
	(0.85)	(2.17)	(0.65)	(2.02)
Profitability	-0.006	-0.008	-0.008	-0.007
	(-0.56)	(-1.30)	(-0.70)	(-1.13)
Relative size	0.005	0.006**	0.006	0.008***
	(0.98)	(2.31)	(1.14)	(2.82)
Bidder size	-0.010***	-0.005***	-0.010***	-0.005***
	(-3.63)	(-3.50)	(-3.56)	(-3.38)
MTB	-0.002**	0.000	-0.002**	0.000
	(-2.22)	(0.52)	(-2.29)	(0.49)
Stock return	0.001	-0.001	0.001	-0.001
	(0.78)	(-0.96)	(0.87)	(-1.07)
Herfindahl index	0.043	-0.004	0.047	0.000
	(1.31)	(-0.26)	(1.47)	(0.01)
Foreign acquisition	0.000	-0.000	0.001	-0.001
	(0.07)	(-0.30)	(0.27)	(-0.42)
Industry M&A liquidity	-0.070	-0.033	-0.063	-0.030
	(-1.17)	(-1.06)	(-1.06)	(-0.97)
Competed dummy	0.006	0.005	0.005	0.004
	(0.52)	(0.96)	(0.46)	(0.70)
Hostile dummy	-0.013	-0.016	-0.011	-0.014
	(-0.58)	(-1.36)	(-0.46)	(-1.21)
Pure cash acquisition	0.006**	0.004**	0.004	0.003**
	(2.05)	(2.53)	(1.47)	(1.96)
Pure stock acquisition	-0.008**	-0.008***	-0.009**	-0.008***
	(-2.02)	(-3.85)	(-2.27)	(-3.99)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
N	9,691	9,691	9,691	9,691

This table reports the coefficient estimates of fixed-effects OLS analyses. The dependent variable is CARs (cumulative abnormal returns) estimated over a three-day event window (from one day before to one day after the announcement date). The benchmark return in columns 1 and 2 is the equally weighted index of returns and in columns 3 and 4 is the value-weighted index of returns, including dividends, for the New York Stock Exchange, American Stock Exchange, and NASDAQ combined. Variable definitions are given in Appendix A. All continuous variables are winsorised at the 1% level. *T*-statistics are reported in parenthesis. Standard errors are robust and clustered by acquiring firms. The estimates in the models are statistically significant at the (*)10%, (**)5%, and (***)1% levels.

Appendix E. Robustness check of the effect of bidder conservatism on the likelihood of undertaking acquisitions during the financial crisis

	(1) Acquisition dummy	(2) Acquisition dummy	(3) Sum of acquisitions/ TA	(4) Sum of acquisitions/ TA
Bidder conservatism	-0.163***	-0.166***	-0.130***	-0.133***
	(-6.47)	(-6.27)	(-7.95)	(-7.74)
Market leverage	-1.103***	-1.103***	-0.821***	-0.821***
	(-19.20)	(-19.20)	(-20.38)	(-20.38)
Profitability	0.272***	0.271***	0.153***	0.153***
	(5.70)	(5.68)	(5.56)	(5.53)
Bidder size	0.074***	0.075***	0.010**	0.010**
	(10.41)	(10.42)	(2.08)	(2.09)
MTB	0.005***	0.005***	0.005***	0.005***
	(2.68)	(2.66)	(4.53)	(4.52)
Stock return	0.100***	0.100***	0.093***	0.093***
	(9.36)	(9.36)	(13.69)	(13.69)
Herfindahl index	-0.234**	-0.234**	-0.203**	-0.203**
	(-2.23)	(-2.23)	(-2.50)	(-2.51)
Industry M&A liquidity	0.105	0.107	0.099	0.101
	(0.45)	(0.46)	(0.63)	(0.64)
During financial crisis	-0.170***	-0.120	-0.144***	-0.102
	(-5.23)	(-0.77)	(-6.46)	(-0.94)
Post financial crisis	-0.078***	-0.183	-0.045**	-0.140
	(-2.58)	(-1.25)	(-2.33)	(-1.48)
During crisis*bidder conservatism		-0.027		-0.023
		(-0.32)		(-0.39)
Post crisis* bidder conservatism		0.058		0.053
		(0.73)		(1.02)
Industry FE	Yes	Yes	Yes	Yes
N	39,260	39,260	39,260	39,260

This table reports the coefficient estimates of random-effects probit analysis in columns 1 and 2 and random-effects Tobit analysis in columns 3 and 4. The dependent variable in the probit models takes the value one if the firm makes an acquisition. Tobit analysis estimates the ratio of the sum of the acquisition values to the firm's total assets. Variable definitions are given in Appendix A. All continuous variables are winsorised at the 1% level. *T-statistics* are reported in parenthesis. Standard errors are robust and clustered by firm for the probit models and bootstrapped for the Tobit models. The estimates in the models are statistically significant at the (*)10%, (**)5%, and (***)1% levels.

Appendix F. Robustness check of the effect of bidder conservatism on the acquirers' cumulative abnormal returns during the financial crisis

	(1) CAR_equally index	(2) CAR_equally index	(3) CAR_value index	(4) CAR_value index
Bidder conservatism	-0.008**	-0.008**	-0.008**	-0.008*
	(-2.09)	(-2.03)	(-1.98)	(-1.95)
Market leverage	0.027**	0.027**	0.025*	0.025*
	(1.97)	(1.96)	(1.79)	(1.78)
Profitability	-0.004	-0.004	-0.006	-0.006
	(-0.41)	(-0.41)	(-0.63)	(-0.63)
Relative size	0.009**	0.009**	0.011**	0.011**
	(2.01)	(2.00)	(2.36)	(2.35)
Bidder size	-0.009***	-0.009***	-0.009***	-0.009***
	(-4.59)	(-4.57)	(-4.46)	(-4.44)
MTB	-0.002***	-0.002***	-0.002**	-0.002**
	(-2.60)	(-2.61)	(-2.57)	(-2.57)
Stock return	0.000	0.000	0.001	0.001
	(0.49)	(0.49)	(0.94)	(0.93)
Herfindahl index	0.016	0.016	0.017	0.017
	(0.56)	(0.55)	(0.61)	(0.60)
Foreign acquisition	-0.001	-0.001	-0.001	-0.001
	(-0.45)	(-0.45)	(-0.30)	(-0.30)
Industry M&A liquidity	-0.082*	-0.082*	-0.063	-0.062
	(-1.68)	(-1.66)	(-1.30)	(-1.29)
Competed dummy	0.000	0.000	-0.000	-0.000
	(0.05)	(0.05)	(-0.05)	(-0.05)
Hostile dummy	-0.020	-0.020	-0.019	-0.018
	(-0.99)	(-0.99)	(-0.94)	(-0.93)
Pure cash acquisition	0.005**	0.005**	0.004	0.004
	(2.05)	(2.05)	(1.53)	(1.52)
Pure stock acquisition	-0.008**	-0.008**	-0.009***	-0.009***
	(-2.34)	(-2.35)	(-2.61)	(-2.62)
During financial crisis	0.004	0.009	0.004	0.008
	(0.96)	(0.44)	(0.95)	(0.36)
Post financial crisis	0.012***	0.008	0.011***	0.005
	(3.21)	(0.41)	(3.12)	(0.28)
During crisis*bidder conservatism		-0.003		-0.002
		(-0.27)		(-0.19)
Post crisis* bidder conservatism		0.002		0.003
		(0.20)		(0.31)
Firm FE	Yes	Yes	Yes	Yes
N	9,691	9,691	9,691	9,691

This table reports the coefficient estimates of fixed-effects OLS analyses. The dependent variable is the CAR estimated over a three-day event window. The benchmark return in columns 1 and 2 is the equally weighted index of returns and in columns 3 and 4 is the value-weighted index of returns. Variable definitions are given in **Appendix A**. All continuous

variables are winsorised at the 1% level. *T*-statistics are reported in parenthesis. Standard errors are robust and clustered by acquiring firms. The estimates in the models are statistically significant at the (*)10%, (**)5%, and (***)1% levels.