Expected Risk and Uncertainty about Expected Risk in Mergers and Acquisitions

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Abstract

In this paper, we examine the behavior of the implied volatility of both target and acquirer firms around mergers and acquisitions announcements. In addition, we show that option implied volatility contains valuable information that play a predictive role in the bidder firm's announcement cumulative abnormal return (CAR-Bidder), the choice of the method of payment as well as the chances that the deal will go through successfully. Specifically, we illustrate that target implied volatility not only drops at the announcement day but moves towards the acquirer implied volatility post acquisition announcement when dealing with stock or mixed deals. We find that the method of payment is related to the post announcement target implied volatility and that Cash-Only deals target implied volatilities are lower than in Non-Cash only deals. Next we rely on the average of the implied volatility as a proxy for expected risk and the volatility of the implied volatility as a proxy for uncertainty about expected risk. We show that the CAR-Bidder decreases with an increase in both the expected risk and the uncertainty about expected risk of the bidder firm for stock or mixed deals. We also illustrate that it is less likely to observe a Cash-Only offer with an increase in the expected risk and the uncertainty about expected risk of both bidder and target firms. When it comes to the deal success chances, we uncover that as the bidders' expected risk increases the deal negotiations tend to fail.

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I. Introduction

There is extensive empirical literature analyzing the relation between bidder Cumulative Abnormal Returns (CAR) around the announcement period and the choice and implication of the medium of exchange in mergers and acquisitions deals. The literature presents different hypotheses explaining such relation ranging from information asymmetry, to tax advantages, to co-insurance effect, to corporate controls to investment opportunity. We build our work around the information asymmetry related hypotheses and assume that our risk and uncertainty about risk measures may proxy for different forms of information asymmetry. At any time prior to the effective day, there is always the chance that the deal may not be completed successfully. The reasons for deal failure may include rival bids, disagreement regarding the value of the target and/or the package of securities being offered, or government intervention due to anti-trust etc. We examine the relationship between our risk and uncertainty about risk measures and the probability of deal success.

To present an overview of the literature analysing the choice of the medium of exchange and the bidder cumulative abnormal return (CAR), we begin with the work of Carelton, Guilkey, Harris, and Stewart (1983) that highlights the importance of distinguishing between cash and non-cash takeovers in analyzing mergers and discuss the importance of cash offer in getting target management on board. Travlos (1987) explains three hypothesis that affect the medium of exchange in a merger. The author relies on Myers and Majluf (1984) framework to argue that in a context of asymmetric information bidders will prefer to issue stock if their firm is overvalued and to issue cash if their firm is undervalued. Travlos (1987) also highlights the different tax implication of cash offer versus stock offers; cash offers generate direct tax obligations to target shareholders leading the bidder to pay a higher premium in order to offset the tax paid by target shareholders. The third hypothesis that Travlos (1987) presents is the co-insurance effect: when the cash flows of two firms are not perfectly correlated combining them in a merger will decrease the default risk of the merged entity leading to higher debt capacity benefiting debt holders at the expense of stockholders resulting in lower stock prices. Fishman (1989) discusses how a cash offer would pre-empt competing bidders as it signals higher valuation in case of both target and bidder being asymmetrically informed. As such, he concludes that bidders will tend to move to cash offers when they want to increase the chances that the target will accept the offer or to deter other competing bidder or when the cost of gathering information about the target and the deal was high. Amihud, Lev, and Travlos (1990) link medium of exchange in a merger to corporate control. They argue that when insiders prefer to keep control of the firm they tend to go for cash or debt mergers in order to avoid issuing new stocks that will dilute their control. As such, the more materialistic the managerial ownership in the target company the more the likelihood that a cash offer would be selected over a stock offer. Brown and Ryngaert (1991) show that in spite of

their negative signaling connotation, stock offers may still be chosen by bidders due to their tax advantages over cash offers while Martin (1996) shows that the higher the bidder and target investment opportunities the higher the chances of stock financing in a merger. Hansen (1987) argues that bidders would prefer to issue stocks when they are overvalued and cash when they are undervalued in support of the asymmetric information hypothesis. Eckbo, Giammarino, and Heinkel (1990) study the effect of the mix of cash and securities offers on the bidders abnormal returns and show that the cash percentage tend to increase for higher valued bidders which is another way of saying that overvalued bidders prefer not to issue more stocks.

Within the empirical context of measuring information asymmetry and studying its effect on the bidder firm cumulative abnormal return as well as the medium of exchange, Moeller, Schlingemann, and Stulz (2007) use idiosyncratic volatility as a proxy for information asymmetry, standard deviation of analyst forecasts and the breadth of blockowners ownership as a proxy for diversity of opinion, and the change in the dispersion of analysts' forecasts as a proxy for resolution of uncertainty. They showed that the bidders' abnormal returns falls as the idiosyncratic volatility (their proxy for asymmetric information) increases in stock mergers. The idiosyncratic volatility effect dominates the diversity of opinion proxy when added to the same regression. They also show that bidders' abnormal return increases with an increase in idiosyncratic volatility in the case of cash deals and that their resolution of uncertainty measure affects stock and cash acquisition differently. Cemmanur, Paeglis, and Simonyan (2009) on their side use the number of analysts following the firm, the standard deviation of the analysts' forecasts and the absolute value of the difference in the analysts' earnings forecasts and the actual realized earning to proxy for information asymmetry about the firm. Their empirical results support the idea that bidders prefer cash offers when target information asymmetry increases.

Our work is based on the assumption that the option markets contain valuable complementary information to stock markets. We create two measures relying on both targets and acquirers' implied volatility: the Average Implied Volatility (AIV) and the Volatility of Implied Volatility (VIV). Both our AIV and VIV are estimated during the runup period (days -42, -2). We posit that option implied volatility is a proxy for future expected risk. As such, we consider AIV to be a proxy for the firm expected risk and VIV to be a proxy for the uncertainty about its expected risk. Extensive research has shown that during the runup period target firms' stocks exhibit a significant cumulative abnormal return[3]. Option investors, considered as sophisticated and well informed, would be among the first to detect such a signal and trade upon it. As such, their aggregate beliefs should be embedded in option prices and updated consecutively as the private deal

[3] Jarell and Poulsen (1989), King and Padalko (2005), Meulbroek (1992), Schwert (1996) and others

negotiation proceeds. AIV would enable us measure their (option investors) expected level of risk during the deal negotiation period and the VIV would give us a rough estimate of the fluctuations in these expectations.

The use of option information is not new in the mergers and acquisitions context. Borochin (2014) relies on option prices to analyse the value generated by a merger. Cao, Chen and Griffin (2005) compare stock and call volume imbalances and discover that during the runup period call volume imbalance is significantly related to next day stock returns. Bester, Martinez, and Rosu (2013) find that the at-the-money (ATM) implied volatility of target companies drops around the announcement date but rises after if the deal fails. Barone-Adesi, Brown, and Harlow (1994) rely on target option implied volatilities to predict the probability of deal success for cash offer. Barraclough, Robinson, Smith, and Whaley (2012) expand use call option prices and stock prices to show that the gain is not limited to the target, as perceived in previous literature, but also spans to the bidder. Subramanian (2004) concludes that the probability of deal success is present in stock and option prices before it is a public news. Geppert and Kamerschen (2008)[4] use the sum of option implied volatility of the target and acquirer as a proxy for the volatility of the merged firm. Their results reveal that the market believes the new firm is riskier than a combined portfolio of both bidder and target through 18 months after the deal completion. Spyros, Tsekrekos, and Siougle (2010) show that there is an increase in options trading volume prior to the announcement day in the UK equity markets. Chan, Ge, and Lin (2012) show that bidder cumulative abnormal return (CAR) increases with higher implied volatility (IV) spreads and decreases with higher implied volatility skew. Their IV spread measure is calculated as the difference of implied volatilities between call and put options on the same security with the same strike price and the same maturity[5] whereas their implied volatility skew is estimated as the difference in implied volatilities of the out-of-the-money (OTM) put and the ATM call. Tassel (2014) shows that for cash deals there is a decline in the target implied volatility at the announcement. For stock deals, he finds that target implied volatility drops at the announcement if the acquirer is less volatile than the target and increase if the acquirer is more volatile. Ordu and Schweizer (2015) show that acquiring firm options' volumes increases before the announcement of a stock merger and that the options' trade direction is related to future stock returns.

This relatively new literature exploring the use of option implied information in mergers and acquisitions is not unique. Jayaraman, Mandelker, and Shastri (1991) use the target firms' implied variance to show

[4] We would like to thank an anonymous referee for raising up this point
[5] This is the same IV spread measure used in Bali and Hovakimian (2009) and Driessen, Lin, and Lu (2012)

that markets foresee acquisitions before the announcement day. Levy and Yoder (1993) show that target firms' implied volatility increases significantly before to the announcement day.

We are not the first to study the relationship between volatility of implied volatility and stock returns. Baltussen, Van Bekkum and Van Der Grient (2014)[6] show that the uncertainty about risk as measured by the volatility of implied volatility (similar to our VIV) is an important stock characteristics; stock with higher uncertainty about risk underperform those with lower uncertainty about risk. Huang and Shaliastovish (2014) showed that the volatility of volatility index (VVIX) is a significant risk factor and investors dislike increases in the VVIX. Agarwal, Arisoy, and Naik (2015) found that the volatility of aggregate volatility (VOV) is an important factor when estimating hedge funds risk exposure.

Whilst studying the effect of AIV and VIV on our deal characteristics, we analyze the pattern exhibited by target and bidder implied volatility as we move through the deal negotiation. Our findings confirm the following: for stock or mixed deals, the average target implied volatility moves towards the average acquirer implied volatility during the announcement period and hovers around for the next 50 trading days or so. Since the targets' implied volatility is usually higher than the acquirers' this would indicate a decline in the target implied volatility. A decline that is well documented in the existing literature. In Cash-Only deals, the decline in target implied volatility is more dramatic: we find a larger decline in target implied volatility with the target implied volatility dropping below the acquirer implied volatility. This result is not surprising as the target shareholders are replacing their risky stock investment with riskless cash. An observation that is not distant from that highlighted by Tassel (2014).

We highlight the importance of AIV and VIV in a merger and acquisition framework. We postulate that the higher the AIV, the higher the expected risk about the firm undergoing a merger negotiation and consequently the higher the associated information asymmetry. This is not very far away from Moeller et al. (2007) who use idiosyncratic volatility as a proxy for information asymmetry (while we use the average of the option implied volatility for this purpose). As such, we expect the AIV to behave in our tests in a similar way to other papers dealing with asymmetric information. We interpret the VIV in two ways. In the first, the VIV can be used as a proxy for resolution of uncertainty: the higher the VIV, the higher the uncertainty, the lower the resolution of uncertainty. Consequently, we associate a higher VIV with a lower CAR[7]. Secondly, we see VIV capturing the uncertainty in option investors' perception about the risk level

[6] We would like to thank an anonymous referee for raising up this point

[7] What distinguishes our measure from the resolution of uncertainty measure analyzed by Moeller et al. (2007) is that their measure of resolution uncertainty is related to the "uncertainty about the firm's expected growth potentials" whereas ours is related to the "uncertainty about the firm's expected risk exposure". The different nature of the two components (growth potentials and risk exposure) leads us to formulate different expectations regarding the VIV.

of a firm undergoing a deal negotiation process. The higher this uncertainty, the harder it will be to assess the risk level of the firm, and the harder and more costly it will be to price the firm.

Our main results related to AIV and VIV can be summarized as follows. We find that both the average implied volatility and the volatility of implied volatility of the acquirer firm (AIV-Acquirer and VIV-Acquirer) estimated during the runup period (days -42, -2) are negatively related to the bidder cumulative abnormal returns (CAR-Bidder) estimated during the announcement period (days -1,1) for stock or mixed (Non-Cash-Only) acquisition and non-significant (VIV) or positive but marginally significant (AIV)s for cash-only acquisitions. The results are consistent with the asymmetric information theory: when bidder asymmetric information increases and it opts for a Non-Cash-Only offer, this signals to the market that the bidder stock is overvalued and lower bidder CAR is observed.

When AIV and VIV are tested together in the same model on bidder CAR, the AIV-Bidder overshadowed the VIV-Bidder for Non-Cash-Only deals (VIV-Bidder becomes insignificant) highlighting the importance of the level of risk over the uncertainty about the risk. Hence the importance of information asymmetry over resolution of uncertainty for our stock and mixed merger sample. For Cash-Only acquisitions including both the AIV and VIV in the same model leads to results consistent to those of Moeller et Al. (2007); CAR-Bidder increases as AIV-Bidder increases and VIV-Bidder decreases. In a summary, as asymmetric information about the bidder firm increases, opting for a cash-only offer signals that its own stock is undervalued and this is reflected in the market by higher relative abnormal returns around the announcement of the deal. The negative relationship between VIV-Bidder and the CAR-Bidder can be explained in the resolution of uncertainty context: the higher the uncertainty about the bidder risk (the less the resolution of uncertainty related to the firm's risk) the lower the firm value. The VIV-CAR relationship is also consistent with the finding of Baltussen, Van Bekkum and Van Der Grient (2014) that higher VIV stocks underperform their lower VIV peers.

Next we analyze the relationship between the medium of exchange and AIV and VIV. We find that the probability of cash-only offer is decreasing in the Average Implied Volatility and Volatility of Implied Volatility of both Target and Bidder firms. In the context of our interpretation of AIV and VIV, we conclude that as the target asymmetric information increases, bidder firms prefer non-cash-only offers as the risk

Whereas Moeller et al. (2007) assume that a lower uncertainty about the firms' growth potential should be associated with lower bidder CAR (backed by the work of Pastor and Veronesi '2006' and Johnson '2004'), we assume that a higher uncertainty about the firms' risk exposure should be associated with lower bidder CAR. Our assumption can be justified if we look at the Gordon growth model P/E = 1/(r-g). As explained in Pastor and Veronesi (2006) this function is convex in 'g' leading to a positive relationship between uncertainty about 'g' and the firm value. However, this same function is concave in 'r' and we postulate that the risk associated with a company should be captured in 'r' leading to a negative relationship between uncertainty about 'r' and the firm value.

involved would be shared by both acquirer and bidder firms. When it comes to increase in the bidder asymmetric information, the bidder still prefers non-cash only deals (in our sample at least) – either to share its own risk with the target shareholders or because it may benefit from a possible overvaluation in its own stock (opposite to the pre-emptive setting). A similar argument can be applied to our proxy for risk uncertainty; as VIV increases, the firm is faced with higher risk uncertainty, this makes it harder to properly quantify the risk of the firm (target or acquirer) should the deal go through and as such, a non-cash only acquisition would be preferred as the possible risk misspecification is shared by both target and acquirer.

What puzzles us is our finding that when both AIV and VIV are included in the same model, the probability of a cash offer decreases with an increase in the Average Implied Volatility (consistent with the previous results) but increases with an increase in the Volatility of Implied Volatility (opposite to the previous results). Thus we conjecture that the expected firm risk level (AIV) affects the choice of the medium of exchange - as well as the way in which other variables (like uncertainty about risk 'VIV') affect the choice of the medium of exchange.

Our final test examines the relationship between the AIV (VIV) and the probability of the deal success. Our tests indicate that there is a negative relationship between the average implied volatility (AIV) of the bidder and the probability of the deal success: the higher the bidder information asymmetry the lower the chances that the deal will end successfully.

The main contribution of our work is, in addition to analyzing the trend followed by the implied volatilities of both bidder and target firms when both counterparties possess options traded on them, we use Average Implied Volatility as proxy for expected risk and the Volatility of Implied Volatility as a proxy for uncertainty about risk and show that both measures possess predictive power over the CAR-Bidder, choice of medium of exchange and the probability of deal success. The rest of the paper is organized as follows: Section II presents our research hypotheses and expectations. Section III discusses our sample construction and summarizes the sample characteristics. Section IV presents our main results, and section V concludes.

II. Research Hypothesis and Expectations

In this paper, we analyze the option implied volatility (IV) trends around mergers' and acquisitions announcements. We also study the effect of the average implied volatility (AIV) and the volatility of implied volatility (VIV) of both acquirer and target firms on the acquirer performances, the choice of the medium of exchange and probability of the deal success.

In cash deals, target shareholders will ultimately receive cash in return for their shares. They will end up having no equity ownership in the merged firm and the risk of their investment will converge to zero once they have received the cash payment. For stock deals, the target shareholders will ultimately be joining the acquirer shareholders and share the acquirer risk (merged firm risk). Consequently, in stock deals, we expect to observe the acquirer and target implied volatilities approaching each other as the deal effective date approaches. For cash deals, we expect target volatility to approach zero as the deal effective date approaches whereas the acquirer volatility would move toward the perceived IV of the new entity. This leads us to our first hypothesis:

H1: As we move through time during the runup and post announcement periods, we expect the target implied volatility to approach the acquirer implied volatility for Non-Cash-Only bids and to decline more for Cash-Only bids.

We focus on the runup period in the analysis and construction of the AIV and VIV variables as the literature[8] documents an increase in the average target stock prices starting approximately 42 trading days before the announcement date. One possible explanation for this observation is the possibility that information about the deal (negotiation process) is leaking to the public before the announcement day. As we proceed through the M&A negotiation process, both acquirer and target option investors update (change) their beliefs regarding the likelihood that an offer appears and is successful, the riskiness of their own firm and the riskiness of the possible combined company. This revision of uncertainly is expected to be revealed in the implied volatilities of both target and acquirer as we progress in time in the runup period. The more investors revise their beliefs about the future uncertainty of the firms, the greater the fluctuations in the IVs; hence, the higher is our VIV measure. The average of the IV estimated during the runup period proxies for the expected risk of the firm.

We construct a set of AIV and VIV measures: the Average Implied Volatility of the acquirers, the Average Implied Volatility of the Targets, the Volatility of Implied Volatility of the acquirers and the Volatility of Implied Volatility of the targets.

[8] Jarell and Poulsen (1989), King and Padalko (2005), Meulbroek (1992), Schwert (1996) and others.

We associate a higher AIV with a higher level of firm's expected risk and consequently a higher associated information asymmetry. Moeller et al. (2007) test the effect of idiosyncratic volatility on bidder abnormal returns in mergers and acquisitions setting and find that the behavior of idiosyncratic volatility is consistent with predictions related to information asymmetry. Instead of using idiosyncratic volatility, we use average implied volatility estimated during the runup period. We believe that implied volatility serves as a good proxy for information asymmetry due to its dynamic forward looking characteristics. Hence, we anticipate the higher the target AIV (AIV-Target) the lower the bidder announcement cumulative abnormal return (CAR-Bidder) as a result of bigger risk faced by the bidder company. This effect is expected to be significant mainly for the cash offers because the target risk is shared by both bidder and target firms when it comes to stock or mixed offers. We also anticipate the higher the bidder AIV (AIV-Bidder) the lower the CAR-Bidder in case of stock and mixed (Non-Cash-Only) offers and the higher the CAR-Bidder in case of Cash-Only offers. This prediction is related to the signaling and asymmetric information hypothesis: the bidder will tend to offer cash if its stock is undervalued and offer stock (mixed) if its stock is overvalued. Based on the above arguments, we develop the following hypotheses:

H2: The higher the AIV-Target, the lower the CAR-Bidder in Cash-Only Offers

H3: The AIV-Target should not significantly affect the CAR-Bidder in Stock or Mixed (Non-Cash-Only) offers

H4: The higher the AIV-Bidder, the lower the CAR-Bidder in Stock or Mixed (Non-Cash-Only) offers

H5: The higher the AIV-Bidder, the higher the CAR-Bidder in Cash-Only offers

In the development of our VIV related hypothesis, we interpret the VIV in two different ways. In the first, the VIV can be used as a proxy for resolution of uncertainty: the higher the VIV, the higher the uncertainty and the lower the resolution of uncertainty. As such, we expect that the higher the uncertainty about the bidder risk (VIV-Bidder) the lower the CAR-Bidder - a result that should be observed for both Stock (Mixed) offers and Cash-Only offers. In the second interpretation, the VIV captures the uncertainty in option investors' perception about the risk level of a firm undergoing a deal negotiation process. The higher this uncertainty, the harder it will be to assign the appropriate risk level for the firm, the harder it will be to price it. As such, a higher VIV-Target would be associated with lower CAR-Bidder, reflecting the difficulties faced by the bidding firm in pricing the target. This observation should be valid only for Cash-Only deals and not for Stock (Mixed) deals as the target risk uncertainty is shared with the target investors in the case of a Stock (Mixed) offer and not completely absorbed by Acquirer's Investors. Below are our hypotheses related to VIV and CAR-Bidder:

H6: The higher the VIV-Target, the lower the CAR-Bidder in Cash-Only Offers

H7: The VIV-Target should not significantly affect the CAR-Bidder in Stock or Mixed (Non-Cash-Only) offers

H8: The higher the VIV-Bidder, the lower the CAR-Bidder. A result that should be observed for both types of offers (Cash-Only and Stock 'Mixed' Offers)

Next we analyze how the Average Implied Volatility (AIV) and Volatility of Implied Volatility (VIV) of both target and acquirer affect the choice of the medium of exchange. We conjecture that the higher the AIV-Target, the higher the target risk and the lower the chance that the bidder offers a Cash-Only deal because a Stock or Mixed offer will allow the bidder to share the target risk with the target shareholders. Regarding acquirer AIV, we expect the higher the AIV-Bidder, the more the asymmetric information associated with the bidder firm, the greater the likelihood that the bidder offers cash if its objective is to pre-empt competing bids (pre-emptive bidding context). For the VIV analysis we expect the higher the VIV-Bidder the greater the uncertainty about the risk of the bidder; making it harder for external investors to value the bidder firm properly. This increases the chances that the bidder will go for a Cash-Only offer because it reduces the risk uncertainty absorbed by target shareholders and pre-empt competing bids. For the VIV-Target, the more the uncertainty about the risk of the target, the harder it would be for the bidder to gather information about the target firm, the more costly it would be to for the bidder to properly price the target. As such, and in a pre-emptive setting, the bidder will prefer to go for a Cash-Only bids in order to avoid the possibility of losing the high costs already invested for a competing bidder. Below are our hypothesis related to AIV, VIV and medium of exchange:

H9: The higher the AIV-Target, the lower the chances of a Cash-Only offer

H10: The higher the AIV-Bidder, the higher the chances of a Cash-Only offer

H11: The higher the VIV-Target, the higher the chances of a Cash-Only offer

H12: The higher the VIV-Bidder, the higher the chances of a Cash-Only offer

Lastly we analyze how AIV (VIV) affects the probability of the deal success. Looking at AIV and VIV as measures of expected risk and uncertainty about risk respectively, we link an increase in these measures for both target and acquirer to lower probability that the deal finishes successfully. Below is our hypothesis related to AIV (VIV) and deal completion.

H13: The higher the AIV (VIV) of both Bidder and Target, the lower the chances that the deal will finish successfully

Table 1 summarizes our predictions. < Please insert Table 1 here >

III. Data and Sample Construction

A. Data Collection

This paper joins two important fields of research: M&A and option implied information. In line with the extant literature, we rely on five databases to create our sample: SDC, CRSP, Compustat, Optionmetrics, and IBES.

We use Thompson Financial SDC database to obtain our M&A sample and limit our sample to US public target firms whereby the transactions form is classified as M (Merger) or AM (acquisition of majority interest). Our sample is limited to the period from January 1996 to December 2013 (as Optionmetrics starts from January 1996). From the initial bid announcements in SDC, we identify control bids as those in which bidders own less than 50% of the target shares prior to the bid and seek to own at least 50% of the target shares after completion of the deal, we remove bid announcements where the target is a utility company or is a financial institution[9] and cases where the Target Primary SIC code is not provided by SDC[10].

As in Betton and Eckbo (2009 and 2014) we arrange successive bids for the same target into takeover contests. A contest could have a single control bid, multiple bids by a single bidder, or multiple bidders. In our definition, control bidders initiate the contest if there are no other control bidders for the same target over the preceding six months. All subsequent control bids within six months of a previous bid relate to the same contest. A contest ends when there are no additional control bids for the same target over the following six-month period. This initial SDC sample contains 15,119 control bids with deal value reported on SDC.

In order to obtain the daily return data for the target and acquirer firms, we merge our SDC M&A sample with CRSP daily stock data. Firm accounting and financial information are gathered from Compustat and options extracted implied volatilities are taken from Optionmetrics.

We delete any bid that does not have 42 days of CRSP daily returns data before the announcement day; this is needed for runup period estimations. We have also removed any deal where there is no CRSP returns

[9] This involved deleting targets whose primary first two-digit SIC codes range from 40 to 49 (Transportation and Public Utilities) and 60 to 67 (Finance, Insurance, and Real Estate).
[10] 304 control bids have missing target primary SIC code.

data within 3 days after the announcement day in order to avoid the possibility of associating wrong returns with the announcement period. We obtain the standard deviation of analysts' forecasts from IBES database.

Our final sample comprises 572 control bids.

B. Filtering the Option Implied Volatilities

The implied volatilities for our options are taken from the volatility surface file available on Optionmetrics. This file contains implied volatilities with the following maturities: 30, 60, 91, 182, 365, and 547 days. The data is provided for different ranges of strike prices covering a wide range monenyness: In-The-Money (ITM), At-The-Money (ATM), and Out-of-The-Money (OTM) options[11].

We follow Barraclough et al. (2012) and use 30 day ATM implied volatilities as a proxy for the stock expected volatility. This leads to two main sets of Implied Volatility variables: 30 day at the money puts and 30 day at the money calls. Preliminary testing revealed similar results for both ATM puts and calls and consequently, we consider the average of the 30 day ATM puts and 30 day ATM calls implied volatility as the proxy for our implied volatility. Driessen et al. (2009) deploy options delta to identify OTM options needed in their analysis. We follow their footsteps and use the ATM Implied Volatilities corresponding to an option having a delta equal to 0.5 for Call options and -0.5 for Put options.

C. Variable Definitions

We create the following control dummy variables relying on SDC data: whether the deal is hostile or friendly (hostile), whether it begins as a rumor or not (rumor), whether it is Cash-Only or Non-Cash-Only (Cash-Only), whether it is a tender offer or not (Tender), whether it contains a collar or not (Collar), whether the target is listed on NYSE/AMEX or not (NYSE/AMEX) and whether it is completed or not (Complete). We form a dummy variable that takes a value of 1 if there are multiple Bidders within the same contest (Multiple Bids). If the target and acquirer have the same four digit Standard Industry Classification codes (obtained from CRSP) we give a value of 1 for the dummy variable (Horizontal). If the bidder company own more than 5% of the target company before the announcement day, we associate a value of 1 to the (Toehold) dummy variable.

We estimate the Target (Bidder) Size as the logarithm of target (bidder) market value of equity which is estimated by multiplying the number of target (bidder) shares outstanding by the target (bidder) stock price

[11] This wide range of maturities and moneyness provided by Optionmetrics in the implied volatilities surface file are obtained by interpolating actual option implied volatilities across maturities and moneyness levels. The interpolation used is cubic interpolation based on a kernel smoothing algorithm. Optionmetrics estimates the implied volatility of the American Options relying on the Cox, Ross, and Rubinstein (1979) binomial tree model which is the case for most of our acquirer and target options.

at event day -42. We estimate the target (bidder) Turnover as the ratio of target (bidder) volume to shares outstanding on day -42.We also estimate the Target (Bidder) B/M as the target (bidder) book value per share for the corresponding announcement day divided by the target (bidder) market value per share at day -42. We establish the runup variable as [$(P_{-2}/ P_{-42}) - 1$] where P_i is the price adjusted for dividend and splits 'i' days before the announcement day. We measure the Cumulative Abnormal Returns (CAR) over the announcement period as the sum of Abnormal Return ($AR_{i,t}$) estimated over the announcement period (days -1,+1) where $AR_{i,t}$ is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is company 'i' return on day 't' in excess of the risk free rate. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate. The model components (α_i, β_i) are obtained by estimating the model $(R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t})$ over the (days -256; -43) event day window[12].

Variables used in this paper are summarized in Table 2.
<Please insert Table 2 here>

In constructing our risk variables, we calculate the Average Implied Volatility (AIV) as the mean of the daily Implied Volatility spanning the runup period (days -42, -2) and the Volatility of Implied Volatility (VIV) as the standard deviation of the daily Implied Volatility spanning the runup period (days -42, -2). To draw our graphs (figures 1 to 6), we rely on the average of the IV-Acquirer and the average of the IV-Target. The IV-Spread used in the graphs is equal to the difference between the average of the IV-Target and the average of the IV-Bidder. For the dispersion of analysts' forecasts measure, we rely on standard deviation of the analysts' forecasts estimated on month -12, month -2, and month +1.

D. Sample Characteristics

Table 3 presents the descriptive statistics for our final sample. Not surprising, the 572 control bids (deals) remaining in our final sample have larger deal values than the deals in our initial SDC sample as both target and acquirer are public companies and have options traded on their stocks. In our control bids, 146 are tender offers, 63 belong to a multiple bidder contest, 20 are hostile, 288 are Cash-Only, 41 are preceded by a rumor, 34 have a collar, 145 are horizontal, 13 involve a bidder having a toehold, 204 involve a target listed on NYSE/AMEX, and 485 were completed successfully. We have also constructed year and target industry dummies. We rely on the two digit Standard Industrial Classification code to create our industry dummy.

[12] We have also estimated the Abnormal Returns (AR) as the excess stock return above the CRSP value weighted index. We obtained similar results to those reported in table 6, 7a, and 7b. We do not report these results here for space limitation.

< Please insert Table 3 here >

IV. Empirical Tests and Results

A. Summary Statistics and Univariate Tests Results

Table 4 presents the descriptive statistics (Mean, Median) for the main variables in our sample as well as the results of our univariate tests.

<Please insert Table 4 here>

Our target firms are on average smaller than their acquirers, have higher turnover, and higher B/M. Bidder firms are usually bigger when it comes to Cash-Only offer and have lower Turnover. Bidder firms achieve a negative CAR around the announcement period when the whole sample is considered. However, looking at Cash-Only versus Non-Cash-Only control bids, we can observe a positive bidder CAR for Cash-Only bids and a negative bidder CAR for Non-Cash-Only bids. The difference between both CARs is statistically significant: in Cash-Only deals, bidder realize a higher announcement performance relative to their Non-Cash-Only counterparts.

We find no significant difference between target characteristics (size, turnover and B/M) when it comes to Cash-Only bids versus Non-Cash-Only bids. We also find that the target runup during Cash-Only offers is significantly higher than that of Non-Cash-Only offers, a result that can be restated for the target markup but with lower significance.

We find that on average targets' and bidders' implied volatility are bigger in case of Stock and Mixed offers relative to Cash-Only offers. The results is observed for implied volatility obtained 42 days before the announcement, 2 days before the announcement as well as the average implied volatility (AIV) estimated over the announcement period (days -42, -2). We observe riskier firms (target and acquirer) in Non-Cash-Only offers. Our univariate tests seem to support the inclination that the higher the target firm's risk (AIV-Target) the more the chances that it would be included in a Stock and Mixed offer – in accordance with our 9th hypothesis and supporting the notion that as the target risk increases the bidder will tend to go for a Stock (mixed) offer to share the target risk with the target investors. The results also convey that the higher the bidder firm risk (AIV-Bidder) the more likely it would fall in the Stock (Mixed) category – opposite to our 10th hypothesis built around the pre-emptive bidding setting. When it comes to bidder's risk, it seems that the pre-emptive bidding scenario does not work for our sample: bidder firms with higher risk will tend to go for a stock or mixed offer as they may build on this higher risk (higher asymmetric information) and try to benefit from possible price ambiguity when exchanging their stocks for the target's stocks. It could

also be that the riskier the bidder firm the more it would be inclined to opt for a stock or mixed offer in an attempt to share its own risk with the target shareholders.

The target volatility of implied volatility (VIV-Target) does not differ significantly between Cash-Only deals and Non-Cash-Only deals (in contradiction with our 11th hypothesis) whereas the bidder volatility of implied volatility (VIV-Bidder) is significantly larger for stock and mixed deals than for Cash-Only deals. This supports the intuition that the higher the VIV-Bidder the lower the chances that we would observe a Cash-Only deal (in contradiction with our 12th hypothesis). It seems that bidder firms with higher risk uncertainty do not prefer to go for Cash-Only offer in an attempt to reduce the uncertainty level taken by target shareholder (pre-emptive bidding setting). On the opposite, they prefer stock offer where they can either share their risk uncertainty with the target investors or benefit from this risk uncertainty (which probably leads to price uncertainty) in pricing the offer.

Related to IBES measures, our sample statistics show that on average, the standard deviation of analysts' forecasts for target firms involved in a Stock or Mixed offer is higher than those involved in a Cash-Only offer. However, these differences are not strongly significant. Bidders' divergence of opinion measures are not significantly different between Cash-only offers and Non-Cash-Only offers.

B. Behavior of Average Implied Volatilities around the Announcement Day

Figures 1 to 6 present the average implied volatility of our firms as we move through time around the announcement day. Figure 1 spans from 65 days before the deal announcement till 65 days after the deal announcement. It helps us observe what happens to the average target and acquirer implied volatilities as we proceed during the merger negotiation process. Figure 2 spans only 3 days around the announcement; it is included in order for us to see exactly when the target implied volatility starts to change. Both figures 1 and 2 cover all our deals. We can clearly observe from figure 1 and 2 that the average target implied volatility starts dropping towards the acquirer implied volatility one day before the announcement day and the drop is almost complete one day after the announcement day. For Non-Cash-Only deals, the target implied volatility approaches the acquirer implied volatility and stay near it. For Cash-Only deals, the target implied volatility drops much more and stays at these lower levels for a while. We can observe for Cash-Only deals that the target implied volatility start increasing after almost 55 days from the announcement. This may be due to the fact that as the deal negotiation process time increases, investors start associating lower probability for the successful accomplishment of the deal, leading to an increase in the target implied volatility.

Figures 3 and 4 and figures 5 and 6 are limited to complete deals and incomplete deals respectively. We observe high similarities in the target and acquirer implied volatility trends between complete and incomplete deals 3 days around the announcement period. For the larger periods, we observe an increase in the target and acquirer implied volatility starting around 10 days after the announcement days for incomplete deals. Whether this increasing trend is because the deals was rejected and announced to the public or whether this is a market anticipation of the deal failure we do not know at this stage, it is kept for future research. The figures generally support our first hypothesis that the target implied volatility does not simply drop but it also moves towards the acquirer implied volatility for Non-Cash-Only deals and drops further away for Cash-Only deals adding some clarifications to Tassel (2014) findings.

C. Model used in the Multivariate Tests

In order to test the average implied volatility (AIV) effect on Bidder CAR, we rely on Ordinary Least Square (OLS) estimation of Model 1 below. (Model 1 covers hypotheses H2 through H5).

$$\begin{aligned} CAR-Bidder_i = \alpha + \beta_1 AIV_i + \gamma_1 Target\_Size_i + \gamma_2 Target\_Turnover_i \\ + \gamma_3 Target\_NYSE\_AMEX_i + \gamma_4 Target\_B/M_i + \gamma_5 Target\_Runup_i \\ + \gamma_6 Target\_Markup_i + \gamma_7 Collar_i + \gamma_8 Toehold_i + \gamma_9 Horizontal_i \\ + \gamma_{10} Tender\_Offer_i + \gamma_{11} Cash_i + \gamma_{12} Hostile_i + \gamma_{13} Multiple\_Bidder_i \\ + \gamma_{14} Rumor_i + \gamma_{15} Complete_i + \gamma_{16s} Industry\_Dummies_i + \gamma_{17s} Year\_Dummies_i \\ + \varepsilon_i \ (\boldsymbol{Model\ 1}) \end{aligned}$$

In order to test the volatility of implied volatility (VIV) effect on Bidder CAR, we rely on Ordinary Least Square (OLS) estimation of Model 2 below. (Model 2 covers hypotheses H6 through H8).

$$\begin{aligned} CAR-Bidder_i = \alpha + \beta_1 VIV_i + \gamma_1 Target\_Size_i + \gamma_2 Target\_Turnover_i \\ + \gamma_3 Target\_NYSE\_AMEX_i + \gamma_4 Target\_B/M_i + \gamma_5 Target\_Runup_i \\ + \gamma_6 Target\_Markup_i + \gamma_7 Collar_i + \gamma_8 Toehold_i + \gamma_9 Horizontal_i \\ + \gamma_{10} Tender\_Offer_i + \gamma_{11} Cash_i + \gamma_{12} Hostile_i + \gamma_{13} Multiple\_Bidder_i \\ + \gamma_{14} Rumor_i + \gamma_{15} Complete_i + \gamma_{16s} Industry\_Dummies_i + \gamma_{17s} Year\_Dummies_i \\ + \varepsilon_i \ (\boldsymbol{Model\ 2}) \end{aligned}$$

For model 1 and 2 estimations are done for all our 572 bids, the 284 Non-Cash-Only bids and the 288 Cash-Only bids separately. The Cash independent variable is dropped out when the subsamples are considered. Each estimation is performed twice: one using VIV-Target and another using VIV-Acquirer. 'i' corresponds to the control bid (deal) in our sample.

We test AIV and VIV effect on the choice of the medium of exchange using the logistic estimation provided by model 3 below. (Model 3 covers hypotheses H9 through H12).

$$\text{Log}\left(\frac{P(Cash_{Offer}=1)}{1-P(Cash_{Offer}=1)}\right)_i = \alpha + \beta_1 Risk\_Measure_i + \gamma_1 Target\_Size_i + \gamma_2 Target\_Turnover_i + \gamma_3 Target\_NYSE\_AMEX_i + \gamma_4 Target\_B/M_i + \gamma_5 Bidder\_Size_i + \gamma_6 Bidder\_Turnover_i + \gamma_7 Bidder\_NYSE\_AMEX_i + \gamma_8 Bidder\_B/M_i + \gamma_9 Relative\_Size_i + \gamma_{10} Collar_i + \gamma_{11} Toehold_i + \gamma_{12} Horizontal_i + \gamma_{13} Tender\_Offer_i + \gamma_{14} Hostile_i + \gamma_{15} Multiple\_Bidder_i + \gamma_{16} Rumor_i + \varepsilon_i \ (\boldsymbol{Model\ 3})$$

Model 3 is estimated four times in which the Risk_Measure independent variable takes the following values respectively: AIV-Target, VIV-Target, AIV-Bidder, and VIV-Bidder. The dependent variable is the Cash dummy. 'i' corresponds to the control bid (deal) in our sample.

Model 4 below is a logistic estimation for testing the AIV and VIV effect on the chances that the deal will finish successfully. (Model 4 covers hypothesis H13).

$$\text{Log}\left(\frac{P(Complete=1)}{1-P(Complete=1)}\right)_i = \alpha + \beta_1 Risk\_Measure_i + \gamma_1 Target\_Size_i + \gamma_2 Target\_Turnover_i + \gamma_3 \gamma_{3,i} Target\_NYSE\_AMEX_i + \gamma_4 Target\_B/M_i + \gamma_5 Target\_Runup_i + \gamma_6 Target\_Markup_i + \gamma_7 Collar_i + \gamma_8 Toehold_i + \gamma_9 Horizontal_i + \gamma_{10} Tender\_Offer_i + \gamma_{11} Cash_i + \gamma_{12} Hostile_i + \gamma_{13} Multiple\_Bidder_i + \gamma_{14} Rumor_i + \varepsilon_i \ (\boldsymbol{Model\ 4})$$

Model 3 and Model 4 have similar estimation procedures.

D. Multivariate Tests Results

Table 5 summarises the findings of multivariate testing.

<Please insert table 5 here>

D.1. The effect of our control variables

Table 6, table7a and table 7b present the results for the tests related to the effect of AIV and VIV on CAR-Bidder. We observe from Table 6 and 7a,b that the bidder announcement CAR decreases with the target size, target turnover, target markup, and for hostile takeover. On the other side, it increases for cash deals, for multi-bid deals and for completed deals. The target B/M, target being listed on NYSE/Amex, the target runup or the deal containing a collar, a toehold or being horizontal, a tender offer or preceded by a rumor do not affect the CAR-Bidder significantly.

Table 8 presents the results of the tests related to the effect of AIV and VIV on the choice of the medium of exchange. From table 8 we can conclude that the chance that the deal be a Cash-Offer increases with the B/M-Bidder, the deal being a tender offer, and when multiple bidders are competing for the same deal. On the other hand it decreases in the presence of a collar and in horizontal bids. The other control variables play no significant role in the choice of the medium of exchange.

Table 9 presents the results of the tests related to the effect of AIV and VIV on the chances that the deal will finish successfully. Table 9 reveals that the probability of the deal success increases with the deal being a tender offer and decreases for hostile deals, multi-bid deals, deals having a Toehold, with the target size and if the target is listed on NYSE/AMEX. Other control variables play no significant role in the probability of the deal being successfully completed.

D.2. The effect of the risk (AIV) and uncertainty about the risk (VIV) on CAR-Bidder

Related to hypothesis H3 through H8, tables 6, 7a, and 7b present the detailed results for testing the effect of the average implied volatility (AIV) and the volatility of implied volatility (VIV) of both target and acquirer firms on the CAR-Bidder.

<Please Inset Tables 6, 7a, and 7b here>

We find out that when tested on Stock and Mixed offers, AIV-Bidder and VIV-Bidder negatively affect the CAR-Bidder; a 1% increase in the bidder's expected uncertainty (AIV-Bidder) is associated with 1.5% decrease in the bidder CAR whereas a 1% increase in bidder's uncertainty about risk (VIV-Bidder) leads to 0.5% decrease in bidder CAR[13]. However, VIV-Bidder plays no significant role when the sample is limited to Cash-Only offers and the AIV-Bidder effect becomes positive but not significant. In addition, when AIV and VIV are included together in the same regression, the AIV-Bidder overshadowed the VIV-Bidder for Stocks and Mixed offers (VIV-Bidder becomes insignificant) and the AIV-Bidder effect becomes positive and significant and the VIV-Bidder effect becomes negative and significant for Cash-Only offers.

The results related to AIV-Bidder on CAR-Bidder are in line with our predictions: they support the notion that the higher the bidder firm uncertainty (AIV) the more the asymmetric information ranging around it, the more the perception of its stock being undervalued if it opts for Cash-Only deals and overvalued if it opts for Stock or Mixed (Non-Cash-Only) deals. The market will react accordingly: Bidder CAR will increase as a Bidder AIV increase for Cash-Only offers (in line with H5) and Bidder CAR will decrease as Bidder AIV increase for Stock and Mixed offers (in line with H4).

The results related to the VIV-Bidder reveals that VIV-Bidder negatively affect the CAR-Bidder in case of Stock (Mixed) offers when tested alone in the model. However, when we add the AIV-Bidder to the regression, the significance of the VIV-Bidder disappears. For Cash-Only offers, the situation is reversed: VIV-Bidder effect is significant and negative only in the presence of AIV-Bidder in the same regression but it is not significant when the AIV-Bidder is not included as explanatory variable in the model. Our eighth hypothesis (H8) related to associating a higher VIV-Bidder with lower CAR-Bidder passes but not in all settings. When the related results deviate from our prediction it is not because of a counter significance but it is because of a lack of significance. The negative relationship between VIV-Bidder and CAR-Bidder seems to hold but is not very strong. This maybe a result of our 572 deal sample size limitation.

When it comes to AIV (VIV) –Target, it seems that target risk and uncertainty about risk do not affect the CAR-Bidder in case of both Cash offer and Stock or Mixed Offer. This is in contradiction with what we have expected in H2 and H6 and in accordance with what we have expected in H3 and H7 respectively.

[13] The 1.4% and 0.4% are the AIV and VIV respective elasticities in the OLS models used to estimate CAR-Bidder

D.3. The effect of risk (AIV) and uncertainty about risk (VIV) on the Choice of the Medium of Exchange

Related to hypothesis H9 through H12, table 8 presents the detailed results for testing the effect of risk and uncertainty about risk of both target and bidder firms on the choice of the medium of exchange.

<Please Inset Table 8 here>

Our results show that an increase in any of our risk measures (AIV-Target and AIV-Bidder) and uncertainty about risk measures (VIV-Target and VIV-Bidder) leads to a decrease in the probability that we observe a Cash-Only offer. It seems that as the risk of the bidder (AIV-Bidder) and the target (AIV-Target) both increases, the bidder will prefer to go for Stock (Mixed) offer in order to share the target risk (supporting what we have expected – H9) and also to share its own risk with the target (not supporting the pre-emptive setting that we have expected – H10). When it comes to target risk uncertainty; it seems that as VIV-Target increases, the uncertainty about the target risk increases making it harder for the bidder to properly price it. In such case, it appears that bidder firms prefer stock or mixed deal over a fixed cash one because it will be sharing the target risk uncertainty with target investors (in contradiction to H11). When it comes to bidder risk uncertainty; it seems that as VIV-Bidder increases, the uncertainty about the bidder risk increases and consequently the uncertainty about its price. This is leading the bidder firm to prefer stock or mixed deal with the possibility of benefiting from the ambiguity about their stock value while paying the target shareholder (in contradiction to H12). The pre-emptive bidding setting we have expected to occur when considering both bidder and target uncertainty about risk is not happening for our sample refuting both hypothesis 11 and 12 respectively.

A point worth mentioning; when both AIV and VIV are used together in in the same regression in order to predict the probability of Cash offer, the VIV effect of both target and bidder firms reverses sign: it now significantly positively affects the chance of being faced with a Cash-Only offer. It seems that the expected firm risk level (AIV) affects the choice of the medium of exchange - as well as the way in which other variables (like uncertainty about risk 'VIV') affect the choice of the medium of exchange.

D.4. The effect of risk (AIV) and uncertainty about risk (VIV) on the chances that the deal will finish successfully

Related to hypothesis H13, table 9 presents the detailed results for testing the effect of risk and uncertainty about risk of both target and bidder firms on the probability that the deal will finish successfully.

<Please inset Table 9 here>

Although we expect a negative relation between AIV and VIV of both Target and Acquirer and the probability of deal success (H13), only the bidder level of risk (Bidder-AIV) seems to negatively affect the chances of the deal success. The higher the level of the bidder risk, the lower the possibility that the merger will be completed successfully. This may be due to conflict of interests between target and acquirer firms: the target would like to receive a cash offer or a higher premium to compensate its investors for the riskier bidder stock in case of a stock or mixed deal and the bidder will either prefer stock and/or disagree on the proper premium to pay (exchange ratio). Hence, the higher the bidder risk, the harder would be the negotiation in a merger and acquisition setting and the more the likelihood that these negotiations will fail.

D.5. The effect of the estimation period on our AIV and VIV related results

In order to check whether the results we have obtained are driven by information generated during the deal negotiation process or by firm specific features that existed way before target and bidder companies considered the merger, we estimate the average implied volatility (AIV) and the volatility of implied volatility (VIV) over a pre-runup period (days, -84, -43). We expect the measures estimated during the runup period to be different in effect and significance than those estimated during the pre-runup period if they are capturing deal related information rather than firm specific information. Tables 10 presents a summary of the results performed on the pre-runup measures.

<Please insert Table 10 here>

The detailed results of our tests are presented in Appendix A. Our findings show that the results obtained by the tests performed during the pre-runup period are similar to those obtained during the runup period with a decrease in significance. Specifically, the VIV-Bidder no more affects our CAR-Bidder significantly. We also lose the effect of the AIV-Bidder on the probability of the deal success when both AIV-Bidder and VIV-Bidder are included in the same regression. All other results are similar to those obtained in our original tests. These findings reveal that although the runup measure capture information from the deal negotiation process they still keep some of the original target and firm characteristics that existed before the deal negotiation intensified.

D.6. The effect of controlling for the divergence of opinion measures on our AIV and VIV related results

The literature uses different measure to proxy for information asymmetry or diversity of opinion. Among the most widely used ones are the number of analysts' forecasts and the standard deviation of analysts' forecasts (usually referred to as diversity of opinion measures) – both measures are usually obtained from IBES database. Following the same trend, we rely on the standard deviation of analysts' forecast as a proxy

for diversity of opinion. We use the one year analysts' forecasts as our base. However, the main challenge we face is what month relative to the announcement month to tally the analysts forecasts' related measures. As presented in figure 6, we can notice an increasing trend in the standard deviation of analysts' forecasts for both bidder and target firms as we go through the deal negotiation process.

<Please insert figure 6 here>

So analysts seem to update their beliefs about both target and acquirer firms progressively. The more we go through the deal, the higher their level of disagreement (higher standard deviation of analysts' forecasts). As such we have picked three time periods: 12 month before the announcement month, 2 months before the announcement months, and 1 months after the announcement month and have checked the effect of IBES divergence of opinion on our CAR-Bidder, choice of medium of exchange and the chances that the deal will go through successfully. The rational for the choice of period is the following: 12 months represents one year before the announcement and we are relying on a 1 year analysts' forecasts as our base, 2 months before the announcement month represents the start of our runup period and 1 month after the announcement period is selected to check how analysts react to the announcement after it occurs. The objective of our tests is to check whether the asymmetric information measure extracted from analysts' diversity of option would react on our sample as predicted in the literature. Table 11 summarizes the results of these tests and appendix B presents the details tests results.

<Please insert Table 11 here>

Whereas previous work (Moeller et al. 2007 among others) predicts a negative relationship between diversity of opinion of the bidder and CAR-Bidder for Stock (Mixed) deals and no effect of diversity of opinion on Cash deals, our results show that diversity of opinion about the bidder plays no significant role in the CAR- Bidder for our sample except for the measure estimated one month after the announcement and for non-cash-only deals. It seems to play no role in the choice of medium of exchange as well. However, as the bidder diversity of opinion increases the chances that the deal finishes successfully increases. These results are limited to the measure estimated 2 months before the announcement months. It seems that for our deals, the analysts following the deal, will update their beliefs about the firms' prospects when they are confident that the deal will go through – which in turn leads to this significant positive relationship between the chances that the deal will go through and the diversity of opinion measure. This phenomena does not happen a year before the announcement nor a month after the announcement. When it comes to diversity of opinion related to the target firm, our sample reveals that the higher the target diversity of opinion the higher the CAR-Bidder in case of a Stock (Mixed) deal and the lower the CAR-Bidder in case of a Cash deal. It seems that the more the analysts disagree about the target firm, the more the uncertainty about the

firm, the Bidder-CAR will react positively in case of Stock (Mixed) deal as this uncertainty is shared with the target shareholders; and moreover, it will react negatively in case of Cash deal as this uncertainty is absorbed solely by bidder shareholders.

Since the measures estimated two months before the announcement month are the most significant ones when it comes to the probability of deal success prediction, we use them as control variable in the subsequent tests. In order to test whether our AIV and VIV measures are not capturing the same information as the standard deviation of analysts' forecasts, we repeat the same tests for AIV and VIV while including both Target and Bidder measures of diversity of opinion as control variables. Table 12 summarises our main findings and Appendix C presents the detailed results.

<Please insert Table 12 here>

Our finding show that the results originally obtained for AIV and VIV are robust and most of the significant relations are maintained. One effect is worth mentioning though: for Cash-Only deals; once we control for the bidder firms' analysts diversity of opinion while performing tests on the bidder-CAR, AIV-Bidder and VIV-Bidder become insignificant when put together in the same regression.

V. Conclusion

In this paper we study the behavior of future expected uncertainty (proxied by the implied volatility) of the bidder and target firms during the runup period. We show that for our sample of 572 M&A deals in which both target and acquirer possess traded options, the target's implied volatility (IV) approaches the acquirer's implied volatility (IV) for stock and mixed (Non-Cash-Only) deals and drops to lower levels for Cash-Only deals.

Second, we rely on the average implied volatility (AIV) as a proxy for average expected risk and the volatility of implied volatility (VIV) as a proxy for the uncertainty about the expected risk.

We show that the average of the implied volatility of the acquirer company (AIV-Bidder) estimated over the runup period (days -42; -2) negatively affects the CAR-Bidder for Stock (Mixed) offers and positively affects the CAR-Bidder for Cash offers. The result supports the asymmetric information hypothesis: when bidder information asymmetry is high, a Cash offer will be perceived as a sign that the bidder stock is undervalued and a Stock (Mixed) offer will be perceived as a sign that the bidder stock is overvalued.

On the other hand the bidder volatility of implied volatility (VIV-Bidder) negatively affects the CAR-bidder for Stock (Mixed) offers and negatively affect the CAR-bidder when tested in conjunction with AIV-Bidder

for Cash deals. As uncertainty about the risk of the bidder firm increases, the CAR-Bidder tends to decrease (to varying extents) for both types of offers: Cash and Stock (Mixed). This result supports the hypothesis that VIV (Volatility of Implied Volatility) would serve as a good proxy for resolution of uncertainty of the firm's risk; higher VIV implies lower resolution of uncertainty.

Also, we study the relation between risk and uncertainty about risk and the choice of the medium of exchange. Our results show that the probability of Cash deals decreases as both risk and uncertainty about the risk increases – results apply for both target and bidder firms. As target risk (AIV-Target) increases the bidder firm will opt for a Stock (Mixed) deal to share this increase in target asymmetric information with target investors. When target uncertainty about the risk (VIV-Target) increases bidder investors would also be inclined to part any possible target risk misspecification with target's investors. When the bidder risk uncertainty increases (VIV-Bidder), the bidder firm will prefer a Stock (Mixed) offer in order to possibly benefit from the prevailing ambiguity about its risk and consequently its stock price. A similar argument applies when it comes to interpreting the bidder risk – a proxy for the bidder asymmetric information.

We also show that the probability that the deal will be successfully completed decreases as the risk of the bidder increases. This may be a direct translation of the harder negotiation taken place between bidder and target when the bidder risk level is high (making it harder for the target investors to evaluate the offer).

In this work, we convey that risk (AIV) and uncertainty about risk (VIV) both contain valuable information that play a predicting role over of the bidder cumulative abnormal return, the choice of the medium of exchange and the possibility that the deal will pass through successfully. Our results open new doors to several interesting questions. Our Implied Volatility graphs show a slight difference between complete and incomplete deals post the announcement period. It would be interesting to check whether this behavior anticipates the effective (withdrawal) day. We have limited our analysis to the bidder performances around the announcement day. It would be worthwhile to check whether our AIV (VIV) measures (estimated during the runup period or after the announcement period) can predict the acquisition perceived synergy and consequently the long term performance of the emerging company. In this work we rely on Implied Volatilities extracted from at the money (ATM) options. We pick ATM implied volatilities because they serve as a proxy for the stock expected volatility. However, deep out of the money (OTM) option prices would catch buying (selling) pressure. As such, we expect that OTM implied volatility based measures to behave differently than our ATM implied volatility based measures, an expectation supported by research analyzing the effect of volatility spread and volatility skew on stock returns. These are left for future research.

References

Amihud, Y., Lev, B., & Travlos, N. G. (1990). Corporate control and the choice of investment financing: The case of corporate acquisitions. *Journal of finance*, 45(2), 603-616.

Bali, T. G., & Hovakimian, A. (2009). Volatility spreads and expected stock returns. Management Science, 55(11), 1797-1812.

Barone-Adesi, G., Brown, K. C., & Harlow, W. V. (1994). On the use of implied stock volatilities in the prediction of successful corporate takeovers. Rodney L. White Center for Financial Research.

Barraclough, K., Robinson, D. T., Smith, T., & Whaley, R. E. (2013). Using option prices to infer overpayments and synergies in M&A transactions. Review of Financial Studies, 26(3), 695-722.

Bester, A., Martinez, V. H., & Rosu, I. (2013, October). Cash mergers and the volatility smile. In AFA 2010 Atlanta Meetings Paper.

Betton, S., Eckbo, B. E., & Thorburn, K. S. (2009). Merger negotiations and the toehold puzzle. Journal of Financial Economics, 91(2), 158-178.

Betton, S., Eckbo, B. E., Thompson, R., & Thorburn, K. S. (2014). Merger negotiations with stock market feedback. The Journal of Finance, 69(4), 1705-1745. Borochin, P. A. (2014). When does a merger create value? Using option prices to elicit market beliefs. Financial Management, 43(2), 445-466.

Brown, K. C., & Raymond, M. V. (1986). Risk arbitrage and the prediction of successful corporate takeovers. Financial Management, 15(3), 54-63.

Brown, D. T., & Ryngaert, M. D. (1991). The mode of acquisition in takeovers: Taxes and asymmetric information. Journal of Finance, 46(2), 653-669.

Cao, C., Chen, Z., & Griffin, J. M. (2005). Informational content of option volume prior to takeovers. The Journal of Business, 78(3), 1073-1109.

Carleton, W. T., Guilkey, D. K., Harris, R. S., & Stewart, J. F. (1983). An empirical analysis of the role of the medium of exchange in mergers. The Journal of Finance, 38(3), 813-826.

Chan, K., Ge, L., & Lin, T. C. (2013). Informational content of options trading on acquirer announcement return. Journal of Financial and Quantitative Analysis (JFQA), Forthcoming.

Chemmanur, T. J., Paeglis, I., & Simonyan, K. (2009). The medium of exchange in acquisitions: Does the private information of both acquirer and target matter? Journal of Corporate Finance, 15(5), 523-542.

Cox, J. C., Ross, S. A., & Rubinstein, M. (1979). Option pricing: A simplified approach. Journal of Financial Economics, 7(3), 229-263.

Driessen, J., Maenhout, P., and Vilkov, G., (2009). The price of correlation risk: Evidence from equity options, Journal of Finance, 64(3), 1377-1406.

Eckbo, B. E., Giammarino, R. M., & Heinkel, R. L. (1990). Asymmetric information and the medium of exchange in takeovers: Theory and tests. Review of Financial studies, 3(4), 651-675.

Fishman, M. J. (1989). Preemptive bidding and the role of the medium of exchange in acquisitions. Journal of finance, 44(1), 41-57.

Geppert, G., & Kamerschen, D. R. (2008). The effect of mergers on implied volatility of equity options. International Review of Financial Analysis, 17(2), 330-344.

Hansen, R. G. (1987). A theory for the choice of exchange medium in mergers and acquisitions. Journal of Business, 60(1), 75-95.

Jarrell, G. A., & Poulsen, A. B. (1989). The returns to acquiring firms in tender offers: Evidence from three decades. Financial Management, 18(3), 12-19.

Jayaraman, N., Mandelker, G., & Shastri, K. (1991). Market anticipation of merger activities: an empirical test. Managerial and Decision Economics, 12(6), 439-448.

King, M. R. (2009). Prebid Run-Ups ahead of Canadian takeovers: how big is the problem? Financial Management, 38(4), 699-726.

Levy, H., & Yoder, J. A. (1993). The behavior of option implied standard deviations around merger and acquisition announcements. Financial Review, 28(2), 261-272.

Lin, T. C., Lu, X., & Driessen, J. (2013). Why Do Options Prices Predict Stock Returns? Working Paper

Martin, K. J. (1996). The method of payment in corporate acquisitions, investment opportunities, and management ownership. Journal of Finance, 51(4), 1227-1246.

Meulbroek, L. K. (1992). An empirical analysis of illegal insider trading. The Journal of Finance, 47(5), 1661-1699.

Moeller, S. B., Schlingemann, F. P., & Stulz, R. M. (2007). How do diversity of opinion and information asymmetry affect acquirer returns? Review of Financial Studies, 20(6), 2047-2078.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. Journal of financial economics, 13(2), 187-221.

Ordu, U., Schweizer, D. (2015) Executive compensation and informed trading in acquiring firms around merger announcements, Journal of Banking & Finance (2015, Forthcoming)

Schwert, G. W. (1996). Markup pricing in mergers and acquisitions. Journal of Financial economics, 41(2), 153-192. .

Siougle, G., Spyrou, S. I., & Tsekrekos, A. E. (2011). Informed trading around merger and acquisition announcements: Evidence from the UK equity and options market. Journal of Futures Markets, 31(8), 703-726.

Subramanian, A. (2004). Option pricing on stocks in mergers and acquisitions. The Journal of Finance, 59(2), 795-829.

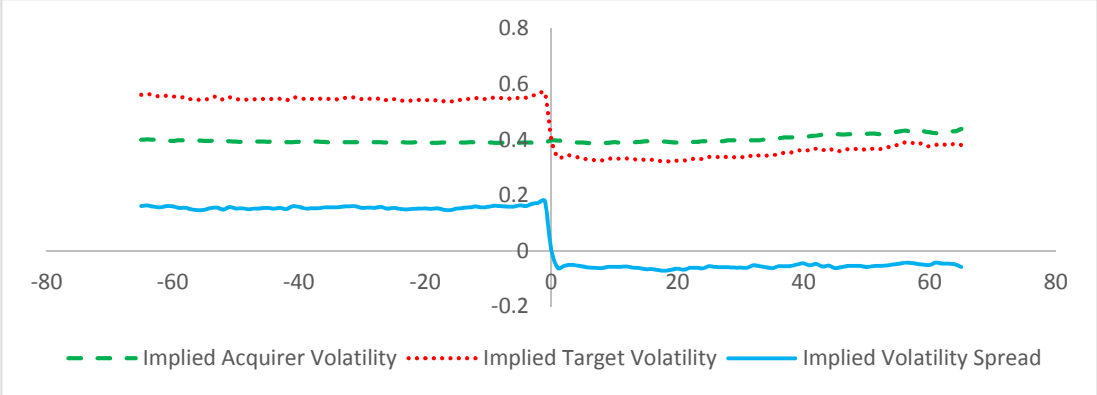
Travlos, N. G. (1987). Corporate takeover bids, methods of payment, and bidding firms' stock returns. The Journal of Finance, 42(4), 943-963.

Van Tassel, P. (2014). Merger Options and Risk Arbitrage. Working Paper.

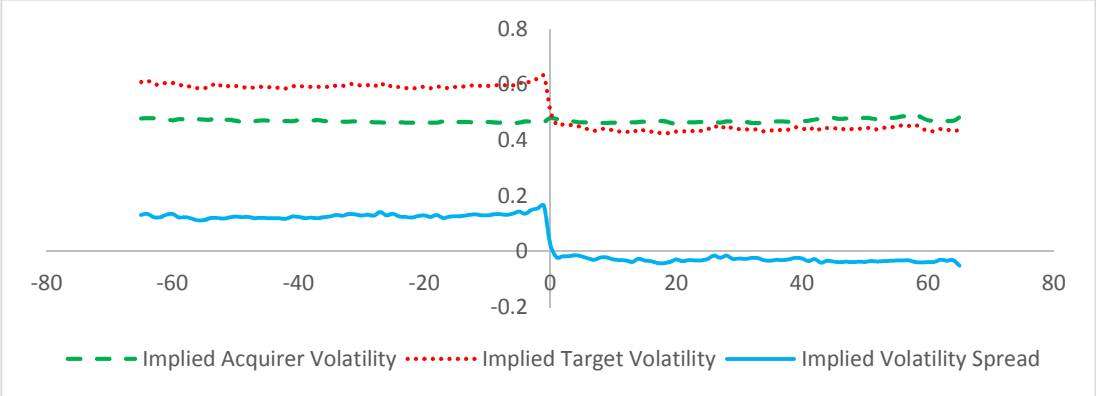
Figure 1. Average Implied Volatility Graphs

The figures below presents the average implied volatility for our bidder and target firms through the deal negotiation process. We use the average of put and call Implied Volatility for 30 day ATM option as our proxy for Implied Volatility. The implied volatility spread corresponds to the difference between target and acquirer Implied Volatility.

Panel A: Average Volatility as we move through time for All Control Bids in our Sample



Panel B: Average Volatility as we move through time for 'Non-Cash-Only (Stock and Mixed)' Control Bids in our Sample



Panel C: Average Volatility as we move through time for 'Cash-Only' Control Bids in our Sample

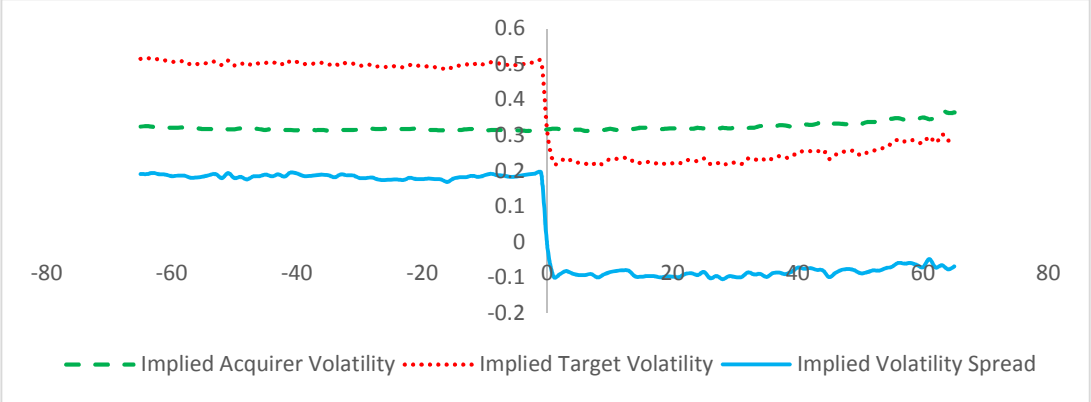
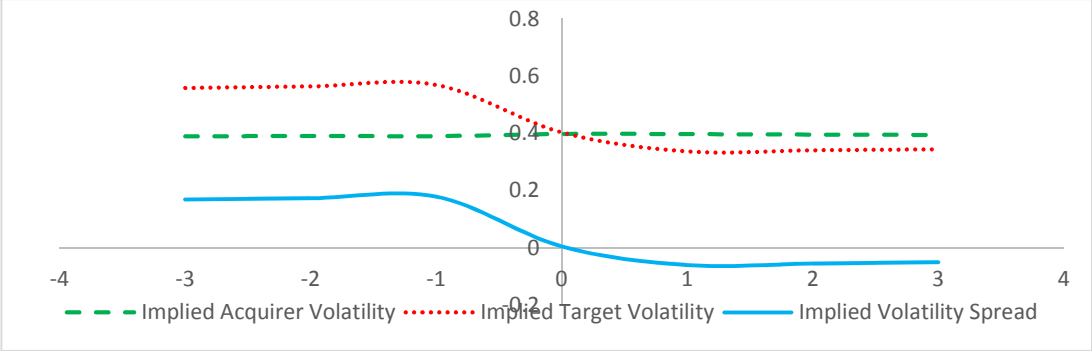


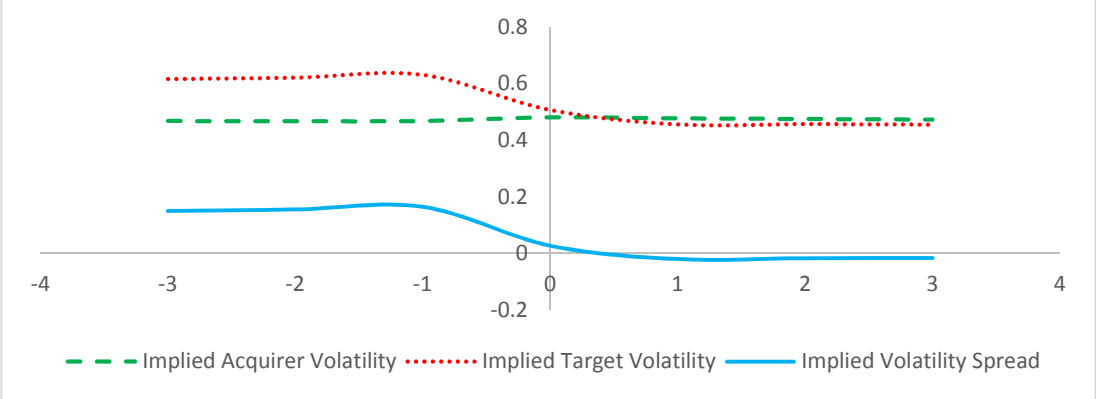
Figure 2. Average Implied Volatility Graphs around the Announcement Day

The figures below presents the average implied volatility for our bidder and target firms around the announcement day. We use the average of put and call Implied Volatility for 30 day ATM option as our proxy for Implied Volatility. The implied volatility Spread corresponds to the difference between the target and acquirer Implied Volatility.

Panel A: Average Volatility as we move through time for All Control Bids in our Sample



Panel B: Average Volatility as we move through time for 'Non-Cash-Only (Stock and Mixed)' Control Bids in our Sample



Panel C: Average Volatility as we move through time for 'Cash-Only' Control Bids in our Sample

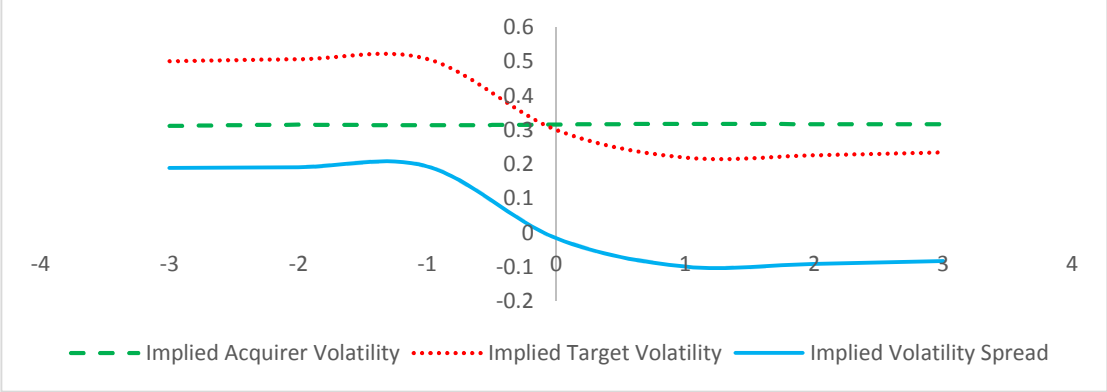


Figure 3. Average Implied Volatility Graphs for Complete Deals Only

The figures below presents the average implied volatility for our bidder and target firms, for complete deals only, through the deal negotiation process. We use the average of put and call Implied Volatility for 30 day ATM option as our proxy for Implied Volatility. The implied volatility Spread corresponds to the difference between the target and acquirer Implied Volatility.

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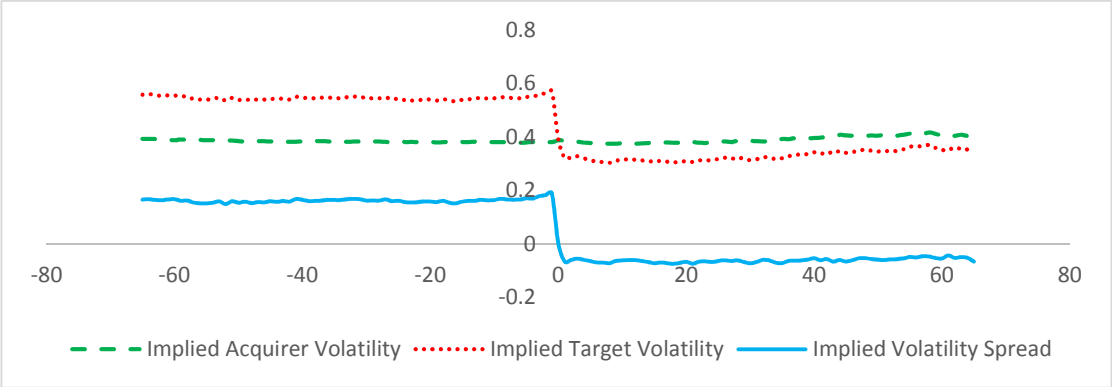
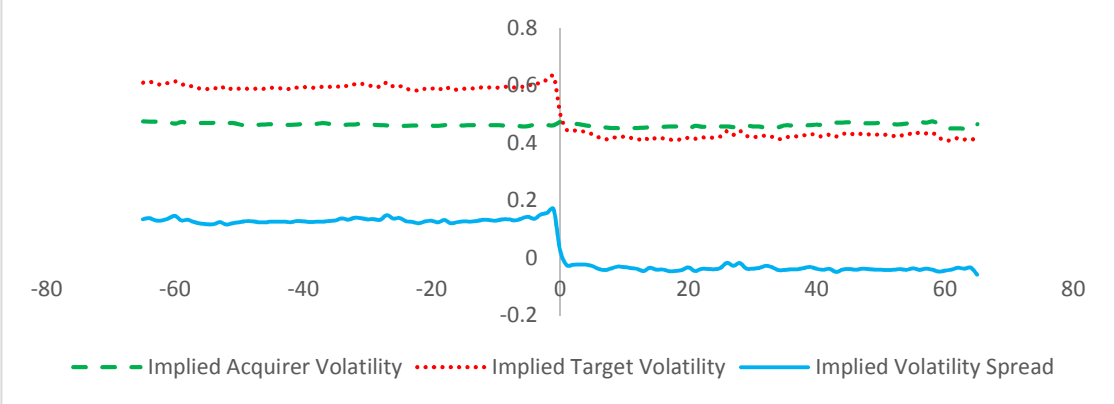
Panel A: Average Volatility as we move through time for Complete Control Bids in our Sample



Panel B: Average Volatility as we move through time for 'Non-Cash-Only (Stock and Mixed)' Complete Control Bids in our Sample



Panel C: Average Volatility as we move through time for 'Cash-Only' Complete Control Bids in our Sample

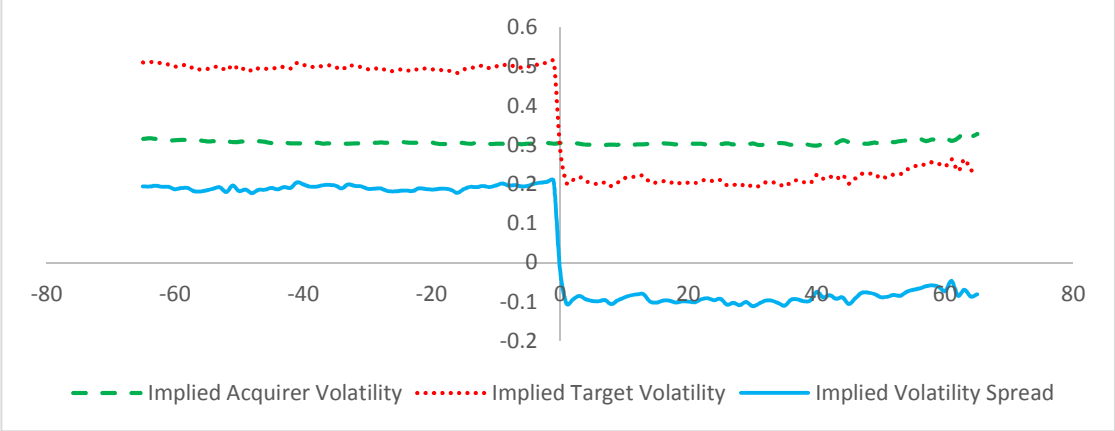


Figure 4. Average Implied Volatility Graphs for Complete Deals Only around the Announcement Day

The figures below present the average implied volatility for our bidder and target firms, for complete deals only, around the announcement day. We use the average of put and call Implied Volatility for 30 day ATM option as our proxy for Implied Volatility. The implied volatility Spread corresponds to the difference between the target and acquirer Implied Volatility.

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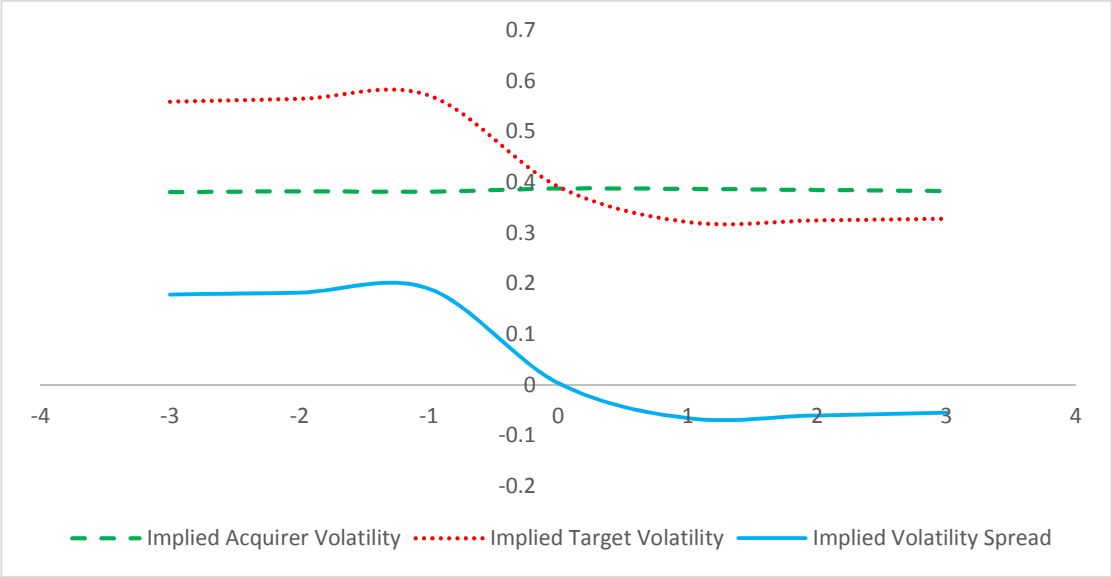
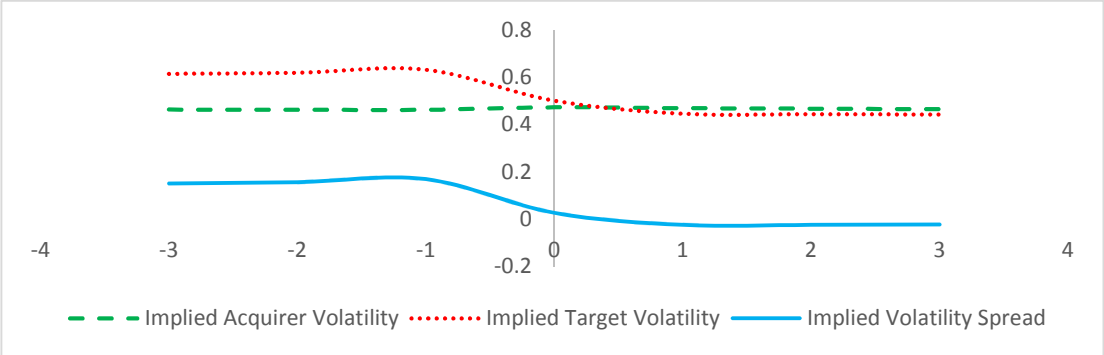
Panel A: Average Volatility as we move through time for Complete Control Bids in our Sample



Panel B: Average Volatility as we move through time for 'Non-Cash-Only (Stock and Mixed)' Complete Control Bids in our Sample



Panel C: Average Volatility as we move through time for 'Cash-Only' Complete Control Bids in our Sample

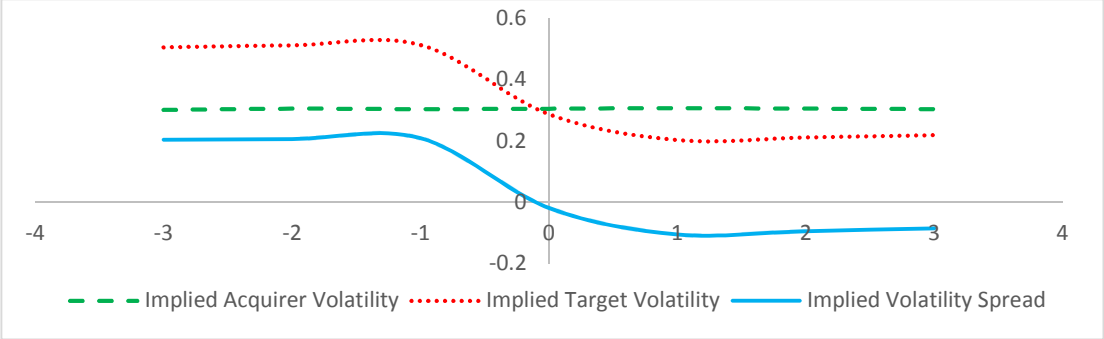
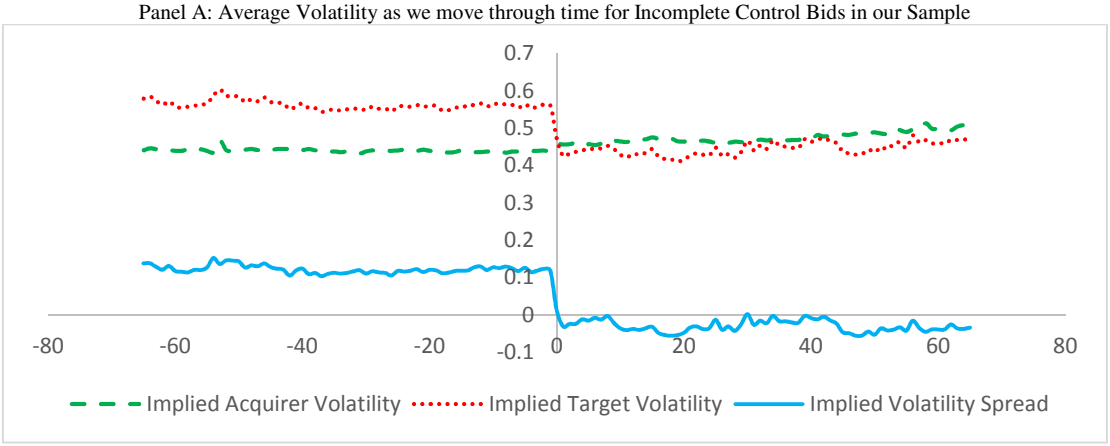


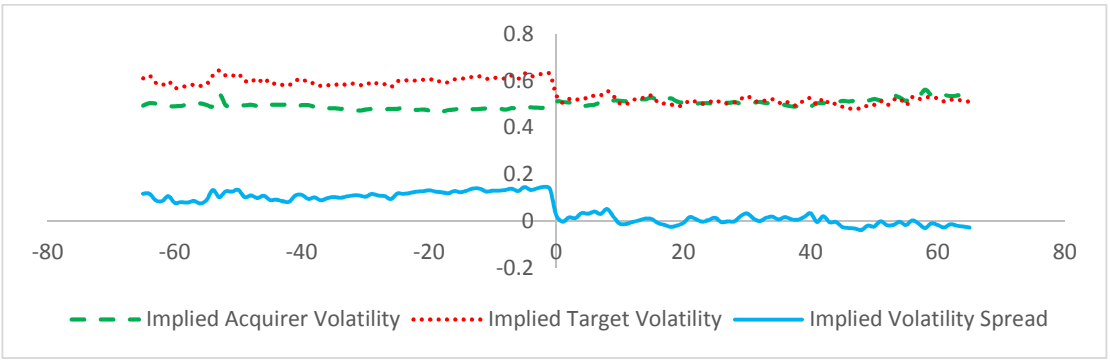
Figure 5. Average Implied Volatility Graphs for Incomplete Deals Only

The figures below presents the average implied volatility for our bidder and target firms, for incomplete deals only, through the deal negotiation process. We use the average of put and call Implied Volatility for 30 days ATM option as our proxy for Implied Volatility. The implied volatility Spread corresponds to the difference between the target and acquirer Implied Volatility.

Panel A: Average Volatility as we move through time for Incomplete Control Bids in our Sample



Panel B: Average Volatility as we move through time for 'Non-Cash-Only (Stock and Mixed)' Incomplete Control Bids in our Sample



Panel C: Average Volatility as we move through time for 'Cash-Only' Incomplete Control Bids in our Sample

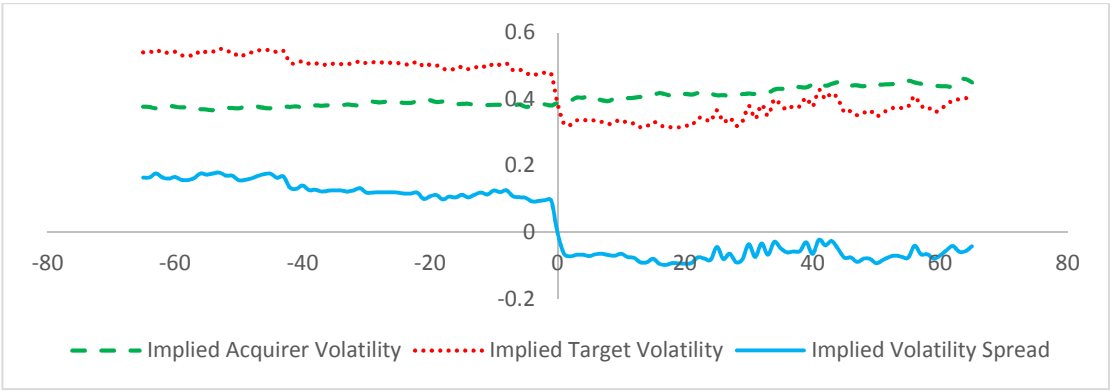
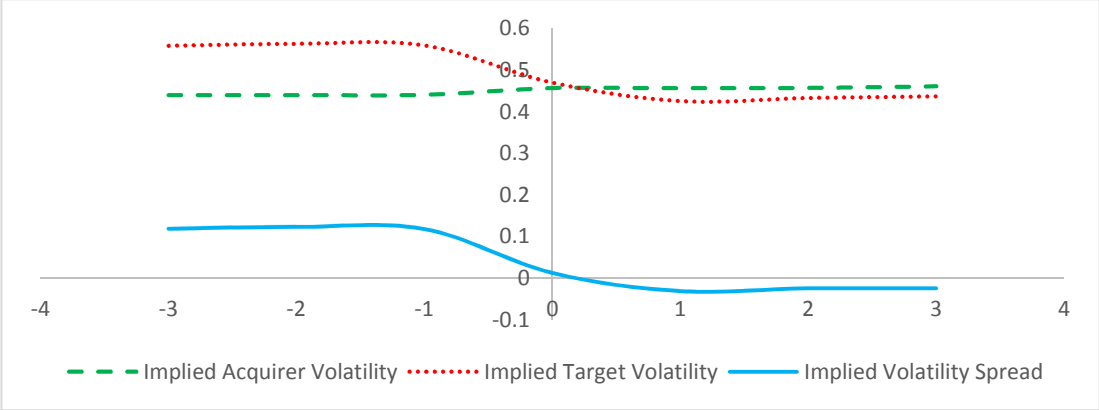
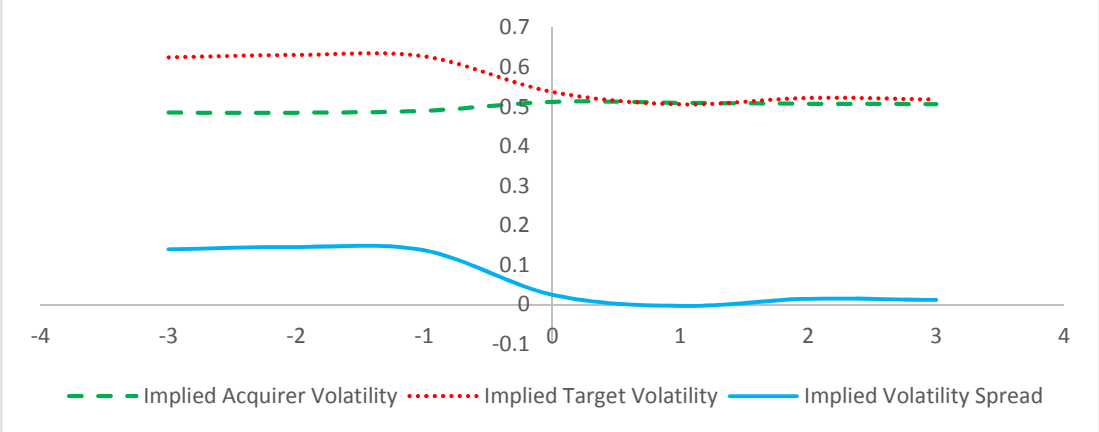


Figure 6. Average Implied Volatility Graphs for Incomplete Deals Only around the Announcement Day
The figures below presents the average implied volatility for our bidder and target firms, for incomplete deals only, around the announcement day. We use the average of put and call Implied Volatility for 30 day ATM option as our proxy for Implied Volatility. The implied volatility Spread corresponds to the difference between the target and acquirer Implied Volatility.

Panel A: Average Volatility as we move through time for Incomplete Control Bids in our Sample



Panel B: Average Volatility as we move through time for 'Non-Cash-Only (Stock and Mixed)' Incomplete Control Bids in our Sample



Panel C: Average Volatility as we move through time for 'Cash-Only' Incomplete Control Bids in our Sample

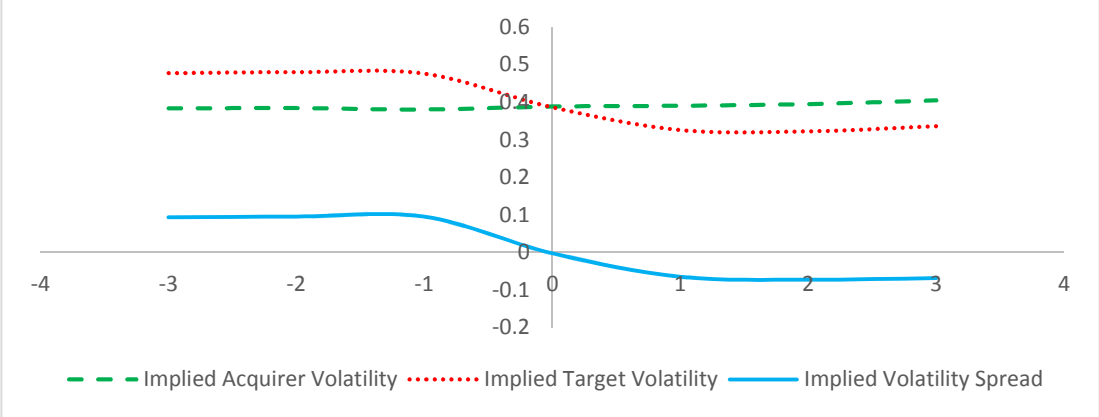


Figure7. Analysts Divergence of Opinion Around the Announcement Month

Figures 7a: Divergence of opinion about the Target firm around the announcement month (0) measured as the standard deviation of analysts' forecasts as reported by IBES.

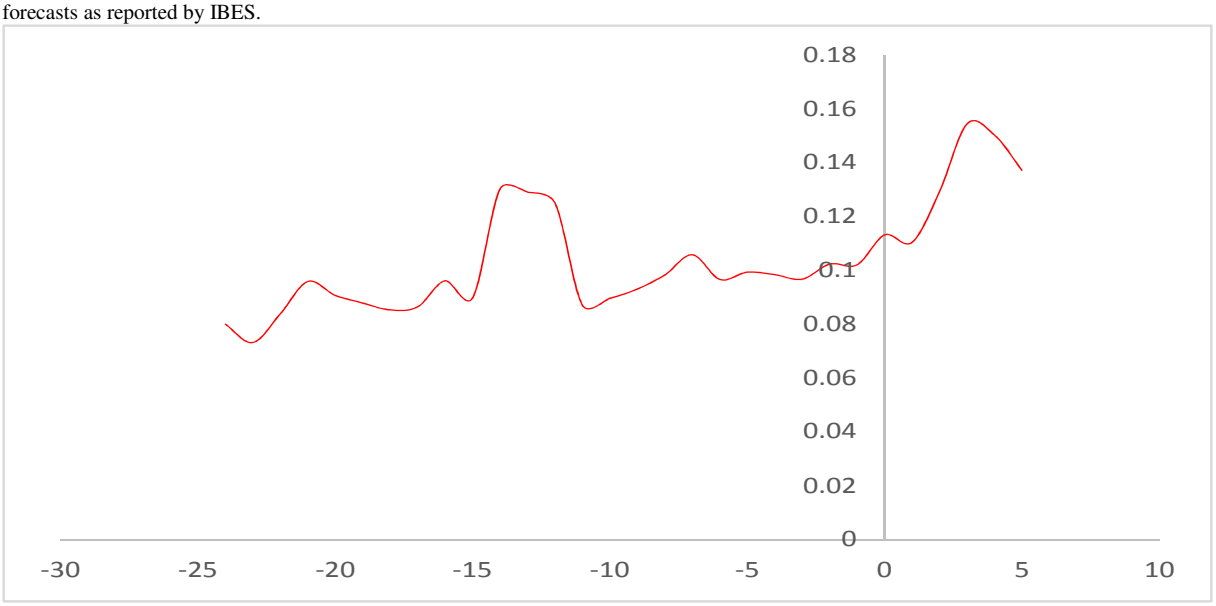


Figure 7b. Divergence of opinion about the Bidder firm around the announcement month (0) measured as the standard deviation of analysts' forecasts as reported by IBES.

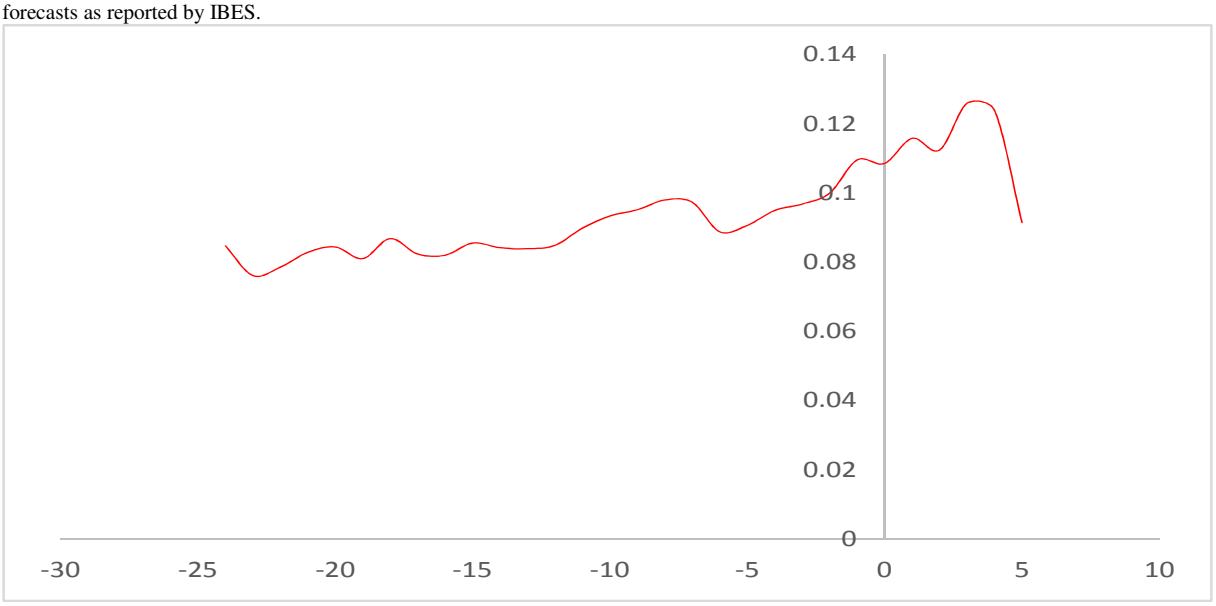


Table 1. Model Predictions

Synopsis of the main predictions highlighted in our hypothesis related to Risk (AIV) and Uncertainty about Risk (VIV) of both target and bidder firms.

	Acquirer Abnormal Returns	
Increase in:	Stock and Mixed Offers	Cash-Only Offers
Target Risk (AIV-Target)	No effect	Decrease
Bidder Risk (AIV-Bidder)	Decrease	Increase
Target Uncertainty about Risk (VIV-Target)	No effect	Decrease
Bidder Uncertainty about Risk (VIV-Bidder)	Decrease	Decrease
Increase in:	Probability of a Cash-Only offer	
Target Risk (AIV-Target)	Decrease	
Bidder Risk (AIV-Bidder)	Increase	
Target Uncertainty about Risk (VIV-Target)	Increase	
Bidder Uncertainty about Risk (VIV-Bidder)	Increase	
Increase in:	Probability of Deal Success	
Target Risk (AIV-Target)	Decrease	
Bidder Risk (AIV-Bidder)	Decrease	
Target Uncertainty about Risk (VIV-Target)	Decrease	
Bidder Uncertainty about Risk (VIV-Bidder)	Decrease	

Table2. Summary of variables used in the cross-sectional analysis Description of the main variables used in our work and the brief description of their construction	
Variable	**Definition and Estimation**
Adjusted_Price	CRSP Price Adjusted for Dividend and Split
Premium	(Initial_Offfer_Price/ P_{-42}) – 1
Runup	(P_{-2}/ P_{-42}) – 1
CAR Announcement	Announcement CAR is equal to the sum of Abnormal Return ($AR_{i,t}$) estimated over the announcement period [-1,+1]. $AR_{i,t}$ is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is company 'i' return on day 't' above the risk free rate on that day. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate on that day. The models components (α_i, β_i) are obtained by estimating the model $(R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t})$ over the [-256; -43] event day window.
Target Size	Logarithm of target market value of equity
Target market value of equity	Number of target shares outstanding multiplies by the target stock price at event day -42
Target Share Turnover	The ratio of target volume to shares outstanding on day -42.
NYSE/ AMEX	A dummy variable that takes a value of 1 if the target stock is listed on NYSE/ AMEX
Target Book/Market ratio	The target Book Value per share for the corresponding announcement day divided by the Target Market Value Per Share at day -42.
Acquirer Size	Logarithm of Acquirer market value of equity
Acquirer market value of equity	Number of Acquirer shares outstanding multiplies by the Acquirer stock price at event day -42
Acquirer Share Turnover	The ratio of Acquirer volume to shares outstanding on day -42.
Acquirer Book/Market ratio	The Acquirer Book Value per share for the corresponding announcement day divided by the Acquirer Market Value Per Share at day -42.
Collar	A dummy variable that takes a value of 1 if the target has a collar
Toehold	A dummy variable that takes a value of 1 if the bidder has more than 5% ownership prior to the announcement
Horizontal	A dummy variable that takes a value of 1 if bidder and target has the same 4 digits SIC (Standard Industrial Classification) code
Tender Offer	A dummy variable that takes a value of 1 if the Bid is a Tender Offer
Cash	A dummy variable that takes a value of 1 if the offer is in cash-only
Hostile	A dummy variable that takes a value of 1 if the bid is hostile
Multiple Bids	A dummy variable that takes a value of 1 if there are multiple bidders within the same contest (a contest is a 6 Months period from the first bidder bid)
Rumor	A dummy variable that takes a value of 1 if the deal started with a rumor - We relied on SDC for our rumor source
Complete	A dummy variable that takes a value of 1 if the deal was completed
IV-Bidder (@t)	The average of a 30 Days ATM Put and Call Option Implied Volatility estimated 't' days from the announcement day for the Bidder Company
IV-Target (@t)	The average of a 30 Days ATM Put and Call Option Implied Volatility estimated 't' days from the announcement day for the Target Company
IV-Spread-Target-Bidder-(@t)	IV-Target (@t) - IV-Bidder (@t)
AIV-Bidder (Target)	The Average of the Bidder (Target) Implied Volatility Estimated over the runup period (from day -42 till day -2)
VIV-Bidder (Target)	The Volatility of the Bidder (Target) Implied Volatility Estimated over the runup period (from day -42 till day -2)
AIV-Bidder (Target) Pre-Runup	The Average of the Bidder (Target) Implied Volatility Estimated over the pre-runup period (from day -84 till day -43)
VIV-Bidder (Target) Pre-Runup	The Volatility of the Bidder (Target) Implied Volatility Estimated over the runup period (from day -84 till day -43)
Diversity of Opinion (@t)	Standard Deviation of the analysts forecast obtained from IBES and estimated 't' months before the announcement month

Table 3. Sample Description

The data spans from January 1996 till December 2013. The sample is based on US targets firms with deal form 'M' (merger) or 'AM' (acquisition of majority interest) obtained from the SDC Merger and Acquisition database. The control bids is defined as the bidder owning less than 50% of the target shares prior to the bid and seeking at least 50% of the target shares.

	Initial Sample			Final Sample		
	#Control Bids	Mean Deal Value	Median Deal Value	#Control Bids	Mean Deal Value	Median Deal Value
All contests	15119	479.04	39.00	572	3208.45	1450.68
1996-2008	3198	473.41170137	39.402	394	3338.29	1468.24
2009-2013	11921	500.02334303	37.483	178	2921.04	1342.53
Merger Bid	13934	452.856	32	426	3563.04	1458.93
Tender Offer	1185	786.841	221.312	146	2173.79	1345.77
Acquirer Private	4261	384.49	50.692	0	0	0
Acquirer Public	10858	516.145	35.706	572	3208.45	1450.68
Target Private	9395	135.326	18	0	0	0
Target Public	5724	1043.191	149.414	572	3208.45	1450.68
Target Not Listed on NYSE/AMEX	13985	238.55	30.875	368	1907.72	928.32
Target Listed on NYSE/AMEX	1134	3444.862	1080.45	204	5554.86	2634.59
Single Bidders	14324	438.204	35.759	209	3216.21	1399.99
Multi-Bidder	795	1214.826	136.706	63	3145.70	1702.61
Friendly	15000	457.10	38.1525	552	3095.02	1405.24
Hostile	119	3244.608	606.82	20	6339.03	1898.79
Non-Cash-Only	9634	459.023	23.39	284	4097.85	1480.22
Cash-Only	5485	514.199	87	288	2331.39	1401.61
No Rumor	14880	406.82	37	531	2868.09	1353.55
Rumor	239	4975.45	1499.47	41	7616.39	3901.32
Non Completed	2597	453.54	17.174	87	3686.57	1454.76
Completed	12522	484.33	44.909	485	3122.68	1436.28
No Collar	14838	464.34	37	538	3249.51	1395.11
Collar	281	1255.09	282.521	34	2558.58	2065.27
No Toehold	14439	483.747	38.4	559	3235.29	1454.76
Toehold	680	379.104	53.37	13	2053.69	701.57
Not Horizontal	10745	442.76	38	427	3057.82	1362
Horizontal	4375	568.16	41.84	145	3651.99	1660.72

Table 4. Summary Statistics and Univariate Tests of the differences in means and medians between Cash-Only and Non-Cash-Only deals

IV-Bidder (Target) (@-t) is the Option Extracted Implied Volatility obtained t days before the deal announcement day. IV-Spread-Target-Bidder (@-t) is the difference between the IV of the Target and the IV of the Bidder estimated t days before the deal announcement day. AIV-Bidder (Target) is the Average of the Implied Volatility of the Bidder (Target) firm estimated during the runup period (days -42, -2). VIV-Bidder (Target) is the Volatility of the Implied Volatility of the Bidder (Target) firm estimated during the runup period (days -42, -2). AIV-Bidder (Target) Pre-runup is the Average of the Implied Volatility of the Bidder (Target) firm estimated during the Pre-runup period (days -84, -43). VIV-Bidder (Target) Pre-runup is the Volatility of the Implied Volatility of the Bidder (Target) firm estimated during the Pre-runup period (days -84, -43). AIV (VIV) Spread are the difference between the AIV (VIV) of the Target and the AIV (VIV) of the bidder estimated during the runup and Pre-runup period correspondingly. Target (Bidder) Size is the logarithm of the market value of equity 42 days before the announcement and Target (Bidder) turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target (Bidder) B/M is constructed as the ratio of the nearest stock book value before the announcement day divided by the stock price 42 days before the announcement. Target runup is defined as the ratio of the target price 2 days before the announcement divided by the target price 42 days before the announcement [(P-2 / P-42) - 1]. Target markup is defined as the ratio of the offer price divided by the target price 2 days before the announcement [(Offer-Price / P-2) - 1]. Bidder CAR is equal to the sum of Bidder Abnormal Return ($AR_{i,t}$) estimated over the announcement period [-1,+1]. ARi,t is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is the bidder company 'i' return on day 't' above the risk free rate on that day. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate on that day. The models components (α_i, β_i) are obtained by estimating the model $(R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t})$ over the [-256; -43] event day window. Divergence of Opinion @t is the standard deviation of the analysts forecast obtained from IBES and estimated 't' months before the announcement month. The sample consists of 572 control bids divided into 288 Cash-Only Bids and 284 Non-Cash Only Bids. The sample is based on US targets firms with deal form 'M' (merger) or 'AM' (acquisition of majority interest) obtained from the SDC Merger and Acquisition database. The control bids is defined as the bidder owning less than 50% of the target shares prior to the bid and seeking to own at least 50% of the target shares. We request that both bidder and target have options traded on them. The results of t-tests for the difference in means and Wilcoxon tests for the difference in medians are reported in parantheses. *, **, and *** indicate significance at 10, 5, and 1% respectively.

Panel A – Target and Bidder Characteristics								
	All Control Bids (Mean)	All Control Bids (Median)	Non-Cash Only Control Bids (Mean)	Non-Cash Only Control Bids (Median)	Cash Only Control Bids (Mean)	Cash Only Control Bids (Median)	Difference in means between the two subgroups (Non-Cash-Only minus Cash-Only)	Difference in medians between the two subgroups (Non-Cash-Only minus Cash-Only)
Target Size	13.7355	13.6760	13.7999	13.6773	13.6720	13.6679	0.1279 (1.28)	0.0094 (0.847)
Target Turnover	15.1403	8.9337	15.8807	9.4969	14.4101	8.4822	1.4706 (0.49)	1.0147 (0.44)
Target B/M	0.4420	0.3810	0.4412	0.3839	0.4427	0.3787	-0.0015 (-0.05)	0.0052 (-0.48)
Target Runup	0.0852	0.0625	0.0627	0.0496	0.1075	0.0768	-0.0448 (-2.39)**	-0.0272 (-2.36)**
Target Markup	0.3065	0.2632	0.2979	0.2493	0.3150	0.2789	-0.0171 (-0.69)	-0.0296 (-1.83)*
Bidder Size	15.8919	15.7202	15.3236	15.1109	16.4523	16.4657	-1.1287 (-8.39)***	-1.3548 (-8.29)***
Bidder Turnover	10.9381	6.9625	13.1012	7.6755	8.8050	6.7278	4.2962 (3.60)***	0.9477 (2.37)**
Bidder B/M	0.3581	0.3036	0.3634	0.3163	0.3529	0.2993	0.0105 (0.52)	0.017 (0.11)
Bidder CAR	-0.0209	-0.0106	-0.0429	-0.0424	0.0006	0.0007	-0.0435 (-7.01)***	-0.0431 (-6.96)***
Panel B – Implied Volatility Related Measures								
IV-Bidder (@-42)	0.3919	0.3415	0.4699	0.4108	0.3149	0.2899	0.155 (10.23)***	0.1209 (10.32)***
IV-Bidder (@-2)	0.3912	0.3481	0.4671	0.4084	0.3164	0.2936	0.1507 (10.34)***	0.1148 (10.49)***
IV-Target (@-42)	0.5423	0.4826	0.5872	0.5235	0.4979	0.4408	0.0893 (4.44)***	0.0827 (4.46)***
IV-Target (@-2)	0.5645	0.4980	0.6219	0.5435	0.5078	0.4536	0.1141 (5.05)***	0.0899 (5.04)***
IV-Spread-(Target-Bidder) - (@-42)	0.1504	0.1083	0.1173	0.0768	0.1831	0.1435	-0.0658 (-3.95)***	-0.0667 (-4.75)***
IV-Spread-(Target-Bidder) - (@-2)	0.1733	0.1280	0.1549	0.0942	0.1914	0.1556	-0.0365 (-1.89)*	-0.0614 (-3.24)***
AIV-Bidder	0.3909	0.3505	0.4669	0.4130	0.3160	0.2931	0.1509 (10.61)***	0.1199 (10.65)***
AIV-Target	0.5473	0.4884	0.5968	0.5336	0.4985	0.4474	0.0983 (5.02)***	0.0862 (4.77)***
AIV-Spread (Target-Bidder)	0.15638	0.1174	0.1299	0.0848	0.1914	0.1411	-0.0526 (-3.27)***	-0.0563 (-4.40)***
AIV-Bidder Pre-runup	0.4001	0.3524	0.4798	0.4313	0.3216	0.2995	0.1582 (10.73)***	0.1318 (10.66)***
AIV-Target Pre-runup	0.5546	0.4897	0.6035	0.5497	0.5064	0.4445	0.0971 (4.79)***	0.1052 (5.01)***
AIV-Spread (Target-Bidder) Pre-runup	0.15450	0.1131	0.1237	0.0786	0.1831	0.1402	-0.0611 (-3.61***)	-0.0615 (-4.47)***
VIV-Bidder	0.0382	0.0309	0.0433	0.0349	0.0331	0.0286	0.0102 (4.21)***	0.0063 (3.99)***
VIV-Target	0.0670	0.0495	0.0680	0.0514	0.0660	0.0485	0.002 (0.39)	0.0029 (1.07)
VIV-Spread (Target-Bidder)	0.02878	0.0153	0.0247	0.0110	0.1825	0.0188	-0.0082 (-1.63)	-0.0078 (-2.42)**
VIV-Bidder Pre-runup	0.0409	0.0313	0.0476	0.0333	0.0343	0.0281	0.0133 (4.62)***	0.0052 (3.79)***
VIV-Target Pre-runup	0.0651	0.0470	0.0682	0.0496	0.0621	0.0449	0.0061 (1.06)	0.0047 (0.77)
VIV-Spread (Target-Bidder) Pre-runup	0.02418	0.0130	0.0206	0.0083	0.1848	0.0158	-0.0071 (-1.24)	-0.0075 (-2.53)**

Table 4. Summary Statistics and Univariate Tests of the differences in means and medians between Cash-Only and Non-Cash-Only deals (Continuity)

IV-Bidder (Target) (@-t) is the Option Extracted Implied Volatility obtained t days before the deal announcement day. IV-Spread-Target-Bidder (@-t) is the difference between the IV of the Target and the IV of the Bidder estimated t days before the deal announcement day. AIV-Bidder (Target) is the Average of the Implied Volatility of the Bidder (Target) firm estimated during the runup period (days -42, -2). VIV-Bidder (Target) is the Volatility of the Implied Volatility of the Bidder (Target) firm estimated during the runup period (days -42, -2). AIV-Bidder (Target) Pre-runup is the Average of the Implied Volatility of the Bidder (Target) firm estimated during the Pre-runup period (days -84, -43). VIV-Bidder (Target) Pre-runup is the Volatility of the Implied Volatility of the Bidder (Target) firm estimated during the Pre-runup period (days -84, -43). AIV (VIV) Spread are the difference between the AIV (VIV) of the Target and the AIV (VIV) of the bidder estimated during the runup and Pre-runup period correspondingly. Target (Bidder) Size is the logarithm of the market value of equity 42 days before the announcement and Target (Bidder) turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target (Bidder) B/M is constructed as the ratio of the nearest stock book value divided by the stock price 42 days before the announcement. Target runup is defined as the ratio of the target price 2 days before the announcement divided by the target price 42 days before the announcement [(P-2 / P-42) - 1]. Target markup is defined as the ratio of the offer price divided by the target price 2 days before the announcement [(Offer-Price / P-2) - 1]. Bidder CAR is equal to the sum of Bidder Abnormal Return ($AR_{i,t}$) estimated over the announcement period [-1,+1]. ARi,t is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is the bidder company 'i' return on day 't' above the risk free rate on that day. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate on that day. The models components (α_i, β_i) are obtained by estimating the model $(R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t})$ over the [-256; -43] event day window. Divergence of Opinion @t is the standard deviation of the analysts forecast obtained from IBES and estimated 't' months before the announcement month. The sample consists of 572 control bids divided into 288 Cash-Only Bids and 284 Non-Cash Only Bids. The sample is based on US targets firms with deal form 'M' (merger) or 'AM' (acquisition of majority interest) obtained from the SDC Merger and Acquisition database. The control bids is defined as the bidder owning less than 50% of the target shares prior to the bid and seeking to own at least 50% of the target shares. We request that both bidder and target have options traded on them. The results of t-tests for the difference in means and Wilcoxon tests for the difference in medians are reported in parantheses. *, **, and *** indicate significance at 10, 5, and 1% respectively.

Panel C – IBES Divergence of Opinion Related Measures

	All Control Bids (Mean)	All Control Bids (Median)	Non-Cash Only Control Bids (Mean)	Non-Cash Only Control Bids (Median)	Cash Only Control Bids (Mean)	Cash Only Control Bids (Median)	Difference in means between the two subgroups (Non-Cash-Only minus Cash-Only)	Difference in medians between the two subgroups (Non-Cash-Only minus Cash-Only)
Divergence of Opinion – Target (@-12)	0.1249	0.04	0.1754	0.04	0.0743	0.04	0.1011 (1.36)	0.00 (0.17)
Divergence of Opinion – Bidder (@-12)	0.0848	0.03	0.0912	0.03	0.0785	0.04	0.0127 (1.04)	-0.01 (0.63)
Divergence of Opinion – Target (@-2)	0.1023	0.04	0.1278	0.05	0.0770	0.04	0.0507 (2.57)**	0.01 (1.58)
Divergence of Opinion – Bidder (@-2)	0.0999	0.04	0.0936	0.04	0.1062	0.04	-0.0127 (-0.81)	0.00 (-0.69)
Divergence of Opinion – Target (@1)	0.1104	0.045	0.1095	0.04	0.1112	0.05	-0.0016 (-0.06)	-0.01 (0.30)
Divergence of Opinion – Bidder (@1)	0.1157	0.04	0.1099	0.04	0.1215	0.04	-0.0116 (-0.58)	0.00 (0.28)

Table 5. Summary of Multivariate Tests' Results Summary of the results for the main explanatory variables (AIV and VIV) when estimated over the runup period.		
Panel A - Acquirer Abnormal Returns (CAR-Bidder)		
Increase in:	Stock and Mixed Offers	Cash-Only Offers
Target Risk (AIV-Target)	No effect	No effect
Bidder Risk (AIV-Bidder)	Decrease	Increase (No effect)
Target Uncertainty about Risk (VIV-Target)	No effect	No effect
Bidder Uncertainty about Risk (VIV-Bidder)	Decrease	No effect
	When both AIV and VIV are included together in the same regression	
Bidder Risk (AIV-Bidder)	Decrease	Increase
Bidder Uncertainty about Risk (VIV-Bidder)	No effect	Decrease
Panel B – Probability of Cash-Only Offer		
Target Risk (AIV-Target)	Decrease	
Bidder Risk (AIV-Bidder)	Decrease	
Target Uncertainty about Risk (VIV-Target)	Decrease	
Bidder Uncertainty about Risk (VIV-Bidder)	Decrease	
	When both AIV and VIV are included together in the same regression	
Target Risk (AIV-Target)	Decrease	
Target Uncertainty about Risk (VIV-Target)	Increase	
Bidder Risk (AIV-Bidder)	Decrease	
Bidder Uncertainty about Risk (VIV-Bidder)	Increase	
Panel B – Probability of Deal Success		
Target Risk (AIV-Target)	No effect	
Bidder Risk (AIV-Bidder)	Decrease	
Target Uncertainty about Risk (VIV-Target)	No effect	
Bidder Uncertainty about Risk (VIV-Bidder)	No effect	
	When both AIV and VIV are included together in the same regression	
Target Risk (AIV-Target)	No effect	
Target Uncertainty about Risk (VIV-Target)	No effect	
Bidder Risk (AIV-Bidder)	Decrease	
Bidder Uncertainty about Risk (VIV-Bidder)	No effect	

Table 6. Cross-sectional Regression of Bidder Announcement CAR on AIV-Target and VIV-Target.

Cross-sectional regressions of the Bidder Announcement CAR on the Target Average Implied Volatility (AIV-Target) and the Target Volatility of Implied Volatility (VIV-Target). Bidder CAR is equal to the sum of Bidder Abnormal Return ($AR_{i,t}$) estimated over the announcement period [-1,+1]. ARi,t is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is the bidder company 'i' return on day 't' above the risk free rate on that day. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate on that day. The models components (α_i, β_i) are obtained by estimating the model $(R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t})$ over the [-256; -43]. The AIV-Target and VIV-Target are the mean and standard deviation of the Implied Volatilities of Target firms estimated over the runup period [-42,-2]. Target Size is the logarithm of the target market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target price 2 days before the announcement divided by the target price 42 days before the announcement [(P_{-2} / P_{-42}) - 1]. Target markup is defined as the ratio of the offer price divided by the target price 2 days before the announcement [(Offer-Price / P_{-2}) - 1]. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). Industry and year dummies corresponding to the target two digits SIC codes and to the announcement year. The p-value are given underneath and are the White Heteroskedasticity consistent p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

Deal-Type	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids
Constant	0.13238**	0.08494	0.1029*	0.1017**	0.0344	0.12271**
(p-value)	(0.0176)	(0.348)	(0.0728)	(0.0457)	(0.6612)	(0.025)
AIV-Target	-0.02638	-0.03868	0.01672			
(p-value)	(0.1401)	(0.1382)	(0.4101)			
VIV-Target				-0.03586	-0.06068	-0.00499
(p-value)				(0.4189)	(0.4175)	(0.919)
Target Size	-0.0105***	-0.01141**	-0.00558	-0.0091***	-0.00955**	-0.00681**
(p-value)	(0.0008)	(0.0214)	(0.1206)	(0.0021)	(0.0458)	(0.0448)
Target Turnover	-0.0001356***	-0.0001452**	-2.52E-05	-0.0001528***	-0.0001654***	1.45E-06
(p-value)	(0.0078)	(0.0145)	(0.6915)	(0.0007)	(0.0018)	(0.9812)
Target NYSE/Amex	0.00374	-0.0006764	-0.0001118	0.00502	0.00207	-0.0008239
(p-value)	(0.6189)	(0.959)	(0.9892)	(0.5027)	(0.8739)	(0.92)
Target B/M	-0.00751	-0.02086	-0.00548	-0.00722	-0.0201	-0.00488
(p-value)	(0.3642)	(0.1837)	(0.4923)	(0.3709)	(0.2003)	(0.5393)
Target Runup	0.0028	0.01315	-0.00667	0.00395	0.01424	-0.00578
(p-value)	(0.86)	(0.6252)	(0.6165)	(0.8054)	(0.5998)	(0.6822)
Target Markup	-0.03284***	-0.02708	-0.0384***	-0.03417***	-0.02902*	-0.03616***
(p-value)	(0.0058)	(0.1)	(0.0019)	(0.0033)	(0.0745)	(0.004)
Collar	-0.02831*	-0.03744**	0.02249	-0.02744*	-0.0361**	0.02321
(p-value)	(0.0553)	(0.0242)	(0.3366)	(0.0645)	(0.0302)	(0.3276)
Toehold Exist	0.01311	0.05221*	0.00363	0.01309	0.0542*	0.0025
(p-value)	(0.4412)	(0.0758)	(0.8811)	(0.4463)	(0.0651)	(0.9192)
Horizontal	0.00618	-0.00291	0.0124	0.00589	-0.00402	0.01191
(p-value)	(0.3854)	(0.7985)	(0.11)	(0.4096)	(0.7239)	(0.121)
Tender Offer	0.00267	0.01931	-0.00234	0.00205	0.02003	-0.0014
(p-value)	(0.6817)	(0.2407)	(0.7277)	(0.7511)	(0.2339)	(0.8338)
Cash Bid	0.02932***			0.03037***		
(p-value)	(<.0001)			(<.0001)		
Hostile	-0.0106	0.0177	-0.03454*	-0.0106	0.01912	-0.03359*
(p-value)	(0.5889)	(0.6124)	(0.0785)	(0.5916)	(0.59)	(0.09)
Multiple Bidders	0.00947	0.03102	-0.01442	0.01132	0.03365	-0.01428
(p-value)	(0.379)	(0.1276)	(0.2356)	(0.2999)	(0.1045)	(0.2428)
Rumor	0.00657	0.01048	-0.00776	0.00495	0.00732	-0.00691
(p-value)	(0.5176)	(0.544)	(0.5363)	(0.6205)	(0.6745)	(0.5751)
Complete	0.03037***	0.0439***	0.00957	0.03098***	0.04467***	0.01051
(p-value)	(0.0055)	(0.0053)	(0.4656)	(0.0048)	(0.0043)	(0.4257)
Adj-R^2	0.207	0.1603	0.0711	0.2046	0.1553	0.0693
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of Cases	572	284	288	572	284	288

Table 7a. Cross-sectional Regression of Bidder Announcement CAR on AIV-Bidder and VIV-Bidder

Cross-sectional regressions of the Bidder Announcement CAR on the Bidder Average Implied Volatility (AIV-Bidder) and the Bidder Volatility of Implied Volatility (VIV-Bidder). Bidder CAR is equal to the sum of Bidder Abnormal Return ($AR_{i,t}$) estimated over the announcement period [-1,+1]. ARi,t is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is the bidder company 'i' return on day 't' above the risk free rate on that day. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate on that day. The models components (α_i, β_i) are obtained by estimating the model $(R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t})$ over the [-256; -43]. The AIV-Target and VIV-Target are the mean and standard deviation of the Implied Volatilities of Bidder Companies estimated over the runup period [-42,-2]. Target Size is the logarithm of the target market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target price 2 days before the announcement divided by the target price 42 days before the announcement [(P_{-2} / P_{-42}) - 1]. Target markup is defined as the ratio of the offer price divided by the target price 2 days before the announcement [(Offer-Price / P_{-2}) - 1]. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). Industry and year dummies corresponding to the target two digits SIC codes and to the announcement year. The p-value are given underneath and are the White Heteroskedasticity consistent p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

Deal-Type	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids
Constant	0.15464***	0.13454*	0.08832	0.10791**	0.03314	0.12943**
(p-value)	(0.0033)	(0.0799)	(0.1495)	(0.0269)	(0.6478)	(0.0193)
AIV-Bidder	-0.08892***	-0.1388***	0.05421			
(p-value)	(0.0015)	(0.0002)	(0.1865)			
VIV-Bidder				-0.35715**	-0.50362**	-0.10739
(p-value)				(0.0103)	(0.011)	(0.4967)
Target Size	-0.01018***	-0.01143**	-0.00568*	-0.00858***	-0.00755*	-0.00706**
(p-value)	(0.0004)	(0.0148)	(0.0983)	(0.0021)	(0.0931)	(0.0369)
Target Turnover	-0.0001219**	-0.0001038	3.85E-06	-0.0001376***	-0.0001328*	-9.20E-07
(p-value)	(0.018)	(0.19)	(0.9466)	(0.005)	(0.0524)	(0.9879)
Target NYSE/Amex	0.00286	-0.00677	-0.0014	0.00303	-0.00429	-0.0008191
(p-value)	(0.7008)	(0.6024)	(0.8629)	(0.6812)	(0.7352)	(0.9205)
Target B/M	-0.00646	-0.02271	-0.00655	-0.00657	-0.02023	-0.00426
(p-value)	(0.417)	(0.1409)	(0.4038)	(0.4147)	(0.1911)	(0.5936)
Target Runup	0.00118	0.01315	-0.0042	0.00328	0.01399	-0.00586
(p-value)	(0.9391)	(0.6083)	(0.7553)	(0.8327)	(0.5931)	(0.6637)
Target Markup	-0.03359***	-0.0266*	-0.03585***	-0.03363***	-0.0288*	-0.03561***
(p-value)	(0.0035)	(0.0852)	(0.0029)	(0.0039)	(0.0679)	(0.0034)
Collar	-0.03233**	-0.0424***	0.01978	-0.02822**	-0.03329**	0.0232
(p-value)	(0.0224)	(0.005)	(0.3736)	(0.0441)	(0.0346)	(0.3265)
Toehold Exist	0.00769	0.04387	0.00213	0.0091	0.0486*	0.00226
(p-value)	(0.652)	(0.1378)	(0.936)	(0.5921)	(0.0956)	(0.9247)
Horizontal	0.00927	0.00306	0.01068	0.00893	0.00133	0.01244
(p-value)	(0.1925)	(0.7817)	(0.1634)	(0.2042)	(0.9069)	(0.1079)
Tender Offer	0.0007335	0.01117	-0.00194	0.0009684	0.01831	-0.00164
(p-value)	(0.9088)	(0.5021)	(0.7691)	(0.8786)	(0.2551)	(0.8058)
Cash Bid	0.02235***			0.02732***		
(p-value)	(0.0014)			(<.0001)		
Hostile	-0.00776	0.02382	-0.03782*	-0.01048	0.01389	-0.03174
(p-value)	(0.6839)	(0.4619)	(0.0577)	(0.592)	(0.7029)	(0.1123)
Multiple Bidders	0.01271	0.03535*	-0.0169	0.01078	0.03342	-0.0143
(p-value)	(0.2542)	(0.0928)	(0.1565)	(0.3225)	(0.1117)	(0.2425)
Rumor	0.00358	-0.0001633	-0.008	0.00433	0.00596	-0.00626
(p-value)	(0.7178)	(0.9923)	(0.5078)	(0.6627)	(0.7147)	(0.6079)
Complete	0.02741**	0.03737**	0.01001	0.03072***	0.04388***	0.01095
(p-value)	(0.0121)	(0.0191)	(0.4336)	(0.0047)	(0.0055)	(0.406)
Adj-R^2	0.228	0.2194	0.0776	0.2186	0.1825	0.0706
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of Cases	572	284	288	572	284	288

Table 7b. Cross-sectional Regression of Bidder Announcement CAR on AIV-Bidder and VIV-Bidder

Cross-sectional regressions of the Bidder Announcement CAR on the Bidder Average Implied Volatility (AIV-Bidder) and the Bidder Volatility of Implied Volatility (VIV-Bidder). Bidder CAR is equal to the sum of Bidder Abnormal Return ($AR_{i,t}$) estimated over the announcement period [-1,+1]. ARi,t is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is the bidder company 'i' return on day 't' above the risk free rate on that day. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate on that day. The models components (α_i, β_i) are obtained by estimating the model $(R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t})$ over the [-256; -43]. The AIV-Target and VIV-Target are the mean and standard deviation of the Implied Volatilities of Bidder Companies estimated over the runup period [-42,-2]. Target Size is the logarithm of the target market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target price 2 days before the announcement divided by the target price 42 days before the announcement [(P_{-2} / P_{-42}) - 1]. Target markup is defined as the ratio of the offer price divided by the target price 2 days before the announcement [(Offer-Price / P_{-2}) - 1]. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). Industry and year dummies corresponding to the target two digits SIC codes and to the announcement year. The p-value are given underneath and are the White Heteroskedasticity consistent p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

Deal-Type	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids
Constant	0.14938***	0.13078*	0.08658
(p-value)	(0.0042)	(0.0895)	(0.158)
AIV-Bidder	-0.07364**	-0.13283***	0.09827**
(p-value)	(0.0377)	(0.0057)	(0.0473)
VIV-Bidder	-0.13098	-0.05293	-0.38344*
(p-value)	(0.4551)	(0.8341)	(0.0554)
Target Size	-0.00989***	-0.01117**	-0.0058*
(p-value)	(0.0006)	(0.0183)	(0.0868)
Target Turnover	-0.0001208**	-0.0001025	2.09E-06
(p-value)	(0.0206)	(0.1994)	(0.9706)
Target NYSE/Amex	0.00249	-0.00705	-0.00203
(p-value)	(0.7368)	(0.5836)	(0.805)
Target B/M	-0.00625	-0.02251	-0.0053
(p-value)	(0.4321)	(0.1427)	(0.4928)
Target Runup	0.00155	0.01312	-0.00169
(p-value)	(0.9199)	(0.6088)	(0.9004)
Target Markup	-0.03354***	-0.02674*	-0.03268***
(p-value)	(0.0036)	(0.0835)	(0.0067)
Collar	-0.03187**	-0.04181***	0.01704
(p-value)	(0.022)	(0.0059)	(0.427)
Toehold Exist	0.00723	0.04383	0.0003644
(p-value)	(0.6713)	(0.138)	(0.9887)
Horizontal	0.0098	0.00334	0.0115
(p-value)	(0.164)	(0.7602)	(0.1278)
Tender Offer	0.000625	0.0115	-0.00323
(p-value)	(0.922)	(0.4864)	(0.6219)
Cash Bid	0.02252***		
(p-value)	(0.0012)		
Hostile	-0.00818	0.023	-0.03416*
(p-value)	(0.6691)	(0.4826)	(0.0851)
Multiple Bidders	0.0124	0.03527*	-0.01831
(p-value)	(0.264)	(0.0925)	(0.1141)
Rumor	0.00359	-2.779E-05	-0.00663
(p-value)	(0.7175)	(0.9987)	(0.5803)
Complete	0.02796***	0.03759**	0.01182
(p-value)	(0.0097)	(0.0173)	(0.3465)
Adj-R^2	0.2277	0.216	0.0851
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Number of Cases	572	284	288

Table 8. Logistic Model Estimation of the Probability that the deal will be a cash-only offer versus a deal being a non-cash-only offer

The AIV-Bidder (Target) and VIV- Bidder (Target) are the mean and standard deviation of the Implied Volatilities of Bidder (Target) Companies estimated over the runup period [-42,-2]. Target (Acquirer) Size is the logarithm of the target (acquirer) market value of equity 42 days before the announcement and target (acquirer) turnover is ratio of target (acquirer) volume to share outstanding estimated 42 days before the announcement. Target (acquirer) B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Relative size is the ratio of target size divided by the acquirer size (in log terms). NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target (Acquirer) is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). The p-value are given underneath and are the MLE p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

Independent Variable	AIV-Target	VIV-Target	AIV-Target and VIV-Target	AIV-Bidder	VIV-Bidder	AIV-Bidder and VIV-Bidder
Constant	2.2361	2.2373	1.6222	4.836	1.4451	5.8315
(p-value)	(0.8157)	(0.7977)	(0.8681)	(0.5861)	(0.8676)	(0.5123)
AIV-Variable	-5.1206***		-5.654***	-7.9795***		-9.3065***
(p-value)	(<.0001)		(<.0001)	(<.0001)		(<.0001)
VIV-Variable		-3.1006*	3.137*		-11.978***	11.5761**
(p-value)		(0.0571)	(0.0912)		(0.0066)	(0.0319)
Target Size	-0.7274	0.0832	-0.781	-0.2103	0.0656	-0.1858
(p-value)	(0.2751)	(0.8886)	(0.2501)	(0.7275)	(0.9116)	(0.7581)
Target Turnover	0.00201	-0.00057	0.002	0.000284	-0.00072	0.000335
(p-value)	(0.4426)	(0.8527)	(0.445)	(0.9276)	(0.8193)	(0.9141)
Target NYSE/Amex	-0.2984	-0.1324	-0.2941	-0.1252	-0.175	-0.0715
(p-value)	(0.2559)	(0.5919)	(0.2615)	(0.6345)	(0.4808)	(0.788)
Target B/M	0.3926	0.055	0.3334	0.4222	0.0776	0.4125
(p-value)	(0.26)	(0.859)	(0.3519)	(0.2056)	(0.7997)	(0.2266)
Acquirer Size	0.6518	0.145	0.7006	0.1894	0.1739	0.1428
(p-value)	(0.2644)	(0.7818)	(0.2392)	(0.7222)	(0.7385)	(0.789)
Acquirer Turnover	-0.00908	-0.0154*	-0.00927	0.0133	-0.0106	0.0129
(p-value)	(0.4116)	(0.0956)	(0.4077)	(0.2428)	(0.2753)	(0.2395)
Acquirer NYSE/Amex	-0.2519	-0.014	-0.2653	-0.2593	-0.0554	-0.2629
(p-value)	(0.2754)	(0.948)	(0.2514)	(0.2616)	(0.7971)	(0.2572)
Acquirer B/M	0.9154*	0.9883**	0.8593*	0.5744	1.0256**	0.4283
(p-value)	(0.0603)	(0.03)	(0.0804)	(0.2589)	(0.0253)	(0.4084)
Relative Size	-0.346	-6.6311	0.4531	-2.9401	-5.7376	-3.5099
(p-value)	(0.974)	(0.4897)	(0.9666)	(0.7625)	(0.5478)	(0.718)
Collar	-2.4928***	-2.4632***	-2.488***	-2.533***	-2.4474***	-2.5183***
(p-value)	(0.0002)	(0.0001)	(0.0003)	(0.0001)	(0.0001)	(0.0002)
Toehold Exist	-0.6262	-0.7448	-0.6577	-0.6459	-0.8407	-0.5926
(p-value)	(0.3973)	(0.3227)	(0.3799)	(0.3674)	(0.256)	(0.4118)
Horizontal	-0.5996**	-0.6956***	-0.5855**	-0.5494**	-0.6414***	-0.5529**
(p-value)	(0.0195)	(0.004)	(0.0228)	(0.0343)	(0.0083)	(0.034)
Tender Offer	1.7639***	1.5112***	1.7685***	1.6474***	1.467***	1.6862***
(p-value)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Hostile	-0.2225	-0.4459	-0.18	-0.0401	-0.397	0.00143
(p-value)	(0.6983)	(0.4333)	(0.7542)	(0.9467)	(0.4799)	(0.9981)
Multiple Bidders	0.7593**	0.9959***	0.711**	0.9925***	0.9052***	1.0198***
(p-value)	(0.0321)	(0.0044)	(0.0469)	(0.0063)	(0.0097)	(0.0051)
Rumor	0.5168	0.3474	0.5293	0.2133	0.3703	0.1699
(p-value)	(0.2231)	(0.3903)	(0.2139)	(0.6066)	(0.3631)	(0.681)
Adj-R^2	0.3536	0.2726	0.3568	0.3647	0.2784	0.3703
Year Dummies	No	No	No	No	No	No
Industry Dummies	No	No	No	No	No	No
Number of Cases	572	572	572	572	572	572

Table 9. Logistic Model Estimation of the Probability that the deal will be completed successfully on AIV- (Bidder) Target and VIV- (Bidder) Target

The AIV-Bidder (Target) and VIV- Bidder (Target) are the mean and standard deviation of the Implied Volatilities of Bidder (Target) Companies estimated over the runup period [-42,-2]. Target Size is the logarithm of the target (acquirer) market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target (acquirer) B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target (acquirer) price 2 days before the announcement divided by the target (acquirer) price 42 days before the announcement [(P_{-2} / P_{-42}) - 1]. Target markup is defined as the ratio of the offer price divided by the target (acquirer) price 2 days before the announcement [(Offer-Price / P_{-2}) - 1]. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). The p-value are given underneath and are the MLE p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

Deal-Type	AIV-Target	VIV-Target	AIV-Target and VIV-Target	AIV-Bidder	VIV-Bidder	AIV-Bidder and VIV-Bidder
Constant	0.4534	-1.0295	0.1545	0.3574	-0.4327	0.3819
(p-value)	(0.8325)	(0.6119)	(0.9433)	(0.859)	(0.8237)	(0.8501)
AIV-Variable	-0.7369		-1.0075	-1.4645*		-1.6132*
(p-value)	(0.2688)		(0.1523)	(0.0649)		(0.0924)
VIV-Variable		1.7825	3.0568		-3.6861	1.6673
(p-value)		(0.4932)	(0.2843)		(0.4476)	(0.7844)
Target Size	0.1986	0.2685*	0.2188	0.2244	0.2436*	0.2225
(p-value)	(0.1694)	(0.062)	(0.1359)	(0.111)	(0.0799)	(0.1152)
Target Turnover	0.000484	-0.00054	0.000375	0.000113	-0.00024	0.000113
(p-value)	(0.8997)	(0.8735)	(0.9223)	(0.9755)	(0.9444)	(0.9756)
Target NYSE/Amex	-0.6276*	-0.5361*	-0.6334*	-0.6673**	-0.588*	-0.6601**
(p-value)	(0.0575)	(0.0985)	(0.0573)	(0.0433)	(0.0719)	(0.0462)
Target B/M	-0.6849*	-0.7667**	-0.7165**	-0.6569*	-0.7063*	-0.6618*
(p-value)	(0.0522)	(0.0353)	(0.0424)	(0.0711)	(0.051)	(0.0696)
Target Runup	0.7718	0.7567	0.679	0.7531	0.7896	0.7526
(p-value)	(0.2146)	(0.2333)	(0.2785)	(0.2185)	(0.2052)	(0.22)
Target Markup	-0.379	-0.4183	-0.3456	-0.389	-0.4315	-0.3847
(p-value)	(0.393)	(0.3492)	(0.4368)	(0.3798)	(0.3329)	(0.3851)
Collar	0.7467	0.769	0.7708	0.7066	0.7522	0.7009
(p-value)	(0.2482)	(0.2327)	(0.2323)	(0.2776)	(0.244)	(0.2823)
Toehold Exist	-1.4222**	-1.471**	-1.4744**	-1.5252**	-1.4807**	-1.5131**
(p-value)	(0.0405)	(0.035)	(0.034)	(0.0299)	(0.0342)	(0.0316)
Horizontal	-0.0878	-0.1002	-0.082	-0.0157	-0.0752	-0.022
(p-value)	(0.7824)	(0.7528)	(0.7971)	(0.9611)	(0.8139)	(0.9455)
Tender Offer	1.491***	1.3496***	1.4855***	1.4279***	1.3911***	1.4253***
(p-value)	(0.0007)	(0.0013)	(0.0007)	(0.0008)	(0.0009)	(0.0008)
Cash Bid	0.0503	0.1557	0.032	-0.0836	0.1224	-0.0946
(p-value)	(0.8722)	(0.6022)	(0.9191)	(0.7986)	(0.6829)	(0.7745)
Hostile	-3.7021***	-3.6316***	-3.7195***	-3.6597***	-3.6527***	-3.6524***
(p-value)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Multiple Bidders	-2.8072***	-2.7781***	-2.8679***	-2.734***	-2.7659***	-2.7266***
(p-value)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Rumor	0.5356	0.4835	0.5312	0.4529	0.5017	0.4466
(p-value)	(0.403)	(0.4472)	(0.4066)	(0.4776)	(0.4309)	(0.484)
Adj-R^2	0.2002	0.1992	0.2020	0.2030	0.1993	0.2031
Year Dummies	No	No	No	No	No	No
Industry Dummies	No	No	No	No	No	No
Number of Cases	572	284	288	572	284	288

Table 10. Summary of Multivariate Tests' Results – Pre-runup Period

Summary of the results for the main explanatory variables (AIV and VIV) when estimated over the pre-runup period.

Panel A - Acquirer Abnormal Returns (CAR-Bidder)		
Increase in:	Stock and Mixed Offers	Cash-Only Offers
Target Risk (AIV-Target)	No effect	No effect
Bidder Risk (AIV-Bidder)	Decrease	No effect
Target Uncertainty about Risk (VIV-Target)	No effect	No effect
Bidder Uncertainty about Risk (VIV-Bidder)	No effect	No effect
	When both AIV and VIV are included together in the same regression	
Bidder Risk (AIV-Bidder)	Decrease	No effect
Bidder Uncertainty about Risk (VIV-Bidder)	No effect	No effect
Panel B - Probability of a Cash-Only offer		
Target Risk (AIV-Target)	Decrease	
Bidder Risk (AIV-Bidder)	Decrease	
Target Uncertainty about Risk (VIV-Target)	Decrease	
Bidder Uncertainty about Risk (VIV-Bidder)	Decrease	
	When both AIV and VIV are included together in the same regression	
Target Risk (AIV-Target)	Decrease	
Target Uncertainty about Risk (VIV-Target)	Increase	
Bidder Risk (AIV-Bidder)	Decrease	
Bidder Uncertainty about Risk (VIV-Bidder)	Increase	
Panel C - Probability of Deal Success		
Target Risk (AIV-Target)	No effect	
Bidder Risk (AIV-Bidder)	Decrease	
Target Uncertainty about Risk (VIV-Target)	No effect	
Bidder Uncertainty about Risk (VIV-Bidder)	No effect	
	When both AIV and VIV are included together in the same regression	
Target Risk (AIV-Target)	No effect	
Target Uncertainty about Risk (VIV-Target)	No effect	
Bidder Risk (AIV-Bidder)	No effect	
Bidder Uncertainty about Risk (VIV-Bidder)	No effect	

Table 11. Summary of Multivariate Tests' Results for the IBES Divergence of Opinion Measures		
Summary of the results for IBES divergence of opinion measure when used as explanatory variable		
Panel A - Acquirer Abnormal Returns (CAR-Bidder)		
Increase in:	Stock and Mixed Offers	Cash-Only Offers
When the divergence of opinion is estimated 12 months before the announcement month		
Divergence of Opinion - Target	Increase	Decrease
Divergence of Opinion - Bidder	No effect	No effect
When the divergence of opinion is estimated 2 months before the announcement month		
Divergence of Opinion - Target	Increase	No effect
Divergence of Opinion - Bidder	No effect	No effect
When the divergence of opinion is estimated 1 month after the announcement month		
Divergence of Opinion - Target	No effect	No effect
Divergence of Opinion - Bidder	Decrease	No effect
Panel B - Probability of a Cash-Only offer		
When the divergence of opinion is estimated 12 months before the announcement month		
Divergence of Opinion - Target	No effect	
Divergence of Opinion - Bidder	No effect	
When the divergence of opinion is estimated 2 months before the announcement month		
Divergence of Opinion - Target	Decrease (No effect)	
Divergence of Opinion - Bidder	No effect	
When the divergence of opinion is estimated 1 month after the announcement month		
Divergence of Opinion - Target	No effect	
Divergence of Opinion - Bidder	No effect	
Panel C - Probability of Deal Success		
When the divergence of opinion is estimated 12 months before the announcement month		
Divergence of Opinion - Target	No effect	
Divergence of Opinion - Bidder	No effect	
When the divergence of opinion is estimated 2 months before the announcement month		
Divergence of Opinion - Target	No effect	
Divergence of Opinion - Bidder	Increase	
When the divergence of opinion is estimated 1 month after the announcement month		
Divergence of Opinion - Target	No effect	
Divergence of Opinion - Bidder	No effect	

Table 12. Summary of Multivariate Tests' Results – with IBES Control

Summary of the results for the main explanatory variables (AIV and VIV) when controlling for IBES divergence of opinion measure

Panel A - Acquirer Abnormal Returns (CAR-Bidder)		
Increase in:	Stock and Mixed Offers	Cash-Only Offers
Target Risk (AIV-Target)	No effect	No effect
Bidder Risk (AIV-Bidder)	Decrease	No effect
Target Uncertainty about Risk (VIV-Target)	No effect	No effect
Bidder Uncertainty about Risk (VIV-Bidder)	Decrease	No effect
	When both AIV and VIV are included together in the same regression	
Bidder Risk (AIV-Bidder)	Decrease	No effect
Bidder Uncertainty about Risk (VIV-Bidder)	No effect	No effect
Panel B - Probability of a Cash-Only offer		
Target Risk (AIV-Target)	Decrease	
Bidder Risk (AIV-Bidder)	Decrease	
Target Uncertainty about Risk (VIV-Target)	Decrease (no effect)	
Bidder Uncertainty about Risk (VIV-Bidder)	Decrease	
	When both AIV and VIV are included together in the same regression	
Target Risk (AIV-Target)	Decrease	
Target Uncertainty about Risk (VIV-Target)	Increase	
Bidder Uncertainty (AIV-Bidder)	Decrease	
Bidder Uncertainty about Risk (VIV-Bidder)	Increase	
Panel C - Probability of Deal Success		
Target Risk (AIV-Target)	No effect	
Bidder Risk (AIV-Bidder)	Decrease	
Target Uncertainty about Risk (VIV-Target)	No effect	
Bidder Uncertainty about Risk (VIV-Bidder)	No effect	
	When both AIV and VIV are included together in the same regression	
Target Risk (AIV-Target)	No effect	
Target Uncertainty about Risk (VIV-Target)	No effect	
Bidder Risk (AIV-Bidder)	Decrease	
Bidder Uncertainty about Risk (VIV-Bidder)	No effect	

Appendix A – Tests Performed with AIV and VIV estimated in the Pre-runup Period

Table 13. Cross-sectional Regression of Bidder Announcement CAR on AIV-Target and VIV-Target estimated over the Pre-runup period.

Bidder CAR is equal to the sum of Bidder Abnormal Return ($AR_{i,t}$) estimated over the announcement period [-1,+1]. ARi,t is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is the bidder company 'i' return on day 't' above the risk free rate on that day. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate on that day. The models components (α_i, β_i) are obtained by estimating the model $(R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t})$ over the [-256; -43].The AIV-Target and VIV-Target are the mean and standard deviation of the Implied Volatilities of Target firms estimated during the pre-runup period [-84,-43]. Target Size is the logarithm of the target market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target price 2 days before the announcement divided by the target price 42 days before the announcement $[(P_{-2} / P_{-42}) - 1]$. Target markup is defined as the ratio of the offer price divided by the target price 2 days before the announcement $[(\text{Offer-Price} / P_{-2}) - 1]$. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). Industry and year dummies corresponding to the target two digits SIC codes and to the announcement year. The p-value are given underneath and are the White Heteroskedasticity consistent p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

Deal-Type	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids
Constant	0.11171**	0.2385***	0.10989*	0.10039*	0.20115***	0.12106**
(p-value)	(0.0404)	(0.0037)	(0.0671)	(0.052)	(0.0075)	(0.0263)
AIV-Target	-0.01211	-0.02148	0.00775			
(p-value)	(0.4949)	(0.4517)	(0.6491)			
VIV-Target				0.01094	0.04651	0.0135
(p-value)				(0.7895)	(0.4891)	(0.7555)
Target Size	-0.00951***	-0.01024**	-0.00621*	-0.00866***	-0.0083*	-0.00665*
(p-value)	(0.0017)	(0.0401)	(0.0813)	(0.0027)	(0.0807)	(0.0501)
Target Turnover	-0.0001444***	-0.0001543***	-1.17E-05	-0.000159***	-0.0001836***	-2.01E-06
(p-value)	(0.0024)	(0.0074)	(0.8517)	(0.0003)	(0.0004)	(0.9737)
Target NYSE/Amex	0.00451	0.00135	-0.0004386	0.00514	0.00226	-0.0005829
(p-value)	(0.5514)	(0.9194)	(0.9578)	(0.4941)	(0.8633)	(0.9437)
Target B/M	-0.0075	-0.01982	-0.00537	-0.008	-0.01991	-0.00517
(p-value)	(0.3634)	(0.2008)	(0.5083)	(0.3236)	(0.1998)	(0.5155)
Target Runup	0.00324	0.01765	-0.00659	0.00314	0.01859	-0.00675
(p-value)	(0.8389)	(0.5113)	(0.6204)	(0.8443)	(0.4941)	(0.6201)
Target Markup	-0.03368***	-0.02791*	-0.03696***	-0.03414***	-0.02802*	-0.03682***
(p-value)	(0.0042)	(0.0749)	(0.0024)	(0.0036)	(0.075)	(0.003)
Collar	-0.02741*	-0.03641**	0.02304	-0.02679*	-0.03634***	0.02319
(p-value)	(0.0643)	(0.0276)	(0.3273)	(0.0719)	(0.0287)	(0.3263)
Toehold Exist	0.01283	0.05572*	0.00397	0.01197	0.05018*	0.00279
(p-value)	(0.458)	(0.0637)	(0.8686)	(0.4704)	(0.0844)	(0.9096)
Horizontal	0.00615	-0.00457	0.01226	0.0055	-0.00717	0.01202
(p-value)	(0.3898)	(0.6914)	(0.1158)	(0.4448)	(0.5398)	(0.1187)
Tender Offer	0.0021	0.01668	-0.00177	0.00141	0.01277	-0.00154
(p-value)	(0.7456)	(0.2996)	(0.7917)	(0.8294)	(0.4352)	(0.8187)
Cash Bid	0.03012***			0.03103***		
(p-value)	(<.0001)			(<.0001)		
Hostile	-0.01046	0.00598	-0.03425*	-0.01056	0.00761	-0.03398*
(p-value)	(0.596)	(0.8588)	(0.0822)	(0.5936)	(0.8244)	(0.0862)
Multiple Bidders	0.01049	0.03644*	-0.01456	0.01081	0.03739*	-0.01457
(p-value)	(0.3312)	(0.0757)	(0.233)	(0.319)	(0.0746)	(0.2326)
Rumor	0.00507	0.00602	-0.00697	0.00498	0.00706	-0.00695
(p-value)	(0.6116)	(0.7309)	(0.5741)	(0.6183)	(0.6928)	(0.5739)
Complete	0.03058***	0.04959***	0.01033	0.03085***	0.05093***	0.01016
(p-value)	(0.0055)	(0.0019)	(0.432)	(0.0051)	(0.0017)	(0.4394)
Adj-R^2	0.2045	0.1636	0.0698	0.2024	0.1647	0.0695
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of Cases	572	284	288	572	284	288

Table 14.a. Cross-sectional Regression of Bidder Announcement CAR on AIV-Bidder and VIV-Bidder estimated over the Pre-runup period.

Bidder CAR is equal to the sum of Bidder Abnormal Return ($AR_{i,t}$) estimated over the announcement period [-1,+1]. ARi,t is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is the bidder company 'i' return on day 't' above the risk free rate on that day. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate on that day. The models components (α_i, β_i) are obtained by estimating the model $(R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t})$ over the [-256; -43]. The AIV-Target and VIV-Target are the mean and standard deviation of the Implied Volatilities of Bidder Companies estimated during the pre-runup period [-84,-43]. Target Size is the logarithm of the target market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target price 2 days before the announcement divided by the target price 42 days before the announcement [$(P_{-2} / P_{-42}) - 1$]. Target markup is defined as the ratio of the offer price divided by the target price 2 days before the announcement [(Offer-Price / P_{-2}) - 1]. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). Industry and year dummies corresponding to the target two digits SIC codes and to the announcement year. The p-value are given underneath and are the White Heteroskedasticity consistent p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

Deal-Type	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids
Constant	0.14372***	0.2621***	0.09043	0.10145*	0.20894***	0.10607**
(p-value)	(0.0076)	(0.0009)	(0.1265)	(0.0522)	(0.0053)	(0.0438)
AIV-Bidder	-0.06009**	-0.08976**	0.05856			
(p-value)	(0.0329)	(0.0179)	(0.1183)			
VIV-Bidder				0.01243	-0.0223	0.27331
(p-value)				(0.9212)	(0.8886)	(0.104)
Target Size	-0.01023***	-0.01178**	-0.0056	-0.00873***	-0.00882*	-0.00588*
(p-value)	(0.0004)	(0.0126)	(0.1052)	(0.0023)	(0.0595)	(0.0779)
Target Turnover	-0.0001335***	-0.0001271*	5.01E-06	-0.0001577***	-0.000173***	5.33E-06
(p-value)	(0.0054)	(0.064)	(0.9316)	(0.0004)	(0.0013)	(0.9301)
Target NYSE/Amex	0.00384	-0.00257	-0.00149	0.00512	0.00221	-0.00117
(p-value)	(0.6096)	(0.85)	(0.8536)	(0.4915)	(0.8651)	(0.8862)
Target B/M	-0.00651	-0.02026	-0.00671	-0.0079	-0.01937	-0.00455
(p-value)	(0.413)	(0.1876)	(0.3911)	(0.3277)	(0.2136)	(0.5486)
Target Runup	0.00274	0.0165	-0.00669	0.00324	0.01835	-0.00684
(p-value)	(0.8604)	(0.5277)	(0.6233)	(0.839)	(0.495)	(0.6214)
Target Markup	-0.03499***	-0.02989**	-0.03581***	-0.03417***	-0.02803*	-0.03852***
(p-value)	(0.0024)	(0.0492)	(0.003)	(0.0037)	(0.0733)	(0.0017)
Collar	-0.031**	-0.04074***	0.02253	-0.02685*	-0.03627**	0.02748
(p-value)	(0.0329)	(0.0099)	(0.3078)	(0.0714)	(0.0294)	(0.2527)
Toehold Exist	0.00795	0.04577	0.00392	0.01242	0.05623*	0.00286
(p-value)	(0.6498)	(0.1329)	(0.8799)	(0.4602)	(0.0722)	(0.9098)
Horizontal	0.00897	0.0005057	0.00919	0.00556	-0.00561	0.0102
(p-value)	(0.2131)	(0.9636)	(0.25)	(0.4381)	(0.6149)	(0.1703)
Tender Offer	0.0008099	0.01115	-0.00154	0.00164	0.01618	-0.00117
(p-value)	(0.8998)	(0.4997)	(0.8164)	(0.7975)	(0.3104)	(0.8598)
Cash Bid	0.02442***			0.03096***		
(p-value)	(0.0006)			(<.0001)		
Hostile	-0.0079	0.01355	-0.03791*	-0.01065	0.0055	-0.03418*
(p-value)	(0.6835)	(0.6759)	(0.0557)	(0.5907)	(0.8712)	(0.0846)
Multiple Bidders	0.01177	0.03743*	-0.01705	0.01067	0.0376*	-0.01617
(p-value)	(0.2869)	(0.0772)	(0.1475)	(0.3278)	(0.0789)	(0.1826)
Rumor	0.00323	0.000951	-0.00666	0.00503	0.00563	-0.00688
(p-value)	(0.745)	(0.956)	(0.5841)	(0.6151)	(0.7521)	(0.5798)
Complete	0.0285***	0.04389***	0.00988	0.03084***	0.04987***	0.00949
(p-value)	(0.0093)	(0.0068)	(0.4413)	(0.005)	(0.0018)	(0.4601)
Adj-R^2	0.2152	0.1892	0.0803	0.2023	0.1636	0.0788
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of Cases	572	284	288	572	284	288

Table 14b. Cross-sectional Regression of Bidder Announcement CAR on AIV-Bidder and VIV-Bidder estimated over the Pre-runup period.

Bidder CAR is equal to the sum of Bidder Abnormal Return ($AR_{i,t}$) estimated over the announcement period [-1,+1]. ARi,t is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is the bidder company 'i' return on day 't' above the risk free rate on that day. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate on that day. The models components (α_i, β_i) are obtained by estimating the model ($R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t}$) over the [-256; -43]. The AIV-Target and VIV-Target are the mean and standard deviation of the Implied Volatilities of Bidder Companies estimated during the pre-runup period [-84,-43]. Target Size is the logarithm of the target market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target price 2 days before the announcement divided by the target price 42 days before the announcement [(P_{-2} / P_{-42}) - 1]. Target markup is defined as the ratio of the offer price divided by the target price 2 days before the announcement [(Offer-Price / P_{-2}) - 1]. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). Industry and year dummies corresponding to the target two digits SIC codes and to the announcement year. The p-value are given underneath and are the White Heteroskedasticity consistent p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

Deal-Type	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids
Constant	0.15***	0.26768***	0.09147
(p-value)	(0.0063)	(0.0006)	(0.122)
AIV-Bidder	-0.09222***	-0.1283***	0.04057
(p-value)	(0.0077)	(0.004)	(0.4548)
VIV-Bidder	0.24418	0.28384	0.14773
(p-value)	(0.1106)	(0.1432)	(0.5556)
Target Size	-0.01023***	-0.01241***	-0.00548
(p-value)	(0.0004)	(0.0082)	(0.1083)
Target Turnover	-0.0001322***	-0.0001265*	6.27E-06
(p-value)	(0.0078)	(0.072)	(0.9154)
Target NYSE/Amex	0.00406	-0.00181	-0.00148
(p-value)	(0.5863)	(0.8913)	(0.855)
Target B/M	-0.00589	-0.02104	-0.00594
(p-value)	(0.4625)	(0.1728)	(0.4384)
Target Runup	0.00209	0.01439	-0.0069
(p-value)	(0.8936)	(0.582)	(0.6164)
Target Markup	-0.03666***	-0.03173**	-0.03714***
(p-value)	(0.0016)	(0.04)	(0.0039)
Collar	-0.03035**	-0.04241***	0.02505
(p-value)	(0.0358)	(0.006)	(0.2695)
Toehold Exist	0.000843	0.02856	0.00365
(p-value)	(0.9591)	(0.3672)	(0.888)
Horizontal	0.00876	0.000389	0.0091
(p-value)	(0.2282)	(0.9715)	(0.2497)
Tender Offer	-0.0003554	0.00523	-0.00137
(p-value)	(0.9559)	(0.7534)	(0.8361)
Cash Bid	0.02447***		
(p-value)	(0.0006)		
Hostile	-0.00567	0.01959	-0.03688*
(p-value)	(0.7728)	(0.5411)	(0.0695)
Multiple Bidders	0.01127	0.03362	-0.01718
(p-value)	(0.3121)	(0.1286)	(0.1463)
Rumor	0.00355	0.0028	-0.00672
(p-value)	(0.7211)	(0.868)	(0.584)
Complete	0.02848***	0.04297***	0.00955
(p-value)	(0.0087)	(0.0075)	(0.4565)
Adj-R^2	0.2187	0.1977	0.0779
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Number of Cases	572	284	288

Table 15. Logistic Model Estimation of the Probability that the Deal Will be a Cash-Only offer versus Being a Non-Cash-Only Offer using AIV (VIV) as Explanatory Variables Estimated over the Pre-runup period.

The AIV-Bidder (Target) and VIV- Bidder (Target) are the mean and standard deviation of the Implied Volatilities of Bidder (Target) Companies estimated during the pre-runup period [-84,-43]. Target (Acquirer) Size is the logarithm of the target (acquirer) market value of equity 42 days before the announcement and target (acquirer) turnover is ratio of target (acquirer) volume to share outstanding estimated 42 days before the announcement. Target (acquirer) B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Relative size is the ratio of target size divided by the acquirer size (in log terms). NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target (Acquirer) is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). The p-value are given underneath and are the MLE p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

Independent Variable	AIV-Target	VIV-Target	AIV-Target and VIV-Target	AIV-Bidder	VIV-Bidder	AIV-Bidder and VIV-Bidder
Constant	2.2361	2.2373	1.6222	4.836	1.4451	5.8315
(p-value)	(0.8157)	(0.7977)	(0.8681)	(0.5861)	(0.8676)	(0.5123)
AIV-Variable	-5.1206***		-5.654***	-7.9795***		-9.3065***
(p-value)	(<.0001)		(<.0001)	(<.0001)		(<.0001)
VIV-Variable		-3.1006*	3.137*		-11.978***	11.5761**
(p-value)		(0.0571)	(0.0912)		(0.0066)	(0.0319)
Target Size	-0.7274	0.0832	-0.781	-0.2103	0.0656	-0.1858
(p-value)	(0.2751)	(0.8886)	(0.2501)	(0.7275)	(0.9116)	(0.7581)
Target Turnover	0.00201	-0.00057	0.002	0.000284	-0.00072	0.000335
(p-value)	(0.4426)	(0.8527)	(0.445)	(0.9276)	(0.8193)	(0.9141)
Target NYSE/Amex	-0.2984	-0.1324	-0.2941	-0.1252	-0.175	-0.0715
(p-value)	(0.2559)	(0.5919)	(0.2615)	(0.6345)	(0.4808)	(0.788)
Target B/M	0.3926	0.055	0.3334	0.4222	0.0776	0.4125
(p-value)	(0.26)	(0.859)	(0.3519)	(0.2056)	(0.7997)	(0.2266)
Acquirer Size	0.6518	0.145	0.7006	0.1894	0.1739	0.1428
(p-value)	(0.2644)	(0.7818)	(0.2392)	(0.7222)	(0.7385)	(0.789)
Acquirer Turnover	-0.00908	-0.0154*	-0.00927	0.0133	-0.0106	0.0129
(p-value)	(0.4116)	(0.0956)	(0.4077)	(0.2428)	(0.2753)	(0.2395)
Acquirer NYSE/Amex	-0.2519	-0.014	-0.2653	-0.2593	-0.0554	-0.2629
(p-value)	(0.2754)	(0.948)	(0.2514)	(0.2616)	(0.7971)	(0.2572)
Acquirer B/M	0.9154*	0.9883**	0.8593*	0.5744	1.0256**	0.4283
(p-value)	(0.0603)	(0.03)	(0.0804)	(0.2589)	(0.0253)	(0.4084)
Relative Size	-0.346	-6.6311	0.4531	-2.9401	-5.7376	-3.5099
(p-value)	(0.974)	(0.4897)	(0.9666)	(0.7625)	(0.5478)	(0.718)
Collar	-2.4928***	-2.4632***	-2.488***	-2.533***	-2.4474***	-2.5183***
(p-value)	(0.0002)	(0.0001)	(0.0003)	(0.0001)	(0.0001)	(0.0002)
Toehold Exist	-0.6262	-0.7448	-0.6577	-0.6459	-0.8407	-0.5926
(p-value)	(0.3973)	(0.3227)	(0.3799)	(0.3674)	(0.256)	(0.4118)
Horizontal	-0.5996**	-0.6956***	-0.5855**	-0.5494**	-0.6414***	-0.5529**
(p-value)	(0.0195)	(0.004)	(0.0228)	(0.0343)	(0.0083)	(0.034)
Tender Offer	1.7639***	1.5112***	1.7685***	1.6474***	1.467***	1.6862***
(p-value)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Hostile	-0.2225	-0.4459	-0.18	-0.0401	-0.397	0.00143
(p-value)	(0.6983)	(0.4333)	(0.7542)	(0.9467)	(0.4799)	(0.9981)
Multiple Bidders	0.7593**	0.9959***	0.711**	0.9925***	0.9052***	1.0198***
(p-value)	(0.0321)	(0.0044)	(0.0469)	(0.0063)	(0.0097)	(0.0051)
Rumor	0.5168	0.3474	0.5293	0.2133	0.3703	0.1699
(p-value)	(0.2231)	(0.3903)	(0.2139)	(0.6066)	(0.3631)	(0.681)
Adj-R^2	0.3536	0.2726	0.3568	0.3647	0.2784	0.3703
Year Dummies	No	No	No	No	No	No
Industry Dummies	No	No	No	No	No	No
Number of Cases	572	572	572	572	572	572

Table 16. Logistic Model Estimation of the Probability that the Deal Will be Completed Successfully on AIV-Target and VIV-Target when AIV (VIV) are estimated over the Pre-runup period.

The AIV-Bidder (Target) and VIV- Bidder (Target) are the mean and standard deviation of the Implied Volatilities of Bidder (Target) Companies estimated during the pre-runup period [-84,-43]. Target Size is the logarithm of the target (acquirer) market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target (acquirer) B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target (acquirer) price 2 days before the announcement divided by the target (acquirer) price 42 days before the announcement [(P_{-2} / P_{-42}) - 1]. Target markup is defined as the ratio of the offer price divided by the target (acquirer) price 2 days before the announcement [(Offer-Price / P_{-2}) - 1]. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). The p-value are given underneath and are the MLE p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

Deal-Type	AIV-Target	VIV-Target	AIV-Target and VIV-Target	AIV-Bidder	VIV-Bidder	AIV-Bidder and VIV-Bidder
Constant	0.0485	-0.4858	0.0199	0.3319	-0.3666	0.2856
(p-value)	(0.9816)	(0.8055)	(0.9925)	(0.8706)	(0.8529)	(0.8886)
AIV-Variable	-0.4924		-0.4361	-1.2445		-1.3568
(p-value)	(0.4386)		(0.5248)	(0.1072)		(0.1472)
VIV		-0.9424	-0.4348		-2.7612	0.8035
(p-value)		(0.6347)	(0.8408)		(0.4575)	(0.8533)
Target Size	0.2171	0.2399*	0.2183	0.2192	0.2358*	0.2229
(p-value)	(0.1306)	(0.0886)	(0.1297)	(0.1213)	(0.0937)	(0.1161)
Target Turnover	0.000392	-0.00015	0.000404	0.000119	-0.0002	0.000161
(p-value)	(0.919)	(0.9663)	(0.9162)	(0.974)	(0.9534)	(0.965)
Target NYSE/Amex	-0.6071*	-0.5687*	-0.6079*	-0.6444**	-0.5745*	-0.644**
(p-value)	(0.0668)	(0.0801)	(0.0665)	(0.0498)	(0.0764)	(0.0498)
Target B/M	-0.6828*	-0.7158**	-0.6779*	-0.6502*	-0.7065*	-0.6409*
(p-value)	(0.0562)	(0.0474)	(0.0584)	(0.0764)	(0.0531)	(0.0811)
Target Runup	0.7966	0.8117	0.8011	0.7813	0.7596	0.7888
(p-value)	(0.2006)	(0.197)	(0.1985)	(0.2042)	(0.2259)	(0.2015)
Target Markup	-0.4006	-0.419	-0.3975	-0.4087	-0.4076	-0.4076
(p-value)	(0.3685)	(0.3469)	(0.3721)	(0.3585)	(0.364)	(0.3595)
Collar	0.7557	0.74	0.7505	0.7059	0.7248	0.7147
(p-value)	(0.2427)	(0.2522)	(0.2466)	(0.2787)	(0.262)	(0.2735)
Toehold Exist	-1.4252**	-1.3682*	-1.3938**	-1.5328**	-1.377**	-1.5557**
(p-value)	(0.0398)	(0.0533)	(0.049)	(0.0289)	(0.0533)	(0.029)
Horizontal	-0.0851	-0.0862	-0.0784	-0.00972	-0.0793	-0.00351
(p-value)	(0.7891)	(0.787)	(0.8059)	(0.976)	(0.8034)	(0.9913)
Tender Offer	1.45***	1.4031***	1.4545***	1.4192***	1.3909***	1.4186***
(p-value)	(0.0009)	(0.0009)	(0.0008)	(0.0008)	(0.0009)	(0.0008)
Cash Bid	0.0834	0.1355	0.0876	-0.0633	0.1087	-0.0654
(p-value)	(0.7875)	(0.6507)	(0.7772)	(0.8473)	(0.7197)	(0.8427)
Hostile	-3.6689***	-3.6534***	-3.674***	-3.6306***	-3.648***	-3.6265***
(p-value)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Multiple Bidders	-2.7731***	-2.7641***	-2.7751***	-2.7468***	-2.7433***	-2.7461***
(p-value)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Rumor	0.4926	0.505	0.4964	0.4565	0.4926	0.453
(p-value)	(0.439)	(0.4287)	(0.436)	(0.4744)	(0.4396)	(0.4777)
Adj-R^2	0.1993	0.1989	0.1995	0.2020	1994	02022
Year Dummies	No	No	No	No	No	No
Industry Dummies	No	No	No	No	No	No
Number of Cases	572	284	288	572	284	288

Appendix B – Tests Performed with IBES Divergence of Opinion Measures being the Main Explanatory Variable

Table 17. Cross-sectional Regression of Bidder Announcement CAR on Target and Bidder Divergence of Opinion Measures

Bidder CAR is equal to the sum of Bidder Abnormal Return ($AR_{i,t}$) estimated over the announcement period [-1,+1]. ARi,t is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is the bidder company 'i' return on day 't' above the risk free rate on that day. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate on that day. The models components (α_i, β_i) are obtained by estimating the model $(R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t})$ over the [-256; -43]. The divergence of opinion measures are extracted from IBES as the standard deviation of the analysts' forecasts estimated 12 months before the announcement month. Target Size is the logarithm of the target market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target price 2 days before the announcement divided by the target price 42 days before the announcement [(P_{-2} / P_{-42}) - 1]. Target markup is defined as the ratio of the offer price divided by the target price 2 days before the announcement [(Offer-Price / P_{-2}) - 1]. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1S if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). Industry and year dummies corresponding to the target two digits SIC codes and to the announcement year. The p-value are given underneath and are the White Heteroskedasticity consistent p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

	Estimated 12 months before the announcement months					
	Target Divergence of Opinion			Bidder Divergence of Opinion		
Deal-Type	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids
Constant	-0.01571	0.02151	0.13577**	-0.0062	0.0265	0.14653**
(p-value)	(0.7488)	(0.7471)	(0.0308)	(0.8991)	(0.6956)	(0.0168)
Divergence of Opinion	0.00752***	0.008***	-0.06284*	0.00738	-0.00691	-0.00884
(p-value)	(0.0008)	(0.0055)	(0.0815)	(0.7669)	(0.8806)	(0.7384)
Target Size	-0.007**	-0.003	-0.00838**	-0.00751**	-0.00342	-0.00871**
(p-value)	(0.0249)	(0.5327)	(0.0314)	(0.0161)	(0.483)	(0.0221)
Target Turnover	-0.000116	-0.0001253	8.257E-07	-0.000124	-0.0001265	-1.975E-05
(p-value)	(0.2264)	(0.7474)	(0.9896)	(0.201)	(0.7508)	(0.7418)
Target NYSE/Amex	0.00493	-0.00518	0.00127	0.00498	-0.00353	0.00234
(p-value)	(0.5396)	(0.7052)	(0.8895)	(0.5425)	(0.7994)	(0.8105)
Target B/M	-0.01214	-0.01896	-0.00248	-0.01134	-0.01513	-0.00454
(p-value)	(0.1617)	(0.2559)	(0.7636)	(0.188)	(0.3635)	(0.5896)
Target Runup	0.01849	0.03743	-0.00882	0.01742	0.03666	-0.0087
(p-value)	(0.2866)	(0.2115)	(0.521)	(0.3141)	(0.2179)	(0.539)
Target Markup	-0.03789***	-0.03515**	-0.03813***	-0.03734***	-0.0336**	-0.03766***
(p-value)	(0.0015)	(0.0194)	(0.0033)	(0.0019)	(0.0271)	(0.004)
Collar	-0.02235*	-0.03299**	0.02336	-0.02242*	-0.03142**	0.02167
(p-value)	(0.0946)	(0.0288)	(0.2977)	(0.0952)	(0.0393)	(0.361)
Toehold Exist	0.00126	0.03563	-0.00294	0.0137	0.06025**	0.0003048
(p-value)	(0.938)	(0.2538)	(0.9047)	(0.4286)	(0.0487)	(0.9898)
Horizontal	0.00705	0.00181	0.01423	0.00573	-0.0006508	0.01117
(p-value)	(0.3422)	(0.8742)	(0.1023)	(0.4455)	(0.9545)	(0.1815)
Tender Offer	0.0007857	0.01904	-0.0035	0.0006203	0.01953	-0.00355
(p-value)	(0.9124)	(0.3052)	(0.6377)	(0.9309)	(0.2839)	(0.6406)
Cash Bid	0.04002***			0.03976***		
(p-value)	(<.0001)			(<.0001)		
Hostile	0.01392	0.05281*	-0.01141	0.01214	0.05123*	-0.01363
(p-value)	(0.4317)	(0.0884)	(0.5628)	(0.4996)	(0.0918)	(0.4761)
Multiple Bidders	0.01078	0.02762	-0.01249	0.0102	0.02839	-0.01254
(p-value)	(0.3463)	(0.1994)	(0.3475)	(0.3725)	(0.1913)	(0.3308)
Rumor	0.00396	0.00622	-0.00675	0.00511	0.00576	-0.00598
(p-value)	(0.7054)	(0.7384)	(0.5886)	(0.6256)	(0.7608)	(0.6361)
Complete	0.02242*	0.03506**	0.00881	0.02047*	0.03346**	0.00682
(p-value)	(0.0539)	(0.0395)	(0.5307)	(0.0775)	(0.0491)	(0.6244)
Adj-R^2	0.2535	0.2247	0.1054	0.2476	0.2151	0.0952
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of Cases	515	258	257	515	258	257

Table 18. Cross-sectional Regression of Bidder Announcement CAR on Target and Bidder Divergence of Opinion Measures

Bidder CAR is equal to the sum of Bidder Abnormal Return ($AR_{i,t}$) estimated over the announcement period [-1,+1]. ARi,t is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is the bidder company 'i' return on day 't' above the risk free rate on that day. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate on that day. The models components (α_i, β_i) are obtained by estimating the model ($R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t}$) over the [-256; -43]. The divergence of opinion measures are extracted from IBES as the standard deviation of the analysts' forecasts estimated 2 months before the announcement month. Target Size is the logarithm of the target market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target price 2 days before the announcement divided by the target price 42 days before the announcement [(P_{-2} / P_{-42}) - 1]. Target markup is defined as the ratio of the offer price divided by the target price 2 days before the announcement [(Offer-Price / P_{-2}) - 1]. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1S if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). Industry and year dummies corresponding to the target two digits SIC codes and to the announcement year. The p-value are given underneath and are the White Heteroskedasticity consistent p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

	Estimated 2 months before the announcement months					
	Target Divergence of Opinion			Bidder Divergence of Opinion		
Deal-Type	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids
Constant	0.09499*	0.14732*	0.141**	0.09341*	0.15133*	0.14638**
(p-value)	(0.0562)	(0.0719)	(0.0189)	(0.0623)	(0.0656)	(0.014)
Divergence of Opinion	0.03097**	0.04028*	-0.03485	0.00799	0.00318	0.0072
(p-value)	(0.0353)	(0.0651)	(0.1801)	(0.5402)	(0.9353)	(0.5257)
Target Size	-0.00783***	-0.00578	-0.00727*	-0.0077**	-0.00557	-0.00788**
(p-value)	(0.0078)	(0.2261)	(0.0519)	(0.0104)	(0.25)	(0.0327)
Target Turnover	-0.0001519***	-0.000168***	9.88E-06	-0.0001427***	-0.0001555***	-2.247E-05
(p-value)	(0.0008)	(0.0022)	(0.8807)	(0.0026)	(0.0067)	(0.7048)
Target NYSE/Amex	0.00668	-0.0004853	-0.0001076	0.00621	0.00194	0.0009825
(p-value)	(0.4131)	(0.9717)	(0.99)	(0.4449)	(0.889)	(0.9115)
Target B/M	-0.01948**	-0.033**	-0.00581	-0.01663*	-0.02754*	-0.00844
(p-value)	(0.0195)	(0.045)	(0.5091)	(0.0504)	(0.0893)	(0.2994)
Target Runup	0.01057	0.02263	-0.01188	0.00866	0.02226	-0.00921
(p-value)	(0.5353)	(0.4418)	(0.4114)	(0.61)	(0.4502)	(0.5232)
Target Markup	-0.04358***	-0.03817**	-0.04558***	-0.04489***	-0.03991***	-0.04409***
(p-value)	(0.0002)	(0.0126)	(0.0005)	(0.0001)	(0.0098)	(0.0008)
Collar	-0.01477	-0.02443	0.02424	-0.01448	-0.02212	0.02319
(p-value)	(0.2687)	(0.1235)	(0.3092)	(0.2786)	(0.1641)	(0.3345)
Toehold Exist	0.00489	0.02412	0.00153	0.01607	0.05335*	0.0041
(p-value)	(0.7407)	(0.448)	(0.9537)	(0.3332)	(0.0733)	(0.8704)
Horizontal	0.00401	-0.0005371	0.0102	0.00354	-0.00356	0.00872
(p-value)	(0.5861)	(0.9632)	(0.1947)	(0.6328***)	(0.7548)	(0.2695)
Tender Offer	0.000851	0.01292	-0.0006875	0.00166	0.01534	-0.0009049
(p-value)	(0.8991)	(0.4521)	(0.9201)	(0.8042)	(0.3681)	(0.8986)
Cash Bid	0.03988***			0.03929***		
(p-value)	(<.0001)			(<.0001)		
Hostile	-0.01462	0.01442	-0.03688*	-0.01418	0.01834	-0.03841**
(p-value)	(0.4654)	(0.7114)	(0.0598)	(0.4723)	(0.6264)	(0.0458)
Multiple Bidders	0.00666	0.0331	-0.01595	0.00521	0.03007	-0.01452
(p-value)	(0.5355)	(0.1297)	(0.2097)	(0.6277)	(0.1795)	(0.2437)
Rumor	0.00225	0.01035	-0.01016	0.00355	0.01049	-0.01018
(p-value)	(0.8263)	(0.5939)	(0.4098)	(0.7266)	(0.5954)	(0.4143)
Complete	0.0238**	0.04042**	0.01223	0.02172**	0.03651**	0.01167
(p-value)	(0.0319)	(0.0171)	(0.3575)	(0.0494)	(0.0281)	(0.3722)
Adj-R^2	0.25	0.1955	0.1074	0.2449	0.1852	0.1036
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of Cases	545	271	274	545	271	274

Table 19. Cross-sectional Regression of Bidder Announcement CAR on Target and Bidder Divergence of Opinion Measures

Bidder CAR is equal to the sum of Bidder Abnormal Return ($AR_{i,t}$) estimated over the announcement period [-1,+1]. ARi,t is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is the bidder company 'i' return on day 't' above the risk free rate on that day. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate on that day. The models components (α_i, β_i) are obtained by estimating the model ($R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t}$) over the [-256; -43]. The divergence of opinion measures are extracted from IBES as the standard deviation of the analysts' forecasts estimated 1 months after the announcement month. Target Size is the logarithm of the target market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target price 2 days before the announcement divided by the target price 42 days before the announcement [(P_{-2} / P_{-42}) - 1]. Target markup is defined as the ratio of the offer price divided by the target price 2 days before the announcement [(Offer-Price / P_{-2}) - 1]. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1S if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). Industry and year dummies corresponding to the target two digits SIC codes and to the announcement year. The p-value are given underneath and are the White Heteroskedasticity consistent p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

	Estimated 1 month after the announcement months					
	Target Divergence of Opinion			Bidder Divergence of Opinion		
Deal-Type	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids
Constant	0.10925**	0.17248*	0.14956**	0.1041**	0.17021*	0.15065**
(p-value)	(0.0346)	(0.0738)	(0.034)	(0.044)	(0.0639)	(0.0331)
Divergence of Opinion	0.01067	0.03463	-0.00548	-0.0112	-0.05817*	0.00101
(p-value)	(0.1574)	(0.4829)	(0.4108)	(0.3598)	(0.078)	(0.918)
Target Size	-0.00853***	-0.00598	-0.00927**	-0.00819***	-0.00512	-0.0093**
(p-value)	(0.0066)	(0.2558)	(0.0201)	(0.0094)	(0.3273)	(0.0204)
Target Turnover	-0.000143***	-0.0001625***	5.78E-06	-0.0001345***	-0.0001491**	-8.15E-06
(p-value)	(0.0032)	(0.006)	(0.9344)	(0.0098)	(0.0197)	(0.9043)
Target NYSE/Amex	0.00758	0.0009736	0.00298	0.00755	0.0003413	0.00307
(p-value)	(0.3664)	(0.9463)	(0.7434)	(0.3682)	(0.981)	(0.7385)
Target B/M	-0.02233**	-0.03654*	-0.00482	-0.01788**	-0.03328*	-0.00809
(p-value)	(0.0277)	(0.0502)	(0.6514)	(0.0499)	(0.0685)	(0.3311)
Target Runup	0.0071	0.02114	-0.01542	0.00582	0.02255	-0.01371
(p-value)	(0.6955)	(0.5062)	(0.3104)	(0.7452)	(0.4694)	(0.3474)
Target Markup	-0.04271***	-0.03723***	-0.04568***	-0.04467***	-0.0409***	-0.04415***
(p-value)	(0.0004)	(0.0155)	(0.0008)	(0.0002)	(0.0054)	(0.001)
Collar	-0.01395	-0.02267	0.02336	-0.01374	-0.02238	0.02194
(p-value)	(0.326)	(0.1718)	(0.3284)	(0.3369)	(0.1793)	(0.3521)
Toehold Exist	0.00714	0.0456	-0.00749	0.00652	0.05079*	-0.00379
(p-value)	(0.6713)	(0.142)	(0.8228)	(0.7015)	(0.095)	(0.9059)
Horizontal	0.00232	-0.00719	0.01198	0.0026	-0.00611	0.01169
(p-value)	(0.7651)	(0.5614)	(0.1257)	(0.7371)	(0.6151)	(0.1357)
Tender Offer	0.00224	0.02046	-0.0029	0.00281	0.0196	-0.00301
(p-value)	(0.7513)	(0.2711)	(0.682)	(0.6895)	(0.2836)	(0.6797)
Cash Bid	0.03984***			0.04097***		
(p-value)	(<.0001)			(<.0001)		
Hostile	-0.01507	0.01888	-0.03569*	-0.01307	0.04792	-0.03659*
(p-value)	(0.4731)	(0.6211)	(0.0792)	(0.5296)	(0.1707)	(0.0674)
Multiple Bidders	0.00901	0.03976*	-0.01626	0.00864	0.04047*	-0.01578
(p-value)	(0.4423)	(0.0656)	(0.2229)	(0.4593)	(0.0614)	(0.2352)
Rumor	0.00402	0.00705	-0.00935	0.00376	0.00926	-0.00906
(p-value)	(0.6972)	(0.7395)	(0.4558)	(0.7173)	(0.636)	(0.4725)
Complete	0.02308**	0.043**	0.01342	0.02325**	0.0413**	0.01286
(p-value)	(0.0492)	(0.0139)	(0.3315)	(0.0472)	(0.0144)	(0.3454)
Adj-R^2	0.2373	0.183	0.1025	0.2367	0.1901	0.1012
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of Cases	518	258	260	518	258	260

Table 20. Logistic Model Estimation of the Probability that the Deal will be a Cash-Only Offer Versus a Being a Non-Cash-Only Offer

The divergence of opinion measures are extracted from IBES as the standard deviation of the analysts' forecasts estimated 12 months and 2 months before the announcement day and 1 months after the announcement month. Target (Acquirer) Size is the logarithm of the target (acquirer) market value of equity 42 days before the announcement and target (acquirer) turnover is ratio of target (acquirer) volume to share outstanding estimated 42 days before the announcement. Target (acquirer) B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Relative size is the ratio of target size divided by the acquirer size (in log terms). NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target (Acquirer) is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). The p-value are given underneath and are the MLE p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

	Estimated 12 Months before Announcement		Estimated 2 Months before Announcement		Estimated 1 Months After Announcement	
Independent Variable	Target	Acquirer	Target	Acquirer	Target	Acquirer
Constant	4.6813	3.9956	1.372	4.3852	2.5114	5.6563
(p-value)	(0.679)	(0.7243)	(0.8813)	(0.6347)	(0.794)	(0.5525)
Divergence of Opinion	-0.865	-0.0835	-1.2978*	0.7306	0.2143	0.7318
(p-value)	(0.2885)	(0.9183)	(0.1)	(0.2327)	(0.5924)	(0.1362)
Target Size	0.3256	0.2849	0.0959	0.2311	0.0795	0.2949
(p-value)	(0.672)	(0.7117)	(0.877)	(0.7076)	(0.9015)	(0.6408)
Target Turnover	0.00665	0.00598	-0.00012	-0.00107	-0.00165	-0.00155
(p-value)	(0.3622)	(0.4022)	(0.9684)	(0.7345)	(0.6529)	(0.6598)
Target NYSE/Amex	-0.2166	-0.2301	-0.2242	-0.2223	-0.3169	-0.3323
(p-value)	(0.4083)	(0.3865)	(0.3893)	(0.3937)	(0.2294)	(0.2077)
Target B/M	0.0931	0.0414	0.1272	0.00519	-0.1656	-0.0645
(p-value)	(0.772)	(0.8971)	(0.6918)	(0.9869)	(0.6522)	(0.8448)
Acquirer Size	-0.0468	-0.00562	0.1548	0.00515	0.1329	-0.056
(p-value)	(0.9447)	(0.9934)	(0.7775)	(0.9925)	(0.8159)	(0.9208)
Acquirer Turnover	-0.0158	-0.0154	-0.016	-0.0171*	-0.0176*	-0.0189*
(p-value)	(0.1008)	(0.1131)	(0.1004)	(0.0719)	(0.07)	(0.0569)
Acquirer NYSE/Amex	0.0658	0.0625	0.0568	0.0398	0.0896	0.1083
(p-value)	(0.7721)	(0.7831)	(0.7994)	(0.8577)	(0.6942)	(0.6347)
Acquirer B/M	1.0586**	1.0391**	1.0138**	0.8486*	0.9118*	0.7909
(p-value)	(0.0312)	(0.0359)	(0.0344)	(0.0805)	(0.0546)	(0.1006)
Relative Size	-10.1232	-9.4613	-6.2064	-9.0943	-6.7207	-10.3439
(p-value)	(0.4218)	(0.4536)	(0.5383)	(0.3672)	(0.5224)	(0.3191)
Collar	-2.4199***	-2.413***	-2.5462***	-2.4948***	-2.352***	-2.3266***
(p-value)	(0.0002)	(0.0002)	(<.0001)	(0.0001)	(0.0002)	(0.0003)
Toehold Exist	-0.5901	-0.7865	-0.5384	-0.7964	-0.7321	-0.7242
(p-value)	(0.4754)	(0.31)	(0.5226)	(0.3096)	(0.3707)	(0.3774)
Horizontal	-0.5912**	-0.6392**	-0.7142***	-0.7491***	-0.6654**	-0.6729***
(p-value)	(0.0244)	(0.0134)	(0.0049)	(0.003)	(0.0101)	(0.0091)
Tender Offer	1.4517***	1.4591***	1.5262***	1.4832***	1.4089***	1.4056***
(p-value)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Hostile	-0.784	-0.756	-0.4866	-0.4471	-0.3021	-0.3225
(p-value)	(0.2082)	(0.2235)	(0.394)	(0.4254)	(0.593)	(0.5672)
Multiple Bidders	0.9387**	0.9112**	1.1355***	1.1606***	0.9826***	1.0253***
(p-value)	(0.0121)	(0.0136)	(0.0018)	(0.0016)	(0.0078)	(0.0058)
Rumor	0.3421	0.3542	0.3725	0.4344	0.4354	0.4566
(p-value)	(0.4026)	(0.3894)	(0.3586)	(0.2923)	(0.2897)	(0.2682)
Adj-R^2	0.2782	0.2759	0.2891	0.2865	0.2763	0.2791
Year Dummies	No	No	No	No	No	No
Industry Dummies	No	No	No	No	No	No
Number of Cases	572	572	572	572	572	572

Table 21. Logistic Model Estimation of the Probability that the Deal Will be completed successfully on Target and Bidder Divergence of Opinion

The divergence of opinion measures are extracted from IBES as the standard deviation of the analysts' forecasts estimated 12 months and 2 months before the announcement day and 1 months after the announcement month. Target Size is the logarithm of the target (acquirer) market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target (acquirer) B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target (acquirer) price 2 days before the announcement divided by the target (acquirer) price 42 days before the announcement [$(P_{-2} / P_{-42}) - 1$]. Target markup is defined as the ratio of the offer price divided by the target (acquirer) price 2 days before the announcement [(Offer-Price / P_{-2}) - 1]. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). The p-value are given underneath and are the MLE p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

	Estimated 12 Months before Announcement		Estimated 2 Months before Announcement		Estimated 1 Months After Announcement	
Deal-Type	Target	Acquirer	Target	Acquirer	Target	Acquirer
Constant	-0.5995	-0.7289	-0.2265	0.0502	0.3778	0.1337
(p-value)	(0.774)	(0.7252)	(0.9115)	(0.9804)	(0.8611)	(0.9498)
Divergence of Opinion	-0.2981	1.0922	-0.2743	3.0387*	0.4997	0.9555
(p-value)	(0.6281)	(0.3181)	(0.583)	(0.0613)	(0.4619)	(0.2805)
Target Size	0.2417	0.2459*	0.2181	0.1806	0.1812	0.1925
(p-value)	(0.1036)	(0.0957)	(0.1344)	(0.2179)	(0.2373)	(0.2034)
Target Turnover	-0.00133	-0.00232	0.000172	-0.00097	-0.00012	0.000147
(p-value)	(0.7898)	(0.6486)	(0.9629)	(0.7897)	(0.9762)	(0.9721)
Target NYSE/Amex	-0.5341	-0.6028*	-0.5607	-0.6107*	-0.6377*	-0.6726*
(p-value)	(0.1183)	(0.08)	(0.1011)	(0.073)	(0.0674)	(0.0541)
Target B/M	-0.667*	-0.7563**	-0.6715*	-0.7805**	-0.9263**	-0.7857**
(p-value)	(0.0748)	(0.0425)	(0.0747)	(0.0355)	(0.0358)	(0.0432)
Target Runup	0.9494	1.0469	0.9798	0.9815	0.8747	0.7901
(p-value)	(0.159)	(0.1184)	(0.1456)	(0.1409)	(0.2101)	(0.2512)
Target Markup	-0.3092	-0.2432	-0.4289	-0.2898	-0.2375	-0.2687
(p-value)	(0.5346)	(0.6268)	(0.3715)	(0.5511)	(0.647)	(0.5963)
Collar	0.6954	0.7568	0.9743	1.0273	0.6052	0.6114
(p-value)	(0.2878)	(0.2491)	(0.1813)	(0.1508)	(0.3924)	(0.3819)
Toehold Exist	-1.1401	-1.3722**	-1.3468*	-1.423**	-1.4*	-1.4284*
(p-value)	(0.135)	(0.05)	(0.0644)	(0.0365)	(0.0768)	(0.0714)
Horizontal	-0.1154	-0.1567	-0.0951	-0.1126	-0.2415	-0.2581
(p-value)	(0.731)	(0.6397)	(0.7724)	(0.7335)	(0.4778)	(0.4483)
Tender Offer	1.4622***	1.4636***	1.3093***	1.3375***	1.2467***	1.2786***
(p-value)	(0.0008)	(0.0009)	(0.002)	(0.0018)	(0.0048)	(0.0038)
Cash Bid	-0.00064	0.0399	0.0854	0.1275	0.0509	0.0656
(p-value)	(0.9984)	(0.8999)	(0.7866)	(0.6888)	(0.8744)	(0.8392)
Hostile	-3.5133***	-3.5394***	-3.6537***	-3.7294***	-3.9094***	-4.0306***
(p-value)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Multiple Bidders	-2.7739***	-2.7701***	-2.8234***	-2.8228***	-2.8047***	-2.7897***
(p-value)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Rumor	0.6073	0.6549	0.5463	0.5923	0.5833	0.5964
(p-value)	(0.358)	(0.3236)	(0.3968)	(0.3582)	(0.3655)	(0.3545)
Adj-R^2	0.2003	0.2001	0.2119	0.2185	0.2177	0.2185
Year Dummies	No	No	No	No	No	No
Industry Dummies	No	No	No	No	No	No
Number of Cases	572	284	288	572	284	288

Appendix C – Tests Performed with AIV and VIV as main explanatory Variables with IBES Divergence of Opinion as Control

Table 22. Cross-sectional Regression of Bidder Announcement CAR on AIV-Target and VIV-Target with Divergence of Opinion used as Control Variable.
Bidder CAR is equal to the sum of Bidder Abnormal Return ($AR_{i,t}$) estimated over the announcement period [-1,+1]. ARi,t is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is the bidder company 'i' return on day 't' above the risk free rate on that day. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate on that day. The models components (α_i, β_i) are obtained by estimating the model $(R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t})$ over the [-256; -43]. The AIV-Target and VIV-Target are the mean and standard deviation of the Implied Volatilities of Target firms estimated over the runup period [-42,-2]. The divergence of opinion measures are extracted from IBES as the standard deviation of the analysts' forecasts estimated 2 months before the announcement month. Target Size is the logarithm of the target market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target price 2 days before the announcement divided by the target price 42 days before the announcement [(P_{-2} / P_{-42}) - 1]. Target markup is defined as the ratio of the offer price divided by the target price 2 days before the announcement [(Offer-Price / P_{-2}) - 1]. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). Industry and year dummies corresponding to the target two digits SIC codes and to the announcement year. The p-value are given underneath and are the White Heteroskedasticity consistent p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

Deal-Type	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids
Constant	0.01419	0.11867	0.11379*	0.00611	0.08872	0.13599**
(p-value)	(0.7931)	(0.1361)	(0.061)	(0.8975)	(0.1861)	(0.0164)
AIV-Target	-0.00829	-0.01689	0.01693			
(p-value)	(0.6595)	(0.5525)	(0.4477)			
VIV-Target				-0.01908	0.00765	-0.00494
(p-value)				(0.685)	(0.9241)	(0.9197)
Divergence of Opinion - Target	0.03063**	0.03946*	-0.03478	0.03058**	0.03985*	-0.03109
(p-value)	(0.0387)	(0.0758)	(0.1891)	(0.0392)	(0.0703)	(0.2336)
Target Size	-0.00848***	-0.00667	-0.00515	-0.00811***	-0.00551	-0.00652*
(p-value)	(0.0092)	(0.1913)	(0.1926)	(0.0075)	(0.2597)	(0.0788)
Target Turnover	-0.0001497***	-0.0001561***	-4.246E-05	-0.0001539***	-0.0001687***	-1.839E-05
(p-value)	(0.0009)	(0.0055)	(0.5359)	(0.0005)	(0.0017)	(0.7861)
Target NYSE/Amex	0.00619	-0.00188	0.0006521	0.00659	-0.00124	5.551E-05
(p-value)	(0.4464)	(0.8899)	(0.9397)	(0.4146)	(0.9278)	(0.9948)
Target B/M	-0.01966**	-0.03278**	-0.00478	-0.01951**	-0.0334**	-0.00424
(p-value)	(0.0207)	(0.0473)	(0.5886)	(0.0207)	(0.0413)	(0.6375)
Target Runup	0.00933	0.01987	-0.01013	0.00998	0.02078	-0.00944
(p-value)	(0.5832)	(0.493)	(0.4861)	(0.5567)	(0.4728)	(0.537)
Target Markup	-0.04551***	-0.03824**	-0.04706***	-0.04588***	-0.03819**	-0.04455***
(p-value)	(0.0001)	(0.0137)	(0.0004)	(<.0001)	(0.0142)	(0.0011)
Collar	-0.01542	-0.0253	0.0243	-0.0151	-0.02425	0.02491
(p-value)	(0.2543)	(0.1109)	(0.3066)	(0.2601)	(0.1238)	(0.3008)
Toehold Exist	0.0046	0.02416	0.00186	0.00473	0.02392	0.00112
(p-value)	(0.7542)	(0.4524)	(0.9433)	(0.7472)	(0.4499)	(0.9664)
Horizontal	0.005	0.0005879	0.01182	0.00492	-3.519E-05	0.01131
(p-value)	(0.4995)	(0.9597)	(0.1532)	(0.5066)	(0.9976)	(0.1647)
Tender Offer	0.0007923	0.0132	-0.00273	0.0006933	0.01237	-0.00181
(p-value)	(0.9079)	(0.4507)	(0.6951)	(0.9192)	(0.4961)	(0.7923)
Cash Bid	0.03909***			0.03935***		
(p-value)	(<.0001)			(<.0001)		
Hostile	-0.00915	0.01994	-0.03664*	-0.0091	0.0209	-0.03585*
(p-value)	(0.6397)	(0.5707)	(0.0576)	(0.6424)	(0.5563)	(0.0683)
Multiple Bidders	0.00464	0.03128	-0.01665	0.00541	0.03264	-0.01642
(p-value)	(0.6605)	(0.1411)	(0.1941)	(0.6149)	(0.134)	(0.2034)
Rumor	0.00253	0.00909	-0.01406	0.00208	0.00829	-0.01299
(p-value)	(0.8064)	(0.6415)	(0.2481)	(0.839)	(0.6706)	(0.2771)
Complete	0.02243**	0.03964**	0.01285	0.02263**	0.03995**	0.01362
(p-value)	(0.0422)	(0.0186)	(0.3491)	(0.0405)	(0.0186)	(0.3242)
Adj-R^2	0.2469	0.1955	0.1076	0.2468	0.1943	0.106
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of Cases	572	284	288	572	284	288

Table 23a. Cross-sectional Regression of Bidder Announcement CAR on AIV-Bidder and VIV-Bidder with Divergence of Opinion used as Control Variable.

Bidder CAR is equal to the sum of Bidder Abnormal Return ($AR_{i,t}$) estimated over the announcement period [-1,+1]. ARi,t is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is the bidder company 'i' return on day 't' above the risk free rate on that day. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate on that day. The models components (α_i, β_i) are obtained by estimating the model $(R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t})$ over the [-256; -43]. The AIV-Target and VIV-Target are the mean and standard deviation of the Implied Volatilities of Bidder Companies estimated over the runup period [-42,-2]. The divergence of opinion measures are extracted from IBES as the standard deviation of the analysts' forecasts estimated 2 months before the announcement month. Target Size is the logarithm of the target market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target price 2 days before the announcement divided by the target price 42 days before the announcement [(P_{-2} / P_{-42}) - 1]. Target markup is defined as the ratio of the offer price divided by the target price 2 days before the announcement [(Offer-Price / P_{-2}) - 1]. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). Industry and year dummies corresponding to the target two digits SIC codes and to the announcement year. The p-value are given underneath and are the White Heteroskedasticity consistent p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

Deal-Type	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids
Constant	0.07812	0.1837*	0.11766*	0.02469	0.10621	0.1446**
(p-value)	(0.1332)	(0.0157)	(0.0548)	(0.5989)	(0.1087)	(0.0111)
AIV-Bidder	-0.08186***	-0.1261***	0.04381			
(p-value)	(0.0048)	(0.0019)	(0.2837)			
VIV-Bidder				-0.31978**	-0.464**	-0.04936
(p-value)				(0.0226)	(0.0481)	(0.757)
Divergence of Opinion - Bidder	0.00935	0.02449	0.00772	0.00711	0.00741	0.00684
(p-value)	(0.4864)	(0.5458)	(0.5191)	(0.5888)	(0.8504)	(0.5637)
Target Size	-0.00966***	-0.00865*	-0.00621*	-0.00804***	-0.00509	-0.00718*
(p-value)	(0.002)	(0.084)	(0.0952)	(0.008)	(0.2884)	(0.0511)
Target Turnover	-0.0001163**	-9.921E-05	-4.483E-05	-0.0001299***	-0.0001226*	-4.842E-05
(p-value)	(0.0259)	(0.2143)	(0.4592)	(0.0089)	(0.0816)	(0.4182)
Target NYSE/Amex	0.00421	-0.00639	0.0003727	0.0049	-0.00176	0.00103
(p-value)	(0.6012)	(0.6448)	(0.9659)	(0.5408)	(0.897)	(0.9055)
Target B/M	-0.01587*	-0.02983*	-0.00782	-0.01617*	-0.02804*	-0.00634
(p-value)	(0.0561)	(0.0573)	(0.3365)	(0.059)	(0.079)	(0.4491)
Target Runup	0.00684	0.01986	-0.0064	0.0094	0.02281	-0.00718
(p-value)	(0.6796)	(0.4797)	(0.6611)	(0.5712)	(0.4182)	(0.6228)
Target Markup	-0.04656***	-0.03677**	-0.04221***	-0.04604***	-0.03862**	-0.04315***
(p-value)	(<.0001)	(0.0149)	(0.0016)	(<.0001)	(0.0111)	(0.0011)
Collar	-0.02283*	-0.03169**	0.02148	-0.01879	-0.02471	0.02388
(p-value)	(0.0904)	(0.0373)	(0.3478)	(0.1685)	(0.1233)	(0.3232)
Toehold Exist	0.01085	0.04417	0.00354	0.01243	0.0481	0.00338
(p-value)	(0.512)	(0.1349)	(0.8953)	(0.4514)	(0.1038)	(0.8925)
Horizontal	0.00697	0.00206	0.00917	0.00626	-0.0003122	0.01033
(p-value)	(0.349)	(0.8534)	(0.256)	(0.4009)	(0.9782)	(0.209)
Tender Offer	-0.0002995	0.00964	-0.0024	0.0009235	0.01678	-0.00212
(p-value)	(0.9644)	(0.5823)	(0.7349)	(0.8897)	(0.3268)	(0.7667)
Cash Bid	0.03082***			0.036***		
(p-value)	(<.0001)			(<.0001)		
Hostile	-0.00687	0.02398	-0.04059**	-0.00868	0.01962	-0.03641*
(p-value)	(0.7139)	(0.4706)	(0.0373)	(0.6518)	(0.5787)	(0.0623)
Multiple Bidders	0.00522	0.0287	-0.01722	0.00268	0.02482	-0.01532
(p-value)	(0.6314)	(0.1945)	(0.1639)	(0.795)	(0.2392)	(0.2252)
Rumor	0.00165	-0.0005227	-0.01309	0.00323	0.00809	-0.01261
(p-value)	(0.8695)	(0.9787)	(0.2731)	(0.747)	(0.6669)	(0.2899)
Complete	0.01735	0.02755*	0.01271	0.02018*	0.03333**	0.0132
(p-value)	(0.1121)	(0.0995)	(0.3374)	(0.063)	(0.0446)	(0.3315)
Adj-R^2	0.2606	0.2327	0.1084	0.2512	0.2026	0.1033
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of Cases	572	284	288	572	284	288

Table 23b. Cross-sectional Regression of Bidder Announcement CAR on AIV-Bidder and VIV-Bidder with Divergence of Opinion used as Control Variable.

Bidder CAR is equal to the sum of Bidder Abnormal Return ($AR_{i,t}$) estimated over the announcement period [-1,+1]. ARi,t is equal to $ER_{i,t} - (\alpha_i + \beta_i ER_{M,t})$. $ER_{i,t}$ is the bidder company 'i' return on day 't' above the risk free rate on that day. $ER_{M,t}$ is the CRSP Value Weighted Index return on day 't' in excess of the risk free rate on that day. The models components (α_i, β_i) are obtained by estimating the model $(R_{i,t} = \alpha_i + \beta_i R_{M,t} + e_{i,t})$ over the [-256; -43]. The AIV-Target and VIV-Target are the mean and standard deviation of the Implied Volatilities of Bidder Companies estimated over the runup period [-42,-2]. The divergence of opinion measures are extracted from IBES as the standard deviation of the analysts' forecasts estimated 2 months before the announcement month. Target Size is the logarithm of the target market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target price 2 days before the announcement divided by the target price 42 days before the announcement [(P_{-2} / P_{-42}) - 1]. Target markup is defined as the ratio of the offer price divided by the target price 2 days before the announcement [(Offer-Price / P_{-2}) - 1]. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). Industry and year dummies corresponding to the target two digits SIC codes and to the announcement year. The p-value are given underneath and are the White Heteroskedasticity consistent p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

Deal-Type	All Control Bids	Non-Cash-Only Control Bids	Cash-Only Control Bids
Constant	0.07525	0.18285**	0.11879*
(p-value)	(0.1504)	(0.0161)	(0.0518)
AIV-Bidder	-0.0723**	-0.12449**	0.07382
(p-value)	(0.0459)	(0.0155)	(0.1462)
VIV-Bidder	-0.09081	-0.01599	-0.26063
(p-value)	(0.6056)	(0.9562)	(0.2142)
Divergence of Opinion - Bidder	0.00903	0.02442	0.00668
(p-value)	(0.5025)	(0.547)	(0.5771)
Target Size	-0.00951***	-0.0086*	-0.00627*
(p-value)	(0.0023)	(0.086)	(0.0899)
Target Turnover	-0.000115**	-9.881E-05	-4.709E-05
(p-value)	(0.0287)	(0.2177)	(0.4373)
Target NYSE/Amex	0.00408	-0.0064	-0.0002241
(p-value)	(0.6115)	(0.6438)	(0.9797)
Target B/M	-0.01577*	-0.02982*	-0.00634
(p-value)	(0.0583)	(0.057)	(0.437)
Target Runup	0.00741	0.01995	-0.0046
(p-value)	(0.6521)	(0.4763)	(0.7543)
Target Markup	-0.04631***	-0.03676**	-0.03968***
(p-value)	(<.0001)	(0.0149)	(0.0029)
Collar	-0.02308*	-0.03166**	0.01958
(p-value)	(0.0888)	(0.0383)	(0.3778)
Toehold Exist	0.01051	0.04411	0.0024
(p-value)	(0.5265)	(0.1359)	(0.9279)
Horizontal	0.0072	0.00209	0.01043
(p-value)	(0.3324)	(0.8505)	(0.1873)
Tender Offer	-0.0002155	0.00977	-0.00341
(p-value)	(0.9743)	(0.5742)	(0.6301)
Cash Bid	0.03091***		
(p-value)	(<.0001)		
Hostile	-0.00705	0.02382	-0.03781*
(p-value)	(0.708)	(0.4761)	(0.0518)
Multiple Bidders	0.00477	0.02854	-0.01848
(p-value)	(0.6542)	(0.1858)	(0.1261)
Rumor	0.00181	-0.0004255	-0.01195
(p-value)	(0.8567)	(0.9828)	(0.3097)
Complete	0.01762	0.02757*	0.01394
(p-value)	(0.1048)	(0.0987)	(0.2904)
Adj-R^2	0.2596	0.2289	0.1094
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Number of Cases	572	284	288

Table 24. Logistic Model Estimation of the Probability that the deal will be a cash-only offer versus a deal being a non-cash-only offer with Divergence of Opinion used as Control Variable.

The AIV-Bidder (Target) and VIV- Bidder (Target) are the mean and standard deviation of the Implied Volatilities of Bidder (Target) Companies estimated over the runup period [-42,-2]. The divergence of opinion measures are extracted from IBES as the standard deviation of the analysts' forecasts estimated two months before the announcement month. Target (Acquirer) Size is the logarithm of the target (acquirer) market value of equity 42 days before the announcement and target (acquirer) turnover is ratio of target (acquirer) volume to share outstanding estimated 42 days before the announcement. Target (acquirer) B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Relative size is the ratio of target size divided by the acquirer size (in log terms). NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target (Acquirer) is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). The p-value are given underneath and are the MLE p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

Independent Variable	AIV-Target	VIV-Target	AIV-Target and VIV-Target	AIV-Bidder	VIV-Bidder	AIV-Bidder and VIV-Bidder
Constant	0.5471	2.0838	-0.5891	7.0566	4.6829	7.8939
(p-value)	(0.9562)	(0.82)	(0.9539)	(0.4928)	(0.6126)	(0.4472)
AIV-Variable	-4.9182***		-5.6065***	-7.3832***		-9.1393***
(p-value)	(<.0001)		(<.0001)	(<.0001)		(<.0001)
VIV-Variable		-2.8008	4.0127**		-10.9129**	14.8542**
(p-value)		(0.1048)	(0.0474)		(0.0165)	(0.0178)
Divergence of Opinion - Target	-0.7048	-1.3524*	-0.6464			
(p-value)	(0.3282)	(0.0938)	(0.3662)			
Divergence of Opinion - Bidder				1.037	0.6465	1.228*
(p-value)				(0.146)	(0.2897)	(0.0957)
Target Size	-0.8335	0.0782	-0.9313	-0.1196	0.2118	-0.1243
(p-value)	(0.2239)	(0.899)	(0.1846)	(0.8623)	(0.7317)	(0.858)
Target Turnover	0.00207	0.000195	0.002	-0.00005	-0.00087	-0.00007
(p-value)	(0.4341)	(0.9481)	(0.4505)	(0.9871)	(0.7849)	(0.9814)
Target NYSE/Amex	-0.3152	-0.2262	-0.3253	-0.1668	-0.2671	-0.1086
(p-value)	(0.2578)	(0.386)	(0.2431)	(0.5507)	(0.3092)	(0.7004)
Target B/M	0.4112	0.1826	0.3359	0.3384	0.0691	0.3309
(p-value)	(0.2601)	(0.5714)	(0.3721)	(0.3239)	(0.8264)	(0.3484)
Acquirer Size	0.7412	0.1509	0.8267	0.089	0.014	0.0558
(p-value)	(0.2189)	(0.7819)	(0.1809)	(0.8841)	(0.9796)	(0.9278)
Acquirer Turnover	-0.00995	-0.0149	-0.0108	0.00745	-0.0121	0.00736
(p-value)	(0.3896	(0.1257)	(0.361)	(0.5267)	(0.2277)	(0.5146)
Acquirer NYSE/Amex	-0.246	0.0543	-0.2775	-0.309	-0.00655	-0.3222
(p-value)	(0.3093)	(0.8087)	(0.2535)	(0.2023)	(0.9768)	(0.186)
Acquirer B/M	0.8972*	1.0494**	0.8443	0.4726	0.9612*	0.2253
(p-value)	(0.0794)	(0.0287)	(0.1034)	(0.39)	(0.0509)	(0.691)
Relative Size	1.5972	-6.527	3.087	-5.1884	-8.9156	-5.299
(p-value)	(0.884)	(0.5155)	(0.7832)	(0.6463)	(0.3777)	(0.6417)
Collar	-2.5479***	-2.5593***	-2.5453***	-2.572***	-2.4995***	-2.5503***
(p-value)	(0.0002)	(<.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
Toehold Exist	-0.3669	-0.5042	-0.4284	-0.6775	-0.8419	-0.606
(p-value)	(0.6475)	(0.5478)	(0.5993)	(0.3564)	(0.2722)	(0.4143)
Horizontal	-0.696***	-0.7164***	-0.6927**	-0.6823**	-0.7168***	-0.6786**
(p-value)	(0.0096)	(0.0048)	(0.0102)	(0.0117)	(0.0047)	(0.0128)
Tender Offer	1.7962***	1.5519***	1.7946***	1.6043***	1.4795***	1.6173***
(p-value)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Hostile	-0.3066	-0.5046	-0.2596	-0.1256	-0.4439	-0.0445
(p-value)	(0.5919)	(0.3794)	(0.6499)	(0.8299)	(0.4256)	(0.9403)
Multiple Bidders	0.8616**	1.1782***	0.7952**	1.1197***	1.0995***	1.1899***
(p-value)	(0.0186)	(0.0012)	(0.0319)	(0.0033)	(0.0027)	(0.0021)
Rumor	0.515	0.3807	0.5291	0.2698	0.4554	0.2199
(p-value)	(0.2255)	(0.3484)	(0.2157)	(0.5224)	(0.2736)	(0.6006)
Adj-R^2	0.3644	0.2925	0.3691	0.3723	0.2949	0.3799
Year Dummies	No	No	No	No	No	No
Industry Dummies	No	No	No	No	No	No
Number of Cases	572	572	572	572	572	572

Table 25. Logistic Model Estimation of the Probability that the deal will be a completed successfully on AIV- (Bidder) Target and VIV- (Bidder) Target with Divergence of Opinion used as Control Variable.

The AIV-Bidder (Target) and VIV- Bidder (Target) are the mean and standard deviation of the Implied Volatilities of Bidder (Target) Companies estimated over the runup period [-42,-2]. The divergence of opinion measures are extracted from IBES as the standard deviation of the analysts' forecasts estimated two months before the announcement month. Target Size is the logarithm of the target (acquirer) market value of equity 42 days before the announcement and target turnover is ratio of target volume to share outstanding estimated 42 days before the announcement. Target (acquirer) B/M is constructed as the ratio of the nearest target stock book value divided by the target stock price 42 days before the announcement. Target runup is defined as the ratio of the target (acquirer) price 2 days before the announcement divided by the target (acquirer) price 42 days before the announcement [$(P_{-2} / P_{-42}) - 1$]. Target markup is defined as the ratio of the offer price divided by the target (acquirer) price 2 days before the announcement [(Offer-Price / P_{-2}) - 1]. NYSE/AMEX, Collar, Tender Offer, Cash-Only, Hostile, Rumor, and Complete are dummy variables that respectively take the value of 1 if the Target is listed on NYSE/AMEX, the deal has a collar, the deal is a tender offer, the deal is financed by Cash only, the deal is hostile, the deal is preceded by a rumor and the deal is completed successfully. Horizontal is a dummy variable that takes a value of 1 if the bidder and target share the same four digit Standard Industrial Classification (SIC) Code. The Toehold dummy takes a value of one if the bidder own more than 5% of target before the announcement day. Multibid dummy takes a value of 1 if there are multiple Bidders within the same contest (a contest is a 6 Months period from the first bidder bid). The p-value are given underneath and are the MLE p-values. *, **, *** indicates significance at 1%, 5%, and 10% respectively.

Deal-Type	AIV-Target	VIV-Target	AIV-Target and VIV-Target	AIV-Bidder	VIV-Bidder	AIV-Bidder and VIV-Bidder
Constant	0.8656	-0.4731	0.6534	1.4056	0.3308	1.4105
(p-value)	(0.6988)	(0.8237)	(0.7724)	(0.5143)	(0.872)	(0.5136)
AIV-Variable	-0.7648		-1.0103	-1.6943**		-1.7166*
(p-value)	(0.26)		(0.1657)	(0.0349)		(0.07)
VIV-Variable		1.1523	2.6042		-5.226	0.2806
(p-value)		(0.6712)	(0.393)		(0.2979)	(0.9646)
Divergence of Opinion - Target	-0.2328	-0.2758	-0.2211			
(p-value)	(0.6361)	(0.5831)	(0.6549)			
Divergence of Opinion - Bidder				3.2883**	3.0572*	3.2892**
(p-value)				(0.0428)	(0.0585)	(0.0428)
Target Size	0.1703	0.2318	0.1861	0.1418	0.176	0.1414
(p-value)	(0.2577)	(0.1216)	(0.2223)	(0.3403)	(0.228)	(0.3429)
Target Turnover	0.00107	0.00001	0.000953	-0.00075	-0.00088	-0.00075
(p-value)	(0.797)	(0.9977)	(0.8184)	(0.8452)	(0.8099)	(0.8446)
Target NYSE/Amex	-0.6252*	-0.556	-0.638*	-0.7292**	-0.6572*	-0.7278**
(p-value)	(0.0713)	(0.1051)	(0.068)	(0.0357)	(0.0565)	(0.0368)
Target B/M	-0.6222*	-0.6906*	-0.6481*	-0.7246*	-0.7503**	-0.7254*
(p-value)	(0.0923)	(0.0691)	(0.0803)	(0.0513)	(0.0431)	(0.0514)
Target Runup	0.9759	0.9411	0.8852	0.9788	0.9852	0.9784
(p-value)	(0.1417)	(0.1665)	(0.1875)	(0.129)	(0.1331)	(0.1294)
Target Markup	-0.3905	-0.4276	-0.3757	-0.2764	-0.282	-0.2771
(p-value)	(0.4086)	(0.3735)	(0.4258)	(0.5607)	(0.5627)	(0.5597)
Collar	0.9452	0.9851	0.9621	0.9571	1.0148	0.9568
(p-value)	(0.1955)	(0.1762)	(0.1865)	(0.1873)	(0.1587)	(0.1874)
Toehold Exist	-1.3508*	-1.3753*	-1.4117*	-1.5398**	-1.4794**	-1.5384**
(p-value)	(0.0626)	(0.0597)	(0.0517)	(0.0246)	(0.0303)	(0.0249)
Horizontal	-0.087	-0.0959	-0.0868	-0.0545	-0.0855	-0.0557
(p-value)	(0.7913)	(0.7708)	(0.7923)	(0.8699)	(0.7962)	(0.8675)
Tender Offer	1.4328***	1.2938***	1.4347***	1.3807***	1.366***	1.3795***
(p-value)	(0.0013)	(0.0023)	(0.0014)	(0.0015)	(0.0015)	(0.0016)
Cash Bid	-0.00971	0.087	-0.0364	-0.1463	0.1024	-0.1483
(p-value)	(0.9765)	(0.7828)	(0.9127)	(0.6768)	(0.7486)	(0.6751)
Hostile	-3.7301***	-3.6555***	-3.7571***	-3.7591***	-3.7633***	-3.7573***
(p-value)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Multiple Bidders	-2.8945***	-2.8382***	-2.9492***	-2.8244***	-2.8593***	-2.8225***
(p-value)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Rumor	0.5709	0.5385	0.5644	0.5512	0.6062	0.5499
(p-value)	(0.3787)	(0.4031)	(0.384)	(0.3966)	(0.3476)	(0.3982)
Adj-R^2	0.2137	0.2122	0.2149	0.2245	0.2199	0.2245
Year Dummies	No	No	No	No	No	No
Industry Dummies	No	No	No	No	No	No
Number of Cases	572	284	288	572	284	288