Valuation Effects of Credit Ratings in Mergers and Acquisitions

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Abstract

We examine the valuation effects of credit ratings in M&As and find that in acquisitions of targets with high credit rating levels, higher synergy gains and bidder announcement returns are generated. This is attributed to lower discount rates applied in the valuation of the combined firm for acquisitions of high quality firms. Additionally, (highly) rated target firms realize larger announcement returns. Overall, the findings are explained by the information disclosure role of CRAs, which alleviates information asymmetry regarding target firm quality. Our results are robust after controlling for several characteristics, and endogeneity of the decision to obtain a credit rating.

***JEL Classification*:** D82; G14; G24; G32; G34

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I. Introduction

Credit Rating Agencies (CRAs) play an important role in the finance world by assessing the creditworthiness of a particular firm, security or obligation (Securities and Exchange Commision (2003)) and assigning a rating. Particularly today, the recent debt crisis highlights the importance of mechanisms which disseminate information regarding firm quality. In this respect, CRAs service is particularly important to draw related conclusions. For instance, Myers (1977) shows that a firm with better creditworthiness (as implied by the ability to issue relatively less costly debt) can mitigate the underinvestment problem leading to a higher firm value. The information used to assign the ratings is usually obtained from a combination of both public sources (e.g. annual reports and accounts) and private information (e.g. managerial statements and confidential discussions with the issuers). Recently, the information value of credit ratings has been enhanced by the exemption of CRAs from the Securities and Exchange Commission's FD regulation (Jorion, Liu and Shi (2005)). In particular, FD regulation prohibits firms from conducting selective non-public disclosures to investors and creditors, related with their financial condition, but allow them to reveal that information to the rating agencies. CRAs disclose and disseminate this information (Healy and Palepu (2001)) to the market alleviating information asymmetry.[a]

Akerlof (1970) put forward a theory that in markets where information asymmetry exists, sellers know more about the quality of their products than buyers, and they (the sellers) cannot convey their superior information to the market without a cost. In this setting, and assuming that buyers act rationally, the product market price reflects the average quality. This has a detrimental effect for sellers of good quality products, as they bear the cost of this information shortage and their products sell at a lower price than in the case of fully informed

[a] In this respect, Odders-White and Ready (2006) document a direct negative link between credit ratings and several measures of adverse selection.

buyers. Stiglitz (1975) and Leland and Pyle (1977) argue that in order to overcome this information asymmetry problem, it pays sellers to have their products certified by independent third party agents, known as "information intermediaries" or "screening agents", who gather information about firm products, and sort them according to their quality. Along these lines, Ramakrishnan and Thakor (1984) and Millon and Thakor (1985) demonstrate, in their theoretical models, that financial information intermediaries and information gathering services, as they call CRAs, should contribute in the wealth increase of marker participants.

Motivated by the informational disclosure role of credit ratings, we argue that CRAs, though they are not directly related to the takeover process, have important valuation implications in the *M&As* setting. In particular, during the bidding auction process, information asymmetries emerge regarding the true value of a target. Hence, in the presence of information asymmetry and in the absence of a signalling device about target firm value, a classic "lemons" problem *ala* Akerlof (1970) arises; that is good quality targets (sellers) find it difficult to negotiate optimal deals which are in line with the maximization of their shareholders' wealth, mainly, due to the fact that bidders (buyers) perceive them as of average quality and discount their price. Therefore the existence of credit ratings should facilitate the alleviation of information asymmetry regarding target firm quality at the benefit of high quality firms.

However, one could argue that the mere existence of a credit rating does not prove *ex-ante* that a rated firm exhibits higher quality. To illustrate this, assume we have two firms A and B. Firm A has high growth opportunities and robust financial structure, but it lacks public debt and credit rating. On the other hand, firm B has lower growth opportunities and a very low credit rating, as it faces high debt and large bankruptcy costs. Obviously, in this case the unrated firm A has higher quality than firm B, despite the fact that it does not carry a credit rating. Liu and Malatesta (2005) argue that firms with higher credit ratings are likely to have higher information transparency than those with lower credit ratings, while transparency

reduces the extent to which informational asymmetries can develop. We contend that, while CRAs are not directly involved in the M&A process, information dissemination regarding target firm quality can be further facilitated when a target firm holds a high credit rating; this mitigates target firm information asymmetry reflecting its superior quality and future growth prospects.[b]

The lower asymmetry about target firm's creditworthiness, and in turn its market value, can impact the deal in two main ways: a) In the spirit of Erickson, Wang and Zhang (2011), a lower discount rate would apply to the valuation of the combined firm investment projects, leading to higher NPVs, and therefore higher synergy gains. The usually long integration process of M&As and complex financial reporting issues are not fully anticipated ex ante and are likely to affect unfavorably the information flow regarding the combined entity. The lower asymmetry about target firm value will lead to lower discount rates (lower cost of capital) of the combined firm, and, hence, higher synergy gains. Therefore, we expect that in an efficient capital market, these synergies will be reflected in the market valuation of the combined firm at the acquisition announcement; b) Create the conditions for better bidder-target matches. In other words, it creates combinations, where the business operations and financial structures of the merging parties fit to each other more accurately thus, providing the ideal conditions for higher synergistic gains.

The above analysis leads to our first hypothesis; we expect that acquisitions of highly rated targets should realize relatively higher synergistic gains, measured with combined firm announcement returns. In order to distinguish whether the "better bidder-target matches" or "lower discount rate applied in the valuation" is the source of higher synergistic gains, we examine combined firm's long-term operating performance. If CRAs enable for better "bidder-target matches", then we should expect that operational and financial efficiencies will

[b] Standard & Poor's (2006) states that its *"credit ratings are meant to be forward-looking, and their time horizon extends as far as is analytically foreseeable* (page 33)*."*

emerge, which should be reflected in the results of the long-term operating performance analysis. If CRAs simply lead to a lower discount rate applied in the valuation of a proposed deal, without enabling for improvement of operational and financial efficiencies, then the long-term operating performance should not confirm the combined firm announcement returns.

Additionally, as mentioned above, the often weakness of high quality firms to communicate their true value acts at the expense of their shareholders because the bidders (buyers) perceive them as of average quality and discount their price. This translates into an inferior bargaining position for the targets and consequently in a lower takeover premium. Furthermore, evidence from the auction theory indicates that in bidding contests with rational buyers, sellers of good products are always better off when providing information to buyers regarding their product (Milgrom and Weber (1982) and Kagel and Levin (1986)). This leads to our second hypothesis that the existence of an, even indirect, signalling device, such as CRAs, enables to alleviate information asymmetry about target firm quality resulting in higher premiums offered to rated targets. This should, in turn, translate into higher target shareholder returns in acquisitions of (highly) rated targets than in those of unrated targets.

However, in the case of the bidders (buyers), their firm value is not directly attached to the size of the premium paid, but it also encompasses the future potential benefits of the deal with the target and its expected synergies. This implies, consistent to our first hypothesis, that the mere existence of target firms' credit rating does not reflect the potential synergistic gains of the deal, as it is not a *de facto* evidence of higher firm quality. On the contrary, it is the target rating level which reflects the quality of the firm and should have implications to synergy gains and bidder returns. Based on the rationale developed above, we expect that acquisitions of relatively higher rated target firms, should lead to higher target firm and bidder announcement returns. For robustness reasons, we run this analysis by using a continuous variable of rating levels, as well as a dummy variable of investment-grade firms.

We use a sample of US acquisitions of publicly traded firms over the period 1996-2009. Our results confirm our conjectures. First, the mere existence of a credit rating by target firms does not lead to synergy gains. On the other hand, we report evidence of a positive impact of high target firm credit rating levels on synergy gains. Total shareholder gains around acquisition announcements involving highly rated target firms are higher by a statistically significant 0.33%, *ceteris paribus*. This is equivalent to approximately 7% difference in synergy gains between the highest quality target firm (AAA) and the lowest one (C) in our sample, all else equal. The evidence from long term operating performance analysis suggests that the "lower discount rate applied in the valuation" and not the "better bidder-target matches" drives the results on synergy gains.

We also demonstrate a positive relation between target firm credit rating existence and target announcement returns. The effect appears to have a strong economic inference – an average of 7.43% target firm abnormal return translates into an average of $96.99 million ($13.30 million) shareholder value enhancement for a mean- (median-) sized target. Further, we find that target abnormal returns are higher by a statistically significant 0.74%, *ceteris paribus*, when the target firm holds a higher credit rating level. Economically, this equals to an average of $9.66 million ($1.32 million) shareholder value enhancement for a mean- (median-) sized target. In percentage, this means a striking 15.54% difference in target shareholder returns, between the highest quality target firm (AAA) and the lowest one (C) in our sample. Finally, the results on bidder firm abnormal returns corroborate our hypothesis regarding the differential effect of credit rating levels. In particular, we document a statistically significant 0.37% incremental impact of credit rating levels on bidder returns. This translates into an average of $34.53 million ($5.66 million) shareholder value enhancement for a mean- (median-) sized bidder, which accounts for a 7.77% difference in bidder shareholder returns, between the lowest quality target firm (C) and the highest one

(AAA) in our sample. The results are robust to various firm and deal characteristics, and after controlling for endogeneity bias in the decision to obtain a credit rating.

This study has several contributions to the M&As and credit ratings literature. First, it adds to the existing literature on credit ratings offering new insights about the (indirect) role of credit ratings in a different setting, and more specifically, in mergers and acquisitions. Second, it examines the link between credit ratings and valuation effects in mergers and acquisitions, reflecting the importance of rating levels. Third, our findings imply that credit ratings act as an efficient information signaling device reducing information asymmetry about target firm value and elevating its quality.

Our work is related with a number of prior studies. Liu and Malatesta (2005) explore the information impact of credit ratings on SEO underpricing and announcement stock returns, whereas An and Chan (2008) investigate the credit rating information effect on IPO underpricing and price revision during the book-building process. We examine shareholders' wealth effects in the context of M&As. Servaes and Zenner (1996), Kale, Kini and Ryan (2003) and Golubov, Petmezas and Travlos (2012) investigate the effects of investment bankers reputation on bidder shareholders' wealth whereas, Louis (2005) and Golubov et al. (2011) examine the impact of auditor reputation on acquisition returns. Additionally, Krishnan and Masulis (2011) consider the relation between law firm advisor reputation and wealth effects in M&As. We, instead, study the (indirect) role of CRAs as information signalling device in the M&A arena. Finally, Moeller, Schlingemann and Stulz (2007) and Officer, Poulsen and Stegemoller (2009) explore the effect of information asymmetry on acquirer announcement returns in stock deals. We study the impact of credit ratings, driven by information asymmetry, on synergy gain, target and bidder announcement returns.

The remainder of the paper is organized as follows. Section II presents the related literature. Section III describes our sample. Section IV presents the results of our empirical

tests. We present further robustness checks of our results in Section V. Section VI offers a discussion and implications of our study. Finally, Section VII concludes the paper.

II. Related Literature

A. Credit Ratings and Stock Returns

Previous literature on credit ratings documents the influence of rating agencies on firm value. In particular, numerous studies have examined the information content of credit ratings, and particularly of credit rating changes, on stock returns. Hand, Holthausen and Leftwich (1992) find significant negative stock average excess returns for firms placed in the Credit Watch list and in actual rating downgrades. Additionally, Goh and Ederington (1999) document that investors react negatively in rating downgrades, and that on the aftermath of the downgrades, security analysts revise their earnings forecasts downward. Further, Dichev and Piotroski (2001) examine firms' long run stock performance after rating downgrade announcements and find that they suffer significant losses for a period of three years after the announcement.

In addition, there are several studies which document that the market reaction in upgrade announcements should be insignificant for several reasons (Holthausen and Leftwich (1986) and Goh and Ederington (1993)). More specifically, Holthausen and Leftwich (1986) assume that CRAs' loss function is asymmetric, which results in a greater effort to convey negative information, as their reputation relies primarily on identifying credit problems. Additionally, Goh and Ederington (1993) state that if some upgrades are due to anticipated increases in earnings, while other upgrades are due to anticipated declines in leverage, both positive and negative stock price reactions will emerge, cancelling each other out.

B. Credit Ratings and Event Studies

Liu and Malatesta (2005) explore the impact of credit ratings on SEO underpricing and announcement stock returns. They argue that the existence of a rating reduces firm information asymmetry. Accordingly, they document that firms with credit ratings are underpriced less and have larger abnormal returns at the announcement of an SEO. Further, the authors provide evidence that firms with higher credit levels exhibit higher abnormal returns. An and Chan (2008) investigate the credit rating effect on IPO underpricing and price revision during the book-building process. They show that firms holding a credit rating prior to an IPO are underpriced less and the magnitude of price revision is considerably lower than the one of the unrated firms. Moreover, they examine the effect of credit rating levels but they do not find any significant impact on IPO underpricing.

III. Sample and Data

A. Sample Selection Criteria

We download a sample of US domestic acquisitions announced over the period 1996 and 2009 from the Thomson Financial SDC Mergers and Acquisitions Database. We require deals to have non-missing transaction value and payment method information. In order to have credit rating data, bidders and targets are publicly-traded firms. The original sample includes 5,079 deals. We remove from the sample all deals classified as repurchases, liquidations, restructurings, divestitures, leveraged buyouts, reverse takeovers, privatizations, bankruptcy acquisitions and going private transactions. This reduces the sample to 4,847 observations. Furthermore, to include in the sample deals that represent a transfer of control, we require that the bidder owns less than 10% of target shares before the announcement and seeks to acquire more than 50% after the acquisition. There are 4,151 transactions that meet these criteria. Further, we drop deals worth less than $1 million and account for less than 1% of bidder market value to avoid noise in the analysis. There are 3,095 transactions that satisfy

these requirements. We also require the bidder and the target to have sufficient data in the CRSP database (CRSP share codes 10 and 11; cases with multiple classes of common stock are excluded) to calculate announcement period returns. The remaining sample is 2,585 transactions.

Finally, credit rating information for the target should be available from COMPUSTAT; this requirement does not change the number of observations and therefore the final sample includes 2,585 deals. Credit ratings represent the Standard & Poor's (S&P) long-term domestic issuer credit ratings. Appendix A presents the number of deals for each target firm credit rating level one month prior to the acquisition announcement. Credit ratings range from AAA (highest credit rating) to D (lowest credit rating). In our sample, the highest level is AA+ and the lowest is CCC. Out of the 2,585 acquisitions, 516 deals involve targets with a credit rating and 2,069 transactions with unrated firms.[c]

B. Sample Statistics

Table 1 presents descriptive statistics for the overall sample and for the credit rated and non-credit rated sub-samples, respectively. All variables are defined in Appendix B. Panels A and B display statistics for bidder and target characteristics. The mean (median) bidder *size* in

[c] We further check for unsolicited/solicited ratings from RatingsXpress (also listed in COMPUSTAT) and observe that it covers 397 out of the 516 rated target firms (approximately 77%) we collected from COMPUSTAT. Most importantly, only 1 firm out of the 397 target firms holds an unsolicited rating. While CRAs use both public and private information when they assign a rating in solicited ratings, one feature of unsolicited ratings is that they are published by credit rating agencies without the request of the issuer or its agent (Standard & Poor's (2007)) and they are based only on information in the public domain; hence, information is to some extent incomplete. Additionally, firms with unsolicited ratings are likely to be of poor quality. In particular, in a recent theoretical study, Fulghieri, Strobl and Xia (2010) argue that unsolicited ratings reflect the lower quality of issuers that do not solicit a rating. Additionally, Poon (2003) and Poon and Firth (2005) find evidence that firms with unsolicited ratings have poorer financial profiles than those with solicited ratings.

our sample is 9,332.517 (1,528.947) US$ million. Bidders of rated targets are substantially larger than unrated ones. The mean (median) target size is 1,305.518 (178.998) US$ million. Rated targets are substantially larger (mean of 4,869.027 US$ million) than those without a credit rating (mean of 416.364 US$ million). Schwert (2000) documents that larger targets have lower announcement returns.

The mean bidder (target) *book-to-market ratio* (B/M) in our sample is 0.474 (0.627). There is no significant difference in the bidder B/M of rated versus unrated targets. Rated targets have a significantly lower B/M (mean of 0.507) than unrated targets (mean of 0.659). Servaes (1991) and Dong et al. (2006) show a positive relation between B/M and target abnormal returns.

The mean bidder (target) *run-up* in our sample is 0.041 (-0.010). The magnitude of run-up for each group is not significantly different from each other. Schwert (1996) shows that target returns do not exhibit any significant relation with target run-up.

The mean bidder (target) *sigma* (idiosyncratic volatility) is 0.028 (0.037) in our sample. According to Dierkens (1991), sigma measures firm information asymmetry. This measure is lower for bidders of rated targets (mean of 0.022) than bidders of unrated targets (mean of 0.030). Regarding target firm sigma, rated targets exhibit also lower levels of idiosyncratic volatility (mean of 0.026) than unrated targets (mean of 0.040), which might be taken as an indication of relatively lower information asymmetry for targets with a credit rating.

The mean bidder (target) *profitability* is 0.086 (0.041) in our sample. Bidders of rated targets are more profitable (mean of 0.130) than bidders of unrated targets (mean of 0.075). As for target firm profitability, rated targets have significantly higher levels of profits (mean of 0.120) than those of unrated targets (mean of 0.020). Masulis, Wang and Xie (2007) use operating performance as a management quality proxy and provide evidence that it is positively associated with bidder stock returns. Bauguess et al. (2009) also demonstrate that target firms' profitability is negatively related with their abnormal returns.

The mean bidder (target) leverage is 0.208 (0.195) in our sample. Bidders of rated targets are more levered (mean of 0.289) than bidders of unrated targets (mean of 0.187). Regarding target firms, rated targets have more leverage (mean of 0.355) than unrated ones (mean of 0.155). Masulis, Wang and Xie (2007) suggest that leverage provides incentives for firm managers to improve firm performance, though managers have to relinquish control to debtors and usually lose their jobs if their firms fall into financial distress. Bauguess et al. (2009) show a negative association between target firms' leverage and their abnormal returns.

Panel C provides statistics for deal characteristics. The mean (median) *deal value* in our sample is 1,907.808 US$ million (274.524 US$ million). Transactions of rated targets are significantly larger (mean of 7,035.881 US$ million) than transactions that involve unrated targets (mean of 628.887 US$ million).

The mean (median) *relative size* in our sample is 0.441 (0.228). Bidders of rated targets acquire larger firms relative to their size (mean of 0.725) than bidders of unrated targets (mean of 0.370). Officer (2003) finds that target stock returns have a negative relationship with the relative size of the target in public acquisitions.

With respect to the method of payment, around 23% of the deals are *cash*-financed, approximately 45% represent *stock* deals and the remaining 32% include *mixed* means of payment. Bidders of rated targets use lower amount of cash and stock when financing an acquisition relative to bidders of unrated targets. On the other hand, bidders of rated targets make more mixed payments than bidders of unrated targets. Huang and Walkling (1987) and Berkovitch and Narayanan (1990) show that target firm returns are lower in stock swap than in cash deals.

Diversifying deals constitute approximately the 31.5% of the entire sample. This percentage does not differ significantly across the two sub-samples of acquisitions of rated and unrated targets. Campa and Kedia (2002) and Villalonga (2004) show, after considering the endogenous choice of firms to diversify, that diversification adds value to firm returns.

Only 4.95% of total deals are *hostile*. Additionally, bidders of rated targets engage in significantly more hostile offers than bidders of unrated ones. Schwert (2000) documents that hostile offers have a positive effect on target announcement returns.

In our sample, 14.51% of the deals comprise *tender offers*. The difference between rated and unrated sub-samples though, is not statistically significant. Jensen and Ruback (1983) demonstrate that tender offers have an incremental impact on target stock returns.

The mean (median) takeover premium in our sample is 43.32% (34.81%). Bidders of rated targets pay a lower takeover premium (mean of 35.16%) than bidders of unrated targets (mean of 44.88%). This statistic figure stands in contrast to our hypothesis, as we expected rated targets to receive a higher takeover premium.

The value effects of credit ratings are measured with 5-day (-2, +2) Cumulative Abnormal Returns (*CARs*). The returns are computed using the market model with the market model parameters estimated over the period (-240, -41) days before the announcement. The market returns is the CRSP value-weighted index return. *Synergy gain* is defined, following Servaes (1991), as the total shareholder gain and it is computed as the weighted-average abnormal return of the bidder and the target in the event window (-2, +2). The returns are weighted by the market values of the respective firms 4 weeks prior to the acquisition announcement. Mean synergy gains are 1.20% for the full sample. Synergy gain for acquisitions of rated targets (mean of 1.50%) is not statistically different than the one of unrated targets (mean of 1.10%), a result that is in accordance with our hypothesis about the mere existence of a credit rating. Mean target CAR is 22% for the overall sample. Additionally, rated targets exhibit lower CARs (mean of 18.5%), than unrated targets (mean of 22.80%), a result that is inconsistent with our hypothesis that rating levels should drive announcement returns. Finally, mean bidder CAR is -2% for the full sample. Shareholder abnormal returns for the bidders who acquire a rated target are lower (mean of -2.90%), than

bidders who acquire an unrated target (mean of -1.80%) a result that is again contradictory to our hypothesis.

However, we cannot base our inferences solely on the results of the univariate analysis, as it does not take into account of any confounding effects. So far, we have noticed that target and bidder firm announcement returns are significantly higher in acquisitions of unrated targets than rated ones. Schwert (2000) shows that target firm returns are a decreasing function of their size whereas, Moeller, Schlingemann and Stulz (2004) demonstrate the same pattern for bidder returns. Additionally, Wang and Xie (2009) provide evidence that synergy gains and target firm returns are higher in tender offers. Therefore, firm and deal characteristics need to be controlled in order to reveal the net effect of target credit ratings on shareholders' wealth. This cross-sectional regression analysis is presented in the next section. The correlation matrix of the above variables is presented in Table 2. Our main variables of interest - *rating existence dummy* and *rating level* - do not exhibit high correlation with the control variables. This should reduce econometric difficulties (such as multicollinearity concerns) in disentangling any effects of credit rating variables from synergy gains, bidder and target firm announcement returns.

[Please Insert Tables 1 & 2 About Here]

IV. Empirical Results

A. Synergy Gains and Credit Ratings

1. Synergy Gains and Credit Ratings Existence

We first investigate the relationship between credit rating existence and synergy gains in the context of a multivariate OLS regression analysis by controlling for various bidder-, target-, and deal-specific characteristics. All regressions also control for year fixed effects whose coefficients are suppressed. Table 3 provides the results. The dependent variable is the

5-day combined firm CARs. We winsorize CARs values at the 1% and 99% percentile to control for outliers. The main variable of interest is the *rating existence* dummy, which is an indicator, taking the value of 1 if a target firm has a credit rating one month prior to the acquisition announcement, and 0 otherwise. Specification (1) also includes *bidder size and target size*. We find that the existence of credit ratings in target firms is positively associated with synergy gains. This relationship is significant at the 1% significance level. Bidder size has a negative relationship with combined firm CARs. In specification (2) we add more bidder-, target-, as well as deal-specific characteristics: bidder and target *book-to-market*, bidder and target *run-up*, bidder and target *sigma*, bidder and target *profitability*, bidder and target *leverage*, *stock* dummy, *diversifying* deals dummy, *hostile* deals dummy and *tender offers* dummy. In line with our prediction, our main variable of interest, the *rating existence* dummy, does not exhibit any significant relationship with synergy gains.

[Please Insert Table 3 About Here]

2. Synergy Gains and Credit Rating Levels

The analysis on the relationship between the existence of target firm credit rating and synergy gains confirms our prediction that in deals where a target firm holds a credit rating, the synergy gains are not necessarily higher. This is attributed to the fact that the mere existence of credit rating is not a *de facto* evidence of higher quality of the target firm. However, this problem is to an extent mitigated when a target firm holds a high credit rating, as a relatively higher rated firm should be of higher quality. Therefore, in this section we examine the impact of credit rating levels on synergy gains and whether the acquisition of a higher quality firm leads indeed to higher synergistic gains. We create the variable *Rating Level* which is a cardinal variable ranging from 1 to 22. A higher credit rating corresponds to a larger number. For example, Rating Level is 22 for AAA and 1 for D rating. In our sample, the highest level is AA+ and the lowest is CCC, hence the *Rating Level* is actually ranging

from 5 to 21. Table 4 presents the results. The dependent variable is the 5-day combined firm CARs. The main variable of interest is the *Rating Level*. In specification (1) we also add bidder and target *size.* Our key variable has a positive coefficient, and is statistically significant at the 1% level of significance, while bidder *size* shows a negative relationship with combined returns. In specification (2) we add more bidder-, target-, as well as deal-specific characteristics: bidder and target *book-to-market*, bidder and target *run-up,* bidder and target *sigma*, bidder and target *profitability*, bidder and target *leverage, stock* dummy, *diversifying* deals dummy, *hostile* deals dummy *and tender offers* dummy. Our main variable of interest, that is rating level, continues to carry a positive and significant coefficient at the 10% level. All else equal one notch increase in the target *rating level* leads to an increase of 0.33% on synergy gains. Overall, this evidence further corroborates our initial hypothesis that acquisitions of higher quality target firms, as reflected by their credit rating level, lead to higher synergy gains. From the control variables, bidder B/M, bidder profitability and tender offers dummy carry a significantly positive coefficient, while bidder and target size, and target run-up are negatively associated with synergy gains.

[Please Insert Table 4 About Here]

B. Target and Bidding Firm Returns and Credit Rating Existence

1. Target Firm Returns and Credit Rating Existence

We argued above that takeover premiums received by rated target firms should be relatively higher due to the mitigation of information asymmetry regarding target firm value during the auction process where the good quality targets are always better off providing more information to the buyers. Table 5 presents the cross-sectional regression analysis of 5-day target CARs on target rating existence and other control variables. Specification (1) controls for target *rating existence* and target *size.* Our variable of interest exhibits a positive relation with target firm CARs at the 1% significance level, while target *size* has a negative

association with target firm announcement returns. Specification (2) includes other bidder, target and deal characteristics such as bidder and target *book-to-market*, bidder and target *run-up*, bidder and target *sigma*, bidder and target *profitability*, bidder and target *leverage*, *relative size*, *stock* dummy, *diversifying* deals dummy, *hostile* deals dummy *and tender offers* dummy. Rating existence continues to have a positive and statistically significant relationship at the 1% level. All else equal, rated target firms gain a 7.43% on their returns relative to the unrated ones. To give more perspective on the economic significance of this finding, we note that it translates into an average non-trivial $96.99 million ($13.30 million) shareholder wealth increase for a mean- (median-) sized target. From the control variables, bidder size, bidder leverage, target size, target run-up, target profitability, target leverage, stock dummy, hostile deals and tender offers dummy are statistically significant at conventional levels. The signs of the coefficients are consistent to the prior M&A literature.

2. Bidder Returns and Credit Rating Existence

Table 5 also presents the cross-sectional regression analysis of 5-day bidder CARs on target rating existence. Specification (1) controls for target *rating existence* and bidder *size.* In line with our prediction our main variable of interest does not carry a significant coefficient at conventional levels, while bidder *size* exhibits a negative relationship with bidder CARs. In specification (2) rating existence continues to be insignificant at conventional levels. From the other control variables bidder and target *size*, bidder *B/M*, bidder *run-up*, bidder *leverage*, *stock dummy* and *tender offers* dummy carry significant coefficients that their signs are in line with the existing M&As literature.

[Please Insert Table 5 About Here]

C. Target and Bidding Firm Returns and Credit Rating Levels

1. Target Firm Returns and Credit Rating Levels

Table 6 presents the cross-sectional regression analysis of the 5-day target CARs on target credit rating levels and other control variables used in previous analysis. In specification (1) our main variable of interest *rating level* has a statistically positive association with target firm announcement returns at the 10% significance level, while target *size* has a negative relationship with target CARs. In specification (2) the *rating level* variable continues to carry a positive and significant coefficient at the 10% significance level. One notch increase on target credit rating levels, results in a gain of 0.74% in shareholders returns *ceteris paribus*. Economically, this average incremental gain equals with an average shareholder value enhancement of $9.66 million ($1.32 million) for a mean- (median-) sized target. From the other control variables bidder and target *size*, bidder and target *run-up*, bidder *profitability*, and *tender offers* dummy carry significant coefficients at conventional levels that their signs are in line with the existing M&As literature. Overall, the results for the credit rating levels further corroborate our hypothesis about the incremental impact of credit ratings on target firm shareholders' wealth, via the reduction of information asymmetry about their value and the reflection of a higher quality firm which attracts higher premiums at the benefit of the shareholders.

2. Bidder Returns and Credit Ratings Levels

We have argued that bidder value is not directly attached to the size of the offered premium, but it also includes future potential synergies. This implies that the mere existence of target firms' credit rating does not reflect the potential synergistic gains of the deal, as it is not a *de facto* evidence of higher firm quality.

Table 6 also presents the cross-sectional regression analysis of the 5-day bidder CARs on target credit rating levels and other control variables used in previous analysis. In

specification (1) our main variable of interest *rating level* does not exhibit any statistically association with bidder firm announcement returns at all conventional levels, and neither bidder *size*. However, in specification (2), rating level carries a positive and significant coefficient at the 10% significance level, which accords with our hypothesis. One notch increase on target credit rating levels, results in a gain of 0.37% in shareholders returns *ceteris paribus*. The economic impact of this average incremental gain equals with an average shareholder value enhancement of $34.53 million ($5.66 million) for a mean- (median-) sized target. From the other control variables, bidder and target size and bidder B/M carry significant coefficients that their signs are in line with the existing M&As literature. Overall, the results of bidder announcement returns suggest that it is the target rating level which reflects the quality of the firm and has an effect on bidder returns.

[Please Insert Table 6 About Here]

D. Investment-Grade Vs Speculative-Grade Firms

In order to shed further light in the relation between credit ratings and shareholders' wealth in M&As, we explore, for robustness reasons, the impact of investment grade credit ratings. Investment-grade firms are the ones rated with BBB- or above as in An and Chan (2008). These firms are, in general, of higher quality relative to the speculative-grade firms (i.e. those with a credit rating below BBB-). In particular, Hennessy (2004) shows, that in the sample of investment grade firms the underinvestment problem, which leads to lower growth opportunities, is mitigated relative to the speculative grade firms. If credit ratings facilitate the disclosure of information, their benefits should accumulate in the sub-sample of the good quality firms. Thus, we create the variable *Investment Grade* dummy which takes the value of 1 for firms rated BBB- and above, and 0 otherwise, and regress it on synergy gains, target firms returns and bidder returns, respectively. Table 7 reports the results.

In specification (1) the dependent variable is synergy gains, in specification (2) the dependent variable is target firms announcement returns and in specification (3) the dependent variable is bidder announcement returns. In all specifications we also incorporate the control variables employed in prior analysis. The coefficient of the *investment grade* carries a positive and significant coefficient at conventional levels in all specifications. These results add further support to our hypothesis and imply that the market is taking into account the differential impact of target firms' quality as provided by credit ratings.

[Please Insert Table 7 About Here]

E. What Drives Synergistic Gains?

Our evidence so far indicates that synergy gains in acquisitions involving highly rated target firms are higher than those of lower rated targets. This is attributed to the fact that credit ratings reduce target firm information asymmetry and impact the deal in two main ways a) create the conditions for better bidder-target matches; b) a lower discount rate is applied in the valuation of the combined firm NPVs thus leading to higher synergy gains. In this section we shed further light on the real cause of these higher synergistic gains. If the higher combined returns are the result of better bidder-target matches, this should also be reflected in the long term operating performance of the combined firm, implying that a better matching between the merging parties leads to a more accurate integration of their capital structures and financial profiles and better operational efficiencies. However, if CRAs simply lead to a lower discount rate (lower cost of capital) applied in the valuation of a proposed deal, without enabling for improvement of operational and financial efficiencies, the long-term operating performance should not confirm combined firm announcement returns.

In order to test this hypothesis we analyze the change in post-merger operating performance from the pre-merger operating performance of the bidder and the target. As a proxy for operating performance we use the operating return on assets (ROA), measured as

operating income before depreciation and taxes divided by the book value of total assets. To calculate the change in operating performance, we follow Wang and Xie (2009).

In more detail, the process is as follows. For each acquisition, control firms for both the bidder and the target are selected in the fiscal year prior to the acquisition. The bidder's (target's) control firm is chosen from the same 2-digit SIC code as the bidding (target) firm and with the most similar operating performance level (ROA) to that of the bidder (target). We deduct the operating performance of the respective control firms from the operating performance of the bidder and the target. Afterwards, we calculate the pre-merger abnormal operating performance of a hypothetical combined firm in the fiscal year prior to the announcement as the weighted-average abnormal operating performance of the bidder and the target with the book value of their total assets assigned as their weights. We track each acquisition for 3 years following completion. In the remaining three future years, we compute the weighted-average operating performance of the bidder and the target control firm and deduct it from the combined firm's operating performance. Further, we take the 3-year average of the calculated yearly abnormal operating performance measures. This is our proxy of the post-merger abnormal operating performance. Finally, we compute the difference between the post-merger and the pre-merger abnormal operating performance, which is our measure of the change in abnormal operating performance of the combined firm relative to the pre-merger abnormal operating performance of the bidder and the target. Additionally, we winsorize this variable at the 1st and the 99th percentiles, as suggested by Barber and Lyon (1996). We also repeat the above performance matching procedure and regression analysis using return on sales (ROS), which is the operating income before depreciation and taxes divided by total sales, as an alternative measure of operating performance.

Table 8 provides the results for this analysis. The coefficients on our main variables of interest, *rating existence* and *rating level*, do not exhibit any significant relationship with ΔROA or ΔROS in any of the specifications after we control for other bidder, target and deal-

specific variables. This result is in support of the 'lower discount rate' hypothesis for the higher synergistic gains and leads us to reject the 'better bidder-target matching' explanation.

[Please Insert Table 8 About Here]

V. Further Robustness Checks

In the previous analysis, we have provided evidence in favor of the valuation effect of target firm credit ratings on synergy gains and bidder and target firm announcement returns. In this section, we offer additional robustness checks to test the validity of our findings.

A. Endogeneity Control

In our analysis we employed OLS regressions to examine the valuation effects of credit rating existence in M&As. OLS regressions treat the credit rating variable as an exogenous to our model; that is the decision to obtain a credit rating is randomly allocated across our sample firms. However, Liu and Malatesta (2005) and An and Chan (2008) argue that firms determine, at least partially, whether to obtain a credit rating after they consider the benefits against the potential costs of holding a credit rating. Therefore, it is supposed that the decision to obtain a credit rating is based on firm specific characteristics. To test this hypothesis we use the Heckman (1978) treatment effect model with the target *rating existence* choice equation as the first stage.

In order to determine the probability of a target firm holding a credit rating, we follow Denis and Mihov (2003), Liu and Malatesta (2005), and Faulkender and Petersen (2006) and use variables that have been proposed to account for this effect. Specifically, it has been suggested that a firm is more likely to obtain a credit rating if it is larger, older, more profitable, it has more tangible assets, more leverage, it has higher credit quality, and less growth opportunities. Hence, we use: the log of target net sales as a proxy for target firm size;

the period the target firm is covered in the CRSP database before the acquisition announcement as a proxy for target age; the ratio of target earnings before interest, taxes, depreciation and amortization to total assets as a proxy for the target profitability; the ratio of target property, plant and equipment to total assets as a proxy for target tangibility; the target debt-to-assets ratio one year before the acquisition announcement as a proxy for target leverage; target Altman (1968) Z-score as a proxy for target credit quality; and the target book-to-market ratio as a proxy for target growth opportunities.

From the first stage estimation, the *Inverse Mills Ratio* for the selected (rated) and non-selected (unrated) firms is created and included in the second-stage regressions instead of the possibly endogenous target *rating existence* dummy. The results of the first-stage estimation and selection-bias corrected estimation for synergy gains, bidder target firm CARs are presented in Table 9. The first-stage regression has a Pseudo R^2 of almost 54%, indicating a good fit. From the control variables target *sales*, target *tangibility*, target *Altman-Z*, and target *leverage* obtain significant coefficients. On the second-stage estimation results, the inverse Mills ratio is insignificant for all of our dependent variables. Hence, in that case we base our conclusions on the results of the OLS regressions as we are not able to detect any presence of endogeneity.

[Please Insert Table 9 About Here]

With regards to the correction for endogeneity in the case of the *rating level* variable, we apply an Instrumental Variables approach with a 2-Stage Least Squares (2SLS) estimation method. This is due to the fact that rating level is a continuous variable, and the Heckman treatment effect model is applicable on binary variables. The results of the first- and second-stage estimation for synergy gains, target and bidder firm announcement returns are demonstrated in Table 10. None of the second-stage specifications (2) and (4) exhibit a significant coefficient of the instrumented variable rating level. For sensitivity reasons, in the last row of the table we present the F-values from the Hausman (1978) specification test for

endogeneity bias. The F-values are insignificant in all specifications, a finding that further confirms that the rating level variable is not endogenously determined.

[Please Insert Table 10 About Here]

B. Other Sensitivity Tests

Further, we conduct the following sensitivity tests: We use different short-run windows such as (-1, +1) and (-5, +5) to measure CARs. Moreover, we use equally-weighted CRSP index as a market index and also examine market-adjusted abnormal returns. Further, we use three alternative ways of measuring takeover premium instead of using target firm CARs as dependent variable. First, we use the 4-week takeover premium, which is the difference between the offer price and the target stock price 4 weeks prior to the takeover announcement divided by the latter from Thomson Financial SDC. Second, we use the ratio of the offer price to the 30-day (-45, -16) volume-weighted average of the target trading price. Third, we use the cumulative abnormal return to target shareholders calculated over a 190-day (-63, +126) window around the deal announcement. Additionally, we add the *bidder* rating existence dummy as control variable. Further, we exclude bidders (targets) from financial industries and from utility industries. In addition, we winsorize the returns at the 5th and 95th percentiles to control for outliers. Moreover, we restrict the sample to 100% acquisitions (reducing the sample by 361 transactions) and we raise the sample selection threshold to at least 5% of deal relative size (reducing the sample by 433 transactions). In addition, we limit our sample to the period 1996-2007 to avoid any effect of the recent credit crisis. None of these auxiliary tests change our general results.

VI. Discussion and Implications

In this section, we discuss potential implications of this study for academics and practitioners and elaborate on how our results fit within the existing research in the area. Our

study provides evidence of the valuation effects of credit ratings on synergy gains, target and bidding firm announcement returns. In particular, we find that credit rating levels have an incremental impact on synergy gain, as well as target and bidding firm shareholders' wealth. The main corollary of these findings is that credit ratings serve as an important information disclosure mechanism enabling to reduce information asymmetry regarding target firm quality during the bidding contest. In particular, the lower information asymmetry regarding target firm quality, leads to a lower discount rate employed on the projected cash flows, for the estimation of the combined firm NPV. Consequently, this results in a higher NPV that is reflected on the combined firm value. Thus, synergy gains are higher when the acquisition valuations take into account the information included in credit ratings.

Additionally, when superior target firm quality is disclosed through a high grade credit rating, information asymmetry regarding its quality decreases; this enhances the bargaining power of target firms leading to a higher takeover premium and, ultimately, higher target firm announcement returns. Finally, the effect of lower information asymmetry for target firms, and the reflection of its quality, is also incorporated in the valuation of bidder announcement returns as it encompasses important information regarding future expected synergies. Therefore, despite the fact that CRAs are not directly involved in the M&A process, credit ratings disseminate important information regarding target firm quality, alleviating information asymmetry and affecting, ultimately, its valuation at the benefit of bidder shareholders.

Our findings complement the extant literature which examines the valuation effects of information intermediaries in the M&As (Servaes and Zenner (1996), Kale, Kini and Ryan (2003), Golubov, Petmezas and Travlos (2012), Louis (2005), Golubov et al. (2011) and Krishnan and Masulis (2011)). CRAs act, though indirectly, as efficient information intermediaries in the market for corporate control and mitigate target firms' information asymmetry reflecting their quality.

Our empirical evidence adds to the literature concerning the impact of information asymmetry on shareholders' wealth in M&As (Moeller, Schlingemann and Stulz (2007) and Officer, Poulsen and Stegemoller (2009)). We find that target firms with less information asymmetry regarding their value and quality, as reflected by the level of credit rating, enjoy larger returns during the acquisition announcement.

Finally, our findings come as an extension to the existing research on credit ratings and stock returns (Holthausen and Leftwich (1986), Hand, Holthausen and Leftwich (1992), Goh and Ederington (1993) and Dichev and Piotroski (2001)) in a different context, providing important implications for the significance of CRAs, which, especially after the recent financial crisis, have been an object of severe criticism.

VII. Conclusion

This paper examines the informational disclosure effect of credit ratings on synergy gains, as well as bidder and target firm announcement returns in mergers and acquisitions. We argue that information dissemination regarding target firm quality can be further facilitated when a target firm holds a high credit rating; this mitigates target firm information asymmetry reflecting its superior quality and future growth prospects. Our results confirm our predictions, as we find that deals involving targets with a high credit rating level, experience relatively higher synergy gains. The difference in synergy gains between acquisitions of rated and unrated targets is statistically as well as economically significant. Moreover, shareholders of (highly) rated target firms enjoy larger stock returns. Finally, the positive impact of a high target firm credit rating level is also reflected in bidder shareholders' returns. Overall, we conclude that, while CRAs are not directly related with M&As, they have important valuation implications.

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Appendix A. Credit Rating Levels and Number of Deals

Credit ratings are from COMPUSTAT and represent the Standard & Poor's (S&P) long-term domestic issuer credit ratings. Number of deals is the number of acquisitions for each target credit rating level one month prior to the acquisition announcement.

Credit Rating Level	Number of Deals
D	-
C	-
CC	-
CCC-	-
CCC	1
CCC+	4
B-	15
B	21
B+	73
BB-	65
BB	51
BB+	40
BBB-	40
BBB	60
BBB+	42
A-	30
A	36
A+	22
AA-	9
AA	5
AA+	2
AAA	-

Appendix B. Variable Definitions

Variable	Definition
	Panel A: Measures of Abnormal Returns
Synergy Gain	Synergy gain is defined as the total shareholder gain and it is computed as the weighted-average abnormal return of the bidder and target in the event window (-2, +2). The returns are weighted by the market values of the respective firms 4 weeks prior to the announcement. CARs are computed using daily data with a market model (value-weighted CRSP index is the benchmark). The market model is estimated over the period starting 240 days to 41 days before the announcement date.
Target CARs (-2, +2)	Cumulative abnormal return of target firm stock in the 5-day event window where 0 is the announcement day. The returns are computed using the market model with the market model parameters estimated over the period (-240, -41) days before the announcement. The market returns is the CRSP value-weighted index return.
Bidder CARs (-2, +2)	Cumulative abnormal return of bidding firm stock in the 5-day event window where 0 is the announcement day. The returns are computed using the market model with the market model parameters estimated over the period (-240, -41) days before the announcement. The market returns is the CRSP value-weighted index return.
	Panel B: Measures of Abnormal Operating Performance
ΔPerformance Adjusted ROA	Difference in abnormal control matched firm ROA; average abnormal ROA of the three years after the acquisition minus the abnormal ROA one year prior to the acquisition.
ΔPerformance Adjusted ROS	Difference in abnormal control matched firm ROS; average abnormal ROS of the three years after the acquisition minus the abnormal ROS one year prior to the acquisition.
	Panel C: Credit Rating Variable
Rating Existence	Dummy variable: 1 for rated targets, 0 for unrated targets.
Rating Level	Continuous variable: 1 to 22, AAA level takes 22 and D takes 1.
Investment Grade	Dummy variable: 1 for investment grade targets, 0 for speculative grade targets.
	Panel D: Firm Characteristics
Size	Firm market value of equity 4 weeks prior to the acquisition announcement from CRSP in US$ million.
Book-to-Market (B/M)	Book value of equity at the fiscal year-end prior to the announcement divided by market value of equity 4 weeks prior to the acquisition announcement. Book value of equity is from COMPUSTAT, market value of equity is from CRSP
Run-Up	Market-adjusted buy-and-hold returns of the firm over the period starting (-205, -6) days prior to the acquisition announcement from CRSP.
Sigma	Standard deviation of the value-weighted market adjusted residuals of the firm daily stock returns measured over the period (-205, -6) days prior to the acquisition announcement from CRSP.
Profitability	Firm EBITDA divided by its book value of total assets at the fiscal year-end immediately prior to the acquisition announcement from COMPUSTAT.
Leverage	Firm total financial debt (long-term debt plus debt in current liabilities) divided by the book value of total assets in the fiscal year prior to the acquisition announcement from COMPUSTAT.

Panel E: Deal Characteristics	
Deal Value	Transaction value from Thomson Financial SDC in US$ million.
Cash Deals	Dummy variable: 1 for deals entirely financed with cash, 0 otherwise.
Stock Deals	Dummy variable: 1 for deals entirely financed with stock, 0 otherwise.
Mixed Deals	Dummy variable: 1 for deals where consideration is neither all-cash nor all-stock, 0 otherwise.
Diversifying Deals	Dummy variable: 1 for inter-industry transactions, 0 for intra-industry transactions. Industries are defined at the 2-digit SIC level from Thomson Financial SDC.
Hostile Deals	Dummy variable: 1 for deals defined as "hostile" or "unsolicited" by Thomson Financial SDC, 0 otherwise.
Tender Offers	Dummy variable: 1 for tender offers from Thomson Financial SDC, 0 otherwise.
Takeover Premium	The difference between the offer price and the target stock price 4 weeks prior to the takeover announcement divided by the latter from Thomson Financial SDC.
Panel F: Instrumental Variables	
Target Age	Dummy variable: 1 if the firm was at least five-year old before the takeover announcement, 0 otherwise, as in An and Chan (2008). Firm age is based on the period the firm is covered on CRSP.
Target Sales	Firm total sales in the fiscal year prior to the acquisition announcement from COMPUSTAT.
Target Tangibility	The ratio of firm's property, plant and equipment to total assets at the fiscal year immediately prior to the acquisition announcement from COMPUSTAT.
Target Altman Z	Is calculated from the formula Z = 6.56 (Working Capital/Total Assets) + 3.26 (Retained Earnings/Total Assets) + 6.72 (EBIT/Total Assets) + 1.05 (Book Value of Equity/Book Value of Total Liabilities).

Table 1

Sample Descriptive Statistics

The table presents descriptive statistics for a sample of US public acquisitions announced over the period between January 1, 1996 and December 31, 2009 drawn from the Thomson Financial SDC Mergers and Acquisitions Database. Panels A, B and C describe the mean, median and number of observations for bidder-, target-, and deal-specific characteristics, for both the overall sample as well as for credit rated and unrated targets. Credit ratings represent the Standard & Poor's (S&P) long-term domestic issuer credit ratings from COMPUSTAT. Stock price data is from CRSP, accounting data is from COMPUSTAT. All variables are defined in Appendix B. Differences in means and medians for each characteristic of rated versus unrated targets are also presented. The symbols ***, ** and * denote statistical significance at the 1%, 5%, and 10% levels.

	All Sample (1)			With Credit Rating (2)			Without Credit Rating (3)			Difference (2)-(3)	
	Mean	**Median**	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**
Panel A: Bidder Characteristics											
Bidder Size	9,332.517	1,528.947	2,585	22,460.710	5,994.897	516	6,058.400	1,038.730	2,069	16,402.310***	4,956.167***
Bidder B/M	0.474	0.372	2,526	0.452	0.382	510	0.479	0.371	2,016	-0.027	0.011
Bidder Run-Up	0.041	-0.056	2,507	0.005	-0.037	505	0.050	-0.061	2,002	-0.045	0.024
Bidder Sigma	0.028	0.023	2,585	0.022	0.020	516	0.030	0.024	2,069	-0.008***	-0.004***
Bidder Profitability	0.086	0.093	2,506	0.130	0.130	505	0.075	0.077	2,001	0.055***	0.053***
Bidder Leverage	0.208	0.183	2513	0.289	0.270	508	0.187	0.156	2,005	0.102***	0.114***
Panel B: Target Characteristics											
Target Size	1,305.518	178.998	2,584	4,869.027	1,452.089	516	416.364	116.153	2,068	4,452.663***	1,335.936***
Target B/M	0.627	0.523	2,437	0.507	0.466	509	0.659	0.552	1,928	-0.152***	-0.086***
Target Run-Up	-0.010	-0.134	2,490	-0.082	-0.108	508	0.009	-0.141	1,982	-0.091	0.033
Target Sigma	0.037	0.031	2,585	0.026	0.022	516	0.040	0.034	2,069	-0.014***	-0.012***
Target Profitability	0.041	0.062	2,446	0.120	0.122	509	0.020	0.033	1,937	0.100***	0.089***
Target Leverage	0.195	0.139	2,169	0.355	0.331	438	0.155	0.095	1,731	0.200***	0.236***
Panel C: Deal Characterisitcs											
Deal Value	1,907.808	274.524	2,585	7,035.881	2,416.373	516	628.887	177.248	2,069	6,406.994***	2,239.125***
Relative Size	0.441	0.228	2,585	0.725	0.531	516	0.370	0.192	2,069	0.349***	0.339***
% Cash Deals	22.980	-	2,585	10.659	-	516	26.051	-	2,069	-15.392***	-
% Stock Deals	44.951	-	2,585	33.527	-	516	47.801	-	2,069	-14.274***	-
% Mixed Deals	32.070	-	2,585	55.814	-	516	26.148	-	2,069	29.666***	-
% Diversifying Deals	31.490	-	2,585	30.620	-	516	31.706	-	2,069	-1.108	-
% Hostile Deals	4.950	-	2,585	10.465	-	516	3.577	-	2,069	6.889***	-
% Tender Offers	14.510	-	2,585	14.150	-	516	14.596	-	2,069	-0.449	-
% Takeover Premium	43.320	34.805	2,472	35.162	30.580	505	44.881	36.070	1,967	-10.252***	-5.490***
Synergy Gain	0.012***	0.008***	2,584	0.015***	0.011***	516	0.011***	0.007***	2,068	0.004	0.004
Target CARs (-2, +2)	0.220***	0.180***	2,585	0.185***	0.153***	516	0.228***	0.186***	2,069	-0.043***	-0.033***
Bidder CARs (-2, +2)	-0.020***	-0.015***	2,585	-0.029***	-0.021***	516	-0.018***	-0.014***	2,069	-0.012**	-0.007***

Table 2

Variables Correlation Matrix

The table presents pair-wise correlations of the variables. The sample consists of US public and private acquisitions announced over the period between January 1, 1996 and December 31, 2009. All variables are defined in Appendix B.

	Target Rating Existence	Target Rating Level	Bidder Size	Bidder B/M	Bidder Run-Up	Bidder Sigma	Bidder Profitability	Bidder Leverage	Target Size
Target Rating Existence	1.0000								
Target Rating Level	-	1.0000							
Bidder Size	0.2696	0.2280	1.0000						
Bidder B/M	-0.0073	-0.1009	-0.0779	1.0000					
Bidder Run-Up	-0.0278	-0.0203	0.0205	-0.2041	1.0000				
Bidder Sigma	-0.1265	-0.2641	-0.1006	0.0658	0.1607	1.0000			
Bidder Profitability	0.0782	-0.0712	0.0800	-0.0834	-0.0385	-0.3851	1.0000		
Bidder Leverage	0.1354	-0.1398	0.0116	-0.0417	0.0032	-0.0668	0.0378	1.0000	
Target Size	-0.0039	-0.0810	0.0322	0.1202	-0.0268	0.0152	0.0076	-0.0203	1.0000
Target B/M	-0.0974	-0.0076	-0.1138	0.1994	-0.1130	0.1021	-0.1129	-0.0179	0.0556
Target Run-up	-0.0172	-0.0500	0.0394	-0.0378	0.1464	-0.0163	0.0448	-0.0172	-0.0146
Target Sigma	-0.2378	-0.4374	-0.1053	0.1134	0.1157	0.6629	-0.2057	-0.1594	-0.0019
Target Profitability	0.1885	0.0388	0.0865	-0.1306	0.0183	-0.3165	0.3547	0.1444	-0.0223
Target Leverage	0.3933	-0.3879	0.0757	0.0125	-0.0144	-0.1310	0.1095	0.3996	-0.0059
Stock Deals	-0.0043	0.2344	0.0329	-0.0886	0.0840	0.1212	-0.1359	-0.1112	0.0199
Diversifying	-0.0293	-0.0454	0.0062	0.0054	0.0094	0.0570	-0.0118	0.0356	-0.0064
Hostile Deals	0.1834	0.0270	0.0391	0.0217	-0.0173	-0.0400	0.0366	0.0533	-0.0072
Tender Offers	0.1164	-0.1230	0.0598	0.0102	-0.0374	-0.0634	0.0832	0.0199	-0.0029

	Target B/M	Target Run-up	Target Sigma	Target Profitability	Target Leverage	Stock Deals	Diversifying	Hostile Deals	Tender Offers
Target B/M	1.0000								
Target Run-Up	-0.0406	1.0000							
Target Sigma	0.1572	0.1656	1.0000						
Target Profitability	-0.0766	0.0464	-0.4221	1.0000					
Target Leverage	-0.0825	-0.0079	-0.0767	0.1109	1.0000				
Stock Deals	-0.0406	-0.0145	0.1260	-0.1146	-0.1600	1.0000			
Diversifying	-0.0492	-0.0158	0.0629	0.0649	0.0277	-0.0641	1.0000		
Hostile Deals	0.0315	-0.0183	-0.0574	0.0577	0.0533	-0.0345	-0.0140	1.0000	
Tender Offers	0.0345	0.0574	0.0626	0.0309	0.0118	-0.1334	0.0362	0.1752	1.0000

Table 3

Cross-Sectional Regression Analysis (OLS) of Synergy Gain on the Existence of Credit Ratings

The table presents the results of the cross-sectional OLS regression analysis of the synergy gains on the existence of credit ratings and other bidder, target-, and deal- characteristics for a sample of US public acquisitions over the period 1996-2009. See Appendix B for definitions of the variables. All regressions control for year fixed effects whose coefficients are suppressed. The symbols ***, ** and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. White's heteroskedasticity-adjusted t-statistics are reported in parentheses. N denotes the number of observations.

	Synergy Gain	
	(1)	**(2)**
Constant	0.0679***	0.0660***
	(5.62)	(3.59)
Rating Existence	0.0139***	0.0049
	(2.82)	(0.88)
Ln (Bidder Size)	-0.0095***	-0.0091***
	(-7.53)	(-6.28)
Bidder B/M		0.0101**
		(2.05)
Bidder Run-Up		-0.0075*
		(-1.78)
Bidder Sigma		-0.3143
		(-1.40)
Bidder Profitability		0.0141
		(0.64)
Bidder Leverage		0.0056
		(0.41)
Ln (Target Size)	0.0026	0.0024
	(1.63)	(1.20)
Target B/M		0.0068
		(1.64)
Target Run-Up		0.0001
		(0.21)
Target Sigma		-0.1892
		(-1.26)
Target Profitability		0.0027
		(0.18)
Target Leverage		-0.0021
		(-0.21)
Stock Dummy		-0.0145***
		(-3.70)
Diversifying Deals		-0.0036
		(-0.94)
Hostile Deals		0.0071
		(0.95)
Tender Offers		0.0287***
		(5.46)
N	2,584	2,018
Adjusted R^2	0.034	0.088

Table 4

Cross-Sectional Regression Analysis (OLS) of Synergy Gain on Credit Rating Levels

The table presents the results of the cross-sectional OLS regression analysis of the synergy gain on credit rating levels and other bidder, target-, and deal- characteristics for a sample of US public acquisitions over the period 1996-2009. See Appendix B for definitions of the variables. All regressions control for year fixed effects whose coefficients are suppressed. The symbols ***, ** and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. White's heteroskedasticity-adjusted t-statistics are reported in parentheses. N denotes the number of observations.

	Synergy Gain	
	(1)	**(2)**
Constant	0.0981***	0.0555
	(3.00)	(1.17)
Rating Level	0.0037***	0.0033*
	(3.05)	(1.90)
Ln (Bidder Size)	-0.0100***	-0.0061*
	(-3.61)	(-1.93)
Bidder B/M		0.0090***
		(2.98)
Bidder Run-Up		-0.0027
		(-0.20)
Bidder Sigma		-0.4891
		(-0.71)
Bidder Profitability		0.1098*
		(1.87)
Bidder Leverage		0.0085
		(0.30)
Ln (Target Size)	-0.0048	-0.0075*
	(-1.48)	(-1.96)
Target B/M		-0.0030
		(-0.53)
Target Run-Up		-0.0227**
		(-2.36)
Target Sigma		-0.4173
		(-0.72)
Target Profitability		-0.0017
		(-0.04)
Target Leverage		0.0170
		(0.85)
Stock Dummy		-0.0018
		(-0.20)
Diversifying Deals		0.0031
		(0.39)
Hostile Deals		-0.0044
		(-0.40)
Tender Offers		0.0248**
		(2.44)
N	516	418
Adjusted R^2	0.067	0.105

Table 5

Cross-Sectional Regression Analysis (OLS) of Target and Bidding Firm CARs on the Existence of Credit Ratings

The table presents the results of the cross-sectional OLS regression analysis of the target and bidding firm 5-day CARs on the existence of credit ratings and other bidder, target-, and deal- characteristics for a sample of US public acquisitions over the period 1996-2009. See Appendix B for definitions of the variables. All regressions control for year fixed effects whose coefficients are suppressed. The symbols ***, ** and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. White's heteroskedasticity-adjusted t-statistics are reported in parentheses. N denotes the number of observations.

	Target Firm CARs		Bidder CARs	
	(1)	**(2)**	**(3)**	**(4)**
Constant	0.4981***	0.3727***	0.0058	-0.0384*
	(10.72)	(6.16)	(0.46)	(-1.95)
Rating Existence	0.0389***	0.0743***	-0.0058	-0.0032
	(2.89)	(4.50)	(-1.32)	(-0.53)
Ln (Bidder Size)		0.0454***	-0.0032***	0.0049***
		(9.28)	(-2.92)	(2.85)
Bidder B/M		-0.0129		0.0194***
		(-1.19)		(3.97)
Bidder Run-Up		0.0142		-0.0137***
		(1.59)		(-3.19)
Bidder Sigma		-0.9198		-0.0502
		(-1.50)		(-0.17)
Bidder Profitability		-0.0350		-0.0030
		(-0.60)		(-0.12)
Bidder Leverage		-0.0942***		0.0298*
		(-2.77)		(1.92)
Ln (Target Size)	-0.0319***	-0.0724***		-0.0086***
	(-8.06)	(-11.45)		(-3.85)
Target B/M		0.0266		0.0069
		(1.58)		(1.58)
Target Run-Up		-0.0099***		0.0015
		(-3.53)		(1.34)
Target Sigma		0.3662		-0.1026
		(0.75)		(-0.58)
Target Profitability		0.0742*		-0.0134
		(1.83)		(-0.80)
Target Leverage		-0.0800**		-0.0005
		(-2.57)		(-0.04)
Stock Dummy		-0.0219*		-0.0119***
		(-1.85)		(-2.73)
Diversifying Deals		-0.0046		-0.0011
		(-0.40)		(-0.27)
Hostile Deals		0.0331*		-0.0055
		(1.66)		(-0.68)
Tender Offers		0.1076***		0.0239***
		(5.12)		(4.16)
N	2,584	2,018	2,585	2,018
Adjusted R^2	0.063	0.178	0.013	0.076

Table 6

Cross-Sectional Regression Analysis (OLS) of Target and Bidding Firm CARs on Credit Rating Levels

The table presents the results of the cross-sectional OLS regression analysis of the target and bidding firm 5-day CARs on credit ratings levels and other bidder, target-, and deal- characteristics for a sample of US public acquisitions over the period 1996-2009. See Appendix B for definitions of the variables. All regressions control for year fixed effects whose coefficients are suppressed. The symbols ***, ** and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. White's heteroskedasticity-adjusted t-statistics are reported in parentheses. N denotes the number of observations.

	Target Firm CARs		**Bidder CARs**	
	(1)	**(2)**	**(3)**	**(4)**
Constant	0.5820***	0.2815**	-0.0155	-0.0422
	(4.57)	(2.25)	(-0.46)	(-0.79)
Rating Level	0.0069*	0.0074*	-0.0000	0.0037*
	(1.66)	(1.74)	(-0.02)	(1.77)
Ln (Bidder Size)		0.0574***	-0.0027	0.0099***
		(5.96)	(-1.05)	(2.70)
Bidder B/M		-0.0041		0.0172***
		(-0.49)		(4.62)
Bidder Run-Up		0.0440*		-0.0167
		(1.87)		(-1.12)
Bidder Sigma		0.6347		-1.2454
		(0.43)		(-1.43)
Bidder Profitability		0.3170*		0.0920
		(1.89)		(1.38)
Bidder Leverage		-0.0366		0.0414
		(-0.61)		(1.28)
Ln (Target Size)	-0.0394***	-0.0803***		-0.0228***
	(-4.32)	(-6.79)		(-5.01)
Target B/M		-0.0233		-0.0000
		(-0.89)		(-0.00)
Target Run-Up		-0.1244***		-0.0010
		(-5.53)		(-0.09)
Target Sigma		-0.7568		0.1515
		(-0.57)		(0.22)
Target Profitability		0.0539		-0.0267
		(0.34)		(-0.54)
Target Leverage		-0.0585		0.0168
		(-0.97)		(0.76)
Stock Dummy		-0.0024		0.0076
		(-0.12)		(0.73)
Diversifying Deals		0.0126		0.0027
		(0.69)		(0.31)
Hostile Deals		-0.0196		-0.0079
		(-0.75)		(-0.70)
Tender Offers		0.1438***		0.0080
		(3.33)		(0.79)
N	516	418	516	418
Adjusted R^2	0.077	0.290	0.014	0.101

Table 7

Cross-Sectional Regression Analysis (OLS) of Synergy Gain, Target and Bidding Firm CARs on the Investment Grade

The table presents the results of the cross-sectional OLS regression analysis of the synergy gain, target and bidding firm 5-day CARs on the investment grade credit rating and other bidder, target-, and deal- characteristics for a sample of US public acquisitions over the period 1996-2009. See Appendix B for definitions of the variables. All regressions control for year fixed effects whose coefficients are suppressed. The symbols ***, ** and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. White's heteroskedasticity-adjusted t-statistics are reported in parentheses. N denotes the number of observations.

	Synergy Gain	**Target Firm CARs**	**Bidder CARs**
	(1)	**(2)**	**(3)**
Constant	0.0888**	0.3554***	-0.0072
	(2.07)	(2.76)	(-0.15)
Investment Grade	0.0223**	0.0480**	0.0198*
	(2.19)	(1.98)	(1.77)
Ln (Bidder Size)	-0.0064**	0.0567***	0.0097***
	(-2.01)	(5.86)	(2.61)
Bidder B/M	0.0085***	-0.0052	0.0168***
	(2.75)	(-0.61)	(4.55)
Bidder Run-Up	-0.0021	0.0453*	-0.0161
	(-0.16)	(1.96)	(-1.09)
Bidder Sigma	-0.5268	0.5400	-1.3135
	(-0.77)	(0.36)	(-1.51)
Bidder Profitability	0.1086*	0.3139*	0.0899
	(1.88)	(1.87)	(1.38)
Bidder Leverage	0.0093	-0.0346	0.0426
	(0.33)	(-0.58)	(1.30)
Ln (Target Size)	-0.0072*	-0.0793***	-0.0218***
	(-1.88)	(-6.90)	(-4.89)
Target B/M	-0.0036	-0.0244	-0.0001
	(-0.61)	(-0.92)	(-0.01)
Target Run-Up	-0.0222**	-0.1235***	-0.0007
	(-2.33)	(-5.55)	(-0.06)
Target Sigma	-0.4116	-0.7602	0.1172
	(-0.71)	(-0.57)	(0.17)
Target Profitability	0.0083	0.0757	-0.0167
	(0.18)	(0.47)	(-0.33)
Target Leverage	0.0143	-0.0651	0.0122
	(0.74)	(-1.08)	(0.57)
Stock Dummy	-0.0007	-0.0000	0.0088
	(-0.08)	(-0.00)	(0.86)
Diversifying Deals	0.0025	0.0113	0.0022
	(0.31)	(0.62)	(0.24)
Hostile Deals	-0.0037	-0.0181	-0.0071
	(-0.34)	(-0.70)	(-0.64)
Tender Offers	0.0255**	0.1452***	0.0083
	(2.49)	(3.37)	(0.81)
N	418	418	418
Adjusted R^2	0.110	0.292	0.101

Table 8

Cross-Sectional Regression Analysis (OLS) of Changes in Performance-Adjusted ROA (ΔROA) and ROS (ΔROS)

The table presents the results of the cross-sectional OLS regression analysis of long-term changes in operating performance on the credit rating existence, credit rating levels and other bidder, target-, and deal- characteristics for a sample of US public acquisitions over the period 1996-2009. The dependent variable is the ΔROA in specifications (1) and (2) and the ΔROS in specifications (3) and (4). See Appendix B for definitions of the variables. All regressions control for year fixed effects whose coefficients are suppressed. The symbols ***, ** and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. White's heteroskedasticity-adjusted t-statistics are reported in parentheses. N denotes the number of observations.

	ΔROA	**ΔROA**	**ΔROS**	**ΔROS**
	(1)	**(2)**	**(3)**	**(4)**
Constant	0.0189	-0.0405	0.3719**	-0.7301*
	(0.44)	(-0.47)	(2.17)	(-1.77)
Rating Existence	0.0036		0.0087	
	(0.35)		(0.20)	
Rating Level		-0.0007		0.0359
		(-0.23)		(1.42)
Ln (Bidder Size)	0.0003	0.0141**	-0.0118	-0.0131
	(0.10)	(2.02)	(-0.74)	(-0.43)
Bidder B/M	-0.0459***	-0.0659*	-0.1859***	0.0670
	(-3.25)	(-1.91)	(-3.45)	(0.50)
Bidder Run-Up	0.0193**	0.0069	-0.0102	-0.0056
	(2.29)	(0.44)	(-0.36)	(-0.07)
Bidder Sigma	-1.2726**	-1.0430	-5.1990**	-6.1695
	(-2.35)	(-1.03)	(-2.43)	(-1.25)
Bidder Profitability	0.2414***	0.2914***	-0.6985	1.4760**
	(5.33)	(3.08)	(-1.53)	(2.20)
Bidder Leverage	0.0025	-0.0156	-0.0184	-0.1141
	(0.09)	(-0.42)	(-0.14)	(-0.48)
Ln (Target Size)	-0.0034	-0.0148**	-0.0005	-0.0150
	(-0.88)	(-2.33)	(-0.03)	(-0.66)
Target B/M	0.0004	-0.0055	-0.0168	-0.0201
	(0.04)	(-0.28)	(-0.50)	(-0.57)
Target Run-Up	0.0013	0.0192	0.0012	-0.0144
	(0.51)	(1.43)	(0.16)	(-0.22)
Target Sigma	0.3586	0.0376	1.6564	3.3988
	(1.00)	(0.04)	(1.04)	(0.75)
Target Profitability	-0.0954**	0.0439	-0.4371	-1.8294*
	(-2.21)	(0.39)	(-1.39)	(-1.70)
Target Leverage	-0.0390*	-0.0751*	0.0561	0.6670
	(-1.75)	(-1.91)	(0.25)	(1.63)
Stock Dummy	0.0081	-0.0056	-0.0058	0.1477
	(0.95)	(-0.42)	(-0.12)	(1.57)
Diversifying Deals	-0.0084	0.0149	-0.0450	-0.0132
	(-0.99)	(1.19)	(-1.23)	(-0.28)
Hostile Deals	0.0099	0.0592**	0.0297	-0.0098
	(0.46)	(2.45)	(0.58)	(-0.16)
Tender Offers	-0.0041	0.0039	0.0049	0.0905
	(-0.43)	(0.23)	(0.13)	(1.16)
N	688	195	698	185
Adjusted R^2	0.182	0.199	0.091	0.179

Table 9

Endogeneity Control – Heckman (1979) Two Stage Procedure

The table presents the results of the Heckman (1979) two-stage procedure to control for potential endogeneity of credit rating existence for a sample of US public acquisitions over the period 1996-2009. The first column is the selection equation estimated by probit where the dependent variable is the credit rating existence. The remaining three equations are OLS regressions for synergy gain, target firm and bidder 5-day CARs, respectively, that include the Inverse Mills Ratio obtained from the first stage equations instead of the rating existence dummy. See Appendix B for definitions of the variables. All regressions control for year fixed effects whose coefficients are suppressed. The symbols ***, ** and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. White's heteroskedasticity-adjusted t-statistics are reported in parentheses. N denotes the number of observations.

	Selection	Second-Stage		
		Synergy Gain	Target Firm CARs	Bidder CARs
	(1)	(2)	(3)	(4)
Constant	-6.5206***	0.0987***	0.4593***	-0.0196
	(-17.83)	(4.08)	(6.41)	(-0.74)
Target Age	0.0203			
	(0.16)			
Ln (Target Sales)	0.7582***			
	(16.33)			
Target Tangibility	0.5594***			
	(4.54)			
Target Altman Z	0.0372*			
	(1.88)			
Ln (Bidder Size)		-0.0089***	0.0450***	0.0057***
		(-4.39)	(7.50)	(2.59)
Bidder B/M		0.0094**	-0.0183	0.0218***
		(2.10)	(-1.38)	(4.43)
Bidder Run-Up		-0.0068**	0.0090	-0.0129***
		(-2.03)	(0.91)	(-3.51)
Bidder Sigma		-0.4193*	-1.9927***	0.0709
		(-1.89)	(-3.04)	(0.29)
Bidder Profitability		0.0036	-0.0918**	-0.0056
		(0.25)	(-2.15)	(-0.35)
Bidder Leverage		-0.0006	-0.0916**	0.0315**
		(-0.04)	(-2.23)	(2.08)
Ln (Target Size)		0.0001	-0.0704***	-0.0117***
		(0.05)	(-10.48)	(-4.70)
Target B/M	-0.0608	0.0061	0.0352***	0.0045
	(-0.66)	(1.41)	(2.77)	(0.96)
Target Run-Up		0.0007	-0.0093***	0.0020**
		(0.74)	(-3.46)	(2.02)
Target Sigma		-0.3882**	0.0417	-0.2661
		(-2.35)	(0.09)	(-1.48)
Target Profitability	-0.0134	-0.0021	0.0624*	-0.0151
	(-0.02)	(-0.17)	(1.76)	(-1.15)
Target Leverage	3.1130***	0.0021	-0.0691*	-0.0021
	(9.78)	(0.16)	(-1.87)	(-0.15)
Stock Dummy		-0.0148**	-0.0101	-0.0161**
		(-2.54)	(-0.59)	(-2.54)
Diversifying Deals		0.0064	0.0498*	-0.0118
		(0.66)	(1.74)	(-1.12)
Hostile Deals		-0.0052	-0.0301**	0.0016
		(-1.07)	(-2.09)	(0.31)
Tender Offers		0.0278***	0.1059***	0.0228***
		(4.25)	(5.46)	(3.19)
Inverse Mills Ratio		0.0061	0.0350	0.0043
		(0.80)	(1.54)	(0.51)
N	1,497	1,383	1,383	1,383
Pseudo R^2 (Adjusted R^2)	0.543	(0.088)	(0.178)	(0.090)

Table 10

Endogeneity Control – 2SLS Regression Procedure

The table presents the results of the 2SLS regression procedure to control for potential endogeneity of credit rating levels for a sample of US public acquisitions over the period 1996-2009. The specification (1) is the first-stage regression where the dependent variable credit rating level is instrumented on various variables. The specifications (2) (3) and (4) are the second-stage regressions for synergy gain and target firm and bidder 5-day CARs, respectively, that include the predicted values of credit ratings levels obtained from the first-stage equations instead of the credit ratings levels variable. See Appendix B for definitions of the variables. All regressions control for year fixed effects whose coefficients are suppressed. The symbols ***, ** and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. White's heteroskedasticity-adjusted t-statistics are reported in parentheses. N denotes the number of observations. The lower part of the table shows the F-statistic and the p-values of the Hausman test for endogeneity.

	First-Stage	Second Stage		
		Synergy Gain	Target Firm CARs	Bidder CARs
	(1)	(2)	(3)	(4)
Constant	5.5131***	0.1110*	0.1721	0.0511
	(3.77)	(1.83)	(0.98)	(0.85)
Target Age	0.8235***			
	(2.67)			
Ln (Target Sales)	0.4677***			
	(3.52)			
Target Tangibility	1.0318***			
	(3.61)			
Target Altman Z	0.1537***			
	(3.01)			
Rating Level		0.0017	0.0121	-0.0016
		(0.40)	(0.97)	(-0.36)
Ln (Bidder Size)	0.1013	-0.0027	0.0515***	0.0136***
	(0.92)	(-0.76)	(5.58)	(3.50)
Bidder B/M	-0.0813	0.0083***	-0.0138*	0.0171***
	(-0.85)	(2.98)	(-1.72)	(4.81)
Bidder Run-Up	-0.2364	0.0003	0.0517**	-0.0161
	(-0.80)	(0.02)	(2.10)	(-1.03)
Bidder Sigma	-30.6585**	0.1515	0.5607	-0.7847
	(-2.01)	(0.20)	(0.34)	(-0.84)
Bidder Profitability	-0.0603	0.1385**	0.4787***	0.0916
	(-0.04)	(2.11)	(2.86)	(1.22)
Bidder Leverage	0.4127	0.0160	-0.0259	0.0498
	(0.57)	(0.60)	(-0.44)	(1.57)
Ln (Target Size)	0.4895***	-0.0131**	-0.0763***	-0.0255***
	(2.61)	(-2.18)	(-4.58)	(-3.73)
Target B/M	0.1656			
	(1.03)			
Target Run-Up	0.1615	-0.0175*	-0.1248***	0.0041
	(0.72)	(-1.82)	(-5.82)	(0.37)
Target Sigma	-63.5696***	-1.5336**	-0.0042	-1.3039*
	(-4.91)	(-2.22)	(-0.00)	(-1.68)
Target Profitability	-0.1528			
	(-0.10)			
Target Leverage	-2.5083***			
	(-3.39)			
Stock Dummy	0.3109	-0.0068	-0.0088	0.0055
	(1.08)	(-0.64)	(-0.41)	(0.45)
Diversifying Deals	-0.0050	0.0041	0.0051	0.0073
	(-0.02)	(0.47)	(0.26)	(0.75)
Hostile Deals	0.2842	-0.0023	-0.0212	-0.0023
	(0.94)	(-0.19)	(-0.78)	(-0.20)
Tender Offers	-0.4078	0.0281***	0.1592***	0.0096
	(-1.49)	(2.84)	(3.80)	(0.96)
N	327	327	327	327
Adjusted R^2	0.653	0.142	0.306	0.131
Hausman Test		F = 0.06 (p = 0.813)	F = 0.16 (p = 0.686)	F = 0.14 (p = 0.710)