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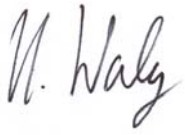

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Is Rated Debt Arm's Length? Evidence from Mergers and Acquisitions*

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Abstract:
In this paper we challenge the view that corporate bonds are always arm's length debt. We analyze the effect of bond ratings on the stock price return to acquirers in M&A transactions, which tend to have significant effects on creditor wealth. We find acquirers abnormal returns to be higher if they are unrated, controlling for a wide variety of other effects identified in the literature. Tracing the difference in returns to distinct managerial decisions, we find that, everything else constant, rated firms increase their leverage in takeover transactions by less than their unrated counterparts. Consistent with a significant role for rating agencies, we find monitoring effects to be strongest when acquirer bonds are rated at the borderline between investment grade and junk. Finally, we are able to empirically exclude a large number of alternative explanations for the empirical regularities that we uncover.

JEL Classification: G21, G24, G32, G34

Keywords: Acquisitions, Credit Ratings, Mergers and Acquisitions, Arm's Length Debt, Abnormal Returns

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1. Introduction

There is a long tradition in finance that distinguishes between relationship lending and arm's length debt. Going back to Diamond (1991), the possibility to obtain customer specific and proprietary screening information defines relationship lending. Rajan (1992) adds a time dimension, encompassing the possibility to monitor the borrower over the duration of the relationship, and having some control over the owner's continuation decision. If these screening and monitoring characteristics, i.e. private information and repeated interaction are absent, the financing relationship is called arm's length.

Corporate bonds issued in capital markets are seen as the proverbial arm's length financing, for two reasons: first, bond investors have access to public but not to private information. Second, bond investors are widely dispersed, rendering monitoring, coordination and renegotiations costly, or even impossible (Rajan, 1992, Amihud et al., 1999). Indeed, Kahan and Rock (2009) argue that "In the past, many violations of bondholder rights have remained undetected and unsanctioned".

However, as we demonstrate in this paper, bond financing may be more similar to relationship lending than commonly believed, provided that the bond is rated by a rating agency. This argument is based on the extended economic role of ratings in capital markets proposed in Boot et al. (2006)**.** Boot et al. (2006) argue that credit ratings provide a coordination device for bond investors and firms, when otherwise multiple equilibria would prevail. In their model, monitoring during, e.g. a watchlist period may influence the investment decision of the rated firm. This is because firm management is forced to optimize its investment and financing policy in the light of its impact on the cost of capital. Via the rating process, the expectations of bond investors and firm management can be coordinated.

We identify the marginal effect of ratings on firm policy by comparing the distribution of returns in M&A transactions for rated and unrated bidders. M&A events are well suited for a test because mergers tend to have strong risk implications and strongly affect the interests of debt holders. From the recent empirical literature on corporate debt structures, as in Houston and James (1996), Denis and Mihov (2003) and Rauh and Sufi (2010), we know that rated and unrated firms do not differ much with respect to the use of bonds, bank and other types of debt. Hence, controlling for other determinants of acquirer's abnormal return at the announcement of a merger, we feel we can identify the marginal effect supplied by the existence of a rating. As a second identification strategy we also employ firm fixed effects, i.e. we compare the abnormal returns of bidders in M&A transactions that change rating status during our sample period.

We document in a large sample of merger announcements spanning 1980 to 2004 that acquirer gains from a merger are significantly smaller if the acquirer is rated by a major rating agency than if the acquirer is unrated. The effect is economically important: We find a one percentage point difference in returns over a three day horizon between rated and unrated acquirers and we show that this effect does not reverse over time. This result is robust to controlling for standard determinants of acquirer gains from mergers used in the literature (e.g. Moeller et al., 2004). Further, we show that mergers initiated by rated acquirers result in a significantly smaller increase in leverage subsequent to the merger. Mergers initiated by rated firms tend to be less debt financed compared to mergers initiated by unrated firms. Taken together, the results are consistent with the hypothesis that rating agencies protect the interest of bondholders in mergers, in particular by constraining the increase in leverage following an acquisition. This can be viewed as monitoring of the borrower similar to the monitoring that may take place in a lending relationship. This monitoring by rating agencies has real consequences for central decisions of the firm, such as its capital structure and

whether or not to acquire another firm. The findings suggest that rated corporate bonds appear to be much less "arm's length" than previously thought.

Given that being rated is not exogenous, we control for endogeneity using similar instruments as in Faulkender and Petersen (2006) and we explore a large number of potential alternative explanations for the negative relationship between having a rating and the abnormal return upon a merger announcement, including managerial hubris, overvaluation and more stringent monitoring of rated firms by the market. While we find support for several of these theories, ratings continue to be a first order determinant of acquirer gains from mergers.

To our knowledge we are the first to study the effect of ratings on shareholder wealth in a merger. However, there is a growing literature that examines the effects of bondholder control rights on bondholder and shareholder wealth. For example Gao et al. (2009) show that even technical covenant violations, such as late filings of financial statements, result in stock price declines. Our findings are also in line with Manconi and Massa (2010) who show that bondholder concentration, used as a proxy for the ability of bondholders to actively assert their rights, results in more conservative firm policies. Cash retentions are higher, pay-outs lower and asset volatility and default probabilities decline significantly. Cremers et al. (2007) analyzes the effect of shareholder control rights and bondholder control rights on bond yields. They argue that strong shareholder governance increases bondholders' concerns of takeover risk. The increase in credit risk associated with shareholder control and weak takeover defenses is strongest for firms that are small and are hence more likely to be takeover targets, which provides further support for this view. Cremers et al. (2007) then show that bondholder governance, by way of bond covenants, mitigates the potential conflict between shareholders and bondholders.

Low et al. (2007) analyze the effect of shareholder power on target bondholder returns and ratings. They show that stronger shareholder power is associated with positive abnormal returns for bond holders. This supports the view that superior monitoring of managers, improves collateral values. They conclude that good corporate governance can be beneficial to bondholders as well. Our paper suggests that the reverse does not hold: stronger bondholder power does not benefit shareholders. Hence, the results in our paper are consistent with Klock et al. (2004) who find that strong anti-takeover provisions, implying weak shareholder control rights and strong management discretion, are associated with lower refinancing costs of debt. Their paper, like ours, points in the direction of conflicts between the strength of shareholder rights and the strength of bondholder rights.

There is a wealth of related literature on bond market reactions to merger announcements. Billett et al (2004) analyze stock and bond market reactions to M&A announcements. They find that target bondholder earn excess returns (measured over a 2 month period) if the rating of the acquirer is higher compared to the rating of the target. They show that when takeovers are accompanied by an increase in asset risk or reduction in credit rating of the target firm, the bondholders of the target firm lose.

The remainder of the paper is organized as follows. In section 2 we present the data we use, the empirical approach and present some basic descriptive statistics documenting the difference in rated and unrated acquirer's gains from mergers. In section 3, we examine whether these differences can be explained by differences in firm or deal characteristics. In section 4, we examine our central hypothesis in more depth and show that post merger leverage of deals involving rated acquirers is lower than post merger leverage of unrated acquirers. Section 5 presents evidence that the differences in acquirer gains between rated and

unrated firms are persistent and have substantial welfare effects for shareholders. In section 6 we explore alternative explanations for our findings. Section 7 concludes the paper.

2. Data and methodology

2.1. Data

The sample consists of merger announcements that resulted in a completed transaction. The data come from the Securities Data Company's (SDC) U.S. Mergers and Acquisitions database. We select domestic mergers and acquisitions with announcement dates between 1980 and 2004. We use the same selection criteria as in the previous literature (e.g. Moeller et al., 2004), except that we limit the sample to non-financial firms. Hence we exclude all observations involving acquirers in SIC codes 6000 to 6999. Adams and Mehran (2003) and Macey and O'Hara (2003) argue that there are many reasons to believe that the governance of banks and other financial institutions differs significantly from that of non-financial firms. We consider only acquisitions in which acquiring firms end up with all shares of the acquired firm or subsidiary, and we require the acquiring firm to control less than 50% of the shares of the target firm before the announcement. We further require that (1) the deal value is greater than $1 million, (2) a public or private U.S. firm or a non-public subsidiary of a public or private firm are acquired, and (3) the acquirer is a public firm listed on the Center for Research in Security Prices (CRSP) and Compustat during the event window. Deal value is defined by SDC as the total value of consideration paid by the acquirer, excluding fees and expenses. After collecting these acquisitions, we eliminate those in which the deal value relative to the market value of the acquirer is less than 1 percent. The market value of the acquirer is defined as the sum of the market value of equity, long-term debt, debt in current liabilities, and the liquidating value of preferred stock. We also require that the number of days between the announcement and completion dates is between zero and one thousand.

Ultimately we end up with a sample of 11,547 observations. 25 percent of the announcements (2,746 observations) involve announcements for rated acquirers; the remainder constitutes merger announcements for unrated acquirers. Table 1 shows the number of acquisitions by year. Merger announcements increased since the 1980s, but the increase is non-monotonic. Mergers were particularly frequent in the late 1990s and dropped off in the early 90s and most recently.

The table also shows acquisitions by rated versus unrated firms over time. We define a rated firm as a firm with an issuer rating from Moody's. With the exception of 1985/1986, acquisitions by unrated firms outnumber those by rated firms by about three to one. In our empirical analysis, we will generally use year dummies to control for these patterns over time.

2.2. The gains to acquiring firm shareholders

We use the standard approach to evaluate the returns to acquiring shareholders and estimate abnormal percentage returns with standard event study methods (following Brown and Warner, 1985, MacKinlay, 1997). We estimate these abnormal returns over the three-day event window (-1, +1) using market model benchmark returns with the CRSP equally-weighted index returns. The parameters for the market model are estimated over the (-205, -6) interval, and the p-values are estimated using the time-series and cross-sectional variation of abnormal returns.

Table 2 presents the equally weighted abnormal returns for our sample of acquirers. Overall, consistent with the pervious literature (Andrade et al., 2001), acquirer gains from a merger tend to be small, but positive. Mean CAR is 1.8 percent with a median of 0.67 percent. Both

are statistically significant at the 1 percent level (Column 1 of Table 2). In columns 2 and 3 we report abnormal returns for rated and unrated firms separately. Abnormal returns differ substantially across rating status. Rated acquires show a 3 day mean cumulative abnormal return of 0.57 percent. The median is even smaller at 0.31 percent. In stark contrast, unrated acquirers show a three day cumulative abnormal return of 2.23 percent, with a median of 0.84 percent. The difference between rated and unrated cumulative abnormal returns is significant at the 1 percent level for means and medians.

In Table 3 we break down the sample further into investment grade rated firms, non-investment grade rated firms and unrated firms. We find that the gains from mergers are negative on average (and at the median) for investment grade firms. This is statistically significant at the 10 percent level (1 percent level for the median). Non-investment grade rated firms show a positive cumulative abnormal return of 1.27 percent and a median of 0.78 percent. Again, both are significant at the 1 percent level. We are able to reject that investment grade abnormal returns are equal to non-investment grade abnormal returns or unrated firms' abnormal returns for means and medians at the 1 percent level. We are also able to reject equality of means for investment grade versus non-investment grade abnormal returns for the mean and the median at the 1 percent level and for non-investment grade firms and unrated firms at the 1 percent level for the mean. The median abnormal returns between non-investment grade and not rated firms are not statistically different from one another. The results suggest that shareholders of firms without rating have higher acquisition gains than shareholders of non-investment grade firms. Shareholders of investment grade firms lose on average.

Intrigued by these patterns, we report abnormal returns by individual rating notch in Table 4. Two striking observations stand out. One, as an acquirer has a higher rating, the gains from

acquisition are smaller. The relationship is monotonous: As ratings worsen, abnormal returns upon merger announcement increase. Second, we find a strong negative abnormal return for acquirers rated Baa3, which is the lowest investment grade rating. Firms that are just investment grade appear to make the worst (from the perspective of their shareholders) acquisitions. We interpret this finding as evidence that the threat of the rating agency to downgrade a firm to below investment grade prevents firms from engaging in mergers that are profitable to acquirer shareholders. The monitoring of rating agencies is particularly effective at the lowest investment grade rating, as the threat to downgrade to below investment grade.[2]

3. Is the rating effect explained by firm and deal characteristics?

3.1. Descriptive evidence

As a first step we show how firm and deal characteristics vary for rated versus unrated acquirers. Table 5 shows the firm and deal characteristics for rated and unrated acquirers, as well as the difference. The dollar value of transactions for rated acquires is more than five times that of unrated acquirers. This corresponds only in part to their relative size: In panel B we report that unrated acquirers are about one eighth in total book assets and about one sixth in market value. Relative to their size, merger targets are larger for unrated acquirers. All of these differences are significant at the 1 percent level. We find no significant difference in the probability that the deal was competed: Competed deals are rare both for unrated and rated acquirers. However, as Moeller et al. (2004) point out, the proxy we use, namely whether multiple firms make a public bid for the same target, is weak. The proxy does not reflect that some bidding may go on in private as in Boone and Mulherin (2002). Further, an initial bid of

[2] Complementary evidence is provided by Bannier and Wiemann (2011), who show that interest rates on bank loans to highly rated (investment grade and above) firms are significantly more likely to be tied to a bond rating than interest on bank loans to poorly rated firms. This is consistent with Table 4 and can explain why rating agencies may be significantly more powerful in highly rated firms than in poorly rated firms. It also further supports Boot et al. (2006) who argue that rating agencies may provide a focal point for the coordination between debt holders and the financial and investment decisions of firm management.

one firm may reflect potential competition, precisely to deter competing bidders from bidding for a target in the first place. Hence, based on Schlingemann et al. (2002) we use the value of all corporate control deals in a particular year and two-digit SIC code divided by the book value of all assets in the corresponding year and the SIC code, liquidity index. We find this index to be significantly (at the 5 percent level) higher for unrated firms compared to rated firms.

The literature suggests that offers for public firms have lower abnormal returns compared to offers for private firms (Chang, 1998; Fuller et al., 2002). For example, Fuller et al (2002) argue that the market for private firms is not as liquid as the market for public targets. Therefore private firms are sold at a discount. Second, Chang (1998) argues that stock offers for privately held firms create a large shareholder that is better able to monitor the management. This would result in larger abnormal returns for shareholders of acquiring firms when acquiring a private target. We find that rated acquirers are significantly more likely to acquire public targets and hence it is important to control for the organizational form of the target in the regressions below.

We find that unrated acquirers use less cash and more equity compared to rated acquirers (statistically significant at the 1 percent level). This difference is consistent with the idea that due to larger asymmetric information it is more difficult for unrated acquirers to raise fresh funds through issuing bonds in the market (Frank and Goyal, 2010). We further find that only 1.1 percent of all deals involving rated acquirers and 0.3 percent of unrated acquirers are hostile take-over bids. Schwert (2000) shows that hostile deals are associated with lower abnormal returns for bidders and, hence, it is possible that at least part of the difference in bidder abnormal returns between rated and unrated acquirers are due to the propensity to make hostile bids. We will therefore control for hostile deals in the regressions below.

Unrated firms are much less likely to make tender offers compared to rated firms. Unrated and rated firms are equally likely to be involved in diversifying acquisitions ("conglomerate deals"). Following the literature, we classify a merger as a conglomerate deal when the acquirer and the target have different two-digit SIC codes.

In panel B, we show additional firm characteristics of rated and unrated acquirers. Aside from the large size difference, we find that unrated acquirers tend to be significantly (at the 1 percent level) less leveraged compared to rated acquirers. This is further evidence that it is much more difficult for unrated firms to raise debt (Frank and Goyal, 2010), but also inconsistent with previous evidence that suggests that smaller firms are more levered (Maloney et al., 1993). Consistent with Almeida et al. (2004) we find that rated acquirer have lower cash holdings compared to unrated acquirers. At the same time, unrated firms tend to have higher Tobin's q. This could help explain the ratings effect as high q firms tend to make better acquisitions (Lang et al., 1989 and Servaes, 1991).

3.2. Regressions controlling for firm and deal characteristics

We show in Table 2 that abnormal returns for rated acquirers are significantly lower than those for unrated acquirers. This is true both for mean and for median abnormal returns and the differences are significant at the 1 percent level. However, in Table 5 we also show that both deal and acquirer characteristics are also significantly different. In particular, rated firms are larger and acquire relatively smaller targets. Deals for rated firms tend to take longer to completion and involve more cash acquisitions of public targets. Furthermore, ex ante, rated firms tend to be more leveraged with lower q. Hence, it seems important to examine the robustness of the ratings effect controlling for acquirer and deal characteristics. The results of this exercise are presented in Table 6.

We find that controlling for deal and firm characteristics, abnormal returns for rated acquirers are 1 percentage point lower than for unrated firms. This suggests that 0.7 percentage points or 25% of the univariate difference between rated and unrated acquirer abnormal returns are explained by firm and deal characteristics. Nevertheless, the difference between rated and unrated acquirer abnormal returns remains significant at the 1 percent level.

The control variables tend to confirm to expectations and are similar to those in the literature (Moeller et al., 2004, Chen et al., 2007, Wang and Xie, 2009) with a few exceptions. In contrast to Moeller et al. (2004) and Chen et al. (2007) but consistent with Maloney et al. (1993) we find that acquirer with higher leverage have higher abnormal returns. As Moeller et al (2004) we find that Tobin`s q is negative and significant, although the effect is economically small. This finding is in contrast to Lang et al. (1989) and Servaes (1991) who report a positive relation between acquirer abnormal returns and Tobin`s q. For acquisitions financed only with cash the coefficient turns out to be negative but not significant. This does not come as a surprise given the inconclusive findings in the previous literature. We confirm Moeller et al.'s (2004) finding that size is an important determinant of acquirer abnormal returns. As in their paper, the abnormal returns of smaller firms are significantly higher.[3] Finally our coefficients on relative size and liquidity index tend to be in the right direction but not significant.

Thus far we ignored the panel structure of our sample. By including firm fixed effects we can control for unobservable firm specific heterogeneity and identify the effect of independent variables from the within firm variation only. In particular, the rating effect is identified only by the time series variation of firms that were involved in more than one merger and whose

[3] We follow Moeller et al. (2004) in our baseline and all following specifications include a dummy for small firms. The small dummy is equal to 1 if the acquirer has a market capitalization equal to or less than the market capitalization of the 25th percentile of NYSE firms in the same year. We also estimated models with a continuous size variable. The results are available from the authors upon request.

rating status changed. During the sample period 416 out of 4563 firms (9.13 percent) experience a rating status change and are involved in more than one merger. The firm fixed effects specification is presented as Model 2 in Table 6 (column 3 of Table 6). The results are qualitatively similar to the results of Model 1. The rating dummy remains negative and statistically significant (at the 10 percent level): the abnormal returns associated with merger announcements of an unrated acquirer are significantly higher than the abnormal returns associated with merger announcements of that same acquirer with a rating.

The fixed effects specification presented above is only able to control for firm heterogeneity that remains constant over time. Hence, it does not address the problem that to obtain a rating is a decision of the firm. We now turn to address this potential endogeneity. In order to do this we apply an instrumental variable approach. We use instruments for acquiring a rating that have been recently proposed in the literature by Faulkender and Petersen (2006). Faulkender and Petersen (2006) use instruments that are likely to be related to how well known to the market the firm or the industry is, in which the firm operates. The instruments are (i) whether the shares of the firm trade at the NYSE. (ii) whether the firm is a member of the S&P 500, (iii) log of one plus the percentage of firms in the same three-digit industry that have a bond rating, excluding the firm of interest, (iv) log of one plus the percentage of firms in the same three-digit industry that have a bond rating weighted by the market value of assets, excluding the firm of interest, (v) whether the firm is younger than three years.[4] Appendix Table A1 presents results for the first stage regression of all the instruments on the rating status of the firm. As can be seen four out of five instruments are statistically different from zero. The signs are as expected except for value weighted industry variable which turns out to be negative. As in Faulkender and Petersen (2006) firm age turns out not to be significant. The

[4] Faulkender and Petersen (2006) also use a dummy variable equal to one if the firm is too small to issue enough public debt to be included in the Lehman Corporate Bond index as an additional instrument. Since we do not have access to this variable we do not include it in our analysis.

adjusted R^2 of the first stage regression 35.9 percent and the F-value is 170.75. Taking together these results indicate that our instruments seem to be valid.

Results of the second stage of the instrument variable regression are presented in column 4 of Table 6. We report the results when we use all five instruments discussed above but our results are not affected by using all statistically significant instruments or by using only S&P 500 membership as an instrument. While the other coefficients are largely similar to the ones in the OLS regression the economic importance of the rating dummy variable becomes larger (from -0.0097 to -0.0315) and the coefficient remains statistically significant at the 1 percent level.

Finally, we show in the univariate analysis that abnormal returns tend to decline with the rating of the firm. The higher the rating, the lower the acquirer gains from a merger. In column 5, we check whether this finding carries over if we control for the standard determinants of acquirer abnormal returns. We find that this is indeed the case

Overall our univariate as well as multivariate findings establish that the cumulative abnormal return at announcement is lower for rated firms. We investigate the potential explanations for this finding in the following several sections.

4. Bondholder control rights and ratings

One explanation for the difference in announcement abnormal returns for rated and unrated acquirers is that the rating agency monitors the firm on behalf of bondholder. The rating agency strengthens the relative position of bondholders relative to shareholders and being rated prevents shareholders from extracting rents from bondholders in a merger. According to this explanation, rated bonds seem to be much less “arm’s length” than previously thought. If

true, we would expect to see that rated firms enter into fewer deals that increase the risk of the resulting merged firm. One natural way to think about an increase in risk of a firm in this context is to finance the acquisition with debt and increase post merger leverage. Hence, we examine the change in (market) leverage of acquirers. We follow Martin (1996) and define leverage as total debt over the sum of total debt, liquidation value of preferred stocks and the market value of common stock. The change in leverage is measured as leverage at the fiscal year end following the completion of the deal minus the leverage a at the fiscal year end prior to the announcement date.

Table 7 column 1 reports results for the cross-sectional regression of the absolute change in leverage on controls for deal type plus the rating dummy. Note that we lose a few observations because balance sheet data is unavailable for some firms. Results are consistent with a monitoring role of rating agencies, reducing the "arm's length" character of bonds. Rated firms have less leverage in the year following the transaction than firms without rating.[5]

Note, however, that leverage is measured as in absolute differences in the specification in column 1. This raises the possibility that our finding is simply a mechanical effect: We know from Table 5 that rated firms have more leverage ex ante (before the merger) compared to unrated firms. If they merge with a firm with less leverage the leverage of the combined firm will decline. Hence, it may be important to control for initial leverage. Table 7 column 2 presents these results. Note that this reduces our sample further because we have to exclude firms with zero initial leverage. The results confirm the finding that mergers initiated by rated firms result in a smaller change in leverage compared to mergers initiated by unrated firms. This is an important result, as it suggests that rating agencies protect the interests of bond

[5] This result is even more striking if one considers that there is strong evidence that rated firms have better access to bond markets (Faulkender and Petersen, 2006) and hence, prima facie, one would expect those firms to be more likely to use debt to finance acquisitions. Our results suggest the opposite. It appears that the monitoring effect of rating agencies outweighs the access effect of the rating, at least at the margin considered in this paper.

holders by influencing firm decisions. We interpret this as a monitoring role of rating agencies: Rated bonds tend to be less “arm’s length” compared to unrated debt.

5. Persistence and welfare effects

So far we have assumed that markets are efficient at incorporating information. If markets are efficient, the abnormal return upon merger announcement is an unbiased estimate of the value of the transaction to the shareholders of the acquirer. However, if markets are not efficient, the higher abnormal returns upon announcement may be offset by lower subsequent returns and vice versa. To investigate this question we compare the long-term performance of rated and unrated acquirers. We use the calendar-time portfolio approach advocated by Fama (1998). Each month we form an equally-weighted portfolio of observations that have completed a transaction in the past time period. We let this time period vary between 6 and 36 months. The portfolio is rebalanced every month to drop the firms that have reached the end of their holding period and add all firms that have just completed a transaction. Repeated values are dropped for each observation. Also months with less than 10 observations are dropped. Table 8 reports results for the full sample, as well as for the rated and unrated subsamples. We do not find any significant coefficients and are unable to detect any difference between rated and unrated acquirers long-run performance for any of the investment horizons. The results do not support the idea that the higher announcement abnormal returns of unrated acquirers are explained by inefficient markets.

One interpretation of the findings presented so far in this paper is that rating agencies are able to prevent mergers that are detrimental to bondholders. This raises the question whether rated firms engage in mergers whose combined value is higher or lower than that of unrated firms. Hence, in this section we check whether the synergy gains of mergers with rated acquirers are higher or lower compared to the synergy gains of mergers with unrated acquirers. To calculate

the synergy gains we follow the literature and apply the method of Bradley et al. (1988). Based on Bradley et al. (1988) the total percentage synergy gains, CARC, are calculated as follows. First, we form an event time value-weighted portfolio of the return of the target and acquirer for each transaction, where the weights are given by the market value of equity two days before the announcement of the deal. Second, market model residuals are calculated for each transaction in the time period (-1, +1), where the estimation window spans the time period from (-205, +6). The CARC is calculated as the sum of the market model residuals in the event window (-1, +1). The change in the capitalization of the acquiring and acquired firms over the event window, $CARC, is calculated as the sum of the market value of equity for the target and the acquirer times the CARC for the respective transaction. CARC is in percent, $CARC is in millions of dollar.

The results are reported in Table 9. Since we require target firms to have stock price information in order to calculate CARC, the sample is reduced to 1729 observations. For this sample, the average abnormal return is 2.13 percent, which is significant at the 1 percent level. However, the dollar abnormal return is a loss of $41.75 million, also statistically significant at the 1 percent level. Both the cumulative abnormal return and the dollar value synergy gain are very close to the results obtained in Moeller et al. (2004) in a similar sample.

Turning to rated versus unrated acquirers, mergers in which a rated firm was the acquirer show positive CARC at 1.98 percent (significant at the 1 percent level). With an unrated acquirer, synergies seem to be larger at 2.24 percent cumulative abnormal return, although the difference is not significant. Even unrated firms' synergy value is negative, however, but there is a $22 million difference between rated and not-rated firms. Again, the difference is not significant. Overall, the results weakly suggest that rating agencies prevent profitable mergers from taking place. In this sense, the presence of rating agencies shifts value from

shareholders to bondholders and other debtholders of firms. This is interesting in light of the findings in Wang and Xie (2009). They analyze the effect of acquirer and target shareholder control rights on the synergy gains created by the acquisition. They find that the difference in the strength of shareholder rights between the acquirer and the target has a positive effect on acquisition synergy. They interpret their result to imply that acquisitions of firms with poor corporate governance by firms with good corporate governance generate more value. We find that stronger bondholder control rights have (weakly) the opposite effect, raising the possibility that part of the value in Wang and Xie (2009) comes at the expense of existing bondholders of the acquiring firm.

6. Other potential explanations

In this section we explore alternative explanations for the observed differences in merger announcement effects between rated and unrated acquirers that are unrelated to conflicts of interest between bondholders and shareholders and the role of rating agencies as monitors of the firm. First, we explore whether overvaluation (as measured by Tobin's q) or information leakage can explain the lower abnormal returns of rated acquirers compared to unrated acquirers. Second, we examine whether rated firms, and especially highly rated firms are more prone to overpay on acquisitions compared to lower rated or unrated firms, possibly due to managerial hubris. Third, we examine whether rated firms are simply more closely watched by markets and therefore information about potential mergers is leaked to the market before the formal announcement. If this were the case, part of the gain to acquiring shareholders would occur in the days before the merger announcement and not at the time of the announcement itself.

We report in Table 5 that unrated firms have significantly (at the 1 percent level) higher Tobin's q compared to unrated firms. Lang et al. (1989) and Servaes (1991) show that

acquirer abnormal returns in tender offers are significantly higher for high Tobin's q acquirers than for low Tobin's q acquirers. This is especially so, if the q of the target is low. Lange et al. (1989) argue that this is consistent with the view that takeovers of poorly managed targets by well-managed bidders result in higher gains to existing acquirer shareholders. While we control for Tobin's q in our baseline regressions (Table 6) and obtain a negative coefficient (significant at the 10 percent level), it is still possible that the significant coefficient for the ratings dummy is spurious. In order to check this question, we estimated the model separately for high q and for low q firms. The idea is that if we continue to obtain a negative coefficient for the ratings dummy for low and for high q firms, we can exclude that the differences in acquirer abnormal returns between rated and unrated bidders are solely due to the acquirer rent at low q firms (value firms).

Table 10 reports the results of a partitioning of the sample by acquirer Tobin's q. Column (1) re-runs the baseline model from Table 6 for growth firms, defined as the one-third of all firms having the highest Tobin's q, the 'growth' firms. Column (2) runs the same regression for the one-third of our sample with the lowest q, the 'value' firms. The coefficient on Tobin's q in the first regression is zero, while it is negative and significant at the 5% level for value firms, consistent with the results reported in Lang et al. (1989) and Servaes (1991). In both regressions, however, the rating variable continues to enter with a negative and significant coefficient. Thus, the influence of the rating status on acquirer announcement return is not confined to low-q (value) firms. We actually find the impact of the rated variable to be both larger in absolute terms, and statistically more significant in the growth regression. This is also consistent with the hypothesis that growth firms with fewer tangible assets are more likely to affect debtholder wealth negatively in merger transactions.

A second possible explanation for the differences in acquirer abnormal returns upon merger announcement between rated and unrated firms is information leakage. Rated firms may be watched much more closely by the market (Ederington and Goh, 1998) and therefore information about the merger may arrive in the market before the formal announcement date. If this is the case, the gains from a merger may be reflected in stock prices ahead of the announcement date, for rated firms, but not for unrated firms.

To test this hypothesis, we look at one month of daily share price returns immediately prior to the event window, i.e. the trading days -25 to -3 in our baseline specification. Table 11 reports the mean and the median of the average CAR, where the latter is calculated as the realized stock return minus the return of the equally-weighted market portfolio from CRSP. We find an overall positive CAR which is significantly different from zero. If we distinguish between rated and unrated subsample, the value for the unrated sample is higher in absolute terms (1.07 against 0.36), and attains a higher significance level (1% against 10%), while the median values are similar in magnitude; only the unrated subsample has a significant coefficient, however. The results show that information leakage does not seem to be an explanation for our earlier results.

Malmendier and Tate (2008) show that overconfident managers engage in more acquisitions and that average abnormal returns for these acquisitions are lower. It is possible that the managers of rated firms and in particular of highly rated firms are more likely to be overconfident. We do not have access to Malmendier and Tate's (2008) proxy for overconfidence, but we can rely on their finding that overconfident managers more frequently tend to engage in unprofitable mergers. In order to address this alternative explanation we test whether rated firms tend to overpay by estimating the probability of a successful bid using the full sample. This sample contains both completed and uncompleted acquisition attempts. The

results of the probit specification suggest that bids by rated firms tend to be more successful than those by unrated firms, consistent with Malmendier and Tate (2008). Model (1) in Table 12 attempts to test the follow-up hypothesis that a larger success probability is associated with excessive bids. To this end we define the value premium of each bid, defined as the transaction value minus target market value 50 days prior of the bid, divided by target market value 50 days prior of the bid. This value premium should be higher for rated firms if there was over-confidence, i.e. over-biding by successful firms. As column (1) in Table 12 shows, the coefficient for rated firms is negative and insignificant. Hence, while we do find that rated acquirer's have a higher probability of a successful bid, which is consistent with overconfidence, we find no evidence that this higher probability is due to overpaying. Overall, we find mixed evidence for Malmendier and Tate's explanation.

7. Conclusion

In this paper we find evidence that rating agencies protect the interest of bondholders in mergers. The evidence is consistent with notion that rating agencies monitor the decisions of firms. Hence, rated bonds tend to be less arm's length and more similar to relationship debt than previously thought. Relying on the result in Houston and James (1996), Denis and Mihov (2003), and Rauh and Sufi (2010) that the structure of liabilities of unrated and rated firms is largely similar, we identify the marginal contribution of a rating agency to monitoring of the firm. In a large sample of US merger announcements between 1980 and 2004, we find that the average cumulative abnormal return of acquirers over the event window is smaller for rated than for unrated firms. Furthermore, among all rated acquirers, if ratings are investment grade, the average cumulative abnormal return is smaller than for below-investment grade rated firms. Bondholder interest, therefore, appears to best protected if acquirers are highly rated public firms, where even small changes in bond default risk may be reflected in a rating

downgrade. Recall that for high rating classes, the change in default risk required for a one notch downgrade is considerably smaller than for lower rated companies. Put differently, in the investment grade category, the disciplining ability of rating agencies is relatively high-powered.

In fact, the average cumulative abnormal return for the highest rating notches in our sample are all negative, in line with the early literature on the market for corporate control (see Jensen and Ruback 1983 for a survey). We test different models for explaining the variation in CARs, using the usual cross-sectional regression as well as a panel specification and an instrumental variable approach. In all regressions, we control for the type of the target form (private or public), its size (whether small or not), details of the transaction structure, and whether a cash or a pure equity deal, along with variables describing financial variables of the acquiring firm. In all specifications, the rated dummy exhibits a significantly negative coefficient. The gains from mergers are lower for rated firms.

What is the reason for the negative impact of the rating status on share price performance? We hypothesize and test that the influence of the rating process on decision making of the acquirer effectively contains bond default risk. In Table 7 we show that over the first year after an acquisition, rated firms exhibit lower leverage, relative to unrated firms of otherwise similar characteristics. Furthermore, if the gains from a merger for the acquirer and the target are added up, we find a lower change in combined market capitalization, if the firms are rated. In contrast, unrated firms' shareholders perform better than their rated peers. This, too, is an indication of a wealth transfer from bondholders to shareholders that is diminished if acquirers are under the scrutiny of a rating agency.

We explore a number of alternative explanations for the differences in acquirer gains of rated and unrated firms, including overvaluation, information leakage and managerial hubris. We can outright reject the first two alternatives and the evidence in favor of managerial hubris as an explanation of our results is mixed.

Taken together, our evidence is consistent with the idea that bondholder wealth is protected by the presence of rating agencies. Rating agencies seem to monitor firms, which implies that rated bonds are less “arm’s length” compared to unrated debt. It appears that the threat of a downgrade is sufficient to affect the decisions of firms towards lower default risk.

Table 1 Sample distribution sorted by announcement year and acquirer rating status

The sample comprises of all domestic U.S. mergers and acquisitions between 1980 and 2004 listed on SDC where the publicly traded acquiring firm ends up with all the shares of a public, private, or subsidiary target. Further selection criteria are that the transaction is completed, the transaction value is greater than $1 million and at least 1% of acquirer`s market value, and that the transaction is completed in less than 1000 days. Acquirer that have a Moody`s estimated senior unsecured rating outstanding at the announcement date of the transaction are classified as rated.

Announcement year	Acquirer rating status		
	Rated	Non rated	All
1980	8	14	22
1981	27	49	76
1982	23	48	71
1983	28	115	143
1984	43	127	170
1985	77	90	167
1986	119	120	239
1987	75	140	215
1988	102	147	249
1989	68	198	266
1990	58	192	250
1991	58	225	283
1992	60	327	387
1993	104	441	545
1994	131	525	656
1995	137	630	767
1996	223	711	934
1997	236	950	1,186
1998	262	886	1,148
1999	196	692	888
2000	173	553	726
2001	134	402	536
2002	132	403	535
2003	119	395	514
2004	153	421	574
All	2,746	8,801	11,547

Table 2 Announcement abnormal returns sorted by acquirer rating status

The sample comprises of all domestic U.S. mergers and acquisitions between 1980 and 2004 listed on SDC where the publicly traded acquiring firm ends up with all the shares of a public, private, or subsidiary target. Further selection criteria are that the transaction is completed, the transaction value is greater than $1 million and at least 1% of acquirer`s market value, and that the transaction is completed in less than 1000 days. Acquirer that have a Moody`s estimated senior unsecured rating outstanding at the announcement date of the transaction are classified as rated. CAR denotes the cumulative abnormal return over a three-day event window (-1, +1) around the announcement date. It is the calculated as the realized stock return minus the return of the market portfolio, where the market portfolio is given by the equal-weighted portfolio from CRSP. The first (second) row reports the mean (median). The final row lists the number of observations for each sub-group. Mean and median values are tested using two-sided t-tests and Wilcoxon T tests, respectively. The difference tests are based on t-test for equality in means and Wilcoxon sign-rank test for equality of medians.

	All	Rated	Not rated	Difference
CAR	(1)	(2)	(3)	(3)-(2)
	1.837[a]	0.570[a]	2.233[a]	1.663[a]
	[0.672][a]	[0.306][a]	[0.844][a]	[0.538][a]
	n=11547	n=2746	n=8801	

[a] statistical significance at the 1% level.
[b] statistical significance at the 5% level.
[c] statistical significance at the 10% level.

Table 3 Announcement abnormal returns sorted by acquirer rating status and rating category

The sample comprises of all domestic U.S. mergers and acquisitions between 1980 and 2004 listed on SDC where the publicly traded acquiring firm ends up with all the shares of a public, private, or subsidiary target. Further selection criteria are that the transaction is completed, the transaction value is greater than $1 million and at least 1% of acquirer`s market value, and that the transaction is completed in less than 1000 days. Acquirer that have a Moody`s estimated senior unsecured rating outstanding at the announcement date of the transaction are classified as rated. Investment (non-investment) grade ratings are above or equal to (below) Baa3. The first (second) row reports the mean (median) CAR classified by acquirer rating status and rating category. The final row lists the number of observations for each sub-group. CAR denotes the cumulative abnormal return over a three-day event window (-1, +1) around the announcement date. It is the calculated as the realized stock return minus the return of the market portfolio, where the market portfolio is given by the equal-weighted portfolio from CRSP. Mean and median values are tested using two-sided t-tests and Wilcoxon T tests, respectively. The difference tests are based on t-test for equality in means and Wilcoxon sign-rank test for equality of medians.

All	Rated		Not rated	Difference tests		
	Investment grade	Non-investment grade				
(1)	(2)	(3)	(4)	(3)-(2)	(4)-(2)	(4)-(3)
1.837[a]	-0.284[c]	1.267[a]	2.233[a]	1.551[a]	2.517[a]	0.966[a]
[0.672][a]	[-0.143][a]	[0.783][a]	[0.844][a]	[0.926][a]	[0.987][a]	[0.061]
n=11547	n=1234	n=1512	n=8801			

[a] statistical significance at the 1% level.
[b] statistical significance at the 5% level.
[c] statistical significance at the 10% level.

Table 4 Announcement cumulative return sorted by rating notch

The sample comprises of all domestic U.S. mergers and acquisitions between 1980 and 2004 listed on SDC where the publicly traded acquiring firm ends up with all the shares of a public, private, or subsidiary target. Further selection criteria are that the transaction is completed, the transaction value is greater than $1 million and at least 1% of acquirer`s market value, and that the transaction is completed in less than 1000 days. Acquirer that have a Moody`s estimated senior unsecured rating outstanding at the announcement date of the transaction are classified as rated. CAR denotes the cumulative abnormal return over a three-day event window (-1, +1) around the announcement date. It is the calculated as the realized stock return minus the return of the market portfolio, where the market portfolio is given by the equal-weighted portfolio from CRSP. The first row lists the rating notch according to Moody`s, the final row lists the number of observations for each rating notch.

	CAR		
Rating notch	Mean	Median	N
Aaa	-1.202	-0.707	44
Aa1	-1.101	-0.693	15
Aa2	-0.374	-0.356	55
Aa3	-0.694	-0.609	46
A1	-0.055	-0.263	122
A2	0.090	0.081	265
A3	-1.184	-0.750	187
Baa1	0.275	0.439	164
Baa2	0.690	0.512	166
Baa3	-1.083	-0.566	170
Ba1	0.110	0.299	213
Ba2	0.867	0.441	198
Ba3	1.397	0.743	405
B1	1.379	0.719	388
B2	1.800	1.872	152
B3	2.635	1.165	111
Caa1	-1.444	0.263	21
Caa2	3.824	2.656	18
Caa3	2.642	0.491	6
Ca	-	-	-
C	-	-	-
All	0.570	0.306	2746

Table 5 Summary statistics of firm characteristics sorted by acquirer rating status

The sample comprises of all domestic U.S. mergers and acquisitions between 1980 and 2004 listed on SDC where the publicly traded acquiring firm ends up with all the shares of a public, private, or subsidiary target. Further selection criteria are that the transaction is completed, the transaction value is greater than $1 million and at least 1% of acquirer`s market value, and that the transaction is completed in less than 1000 days. Acquirer that have a Moody`s estimated senior unsecured rating outstanding at the announcement date of the transaction are classified as rated. The variables are defined as follows. Transaction value is value of transaction ($mil) as reported by SDC. Assets (book) is total assets (Compustat Item #6); Equity value (market) is number of common shares outstanding times price (Item #25 *Item 199); Conglomerate is a dummy variable equal to one for acquisitions of firms in another two-digit SIC code than the acquirer; Competed deals is a dummy variable equal to one if the deal is classified as competed by SDC; Days to completion is the difference between effective and announcement date; Liquidity index is calculated as the value of all transactions for $1 million or more reported by SDC for each year and two-digit SIC code divided by the total book value of assets of all Compustat firms in the same two-digit SIC code and year; Cash (Equity) in Payment is a dummy variable equal to one if part of consideration offered is cash (common stock); Pure cash (equity) deals is a dummy variable equal to one if the consideration offered consists only of cash (common stock); Hostile deals is a dummy variable equal to one if the attitude of the deal is classified as hostile by SDC; Tender offer is a dummy variable equal to one if the acquisition is a tender offer; Public target, private target, or subsidiary target is a dummy variable equal to one if the target is a public firm, a private firm, or subsidiary; Assets (market) is total assets minus book value of equity plus market value of equity (Item #6- Item 60+ Item #25+Item #199); Debt is the sum of short-term and long-term debt (Item #9 + Item #34); Tobin`s Q is assets (market) divided by assets (book) ((Item #6- Item 60+ Item #25+Item #199)/Item #6); OCF is sales less cost of goods sold, selling, general, and administrative costs and changes in working capital (Item #12 –Item #41 –Item #189 –Item #180), finally Cash is Cash and short-term investments (Item #1). Values are expressed in mean [median]. The third column contains the difference in the means and medians as well as the statistical significance of the difference in means. The difference test is based on t-test for equality in means.

	Rated (1)	Non rated (2)	Difference (2)-(1)
Panel A: Deal characteristics			
Transaction value	748.59 [122]	138.29 [19.98]	-610.30[a]
Transaction value /assets (book)	.2512 [.0944]	.5731 [.1823]	.3219[a]
Transaction value / equity value (market)	.3616 [.1088]	.4769 [.1322]	.1153[b]
Competed deals	.0002	0	-.0002
Days to completion	85.95 [62]	60.84 [37]	-25.11[a]
Liquidity index	.0234 .0117	.0252 .0123	.0018[b]
Cash in payment (%)	77.79	69.38	-8.41[a]
Equity in payment (%)	35.90	49.71	13.81[a]
Pure cash deals (%)	46.90	32.46	-14.44[a]
Pure equity deals (%)	13.83	21.86	8.03[a]
Hostile deals (%)	1.14	0.31	-0.83[a]
Tender offer (%)	10.26	3.15	-7.11[a]

Conglomerate deals (%)	40.71	41.52	0.81
Public target (%)	29.09	14.62	-14.47[a]
Private target (%)	29.89	55.78	25.89[a]
Subsidiary target (%)	41.00	29.58	-11.42[a]
Panel B: Acquirer characteristics			
Assets (book)	3467.77 [1248.53]	456.40 [107.58]	-2219.24[a]
Assets (market)	6707.89 [1884.65]	1073.69 [214.83]	4823.24[a]
Equity value (market)	4488.83 [1037.04]	843.55 [152.91]	-3645.28[a]
Debt/assets (market)	.43 [.41]	.26 [.21]	-.17[a]
Tobin`s Q	1.77 [1.48]	2.63 [1.78]	.86[a]
OCF/ assets (market)	.08 [.08]	.04 [.06]	-.04[a]
Cash/ assets (book)	.09 [.04]	.20 [.12]	.11[a]

[a] statistical significance at the 1% level.
[b] statistical significance at the 5% level.
[c] statistical significance at the 10% level.

Table 6 Cross-sectional regression analysis of announcement abnormal returns

The sample comprises of all domestic U.S. mergers and acquisitions between 1980 and 2004 listed on SDC where the publicly traded acquiring firm ends up with all the shares of a public, private, or subsidiary target. Further selection criteria are that the transaction is completed, the transaction value is greater than $1 million and at least 1% of acquirer`s market value, and that the transaction is completed in less than 1000 days. The dependent variable is the cumulative abnormal return of the acquirer over a 3 day period surrounding the announcement date. The explanatory variables are defined as follows. Transaction value is value of transaction ($mil) as reported by SDC, the small dummy is equal to 1 if the acquirer has a market capitalization equal to or less than the market capitalization of the 25th percentile of NYSE firms in the same year,; Conglomerate is a dummy variable equal to one for acquisitions of firms in another two-digit SIC code than the acquirer; Competed deals is a dummy variable equal to one if the deal is classified as competed by SDC; Days to completion is the difference between effective and announcement date; Liquidity index is calculated as the value of all transactions for $1 million or more reported by SDC for each year and two-digit SIC code divided by the total book value of assets of all Compustat firms in the same two-digit SIC code and year; Cash (Equity) in Payment is a dummy variable equal to one if part of consideration offered is cash (common stock); Pure cash (equity) deals is a dummy variable equal to one if the consideration offered consists only of cash (common stock); Hostile deals is a dummy variable equal to one if the attitude of the deal is classified as hostile by SDC; Tender offer is a dummy variable equal to one if the acquisition is a tender offer; Public target, private target, or subsidiary target is a dummy variable equal to one if the target is a public firm, a private firm, or subsidiary; Assets (market) is total assets minus book value of equity plus market value of equity (Item #6- Item 60+ Item #25+Item #199); Debt is the sum of short-term and long-term debt (Item #9 + Item #34); Tobin`s Q is assets (market) divided by assets (book) ((Item #6- Item 60+ Item #25+Item #199)/Item #6); finally OCF is sales less cost of goods sold, selling, general, and administrative costs and changes in working capital (Item #12 –Item #41 –Item #189 –Item #180). Acquirer that have a Moody`s estimated senior unsecured rating outstanding at announcement date of the transaction are classified as rated. P-values are reported below each coefficient. Results are obtained using robust standard errors.

	(1) (OLS)	(2) (Panel)	(3) (IV)	(4) (OLS)
Intercept	0.0227[c] *0.076*	0.0218[a] *0.000*	0.0186 *0.141*	0.090 *0.527*
Private target	-0.007[a] *0.006*	-0.0003 *0.906*	-0.0087[a] *0.002*	-0.0025 *0.388*
Public target	-0.0346[a] *0.000*	-0.0356[a] *0.000*	-0.0356[a] *0.000*	-0.0240[a] *0.000*
Rated	-0.0097[a] *0.000*	-0.0082[c] *0.057*	-0.0315[a] *0.000*	
Aaa/Aa				-0.0110[c] *0.064*
A				-0.0092[b] *0.043*
Baa				-0.0082[c] *0.076*
Ba				-0.0055 *0.163*
Caa				-0.0004 *0.978*
Small	0.0149[a] *0.000*	0.0158[a] *0.000*	0.0086[a] *0.009*	0.0030 *0.457*

Conglomerate deal	0.0005 *0.802*	-0.0028 *0.289*	0.0013 *0.548*	-0.0040 *0.112*
Tender offer	0.0199[a] *0.000*	0.0211[a] *0.001*	0.0285[a] *0.000*	0.0038 *0.462*
Hostile deal	-0.0043 *0.638*	-0.0006[c] *0.966*	-0.0077 *0.414*	0.0029 *0.767*
Competed deal	-0.0524[c] *0.087*	-0.0291 *0.672*	-0.0640[c] *0.055*	
Pure equity deals	0.0009 *0.802*	0.0010 *0.752*	0.0012 *0.739*	-0.0060 *0.144*
Pure cash deals	-0.0031 *0.165*	0.000 *0.877*	-0.0026 *0.257*	0.0033 *0.235*
Transaction value / equity value	0.0015 *0.165*	0.0021[b] *0.017*	0.0014 *0.170*	0.0080[a] *0.000*
Tobin`s Q	-0.0009[c] *0.051*	-0.0005 *0.301*	-0.0005 *0.103*	-0.0002 *0.794*
Debt/assets (market)	0.0243[a] *0.000*	-0.0004 *0.968*	0.0444[a] *0.000*	0.0050 *0.564*
Liquidity index	-0.0049 *0.816*	0.0092 *0.735*	-0.0136 *0.546*	-0.0031 *0.919*
OCF/ assets (market)	-0.0718[a] *0.000*	-0.0533[a] *0.003*	-0.0699[a] *0.000*	-0.0013 *0.964*
Year fixed effects	Yes		Yes	Yes
Firm fixed effects		Yes		
N	11547	11373	11516	2746
Adjusted-R^2	0.037	0.029	0.0352	0.0799

[a]Statistical significance at the 1% level.
[b]Statistical significance at the 5% level.
[c]Statistical significance at the 10% level.

Table 7 Post acquisition change in capital structure of acquirer

The sample comprises of all domestic U.S. mergers and acquisitions between 1980 and 2004 listed on SDC where the publicly traded acquiring firm ends up with all the shares of a public, private, or subsidiary target. Further selection criteria are that the transaction is completed, the transaction value is greater than $1 million and at least 1% of acquirer`s market value, and that the transaction is completed in less than 1000 days. The table presents cross-sectional regression of the change in leverage of acquiring firms on deal control variables. The dependent variable in Model 1 (2) is absolute (relative) change in leverage. The absolute change in leverage is measured as the fiscal year end leverage in the year following the completion minus the fiscal year end leverage in the year prior to the announcement date of the transaction. The relative change in leverage is absolute change in leverage divided by the fiscal year end leverage in the year prior to the announcement date of the transaction Leverage is market-leverage measured as total debt over the sum of total debt, liquidation value of preferred stocks and the market value of common stock (Item #9- Item 34)/(Item #9+Item #34+ Item #10+Item #25* Item #199). Control variables are as described in Table 6. P-values are reported below each coefficient. Results are obtained using robust standard errors.

	(1)	(2)
Intercept	0.0692[a]	25.762[b]
	0.000	*0.018*
Private target	-0.0059[c]	-10.632
	0.095	*0.308*
Public target	-0.0056	-11.790
	0.253	*0.403*
Rated	-0.0215[a]	-17.868[c]
	0.000	*0.000*
Conglomerate deal	0.0003	0.3664
	0.903	*0.962*
Tender offer	0.0323[a]	-0.2052
	0.000	*0.983*
Hostile deal	0.0334[c]	0.1640
	0.062	*0.934*
Competed deal	0.0481	-16.869[b]
	0.360	*0.011*
Pure equity deal	-0.0475[a]	13.204
	0.000	*0.449*
Pure cash deal	-0.0073[b]	-5.696
	0.033	*0.332*
Relative size	0.0012	-1.945[c]
	0.036	*0.079*
Liquidity index	0.1063[a]	37.882
	0.002	*0.505*
N	10964	9684
Adjusted-R^2	0.0221	0.0135

[a]Statistical significance at the 1% level.
[b]Statistical significance at the 5% level.
[c]Statistical significance at the 10% level.

Table 8 Calendar-time post announcement performance sorted by acquirer rating status

The sample comprises of all domestic U.S. mergers and acquisitions between 1980 and 2004 listed on SDC where the publicly traded acquiring firm ends up with all the shares of a public, private, or subsidiary target. Further selection criteria are that the transaction is completed, the transaction value is greater than $1 million and at least 1% of acquirer`s market value, and that the transaction is completed in less than 1000 days. The table presents the intercept of a calendar-time portfolio regression, which measures the abnormal performance (in percentage). The dependent variable is the excess return of an equally-weighted portfolio over the 1-month Treasury-bill rate. The portfolio contains all sample firms that have completed the event within the previous 6, 12, 18, 24, or 36 months, respectively. The portfolio is rebalanced every month to drop the firms that have reached the end of their holding periods and add all firms that have just completed a transaction. Repeated observations are dropped for each observation. Also months with less than 10 observations are dropped. The independent variables are the 4 Fama-French factors. Acquirer that have a Moody`s estimated senior unsecured rating outstanding at announcement date of the transaction are classified as rated. p-values are reported below each coefficient.

Holding period	All (1)	Rated (2)	Not rated (3)
6-month	0.0005	0.0004	0.0013
	0.717	*0.802*	*0.447*
12-month	0.0009	-0.0014	0.0017
	0.463	*0.306*	*0.243*
18-month	0.0007	-0.0017	0.0015
	0.495	*0.141*	*0.267*
24-month	0.0008	-0.0006	0.0012
	0.419	*0.589*	*0.326*
36-month	0.0014	-0.0006	0.0018
	0.157	*0.537*	*0.114*

[a]Statistical significance at the 1% level.
[b]Statistical significance at the 5% level.
[c]Statistical significance at the 10% level.

Table 9 Synergy gains sorted by acquirer rating status

The sample comprises of all domestic U.S. mergers and acquisitions between 1980 and 2004 listed on SDC where the publicly traded acquiring firm ends up with all the shares of a public, private, or subsidiary target. Further selection criteria are that the transaction is completed, the transaction value is greater than $1 million and at least 1% of acquirer`s market value, and that the transaction is completed in less than 1000 days. The table reports mean synergy gains to the combined firm as calculated by the method of Bradley et al (1988). The total percentage synergy gains, CARC, is calculated as follows. We first form an event time value-weighted portfolios of the return of the target and acquirer for each transaction, where the weights are given by the market value of equity 2 days before the announcement of the deal. Than market model residuals are calculated for each transaction in the time period (-1, +1), where the estimation window spans the time period from (-205, +6). The CARC is calculated as the sum of the market model residuals in the event window (-1, +1). The $CARC is calculated as the sum of the market value of equity for the target and the acquirer times the CARC for the respective transaction. CARC is in percent, $CARC is in millions of dollar. p-values are reported below each coefficient. The difference tests are based on t-test for equality in means

	All	Rated	Not-rated	Difference
	(1)	(2)	(3)	(3)-(2)
CARC	2.139[a]	1.983[a]	2.245[a]	0.262
	0.000	*0.000*	*0.000*	*0.536*
$CARC	-41.750[c]	-62.764	-44.221	-18.543
	0.067	*0.255*	*0.129*	*0.709*
N	1729	702	1027	

[a]Statistical significance at the 1% level.
[b]Statistical significance at the 5% level.
[c]Statistical significance at the 10% level.

Table 10 Cross-sectional regression analysis of announcement abnormal returns sorted by acquirers q

The sample comprises of all domestic U.S. mergers and acquisitions between 1980 and 2004 listed on SDC where the publicly traded acquiring firm ends up with all the shares of a public, private, or subsidiary target. Further selection criteria are that the transaction is completed, the transaction value is greater than $1 million and at least 1% of acquirer`s market value, and that the transaction is completed in less than 1000 days. The dependent variable is the cumulative abnormal return of the acquirer over a 3 day period surrounding the announcement date. Model 1 (2) reports the results for acquirer in the lowest (highest) 33% Tobin`s Q quantiles. The explanatory variables are defined as follows. Transaction value is value of transaction ($mil) as reported by SDC, the small dummy is equal to 1 if the acquirer has a market capitalization equal to or less than the market capitalization of the 25th percentile of NYSE firms in the same year,; Conglomerate is a dummy variable equal to one for acquisitions of firms in another two-digit SIC code than the acquirer; Competed deals is a dummy variable equal to one if the deal is classified as competed by SDC; Days to completion is the difference between effective and announcement date; Liquidity index is calculated as the value of all transactions for $1 million or more reported by SDC for each year and two-digit SIC code divided by the total book value of assets of all Compustat firms in the same two-digit SIC code and year; Cash (Equity) in Payment is a dummy variable equal to one if part of consideration offered is cash (common stock); Pure cash (equity) deals is a dummy variable equal to one if the consideration offered consists only of cash (common stock); Hostile deals is a dummy variable equal to one if the attitude of the deal is classified as hostile by SDC; Tender offer is a dummy variable equal to one if the acquisition is a tender offer; Public target, private target, or subsidiary target is a dummy variable equal to one if the target is a public firm, a private firm, or subsidiary; Assets (market) is total assets minus book value of equity plus market value of equity (Item #6- Item 60+ Item #25+Item #199); Debt is the sum of short-term and long-term debt (Item #9 + Item #34); Tobin`s Q is assets (market) divided by assets (book) ((Item #6- Item 60+ Item #25+Item #199)/Item #6); finally OCF is sales less cost of goods sold, selling, general, and administrative costs and changes in working capital (Item #12 –Item #41 –Item #189 –Item #180). Acquirer that have a Moody`s estimated senior unsecured rating outstanding at announcement date of the transaction are classified as rated. P-values are reported below each coefficient. Results are obtained using robust standard errors.

	(1)	(2)
Intercept	-0.0142[c]	0.0630[b]
	0.099	*0.011*
Private target	-0.0108[c]	-0.0015
	0.055	*0.722*
Public target	-0.0540[a]	-0.0174[b]
	0.000	*0.016*
Rated	-0.0136[a]	-0.0074[b]
	0.006	*0.033*
Small	-0.0000	0.0211[a]
	0.988	*0.000*
Conglomerate deal	0.0079[c]	-0.0021
	0.081	*0.587*
Tender offer	0.0414[a]	-0.0005
	0.000	*0.945*
Hostile deal	-0.0393	0.0157
	0.241	*0.171*
Competed deal		-0.0474
		0.219
Pure equity deals	-0.0062	-0.0093
	0.234	*0.334*

Pure cash deals	-0.0068 *0.124*	-0.0049 *0.168*
Transaction value /	0.0152 *0.375*	0.0010 *0.178*
Tobin`s Q	-0.0000 *0.974*	-0.0399[b] *0.01*
Debt/assets (market)	0.0626[a] *0.008*	-0.0015 *0.902*
Liquidity index	0.0167 *0.681*	-0.0126 *0.716*
OCF/ assets (market)	-0.0612 *0.130*	-0.0614 *0.000*
Year fixed effects	Yes	Yes
N	3927	3810
Adjusted-R^2	0.0451	0.053

[a]Statistical significance at the 1% level.
[b]Statistical significance at the 5% level.
[c]Statistical significance at the 10% level.

Table 11 Information leakage sorted by sorted by acquirer rating status

The sample comprises of all domestic U.S. mergers and acquisitions between 1980 and 2004 listed on SDC where the publicly traded acquiring firm ends up with all the shares of a public, private, or subsidiary target. Further selection criteria are that the transaction is completed, the transaction value is greater than $1 million and at least 1% of acquirer`s market value, and that the transaction is completed in less than 1000 days. Acquirer that have a Moody`s estimated senior unsecured rating outstanding at announcement date of the transaction are classified as rated. CAR denotes the cumulative abnormal return over a 22-day event window (-25,-3) around the announcement date. It is the calculated as the realized stock return minus the return of the market portfolio, where the market portfolio is given by the equal-weighted portfolio from CRSP. The first (second) row reports the mean (median). The final row lists the number of observations for each sub-group. Mean and median values are tested using two-sided t-tests and Wilcoxon T tests, respectively. The difference tests are based on t-test for equality in means and Wilcoxon sign-rank test for equality of medians.

CAR	All (1)	Rated (2)	Not rated (3)	Difference (3)-(2)
	.901[a] [0.230][a] n=11547	0.361[c] [0.220] n=2746	1.070[a] [0.250][a] n=8801	0.709 [0.030]

[a] Statistical significance at the 1% level.
[b] Statistical significance at the 5% level.
[c] Statistical significance at the 10% level.

Table 12 Determinants of bidder premium and the probability of success

The sample comprises of all domestic U.S. mergers and acquisitions between 1980 and 2004 listed on SDC where the publicly traded acquiring firm gains control of a public target or attempts to gain acquirer a public target. Further selection criteria are that the transaction value is greater than $1 million and at least 1% of acquirer`s market value.. Model (1) presents cross-sectional regression of the premium, defined as the aggregate value of cash, stock, and other securities offered by the bidder to the target shareholder divided by the market value of equity of the target 50 days prior to the acquisition announcement. Only observations with premium value between 0 and 2 are used in the regression. In model (2) the dependent variable is equal to 1 if the takeover attempt is classified as completed by SDC and zero otherwise. The explanatory variables are defined as follows. Pure cash deals is a dummy variable equal to one if the consideration offered consists only of cash; Toehold is a dummy variable equal to one if the acquirer owns at least 5 percent of the target shares and zero otherwise; rated is a dummy variable equal to one if the acquirer has a Moody`s estimated senior unsecured rating outstanding at announcement date of the transaction; Equity value (market) is number of common shares outstanding times price (Item #25 *Item 199); Tender offer is a variable equal to one if the acquisition is a tender offer; Hostile deals is a dummy variable equal to one if the attitude of the deal is classified as hostile by SDC; Conglomerate is a dummy variable equal to one for acquisitions of firms in another two-digit SIC code than the acquirer; Tobin`s Q is assets (market) divided by assets (book) ((Item #6- Item 60+ Item #25+Item #199)/Item #6); finally Competed deals is a variable equal to one if the deal is classified as competed by SDC.P-values are reported below each coefficient. Results are obtained using robust standard errors.

	(1) Pr(success)	(2) Premium
Intercept	0.3370	1.9011[a]
	0.646	*0.000*
Premium	0.470[a]	
	0.000	
Pure cash deals	-1.541[a]	-0.1910[a]
	0.000	*0.027*
Toehold	0.1936	-0.1196[a]
	0.321	*0.006*
Rated	0.2357[b]	-0.0279
	0.034	*0.205*
ln(Equity Market) target	-0.5520[a]	-0.2754[a]
	0.000	*0.000*
ln(Equity Market) acquirer	0.5459[a]	0.0958[a]
	0.000	*0.000*
Tender offer	1.3434[a]	0.1564[a]
	0.000	*0.000*
Hostile deal	-2.0184[a]	0.0813[c]
	0.000	*0.071*
Conglomerate	-0.0789	0.0310
	0.433	*0.121*
Tobins Q target	0.0359	-0.0198[a]
	0.230	*0.0003*
Tobins Q acquirer	0.00471	-0.0000
	0.809	*0.984*
Competed	-2.0305[c]	0.3457[c]
	0.099	*0.086*
Year fixed effects	Yes	Yes
N	3510	3510
R^2	0.233	0.305

[a]Statistical significance at the 1% level.
[b]Statistical significance at the 5% level.
[c]Statistical significance at the 10% level.

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Table A1. First stage of instrument variable regression

The sample comprises of all domestic U.S. mergers and acquisitions between 1980 and 2004 listed on SDC where the publicly traded acquiring firm ends up with all the shares of a public, private, or subsidiary target. Further selection criteria are that the transaction is completed, the transaction value is greater than $1 million and at least 1% of acquirer`s market value, and that the transaction is completed in less than 1000 days. The dependent variable is equal to one if the acquirer has a Moody`s estimated senior unsecured rating outstanding at announcement date of the transaction. The instruments are defined as follows. Firm trades on the NYSE is a variable equal to one is the shares trades on the NYSE; Firm is in the S&P 500 is a variable equal to one if the firm is member of the S&P 500; Percent rated industry is log of one plus the percentage of firms in the same three-digit SIC industry that have a bond rating in Compustat; Percent rated industry (weighted) is log of one plus the percentage of firms in the same three-digit SIC industry that have a bond rating in Compustat weighted by the market value of assets; finally Firm is young is a variable equal to one if the firm`s age is less than or equal to three years. All other instruments are defined as in Table 6. P-values are reported below each coefficient.

	(1)
Intercept	-0.0183
	0.662
Firm trades on the NYSE	0.1378[a]
	0.000
Firm is in S&P 500	0.2669[a]
	0.000
Percent rated industry	0.6392[a]
	0.000
Percent rated industry (weighted)	-0.1261[a]
	0.000
Firm is young	0.0079
	0.319
Private target	-0.0334[a]
	0.000
Public target	0.0261[b]
	0.018
Small	-0.1755[a]
	0.000
Conglomerate deal	-0.0167[b]
	0.010
Tender offer	-0.0157
	0.367
Hostile deal	0.0802[b]
	0.067
Competed deal	-0.3092
	0.367

Pure equity deals	0.0022 *0.804*
Pure cash deals	0.0058 *0.449*
Transaction value / equity value (market)	-0.0012 *0.132*
Tobin`s Q	-0.0001 *0.850*
Debt/assets (market)	0.5565[a] *0.000*
Liquidity index	0.0207 *0.795*
OCF/ assets (market)	-0.0177 *0.553*
Year fixed effects	Yes
N	11516
Adjusted-R^2	0.359
F-value ($\beta_{instruments}$=0)	170.75

[a]Statistical significance at the 1% level.
[b]Statistical significance at the 5% level.
[c]Statistical significance at the 10% level.

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