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Abstract

We examine the valuation impact of bank-financed M&As and the loan contracts used to finance M&A transactions, focusing on the difference between bank-dependent acquirers and other acquirers. We find that bank-financed deals have higher acquirer's CARs relative to other cash M&A deals, but this certification effect exists only for bank-dependent acquirers. Despite bank-dependent acquirers being more susceptible to hold-up, banks do not impose higher loan pricing or more stringent non-price terms on them. After completion of the acquisition, bank-dependent acquirers retain the M&A financing banks for a much larger share of their borrowing needs, suggesting the importance of repeat business for lack of hold-up. Our findings highlight the positive aspects of bank dependence and the importance of implicit contracting for the lack of hold-up in lending markets.

JEL classification: G21, G33
Keywords: Bank Dependence, M&A, Bank Financing, Creditor Monitoring

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1 Introduction

A large literature on financial intermediation has focused on the specialness of bank financing relative to other sources of capital. Early studies that establish benefits of bank financing focus on valuation effects (James, 1987), while later studies examine lending terms (Petersen and Rajan, 1994; Berger and Udell, 1995). A more recent set of papers examine the impact of bank financing on borrowers' investment decisions (Chava and Roberts, 2008; Nini, Smith, and Sufi, 2012; Ozelge and Saunders, 2012). These studies depart from the traditional view that creditors are passive bystanders who play an active role only during default or bankruptcy and highlight the importance of creditor governance prior to extreme distress events as well.

All of the above studies focus on creditor governance after an event that triggers some degree of creditor control – typically, a covenant violation. However, several theoretical models posit an ex-ante impact of creditors, especially banks, on investment policy (Diamond, 1991; Chemmanur and Fulghieri, 1994). Do banks have an ex-ante impact on the investment behavior of borrowers in a normal financial condition, i.e., when a borrower is fully compliant with all obligations of its debt contracts?

We examine this question in detail, focusing on bank financing of M&As that had partial or full cash payment – a situation where banks do not have any additional control rights, yet one where an acquiring firm's need for external funds to finance an M&A transaction may allow the financing bank to influence this decision. A key element of our analysis is the examination of the differences between bank-dependent and non-bank-dependent acquiring firms.

We use the M&A setting to study the impact of bank dependence on account of three considerations. First, M&As are significant corporate investments that have a substantial impact on firm value. Bank financing can play a certification role (Diamond, 1984) on

the quality of the M&As and create value for shareholders and debtholders. Second, by focusing on bank-dependent firms, we examine a set of firms where the potential benefits of certification are the greatest, yet, one where the potential for banks to hold up the acquiring firms is also the greatest. Third, by focusing on the universe of M&As paid in cash, the disclosure of which is mandatory, timely, and uniform by regulation, we circumvent some of the criticisms raised in Maskara and Mullineaux (2011).[1]

Our main empirical finding is that we document a certification benefit in the form of a significantly positive cumulative abnormal return (CAR) to acquiring firms when banks finance their M&A transactions. This positive valuation benefit exists only for bank-dependent acquirers and not for non-bank-dependent acquirers. Cross-sectional analyses of differences in the certification benefits based on the bank's informational advantage, its skin in the game, and transactional versus information-based loans, suggest that this result derives from the informational advantage of banks. We also use an instrumental variable approach to account for the possible endogeneity of bank financing and continue to find the positive certification benefits for bank-dependent firms. Thus, our study provides evidence of a less-explored positive side of bank dependence for borrowers, i.e., banks' informational advantage in certifying borrowers' decision making for M&A investments.

The second focus of our empirical analysis is to examine the impact of bank dependence on contract terms of M&A loans. While bank financing is valuable to bank-dependent acquirers, such acquirers are also more susceptible to the hold-up problem due to a higher cost of external financing (Santos and Winton, 2008; Ioannidou and Ongena, 2010). In the M&A setting, there is an additional channel for hold-up for bank dependent firms – banks can also charge higher loan rates, anticipating the certification benefits that would accrue to bank-dependent firms.

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[1]Maskara and Mullineaux (2011) argue that the benefits of bank financing documented in earlier loan announcement event studies were overstated and subject to selective disclosure bias.

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Contrary to expectation, M&A loans to bank-dependent firms do not have higher loan pricing. In addition, there is no consistent evidence for banks imposing more restrictive non-price loan terms such as a higher likelihood of collateral, higher covenants, or lower maturity. Thus, bank-dependent and non-bank-dependent firms do not differ in either the price or the non-price terms of loan contracts, which is inconsistent with the hold-up of bank-dependent borrowers.

Why don't banks hold up their borrowers even when it is feasible to do so? In our setting, the importance of implicit contracting between the bank and borrowers is the principal explanation for the lack of hold-up. We find that bank-dependent firms provide the M&A financing bank with a significantly higher share of their loan business in the post-acquisition period. This is a novel result – empirical evidence on implicit contracting in the context of lending is rare, notwithstanding its central role in the theory of bank-borrower relationships (Boot, Greenbaum, and Thakor, 1993; Boot, 2000). In fact, opposite to our results, Li, Lu, and Srinivasan (2019) find that banks reduce the volume of financing for their borrowers in distress, suggesting violation of the implicit contract by relationship banks to provide funding during borrower distress. In contrast, we document a situation where both the bank and borrowers engage in implicit contracting – banks certify M&A decisions for bank-dependent borrowers without holding them up, while these borrowers grant more future business to the banks.[2] We provide novel evidence for a positive effect of bank dependence – both for borrowing acquirers and for banks providing the M&A financing.

Our M&A sample is derived from the SDC Platinum M&A database and the sample of loans is obtained from the Thomson Reuters LPC Dealscan database. The M&A sample

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[2]A related study by Bharath, Dahiya, Saunders, and Srinivasan (2007) finds that lending relationships lead to more future loan business for relationship banks. Our finding differs as the M&A loan need not be provided by relationship banks.

consists of 8449 completed transactions that were announced between 1990 and 2017 by U.S. public acquirers for which the method of payment was partly or fully in cash. Among these transactions, 1909 M&A deals are classified as bank-financed (BF) transactions.[3] A loan used to finance a given M&A transaction is classified as an M&A loan. We use two proxies for bank dependence based on the availability of a firm's credit rating (Faulkender and Petersen, 2006; Harford and Uysal, 2014) and firms' size (Bharath, Dahiya, Saunders, and Srinivasan, 2011). Firms that do not have a rating or are small (relative to the sample median) in asset size are classified as bank-dependent.

Consistent with the certification role of banks, we find that bank financing is associated with an increase in the acquirer's CAR between 0.95% and 0.99%. This finding is robust to controlling for a complete set of firm and deal characteristics, as well as firm fixed effects (Golubov, Yawson, and Zhang, 2015). Further analysis indicates that the higher CAR associated with bank financing accrues only to bank-dependent (small or unrated) acquirers and these firms experience an increase in return between 1.10% and 1.54%. Rated firms or large firms do not exhibit any positive valuation effects of bank financing.

We conduct a set of additional checks to test for the robustness of the main finding. First, an alternative factor that could result in the above valuation effect is that small or unrated firms may maintain strong relationships with their banks. Monitoring by these relationship banks may lead to higher quality acquisitions by bank-dependent firms. However, the BF effect that we identify is not impacted by the inclusion of prior bank relationships in the CAR regression. Second, the result is also robust to the estimation of the effect using alternative benchmarks. In our baseline, we measure the effects of BF relative to all other cash deals. If we instead use the bond-financed M&A deals as the benchmark, the certification effects are much larger with greater CARs – 2.90% for small firms

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[3]Section 2.2 provides the details of the method used for this classification.

and 3.36% for unrated firms. Third, we also find that long-run returns (Billett, Flannery, and Garfinkel, 2006) do not differ across bank-dependent acquirers and other acquirers. Furthermore, long-run operating performance is better for bank-dependent acquirers.

Unobservable time-varying factors that affect a firm's acquisition quality may also affect its bank's financing decision. For instance, acquirers with more capable managers are more likely to engage in higher value-creating M&A transactions. If such managers have a higher chance of obtaining bank financing, our estimates of the impact of bank financing may be subject to an omitted variable bias. Such a bias, however, is unlikely to be the main driver for our results. Better managers should be able to signal their quality by bank financing, regardless of the acquiring firm's bank dependence status. Hence, all firms with better managers should be able to benefit from the certification effect of bank financing, which is contrary to our finding that this benefit accrues to bank-dependent firms only. Nonetheless, to formally account for the potential endogeneity of bank financing, we employ two instrumental variables (IVs) for bank financing.

As the first IV, we use the average distance between the acquiring firm's headquarter and the banks' headquarters. A shorter distance has been shown to positively affect the likelihood of bank financing (Petersen and Rajan, 2002; Degryse and Ongena, 2005; Agarwal and Hauswald, 2010). As the second IV, we use the lending concentration of the acquirer's relationship bank in the acquirer's industry in the year prior to the acquisition. Due to risk management objectives as well as regulation on concentration risk, banks seek to diversify their lending portfolios to minimize credit-risk exposure to any specific industry (Pennacchi, 1988). Therefore, it is reasonable to expect that a relationship bank that has a higher lending concentration in the industry prior to the acquisition is less likely to finance an additional M&A deal in the same industry. Since banks are not privy to the firms' future M&A decisions, the pre-deal lending concentration should not be directly related to the

M&A performance. Therefore, both IVs are likely to satisfy both the relevance condition in that they affect the likelihood of bank financing, and the exclusion condition in that they are not directly related to the valuation impact of the M&As after accounting for year fixed effects. Consistent with the OLS regression estimates, our IV regression estimates show that bank-dependent acquirers have higher CARs. This suggests that the positive certification effect of bank financing for bank-dependent firms holds after accounting for the potential endogeneity of bank financing.[4]

Next, we turn our attention to loan contract terms for M&A loans, focusing on the difference between loans to bank-dependent acquirers and other acquirers. Using the spread of a loan as the measure of its price, we do not find any significant difference in loan pricing between bank-dependent and non-bank-dependent acquirers.[5] This shows that banks do not charge higher interest rates for bank-dependent borrowers, which is inconsistent with hold-up, as one should expect higher pricing of M&A loans to these acquirers.

We examine other non-price terms of the loan – the likelihood of collateralization, the number of covenants, and loan maturity. The motivation for examining these additional variables is that banks may provide highly restrictive non-price terms by increasing collateral requirement, shortening maturity, or increasing covenants. All of these would have the effect of reducing the bank's credit risk while making the loan. Thus, evidence for hold-up may manifest in non-price terms as opposed to the price of the loan. The empirical tests do not find any support for this either. There is no robust effect of bank dependence on the likelihood of collateral, loan maturity, or the number of covenants. In fact, in many specifications, M&A loans to bank-dependent firms have a lower likelihood of collateralization or greater maturity relative to other M&A loans, which implies that M&A loans to

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[4]We note the difficulty in justifying the exclusion conditions from an economic point of view. These IV results should thus be interpreted with caution.

[5]As an alternative, we use the total borrowing cost of a loan as defined in Berg, Saunders, and Steffen (2016) and continue to find a similar result.

bank-dependent firms may have less restrictive non-price terms.

Lastly, we investigate the role of implicit contracting as an explanation for the lack of hold-up. In our setting, banks may choose not to hold up the bank-dependent acquirers, and in turn, these bank-dependent acquirers commit to providing a greater share of their post-acquisition loan business to the M&A financing banks. Consistent with this, we find that the share of total lending that goes to the M&A financing banks increases significantly in the year after the completion of the acquisition. Specifically, the share increases by 9 (12) percentage points for small (unrated) firms. This is a large economic effect -– a M&A financing bank that has a pre-deal market share of 20% would experience an increase in its share to 32% if the acquirer is unrated, which is an increase of 60% relative to the pre-deal share. In contrast, M&A financing banks do not experience any increase in market share when the acquirer is large or rated.

Our paper is closely related to two prior studies. Bharadwaj and Shivdasani (2003) focus on a sample of 115 all-cash tender offers and find a positive valuation effect of bank financing for those transactions that are fully financed by a bank. We demonstrate that the positive valuation effect of bank financing is also present for other M&A transactions that are paid for either fully or partially in cash, apart from all-cash tender offers. Further, we do not require that the bank finance the entire M&A transaction. This suggests that the involvement of a bank also matters for the certification effect, especially for bank-dependent firms. Harford and Uysal (2014) examine the impact of bond market access in an M&A context. They demonstrate that acquisitions by rated firms have lower returns than acquisitions by unrated firms. They explain this result as a manifestation of underinvestment by unrated firms, regardless of whether or not cash is used to pay for the acquisition. In contrast, we investigate the impact of bank financing in M&A transactions that use cash payment. Our study points to an alternate mechanism for higher returns for

unrated acquirers on account of bank certification for a sub-sample of cash deals.[6]

Moreover, relative to both of the above studies, we are able to exploit the rich data on loan contracts in bank financing of M&As. This allows us to demonstrate the lack of hold-up, which is not the focus of the above two studies. Our novel finding is that banks do not hold up bank-dependent firms and this is driven by implicit contracting.

Our paper makes contributions to different strands of literature. First, it contributes to the literature on the impact of a firm's bank dependence. Chava and Purnanandam (2011) demonstrate valuation losses for bank-dependent firms when their main bank suffered losses as a result of the Russian Crisis. Chodorow-Reich (2014) examines the impact of bank dependence on employment. Lo (2014) finds that deterioration of a bank's health leads to changes in its dependent borrowers' accounting disclosure policies. Unlike all the above papers, we focus on a sample where neither the bank nor the borrower is financially distressed and document a positive side of bank dependence in the certification of corporate M&A decisions and its impact on loan contracts.

Second, we contribute to the understanding of the net benefit of bank financing. One set of papers has focused on the borrowers' stock price reactions to bank lending announcements and suggested positive value-added by banks (e.g., James (1987); Billett, Flannery, and Garfinkel (2006); Li and Ongena (2015); Ongena and Roscovan (2013)). Using a meta-analysis of over 100 studies in different countries, Kysucky and Norden (2016) suggest that bank lending relationships are beneficial to borrowers due to increased future lending volumes and lower loan rates. Our study shows that banks may add value by impacting borrowers' corporate investment decisions, and more importantly, such a positive impact occurs only in bank-dependent firms.

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[6]This is also broadly consistent with the theoretical model in Vladimirov (2015) who shows that the source of cash in takeovers may affect the takeover premium and argues that financially constrained bidders may overbid less. However, his model treats all sources of debt financing identically, whereas we focus on differences in borrowers with access to public versus bank debt.

Third, several studies highlight the cost of bank financing to borrowers due to hold-up by banks.[7] In theory, bank-dependent firms are more susceptible to the hold-up problem than non-bank-dependent firms due to their lack of alternative financing sources. Our evidence in the context of M&A financing does not support this. Implicit contracting in the form of potential future business acts as a countervailing factor to hold-up by banks. This calls for a better understanding of when and how banks may choose to capitalize on their information monopoly. To the best of our knowledge, our study is among the first in the literature to highlight the positive side of banks' information monopoly for bank-dependent firms and the role of implicit contracting in minimizing hold-up.

2 Sample selection, variable construction, and summary statistics

2.1 Sample construction

Our sample of M&A transactions is obtained from the Securities Data Company's (SDC) US Mergers and Acquisitions Database. We select domestic M&As with an announcement date between January 1, 1990, and December 31, 2017. We consider only those transactions in which an acquiring firm owned 100% of the target after the deal but controlled less than 50% of the target before the announcement date. We exclude financial firms (SIC Code 6000-6999) and utility firms (SIC Code 4900-4949). We further require that (1) the transaction value is greater than US$ 1 million, (2) the transaction value is worth at least 1% of the acquirer's market value of equity measured on the 11th trading day prior to the announcement date, (3) the target firm is a public U.S. firm or a non-public subsidiary of a U.S. firm, and (4) the acquirer has annual financial statement information available from Compustat and stock return data (210 trading days prior to acquisition an-

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[7]See Santos and Winton (2008), Hale and Santos (2009), Ioannidou and Ongena (2010) and Schenone (2010).

nouncements) from the Center for Research in Security Prices (CRSP). Finally, we restrict our sample of M&As to deals paid for either partly or fully in cash. These data screening criteria result in a final sample of 8449 M&A transactions.

We use the Thomson Financial Dealscan database (Dealscan) to obtain information on bank loans.[8] We use the matching file provided by Michael Roberts on his website in mapping Dealscan borrowers to CRSP and Compustat. As the period of our sample extends beyond the sample matched by Michael Roberts, we supplement this matching file with additional hand matching of firms in the two data sets.

2.2 Definitions of key variables

Next, we provide more details on the key variables used. Appendix A has definitions of all variables used in this paper.

2.2.1 Bank financing and Bank Dependence

To identify whether an acquisition is funded by bank loans, we use the Dealscan database to obtain information on all loans taken by the acquirer in the loan event window, which starts one year prior to the acquisition announcement date and ends on its completion date. Thus, for example, if an M&A transaction is announced on June 30, 2010, and completed on September 30, 2010, the loan event window will be from July 1, 2009, to September 30, 2010. We classify an M&A transaction as bank-financed ("BF" transaction) if the acquiring firm takes any loans in the loan event window and the given loan's primary or secondary purpose is stated to be M&A financing. A loan that corresponds to a bank-financed M&A transaction is defined as an M&A loan. If the acquirer

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[8]It is important to note lenders in this market include commercial banks and non-bank financial institutions. For example, investment banks as well as other institutional investors are also active in the syndicated loan market and serve as lead lenders. Thus, the term 'bank' refers to any lender in the LPC data, except in one robustness test, where non-banks and banks are analyzed separately. An implication of the above definition is that a bank loan refers to any loan that occurs in the Dealscan database.

has no loans in the loan event window that have either primary or secondary purpose as M&A financing, the given M&A transaction is classified as a non-bank-financed (NBF) transaction. Using this definition, 1909 M&A transactions are classified as bank-financed, and the remaining transactions are financed through alternate sources of cash. There are a total of 3140 M&A loans associated with the 1909 BF transactions, with some M&As being financed by multiple loans.

We use two indicator measures for the acquiring firm's bank dependence -– Small, which takes a value of one for a firm whose size (book value of total assets) is lower than the sample median and zero otherwise (Bharath, Dahiya, Saunders, and Srinivasan, 2011), and Not Rated, which takes a value of one if the firm does not have a credit rating as of the M&A transaction announcement date and zero otherwise (Faulkender and Petersen, 2006; Harford and Uysal, 2014).

2.2.2   Acquirers' performance

Our principal measure of acquisition performance is the acquirer's cumulative abnormal returns (CAR3) over the three-day event window (-1,+1) around the M&A announcement date estimated using the market model, with the CRSP equally-weighted index returns as the benchmark. The market model parameters are estimated over the 200 trading days from event day -210 to event day -11, where event day 0 is the deal announcement date.[9]

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[9]Under the definition of BF transactions, a transaction could be classified as BF based on an M&A loan that is finalized after the announcement date and before the completion date of the merger. Thus, one might be concerned whether the market, at the announcement of the M&A deals, has any information about such M&A loans, and thus the CAR measure can capture the valuation effect of bank financing in those cases. We believe it is not a serious issue because in practice, while some M&A loans may have an origination date after the M&A deal announcement date, information on the provision of bank financing is typically disclosed by the acquiring firm in the merge announcement itself. To confirm this, we took a random sample of 50 BF transactions with the M&A loans originated after the M&A announcement and searched the Edgar disclosures of the acquirers' 8-K forms for this set of transactions. We found that in 44 transactions, i.e., 88% of the random sample, some details of the bank financing were disclosed in the M&A announcements. In several sampled cases, the press releases and 8-K documents suggest the loan commitment was contingent on the merger transaction being completed and the loans had a starting date that coincided with or right before the completion date of the merger. Thus, even though such loans are

Additionally, motivated by Billett, Flannery, and Garfinkel (2006), who find long-run underperformance of borrowers following bank loan announcements, we measure an acquiring firm's long-run performance using six-month and one-year buy-and-hold abnormal stock returns (BHAR6M and BHAR1Y) after the M&A completion date. We follow Barber, Lyon, and Tsai (1999) and estimate the BHARs as the return difference of the acquirer relative to its matched control firm based on size, book-to-market, and prior six-month returns.

As a second measure of long-run performance, we also use the change in an acquiring firm's operating performance, which is defined as the difference in earnings before interest and taxes (EBIT), scaled by total assets in the year before the M&A transaction(EBIT_diff).

2.2.3 Loan contract terms

We use the All-in-Drawn spread (*Spread*) from Dealscan as the measure of the price of a loan. We use the log of a loan's maturity in months as the measure of the duration of a loan (*Ln (Maturity)*). We define a dummy variable (*Collateral*) that takes the value of one if the loan is classified as secured and zero otherwise. We construct an index that sums up all the covenants contained in the loan (*All Cov*), and two sub-indices that sum up the total number of financial covenants (*Fin Cov*) and general covenants (*Gen Cov*), respectively.

2.3 Summary statistics

Panel A of Table 1 presents summary statistics for certain M&A characteristics across BF and NBF transactions. Our choice of variables is motivated by prior papers studying

made after the M&A announcement date, their presence is very often announced along with the merger, and therefore, their effect should be captured in the announcement return. To the extent that there is possibly no information on the bank loan funding in some rare sampled cases, this would suggest that the measured BF effect for bank-dependent firms may be underestimated as of the announcement date.

M&As. Relative size, which may positively impact acquiring firm returns (Asquith, Bruner, and Mullins, 1983), is significantly higher for BF transactions relative to NBF transactions. Diversifying mergers, which are more likely to destroy value (Morck, Shleifer, and Vishny, 1990), are less likely to be BF transactions. Acquisitions of private targets, which have a positive impact on acquiring firm returns (Fuller, Netter, and Stegemoller, 2002), are more commonly NBF transactions. Likewise, tender offers, which are associated with lower acquirer returns (Bradley, 1980), are more often BF transactions. Overall, these univariate comparisons suggest that it is important to control for these deal characteristics while examining the difference in acquiring firm returns between BF and NBF deals.

Next, in Panel B of Table 1, we further stratify the BF transactions into two groups based on bank dependence. Small or unrated firms are more likely to acquire private targets, and their acquisitions are more likely to be diversifying relative to large or rated firms.

Panel C of Table 1 presents univariate comparisons of BF and NBF transactions for CARs, BHAR1Y, and EBIT_diff. On average, both types of transactions exhibit positive CARs.[10] However, both the mean and median CARs for the BF transactions are significantly higher than the corresponding values for the NBF transactions, which suggests that the evidence presented in Bharadwaj and Shivdasani (2003) for all-cash tender offers also extends to other forms of M&A transactions.

Panel D shows that the difference in the mean (median) CARs for BF transactions between small and large firms is 2.15% (1.35%). The difference in the change in EBIT between small and large firms is also economically and statistically significant. Panel E shows that the differences between rated and unrated firms in BF transactions have a similar pattern to the differences between small and large firms. It is important to note

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[10]This is consistent with the finding in the literature on cash deals. Recall that all the M&As in our sample are partially or completely financed by cash.

that the difference in CAR for BF transactions by unrated versus rated firms is much larger (1.62% mean value, 1.33% median value) than the difference in CAR of BF and NBF transactions.

Overall, these univariate results suggest that bank dependence has a first-order impact on acquiring firm returns even within the sample of M&A's financed by banks. Moreover, the difference in CARs between BF and NBF transactions is not reversed in the long run as the difference in BHARs is not statistically significant.

Next, in Panel A of Table 2, we examine the differences in acquiring firm characteristics of BF and NBF firms. BF firms are much smaller than NBF firms, which may result in larger gains from their acquisitions (Moeller, Schlingemann, and Stulz, 2005). By contrast, a larger proportion of NBF firms are not rated, implying that they are less likely to overpay for acquisitions (Harford and Uysal, 2014). BF firms have significantly higher leverage, which may be a result of their better access to bank financing. In Panel B of Table 2, we further stratify the BF transactions into two groups based on bank dependence. Relative to large or rated firms, small or unrated firms have higher Tobin's q, larger stock volatility, and lower leverage and analyst coverage.

Panel A of Table 3 shows the univariate comparisons of loan contract terms (spread, maturity, collateral, and covenant) for M&A loans versus other loans in the Dealscan database. M&A loans have a 15 basis point higher spread relative to other loans. M&A loans are about 73% larger than other loans ($657 million relative to $380 million). This is expected as M&A transactions are likely to be larger than typical corporate investments. M&A loans are 19% more likely to have a collateral requirement and have about 3.4 more covenants per loan (6.2 covenants for M&A loans versus 2.8 for other loans).

In Panel B of Table 3, we stratify the loan contract terms of M&A loans based on bank dependence. The average spread difference between small (unrated) and large (rated) firms

is 36.6 (12.7) basis points. Similarly, M&A loans to small (unrated) firms have 2.15 (0.50) more covenants than M&A loans to large (rated) firms. Small (unrated) firms are 27% (9.7%) more likely to have a collateral requirement than large (rated) firms. Not surprisingly, the average loan facility to small (unrated) firms is smaller by $936 ($808) million relative to large (rated) firms. These differences are not surprising given the large differences in the credit risk of bank-dependent acquirers and non-bank-dependent acquirers. It also suggests that differences in variables that impact credit risk and loan pricing would need to be controlled for in the multivariate analysis of loan contract terms.

3 Analysis of Bidders Performance

We now proceed to the multivariate analysis of bidder performance. First, we examine bidder CARs to find if the univariate differences of announcement returns of bank-dependent firms versus non-bank-dependent firms continue to exist after controlling for the deal and acquiring firm characteristics that impact CARs. Subsequently, we examine if our estimates of the effect of bank financing are biased by the potential endogeneity of bank financing. Lastly, we examine long-run bidder performance to understand if there is any reversal in performance in the long term.

3.1 Baseline results

As mentioned earlier, our primary dependent variable of interest is the acquiring firm's CAR over a three-day (-1 to +1) window around the announcement date of the deal. The main independent variables of interest are BF and its interactions with bank dependence (Small/Not Rated). The control variables, motivated by prior studies, include target ownership status, a dummy for diversifying acquisition, the relative size of the acquisition, as well as bidder characteristics such as firm size, Tobin's q, book leverage ratio, and profitability, etc. In all regressions, we control for year fixed effects and report standard errors

clustered at the firm level.

Table 4 presents the results of this regression. To account for the impact of any time-invariant industry-specific or firm-specific factors, we also apply industry fixed effects (the first three columns) or firm fixed effects (the last three columns) to establish the robustness of our findings (Golubov, Yawson, and Zhang, 2015). Column 1 shows that the coefficient on the main variable of interest (BF) is 0.99, suggesting that bank financing has a positive valuation effect of 0.99% on CARs. In comparison, Bharadwaj and Shivdasani (2003) find a valuation effect of bank financing for all-cash tender offers of 4% in the (-1, 1) event window; however, this is for a sample of tender offers that are entirely financed by banks. Our finding suggests that the certification benefit of bank financing extends to acquisition transactions other than tender offers and to transactions that are partially financed by banks.

In columns 2 and 3 of Table 4, we include the interactions between BF and the two measures of bank dependence – Small and Not Rated. We find that the positive effect of bank financing is concentrated solely in acquisitions undertaken by small firms and unrated firms. The positive impact of bank financing is 1.16% for small firms and 1.18% for unrated firms. Further, the coefficient on BF itself becomes insignificant, which suggests that bank financing yields no certification benefits for large or rated firms. The differences in CARs between bank-dependent and non-bank-dependent acquirers are highly significant. In columns 4-6, we present the results with firm fixed effects applied in estimation in addition to year fixed effects. The results remain similar. This suggests that firm-specific differences between bank-dependent and non-bank-dependent firms do not impact our findings. In unreported robustness tests, we conduct the tests with two different measurement windows to measure the CAR:(-2, +2) and (-1, 0). The results are qualitatively similar for these alternative windows. This evidence indicates that the certification benefits of bank

financing accrue only to bank-dependent firms.

3.2 Confounding effects

3.2.1 Size of the M&A loan relative to that of the deal

In some cases, the size of a stated M&A loan is greater than that of the deal, and thus the loan proceeds might be partially used for other purposes as well. To test if this impacts the results, we restrict the sample of M&A deals to those with a smaller loan size than the M&A deal value, where the loan proceeds are more likely to have been used solely to finance the M&A transaction. We find that our results continue to hold for this subsample (Panel A of Table 5).

3.2.2 Certification of existing banking relationship?

Another potential confounding effect is that the BF effect for bank-dependent firms might be due to the certification of an existing banking relationship rather than the certification of the bank financing for the M&A deal. Small or unrated firms may be more likely to maintain strong relationships with banks. These pre-existing relationship banks may monitor the quality of the M&A deal which may result in a positive valuation effect.

To account for this, we need to classify firms into those that have a relationship bank and those that do not. Following prior literature, we define a relationship bank of an acquiring firm as the bank that has been retained as the lead lender in more than 50% of the loans to the acquirer in the past three years, starting four years prior and ending one year prior to the announcement date of the M&A deal.[11] To illustrate this, consider a deal announced on June 30, 2010. For this deal, we would measure the existing acquirer-bank relationship based on the period between June 30, 2006, and June 30, 2009. We

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[11] Recall that the one-year period prior to the announcement date of the M&A deal is included in the loan event window that is used to classify M&A loans. If this time period were used for measuring relationships, M&A financing banks may mechanically be treated as relationship banks. Hence, we measure the relationship bank as of one year prior to the announcement date.

create a dummy labeled as "Rel_prior", which equals one if the acquirer has a relationship bank during the designated three-year period discussed above and zero otherwise. We add "Rel_prior" and its interaction with the bank dependence measures. If the finding of a BF effect for bank-dependent firms is driven by past lending relationships, the coefficients on the interaction terms of Rel_prior and Small or Not Rated dummy should be significantly positive, and the coefficients on the interaction terms of BF and Small or Not Rated dummy should become insignificant.

The results, presented in Panel B of Table 5, show that this is not the case. The coefficients on the interactions between Rel_prior and bank dependence measures are not significant, either economically or statistically. In contrast, the coefficients on the original interactions of interest remain positive and statistically significant, and their magnitudes are very close to those obtained in the baseline specification in Table 4. Hence, we can conclude that the difference in CAR of bank-dependent acquirers and other acquirers in BF transactions is not due to the certification of prior bank relationships.[12]

3.2.3 Other sources of financing

The previous baseline estimation (Table 4) examines the impact of bank financing relative to all other sources of financing as a whole. That is, our baseline estimation treats the impact of other sources of cash identically. Do the certification benefits of bank financing to bank-dependent firms exist relative to other sources of cash financing when they are considered individually? Are there other sources of cash financing that also have positive certification effects? Answering these questions would help us better understand the uniqueness of bank financing.

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[12]Note that the existence of a prior relationship bank is distinct from the financing of an M&A loan by a relationship bank. A prior relationship could exist even for deals that are not bank financed. Likewise, a bank financing the M&A deal could either be a relationship bank or an outside bank. In a subsequent section, we analyze the difference between M&A transactions that are financed by relationship and outside banks.

To study this, we collect data on all public debt and equity issuances by the acquiring firm in the same time window used for bank financing, i.e., from one year prior to the deal announcement date to the deal completion date. Any debt or equity issuance during this period is considered to have financed the M&A transaction. A transaction with no capital raising occurred during this period is considered to be financed by internal cash.

Panel A of Table 6 tabulates the number of deals funded by different sources of financing, either individually or in combination with other sources of financing. Internal cash is the most prevalent method to pay for M&A's, followed by bank financing alone (BF_only) and its combination with public debt (BF and BondF) or equity issuance (BF and SeoF) as well as with these two sources together (BF, BondF, and SeoF). There are also some deals financed with public debt alone (BondF_only) and its combination with equity issuance (BondF and SeoF). The remaining deals are financed with equity issuance alone (SeoF_only).

Panel B of Table 6 reestimates the benchmark models in Table 4 with different sources of financing being separated, instead of being pooled into one category. In columns 1 and 2, we include two dummy variables for public debt financing (BondF) and equity financing (SeoF) as well as their interactions with Small or Not Rated, respectively. Thus, we compare deals financed by banks (either solely or partially) with deals financed by public debt and by equity, with the benchmark being deals financed by internal cash. This change does not impact the main finding that bank financing has a positive valuation effect for bank-dependent firms. The insignificant coefficients on both BondF and SeoF and their respective interactions with the bank dependence measures suggest that the impact of the source of financing, either through equity or bond issuance, does not differ significantly from that of internal cash.[13] In columns 3 and 4, to avoid the potentially confounding

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[13]In untabulated results, we include the interactions of the bank-dependence measures with BondF_only and SeoF_only and find that the coefficients on the interactions are not significant.

effects of transactions funded by both banks and other sources of financing, we estimate the impact of bank loans alone (BF_only, i.e., deals financed solely by banks) relative to all other sources of financing. Here again, we do not find any substantial change in the results.

In columns 5 and 6, we restrict the sample to only those M&A transactions where either bank loans or bond issuances are used to fund the M&A. In this case, the counter-factual relative to which the BF effect is estimated is bond financing. For this sub-sample, we find a significantly stronger effect of BF for bank-dependent firms, with a valuation effect of 2.90% for small firms and 3.36% for unrated firms. In untabulated results, we conduct a similar test for the sub-sample funded only by bank loans or equity offerings and find a positive effect of BF for bank-dependent firms in this sub-sample as well. Overall, the results of this table show that the baseline result is robust to a different classification of the baseline relative to which the BF effect for bank-dependent acquirers is estimated as well as possible certification effects of other sources of cash financing.

3.3 Endogeneity of bank financing

Next, we examine the potential impact of the endogeneity of bank financing on our results. For instance, it is possible that banks are more willing to lend to firms with more capable managers, who make better acquisition decisions. As a result, both bank financing and the valuation effect of bank financing are related to an omitted variable – managerial ability. However, better managers should be able to signal their quality by bank financing, regardless of the firms' bank dependence status. Hence, we believe such an omitted variable bias is unlikely to be a serious concern in our setting. Likewise, it is possible that banks are attracted by better acquisitions, assuming that such acquisitions lead to better loan outcomes, and thus are willing to provide financing. This suggests that the direction of causation goes from better acquisitions to BF. However, such reverse

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causality should be applicable for all types of firms regardless of their bank dependence status. Thus, our finding of a positive CAR effect solely for bank-dependent acquirers is unlikely to be driven by reverse causality too.

Nonetheless, to account for the potential endogeneity of bank financing, we reestimate the benchmark model with a two-stage instrumental variable estimation approach. We use two instrument variables (IVs) for bank financing, for which both the relevance and exclusion conditions are satisfied. Following Agarwal and Hauswald (2010), we use the natural logarithm of the average geographical distance (Ln(distance)) between the acquirer's headquarter city and headquarter cities of all banks in the LPC database. A firm is expected to be more likely to obtain bank financing when it is located closer to banks, and its location should not directly impact its M&A valuation.

The second IV that we use is the lending concentration of the acquiring firm's relationship bank in the acquiring firm's industry (Ind_Loan_Con). For each M&A transaction, we compute the relationship bank's lending concentration as the ratio of its lending to the acquiring firm's industry to its total lending in the period beginning two years prior and ending one year prior to the announcement date of the M&A deal.[14] Normally, banks diversify their lending portfolios to minimize their credit-risk exposure to any specific industry. The literature has shown that credit-risk diversification is one of the main reasons for loan sales by the lead bank (e.g., Pennacchi (1988) and Demsetz (2000)). In a similar spirit, Ivashina (2009) constructs an instrument for the lead bank's share in a syndicated loan based on this credit-risk diversification motive.

We expect that a relationship bank with a high lending concentration in the acquirer's industry prior to the acquisition is less likely to finance the M&A deal. This is because a bank with a high lending concentration is closer to the regulatory limit on industry-

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[14]The reason for choosing this window is that we need to exclude the loan event window used to classify M&A loans to avoid a mechanical correlation between lending concentration and M&A loans.

level exposure. In addition, the diversification benefit from an additional loan in the same industry is likely to be low.[15] It is extremely implausible for a bank to adjust its industry level exposure in response to a single M&A transaction that will possibly occur one to two years later. Thus, the exclusion condition should be satisfied.

We first conduct the two-stage regression analysis with the two IVs used jointly – Ln(Distance) and Ind_Loan_Con. Table 7 presents the results. If BF is endogenous, the interaction terms (BF x Small and BF x Not Rated) are also endogenous. Following Wooldridge (2010), we construct interaction terms between the IVs and bank-dependent measures as additional IVs for BF x Small and BF x Not Rated, respectively. Columns 1 and 2 report the first-stage regression results for BF and BF x Small, respectively. The coefficients on both the IVs have the expected sign. A greater distance or a higher lending concentration makes it less likely for the acquirer to secure bank financing. The coefficients on the IVs are statistically significant and the F-values for the first-stage estimation are 12.75 and 22.09, respectively. The first-stage estimations also pass the over-identification tests and weak-instrument tests (results not tabulated for brevity). Column 3 reports the second-stage regression results. Consistent with the findings in the OLS regression, we find that the coefficient on the instrumented BF itself is statistically insignificant, and the coefficient on the instrumented BF x Small is positive and statistically significant.

Columns 4 and 5 report the first-stage regression results for BF and BF x Not Rated, respectively. Similar to Columns 1 and 2, the coefficients on the IVs have the expected signs and the first-stage estimation F-values are 13.19 and 19.57, respectively. These first-

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[15]In cases where an acquirer does not have a relationship bank, we set the value of this IV to be the 95th percentile of the Ind_Loan_Con for our sample. The rationale for choosing this high percentile value is that acquiring firms without a relationship bank would find it hard to obtain bank financing. Likewise, an acquiring firm with a relationship bank that has high exposure to the acquirer's industry would also find it hard to obtain financing from its relationship bank. Thus, we treat the likelihood of obtaining financing from an outside bank to be similar to the likelihood of obtaining financing from a highly constrained relationship bank. The results are robust to variations in the percentile value that we use for non-relationship borrowers as long as the value used corresponds to a high percentile.

stage regressions also pass the over-identification tests and weak-instrument tests. Column 6 reports the results from the second-stage regression. The coefficient on the instrumented BF itself is statistically insignificant, and the coefficient on the instrumented BF x Not Rated is positive and statistically significant.

In untabulated results, we conduct the two-stage regression analysis with Ind_Loan_Con alone. The results are qualitatively similar. Overall, the two-stage IV regressions yield findings that are consistent with those obtained from the OLS regressions. Hence, the effect of bank financing that we have documented is not likely to be driven by omitted variables or reverse causality. However, we note the difficulty in verifying the satisfaction of the exclusion conditions associated with IVs strictly, an issue prevalent in the two-stage IV regression analysis. Our results should thus be interpreted with caution.

3.4 Long-run bidder performance

Thus far, we have analyzed short-run abnormal returns and found that bank-dependent firms experience significant certification benefits of bank financing, and this is robust to a variety of alternative specifications. One remaining concern is whether the valuation effect of bank financing that we have documented reverses in the long run. Billett, Flannery, and Garfinkel (2006) find that borrowers experience long-run underperformance following bank loan announcements. To address this concern, we test whether bank-financed acquirers exhibit underperformance in the long run. We use both stock and operating performance measures to gauge a firm's long-run performance following its M&A deal – BHAR and change in EBIT.

Table 8 presents the results of our regression analyses on the long-run performance of BF and NBF transactions. We do not find any evidence of return reversal in the year following M&As, both for the one-year and six-month BHARs. The interactions of the BF with the Small or Not Rated dummy are insignificant for BHAR6M and BHAR1Y. Thus,

the results on the reversal of returns of bank loan announcements documented by Billett, Flannery, and Garfinkel (2006) are not found for the case of M&A loans.[16]

In examining operating performance, we find that bank-dependent acquirers experience a significant improvement in EBIT after the M&A. This can be seen from the positive and significant estimated coefficients on the interactions of BF with the Small or Not Rated dummy when the dependent variable is the change in EBIT. The improved operating performance is consistent with the positive announcement effect of bank financing for bank-dependent acquirers.

4   Contract terms for M&A loans

We have documented a significantly positive value impact of bank financing on M&As for bank-dependent firms only. In this section, we examine whether bank-dependent firms are subject to hold-up in M&A loans in terms of loan pricing. In the M&A setting, in addition to the usual underlying reasons for the hold-up, which arise on account of lack of alternative financing sources, there is an additional channel through which bank-dependent acquirers may be even more willing to pay higher interest rates. Specifically, if bank-dependent acquirers and the M&A financing bank anticipate the certification benefits, the bank can demand a higher loan rate to extract some of the value addition that accrues to bank-dependent firms. In addition to the loan rates, we also examine if there are more restrictive non-price terms (more stringent collateral requirement, lower maturity, and a higher number of covenants) for bank-dependent borrowers. More restrictive non-price terms protect the bank in the event of distress, allowing it to call the loan earlier and protecting it with a higher recovery rate in the event of default. To the extent that the

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[16]The empirical results are not fully comparable. They examine post-announcement returns for all loans (including loans other than M&A loans) from the announcement date of the loan. Here, we examine post-announcement returns after the M&A completion date, which can differ from the loan announcement date by over one year in some cases.

M&A financing banks engage in such behavior, this is equivalent to reducing credit risk without reducing the interest rate, which is an alternate subtle way of holding up bank-dependent acquirers.

4.1 M&A loans in general

Before examining the effect of bank dependence, we first examine the differences between M&A loans and other corporate loans in terms of loan contract terms. To the extent that M&As require a higher degree of monitoring, we should expect to see more stringent non-price terms – more covenants, higher likelihood of collateral, and shorter maturity (Rajan and Winton, 1995; Goyal and Wang, 2013). Since some M&A transactions are accompanied by large changes in capital structure, there may be an increase in the spread to account for possible leverage increases. On the other hand, since the size of the acquiring firm increases which may give rise to diversification benefits in terms of lower cash flow volatility, there may be lower credit risk resulting in a lower spread.

We include several firm-level characteristics to control for their impact on loan terms. Larger, more profitable, and less leveraged firms are likely to borrow from banks on better terms. As lenders have a higher recovery rate from tangible assets in the event of default, we expect firms with more tangible assets to secure better terms. Cash flow volatility is used to proxy for a firm's earnings risk and is expected to be positively correlated with the cost of debt. Because the collateral requirement and covenant conditions imposed can have a substantial impact on loan pricing and maturity, we control for them in the loan spread and maturity regressions. We also include loan size, which captures economies of scale in bank lending and is thus expected to be inversely related to the loan rate. Performance pricing is a dummy variable that equals one when a loan contract has performance pricing as a feature, which is meant to account for the possibility that lenders price loans differently

depending on whether they have performance pricing clauses.[17]

Macroeconomic conditions can also affect debt pricing. Prior papers suggest that credit spread and term spread are good proxies for macroeconomic conditions and help explain stock and bond returns (Chen, Roll, and Ross, 1986; Fama and French, 1993). In particular, credit spreads tend to widen during recessions and shrink during expansions (Collin-Dufresne, Goldstein, and Martin, 2001) because investors require more compensation for increased default risk during bad economic times. High (low) term spreads are frequently used as an indicator of good (bad) economic prospects. We define the credit spread as the difference between the yields of BAA- and AAA-rated corporate bonds and the term spread as the difference between the yields of 10-year treasury notes and 2-year treasury notes. Both of these variables are measured as of one month before the loan origination date. Finally, we include both loan type and loan purpose fixed effects in the regressions, as these may be associated with different levels of risk. To ensure that our inference is not confounded by unobservable firm-specific factors, we also employ firm fixed effects in the estimation.

Table 9 presents the results of our regression analyses on the loan contract terms. We find that banks charge a 6.6 basis point higher spread for M&A loans, suggesting that there is a net increase in credit risk on account of an M&A transaction relative to other purposes for loan usage. In addition, banks are more likely to require collateral, impose more covenants, and shorten the maturity of M&A loans. The results provide strong support for the model of Rajan and Winton (1995), which suggests that banks would increase covenants and collateral for loans that require greater monitoring. Given the large changes – both operational and financial – that are likely to follow an M&A transaction,

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[17]The performance pricing feature increases the loan interest rate in the event of adverse shocks to the borrower's credit risk. This feature has been shown to have a significant effect on the loan interest rate (Asquith, Beatty, and Weber, 2005).

such loans are likely to require a higher degree of monitoring.[18]

The effects of other control variables are similar to those documented in the literature (Graham, Li, and Qiu, 2008). Non-price terms of the loan contract are equally important in explaining the cross-sectional variation in loan spreads. In addition, the performance pricing dummy is negative and significant in explaining the variation in loan spreads.

4.2 M&A loans for bank-dependent firms

Next, we examine differences in loan contract terms for M&A loans to bank-dependent firms and non-bank-dependent firms. To test this, we augment the model specification in Table 9 by interacting the M&A loan dummy with bank dependence (Small/Not Rated). If banks hold up bank-dependent firms, we expect the coefficients on the interaction terms to be significantly positive for loan pricing.

Panels A1-A2 of Table 10 present the results. We do not find higher loan pricing or systematically more stringent non-price contract terms for M&A loans to bank-dependent firms relative to M&A loans to non-bank-dependent firms. Instead, small firms are granted loans with a longer maturity (despite a higher likelihood of collateral requirement and a higher number of covenants). The benefits to unrated firms are more significant – the loans granted to them have a longer maturity and fewer financial covenants, but do not have a higher price and are not more likely to have a collateral requirement. That is, it appears that bank-dependent firms can enjoy more favorable non-price loan terms, but not at the expense of higher loan pricing.

To provide further evidence that bank-dependent firms are not exploited through more

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[18]These results also hold if we limit our sample to M&A loans and loans with other stated investment purposes, including project finance, capital expenditure, equipment purchase, and purchase hardware. Other common loan purposes include corporate purpose, debt repayment, working capital, commercial paper backup, recapitalization, stock buyback, ship finance, and real estate, etc. Thus, we continue to find that the loan contract terms of M&A loans are significantly tighter relative to loans for other investment purposes. Results are available on request.

stringent contract terms, we focus on a subsample of firms whose bank dependence is arguably more severe within the set of bank-dependent firms. It is logical to assume that firms that are both unrated and small are the most bank-dependent within the set of firms that are either unrated or small or both. To test the impact of bank financing on this most constrained set of firms, we create a new bank dependence indicator variable for a firm that is both small and unrated (labeled as "SmallNR"). For the overall sample of 3140 M&A loans for which loan spread information is available, 1012 M&A loans are taken by SmallNR acquirers. We repeat the analysis of loan contract terms with this additional bank dependence measure. The results, presented in Panel A3 of Table 10, are similar to those in Panel A2 where unrated is used as a bank dependence measure. That is, firms that are likely to be the most bank-dependent do not pay more for their M&A loans and also do not have more stringent non-price terms, but instead can enjoy longer loan maturity.[19]

To see whether banks do not charge higher spreads but choose to be compensated with more fees, we also investigate the total borrowing cost for borrowers (Berg, Saunders, and Steffen, 2016). The results, presented in Panel B, show that there is no significant difference in total borrowing cost between bank-dependent and non-bank-dependent acquirers for all three measures of bank dependence (Small, Not Rated, and SmallNR).

Lastly, we also compare loan contract terms of bank-dependent and non-bank-dependent acquirers within the subsample of bank loans financing the M&A deals. Panels C1-C3 of Table 10 present the results. For loan spreads, the estimated coefficients on all measures of bank dependence are consistently insignificant. For other non-price terms, the estimated coefficients on them are either insignificant or have conflicting signs across these measures, and thus the effect of bank dependence is not conclusive. Overall, these findings show the

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[19]In untabulated results, we also repeat the analysis of announcement CARs with this additional bank dependence measure and find that the positive impact of bank financing is 1.24 % for this subset of small and unrated firms, which is larger in magnitude than the BF effect both for small and for unrated firms.

robustness of the evidence that is inconsistent with the hold-up.

5   Implicit Contracts and Future Lending

The evidence in the previous section throws up a puzzle. Why is there no hold-up despite bank-dependent firms deriving large certification benefits from bank financing? We investigate the role of implicit contracting, in the form of future loan business given to the M&A financing bank by the acquiring firm, as a potential explanation for the lack of hold-up.

To measure the increase in the future loan business, we examine the change in the share of borrowing from the M&A financing bank for each acquirer between the pre-deal and post-deal period. We define the pre-deal period for an M&A transaction as a period starting two years prior to the M&A announcement date and ending one year prior to the M&A announcement date. We define the post-deal period (labeled "PostMA') as the year after the completion of the M&A transaction. Thus, for an M&A whose announcement date is June 30, 2010, and the completion date is 30, 2010, its pre-deal period will be from June 30, 2008, to June 30, 2009, and its post-deal period will be from Oct 1, 2010, to September 30, 2011. For both the pre-deal and post-deal periods, we define the lending share of the M&A financing bank as the ratio of the total dollar value of loans from the M&A financing bank to the total dollar value of loans taken by the acquiring firm in the given period.[20] If implicit contracting occurs in this setting, the lending share of the M&A financing bank should increase in the post-deal period, and this increase should be larger for bank-dependent firms.

Panel A of Table 11 presents the results of the estimation using lending share as the de-

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[20]As with the relationship measure, the pre-deal period has to exclude the loan event window used for defining M&A loans to avoid a mechanical correlation between pre-deal lending share and M&A loan financing.

pendent variable. In column 1, the significantly positive coefficient of the PostMA dummy suggests that a bank involved in M&A lending experiences an increase of eight percentage points in lending share after the M&A deal. It is important to note that this is a very large economic increase – a bank that provides M&A financing and has a 20% loan share in the pre-deal period increases its loan share to 28% in the post-deal period, an increase of 40% from the value of its pre-deal share. Even for the benchmark case where a relationship bank has a 50% loan share in the pre-deal period, this coefficient suggests a 16% increase in its loan share in the post-deal period. This effect becomes even more significant economically once other controls of firm characteristics are included in column 5.

In columns 2 to 4, we examine the interaction effect of the PostMA dummy and the three bank-dependence dummies. In all three cases, there is a large incremental effect of these interactions – 9.1, 12, and 12 percentage points for small, unrated, and SmallNR firms, respectively. This finding continues to hold with control variables included, as can be seen in columns 6 to 8. Note that the coefficients on PostMA are insignificant in columns 5 and 7, suggesting that the increase in future business occurs only in unrated firms. Overall, the increase in loan share to a M&A financing bank in the post-deal period is significantly more in bank-dependent acquirers. For brevity, we do not tabulate the coefficients on the firm characteristics.

An empirical challenge in interpreting the above findings is whether the increase in the loan share by banks that provide the M&A financing is due to their informational advantage, accumulated particularly through the M&A financing. One might be concerned that this is due to other factors about these banks that are not observable to us. To address this potential confounding issue, we conduct a placebo test as follows. Specifically, we create the placebo dates by shifting the actual M&A announcement date and completion date by three years forward and then define the Placebo dummy accordingly. We then rerun the

regressions in Panel A with the Placebo dummy being used here. The results, presented in Panel B of Table 11, show that the interaction terms of the placebo dummy with any of Small, Not Rated, and SmallNR dummies are not significant. The results are qualitatively the same if we make the placebo dates three years before the actual dates. Therefore, our finding of the post-deal increase in lending by the M&A financing banks to bank-dependent acquirers is unlikely to be an artificial result driven by unobservable factors.

Overall, the results suggest that an implicit contract between the M&A financing banks and bank-dependent acquirers enables the banks to acquire more future business opportunities. This is one important channel that can explain the lack of hold-up of these acquirers.

6 Additional tests

In this section, we conduct a variety of additional tests to provide further support for our findings. In the first subsection, we re-examine the CAR results, and in the second subsection, we examine the results on loan contract terms.

6.1 Cross-sectional variations in abnormal returns

As an alternative method to evaluate the importance of banks' certification for bank-dependent borrowers, we examine differences in the valuation effect along multiple dimensions of bank characteristics such as a bank's skin in the game, a bank's pre-deal informational advantage, and bank reputation. To the extent that such bank characteristics affect banks' incentives and abilities to monitor borrowers' M&A decisions, we should observe a cross-sectional variation in the certification effect. In all models for this subsection, we use the baseline specification in Table 4.

6.1.1 Bank's skin in the game

We define a bank's skin in the game as the share of its loans in an M&A deal's total value (labeled as "Loan_deal_ratio").[21] More skin in the game, measured by the "Loan_deal_ratio," incentivizes the bank to collect more information about the borrower, which should lead to a greater certification effect. We replace BF in the baseline regression with the "Loan_deal_ratio". Panel A of Table 12 presents the results, where columns 1 to 3 correspond to different measures of bank dependence – small (Small), unrated (Not Rated), and small and unrated (SmallNR), respectively. Consistent with the importance of a bank's skin in the game, an acquirer's announcement CAR is positively associated with Loan_deal_ratio. More interestingly, the coefficients on the interaction terms of Loan_deal_ratio and the three bank dependence measures are all positive and also statistically significant in cases of Not Rated and SmallNR. These results suggest that the certification effect of bank financing increases when the bank has more skin in the game and this effect is stronger for bank-dependent acquirers.

6.1.2 Banks' pre-deal informational advantage

The second dimension is the bank's pre-deal informational advantage. We analyze this from two perspectives – (1) differences in BF provided by relationship and outside banks, and (2) differences in loans made by banks and institutional investors. To test the impact of relationships, we split the BF dummy into two dummies depending on whether bank financing of the M&A deal is from a relationship bank (BF_Rel) or an outside bank (BF_NRel).[22] We reestimate the baseline regressions with BF being replaced by BF_Rel and BF_NRel.

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[21]This definition follows the literature in banking and securitization – Keys, Mukherjee, Seru, and Vig (2009), Demiroglu and James (2012), and Daley, Green, and Vanasco (2020).

[22]See Section 3 for the definition of relationship bank.

The results are reported in Panel B of Table 12. The interactions of BF_Rel with all three measures of bank dependence are positive and significant. This provides evidence suggesting that bank-dependent firms derive greater certification benefits if their relationship bank provides the M&A financing.[23]

Next, we examine the difference in loans provided by commercial banks versus institutional investors. Institutional investors are generally less informed than banks in the syndicated loan market (Nandy and Shao, 2010). Thus, we expect the certification effect to be stronger for bank financing relative to institutional loans. We create two dummies depending on whether the lead lender of the M&A loan is a bank or an institutional investor: BF_BankLoan as an indicator of the bank loan and BF_IILoan as an indicator of the institutional loan. We then replace BF in the baseline regressions with these two dummies. The results, presented in Panel C of Table 12, are consistent with a larger certification effect of bank loans relative to institutional loans. For all three measures of bank dependence, the interactions with BF_BankLoan are positive and significant, but their counterparts with BF_IILoan are not statistically significant for two of the three measures.

6.1.3   Bank reputation

Next, we examine the impact of bank reputation. We expect the certification effect of bank financing to be greater for more reputable banks. Ross (2010) argues that three banks – J.P. Morgan Chase, Bank of America, and Citigroup – are the most reputable in lending syndicates. Given the coverage of a long period in our sample and the changing nature of the top three banks in the syndicated loan market, we redefine the top three banks based on the dollar volume of loans for which they were retained as lead banks

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[23]The interaction of Small and BF_NRel is also significant. Moreover, it is important to note that in column 1, the coefficient on BF_Rel is greater than that on BF_NRel suggesting larger certification effects from relationship loans.

in the three years prior to the M&A transaction. We thus replace BF in the baseline specification with two dummies – BF_Big3 if the M&A is financed by one of the top three banks, and BF_NBig3 if the M&A is financed by any other lender. The results in Panel D of Table 12 show evidence that is consistent with the greater certification effect of more reputable banks, especially for bank-dependent acquirers. Specifically, for all three bank dependence measures, the coefficients on their interactions with BF_Big3 are both positive and statistically significant.

For two of the three measures, the interaction with BF_NBig3 is also statistically significant – however, the magnitudes of the coefficient estimates on the interaction are generally smaller. This suggests that financing from the three most reputable banks is more valuable for bank-dependent acquirers.

6.1.4 Transactional versus non-transactional loans in M&As

The last cross-sectional difference in CAR that we examine is based on the type of M&A loan. We argue that bridge loans are transactional because they will shortly be refinanced and thus, unlike other loans, lenders do not need to incur a substantial cost in producing information about the borrower. Therefore, we expect the certification effect to be weaker for bridge loans relative to other bank loans that are more likely to be information-based. We classify bank financing into two types, which correspond to two dummies – BF_Nbridge as an indicator for non-bridge deals and BF_Bridge as an indicator for bridge deals. We then include the interactions of these two dummies with the bank dependence measures in the baseline regression.

The results, tabulated in Panel E of Table 12, confirm that bridge loans do not play a certification role in M&A financing. For all three measures of bank dependence, the coefficients on their interactions with BF_Nbridge are positive and significant. In contrast, their counterparts with BF_Bridge are statistically insignificant. Thus, unlike information-

based bank loans, there is no difference in the effect of bridge loans on bank-dependent and non-bank-dependent firms.

6.2 Additional tests for loan contract terms

Next, we conduct additional tests to check the robustness of the results on the lack of hold-up using the baseline specification in Table 10.

6.2.1 Bridge loans

Anecdotally, bridge financing is said to have higher fees.[24] This is true in our sample as well, with bridge loans having an unconditional mean spread of 274 basis points as opposed to the mean spread of 206 basis points for the full sample of M&A loans. Consistent with the higher cost of bridge loans, the use of bridge loans in our sample is infrequent – there are a total of 306 bridge loans amounting to less than 10% of the M&A loans in our sample. If we stratify the use of bridge loans by firm size or rating, we find that large (rated) acquirers employ 262 (242) bridge loans, accounting for most of the bridge loans used in the sample M&As. This confirms that bridge loans are more likely to be used by large, non-bank-dependent firms.

Therefore, to account for the impact of different usage of bridge loans by bank-dependent and non-bank-dependent acquirers, we add a bridge loan dummy to the baseline empirical specification in Table 9. The results, presented in Panel A of Table 13, show that our main findings remain almost intact – bank-dependent firms do not have a higher loan spread. Instead, their loans have a longer maturity. Thus, the presence of bridge loans and its differential use by bank-dependent borrowers do not impact our results.

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[24]Source: www.investopedia.com. See also "A view of the bridge: M&A bridge loans explained," by McDermott Will and Emery on www.lexology.com.

6.2.2 Effect of cash

Bates, Kahle, and Stulz (2009) document that U.S. firms have increased their cash holdings in the last several decades in response to increased cash flow risk. Further, firms with more cash flow risk increased their cash holdings by a larger magnitude. This suggests that cash holdings may be a proxy for the underlying credit risk of the firm. Harford, Klasa, and Maxwell (2014) find that cash holdings mitigate refinancing risk. Acharya, Davydenko, and Strebulaev (2012) also document that cash may be associated with lower credit risk at short horizons.

For our study, the main issue is whether bank-dependent firms have systematically different cash holdings relative to other firms, which can impact credit risk and thus loan terms. To account for this, we add a control variable – the ratio of cash to total assets of the acquiring firm – to the baseline regression (Table 13, Panel B). We find a negative association of cash holdings to loan pricing. This is consistent with risk reduction from higher cash holding. More importantly, our results on the lack of hold-up for bank-dependent firms continue to hold.

Cash could have a second effect on the pricing of loans. In particular, the ratio of a firm's cash holding to the deal value (deal slack) may be relevant from a lender's perspective. To the extent that a firm can choose to finance an acquisition using its internal cash, a firm may be in a better position to bargain with a bank for lower spreads. If smaller firms tend to acquire smaller targets (relative to their cash holdings), this could result in easier terms for their loans.

To control for the potential impact of a firm's deal slack, we add the ratio of its cash holding to deal value as an additional control in the loan regressions (Table 13, Panel C). Surprisingly, the cash to deal value ratio is positively associated with loan spreads. Nonetheless, the estimated coefficients on the interactions of the bank dependence measures

with M&A loans remain insignificant for loan spreads.

6.2.3 Future access to bond market

An acquisition mechanically increases the size of a firm, which may enable a firm to tap bond markets due to a fixed cost of access to the market. This effect is likely to be larger for small or unrated firms, relative to large firms that may already have access to bond markets prior to the acquisition. Since bond markets usually provide cheaper financing relative to bank loans, and if banks anticipate that the acquiring firm is likely to have future access to the bond market, this might be an explanation for banks not charging higher spreads to bank-dependent acquiring firms. To account for this, we create a dummy variable indicating whether the firm issues at least one bond in the three years after the completion of the acquisition and include this as an additional control in the baseline regressions for loan contract terms. The results are reported in Panel D of Table 13. Surprisingly, future bond market access has a positive (not negative) effect on spreads.[25] Nevertheless, our main results on the lack of hold-up are largely unaffected.

6.2.4 Loans made prior to the M&A transaction

Another factor that may impact our findings is the possibility that bank-dependent firms have prior outstanding loans (loans that have not yet matured) with restrictive covenants and collateral requirements. This may reduce the risk of default for the current M&A loan, as the bank may already have outstanding covenants to control the risk of the borrower. To see whether this is the case, we sum up covenants and collateral for all outstanding loans as of the initiation date of the M&A loan (i.e. with a maturity date later than the initiation date of the M&A loan) and use this as an additional control for the loan contract regressions. Outstanding collateral does have a positive impact on the

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[25]We do not investigate possible reasons for why future bond market access may have a positive effect on loan spreads as this is beyond the scope of this paper.

current loan's maturity and outstanding covenants have a negative impact on the current loan's covenants as expected. However, our main finding of the lack of hold-up for bank-dependent firms remains robust even after the outstanding contract terms are taken into account (Table 13, Panel E).

7 Conclusion

We examine bank financing of corporate M&As and its associated benefits and costs to borrowing acquirers. Consistent with a certification role of banks in firms' acquisition decisions, we find a positive announcement effect of bank financing of M&As. However, such a positive certification effect exists exclusively for bank-dependent firms. This finding highlights the significance of banks to bank-dependent firms in their decision-making.

More interestingly, while banks monitor corporate M&As by imposing higher loan pricing and more stringent non-price loan terms in M&A financing relative to other types of loans, banks do not hold up bank-dependent borrowing acquirers more than non-bank-dependent borrowing acquirers. This is inconsistent with the conventional view that bank-dependent firms are more vulnerable to bank expropriation. As a reward for the lack of hold-up, the borrower retains the M&A financing bank for a larger share of its business after the M&A transaction. This highlights the importance of implicit contracting in the lending market.

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Table 1: Summary statistics – M&A deal characteristics

This table presents the summary statistics of deal characteristics. BF is a dummy variable equal to 1 if the deal is financed by banks. NBF is a dummy variable equal to 1 if the deal is not financed by banks. Small is a dummy variable equal to 1 if the bidder has a deflated total asset less than its median of sample firms. Not Rated is a dummy variable equal to 1 if the firm does not have a credit rating. Deal Size is the deal value from the SDC. Relative Size is the deal size divided by the acquirer's total assets. Diversify is a dummy variable equal to 1 if the target does not share the same Fama-French 48 industry code with the acquirer. Tender is a dummy variable equal to 1 if the M&A transaction is a tender offer. Private is a dummy variable equal to 1 for private targets. All-cash is a dummy variable equal to 1 for a deal paid fully in cash. CAR3 denotes the three-day cumulative abnormal returns (in percent) measured using a market model. BHAR1Y denotes the one-year buy-and-hold abnormal returns of a sample firm benchmarked to its control firm, calculated from the completion date of the M&A transaction. EBIT_diff is the change in EBIT from the year before the M&A transaction to the year after the completion date of the M&A transaction. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively. See Appendix A for a detailed definition of all variables used in this table.

Panel A: Deals characteristics for bank financed (BF) deals vs. not bank financed deals (NBF)

	NBF		BF		
	Obs.	mean	Obs.	mean	Diff
Deal Size	6540	394.5	1909	1412.3	-1017.9***
Relative size	6540	0.18	1909	0.51	-0.33***
Diversify	6540	0.91	1909	0.83	0.080***
Tender	6540	0.049	1909	0.11	-0.060***
Private	6540	0.50	1909	0.32	0.18***
All-cash	6540	0.54	1909	0.53	0.0015

Panel B: Deal characteristics for bank dependence subgroups

	BF-Large	BF-Small		BF-Rated	BF-Not Rated	
	mean	mean	Diff	mean	mean	Diff
Deal Size	2477.0	198.4	2278.6***	2504.4	400.8	2103.6***
Relative size	0.49	0.52	-0.028	0.53	0.48	0.048
Diversify	0.76	0.91	-0.15***	0.78	0.88	-0.097***
Tender	0.14	0.073	0.067***	0.13	0.092	0.035**
Private	0.20	0.47	-0.27***	0.23	0.41	-0.18***
All-cash	0.56	0.50	0.057**	0.52	0.55	-0.032
N of Obs.	1017	892		918	991	

Panel C: Short-run and long-run performance

	NBF		BF			
	Mean	Median	Mean	Median	Mean Diff	Median Diff
CAR3	1.01	0.59	2.17	1.43	-1.16***	-0.84***
BHAR1Y	-0.10	-0.051	-0.099	-0.063	-0.0016	-0.049
EBIT_diff	-0.025	-0.013	-0.027	-0.011	0.002	-0.002

Panel D: Short-run and long-run performance for large vs. small BF acquirers

	BF-Large		BF-Small			
	Mean	Median	Mean	Median	Mean Diff	Median Diff
CAR3	1.17	0.91	3.31	2.26	-2.15***	-0.14***
BHAR1Y	-0.11	-0.055	-0.090	-0.069	-0.016	0.014
EBIT_diff	-0.032	-0.021	-0.019	-0.0088	-0.013***	-0.013***

Panel E: Short-run and long-run performance for rated vs. not-rated BF acquirers

	BF-Rated		BF-Not Rated			
	Mean	Median	Mean	Median	Mean Diff	Median Diff
CAR3	1.33	0.77	2.95	2.10	-1.62***	-1.33***
BHAR1Y	-0.074	-0.033	-0.12	-0.099	0.046	0.066
EBIT_diff	-0.031	-0.022	-0.018	-0.0073	-.013***	-0.014***

Table 2: Summary statistics – acquirer characteristics

This table presents the summary statistics of firm characteristics for acquiring firms. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively. See Appendix A for a detailed definition of all variables used in this table.

Panel A: Firm characteristics for bank financed (BF) deals vs. not bank financed deals (NBF)

	NBF		BF		
	Obs.	mean	Obs.	mean	Diff
Total Asset	6540	6419.6	1909	4709.3	1710.2*
Tobin's q	6540	2.01	1909	1.90	0.11***
FreeCF	6540	0.035	1909	0.059	-0.024***
Run-up	6540	-0.012	1909	0.020	-0.032**
Leverage	6540	0.19	1909	0.28	-0.086***
Volatility	6540	0.027	1909	0.024	0.0027***
Not Rated	6540	0.67	1909	0.52	0.15***
IO	6540	0.57	1909	0.62	-0.054***
N Analyst	6540	10.4	1909	10.7	-0.30

Panel B: Firm characteristics for bank dependence subgroups

	BF-Large		BF-Small			BF-Rated		BF-Not Rated		
	Obs.	mean	Obs.	mean	Diff	Obs.	mean	Obs.	mean	Diff
Total Asset	1017	8633.7	892	235.1	8398.6***	918	8893.5	991	833.4	8060.1***
Tobin's q	1017	1.73	892	2.09	-0.36***	918	1.67	991	2.12	-0.45***
FreeCF	1017	0.063	892	0.054	0.0084**	918	0.060	991	0.058	0.0019
Run-up	1017	0.0078	892	0.033	-0.026	918	0.011	991	0.028	-0.016
Leverage	1017	0.31	892	0.24	0.070***	918	0.35	991	0.21	0.14***
Volatility	1017	0.019	892	0.029	-0.011***	918	0.020	991	0.027	-0.007***
Not Rated	1017	0.26	892	0.82	-0.56***	918	0	991	1	-1
IO	1017	0.71	892	0.52	0.19***	918	0.68	991	0.57	0.11***
N Analyst	1017	15.0	892	5.80	9.16***	918	13.9	991	7.65	6.29***

Table 3: Summary statistics – loan characteristics

This table presents the summary statistics for loan characteristics. M&A loan is a dummy variable equal to 1 if the loan is issued during the M&A event window (-1 year, deal completion). Small is a dummy variable equal to 1 if the bidder has a deflated total asset less than its median of sample firms. Not Rated is a dummy variable equal to 1 if the firm does not have a credit rating. Spread (bps) is measured as the all-in-drawn spread from the Dealscan database. all-in-drawn spread is defined as the amount the borrower pays in basis points over LIBOR or LIBOR equivalent for each dollar drawn down. Collateral is a dummy variable equal to 1 if the loan facility is secured by collateral and zero otherwise. Maturity is the debt maturity measured in months. Loan Size is the loan facility amount measured in millions dollar. Financial covenant is the number of financial covenants. General covenant is the number of general covenants. All covenant is the number of total covenants. Refinance is a dummy variable equal to 1 if the loan is a refinanced loan. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively. See Appendix A for a detailed definition of all variables used in this table.

Panel A: Loan characteristics for M&A loans vs. Not M&A loans

	Not M&A loans		M&A loans		
	Obs.	mean	Obs.	mean	Diff
Spread	53210	205.3	2926	220.5	-15.2***
Collateral	69198	0.42	3140	0.61	-0.19***
Maturity	64002	48.2	3030	54.1	-5.85***
Facility amt	69175	380.4	3140	657.0	-276.7***
Financial covenant	69198	0.86	3140	1.67	-0.81***
General covenant	69198	2.00	3140	4.55	-2.55***
All covenant	69198	2.86	3140	6.21	-3.35***

Panel B: Bank dependence subgroups for M&A loans

	MA-Large		MA-Small			MA-Rated		MA-Not rated		
	Obs.	mean	Obs.	mean	Diff	Obs.	mean	Obs.	mean	Diff
Spread	1673	204.8	1253	241.4	-36.6***	1656	215.0	1270	227.7	-12.7**
Collateral	1800	0.50	1340	0.76	-0.27***	1771	0.57	1369	0.66	-0.097***
Maturity	1726	51.0	1304	58.1	-7.04***	1705	52.7	1325	55.8	-3.07***
Facility amt	1800	1056.5	1340	120.4	936.1***	1771	1009.5	1369	201.0	808.5***
Financial covenant	1800	1.34	1340	2.10	-0.76***	1771	1.56	1369	1.80	-0.24***
General covenant	1800	3.95	1340	5.34	-1.39***	1771	4.43	1369	4.69	-0.26*
All covenant	1800	5.30	1340	7.45	-2.15***	1771	5.99	1369	6.50	-0.50***

Table 4: Acquirer's CARs and bank dependence

This table presents the regression results of the impact of bank financing and bank dependence on acquirers' short-run performance. The dependent variable (CAR3) in all specifications is the abnormal return (in percent) of the acquiring firm in a time window from -1 to +1 day relative to the announcement date of the merger. BF is a merger paid for partly or fully in cash and in which the acquiring firm took a bank loan during the M&A window (-1yr, completion). Standard errors are clustered at the firm level and reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively. See Appendix A for a detailed definition of all variables used in this table.

	CAR3	CAR3	CAR3	CAR3	CAR3	CAR3
BF	0.99***	0.42	0.34	0.95***	0.47	0.17
	(0.21)	(0.29)	(0.27)	(0.27)	(0.30)	(0.34)
BF x Small		1.16***			1.10**	
		(0.39)			(0.53)	
BF x Not Rated			1.18***			1.54***
			(0.38)			(0.51)
Small		-0.046				
		(0.24)				
Not Rated			-0.32			
			(0.22)			
Relative size	0.83***	0.83***	0.83***	0.78***	0.77***	0.77***
	(0.18)	(0.17)	(0.18)	(0.29)	(0.28)	(0.29)
Diversify	0.24	0.22	0.22	-0.092	-0.10	-0.11
	(0.31)	(0.31)	(0.31)	(0.39)	(0.40)	(0.39)
Tender	0.46	0.45	0.44	0.58	0.55	0.53
	(0.34)	(0.34)	(0.34)	(0.42)	(0.42)	(0.42)
Public	-2.00***	-1.98***	-1.99***	-1.98***	-1.92***	-1.95***
	(0.29)	(0.29)	(0.29)	(0.37)	(0.37)	(0.37)
All-cash	-0.020	-0.035	-0.051	-0.071	-0.092	-0.12
	(0.16)	(0.16)	(0.16)	(0.22)	(0.22)	(0.22)
Ln(Mcap)	-0.38***	-0.33***	-0.38***	-0.65**	-0.58**	-0.63**
	(0.093)	(0.10)	(0.099)	(0.26)	(0.27)	(0.26)
IO	0.34	0.37	0.35	-0.48	-0.42	-0.42
	(0.45)	(0.45)	(0.45)	(0.83)	(0.83)	(0.84)
Tobin's q	-0.071	-0.091	-0.074	-0.13	-0.17	-0.15
	(0.088)	(0.089)	(0.090)	(0.18)	(0.18)	(0.18)
FreeCF	0.96	0.87	0.95	-1.34	-1.33	-1.31
	(1.05)	(1.05)	(1.05)	(2.05)	(2.06)	(2.05)
Cash Holding	-0.33	-0.25	-0.22	1.54	1.54	1.61
	(0.56)	(0.56)	(0.56)	(1.24)	(1.23)	(1.23)
Leverage	0.63	0.69	0.62	0.83	0.97	1.04
	(0.48)	(0.48)	(0.49)	(1.06)	(1.08)	(1.08)
Volatility	19.6	20.2	19.7	5.29	7.61	6.96
	(12.3)	(12.3)	(12.3)	(22.5)	(22.4)	(22.5)
N Analyst	-0.0013	-0.0020	-0.0023	-0.0051	-0.0038	-0.0058
	(0.013)	(0.013)	(0.013)	(0.026)	(0.026)	(0.026)
Run-up	-0.33*	-0.35*	-0.33*	-0.33	-0.37	-0.35
	(0.18)	(0.18)	(0.18)	(0.28)	(0.28)	(0.28)
HHI	-0.41**	-0.41**	-0.40**	-0.34	-0.34	-0.36
	(0.20)	(0.20)	(0.20)	(0.32)	(0.32)	(0.32)
Uniqueness	-0.16	-0.18	-0.16	-0.052	-0.046	-0.048
	(0.25)	(0.25)	(0.25)	(0.47)	(0.47)	(0.47)
Constant	3.44***	3.14***	3.83***	6.94***	6.23***	4.59***
	(1.13)	(1.17)	(1.23)	(2.18)	(2.31)	(1.68)
Year fixed effects	Y	Y	Y	Y	Y	Y
Industry fixed effects	Y	Y	Y			
Firm fixed effects				Y	Y	Y
N	8449	8449	8449	8449	8449	8449
adj. R^2	0.051	0.052	0.052	0.030	0.031	0.032

Table 5: Acquirer's CAR, loan-to-deal ratio and prior banking relationships

This table presents the regression results of the effect of bank financing and bank dependence on acquirers' short-run performance for the subsample of deals with the size of bank loans being smaller than the deal size and controlling the prior relationship. The dependent variable (CAR3) in all specifications is the abnormal return (in percent) of the acquiring firm for the time window from -1 to +1 day relative to the announcement date of the merger. BF is a merger paid for partly or fully in cash and in which the acquiring firm took a bank loan during the M&A window (-1yr, completion). Small is a dummy variable equal to 1 if the bidder has a deflated total asset less than its median of sample firms. Not Rated is a dummy variable equal to 1 if the firm does not have a credit rating. Loan_Deal_ratio is the ratio of the loan amount to the M&A deal value. Rel_prior is a dummy variable equal to 1 if the acquirer has a relationship bank prior to the M&A deal and zero otherwise. All the regressions include the firm characteristics and deal characteristics in Table 4. Standard errors are clustered at the firm level and reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively. See Appendix A for a detailed definition of all variables used in this table.

Panel A: Deals with bank loan size smaller than deal size

	CAR3	CAR3	CAR3
BF	2.00***	0.64	0.94*
	(0.49)	(0.49)	(0.56)
BF x Small		3.61***	
		(0.99)	
BF x Not Rated			2.26**
			(0.89)
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	7207	7207	7207
adj. R^2	0.035	0.041	0.037

Panel B: Controlling for prior relationship

	CAR3	CAR3	CAR3	CAR3
BF	0.46	0.46	0.17	0.17
	(0.30)	(0.30)	(0.35)	(0.34)
Small	0.23	0.31		
	(0.41)	(0.45)		
BF x Small	1.10**	1.11**		
	(0.53)	(0.53)		
Rel_prior	-0.19		-0.20	
	(0.25)		(0.25)	
Rel_prior		-0.085		-0.29
		(0.30)		(0.33)
Rel_prior x Small		-0.23		
		(0.51)		
Not Rated			-0.025	-0.081
			(0.43)	(0.46)
BF x Not Rated			1.53***	1.52***
			(0.51)	(0.51)
Rel_prior x Not Rated				0.15
				(0.49)
Firm fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	8449	8449	8449	8449
adj. R^2	0.030	0.030	0.031	0.031

Table 6: Acquirer's CAR and financing sources

Panel A of this table tabulates the number of deals financed by different sources. Panel B presents the regression results of the impact of different financing sources and bank dependence on acquirers' short-run performance. The dependent variable (CAR3) in all specifications is the abnormal return (in percent) of the acquiring firm in a time window from -1 to +1 day relative to the announcement date of the merger. BF is a merger paid for partly or fully in cash and in which the acquiring firm took a bank loan during the M&A window (-1yr, completion). SeoF is a merger paid for partly or fully in cash and in which the acquiring firm made a seasoned equity offering during the M&A window (-1yr, completion). BondF is a merger paid for partly or fully in cash and in which the acquiring firm made a bond issuance during the M&A window (-1yr, completion). BF_only is a merger paid for partly or fully in cash and in which the acquiring firm takes at least one bank loan during the M&A window (-1yr, completion) and doesn't do seasoned equity offering or issue bonds. BondF_only is a dummy variable equal to 1 if the acquiring firm issues at least one bond during the M&A window (-1yr, completion) and doesn't do seasoned equity offerings or borrow money from banks. SeoF_only is a dummy variable equal to 1 if the acquiring firm does at least one seasoned equity offering during the M&A window (-1yr, completion) and doesn't issue bonds or borrow money from banks. Standard errors are clustered at the firm level and reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively. See Appendix A for a detailed definition of all variables used in this table.

Panel A: Number of deals funded by different sources

Type	number of deal
Internal cash	4508
BF_only	1000
BondF_only	1010
SeoF_only	782
BF and BondF	438
BF and SeoF	268
BondF and SeoF	240
BF, BondF, and SeoF	203
Total Number of M&A	8449

Table 6 – Continued

Panel B: Regression results						
	Full sample	Full sample	Full sample	Full sample	Loan vs. Bond	Loan vs. Bond
	CAR3	CAR3	CAR3	CAR3	CAR3	CAR3
BF	0.42	0.15			0.34	0.20
	(0.30)	(0.34)			(0.44)	(0.46)
Small	0.48		0.44		-1.36	
	(0.43)		(0.41)		(1.12)	
BF x Small	1.19**				2.90***	
	(0.53)				(1.12)	
SeoF	0.42	0.36				
	(0.36)	(0.43)				
SeoF x Small	-0.49					
	(0.59)					
BondF	0.075	0.031				
	(0.25)	(0.29)				
BondF x Small	-0.89					
	(0.68)					
Not Rated		0.10		0.14		-0.55
		(0.44)		(0.42)		(1.25)
BF x Not Rated		1.55***				3.36***
		(0.51)				(1.23)
SeoF x Not Rated		-0.29				
		(0.60)				
BondF x Not Rated		-0.35				
		(0.62)				
BFonly			0.34	-0.20		
			(0.40)	(0.48)		
BFonly x Small			1.10*			
			(0.65)			
BFonly x Not Rated				1.73***		
				(0.65)		
Firm characteristics	Y	Y	Y	Y	Y	Y
Deal characteristics	Y	Y	Y	Y	Y	Y
Firm fixed effects	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y
N	8449	8449	8449	8449	3159	3159
adj. R-sq	0.031	0.031	0.029	0.030	0.049	0.056

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Table 7: Acquirer's CAR and bank dependence using IV

This table presents the two-stage least square regression results of the impact of instrumented bank financing and bank dependence on short-run acquirer performance. Ln(Distance) and Ind_Loan_Con are the instrumental variables for bank financing. Ln(Distance) is the natural logarithm of average geographical distance between the acquirers' headquarters and headquarters of all the LPC banks in the US. Ind_Loan_Con is the lending concentration of the acquiring firm's relationship bank in the acquiring firm's industry, measured by the ratio of its lending to the acquiring firm's industry to its total lending in the period beginning 2 years prior to the announcement date and ending 1 year prior to the announcement date. The dependent variable in each regression is reported at the top of the column. All models include year fixed effects that are not reported in the table. Standard errors are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively. See Appendix A for a detailed definition of all variables used in this table.

	First stage		Second stage	First stage		Second stage
	BF	BF xSmall	CAR3	BF	BF xNot Rated	CAR3
BF			-2.20			-0.093
			(2.88)			(4.43)
BF x Small			5.38*			
			(2.92)			
BF x Not Rated						1.80*
						(1.02)
Ln(Distance)	-0.15***	0.037		-0.12**	0.037	
	(0.037)	(0.027)		(0.049)	(0.037)	
Ln(Distance) x Small	0.039	-0.18***				
	(0.051)	(0.036)				
Ind_Loan_Con	-0.046**	0.020		-0.025	0.016	
	(0.020)	(0.014)		(0.022)	(0.017)	
Ind_Loan_Con x Small	-0.072***	-0.16***				
	(0.027)	(0.019)				
Small	-0.19	1.80***	-0.94			0.27
	(0.40)	(0.28)	(0.71)			(0.30)
Ln(Distance) x Not Rated				0.0023	-0.17***	
				(0.057)	(0.043)	
Ind_Loan_Con x Not Rated				-0.099***	-0.15***	
				(0.028)	(0.021)	
Not Rated				0.019	1.72***	-0.60
				(0.45)	(0.34)	(1.26)
Firm characteristics	Y	Y	Y	Y	Y	Y
Deal characteristics	Y	Y	Y	Y	Y	Y
adj. R^2	0.139	0.197	0.027	0.136	0.169	0.045
N	8416	8416	8416	8416	8416	8416
F-value	12.75	22.09		13.19	19.57	

Table 8: Bank financing, bank dependence, and long-run performance

This table presents the regression results of the effect of bank financing and bank dependence on acquirers' long-run performance. BHAR6M denotes the six-month buy-and-hold abnormal returns of a sample firm relative to its benchmarked control firm. BHAR1Y denotes the one-year buy-and-hold abnormal returns of a sample firm relative to its benchmarked control firm. EBIT_diff is the change in EBIT from the year before the M&A announcement date to the year after the completion date of the M&A transaction. BF is a merger paid for partly or fully in cash, where the acquiring firm secured a bank loan during the M&A window (-1yr, completion). Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively. See Appendix A for a detailed definition of all variables used in this table.

	BHAR6M	BHAR1Y	EBIT_diff	BHAR6M	BHAR1Y	EBIT_diff
BF	-0.0077	0.0084	-0.0022	0.0049	0.049	0.0023
	(0.019)	(0.030)	(0.0043)	(0.022)	(0.035)	(0.0051)
BF x Small	-0.013	-0.052	0.016**			
	(0.034)	(0.060)	(0.0066)			
BF x Not Rated				-0.035	-0.12	0.0047*
				(0.032)	(0.56)	(0.0027)
Small	0.0028	0.079	-0.016**			
	(0.029)	(0.050)	(0.0065)			
Not Rated				0.00028	0.0023	-0.00024
				(0.029)	(0.044)	(0.0060)
Relative size	-0.016	-0.0049	-0.00071	-0.016	-0.0042	-0.00030
	(0.017)	(0.029)	(0.0037)	(0.016)	(0.028)	(0.0037)
Diversify	-0.0024	-0.037	-0.00059	-0.0022	-0.037	-0.00016
	(0.024)	(0.036)	(0.0054)	(0.024)	(0.036)	(0.0055)
Tender	0.018	0.023	-0.0061	0.019	0.025	-0.0063
	(0.027)	(0.044)	(0.0067)	(0.027)	(0.044)	(0.0067)
Public	0.0028	0.0016	0.0062	0.0026	0.00060	0.0065
	(0.022)	(0.035)	(0.0060)	(0.022)	(0.035)	(0.0060)
All-cash	-0.015	-0.0061	0.012***	-0.014	-0.0034	0.012***
	(0.017)	(0.026)	(0.0038)	(0.017)	(0.026)	(0.0038)
Ln(Mcap)	-0.14***	-0.25***	0.0034	-0.14***	-0.26***	0.0056**
	(0.018)	(0.031)	(0.0027)	(0.019)	(0.030)	(0.0027)
IO	-0.12**	-0.10	0.0067	-0.12**	-0.11	0.0064
	(0.054)	(0.090)	(0.012)	(0.053)	(0.090)	(0.012)
Tobin's q	0.0067	-0.020	-0.015***	0.0069	-0.015	-0.016***
	(0.0096)	(0.017)	(0.0026)	(0.0096)	(0.017)	(0.0026)
FreeCF	-0.028	0.12	-0.24***	-0.028	0.13	-0.24***
	(0.13)	(0.25)	(0.042)	(0.13)	(0.24)	(0.043)
Cash Holding	-0.10	-0.17	-0.040**	-0.10	-0.17	-0.043***
	(0.086)	(0.15)	(0.016)	(0.086)	(0.15)	(0.016)
Leverage	-0.0044	-0.076	0.0043	-0.0100	-0.12	0.0075
	(0.072)	(0.13)	(0.011)	(0.073)	(0.13)	(0.012)
volatility	-0.37	3.99	-0.076	-0.41	3.80	-0.11
	(1.58)	(3.96)	(0.36)	(1.59)	(3.93)	(0.36)
N Analyst	0.0011	-0.00066	-0.000067	0.0011	-0.0010	-0.000029
	(0.0017)	(0.0029)	(0.00031)	(0.0017)	(0.0029)	(0.00032)
Run-up	-0.022	-0.041	0.0044	-0.021	-0.035	0.0033
	(0.018)	(0.031)	(0.0041)	(0.018)	(0.032)	(0.0041)
HHI	-0.018	0.0037	0.0061	-0.018	0.0056	0.0065*
	(0.023)	(0.038)	(0.0039)	(0.023)	(0.038)	(0.0039)
Uniqueness	0.0017	0.0060	0.013***	0.0013	0.0050	0.014***
	(0.032)	(0.049)	(0.0041)	(0.032)	(0.049)	(0.0041)
Constant	0.87***	1.25***	-0.020	0.87***	1.38***	-0.041*
	(0.13)	(0.20)	(0.020)	(0.13)	(0.20)	(0.022)
Year fixed effects	Y	Y	Y	Y	Y	Y
Firm fixed effects	Y	Y	Y	Y	Y	Y
N	7994	8000	6516	7994	8000	6516
adj. R^2	0.045	0.068	0.084	0.046	0.068	0.083

Table 9: Loan contract terms for M&A loans

This table presents the regression results of the effect of M&A financing on loan contract terms. The dependent variable in each regression is reported at the top of the column. Spread (bps) is measured as the all-in-drawn spread from the Dealscan database. Collateral is a dummy variable equal to 1 if the loan facility is secured by collateral and zero otherwise. Maturity is the debt maturity measured in months. Fin Cov is the number of financial covenants. Gen Cov is the number of general covenants. All Cov is the total number of covenants. M&A loan is a dummy variable equal to 1 if the loan is issued during the M&A event window (-1 year, deal completion). All models have firm, year, loan type, and loan purpose fixed effects that are not reported in the table. OLS regressions are run for spread and maturity, Logit regressions are run for collateral, and Poisson regressions are run for the three covenant measures. Standard errors are clustered at the firm level and reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively. See Appendix A for a detailed definition of all variables used in this table.

	Spread	Collateral	Ln(maturity)	Fin Cov	Gen Cov	All Cov
M&A Loan	6.66**	0.28***	-0.063***	0.15***	0.14***	0.15***
	(2.59)	(0.069)	(0.013)	(0.022)	(0.013)	(0.011)
Collateral	42.1***		0.086***			
	(1.48)		(0.0070)			
Fin Cov	-3.41***		0.015***			
	(0.65)		(0.0032)			
Gen Cov	2.74***		-0.011***			
	(0.27)		(0.0013)			
Tangibility	-2.45	-0.87***	0.11***	-0.046	0.084*	0.051
	(7.46)	(0.19)	(0.036)	(0.073)	(0.047)	(0.040)
Profitability	-184.0***	-2.86***	0.32***	-0.098	-0.54***	-0.40***
	(7.65)	(0.22)	(0.036)	(0.072)	(0.048)	(0.040)
Current ratio	-1.98***	-0.027**	0.0064***	-0.0043	-0.0058**	-0.0053**
	(0.48)	(0.012)	(0.0023)	(0.0041)	(0.0027)	(0.0023)
Asset maturity	0.016	0.00041	-0.00013	0.00014	0.0000011	0.000020
	(0.021)	(0.00051)	(0.000095)	(0.00025)	(0.00011)	(0.00010)
Ln(asset)	-7.72***	-0.34***	0.015**	-0.068***	-0.053***	-0.057***
	(1.08)	(0.027)	(0.0051)	(0.010)	(0.0066)	(0.0055)
Book-to-Market	0.000052	-0.00037	-0.0000029	0.000058	0.0000012	0.000014
	(0.018)	(0.00081)	(0.000084)	(0.00013)	(0.000062)	(0.000056)
Leverage	71.4***	1.08***	-0.086***	0.026	0.22***	0.17***
	(4.18)	(0.11)	(0.021)	(0.038)	(0.024)	(0.020)
Ln(loansize)	-19.1***	-0.23***	0.038***	0.020***	0.083***	0.065***
	(0.54)	(0.013)	(0.0024)	(0.0055)	(0.0036)	(0.0030)
Perform-pricing	-35.5***	1.05***	0.059***	0.88***	0.88***	0.88***
	(1.42)	(0.035)	(0.007)	(0.012)	(0.0076)	(0.0064)
Credit Spread	35.7***	0.14*	-0.077***	0.081***	0.12***	0.11***
	(3.12)	(0.080)	(0.014)	(0.029)	(0.019)	(0.016)
Term Spread	13.8***	0.088	-0.019*	0.085***	0.017	0.038***
	(2.11)	(0.055)	(0.010)	(0.020)	(0.013)	(0.011)
Constant	294.9***		3.59***			
	(9.05)		(0.043)			
adj. R^2	0.196		0.271			
pseudo R^2		0.136				
N	43943	38345	50277	44317	45408	46824

Table 10: M&A loan contract terms and bank dependence

This table presents the regression results for the effect of M&A financing on loan contract terms within bank dependence subgroups. The dependent variable in each regression is reported at the top of the column. Spread (bps) is measured as the all-in-drawn spread from the Dealscan database. M&A loan is a dummy variable equal to 1 if the loan is issued during the M&A event window (-1 year, deal completion). Small is a dummy variable equal to 1 if the bidder has a deflated total asset less than that of the median of sample firms. Not Rated is a dummy variable equal to 1 if the firm does not have a credit rating. SmallNR is a dummy variable equal to 1 if the bidder is small and not rated. TBC is the Total Borrowing Cost defined in Berg, Saunders, and Steffen (2016). TBC reflects the option characteristics of bank loans and incorporates the various fees paid to lenders. All models have firm, year, loan type, and loan purpose fixed effects that are not reported in the table. OLS regressions are run for spread and maturity, logit regressions are run for collateral, and Poisson regressions are run for the three covenant measures. Standard errors are clustered at the firm level and reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively. See Appendix A for a detailed definition of all variables used in this table.

Panel A1: Small vs. large firm loan

	Spread	Collateral	Ln(maturity)	Fin Cov	Gen Cov	All Cov
M&A Loan	5.60***	-0.16	-0.24***	0.077**	0.068***	0.072***
	(1.81)	(0.10)	(0.019)	(0.037)	(0.022)	(0.019)
Small	3.28	-0.079	0.022*	-0.048**	0.083***	0.047***
	(2.50)	(0.066)	(0.012)	(0.024)	(0.015)	(0.013)
M&A Loan x Small	1.68	0.73***	0.29***	0.12***	0.13***	0.13***
	(4.68)	(0.13)	(0.024)	(0.041)	(0.025)	(0.021)
Firm characteristics	Y	Y	Y	Y	Y	Y
Loan characteristics	Y	Y	Y	Y	Y	Y
adj. R^2	0.196		0.265			
pseudo R^2		0.136				
N	43943	37684	50277	43904	44943	46490

Panel A2: Rated vs. not rated firm loan

	Spread	Collateral	Ln(maturity)	Fin Cov	Gen Cov	All Cov
M&A Loan	8.79***	0.23***	-0.13***	0.17***	0.13***	0.15***
	(3.23)	(0.088)	(0.016)	(0.028)	(0.017)	(0.014)
Not Rated	2.69	-0.26***	-0.049***	-0.053***	-0.076***	-0.068***
	(2.07)	(0.051)	(0.0099)	(0.019)	(0.012)	(0.010)
M&A Loan x Not Rated	-4.89	0.076	0.16***	-0.063*	0.021	-0.0058
	(4.63)	(0.12)	(0.023)	(0.023)	(0.023)	(0.019)
Firm characteristics	Y	Y	Y	Y	Y	Y
Loan characteristics	Y	Y	Y	Y	Y	Y
adj. R^2	0.196		0.272			
pseudo R^2		0.136				
N	43943	38345	50277	44317	45408	46824

Panel A3: SmallNR vs. not SmallNR firm loan

	Spread	Collateral	Ln(maturity)	Fin Cov	Gen Cov	All Cov
M&A Loan	13.3***	0.21**	-0.14***	0.17***	0.16***	0.16***
	(3.25)	(0.085)	(0.016)	(0.027)	(0.016)	(0.014)
SmallNR	-2.03	-0.31***	-0.049***	-0.078***	-0.090***	-0.084***
	(2.32)	(0.057)	(0.012)	(0.021)	(0.013)	(0.011)
M&A Loan x SmallNR	-3.31	0.14	0.17***	-0.044	0.0023	-0.014
	(4.72)	(0.13)	(0.022)	(0.038)	(0.023)	(0.020)
Firm characteristics	Y	Y	Y	Y	Y	Y
Loan characteristics	Y	Y	Y	Y	Y	Y
adj. R^2	0.184		0.233			
pseudo R^2		0.135				
N	43943	37684	50277	43904	44943	46490

Table 10 – Continued

Panel B: Totoal borrowing cost of the loans						
	TBC	TBC	TBC			
M&A Loan	10.5***	7.48*	12.7***			
	(2.50)	(3.94)	(3.00)			
Small		5.40**				
		(2.47)				
M&A Loan x Small		4.28				
		(4.63)				
Not Rated			7.34***			
			(2.10)			
M&A Loan x Not Rated			-5.40			
			(4.53)			
adj. R^2	0.445	0.445	0.445			
pseudo R^2						
N	16503	16503	16503			

Panel C1: Small in M&A loans only						
	Spread	Collateral	Maturity	Fin Cov	Gen Cov	All Cov
Small	23.1	1.85***	0.050	0.21*	0.30***	0.28***
	(16.9)	(0.57)	(0.074)	(0.11)	(0.066)	(0.056)
Firm characteristics	Y	Y	Y	Y	Y	Y
Loan characteristics	Y	Y	Y	Y	Y	Y
adj. R-sq	0.272		-0.209			
pseudo R-sq		0.301				
N	2625	934	2709	2023	2074	2140

Panel C2: Not Rated in M&A loans only						
	Spread	Collateral	Maturity	Fin Cov	Gen Cov	All Cov
Not Rated	-18.4	-2.14***	0.070	-0.13	-0.22***	-0.20***
	(13.8)	(0.47)	(0.061)	(0.094)	(0.056)	(0.048)
Firm characteristics	Y	Y	Y	Y	Y	Y
Loan characteristics	Y	Y	Y	Y	Y	Y
adj. R-sq	0.272		-0.208			
pseudo R-sq		0.318				
N	2625	934	2709	2023	2074	2140

Panel C3: SmallNR in M&A loans only						
	Spread	Collateral	Maturity	Fin Cov	Gen Cov	All Cov
SmallNR	-22.3	-2.05***	-0.0015	-0.073	-0.24***	-0.20***
	(14.4)	(0.50)	(0.068)	(0.097)	(0.059)	(0.050)
Firm characteristics	Y	Y	Y	Y	Y	Y
Loan characteristics	Y	Y	Y	Y	Y	Y
adj. R^2	0.269		-0.211			
pseudo R^2		0.310				
N	2625	934	2709	2023	2074	2140

Table 11: Future loans and bank dependence

This table presents the regression results for future loan business to the M&A financing banks. The dependent variable is the lending share, defined as the ratio of loans from the M&A financing bank to total loans obtained by the firm. PostMA is a dummy variable equal to 1 if it is one year after the M&A completion, and 0 if it is (-2 year, -1 year) to M&A announcement date. Placebo is defined similarly to PostMA by shifting the actual M&A announcement date and completion date by three years forward. Standard errors are clustered at the firm level and reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively. Firm Controls include the firm characteristics as in Table 4. See Appendix A for a detailed definition of all variables used in this table.

Panel A: Lending share

	Lending share	Lending share	Lending share	Lending share	Lending share	Lending share	Lending share	Lending share
PostMA	0.080***	0.048**	0.028	0.046**	0.089***	0.054***	0.035	0.054***
	(0.017)	(0.020)	(0.021)	(0.019)	(0.018)	(0.021)	(0.022)	(0.020)
Small		-0.19***				-0.12***		
		(0.032)				(0.037)		
PostMA x Small		0.091**				0.083**		
		(0.035)				(0.036)		
Not Rated			-0.12***				-0.043	
			(0.031)				(0.032)	
PostMA x Not Rated			0.12***				0.12***	
			(0.034)				(0.034)	
SamllNR				-0.17***				-0.071*
				(0.035)				(0.041)
PostMA x SamllNR				0.12***				0.11***
				(0.038)				(0.039)
Firm Controls	No	No	No	No	Yes	Yes	Yes	Yes
N	2597	2597	2597	2597	2597	2597	2597	2597
adj. R^2	0.008	0.035	0.016	0.026	0.098	0.102	0.102	0.101

Panel B: Placebo test by shifting the actual M&A announcement date and completion date by three years forward

	Lending share	Lending share	Lending share	Lending share	Lending share	Lending share	Lending share	Lending share
Placebo	-0.014	-0.0073	-0.010	-0.0043	-0.013	-0.017	-0.0085	-0.0074
	(0.018)	(0.024)	(0.025)	(0.022)	(0.020)	(0.024)	(0.025)	(0.023)
Small		-0.18***				-0.075		
		(0.035)				(0.049)		
Placebo x Small		-0.0035				0.0091		
		(0.038)				(0.039)		
Not Rated			-0.14***				-0.0084	
			(0.034)				(0.042)	
Placebo x Not Rated			-0.0031				-0.0096	
			(0.039)				(0.040)	
SamllNR				-0.16***				-0.035
				(0.036)				(0.048)
Placebo x SamllNR				-0.019				-0.016
				(0.041)				(0.042)
Firm Controls	No	No	No	No	Yes	Yes	Yes	Yes
N	1664	1664	1664	1664	1664	1664	1664	1664
adj. R^2	-0.000	0.040	0.022	0.029	0.107	0.109	0.106	0.107

Table 12: Robustness: CAR and bank dependence

This table presents the regression results of the cross-sectional variations in the impact of bank financing and bank dependence on acquirers' short-run performance. The dependent variable (CAR3) in all specifications is the abnormal return (in percent) of the acquiring firm estimated for the time window from -1 to +1 day relative to the announcement date of the merger. BF is a merger paid for partly or fully in cash and in which the acquiring firm took a bank loan during the M&A window (-1yr, completion). Small is a dummy variable equal to 1 if the bidder has a deflated total asset less than its median of sample firms. Not Rated is a dummy variable equal to 1 if the firm does not have a credit rating. SmallNR is a dummy variable equal to 1 if the bidder is small and not rated. Loan_Deal_ratio is the ratio of the loan amount to the M&A deal value. BF_Rel is a dummy variable equal to 1 if the bank financing is done by a relationship bank. BF_NRel is a dummy variable equal to 1 if the bank financing is done by a non-relationship bank. BF_Big3 is a dummy variable equal to 1 if the bank financing is done by one of the three most reputable banks. BF_Nbig3 is a dummy variable equal to 1 if the bank financing is not done by one of the three most reputable banks. BF_Bankloan is a dummy variable equal to 1 if the loan financing is led by a bank. BF_IIloan is a dummy variable equal to 1 if the loan financing is led by institutional investors. BF_Bridge is a dummy variable equal to 1 if the loan is originated as the bridge financing. BF_NBridge is a dummy variable equal to 1 if the loan is not originated as the bridge financing. All the regressions include the firm characteristics and deal characteristics as in Table 4. Standard errors are clustered at the firm level and reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively. See Appendix A for a detailed definition of all variables used in this table.

Panel A: Bank's skin in the game

	CAR3	CAR3	CAR3
Loan_Deal_ratio	0.70**	0.15	0.59*
	(0.33)	(0.38)	(0.32)
Loan_Deal_ratio x Small	0.64		
	(0.56)		
Loan_Deal_ratio x Not Rated		1.66***	
		(0.55)	
Loan_Deal_ratio x SmallNR			1.08*
			(0.60)

Panel B: Relationship vs. non-relationship bank

	CAR3	CAR3	CAR3
BF_Rel	0.66**	0.16	0.51
	(0.34)	(0.38)	(0.33)
BF_NRel	0.036	0.22	0.57
	(0.57)	(0.63)	(0.56)
BF_Rel x Small	0.94*		
	(0.53)		
BF_NRel x Small	1.67*		
	(0.86)		
BF_Rel x Not Rated		1.99***	
		(0.62)	
BF_NRel x Not Rated		1.23	
		(0.84)	
BF_Rel x SmallNR			1.77**
			(0.75)
BF_NRel x SmallNR			0.83
			(0.87)

Panel C: Bank loan financing vs. institutional investor loan financing

	CAR3	CAR3	CAR3
BF_BankLoan	0.13	-0.073	0.20
	(0.34)	(0.39)	(0.34)

Table 12 – Continued

BF_IILoan	1.40**	0.92	1.30**
	(0.60)	(0.65)	(0.56)
BF_BankLoan x Small	1.31**		
	(0.60)		
BF_IILoan x Small	0.74		
	(0.98)		
BF_BankLoan x Not Rated		1.54***	
		(0.57)	
BF_IILoan x Not Rated		1.69*	
		(0.99)	
BF_BankLoan x SmallNR			1.32**
			(0.63)
BF_IILoan x SmallNR			1.48
			(1.20)

Panel D: Bank reputation

	CAR3	CAR3	CAR3
BF_BIG3	0.70**	0.31	0.67*
	(0.35)	(0.41)	(0.36)
BF_NBig3	-0.069	-0.10	0.21
	(0.58)	(0.61)	(0.53)
BF_BIG3 x Small	1.37*		
	(0.71)		
BF_NBig3 x Small	1.45*		
	(0.83)		
BF_BIG3 x Not Rated		1.95***	
		(0.64)	
BF_NBig3 x Not Rated		1.50*	
		(0.81)	
BF_BIG3 x SmallNR			1.84**
			(0.81)
BF_NBig3 x SmallNR			1.16
			(0.81)
N	8449	8449	8449
adj. R^2	0.039	0.040	0.040

Panel E: Transactional versus non-transactional loans

	CAR3	CAR3	CAR3
BF_NBridge	0.55*	0.16	0.57*
	(0.33)	(0.38)	(0.33)
BF_Bridge	0.14	0.14	0.15
	(0.60)	(0.62)	(0.60)
BF_Bridge x Small	0.52		
	(1.79)		
BF_NBridge x Small	1.05*		
	(0.55)		
BF_Bridge x Not Rated		0.20	
		(1.28)	
BF_NBridge x Not Rated		1.66***	
		(0.54)	
BF_Bridge x SmallNR			0.21
			(1.70)
BF_NBridge x SmallNR			1.24**
			(0.59)

Table 13: Robustness: loan contract terms and bank dependence

This table presents the regression results for the effect of M&A financing on loan contract terms within bank dependence subgroups. The dependent variable in each regression is reported at the top of the column. Spread (bps) is measured as the all-in-drawn spread from the Dealscan database. Collateral is a dummy variable equal to 1 if the loan facility is secured by collateral and zero otherwise. Maturity is the debt maturity measured in months. Fin Cov is the number of financial covenants. Gen Cov is the number of general covenants. All Cov is the total number of covenants. M&A loan is a dummy variable equal to 1 if the loan is issued during the M&A event window (-1 year, deal completion). Small is a dummy variable equal to 1 if the bidder has a deflated total asset less than its median of sample firms. Not Rated is a dummy variable equal to 1 if the firm does not have a credit rating. All models have firm, year, loan type, and loan purpose fixed effects that are not reported in the table. OLS regressions are run for spread and maturity, logit regressions are run for collateral, and Poisson regressions are run for the three covenant measures. Standard errors are clustered at the firm level and reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively. See Appendix A for a detailed definition of all variables used in this table.

Panel A: Bridge loans

	Spread	Collateral	Ln(maturity)	Fin Cov	Gen Cov	All Cov
Small	1.37	-0.071	0.027**	-0.047**	0.084***	0.048***
	(2.53)	(0.066)	(0.011)	(0.024)	(0.015)	(0.013)
M&A Loan	0.54	0.028	-0.068***	0.10***	0.076***	0.084***
	(3.83)	(0.11)	(0.017)	(0.037)	(0.022)	(0.019)
Small x M&A Loan	6.75	0.57***	0.12***	0.087**	0.12***	0.11***
	(4.68)	(0.13)	(0.021)	(0.041)	(0.025)	(0.021)
BridgeLoan	59.5***	-1.90***	-1.60***	-0.34***	-0.055**	-0.12***
	(3.80)	(0.099)	(0.017)	(0.044)	(0.023)	(0.020)
Not Rated	1.14	-0.26***	-0.032***	-0.049**	-0.075***	-0.066***
	(2.10)	(0.053)	(0.0091)	(0.020)	(0.012)	(0.010)
M&A Loan	5.50*	0.42***	-0.022	0.19***	0.16***	0.17***
	(3.24)	(0.092)	(0.015)	(0.028)	(0.017)	(0.014)
Not Rated x M&A Loan	-1.93	-0.13	0.056***	-0.071*	0.0047	-0.020
	(4.62)	(0.13)	(0.021)	(0.037)	(0.023)	(0.020)
BridgeLoan	58.9***	-1.93***	-1.61***	-0.35***	-0.063***	-0.13***
	(3.79)	(0.099)	(0.016)	(0.044)	(0.023)	(0.020)
SmallNR	-1.26	-0.30***	-0.035***	-0.076***	-0.089***	-0.083***
	(2.30)	(0.057)	(0.010)	(0.021)	(0.013)	(0.011)
M&A Loan	5.56*	0.36***	-0.026*	0.18***	0.16***	0.17***
	(3.11)	(0.088)	(0.014)	(0.027)	(0.016)	(0.014)
SmallNR x M&A Loan	-2.66	0.016	0.075***	-0.059	-0.00093	-0.021
	(4.74)	(0.13)	(0.022)	(0.038)	(0.023)	(0.020)
BridgeLoan	59.0***	-1.92***	-1.61***	-0.35***	-0.063***	-0.13***
	(3.79)	(0.099)	(0.016)	(0.044)	(0.023)	(0.020)

Panel B: Cash holding

	Spread	Collateral	Ln(maturity)	Fin Cov	Gen Cov	All Cov
Small	1.03	-0.072	0.028**	-0.047**	0.082***	0.047***
	(2.53)	(0.066)	(0.011)	(0.024)	(0.015)	(0.013)
M&A Loan	0.35	0.027	-0.068***	0.10***	0.074***	0.083***
	(3.82)	(0.11)	(0.017)	(0.037)	(0.022)	(0.019)
Small x M&A Loan	7.14	0.57***	0.12***	0.087**	0.13***	0.12***
	(4.68)	(0.13)	(0.021)	(0.041)	(0.025)	(0.021)
Cashhold	-29.7***	-0.19	0.095***	-0.020	-0.16***	-0.12***
	(8.27)	(0.21)	(0.036)	(0.077)	(0.051)	(0.042)

Table 13 – Continued

	Spread	Collateral	Ln(maturity)	Fin Cov	Gen Cov	All Cov
Not Rated	1.07	-0.26***	-0.032***	-0.049**	-0.075***	-0.066***
	(2.10)	(0.053)	(0.0091)	(0.020)	(0.012)	(0.010)
M&A Loan	5.38*	0.42***	-0.021	0.19***	0.16***	0.17***
	(3.24)	(0.092)	(0.015)	(0.028)	(0.017)	(0.014)
Not Rated x M&A Loan	-1.54	-0.12	0.055***	-0.070*	0.0072	-0.018
	(4.62)	(0.13)	(0.021)	(0.037)	(0.023)	(0.020)
Cashhold	-29.5***	-0.16	0.093***	-0.0074	-0.16***	-0.12***
	(8.27)	(0.21)	(0.036)	(0.077)	(0.051)	(0.042)
SmallNR	-1.49	-0.30***	-0.035***	-0.076***	-0.090***	-0.084***
	(2.30)	(0.057)	(0.010)	(0.021)	(0.013)	(0.011)
M&A Loan	5.44*	0.36***	-0.025*	0.18***	0.16***	0.17***
	(3.11)	(0.088)	(0.014)	(0.027)	(0.016)	(0.014)
SmallNR x M&A Loan	-2.22	0.019	0.074***	-0.059	0.0019	-0.018
	(4.74)	(0.13)	(0.022)	(0.038)	(0.023)	(0.020)
Cashhold	-29.6***	-0.19	0.090**	-0.011	-0.16***	-0.12***
	(8.27)	(0.21)	(0.036)	(0.077)	(0.051)	(0.042)

Panel C: Cash to deal value ratio

	Spread	Collateral	Ln(maturity)	Fin Cov	Gen Cov	All Cov
Small	1.33	-0.072	0.027**	-0.047**	0.084***	0.048***
	(2.53)	(0.066)	(0.011)	(0.024)	(0.015)	(0.013)
M&A Loan	-0.76	0.0041	-0.070***	0.12***	0.087***	0.096***
	(3.88)	(0.11)	(0.018)	(0.037)	(0.022)	(0.019)
Small x M&A Loan	7.27	0.58***	0.12***	0.086**	0.12***	0.11***
	(4.68)	(0.13)	(0.021)	(0.041)	(0.025)	(0.021)
Cash_value_ratio_ave	1.91**	0.027	0.0026	-0.032**	-0.026**	-0.028***
	(0.92)	(0.023)	(0.0043)	(0.017)	(0.0100)	(0.0086)
Not Rated	1.12	-0.26***	-0.032***	-0.050**	-0.075***	-0.066***
	(2.10)	(0.053)	(0.0091)	(0.020)	(0.012)	(0.010)
M&A Loan	4.52	0.41***	-0.023	0.20***	0.17***	0.18***
	(3.27)	(0.093)	(0.015)	(0.028)	(0.017)	(0.015)
Not Rated x M&A Loan	-1.84	-0.12	0.056***	-0.066*	0.0071	-0.016
	(4.62)	(0.13)	(0.021)	(0.037)	(0.023)	(0.020)
Cash_value_ratio_ave	1.83**	0.019	0.0015	-0.030*	-0.027***	-0.028***
	(0.92)	(0.023)	(0.0043)	(0.016)	(0.010)	(0.0085)
SmallNR	-1.27	-0.30***	-0.035***	-0.077***	-0.090***	-0.084***
	(2.30)	(0.057)	(0.010)	(0.021)	(0.013)	(0.011)
M&A Loan	4.56	0.35***	-0.027*	0.20***	0.17***	0.18***
	(3.15)	(0.089)	(0.014)	(0.028)	(0.017)	(0.014)
SmallNR x M&A Loan	-2.49	0.021	0.075***	-0.055	0.00070	-0.018
	(4.74)	(0.13)	(0.022)	(0.038)	(0.023)	(0.020)
Cash_value_ratio_ave	1.83**	0.019	0.0016	-0.031*	-0.027***	-0.029***
	(0.92)	(0.023)	(0.0043)	(0.016)	(0.010)	(0.0085)

Panel D: Future access to bond market

	Spread	Collateral	Ln(maturity)	Fin Cov	Gen Cov	All Cov
Small	2.46	-0.070	0.027**	-0.047**	0.085***	0.049***
	(2.54)	(0.066)	(0.012)	(0.024)	(0.015)	(0.013)
M&A Loan	6.39*	-0.17*	-0.24***	0.077**	0.072***	0.074***
	(3.82)	(0.10)	(0.019)	(0.036)	(0.022)	(0.019)
Small x M&A Loan	0.10	0.72***	0.29***	0.11***	0.13***	0.12***
	(4.68)	(0.13)	(0.024)	(0.041)	(0.025)	(0.021)
Access3Yr	12.1***	0.15**	0.051***	0.037	0.043***	0.040***
	(2.37)	(0.061)	(0.011)	(0.024)	(0.015)	(0.012)

Table 13 – Continued

	Spread	Collateral	Ln(maturity)	Fin Cov	Gen Cov	All Cov
Not Rated	5.05**	-0.25***	-0.035***	-0.047**	-0.071***	-0.062***
	(2.18)	(0.054)	(0.010)	(0.021)	(0.013)	(0.011)
M&A Loan	9.27***	0.26***	-0.14***	0.18***	0.16***	0.16***
	(3.24)	(0.089)	(0.016)	(0.028)	(0.017)	(0.014)
Not Rated x M&A Loan	-6.34	-0.0038	0.16***	-0.056	0.0069	-0.014
	(4.62)	(0.12)	(0.023)	(0.037)	(0.023)	(0.020)
Access3Yr	13.5***	0.083	0.042***	0.023	0.019	0.020
	(2.46)	(0.063)	(0.012)	(0.024)	(0.015)	(0.013)
SmallNR	2.29	-0.29***	-0.036***	-0.075***	-0.086***	-0.081***
	(2.38)	(0.059)	(0.011)	(0.021)	(0.013)	(0.011)
M&A Loan	9.10***	0.21**	-0.13***	0.17***	0.16***	0.16***
	(3.11)	(0.085)	(0.016)	(0.027)	(0.016)	(0.014)
SmallNR x M&A Loan	-7.04	0.14	0.18***	-0.044	0.0013	-0.015
	(4.75)	(0.13)	(0.024)	(0.038)	(0.023)	(0.020)
Access3Yr	12.5***	0.083	0.044***	0.016	0.016	0.016
	(2.45)	(0.063)	(0.012)	(0.024)	(0.015)	(0.013)
Panel E: Outstanding loan contract terms						
	Spread	Collateral	Ln(maturity)	Fin Cov	Gen Cov	All Cov
Small	7.99**	-0.11	-0.063***	0.0069	-0.022	-0.015
	(3.25)	(0.083)	(0.016)	(0.027)	(0.018)	(0.015)
M&A Loan	10.6***	0.13	-0.19***	0.11***	0.14***	0.13***
	(3.37)	(0.091)	(0.016)	(0.031)	(0.018)	(0.016)
Small x M&A Loan	-0.29	0.52***	0.27***	0.048	0.064***	0.056***
	(4.71)	(0.13)	(0.023)	(0.038)	(0.023)	(0.020)
Outstanding Collateral	7.07***	0.23***	0.045***	-0.040	0.075***	0.041***
	(2.70)	(0.065)	(0.013)	(0.025)	(0.016)	(0.014)
Outstanding Fin Cov	-0.60	-0.11***	-0.0011	-0.0074	0.00034	-0.00095
	(1.22)	(0.032)	(0.0058)	(0.0096)	(0.0066)	(0.0054)
Outstanding Gen Cov	-0.14	0.024*	0.0043*	-0.0070	-0.0098***	-0.0096***
	(0.51)	(0.013)	(0.0025)	(0.0043)	(0.0028)	(0.0023)
Not Rated	1.81	-0.27***	-0.044***	-0.057***	-0.078***	-0.071***
	(2.11)	(0.052)	(0.010)	(0.020)	(0.012)	(0.010)
M&A Loan	9.66***	0.26***	-0.13***	0.18***	0.16***	0.17***
	(3.24)	(0.089)	(0.016)	(0.028)	(0.017)	(0.014)
Not Rated x M&A Loan	-5.64	0.0071	0.17***	-0.066*	-0.0024	-0.024
	(4.63)	(0.12)	(0.023)	(0.037)	(0.023)	(0.020)
Outstanding Collateral	4.32**	-0.050	0.030***	-0.010	0.091***	0.058***
	(2.05)	(0.050)	(0.0100)	(0.019)	(0.013)	(0.011)
Outstanding Fin Cov	-0.052	-0.081***	-0.0010	-0.025***	0.026***	0.010**
	(0.97)	(0.025)	(0.0048)	(0.0075)	(0.0053)	(0.0043)
Outstanding Gen Cov	-0.41	0.034***	0.0029	-0.0084**	-0.028***	-0.022***
	(0.41)	(0.011)	(0.0020)	(0.0035)	(0.0022)	(0.0019)
SmallNR	-0.72	-0.31***	-0.044***	-0.083***	-0.094***	-0.089***
	(2.31)	(0.057)	(0.011)	(0.021)	(0.013)	(0.011)
M&A Loan	9.51***	0.21**	-0.13***	0.17***	0.16***	0.17***
	(3.12)	(0.085)	(0.016)	(0.027)	(0.016)	(0.014)
SmallNR x M&A Loan	-6.40	0.15	0.19***	-0.054	-0.0076	-0.025
	(4.76)	(0.13)	(0.024)	(0.038)	(0.023)	(0.020)
Outstanding Collateral	4.30**	-0.051	0.030***	-0.010	0.092***	0.059***
	(2.05)	(0.050)	(0.0100)	(0.019)	(0.013)	(0.011)
Outstanding Fin Cov	-0.040	-0.081***	-0.0012	-0.025***	0.026***	0.010**
	(0.97)	(0.025)	(0.0048)	(0.0075)	(0.0053)	(0.0043)
Outstanding Gen Cov	-0.43	0.034***	0.0030	-0.0086**	-0.028***	-0.023***
	(0.41)	(0.011)	(0.0020)	(0.0035)	(0.0022)	(0.0019)

Appendices

A   Definitions of variables

A.1   KEY VARIABLES USED IN THE EMPIRICAL ANALYSIS

- *All/Gen/Fin Cov*: The total number of all types/general/financial covenants in the debt agreement.

- *BF*: Dummy variable: 1 if there is at least one loan issued during (-1 year, deal completion) the M&A event window.

- *BF_BankLoan*: Dummy variable equal: 1 if the loan financing is led by a bank.

- *BF_Big3*: Dummy variable equal: 1 if the bank financing is done by a big 3 bank.

- *BF_Bridge*: Dummy variable equal: 1 if the loan is originated as the bridge financing.

- *BF_IILoan*: Dummy variable equal: 1 if the loan financing is led by institutional investors.

- *BF_NRel*: Dummy variable equal: 1 if the bank financing is done by a non-relationship bank.

- *Rel_prior*: Dummy variable equal: if the acquirer has a relationship bank prior to the M&A deal and zero otherwise.

- *BF_NBridge*: Dummy variable equal: 1 if the loan is not originated as the bridge financing.

- *BF_Nbig3*: Dummy variable equal: 1 if the bank financing is done by a non-big 3 bank.

- *BF_Rel*: Dummy variable equal: 1 if the bank financing is done by a relationship bank.

- *BF_only*: Dummy variable: 1 if the acquiring firm took a loan from the LPC database during the M&A window (-1yr, completion) and didn't make seasoned equity offering or issue bonds.

- *BondF*: Dummy variable: 1 if the acquiring firm made at least one bond issuance during the M&A window (-1yr, completion).

- *BondF_only*: Dummy variable: 1 if the acquiring firm made at least one bond issuance during the M&A window (-1yr, completion) and didn't make seasoned equity offering or borrow money from banks.

- *BHAR6M(1Y)*: Denotes the 6 months (1 year) buy-and-hold abnormal returns difference between sample firm returns and corresponding contemporaneous control firm returns.

- *CAR3*: Denotes the three-day cumulative abnormal return (in percent) measured using market model residuals.

- *Collateral*: A dummy variable that equals one if the loan facility is secured by collateral and zero otherwise.

- *EBIT_diff*: The change in EBIT in the year after the completion date of the M&A transaction to the year before the M&A transaction scaled by the total assets in the year before the M&A transaction.

- *Ln(Distance)*: The log of mean geographic distance between firm headquarters and headquarters of all the banks in the LPC database.

- *Ln(maturity)*: The natural log of the loan maturity. Maturity is measured in months.

- *M&A loan*: Dummy variable: 1 if the loan is issued during the M&A event window(-1 year, deal completion).

- *Not Rated*: Dummy variable: 1 if the firm does not have a credit rating.

- *Placebo*: It is defined similarly to PostMA by shifting the actual M&A announcement date and completion date by three years forward.

- *PostMA*: Dummy variable: 1 if it is one year after the M&A completion, and 0 if it is one year before the M&A announcement date.

- *Small*: Dummy variable equal to one if the acquirer has a deflated total asset equal to or less than that of the median of all firms in the sample.

- *SmallNR*: Dummy variable equal to one if the acquirer is Small and NR.

- *SeoF*: Dummy variable equal to one if the acquiring firm made a seasoned equity offering during the M&A window (-1yr, completion).

- *SeoF_only*: Dummy variable equal to one if the acquiring firm made a seasoned equity offering during the M&A window (-1yr, completion) and didn't issue bonds or borrow money from banks.

- *Spread*: Measured as the all-in-drawn spread from the Dealscan database. All-in-drawn spread is defined as the amount the borrower pays in basis points over LIBOR or LIBOR equivalent for each dollar drawn down. (For loans not based on LIBOR, LPC converts the spread into LIBOR terms by adding or subtracting a differential that is adjusted periodically.) This measure adds the borrowing spread of the loan over LIBOR to an annual fee paid to the bank group.

- *TBC*: Total Borrowing Cost is defined in Berg, Saunders, and Steffen (2016). The total cost of borrowing reflects the option characteristics of bank loans and incorporates the various fees paid to lenders.

A.2   OTHER CONTROL VARIABLES USED

- *All-cash*: Dummy variable: 1 for purely cash-financed deals, 0 otherwise.

- *Bond Market Access in 3 year*: Dummy variable: 1 if the firm issues at least one bond in the three years after M&A, 0 otherwise.

- *Bridge Loan*: Dummy variable: 1 for loan type is a bridge loan, 0 otherwise.

- *Cash*: Cash and short-term investment scaled by the total asset.

- *Cash_value_ratio_ave*: Cash and short-term investment scaled by the deal size.

- *Credit Spread*: The difference between the BAA corporate bond yield and the AAA corporate bond yield. (Data source: Federal Reserve Board of Governors.)

- *Diversify*: Dummy variable: 1 if bidder and target do not share a Fama-French 48 industry, 0 otherwise.

- *FreeCF*: Operating income before depreciation (item13) – interest expenses (item15) – income taxes (item16) – capital expenditures (item128), scaled by the book value of total assets (item6).

- *HHI*: Dummy variable: 1 if the bidder's industry is in the bottom quartile of all 48 Fama–French industries annually sorted by the Herfindahl index, 0 otherwise, where an industry's Herfindahl index is computed as the sum of squared market shares of all COMPUSTAT firms in the industry and with valid data on sales (item12).

- *IO*: The fraction of the bidder's common stock held by institutional investors.

- *Ln(Mcap)*: Natural log of the number of shares outstanding multiplied by the stock price on the 11th trading day before the announcement date.

- *Book-to-Marlet*: Total Assets/(Market value of equity plus the book value of debt)=data6/(data25*data199+data6-data60)

- *Leverage*: (Long Term Debt + Debt in Current Liabilities)/Total Assets=(data9+data34)/data6

- *Ln(Loan Size)*: Natural log of the loan facility amount. The loan amount is measured in millions of dollars.

- *Loan Purpose Dummies*: Dummy Variable for loan purposes, including corporate purposes, debt repayment, working capital, etc.

- *Loan Type Dummies*: Dummy variable for loan types, including term loan, revolving role greater than one year, revolving loan less than one year, and 364-day facility.

- *N Analyst*: The number of analysts covering the firm.

- *Outstanding Collateral*: Loan size weighted average of the collateral requirement of outstanding loans.

- *Outstanding Fin Cov*: Loan size weighted average of financial covenants of outstanding loans.

- *Outstanding Gen Cov*: Loan size weighted average of general covenants of outstanding loans.

- *Perform-pricing*: A dummy variable that equals one if the loan facility uses performance pricing.

- *Private*: Dummy variable: 1 for private targets, 0 otherwise.

- *Profitability*: EBIT/Total Assets=data18/data6

- *Public*: Dummy variable: 1 for public targets, 0 otherwise.

- *Relative size*: Deal value (from SDC) over the bidder's market value of equity, as defined above.

- *Run-up*: Bidder's buy-and-hold abnormal return (BHAR) during the period (-210, -11).

- *Term Spread* : The difference between the 10-year Treasury yield and the 2-year Treasury yield. (Data source: Federal Reserve Board of Governors.)

- *Tobin's q*: Bidder's market value divided by the book value of the bidder's assets.

- *Tangibility*: Net Property, Plant and Equipment/Total assets=data8/data6

- *Uniqueness*: Dummy variable: 1 if the bidder's industry is in the top quartile of all 48 Fama-French industries annually sorted by industry-median product uniqueness, 0 otherwise, where product uniqueness is defined as selling expense (item189) scaled by sales (item12).

- *Volatility*: the standard deviation of the market-adjusted residuals of the daily stock returns measured during the period starting from 205 to 11 days before the acquisition announcement.