SYNDICATED LOAN LENDERS' IMPACT ON M&A ACQUIRERS' POST MERGER OPERATING PERFORMANCE AND CREDITWORTHINESS: EVIDENCE IN U.S. M&A DEALS FROM YEAR 2005 TO 2011

JIANNING HUANG
Bachelor of Finance, University of Manchester, 2003

A Thesis
Submitted to the School of Graduate Studies
of the University of Lethbridge
in Partial Fulfilment of the
Requirements for the Degree

MASTER OF SCIENCE IN MANAGEMENT

Faculty of Management
University of Lethbridge
LETHBRIDGE, ALBERTA, CANADA

SYNDICATED LOAN LENDERS' IMPACT ON M&A ACQUIRERS' POST MERGER OPERATING PERFORMANCE AND CREDITWORTHINESS: EVIDENCE IN U.S. M&A DEALS FROM YEAR 2005 TO 2011

JIANNING HUANG

Date of Defence: July 2, 2015

Dr. P. Shao, Ph.D.
Supervisor
Thesis Examination Committee

Dr. G. Tian, Ph.D.
Co-Supervisor
Thesis Examination Committee

Dr. Y. Li, Ph.D.
Reader
Thesis Examination Committee

Dr. Y. Feng Ph.D.
External Examiner
Thesis Examination Committee
Ryerson University
Toronto, Ontario

Dr. K. Williams-Whitt, Ph.D.
Chairperson, Thesis Examination Committee

Abstract

Financial intermediaries (such as banks) are delegated to monitor borrowers (Diamond, 1984). In the merger wave, many acquirers raise funds by borrowing syndicated loans to fund their M&A deals (Huang, Lu, & Srinivasan, 2012). However, banks' monitoring of borrowers does not enhance firm value to the extent that the acquirers' shareholders can benefit (Huang et al., 2012). Based on unadjusted measures, we found that M&A deals financed by syndicated loans experience better post-merger operating performance (ROA) and creditworthiness (Altman's Z Score and EDF). M&A deals financed by relationship lenders experience better post-merger operating performance (ROA) and creditworthiness (EDF). M&A deals financed by reputable lenders experience better post-merger operating performance (ROA) and creditworthiness (Altman's Z Score and EDF). However, M&A deals financed by institutional lenders experience worse post-merger operating performance (ROA) and worse creditworthiness (EDF), and transactional lenders have almost no impact on the borrowers' post-merger operating performance and creditworthiness.

Acknowledgements

This thesis is the result of tremendous effort by many people. I wish to thank my two supervisors, Dr. Pei Shao and Dr. Gloria Tian, for their guidance, support, and advice. Without them, I would never have been able to accomplish this task. They are always available and willing to help me, not only with my thesis but also with my future endeavors in academia. I sincerely appreciate them. I also thank Dr. Yutao Li for kindly being my reader, Dr. Yi Feng for kindly being my external examiner, and Dr. Kelly Williams-Whitt for kindly being the chair of the examination committee.

I would also thank our program administrator, Tammy Rogness. She has helped me a lot since I submitted my application to the MSc program.

I also appreciate all the professors and classmates who attended my thesis proposal defence/thesis defence. Thank you very much for your support and valuable advice.

Table of Contents

List of Tables

1. Introduction

This paper investigates whether taking syndicated loans helps to improve a firm's post-merger operating performance and creditworthiness, and whether taking syndicated loans from different types of lenders lead to different post-merger operating performance and creditworthiness.

Syndicated loans provide a large and increasingly important source of financing in the corporate loan market. As defined by Sufi (2007), a syndicated loan is a loan issued to a borrower by at least two financial institutions. Syndicated loans are a hybrid of private and public debt (Dennis & Mullineaux, 2000). The member financial institutions in a syndicated loan fall into one of two groups: lead arrangers or participant lenders. The loan syndication process starts when the borrower awards a mandate to a lead arranger and provides the lead arranger with the information about its business and operation (Kang, 2011). After a relationship is established, the lead arranger negotiates contract terms with the borrower and guarantees an amount for a price range (Sufi, 2007). The lead arranger then prepares an information memorandum and turns to participant lenders that will fund part of the syndicated loan (Sufi, 2007; Kang, 2011).

Syndicated loans provide a large and increasingly important source of financing in the corporate loan market. In the U.S., non-financial firms obtain new syndicated loans worth nearly $1 trillion each year, which accounts for approximately 15% of their total debt outstanding (Sufi, 2007). Because of its importance in corporate finance, there is a vast literature that has looked into syndicated loans. The modern literature on financial intermediation has primarily focused on the banks' role as relationship lenders (Boot, 2000). Banks are special because they are the delegated monitors who are responsible for screening prospective borrowers, collecting proprietary information from the borrowers, monitoring the borrowers, and developing a close relationship with

the borrowers over time to mitigate the problems of information asymmetry and moral hazard problems (Ramakrishnan & Thakor, 1984; Diamond, 1984; Boyd & Prescott, 1986; James, 1987; Allen, 1990; Diamond, 1991; Boot, 2000). The close relationship between the banks and the borrowers has been shown to facilitate screening and monitoring and has given the banks a comparative advantage over de novo lenders (Boot, 2000). Relationship lending is beneficial because it facilitates the exchange of information between banks and borrowers so that more information credit contracting decisions can be made, and it also increases the availability of credit to information-sensitive borrowers (Boot, 2000).

However, banks' specialness as relationship lenders has been challenged by the proliferation of transaction-oriented lending (which means to syndicate loans and then sell them in the secondary loan market or securitize them because the corporate loan market has become more competitive with the entrance of non-commercial bank lenders), and significant institutional changes have taken place including the development of the secondary loan market and the securitization of various bank loans in recent years (Boot & Thakor, 2000; Li, Shao, & Saunders, 2015). In the corporate loan market, each bank can choose to offer either relationship loans or transactional loans. Although relationship lending has many benefits, it is costly to engage in relationship lending by developing relationships and obtaining proprietary information from the borrowers over time. Many banks have shifted from relationship lending to transactional lending (Boot & Thakor, 2000).

The other significant change that has transformed the structure of the syndicated loan market is the emergence of non-bank, i.e., institutional, lenders. Nowadays institutional lenders, which include private equity firms, hedge funds, collateralized loan obligations, mutual funds, insurance companies and a small set of specialized

lenders, are significant participants in the corporate loan market (Kang, 2011). Different from commercial banks, institutional lenders face less stringent regulations and are less likely to focus on relationship lending which involves the sale of multiple financial products/services over time. As a result, they are willing to assume more credit risk by lending to riskier borrowers for riskier purposes such as leveraged buy-outs and M&As in order to achieve lucrative returns (Nandy & Shao, 2007; Kang, 2011).

In the U.S. corporate loan market, three large banks, J.P. Morgan Chase, Bank of America and Citi Group which have very high reputation for screening and monitoring borrowers account for over 55% of the market (Ross, 2010). In loan syndication, the participant banks rely on the reputation of the lead arranger who is responsible for due diligence, allocation of loan principal to participant lenders, monitoring the borrower, and renegotiation of loan terms to make lending decisions. Loans from reputable lenders provide more credible signals about borrowers' quality than those from other lenders (Ross, 2010). While the reputable lenders enjoy a large market share, they have a greater incentive than other lenders to continue to screen and monitor which reduce information asymmetry between borrowers and participant lenders in order to maintain their reputation, and ultimately to maintain the large market share (Sufi, 2007; Ross, 2010). In addition, reputable lenders have a high level of competence in screening and monitoring borrowers, which makes their efforts more effective (Ross, 2010; Huang et al., 2012).

As we know, borrowers take syndicated loans for a variety of purposes (Li et al., 2015). One of the purposes is to finance M&A deals (Huang et al., 2012). In the past decades, much literature has focused on the acquirers' post-merger performance and many studies have found strong evidence of post-merger underperformance, although there is no consensus on the reason for the underperformance (Agrawal, Jaffe, &

Mandelker, 1992; Mitchell & Stafford, 2000). In a survey that summarized evidence from 130 studies from 1971 to 2001 on whether M&A pays, Bruner (2001) categorized findings into two types, i.e., findings based on the analysis of market-based returns to shareholders, and findings based on the analysis of reported financial performance (e.g. ROA, profit margins and capital, etc.) and summarized that one-third of the studies reported M&As' post-merger underperformance, one-third reported M&A as value conservation, and one-third showed value creation. It seems that in the aggregate, returns to acquirers' shareholders from M&As are essentially zero (Bruner, 2001). M&As do not necessarily cause underperformance. We argue that there could be other reasons that can lead to post-merger underperformance. Financial intermediation theories suggest that banks screen and monitor borrowers, which certifies and enhances the borrowers' value (Diamond, 1984; Ramakrishnan & Thakor 1984). Therefore, acquirers' post-merger performance provides a very good arena for us to examine whether syndicated loans add value to the borrowers, i.e., the acquirers in the context of M&As, and if so, to what extent. The results may shed light on the cause of post-merger underperformance and show a possible solution to alleviate this problem. If taking syndicated loans creates value for the acquirers in M&A deals with lenders' monitoring, the post-merger underperformance problem would be mitigated, and lack of monitoring of the management team could be a cause of underperformance; Therefore, shareholders may request the management team to take syndicated loans to help monitor the firm's operation and eventually alleviate the post-merger underperformance problem. Huang et al. (2012) have examined whether banks monitor corporate decisions by looking into the acquirers' post-merger performance. Inconsistent with the financial intermediation theories, they did not find that syndicated loan-financed M&A deals are associated with better stock or accounting performance

compared to M&A deals financed by other sources. Instead, Huang et al. (2012) found strong evidence that banks tighten up the syndicated loan contract terms when financing M&A deals, including cutting short the loan maturity and imposing a higher collateral requirement and more covenant restrictions. Given the different lender types--relationship lender, transactional lender, institutional lender, and reputable lender in the syndicated loan market, as explained above--who have different incentives to monitor their respective borrowers and different purposes for engaging in syndicated loans, it is worthwhile to examine further whether different types of lenders monitor corporate decisions to different extents that will lead to different post-merger performance and mitigate the post-merger underperformance problem in many M&A deals. To the best of our knowledge, there has been no academic study to investigate the impact of different types of syndicated loan lenders on M&A deals' post-merger performance.

By obtaining a sample of 3,955 M&A deals from the SDC database, including 2,416 syndicated loan financed (hereinafter referred to as LF) and 1,539 non-syndicated loan financed (hereinafter referred to as NLF) in the period of 2005 to 2011, whose acquirers are all U.S. publicly listed firms with above $1 million M&A transaction value, we tested the following hypotheses. Hypothesis 1 (H1): taking syndicated loans prior to M&A deals should add value that will improve post-merger operating performance and creditworthiness because lenders have incentives to screen and monitor their borrowers as well as collecting proprietary information from their borrowers (Li et al., 2015). Hypothesis 2 (H2): syndicated loans provided by relationship lenders should add value that will improve post-merger operating performance and creditworthiness because relationship lenders have an incentive to screen borrowers, which enables them potentially to block value-reducing M&A deals by withholding the loan and to monitor the borrowers (Diamond, 1984). Hypothesis 3 (H3): syndicated loans provided by

transactional lenders may not add value that will not impact post-merger operating performance and creditworthiness because they have less monitoring incentive than relationship lenders. Transactional lenders allocate more resources to loan distribution and trading than to monitoring (Boot & Ratnovski, 2012). Hypothesis 4 (H4): syndicated loans provided by institutional lenders may reduce value that will worsen post-merger operating performance and creditworthiness because they exploit loan information gained from lending to make a profit by trading the borrowers' stocks or facilitating possible M&A deals of the borrowers rather than monitoring them (Nandy & Shao, 2007; Kang, 2011). Hypothesis 5 (H5): syndicated loans provided by reputable lenders should add value that will improve post-merger operating performance and creditworthiness because they have great incentive to monitor the borrowers in order to maintain their good reputation and ultimately maintain their large market shares (Booth & Smith, 1986; Chemmanur & Fulghieri 1994a; Chemmanur & Fulghieri 1994b).

We measure the acquirers' performance by using ROA. To access a firm's performance, researchers generally either use accounting-based measures such as ROA (return on assets) and ROE (return on equity) or market-based measures such as Tobin's Q and market return (Hoskisson, Hitt, Wan, & Yiu, 1999; Combs, Crook, & Shook, 2005; Hult, et al., 2008). Among accounting-based measures of firm performance, ROA is widely used (Finkelstein & Hambrick, 1996; Finkelstein & Boyd, 1998). It is computed as the firm's net income over its total assets, which shows the efficiency with which a firm employs its assets (Carpenter & Sanders, 2002). Li et al. (2015) and Huang et al. (2012) have adopted ROA as a measure for firm performance. In this paper, we will also adopt ROA as the firm performance measure which is of interest to the shareholders. In addition, we will also look into the acquirers' post-merger creditworthiness from the debtholders' perspective because we found that M&As' post-

merger creditworthiness has been underexplored. It will be interesting to look into this area when we investigate post-merger operating performance from the shareholders' perspective. Creditworthiness can be measured by KMV Merton-based EDF (Expected Default Frequency) and Altman's Z-Score (Li et al., 2015). Debtholders care about whether the borrowers will default. The implied probability of default, also called EDF, is a measure of credit risk calculated as a function of distance to default with a premise that a firm will become bankrupt when the market value of its assets is less than its default barrier, i.e., its debt (Asberg & Shahnazarian, 2008). Altman's Z Score is a measure of financial distress developed by Professor Edward Altman in the year 1968. It predicts the probability that a firm will go into bankruptcy in two years and is used to predict corporate defaults (Altman, 1968). We will follow Li et al., (2015) by utilizing EDF and Altman's Z Score as two creditworthiness measures.

Our empirical investigation reveals that taking syndicated loans prior to M&A helps to improve post-merger operating performance and creditworthiness, that taking syndicated loans from relationship lenders prior to M&A helps to improve post-merger operating performance and creditworthiness, that taking syndicated loans from transactional lenders prior to M&A does not impact post-merger operating performance and creditworthiness, that taking syndicated loans from institutional lenders prior to M&A worsens post-merger operating performance and creditworthiness, and that taking syndicated loans from reputable lenders prior to M&A improves post-merger operating performance and creditworthiness. We conducted two robustness checks including propensity score matching (PSM) and industry adjusted measures. Findings for H1, H2, H3 and H5 remain robust when we apply propensity score matching. Findings for H1, H2, H3, H4 and H5 remain robust for post-merger operating performance when we adopt industry adjusted measures, but only H2, H3 and H4

remain robust for post-merger creditworthiness when we adopt industry adjusted measures.

This paper is closely related to recent empirical papers, especially Huang et al. (2012), which found that lenders' monitoring of borrowers' (i.e., acquirers in the context of M&A) corporate decisions do not enhance lenders' firm value. Different from Huang et al. (2012), we looked into long-term operating performance and creditworthiness rather than announcement effects, compared the post-merger measures between LF and NLF M&A deals, and also compared the impact of different types of lenders on M&A deals' post-merger measures, and found statistically significant results that support our hypotheses. Based on the results of unadjusted measures and robustness checks, we provide new insights on bank specialness and the reasons of post-merger underperformance and credit deterioration by showing that taking syndicated loans is beneficial to shareholders and debtholders in general, that taking loans from relationship lenders is beneficial to shareholders and debtholders, that taking loans from transactional lenders does not impact shareholders and debtholders and that taking loans from reputable lenders is beneficial to shareholders and debtholders.

The rest of the paper is organized as follows. Section 2 reviews the related theoretical and empirical literature and delineates the contribution of our study. Section 3 develops testable hypotheses. Section 4 explains our sample selection, variable construction and methodology. Section 5 presents empirical analysis and results discussion including univariate and multivariate analysis. Section 6 discusses further research. Finally, section 7 draws a conclusion.

2. Literature review and delineation of our contribution

Diamond (1984) developed the theory of financial intermediation based on minimum cost production of information useful to resolve incentive problems. Information asymmetry between lenders and borrowers has played a key role in the development of this theory (Bharath, Dahiya, Saunders, & Srinivasan, 2009). An intermediary, such as a bank, is delegated the role of costly monitoring the borrower. Banks develop close relationships with borrowers over time such that this proximity between the bank and the borrower facilitates screening and monitoring, and ultimately overcomes problems of asymmetric information (Boot, 2000). Amongst the many financing options, syndicated loans are worthy of analysis because they represent a hybrid of private and public debt and because the syndicated loans market where a loan is divided among more than one lender is large and growing rapidly (Dennis & Mullineaux, 2000). In the context of syndicated loans, usually only the lead arranger has a relationship with the borrower and the intensity is between that of a bank loan and a public debt (Dennis & Mullineaux, 2000).

With extensive literature that suggests lenders screen and monitor their borrowers, it is worthwhile to examine whether the lenders monitor the borrowers' corporate decisions to an extent that enhances the borrowing firms' value. M&As, one of the most important corporate decisions, provides an ideal arena to investigate. Given that many M&As experience post-merger underperformance, if lenders' screening and monitoring indeed add value to the borrowers, the post-merger underperformance problem of M&As financed by syndicated loans should be mitigated compared to those not financed by syndicated loans. Huang et al. (2012) examined whether banks who provided loans to fund M&As monitor firms to an extent that will benefit the acquirers' shareholders. Inconsistent with what the conventional theory suggests, they did not find

that bank-financed M&A deals have better stock performance or accounting performance than non-bank-financed M&A deals. Instead, they found that banks tighten up their loan contract terms such as cutting short the loan maturity, imposing higher collateral requirement and more covenant restrictions. However, this does not mean the screening and monitoring of all lenders in syndicated loans do not add value to the borrowers. It would be interesting to further investigate different types of lenders' monitoring roles and their borrowers' corresponding post-merger operating performance in the context of M&A. We will further review the literature on different lender types. By using M&A as an arena, we can also look into acquirers' post-merger creditworthiness, which is an area that has been relatively underexplored.

Boot (2000) defined relationship banking as the provision of financial services by a financial intermediary that invests in obtaining customer-specific information and evaluates the profitability of the investments through multiple interactions with the same customer over time. The information obtained when the bank provides screening and monitoring services can be used in multiple interactions with the same customer by benefiting from the intertemporal information reusability which gives the bank incentive to screen and monitor its borrowers (Diamond, 1984; Rajan & Winton, 1995; Greenbaum & Thakor, 2007). In contrast, transaction banking that does not aim at an information-intensive relationship with a customer cannot benefit from intertemporal information reusability because transaction banking only focuses on a single transaction with a customer or multiple identical transactions with various customers (Boot, 2000; Boot & Thakor, 2000). Boot (2000) also documented the major benefits of relationship banking. Firstly, relationship banking facilitates information exchange between the lender and the borrower because the borrower might be more willing to reveal more information to the relationship lender than to a transactional lender and the relationship

lender may have stronger incentives to invest in costly information production (Boot, 2000). Secondly, relationship banking also increases the available credit to information-sensitive borrowers (Boot, 2000). Furthermore, Boot and Thakor (2000) shed light on the distinction between relationship lending and transactional lending by highlighting that relationship lenders use their expertise to improve the borrowers' project payoff, whereas transactional lenders provide pure funding transaction, a commodity product without sector-specific investments connected with relationship lending. Bharath et al. (2009) examined the impact of relationships in lowering information asymmetries between lenders and borrowers and found that repeated borrowing from the same lender helps in lowering loan spreads. They also estimated the cut-off point between relationship lending and transactional lending.

According to traditional financial intermediary theories, banks are special because they engage in relationship lending by serving their unique delegated monitor role with a comparative advantage and enhanced incentive in proprietary information production, screening and monitoring the borrowers, and developing relationships with the borrowers to mitigate information asymmetry and moral hazard problems (Brealey, Leland, & Pyle, 1977; Campbel & Kracaw, 1980; Diamond, 1984; James, 1987; Boot, 2000; Ross, 2010). However, Gande and Saunders (2012) found that the developing strength and depth of the secondary loan market has significantly changed the nature of bank specialness. Many banks have shifted from relationship lending to transactional lending (Boot & Thakor, 2000). Li et al. (2015) extended this strand of literature by directly comparing and contrasting relationship lending and transactional lending. They argued that transactional lenders have lower monitoring incentives than relationship lenders because transactional lenders inefficiently allocate more resources to marketing and distributing the loans during the primary syndication process rather

than diligently screening potential borrowers, that transactional lenders' specialization in syndicating tradable loans makes their loans more liquid than relationship lenders'. and that transactional lenders may use their tradable loans to facilitate their ex post trading activities. As a result, Li et al. (2015) expected that borrowers borrowing from transactional lenders would have worse operating performance and creditworthiness after loans' issuance and found strong evidence to support their hypotheses in their empirical investigation. In addition, Li et al. (2015) also found that transactional loans involve a greater number of nonbank institutional lenders (i.e., private equity firms, hedge funds, collateralized loan obligations, mutual funds, insurance companies, and a small set of specialized lenders) than relationship loans and institutional participation provides a channel for transactional lenders to generate and improve their loans' liquidity.

In fact, institutional lenders have been increasingly active in the syndicated loan market (Kang, 2011). Kang (2011) documented that the proportion of institutional lenders in the syndicated loan market increased from 11% in year 1987 to 26% in year 2007, and the number of institutional lenders in the syndicated loan market was more than that of bank lenders from year 1992 to year 2009. Institutional lenders have already become the most active loan traders in the secondary market who promote mutual interaction between the primary and secondary loan markets and improve loan market efficiency (Nandy & Shao, 2007). Nandy and Shao (2007) asked several questions regarding institutional participation in the syndicated loan market. They showed that institutional lenders participate in the syndicated loan market because it rewards them with a lucrative return. Institutional lenders primarily lend to riskier borrowers for riskier purposes such as M&As. Nandy and Shao (2007) documented that institutional lenders are uninformed investors compared to relationship lenders who can derive

private information from their existing relationship (Peterson & Rajan, 1994). They found that institutional lenders charge a much higher spread since they would have to engage in costly information production, which in turn encourages institutional lenders to participate in the secondary loan market rather than develop a close relationship with the borrowers in order to benefit from intertemporal information reusability. Consistent with their information production argument, Nandy and Shao (2007) found a much higher percentage of institutional loans are traded in the secondary loan market, institutional loans have shorter holding periods by their original lenders and earn higher first trading day returns. As a result, institutional lenders do not have as strong an incentive to monitor the borrower as relationship lenders.

Different from institutional lenders, reputable lenders have a strong incentive to monitor the borrowers. It's recognized that banks play a special certification role through lending and delegated monitoring (Diamond, 1984; Fama, 1985). When a firm is relatively unknown, investors rely on third parties, reputable lenders in the context of the syndicated loan market who access the firm (i.e., the borrower)'s private information in the screening and monitoring process (Cook, Schellhorn, & Spellman, 2001) to bridge the asymmetric information gap between the investors and the unknown firm. Billet, Flannery, and Garfinkel (1995) found that lenders with higher reputations measured by credit rating generate a more positive borrower stock price response. Cook et al. (2001) defined lender certification as the process where the lender identifies good borrowers and transmits the information about the borrower's quality and creditworthiness to the investors by syndicating loans to them. They found that reputable lenders who do not impose collateral requirements are able to exact a certification premium based on their own reputation measured by their credit rating and asset size. That is to say, reputable lenders have a strong incentive to serve their

delegated screening and monitoring role in order to earn the certification premium. Different from previous literature, Ross (2010) adopted the lender's market share as a proxy for its reputation and found that the stock price response of borrowers of the dominant banks (i.e., reputable lenders), which account for more than 50% of the syndicated loan market in the U.S, is more favorable and these reputable lenders have particularly high reputations for screening and monitoring borrowers. The commanding market share has given them very strong incentives to screen and monitor their borrowers, which makes the reputable lenders' reputation and market share self-reinforcing.

Recognizing that different types of lenders of syndicated loans have different screening and monitoring incentives, we contribute to the literature by examining whether different types of lenders will monitor borrowers' corporate decisions to different extents, which impacts the borrowers' post-merger operating performance and creditworthiness differently, and benefits shareholders/debtholders. Our study also adds to the growing literature on whether lenders monitor corporate decisions of borrowers in the context of M&A to the extent that will improve their performance and creditworthiness by comparing the post-merger operating performance and creditworthiness of LF and NLF M&As. We also contribute to the literature of M&As by exploring whether lack of monitoring is one of the reasons that leads to the acquirers' post-merger underperformance.

3. Hypotheses development

3.1 Monitoring role

Financial intermediation theories suggest that lenders screen and monitor borrowers which certifies and enhances their borrowers' value (Diamond, 1984; Ramakrishnan & Thakor 1984). Many papers have documented that acquirers in M&A deals experience post-merger underperformance but they have not gained consensus on the reason (Chang, 2011). In the context of M&A, acquirers whose deals are financed by syndicated loans should have experienced initial screening that blocks value-reducing M&As by withholding financing and by continuous monitoring by their lenders, and as a result their post-merger operating performance should be better as compared to deals not financed by syndicated loans. We argue that the lack of screening and monitoring is one of the reasons that leads to post-merger underperformance and credit deterioration. Therefore, we make the following hypothesis:

H1: The post-merger operating performance and creditworthiness of borrowers (i.e,. acquirers in M&As) whose M&A deals are financed by syndicated loans will be better compared to M&A deals not financed by syndicated loans.

3.2 Incentives to monitor

Based on the percentage of loans being resold, there are two types of lenders: relationship lenders and transactional lenders (Boot & Thakor, 2000). Relationship lenders utilize their expertise to improve the borrowers' project payoff and usually hold the loans to maturity. By contrast, transactional lenders provide pure funding transaction without sector-specific knowledge by underwriting and selling loans before maturity (Boot & Thakor, 2000). There are different views on how loan resale and securitization impact lenders' monitoring incentive, including Boot and Ratnovski (2012) who suggest that lenders who engage in trading loans would inefficiently

allocate more resources to trading so that they will compromise monitoring efforts. Li et al. (2015) share the same view as Boot and Ratnovski (2012) by arguing that transactional lenders inefficiently allocate resources to trade rather than monitoring borrowers, that transactional lenders are more likely to hold loans with higher liquidity that enable them to exercise their "exit option" more easily with reduced monitoring incentive, and that transactional lenders' more salable loans facilitate their trading activities to reduce monitoring incentive. Winton and Yerramilli (2012) argue that lenders who engage in "originate-to-distribute" loans will maintain their incentive to monitor for reputational concerns. We share a similar view as Boot and Ratnovski (2012) and Li et al. (2015) because we believe that, with limited resources, it is difficult for transactional lenders to ensure that they have as strong an incentive as relationship lenders and genuinely dedicate the same amount of time and effort to monitor their borrowers in the way that relationship lenders do, even if the transactional lenders try to monitor in order to maintain their reputation. Transactional lenders' monitoring effort will not have an impact on the borrowers' performance. Accordingly, we develop the following hypotheses:

H2: The post-merger operating performance and creditworthiness of borrowers (i.e., acquirers in M&As) whose M&A deals are financed by relationship lenders will be better.

H3: Transactional lenders do not have an impact on the post-merger operating performance and creditworthiness of borrowers (i.e,. acquirers in M&As) whose M&A deals are financed by transactional lenders.

3.3 Institutional participation

Institutional lenders are found to be increasingly active in the syndicated loan market (Kang, 2011) and they constitute an important channel to improve syndicated

loans' liquidity and salability (Li et al., 2015) because their participation in the syndicated loan market provides them with lucrative returns (Nandy & Shao, 2007). Different from relationship lenders, institutional lenders are uninformed investors because they do not possess private information derived from existing relationships (Peterson & Rajan, 1994; Nandy & Shao, 2007). Institutional loans have shorter holding periods by their original lenders and more than 30% of institutional loans are traded in the secondary market (Nandy & Shao, 2007). In such a background, it is not surprising that institutional lenders do not have an incentive to develop a close relationship with their borrowers and monitor them to benefit from intertemporal information reusability. They only engage in costly information production in order to trade their loans and profit in the secondary market. Because institutional lenders are willing to assume more credit risk by lending to riskier borrowers for riskier purposes and have little incentive to monitor them (Nandy & Shao, 2007; Kang, 2011), it is likely that M&A deals financed by institutional lenders will experience worse performance. We develop the hypothesis as below:

H4: The post-merger operating performance and creditworthiness of borrowers (i.e., acquirers in M&As) whose M&A deals are financed by institutional lenders will be worse.

3.4 Lender's reputation

When a borrower is relatively unknown, participant lenders rely on reputable lenders in the syndicated loan to access the borrower's private information in the screening and monitoring process (Cook et al., 2001) to bridge the asymmetric information gap between the investors and the unknown borrower. Lender certification serves as the process to identify good borrowers and transmit the information about the borrower's quality and creditworthiness to the investors by syndicating loans to them

(Cook et al., 2001). Lenders who do not impose collateral requirements are able to exact a certification premium based on their reputation (Cook et al., 2001). Thus, reputable lenders have strong incentive to serve their delegated screening and monitoring role to maintain their reputation so that they can continuously earn the certification premium. Therefore, we have the following hypothesis:

H5: The post-merger operating performance and creditworthiness of borrowers (i.e., acquirers in M&As) whose M&A deals are financed by reputable lenders will be better.

4. Sample selection, variable construction and methodology

4.1 Sample selection

For new loan issues and secondary loan sales, our primary data source is from Thomson Reuters Loan Pricing Corporation (LPC)'s Dealscan syndicated loan database. Our M&A data are collected from Thomson Reuters SDC database. Annual financial statement information until the year 2013 is obtained from Compustat. We rely on lenders' prior 5 years'(i.e., year t-4 to year t) loan syndication and loan trading activities to identify TLs and TL-led loans in year t+1. Because secondary market loan trading data starts in year 1999 (i.e., year t), the earliest available year in which we can identify TL-led loans is year 2000 (i.e., year t+1). We consider all loans taken by an acquirer 5 years prior to the M&A deal announcement dates to be used to finance the M&A deal, and the lenders monitor the acquirer to a certain extent (any loan taken by the acquirer before or after the 5-year period is excluded). If the acquirer in an M&A deal announced in year 2005 that it has taken any loan during the period from year 2000 to year 2004, the M&A deal is considered LF, otherwise NLF. Therefore, our sample period starts from year 2005. Our sample period ends at year 2011 so that we can investigate all acquirers' post-merger operating performance and creditworthiness in the 1st and 2nd year after the merger. Therefore, we select acquirers of M&A deals in SDC database during the period of 1 January, 2005 to 31 December, 2011 as our sample.

We first screen SDC data during year 2005 to year 2011. We have 25,293 observations in our sample during year 2005 to year 2011. We then filter the data by requiring that the acquirers must be U.S. firms, M&A transaction values must be at least $1 million, deal status must be completed and have 15,885 observations.

In our second step, we filter out the observations whose firm assets are less than $1 million in Compustat. Then we merge SDC data with Compustat data by using 6-

digit CUSIP and the calendar year of the financial statement announcement date to retrieve financial statement information. We also merge SDC data with EDF data by using GVKEY and the calendar year. We then filter out the observations with missing M&A announcement dates after the previous procedure. We have 3,955 observations at the end of the second step.

In the last step, we join the data from our second step by 6-digit CUSIP with Dealscan-Compustat link data provided by Michael Roberts in order to identify deals financed by syndicated loans and obtain information to calculate the intensity of lender monitoring variables of the four types of lenders. In the final sample, we have 2,416 M&A deals financed by loans and 1,539 not financed by loans.

4.2 Variable construction

4.2.1 Identifying LF M&A deals

We define a M&A deal as LF if the acquirer has taken at least one syndicated loan during the 5-year period prior to the M&A announcement date. If the acquirer has not taken any syndicated loans during the same 5-year period, then its M&A deal is considered NLF. In total, 2,416 deals are classified as LF and the remaining 1,539 deals are NLF. The loan-finance dummy equals 1 if the deal has been identified as loan-financed and 0 otherwise.

4.2.2 Identifying relationship lenders (RLs) and RL-led loans

Similar to Li et al. (2015), we also follow Bharath et al. (2011) to identify the lead lender in a syndicated loan as a RL if it has led at least one loan to the same borrower in the past 5 years. We then identify a syndicated loan as a RL-led loan if it meets both of the two criteria: (1) at least one of the lead lenders in the syndicated loan has been a RL to the borrower in the past 5 years (i.e., it has lent to the borrower in the past 5 years); (2) no TL acts as a lead lender in the syndicated loan.

In addition, because the information held by a bank is likely to be inherited by the bank who takes it over in bank merger cases (Bharath et al., 2011), we also consider bank mergers' potential impact on banking relationship and recognize the potential transfer of this relationship from the target bank to the bidder bank. The relationship dummy equals 1 if the loan has been identified as RL-led loan and 0 otherwise.

4.2.3 Identifying transactional lenders (TLs) and TL-led loans

We follow Li et al. (2015) to identify the lead lender in a syndicated loan as a TL if it has syndicated and resold a high percentage (top 20 percentile) of loans in the past 5 years. Based on a 5-year moving window from year t-4 to t, we adopt the same formula as in Li, et al. (2015) to first calculate $Ratio_{r/t}$, number of resold loans to total number of syndicated loans for each lead lender i in year t where t=2004,2005...2011 as below:

$$Ratio_{r/t} = \frac{\text{Number of loans originated by lender i from year t−4 to t and resold before t}}{\text{Total number of loans originated by lender i from t−4 to t}} \quad (1)$$

We rank all the lenders by $Ratio_{r/t}$ and identify those ranked in the top 20 percentile as transactional lenders. Then we identify a syndicated loan issued in year t+1 as a TL-led loan if at least one of the lead lenders in the loan is a TL. The transactional dummy equals 1 if the loan has been identified as TL-led loan and 0 otherwise.

4.2.4 Identifying institutional lenders

We follow the same method as Nandy and Shao (2007) to identify the lead lender in a syndicated loan as an institutional lender. That is to say, at the facility level, if the loan is designed to be syndicated to institutional investors only (i.e., hedge funds, private equity funds, and hybrid funds as lenders) and identified as an institutional loan by Dealscan, we consider its lender to be an institutional lender. The institutional dummy equals 1 if the loan's lender is an institutional lender and 0 otherwise.

4.2.5 Identifying reputable lenders

We identify the lead lender in a syndicated loan as a reputable lender if it has been one of the top three banks based on annual market shares of syndicated loans market. The reputable dummy equals 1 if the lead bank is one of the top three banks and 0 otherwise.

4.3 Methodology

To test our hypothesis H1 regarding the effect of lenders' screening and monitoring role, we rely on an OLS regression to compare the syndicated loan borrowers' post-merger operating performance and creditworthiness with those who have not taken any syndicated loan to finance the M&A deals.

To test our hypothesis H2, H3, H4 and H5 regarding the impact of different types of lenders' different monitoring incentive intensity and different purpose to involve themselves in the syndicated loans, we adopt an OLS regression to compare the post-merger operating performance and creditworthiness of syndicated loan borrowers who have taken loans from a certain type of lenders with those who have taken loans from other types of lenders.

The detailed regression model setup will be provided and discussed later in section 5.

5. Empirical analysis and results discussion

5.1 Univariate analysis

5.1.1 Distribution of LF and NLF M&A deals

Table 1 reports the distribution of M&A deals in each year. In panel A, column 2 reports the number of M&A deals each year during the period from year 2005 to year 2011. The number of M&A deals started to drop prominently from year 2008 when the financial crisis happened. Columns 3 and 4 report the number of M&A deals each year during the same period that are NLF and LF respectively. Each year, the number of LF M&A deals is bigger than that of NLF with the ratio of at least 3:2. This shows that more M&A deals are LF during our sample period. In panel B, columns 2 to 5 report the mean of monitoring intensity of different types of lenders each year during the period from year 2005 to year 2011. Reputable lenders have the highest intensity each year. Relationship lenders and transactional lenders have similar intensity. Institutional lenders have the lowest intensity.

5.1.2 Descriptive statistics

Table 2 presents the summary statistics of acquirers' performance, creditworthiness, characteristics, and deal characteristics. Amongst the sample M&A deals, we classify them as either NLF or LF. The summary statistics of the whole sample, NLF and LF M&A deals are reported from Panel A to C. In addition, we also reported the means of different dimensions of the whole sample, NLF and LF M&A deals and their difference in Panel D. The means of LF deals are significantly different from NLF deals in all dimensions except EDF_{t-1}. In the one year before the deals, we found that the acquirers' ROA of LF deals is positive whereas the acquirers' ROA of NLF deals is negative (4.70 vs. -2.59). Moreover, the acquirers' Altman's Z-Score of LF deals is greater than that of NLF deals in the one year before the deals (1.83 vs. 0.53). LF deals

have the same EDF (0.3 vs. 0.3). In year t+1 (i.e., one year from the M&A announcement date), acquirers of LF M&A deals have higher ROA and Altman's Z-Score than those of NLF deals. LF deals' EDF become lower than NLF deals' (0.06 vs. 0.08) Further, ROA_{t+1} of LF deals is positive whereas ROA_{t+1} of NLF deals is negative (3.06 vs. -10.07). We have similar findings in year t+2. Acquirers of LF M&A deals have higher ROA and Altman's Z-Score than those of NLF deals, and they have lower EDF than that of NLF deals. Further, ROA_{t+2} of LF deals is positive whereas ROA_{t+2} of NLF deals is negative (1.86 vs. -11.58). On average, acquirers of LF M&A deals have better performance (measured by ROA) and creditworthiness (measured by Altman's Z Score and EDF) prior to the M&A announcements. After the merger, the increasing difference between the means suggests that although acquirers of LF deals and NLF deals both have worse performance (measured by ROA) and creditworthiness (measured by Altman's Z Score and EDF), acquirers of NLF deals suffer more severely than those of LF deals. These results are consistent with H1. It proves that taking syndicated loans prior to M&A deals helps mitigate the post-merger underperformance problem. Table 2 also shows that acquirers of LF deals are slightly more undervalued with a lower book-to-market ratio (0.52 vs. 0.55), have bigger firm size, and are more leveraged compared to those of NLF deals (7.54 vs. 5.81 and 0.24 vs. 0.11), that more LF deals are paid 100% by cash (0.42 vs. 0.33), that they are about the same in terms of combined method as NLF deals (0.55 vs. 0.58), and that LF deals have a bigger M&A transaction value but smaller relative size compared to NLF deals (4.49 vs. 3.32 and 0.17 vs. 0.30).

5.2 Multivariate analysis

5.2.1 Test of H1

In H1, we hypothesize that acquirers whose M&A deals are LF will have better

operating performance and creditworthiness than those of NLF deals because of the lenders' screening and monitoring role. To test these hypotheses, we estimate OLS regressions of the following form:

$$Y_{t+j} = \beta_0 + \beta_1 \text{Loan Fin} + \beta_2\, Y_{t-1} + \sum\beta_i(\text{deal characteristics}_i\,) +$$

$$\sum\beta_j(\text{acquirer characteristics}_j\,) + \sum\beta_k(\text{other controls}_k) \tag{2}$$

In equation (2), the dependent variables Y_{t+j}, where j=1,2 are the acquirers' post-merger operating performance/creditworthiness representing unadjusted ROA_{t+1} ROA_{t+2}, Tobin's Q_{t+1}, Tobin's Q_{t+2}, Z_Score_{t+1}, Z_Score_{t+2}, EDF_{t+1} and EDF_{t+2}. The lagged dependent variable, Y_{t-1} in year t-1 is included in the regression in order to control its effect on the post-merger operating performance/creditworthiness. Deal characteristics including transaction value, cash, combined and relative deal size, acquirer characteristics including total firm size, book- to-market ratio and leverage ratio and other variables including year and industry (SIC code) are controlled. The key variable of interest is the "Loan Fin" dummy. The coefficient, β_1 of Loan Fin captures the difference in the dependent variable Y_{t+j} between acquirers of LF and NLF deals. In Table 3, columns (1) and (2) show the lenders' monitoring effect on the acquirers' post-merger ROA in year t+1 and t+2 respectively. We found statistically significant results that, after controlling the acquirers' ROA in year t-1, deal characteristics, acquirer characteristics, and other variables, acquirers who have taken loans to finance their M&A deals have higher ROA than those who have not taken any loan (4.197% at 5% level in year t+1 and 3.344% at 5% level in year t+2). Columns (3) and (4) show the lenders' monitoring effect on the acquirers' post-merger Altman's Z-Score in year t+1 and t+2 respectively. Consistently, we found statistically significant results that after controlling the acquirers' Altman's Z-Score in year t-1, deal characteristics, acquirer characteristics, and other variables, acquirers who have taken loans to finance

their M&A deals have a higher Z Score than those who have not taken any loan (0.076 at 5% level in year t+1 and 0.131 at 1% level in year t+2). Columns (5) and (6) show the lenders' monitoring effect on the acquirers' post-merger EDF in year t+1 and t+2 respectively. Consistently, we found statistically significant results that after controlling the acquirers' EDF in year t-1, deal characteristics, acquirer characteristics and other variables, acquirers who have taken loans to finance their M&A deals have lower EDF than those who have not taken any loan (-0.021 at 1% level in year t+1 and -0.028 at 1% level in year t+2).

Overall, our results support the hypothesis that lenders who have financed M&A deals have served their monitoring roles and lead to better post-merger operating performance and creditworthiness for the acquirers.

5.2.2 Test of H2

Our H2 predicts that acquirers whose M&A deals are financed by relationship lenders will have better post-merger operating performance and creditworthiness than those financed by non-relationship lenders because of relationship lenders' strong incentive to monitor. To test this hypothesis, we estimate OLS regressions of the following forms:

$$Y_{t+j} = \beta_0 + \beta_1 \text{Relationship} + \beta_2\, Y_{t-1} + \sum\beta_i(\text{deal characteristics}_i\,) +$$

$$+\sum\beta_j\big(\text{borrower characteristics}_j\,\big) + \sum\beta_k(loan\ characteristics_k\,) +$$

$$\sum\beta_l(\text{other controls}_l) \qquad\qquad (3)$$

In equation (3), the dependent variables Y_{t+j}, where j=1,2 are the acquirers' post-merger operating performance/creditworthiness representing unadjusted ROA_{t+1} ROA_{t+2}, Z_Score_{t+1}, Z_Score_{t+2}, EDF_{t+1} and EDF_{t+2}. The lagged dependent variable, Y_{t-1} in year t-1 is included in the regression in order to control its effect on the post-

merger operating performance/creditworthiness. Deal characteristics including transaction value, cash, combined and relative deal size, borrower characteristics including total firm size, book to market ratio, leverage ratio, loan characteristics including financial covenant, total loan size year and maturity, and other variables including year and industry (SIC code) are controlled. The key variable of interest is the "Relationship" variable. The coefficient, β_1 of Relationship captures the difference in the dependent variable Y_{t+j} between acquirers financed by relationship lenders and non-relationship lenders. In Table 4, columns (1) and (2) show relationship lenders' stronger monitoring effect on the acquirers' post-merger ROA in year t+1 and t+2 respectively. We found statistically significant results that after controlling the acquirers' ROA in year t-1, deal characteristics, borrower characteristics, loan characteristics and other variables, acquirers who have taken loans from relationship lenders have a higher ROA than those who have taken loans from non-relationship lenders (2.052% at 1% level in year t+1 and 1.361% at 10% level in year t+2). Columns (3) and (4) show that relationship lenders do not have a monitoring effect on the acquirers' post-merger Altman's Z Score in year t+1 and t+2 respectively. We found that after controlling the acquirers' Altman's Z Score in year t-1, deal characteristics, borrower characteristics, loan characteristics and other variables, taking loans from relationship lenders does not lead the acquirers to a better Z-Score than those who have taken loans from non-relationship lenders because the coefficient β_1 of relationship lenders are neither significant in year t+1 nor in year t+2. Column (5) shows relationships lenders' stronger monitoring effect on the acquirers' post-merger EDF in year t+1. We found statistically significant results that after controlling the acquirers' EDF in year t-1, deal characteristics, borrower characteristics, loan characteristics and other variables, acquirers who have taken loans from relationship lenders have lower EDF than those

who have taken loans from non-relationship lenders (-0.022 at 5% level in year t+1). We also found that acquirers who have taken loans from relationship lenders have lower EDF in year t+2 but it is not statistically significant as shown in column (6).

Overall, the analysis above shows that relationship lenders have a stronger incentive to monitor the acquirers and lead to better post-merger operating performance and creditworthiness for them.

5.2.3 Test of H3

In H3, we expect that acquirers whose M&A deals are financed by transactional lenders will have no impact on post-merger operating performance and creditworthiness because of transactional lenders' weaker incentive to monitor. To test this hypothesis, we estimate OLS regressions of the following forms:

$$Y_{t+j} = \beta_0 + \beta_1 \text{Transactional} + \beta_2\, Y_{t-1} + \sum\beta_i(\text{deal characteristics}_i\,) +$$

$$\sum\beta_j(\text{borrower characteristics}_j\,) + \sum\beta_k(loan\ characteristics_k\,) +$$

$$\sum\beta_l(\text{other controls}_l) \hspace{3cm} (4)$$

In equation (4), the dependent variables Y_{t+j}, where j=1,2 are the acquirers' post-merger operating performance/creditworthiness representing unadjusted ROA_{t+1} ROA_{t+2}, Z Score_{t+1}, Z Score_{t+2}, EDF_{t+1} and EDF_{t+2}. The lagged dependent variable, Y_{t-1} in year t-1 is included in the regression in order to control its effect on the post-merger operating performance/creditworthiness. Deal characteristics, borrower characteristics, loan characteristics, and other variables as described in 5.2.2 are controlled. The key variable of interest is the "Transactional" variable. The coefficient, β_1 of Transactional captures the difference in the dependent variable Y_{t+j} between acquirers financed by transactional lenders and non-transactional lenders. In Table 5, column (1) and (2) show that transactional lenders do not have a monitoring effect on the acquirers' post-merger ROA

in year t+1 and t+2 respectively. We found that after controlling the acquirers' ROA in year t-1, deal characteristics, borrower characteristics, loan characteristics, and other variables, taking loans from transactional lenders does not have an impact on their ROA because the coefficient β_1 of transactional lenders are neither significant in year t+1 nor in year t+2. Columns (3) and (4) show that the transactional lenders do not have a monitoring effect on the acquirers' post-merger Altman's Z Score in year t+1 and t+2 respectively. We found that after controlling the acquirers' Altman's Z Score in year t-1, deal characteristics, borrower characteristics, loan characteristics, and other variables, taking loans from transactional lenders does not lead the acquirers to a different Z Score compared to those who have taken loans from non-transactional lenders because the coefficient β_1 of transactional lenders is significant neither in year t+1 nor in year t+2. Columns (5) and (6) show the transactional lenders do not have a monitoring effect on the acquirers' post-merger EDF in year t+1 and t+2 respectively. We found that after controlling the acquirers' EDF in year t-1, deal characteristics, borrower characteristics, loan characteristics, and other variables, taking loans from transactional lenders does not lead the acquirers to different EDF compared to those who have taken loans from non-transactional lenders because the coefficient β_1 of transactional lenders is significant neither in year t+1 nor in year t+2.

Our results support the hypothesis that transactional lenders who have financed M&A deals have a weaker monitoring incentive and have no impact on post-merger operating performance and creditworthiness for the acquirers.

5.2.4 Test of H4

We also expect that acquirers whose M&A deals are financed by institutional lenders will have worse post-merger operating performance and creditworthiness than those financed by non-institutional lenders because institutional lenders' are

uninformed investors and possess a very weak incentive to monitor. To test this hypothesis, we estimate OLS regressions of the following forms:

$$Y_{t+j} = \beta_0 + \beta_1 \text{Institutional} + \beta_2 Y_{t-1} + \sum \beta_i (\text{deal characteristics}_i) +$$

$$\sum \beta_j (\text{borrower characteristics}_j) + \sum \beta_k (loan\ characteristics_k) +$$

$$\sum \beta_l (\text{other controls}_l) \tag{5}$$

In equation (5), the dependent variables Y_{t+j}, where j=1,2 are the acquirers' post-merger operating performance/creditworthiness representing unadjusted ROA_{t+1} ROA_{t+2}, Z Score$_{t+1}$, Z Score$_{t+2}$, EDF_{t+1} and EDF_{t+2}. The lagged dependent variable, Y_{t-1} in year t-1 is included in the regression in order to control its effect on the post-merger operating performance/creditworthiness. Deal characteristics, borrower characteristics, loan characteristics and other variables as described in 5.2.2 are controlled. The key variable of interest is the "Institutional" variable. The coefficient, β_1 of Institutional captures the difference in the dependent variable Y_{t+j} between acquirers financed by institutional lenders and non-institutional lenders. In Table 6, columns (1) and (2) show institutional lenders' weak monitoring effect on the acquirers' post-merger ROA in year t+1 and t+2 respectively. We found statistically significant results that after controlling the acquirers' ROA in year t-1, deal characteristics, borrower characteristics, loan characteristics, and other variables, acquirers who have taken loans from institutional lenders have lower ROA than those who have taken loans from non-institutional lenders (-2.948% at 1% level in year t+1 and -3.566% at 1% level in year t+2). Columns (3) and (4) show the institutional lenders' monitoring does not have a monitoring effect on the acquirers' post-merger Altman's Z Score in year t+1 and t+2 respectively. We found that after controlling the acquirers' Altman's Z Score in year t-1, deal characteristics, borrower characteristics, loan characteristics and other

variables, taking loans from institutional lenders do not lead the acquirers to worse Z Scores than those who have taken loans from non-institutional lenders because the coefficient β_1 of institutional lenders are neither significant in year t+1 nor in year t+2. Columns (5) shows institutional lenders' weak monitoring effect on the acquirers' post-merger EDF in year t+1. We found statistically significant results that after controlling the acquirers' EDF in year t-1, deal characteristics, borrower characteristics, loan characteristics and other variables, acquirers who have taken loans from institutional lenders have higher EDF than those who have taken loans from non-institutional lenders (0.056 at 1% level in year t+1). We also found that acquirers who have taken loans from institutional lenders have higher EDF in year t+2 but it is not statistically significant as shown in column (6).

The findings on ROA and EDF support the hypothesis that institutional lenders who have financed M&A deals are uninformed investors and have a very weak monitoring incentive, and will lead to worse post-merger operating performance and creditworthiness for the acquirers. However, the findings on Altman's Z Score do not support the hypothesis that institutional lenders who have financed M&A deals will lead to worse post-merger creditworthiness for the acquirers.

5.2.5 Test of H5

We hypothesize that acquirers whose M&A deals are financed by reputable lenders will have better post-merger operating performance and creditworthiness than those financed by non-reputable lenders because of relationship lenders' strong incentive to monitor in H5. To test this hypothesis, we estimate OLS regressions of the following forms:

$Y_{t+j} = \beta_0 + \beta_1 \text{Reputable} + \beta_2 Y_{t-1} + \sum\beta_i(\text{deal characteristics}_i) +$

$\sum\beta_j(\text{borrower characteristics}_j) + \sum\beta_k(loan\ characteristics_k) +$

$$\sum \beta_l (\text{other controls}_l) \qquad\qquad\qquad\qquad\qquad (6)$$

In equation (6), the dependent variables Y_{t+j}, where j=1,2 are the acquirers' post-merger operating performance/creditworthiness representing unadjusted ROA_{t+1}, ROA_{t+2}, Z Score$_{t+1}$, Z Score$_{t+2}$, EDF_{t+1} and EDF_{t+2}. The lagged dependent variable, Y_{t-1} in year t-1 is included in the regression in order to control its effect on the post-merger operating performance/creditworthiness. Deal characteristics, borrower characteristics, loan characteristics and other variables as described in 5.2.2 are controlled. The key variable of interest is the "Reputable" variable. The coefficient, β_1 of Reputable captures the difference in the dependent variable Y_{t+j} between acquirers financed by reputable lenders and non-reputable lenders. In Table 7, columns (1) and (2) show relationship lenders' stronger monitoring effect on the acquirers' post-merger ROA in year t+1 and t+2 respectively. We found statistically significant results that after controlling the acquirers' ROA in year t-1, deal characteristics, borrower characteristics, loan characteristics and other variables, acquirers who have taken loans from reputable lenders have higher ROA than those who have taken loans from non-reputable lenders (2.176% at 1% level in year t+1 and 1.637% at 5% level in year t+2). Column (3) shows the reputable lenders' stronger monitoring effect on the acquirers' post-merger Altman's Z Score in year t+1. We found statistically significant results that after controlling the acquirers' Altman's Z Score in year t-1, deal characteristics, borrower characteristics, loan characteristics and other variables, acquirers who have taken loans from reputable lenders have higher Z Score than those who have taken loans from non-relationship lenders (0.072 at 10% level in year t+1). We also found that acquirers who have taken loans from reputable lenders have higher Z-Scores in year t+2 but it is not statistically significant as shown in column (4). Columns (5) and (6)

show relationship lenders' stronger monitoring effect on the acquirers' post-merger EDF in year t+1 and t+2 respectively. We found statistically significant results that after controlling the acquirers' EDF in year t-1, deal characteristics, borrower characteristics, loan characteristics and other variables, acquirers who have taken loans from reputable lenders have lower EDF than those who have taken loans from non-reputable lenders (-0.036 at 1% level in year t+1 and -0.039 at 1% level in year t+2).

Overall, the analysis above shows that reputable lenders have a very strong incentive to monitor the acquirers, which leads to better post-merger operating performance and creditworthiness for them.

5.3 Robustness check

5.3.1 PSM (Propensity score matching)

For H1, we need to separate selection effects from the treatment effects of taking syndicated loans. Since an acquirer's decision to take a syndicated loan is likely to be related to the acquirer's characteristics and the M&A deal characteristics, comparing pairwise matched firms (i.e., two firms in each pair with similar observable characteristics, one takes syndicated loans and the other does not) represents a robust estimate of the effects of syndicated loans on the outcome variables (ROA, Altman's Z Score and EDF). We apply the PSM (propensity score matching) technique (Heckman, Ichimura, & Todd, 1997, 1998) to match LF deals with NLF deals based on observable acquirer characteristics and deal characteristics. We use the following probit model to estimate the propensity score with deal characteristics including transaction value, cash, combined and relative deal size, acquirer characteristics including total firm size, book to market ratio and leverage ratio, and other variables including year and industry (SIC code).

$$Loan\ fin = \sum \beta_i(\text{deal characteristics}_i) + \sum \beta_j(\text{acquirer characteristics}_j) +$$

$$\sum \beta_k(\text{other controls}_k) \tag{7}$$

The dependent variable is a binary choice variable "Loan fin" which takes the value of 1 if the M&A deal is LF or 0 otherwise. Based on this probit model, we first estimate the predicted probabilities of taking syndicated loans for each M&A deal and use them as propensity scores. Then, we apply one-to-one matching without replacement to find LF and NLF pairwise matched loans with the difference in propensity scores smaller than 1% (i.e., caliper = 0.01). Panel A in Table 8 reports the mean differences in the outcome variables between LF and NLF deals by using PSM to match them. Mostly onsistent with the results reported in Table 3, the results in Panel A Table 8 suggest that LF deals have higher ROA, higher Altman's Z Score in year t+1 and t+2 and lower EDF in year t+1 compared to those of matched NLF deals.

For H2, H3, H4 and H5, we use PSM as an alternative approach to address the possible selection bias arising from the observable characteristics among acquirers who take syndicated loans from different type of lenders. The probit model to estimate propensity score is similar to equation (7) except that we use "Relationship", "Transactional", "Institutional" and "Reputable" as the dependent variables for H2, H3, H4 and H5 respectively, and that we add loan characteristics including financial covenant, total loan size year and maturity. Panel B in Table 8 suggests that M&A deals financed by relationship lenders have higher ROA, higher Altman's Z Score and lower EDF compared to those of matched M&A deals financed by non-relationship lenders in year t+1 and t+2 (the results are all significant at least at 10% level) which is consistent with the results reported in Table 4. Panel C in Table 8 suggests that transactional lenders have no impact on post-merger ROA, Altman's Z Score and EDF for the acquirers in year t+1 and t+2 which is mostly consistent with Table 5. Panel D in Table 8 shows mixed results. Consistent with Table 6, M&A deals financed by institutional lenders have lower Altman's Z-Score in year t+1 and t+2 (significant at

least at 5% level). However, institutional lenders have no impact on post-merger ROA and EDF for the acquirer in year t+1 and t+2. Panel E in Table 8 suggests that M&A deals financed by reputable lenders have higher ROA, higher Altman's Z Score and lower EDF compared to those of matched M&A deals financed by non-relationship lenders in year t+1 and t+2 (the results are all significant 1% level) which provide stronger support to H5 compared to the results reported in Table 7.

5.3.2 Industry-adjusted performance and creditworthiness

The other robustness check is to calculate industry-adjusted ROA, Altman's Z Score and EDF by calculating the difference between the unadjusted ROA, Altman's Z Score and EDF and their respective median values of the firms in the industry with the same first two digits of SIC codes, and then run regressions to test H1, H2, H3, H4 and H5 to compare the results with those of unadjusted ROA, Altman's Z Score and EDF. Industry-adjusted measures make the results more robust because they take into account of the first two digits of the SIC code rather than just the first digit of the SIC code as in the case of firm fixed effect in the regressions to test unadjusted measures.

Table 9 presents the summary statistics of acquirers' industry-adjusted operating performance, industry-adjusted creditworthiness, acquirer characteristics and deal characteristics. Amongst the sample M&A deals, we classify them as either NLF or LF. The summary statistics of the whole sample, NLF and LF M&A deals are reported from Panel A to C. In addition, we also reported the means of different dimensions of the whole sample, NLF and LF M&A deals and their difference in Panel D. The means of LF deals are significantly different from NLF deals in all dimensions except EDF_{IAt-1}. The differences between the industry-adjusted means of acquirers in NLF deals and those in LF deals exhibit nearly the same pattern as the differences between unadjusted means. Industry-adjusted means are lower than unadjusted means.

Table 10 presents the regression results of industry-adjusted performance and industry-adjusted creditworthiness. For economy of space, we only report the coefficients, standard error and significance level of the key variable of interest, as well as the fits of regression models. Panel A of Table 10 suggests that acquirers of LF deals have higher ROA in year t+1, higher Altman's Z Score in year t+2 and lower EDF in year t+1 and t+2 (significant at least at 5% level). However, ROA in year t+1 and EDF in year t+2 do not differ. Panel B of Table 10 suggests that acquirers financed by relationship lenders have higher ROA in year t+1 and t+2 and lower EDF in year t+1, which is consistent with the results in Table 4. However, Altman's Z Score in year t+1 and t+2 and EDF in year t+2 do not differ. Panel C of Table 10 suggests that acquirers financed by transactional lenders do not differ on ROA, Altman's Z Score and EDF in year t+1 and t+2, which is consistent with the results in Table 5. Panel D of Table 10 suggests that acquirers financed by institutional lenders have lower ROA in year t+1 and t+2 (significant at least at 5% level), have higher EDF in year t+1 and do not differ on Altman's Z Score in year t+1 and t+2, which is consistent with the results in Table 6. However, EDF in year t+2 do not differ. Panel E of Table 10 suggests that acquirers financed by reputable lenders have higher ROA in year t+1 and t+2 and lower EDF in year t+1 and t+2 (significant at least at 10% level). However, they do not differ on Altman's Z Score in year t+1 and t+2.

6. Further research

Having used M&A as an avenue to explore the impact of taking syndicated loans from different types of lenders on the borrower's post-event performance, it is worthwhile to use IPO as the other avenue because more than one fourth of IPO firms raise capital by taking syndicated loans prior to IPO (Bouwman & Lowry, 2013). It is worthwhile to look into this and the results may shed light on financial institutions specialness and IPO long-run underperformance. We expect that: (1) IPO firms who have taken syndicated loans from relationship lenders prior to the IPO will have better post-IPO financing certainty, operating performance and creditworthiness; (2) IPO firms who have taken syndicated loans from reputable lenders prior to the IPO will have better post-IPO financing certainty, operating performance and creditworthiness; (3) IPO firms who have taken syndicated loans from institutional lenders prior to the IPO will have worse post-IPO financing certainty, operating performance and creditworthiness, and; (4) IPO firms who have taken syndicated loans from transactional lenders prior to the IPO will not differ on post-IPO financing certainty, operating performance and creditworthiness.

7. Limitations

In addition to examining ROA as the measure of post-merger performance, we have also examined buy-and-hold abnormal returns (hereinafter referred to as BHARs) and Tobin's Q. We found that the key variable of interests does impact BHARs to the same direction as ROA but most of the results are not significant. We found that relationship lenders, institutional lenders and reputable lenders have statistically significant impact on Tobin's Q in year t+1 and t+2 similar to that on ROA and that transactional lenders do not impact Tobin's Q in year t+1 and t+2 similar to that on ROA. However, we also found that taking a syndicated loan lowers Tobin's Q after merger in year t+1 and t+2 which is different from ROA. We are not able to address the reason at this point. But we will explore the reason in the future and this will be an interesting direction for further research.

8. Conclusion

Given that different lender types (relationship lender, transactional lender, institutional lender and reputable lender), in the syndicated loan market have different incentives to monitor their respective borrowers and different purposes to engage in syndicated loans, we have examined whether different lender types monitor corporate decisions to an extent that will lead to different post-merger operating performance and mitigate post-merger underperformance problems in many M&A deals. We found that relationship lenders have a stronger incentive to monitor the acquirers and lead to better post-merger operating performance (ROA) and creditworthiness (EDF) for the acquirers, that transactional lenders with weaker monitoring incentives have no impact on the acquirers' post-merger operating performance (ROA) and creditworthiness (Altman's Z Score and EDF), that institutional lenders as uninformed investors with very weak monitoring incentives lead to worse post-merger operating performance (ROA) and worse creditworthiness (EDF) for the acquirers, and that reputable lenders with a strong incentive to monitor the acquirers lead to better post-merger operating performance (ROA) and creditworthiness (Altman's Z Score and EDF) for them. We also examined whether lenders, regardless of their lender types, generally monitor corporate decisions to an extent that will lead to better post-merger operating performance and creditworthiness. We found that the acquirers of loan-financed M&A deals experience better performance and creditworthiness compared to those of non-loan-financed M&A deals. We have also done robustness checks including propensity score matching and industry-adjusted measurements. In all the results of the regressions using unadjusted measures and the two robustness checks, we found that acquirers who have taken syndicated loans have better ROA and EDF in year t+1 and better Altman's Z Score in year t+2 which means taking syndicated loans is beneficial for shareholders

and debtholders, that acquirers who have taken syndicated loans from relationship lenders have better ROA in year t+1 and t+2 and better EDF in year t+1 which means taking syndicated loans from relationship lenders is beneficial for shareholders and debtholders, that acquirers who have taken syndicated loans from transactional lenders do not differ on ROA, Altman's Z Score and EDF in year t+1 and t+2 which means taking syndicated loans from transactional lenders is neither beneficial nor harmful to shareholders and debtholders, and that acquirers who have taken loans from reputable lenders have better ROA in year t+1 and t+2 and better EDF in year t+1 which means taking syndicated loans from reputable lenders is beneficial for shareholders and debtholders.

References

Agrawal, A., Jaffe, J. F., & Mandelker, G. N. (1992). The post-merger performance of acquiring firms: a re-examination of an anomaly. *The Journal of Finance*, 47(4), 1605-1621.

Allen, F. (1990). The market for information and the origin of financial intermediation. *Journal of Financial Intermediation*, 1(1), 3-30.

Allen, L., Jagtiani, J., Peristiani, S., & Saunders, A. (2004). The role of bank advisors in mergers and acquisitions. *Journal of Money, Credit and Banking*, 197-224.

Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The Journal of Finance*, 23(4), 589-609.

Åsberg, P., & Shahnazarian, H. (2008). *Macroeconomic impact on expected default frequency* (No. 219). Sveriges Riksbank Working Paper Series.

Benmelech, E., Dlugosz, J., & Ivashina, V. (2012). Securitization without adverse selection: The case of CLOs. *Journal of Financial Economics*, 106(1), 91-113.

Bharath, S. T., Dahiya, S., Saunders, A., & Srinivasan, A. (2009). Lending relationships and loan contract terms. *Review of Financial Studies*, hhp064.

Bharath, S. T., & Shumway, T. (2008). Forecasting default with the Merton distance to default model. *Review of Financial Studies*, 21(3), 1339-1369.

Billett, M. T., Flannery, M. J., & Garfinkel, J. A. (1995). The effect of lender identity on a borrowing firm's equity return. *The Journal of Finance*, 50(2), 699-718.

Boot, A. W. (2000). Relationship banking: What do we know? *Journal of Financial Intermediation*, 9(1), 7-25.

Boot, A. W., & Ratnovski, L. (2012). Banking and trading. *Amsterdam Law School Research Paper*, (2012-85).

Booth, J. R., & Smith, R. L. (1986). Capital raising, underwriting and the certification hypothesis. *Journal of Financial Economics*, 15(1), 261-281.

Boot, A. W., & Thakor, A. V. (2000). Can relationship banking survive competition? *The Journal of Finance*, 55(2), 679-713.

Bouwman, C. H., & Lowry, M. (2013). Pre-IPO Financing in Newly Public Firms. *Available at SSRN 2130259*.

Boyd, J. H., & Prescott, E. C. (1986). Financial intermediary-coalitions. *Journal of Economic Theory*, 38(2), 211-232.

Brealey, R., Leland, H. E., & Pyle, D. H. (1977). Informational asymmetries, financial structure, and financial intermediation. *The Journal of Finance*, 32(2), 371-387.

Bruner, R. F. (2002). Does M&A pay? A survey of evidence for the decision-maker. *Journal of Applied Finance*, 12(1), 48-68.

Calandro Jr, J. (2007). Considering the utility of Altman's Z-score as a strategic assessment and performance management tool. *Strategy & Leadership*, 35(5), 37-43.

Campbel, T. S., & Kracaw, W. A. (1980). Information production, market signalling, and the theory of financial intermediation. *The Journal of Finance*,35(4), 863-882.

Carpenter, M. A., & Sanders, W. G. (2002). Top management team compensation: The missing link between CEO pay and firm performance? *Strategic Management Journal*, 23(4), 367-375.

Chang, C. C. (2012). *An investment-based explanation for the post-merger underperformance puzzle* (Doctoral dissertation, University of Washington).

Chemmanur, T. J., & Fulghieri, P. (1994a). Investment bank reputation, information production, and financial intermediation. *The Journal of Finance*,49(1), 57-79.

Chemmanur, T. J., & Fulghieri, P. (1994b). Reputation, renegotiation, and the choice between bank loans and publicly traded debt. *Review of Financial Studies*, 7(3), 475-506.

Combs, J. G., Crook, T. R., & Shook, C. L. (2005). The dimensionality of organizational performance and its implications for strategic management research. *Research methodology in strategy and management*, 259-286.

Cook, D. O., Schellhorn, C. D., & Spellman, L. J. (2003). Lender certification premiums. *Journal of Banking & Finance*, 27(8), 1561-1579.

Dennis, S. A., & Mullineaux, D. J. (2000). Syndicated loans. *Journal of Financial Intermediation*, 9(4), 404-426.

Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *The Review of Economic Studies*, 51(3), 393-414.

Diamond, D. W. (1991). Monitoring and reputation: The choice between bank loans and directly placed debt. *Journal of Political Economy*, 689-721.

Do, V., & Vu, T. (2010). The effects of reputation and relationships on lead banks' certification roles. *Journal of International Financial Markets, Institutions and Money*, 20(5), 475-489.

Dybvig, P. H., & Warachka, M. (2012). Tobin'sq Does Not Measure Firm Performance: Theory, Empirics, and Alternative Measures. *Empirics, and Alternative Measures* (September 10, 2012).

Fama, E. F. (1985). What's different about banks? *Journal of Monetary Economics*, 15(1), 29-39.

Finkelstein, S., & Hambrick, D. C. (1996). *Strategic leadership: Top executives and their effects on organizations*. South-Western Pub.

Finkelstein, S., & Boyd, B. K. (1998). How much does the CEO matter? The role of managerial discretion in the setting of CEO compensation. *Academy of Management journal*, 41(2), 179-199.

Gande, A., & Saunders, A. (2012). Are banks still special when there is a secondary market for loans? *The Journal of Finance*, 67(5), 1649-1684.

Gentry, R. J., & Shen, W. (2010). The relationship between accounting and market measures of firm financial performance: How strong is it? *Journal of Managerial Issues*, 514-530.

Greenbaum, S. I., & Thakor, A. V. (2007). *Contemporary financial intermediation*. Academic Press.

Harjoto, M., Mullineaux, D. J., & Yi, H. C. (2006). A comparison of syndicated loan pricing at investment and commercial banks. *Financial Management*,35(4), 49-70.

Hoskisson, R. E., Hitt, M. A., Wan, W. P., & Yiu, D. (1999). Theory and research in strategic management: Swings of a pendulum. *Journal of Management*, 25(3), 417-456.

Huang, S., Srinivasan, A., & Lu, R. (2012). Do Banks Monitor Corporate Decisions? Evidence from Bank Financing of Mergers & Acquisitions. Seventh Annual Conference on Asia-Pacific Financial Markets.

Hult, G. T. M., Ketchen, D. J., Griffith, D. A., Chabowski, B. R., Hamman, M. K., Dykes, B. J., Pollitte, W. A., & Cavusgil, S. T. (2008). An assessment of the measurement of performance in international business research. *Journal of International Business Studies*, 39(6), 1064-1080.

James, C. (1987). Some evidence on the uniqueness of bank loans. *Journal of Financial Economics*, 19(2), 217-235.

Jiang, W., Li, K., & Shao, P. (2010). When shareholders are creditors: Effects of the simultaneous holding of equity and debt by non-commercial banking institutions. *Review of Financial Studies*, 23(10), 3595-3637.

Jiang, W., Li, K., & Wang, W. (2012). Hedge funds and Chapter 11. *The Journal of Finance*, 67(2), 513-560.

Kang, D. (2011). The Impact of Nonbank Lending on Mergers and Acquisitions. *Available at SSRN 1967126*.

Lang, L. H., & Stulz, R. M. (1993). *Tobin's q, corporate diversification and firm performance* (No. w4376). National Bureau of Economic Research.

Lim, J., Minton, B. A., & Weisbach, M. S. (2014). Syndicated loan spreads and the composition of the syndicate. *Journal of Financial Economics*, 111(1), 45-69.

Maury, B. (2006). Family ownership and firm performance: Empirical evidence from Western European corporations. *Journal of Corporate Finance*, 12(2), 321-341.

Mehran, H. (1995). Executive compensation structure, ownership, and firm performance. *Journal of Financial Economics*, 38(2), 163-184.

Mitchell, M. L., & Stafford, E. (2000). Managerial decisions and long-term stock price performance*. *The Journal of Business*, 73(3), 287-329.

Nandy, D. K., & Shao, P. (2008, April). Institutional investment in syndicated loans. In *UBC Winter Finance Conference*.

Petersen, M. A., & Rajan, R. G. (1994). The benefits of lending relationships: Evidence from small business data. *The Journal of Finance*, 49(1), 3-37.

Rajan, R., & Winton, A. (1995). Covenants and collateral as incentives to monitor. *The Journal of Finance*, 50(4), 1113-1146.

Ramakrishnan, R. T., & Thakor, A. V. (1984). Information reliability and a theory of financial intermediation. *The Review of Economic Studies*, 51(3), 415-432.

Rau, P. R., & Vermaelen, T. (1998). Glamour, value and the post-acquisition performance of acquiring firms. *Journal of Financial Economics*, 49(2), 223-253.

Ross, D. G. (2010). The "dominant bank effect:" How high lender reputation affects the information content and terms of bank loans. *Review of Financial Studies*, hhp117.

Li, Y., Saunders, A., & Shao, P. (2015). The Monitoring Incentive of Transactional and Relationship Lenders: Evidence from the Syndicated Loan Market. *Journal of Money, Credit and Banking*, 47(4), 701-735.

Sufi, A. (2007). Information asymmetry and financing arrangements: Evidence from syndicated loans. *The Journal of Finance*, 62(2), 629-668.

Winton, A., & Yerramilli, V. (2011). Lender moral hazard and reputation in originate-to-distribute markets. *Available at SSRN 1986956*.

Yi, H. C., & Mullineaux, D. J. (2006). The informational role of bank loan ratings. *Journal of Financial Research*, 29(4), 481-501.

Appendix A: Variable Definition

Variables	Definition
Dependent Variables	
ROA $_{t+1}$, ROA $_{t+2}$	Return on assets of a borrower/acquirer in year t+1, t+2 where t is the M&A announcement year. ROA is calculated as: $\frac{Net\,Income}{Total\,Asset}$ X100
ROA $_{IAt+1}$, ROA $_{IAt+2}$	Industry-adjusted Return on assets of a borrower/acquirer in year t+1, t+2 where t is the M&A announcement year. ROA_{IA} is calculated as: $ROA - ROA_I$ (i.e. the difference between the firm's ROA and the median ROA of the firms in the same industry based on the first 2 digits of SICC code)
Z Score $_{t+1}$, Z Score $_{t+2}$	Altman's Z-Score of a borrower/acquirer in year t+1, t+2 where t is the M&A announcement year. Altman's Z-Score is calculated as: $1.2*\frac{Working\,Capital}{Total\,Assets}+1.4*\frac{Retained\,Earnings}{Total\,Assets}+3.3*\frac{EBIT}{Total\,Assets}+1.0*\frac{Sales}{Total\,Assets}$
Z Score $_{IAt+1}$, Z Score $_{IAt+2}$	Industry-adjusted Altman's Z-Score of a borrower/acquirer in year t+1, t+2 where t is the M&A announcement year. Altman's Z-Score is calculated as: $1.2*\frac{Working\,Capital}{Total\,Assets}+1.4*\frac{Retained\,Earnings}{Total\,Assets}+3.3*\frac{EBIT}{Total\,Assets}+1.0*\frac{Sales}{Total\,Assets}$
EDF $_{t+1}$, EDF $_{t+2}$	KMV Merton-based expected default frequency of a borrower in year t+1, t+2 where t is the M&A announcement year. EDF is calculated as: $\pi_{Merton} = N\left(-\left(\frac{\ln\left(\frac{V}{F}\right)+(\mu-0.5\sigma_V^2)T}{\sigma_V\sqrt{T}}\right)\right) = N(-DD)$
EDF $_{IAt+1}$, EDF $_{IAt+2}$	Industry-adjusted KMV Merton-based expected default frequency of a borrower in year t+1, t+2 where t is the M&A announcement year. EDF is calculated as: $\pi_{Merton} = N\left(-\left(\frac{\ln\left(\frac{V}{F}\right)+(\mu-0.5\sigma_V^2)T}{\sigma_V\sqrt{T}}\right)\right) = N(-DD)$
Lagged Variables	
ROA $_{t-1}$	Return on assets of a borrower/acquirer in year t-1 where t is the M&A announcement year. ROA is calculated as: $\frac{Net\,Income}{Total\,Asset}$ X100

ROA_{IAt-1}

Industry-adjusted Return on assets of a borrower/acquirer in year t-1 where t is the M&A announcement year. ROA_{IA} is calculated as: $ROA - ROA_I$ (i.e. the difference between the firm's ROA and the median ROA of the firms in the same industry based on the first 2 digits of SICC code)

$Z\ Score_{t-1}$

Altman's Z-Score of a borrower/acquirer in year t-1 where t is the M&A announcement year. Altman's Z-Score is calculated as: $1.2*\frac{Working\ Capital}{Total\ Assets}+1.4*\frac{Retained\ Earnings}{Total\ Assets}+3.3*\frac{EBIT}{Total\ Assets}+1.0*\frac{Sales}{Total\ Assets}$

$Z\ Score_{IAt-1}$

Altman's Z-Score of a borrower/acquirer in year t-1 where t is the M&A announcement year. Altman's Z-Score is calculated as: $1.2*\frac{Working\ Capital}{Total\ Assets}+1.4*\frac{Retained\ Earnings}{Total\ Assets}+3.3*\frac{EBIT}{Total\ Assets}+1.0*\frac{Sales}{Total\ Assets}$

EDF_{t-1}

KMV Merton-based expected default frequency of a borrower in year t-1 where t is the M&A announcement year. EDF is calculated as: $\pi_{Merton} = N\left(-\left(\frac{\ln\left(\frac{V}{F}\right)+\left(\mu-0.5\sigma_V^2\right)T}{\sigma_V\sqrt{T}}\right)\right) = N(-DD)$

EDF_{IAt-1}

KMV Merton-based expected default frequency of a borrower in year t-1where t is the M&A announcement year. EDF is calculated as: $\pi_{Merton} = N\left(-\left(\frac{\ln\left(\frac{V}{F}\right)+\left(\mu-0.5\sigma_V^2\right)T}{\sigma_V\sqrt{T}}\right)\right) = N(-DD)$

Main independent variables

Relationship

Intensity of relationship lender monitoring. It is calculated as: Weight of the loan provided by relationship lender X relationship dummy where relationship dummy variable equals to 1 if the loan is provided by relationship lender or 0 otherwise.

Transactional

Intensity of transactional lender monitoring. It is calculated as: Weight of the loan provided by transactional lender X transactional dummy where transactional dummy variable equals to 1 if the loan is provided by transactional lender or 0 otherwise.

Institutional

Intensity of institutional lender monitoring. It is calculated as: Weight of the loan provided by institutional lender X institutional dummy where institutional dummy variable equals to 1 if the loan is provided by institutional lender or 0 otherwise.

Reputable

Intensity of reputable lender monitoring. It is calculated as: Weight of the loan provided by reputable lender X reputable dummy where reputable dummy variable equals to 1 if the loan is provided by reputable lender or 0 otherwise.

Loan Fin

A dummy variable equals to 1 if the acquirer has taken syndicated loan(s) prior to the M&A or 0 otherwise

Other independent variables

Loan characteristics

Fcovenant	A dummy variable equals to 1 if there is restrictive financial covenant specified in a loan contract or 0 otherwise
Total loan size	The total value of the loans taken by the acquirer. It is calculated as: ln(1+Total Loan Size)
Maturity	Natural logarithm of the loan maturity in months

Deal characteristics

Transaction value	The value of the M&A deal. It is calculated as: ln(Transaction Value)
Cash	A dummy variable equals to 1 if the M&A deal's payment method is 100% in cash or 0 otherwise
Combined	A dummy variable equals to 1 if the M&A deal's payment method is a combination of cash and stock or 0 otherwise
Relative deal size	The value of the M&A deal relative to the acquirer's total asset. It is calculated as: $\dfrac{\text{Transaction value}}{\text{Total Asset}}$

Acquirer/Borrower characteristics

Total firm size	The total asset of the acquirer. It is calculated as: ln(1+Total Asset)
Book to market ratio	The acquirer's book to market ratio. It is calculated as: $\dfrac{\text{Book Value of Equity}}{\text{Market Value of Equity}}$
Leverage ratio	The acquirer's leverage ratio. It is calculated as: $\dfrac{\text{Book Value of Long-term Debt}}{\text{Book Value of Total Asset}}$

Other variables

| Year | Year of the M&A announcement. |
| Industry | The acquirer's SICC code. |

Table 1. M&A deals and loan lender type distribution by year

This table summarizes the M&A deals distribution by year. Total deal no. is the total number of loan-financed and non-loan-financed M&A deals in the year. Non-loan-fin no. is the number of non-loan-financed M&A deals in the year. Loan-fin no. is the number of loan-financed M&A deals in the year.

Panel A (M&A deals distribution by year)

Year	Total deal no.	Non-loan-fin no.	Loan-fin no.
2005	783	315	468
2006	788	319	469
2007	753	301	452
2008	571	212	359
2009	424	169	255
2010	504	174	330
2011	132	49	83
Total	**3,955**	**1539**	**2416**

Panel B (Participation intensity of different lenders' distribution by year)

Year	Participation Intensity			
	Relationship	Transactional	Institutional	Reputable
2005	0.58	0.51	0.08	0.61
2006	0.56	0.57	0.10	0.66
2007	0.58	0.58	0.11	0.68
2008	0.53	0.53	0.11	0.70
2009	0.60	0.56	0.10	0.74
2010	0.52	0.54	0.09	0.80
2011	0.34	0.46	0.07	0.77
Mean	**0.53**	**0.54**	**0.10**	**0.71**

Table 2. Summary statistics – Unadjusted acquirers performance, creditworthiness and characteristics and deal characteristics

The M&A sample consists of M&A deals whose acquirers are U.S. firms and transaction values are at least $1 million dollars announced in the period from 1 January, 2005 to 31 December, 2011. ROA_{t-1} is the acquirer's ROA in the year before the M&A deal's announcement date. Z_Score_{t-1} is the acquirer's Altman's Z-score in the year before the M&A deal's announcement date calculated by excluding term X4. EDF_{t-1} is the acquirer's EDF in the year before the M&A deal's announcement date. ROA_{t+1}, Z_Score_{t+1} and EDF_{t+1} represent the acquirer's ROA, Z-score and EDF one year after the M&A deal's announcement year. ROA_{t+2}, Z_Score_{t+2} and EDF_{t+2} represent the acquirer's ROA, Z-score and EDF two years after the M&A deal's announcement year. Total loan size is defined as the natural logarithm of total size of the loan plus 1 million. Total firm size is defined as the natural logarithm of total asset of the acquirer plus 1 million. Book-to-market is the ratio of the acquirer's book value equity to its market value equity. Leverage is the ratio of the acquirer's total long term debt to its total asset. Transaction value is defined as the natural logarithm of the M&A deal's transaction value. Relative deal size is the ratio of the value of the M&A transaction to the acquirer's total asset. Cash is a dummy variable that equals to 1 if the M&A deal's payment method is 100% by cash and 0 otherwise. Combined is a dummy variable that equals to 1 if the M&A deal's payment method is by cash plus stock and 0 otherwise. Detailed variables definition can be found in Appendix A. The data for total loan size, total firm size, book-to-market, leverage, transaction value and relative deal size are winsorized at 1 percentile and 99 percentile. Levels of statistical significance of the difference between non-loan-financed and loan-financed at 10%, 5% and 1% are indicated by *, ** and *** respectively.

Panel A (Unadjusted: Loan-financed and non-loan-financed)

	N	Mean	S.D.	P25	Median	P75
ROA_{t-1}	3885	1.93	19.87	0.94	4.12	8.05
Z Score$_{t-1}$	2997	1.36	1.84	0.68	1.60	2.42
EDF_{t-1}	3172	0.03	0.12	0.00	0.00	0.00
ROA_{t+1}	3955	-2.05	47.17	-0.02	3.03	6.87
Z Score$_{t+1}$	3055	1.22	1.79	0.58	1.48	2.26
EDF_{t+1}	3328	0.07	0.19	0.00	0.00	0.00
ROA_{t+2}	3955	-3.37	45.83	-1.01	2.60	6.33
$Z-Score_{t+2}$	3054	1.17	1.83	0.54	1.45	2.22
EDF_{t+2}	2878	0.10	0.24	0.00	0.00	0.02
Total firm size	3891	6.88	2.12	5.47	6.82	8.16
Book-to-market	3723	0.53	0.40	0.28	0.45	0.68
Leverage	3874	0.19	0.20	0.01	0.13	0.30
Transaction value	3955	4.03	1.88	2.70	3.96	5.30
Cash	3955	0.38	0.49	0.00	0.00	1.00
Combined	3955	0.56	0.50	0.00	1.00	1.00
Relative deal size	3891	0.22	0.46	0.02	0.06	0.20

Panel B (Unadjusted: Non-loan-financed)

	N	Mean	S.D.	P25	Median	P75
ROA_{t-1}	1476	-2.59	28.69	-0.96	1.65	6.69
Z Score$_{t-1}$	1081	0.53	2.32	-0.66	1.02	2.06
EDF_{t-1}	992	0.03	0.12	0.00	0.00	0.00
ROA_{t+1}	1539	-10.07	73.76	-5.15	0.94	5.26
Z Score$_{t+1}$	1130	0.42	2.20	-0.65	0.90	1.93
EDF_{t+1}	1124	0.08	0.21	0.00	0.00	0.01
ROA_{t+2}	1539	-11.58	70.81	-6.07	0.86	4.94
$Z-Score_{t+2}$	1131	0.36	2.27	-0.81	0.88	1.89
EDF_{t+2}	997	0.13	0.26	0.00	0.00	0.07
Total firm size	1480	5.81	2.07	4.32	5.65	6.97
Book-to-market	1393	0.55	0.43	0.27	0.46	0.72
Leverage	1470	0.11	0.18	0.00	0.03	0.15
Transaction value	1539	3.32	1.70	2.08	3.23	4.40
Cash	1539	0.33	0.47	0.00	0.00	1.00
Combined	1539	0.58	0.49	0.00	1.00	1.00
Relative deal size	1480	0.30	0.58	0.03	0.09	0.29

Panel C (Unadjusted: Loan-financed)

	N	Mean	S.D.	P25	Median	P75
ROA_{t-1}	2409	4.70	10.59	1.97	4.95	8.46
Z Score$_{t-1}$	1916	1.83	1.28	1.07	1.85	2.58
EDF_{t-1}	2180	0.03	0.13	0.00	0.00	0.00
ROA_{t+1}	2416	3.06	10.56	1.12	4.14	7.48
Z Score$_{t+1}$	1925	1.70	1.27	0.96	1.72	2.40
EDF_{t+1}	2204	0.06	0.19	0.00	0.00	0.00
ROA_{t+2}	2416	1.86	13.24	0.55	3.70	6.83
$Z-Score_{t+2}$	1923	1.65	1.28	0.92	1.67	2.37
EDF_{t+2}	1881	0.08	0.22	0.00	0.00	0.01
Total firm size	2411	7.54	1.86	6.30	7.39	8.67
Book-to-market	2330	0.52	0.38	0.28	0.45	0.66
Leverage	2404	0.24	0.20	0.07	0.20	0.36
Transaction value	2416	4.49	1.84	3.14	4.44	5.75
Cash	2416	0.42	0.49	0.00	0.00	1.00
Combined	2416	0.55	0.50	0.00	1.00	1.00
Relative deal size	2411	0.17	0.37	0.02	0.05	0.16

Panel D (Unadjusted: Descriptive Statistics)

	Non-loan-financed			Loan-financed			Mean Difference Tests	Ranksum Tests
	Mean	Median	N	Mean	Median	N		
ROA_{t-1}	-2.59	1.65	1476	4.70	4.95	2409	-7.292***	-13.385***
$Z\ Score_{t-1}$	0.53	1.02	1081	1.83	1.85	1916	-1.299***	-15.830***
EDF_{t-1}	0.03	0.00	992	0.03	0.00	2180	-0.002	4.045***
ROA_{t+1}	-10.07	0.94	1539	3.06	4.14	2416	-13.129***	-15.816***
$Z\ Score_{t+1}$	0.42	0.90	1130	1.70	1.72	1925	-1.276***	-16.409***
EDF_{t+1}	0.08	0.00	1124	0.06	0.00	2204	0.020***	4.204***
ROA_{t+2}	-11.58	0.86	1539	1.86	3.70	2416	-13.443***	-14.154***
$Z-Score_{t+2}$	0.36	0.88	1131	1.65	1.67	1923	-1.287***	-15.951***
EDF_{t+2}	0.13	0.00	997	0.08	0.00	1881	0.041***	4.961***
Total firm size	5.81	5.65	1480	7.54	7.39	2411	-1.739***	-25.354***
Book-to-market	0.55	0.46	1393	0.52	0.45	2330	0.029**	0.901
Leverage	0.11	0.03	1470	0.24	0.20	2404	-0.129***	-23.982***
Transaction value	3.32	3.23	1539	4.49	4.44	2416	-1.176***	-19.255***
Cash	0.33	0.00	1539	0.42	0.00	2416	-0.086***	-5.418***
Combined	0.58	1.00	1539	0.55	1.00	2416	0.027*	1.645*
Relative deal size	0.30	0.09	1480	0.17	0.05	2411	0.126***	10.150***

Table 3. OLS regressions – Unadjusted acquirers' post-merger operating performance (H1)

This table analyzes the acquirers' post-merger operating performance after taking syndicated loans using *OLS* regressions. The subscripts t-1, t+1 and t+2 denote the year prior to the merger, one year and two year after the merger, respectively. The dependent variables in Column (1) - (6) are ROA at $t+1$, ROA at $t+2$, Altman's Z Score at $t+1$, Altman's Z Score at $t+2$, EDF at $t+1$ and EDF at $t+2$ respectively. The year fixed effects and 1-digit industry fixed effects are controlled for in the regressions. Detailed variables definition can be found in Appendix A. Standard errors are calculated at firm level and reported in parentheses. Levels of statistical significance at 10%, 5% and 1% are indicated by *, ** and *** respectively.

	1	2	3	4	5	6
Regression	ROA_{t+1}	ROA_{t+2}	Z Score$_{t+1}$	Z Score$_{t+2}$	EDF_{t+1}	EDF_{t+2}
Variables	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Loan Fin	**4.197****	**3.344****	**0.076****	**0.131*****	**-0.021*****	**-0.028*****
	[1.741]	**[1.623]**	**[0.036]**	**[0.043]**	**[0.008]**	**[0.010]**
ROA_{t-1}	0.935***	0.775***				
	[0.040]	[0.037]				
Z Score$_{t-1}$			0.846***	0.818***		
			[0.009]	[0.011]		
EDF_{t-1}					0.054*	0.094**
					[0.028]	[0.037]
Total firm size	0.347	0.989*	0.051***	0.046***	0.001	-0.006*
	[0.579]	[0.539]	[0.012]	[0.014]	[0.003]	[0.003]
Book-to-market	-5.814***	-0.831	-0.111***	-0.148***	0.040***	0.058***
	[1.900]	[1.771]	[0.038]	[0.045]	[0.009]	[0.013]
Leverage	-6.406	-0.457	0.050	-0.040	0.124***	0.122***
	[3.954]	[3.685]	[0.082]	[0.098]	[0.017]	[0.023]
Transaction value	0.941	0.727	-0.047***	-0.035**	-0.007***	-0.003
	[0.604]	[0.563]	[0.012]	[0.014]	[0.003]	[0.004]
Cash	6.395*	7.993**	0.071	0.087	0.005	0.010
	[3.381]	[3.151]	[0.074]	[0.087]	[0.015]	[0.020]
Combined	6.389*	6.884**	0.043	0.075	0.004	0.015
	[3.275]	[3.052]	[0.072]	[0.085]	[0.014]	[0.019]
Relative deal size	-10.091***	-7.549***	0.042	0.064	0.051***	0.032**
	[2.132]	[1.987]	[0.040]	[0.048]	[0.011]	[0.014]
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	3,716	3,716	2,874	2,866	2,962	2,518
R-Squared	0.197	0.172	0.825	0.763	0.245	0.224

Table 4. OLS regressions – Unadjusted acquirers' post-merger operating performance (H2)

This table analyzes the acquirers' post-merger operating performance after taking syndicated loans from relationship lenders using *OLS* regressions. The subscripts t-1, t+1 and t+2 denote the year prior to the merger, one year and two year after the merger, respectively. The dependent variables in Column (1) - (6) are ROA at $t+1$, ROA at $t+2$, Altman's Z Score at $t+1$, Altman's Z Score at $t+2$, EDF at $t+1$ and EDF at $t+2$ respectively. The year fixed effects and 1-digit industry fixed effects are controlled for in the regressions. Detailed variables definition can be found in Appendix A. Standard errors are calculated at firm level and reported in parentheses. Levels of statistical significance at 10%, 5% and 1% are indicated by *, ** and *** respectively.

	1	2	3	4	5	6
Regression	ROA_{t+1}	ROA_{t+2}	Z Score$_{t+1}$	Z Score$_{t+2}$	EDF_{t+1}	EDF_{t+2}
Variables	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Relationship	**2.052***	**1.361***	**0.063**	**0.067**	**-0.022***	**-0.012**
	[0.605]	**[0.762]**	**[0.040]**	**[0.046]**	**[0.010]**	**[0.014]**
ROA_{t-1}	0.214***	0.216***				
	[0.021]	[0.026]				
Z Score$_{t-1}$			0.838***	0.804***		
			[0.013]	[0.015]		
EDF_{t-1}					0.051	0.067
					[0.032]	[0.041]
Fcovenant	0.142	0.164	0.011	0.005	-0.013	-0.022**
	[0.463]	[0.584]	[0.031]	[0.035]	[0.008]	[0.011]
Total loan size	0.153	0.460	-0.010	0.009	-0.002	-0.013**
	[0.237]	[0.299]	[0.017]	[0.020]	[0.004]	[0.005]
Maturity	-0.020	0.068	0.011	0.003	-0.005	-0.002
	[0.340]	[0.428]	[0.023]	[0.026]	[0.006]	[0.008]
Total firm size	-0.156	0.142	0.013	-0.010	0.008**	0.011**
	[0.241]	[0.304]	[0.018]	[0.021]	[0.004]	[0.005]
Book-to-market	-5.340***	-5.864***	-0.149***	-0.148***	0.053***	0.066***
	[0.585]	[0.737]	[0.041]	[0.046]	[0.011]	[0.015]
Leverage	-2.921**	-1.913	0.073	-0.062	0.119***	0.139***
	[1.246]	[1.570]	[0.093]	[0.106]	[0.021]	[0.028]
Transaction value	0.364**	0.017	-0.013	0.002	-0.011***	-0.008**
	[0.182]	[0.230]	[0.012]	[0.014]	[0.003]	[0.004]
Cash	1.644	-0.163	0.251***	0.176*	0.002	0.061**
	[1.208]	[1.522]	[0.086]	[0.098]	[0.020]	[0.027]
Combined	1.986*	-0.191	0.255***	0.221**	-0.004	0.057**

	[1.186]	[1.494]	[0.085]	[0.097]	[0.020]	[0.026]
Relative deal size	-3.931***	-1.327	-0.389***	-0.409***	0.090***	0.090***
	[0.975]	[1.229]	[0.064]	[0.073]	[0.017]	[0.022]
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	2,278	2,278	1,823	1,818	2,027	1,713
R-Squared	0.161	0.123	0.795	0.742	0.250	0.235

Table 5. OLS regressions – Unadjusted acquirers' post-merger operating performance (H3)

This table analyzes the acquirers' post-merger operating performance after taking syndicated loans from transactional lenders using *OLS* regressions. The subscripts t-1, t+1 and t+2 denote the year prior to the merger, one year and two year after the merger, respectively. The dependent variables in Column (1) - (6) are ROA at *t +1*, ROA at *t + 2*, Altman's Z Score at *t + 1*, Altman's Z Score at *t + 2*, EDF at *t + 1* and EDF at *t + 2* respectively. The year fixed effects and 1-digit industry fixed effects are controlled for in the regressions. Detailed variables definition can be found in Appendix A. Standard errors are calculated at firm level and reported in parentheses. Levels of statistical significance at 10%, 5% and 1% are indicated by *, ** and *** respectively.

	1	2	3	4	5	6
Regression	ROA_{t+1}	ROA_{t+2}	$Z\,Score_{t+1}$	$Z\,Score_{t+2}$	EDF_{t+1}	EDF_{t+2}
Variables	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Transactional	**-0.057**	**-0.186**	**0.043**	**-0.010**	**0.004**	**-0.003**
	[0.610]	**[0.768]**	**[0.040]**	**[0.046]**	**[0.010]**	**[0.014]**
ROA_{t-1}	0.217***	0.218***				
	[0.021]	[0.026]				
$Z\,Score_{t-1}$			0.842***	0.806***		
			[0.013]	[0.015]		
EDF_{t-1}					0.055*	0.069*
					[0.032]	[0.041]
Fcovenant	0.173	0.195	0.009	0.007	-0.013*	-0.022**
	[0.467]	[0.587]	[0.031]	[0.035]	[0.008]	[0.011]
Total loan size	0.397*	0.633**	-0.006	0.016	-0.005	-0.014***
	[0.232]	[0.291]	[0.017]	[0.019]	[0.004]	[0.005]
Maturity	-0.018	0.078	0.008	0.003	-0.005	-0.001
	[0.342]	[0.431]	[0.023]	[0.026]	[0.006]	[0.008]
Total firm size	-0.166	0.142	0.011	-0.009	0.008**	0.011**
	[0.243]	[0.306]	[0.018]	[0.021]	[0.004]	[0.005]
Book-to-market	-5.386***	-5.889***	-0.151***	-0.148***	0.054***	0.066***
	[0.587]	[0.738]	[0.041]	[0.046]	[0.011]	[0.015]
Leverage	-2.836**	-1.812	0.069	-0.049	0.117***	0.139***
	[1.262]	[1.588]	[0.094]	[0.107]	[0.022]	[0.028]
Transaction value	0.393**	0.038	-0.013	0.003	-0.011***	-0.008**
	[0.183]	[0.230]	[0.012]	[0.014]	[0.003]	[0.004]
Cash	1.628	-0.162	0.251***	0.181*	0.001	0.061**
	[1.212]	[1.525]	[0.086]	[0.098]	[0.020]	[0.027]

Combined	1.954	-0.202	0.255***	0.225**	-0.004	0.057**
	[1.190]	[1.497]	[0.085]	[0.097]	[0.020]	[0.026]
Relative deal size	-4.098***	-1.428	-0.397***	-0.413***	0.091***	0.091***
	[0.977]	[1.229]	[0.064]	[0.073]	[0.017]	[0.022]
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	2,278	2,278	1,823	1,818	2,027	1,713
R-Squared	0.157	0.122	0.795	0.742	0.248	0.235

Table 6. OLS regressions – Unadjusted acquirers' post-merger operating performance (H4)

This table analyzes the acquirers' post-merger operating performance after taking syndicated loans from institutional lenders using the *OLS* regressions. The subscripts t-1, t+1 and t+2 denote the year prior to the merger, one year and two year after the merger, respectively. The dependent variables in Column (1) - (6) are ROA at *t +1*, ROA at *t + 2*, Altman's Z Score at *t + 1*, Altman's Z Score at *t + 2*, EDF at *t + 1* and EDF at *t + 2* respectively. The year fixed effects and 1-digit industry fixed effects are controlled for in the regressions. Detailed variables definition can be found in Appendix A. Standard errors are calculated at firm level and reported in parentheses. Levels of statistical significance at 10%, 5% and 1% are indicated by *, ** and *** respectively.

	1	2	3	4	5	6
Regression	ROA_{t+1}	ROA_{t+2}	$Z\ Score_{t+1}$	$Z\ Score_{t+2}$	EDF_{t+1}	EDF_{t+2}
Variables	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Institutional	**-2.948***	**-3.566***	**-0.000**	**-0.064**	**0.056***	**0.026**
	[1.020]	**[1.283]**	**[0.068]**	**[0.077]**	**[0.017]**	**[0.023]**
ROA_{t-1}	0.215***	0.215***				
	[0.021]	[0.026]				
$Z\ Score_{t-1}$			0.841***	0.805***		
			[0.013]	[0.015]		
EDF_{t-1}					0.050	0.067
					[0.032]	[0.041]
Fcovenant	0.150	0.160	0.012	0.007	-0.013	-0.023**
	[0.464]	[0.583]	[0.031]	[0.035]	[0.008]	[0.011]
Total loan size	0.421*	0.653**	-0.003	0.017	-0.006	-0.014***
	[0.227]	[0.285]	[0.017]	[0.019]	[0.004]	[0.005]
Maturity	0.172	0.301	0.010	0.006	-0.009	-0.003
	[0.346]	[0.436]	[0.023]	[0.026]	[0.006]	[0.008]
Total firm size	-0.180	0.119	0.013	-0.012	0.009**	0.011**
	[0.241]	[0.304]	[0.018]	[0.021]	[0.004]	[0.005]
Book-to-market	-5.467***	-5.991***	-0.150***	-0.150***	0.056***	0.067***
	[0.586]	[0.737]	[0.041]	[0.046]	[0.011]	[0.015]
Leverage	-1.779	-0.568	0.083	-0.022	0.098***	0.129***
	[1.300]	[1.636]	[0.099]	[0.112]	[0.022]	[0.029]
Transaction value	0.377**	0.017	-0.012	0.003	-0.010***	-0.008**
	[0.182]	[0.229]	[0.012]	[0.014]	[0.003]	[0.004]
Cash	1.585	-0.224	0.254***	0.181*	0.003	0.061**
	[1.209]	[1.521]	[0.086]	[0.098]	[0.020]	[0.027]
Combined	1.858	-0.327	0.257***	0.224**	-0.002	0.057**

	[1.187]	[1.493]	[0.085]	[0.097]	[0.020]	[0.026]
Relative deal size	-3.959***	-1.268	-0.394***	-0.411***	0.088***	0.090***
	[0.976]	[1.227]	[0.064]	[0.073]	[0.017]	[0.022]
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	2,278	2,278	1,823	1,818	2,027	1,713
R-Squared	0.160	0.125	0.795	0.742	0.252	0.236

Table 7. OLS regressions – Unadjusted acquirers' post-merger operating performance (H5)

This table analyzes the acquirers' post-merger operating performance after taking syndicated loans from reputable lenders using *OLS* regressions. The subscripts t-1, t+1 and t+2 denote the year prior to the merger, one year and two year after the merger, respectively. The dependent variables in Column (1) - (6) are ROA at $t+1$, ROA at $t+2$, Altman's Z Score at $t+1$, Altman's Z Score at $t+2$, EDF at $t+1$ and EDF at $t+2$ respectively. The year fixed effects and 1-digit industry fixed effects are controlled for in the regressions. Detailed variables definition can be found in Appendix A. Standard errors are calculated at firm level and reported in parentheses. Levels of statistical significance at 10%, 5% and 1% are indicated by *, ** and *** respectively.

	1	2	3	4	5	6
Regression	ROA_{t+1}	ROA_{t+2}	$Z\,Score_{t+1}$	$Z\,Score_{t+2}$	EDF_{t+1}	EDF_{t+2}
Variables	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Reputable	**2.176***	**1.637**	**0.072***	**0.054**	**-0.036***	**-0.039***
	[0.635]	**[0.800]**	**[0.042]**	**[0.048]**	**[0.011]**	**[0.014]**
ROA_{t-1}	0.211***	0.213***				
	[0.021]	[0.026]				
$Z\,Score_{t-1}$			0.838***	0.804***		
			[0.013]	[0.015]		
EDF_{t-1}					0.049	0.063
					[0.032]	[0.041]
Fcovenant	0.161	0.176	0.012	0.007	-0.013*	-0.023**
	[0.463]	[0.584]	[0.031]	[0.035]	[0.008]	[0.011]
Total loan size	0.167	0.449	-0.009	0.011	-0.001	-0.010*
	[0.236]	[0.297]	[0.017]	[0.020]	[0.004]	[0.005]
Maturity	-0.135	-0.019	0.006	-0.000	-0.003	0.000
	[0.341]	[0.430]	[0.023]	[0.026]	[0.006]	[0.008]
Total firm size	-0.222	0.093	0.009	-0.013	0.009**	0.012**
	[0.242]	[0.304]	[0.018]	[0.021]	[0.004]	[0.005]
Book-to-market	-5.310***	-5.837***	-0.146***	-0.146***	0.052***	0.065***
	[0.585]	[0.738]	[0.041]	[0.046]	[0.011]	[0.015]
Leverage	-2.685**	-1.741	0.087	-0.049	0.114***	0.134***
	[1.246]	[1.570]	[0.093]	[0.106]	[0.021]	[0.028]
Transaction value	0.364**	0.014	-0.013	0.002	-0.010***	-0.008**
	[0.182]	[0.230]	[0.012]	[0.014]	[0.003]	[0.004]
Cash	1.695	-0.123	0.252***	0.179*	0.001	0.059**
	[1.208]	[1.522]	[0.086]	[0.098]	[0.020]	[0.027]
Combined	2.025*	-0.159	0.256***	0.224**	-0.005	0.054**

	[1.186]	[1.494]	[0.085]	[0.097]	[0.020]	[0.026]
Relative deal size	-3.977***	-1.347	-0.392***	-0.413***	0.089***	0.088***
	[0.974]	[1.228]	[0.064]	[0.073]	[0.017]	[0.022]
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	2,278	2,278	1,823	1,818	2,027	1,713
R-Squared	0.162	0.124	0.795	0.742	0.252	0.238

Table 8. Unadjusted acquirers' post-merger operating performance - Propensity Score Matching

This table compares the differences of post-merger operating performance between the acquirers who have taken syndicated loans and those who have not taken syndicated loans (i.e., Loan-financed M&A deals vs. Non-loan-financed M&A deals) and analyzes the acquirers' post-merger operating performance after taking loans from different types of lenders (relationship lenders, transactional lenders, institutional lenders and reputable lenders) by using propensity score matching approach to address the potential problem of selection bias. The subscripts t-1, t+1 and t+2 denote the year prior to the merger, one year and two year after the merger, respectively. The dependent variables are ROA at $t+1$, ROA at $t+2$, Altman's Z Score at $t+1$, Altman's Z Score at $t+2$, EDF at $t+1$ and EDF at $t+2$ respectively. The year fixed effects and 1-digit industry fixed effects are controlled for in the regressions. Detailed variables definition can be found in Appendix A. The one-to-one pair match without replacement (with caliper of 0.01) is used to match Loan-financed M&A deals with Non-loan-financed M&A deals, to match relationship lender financed M&A deals with non-relationship lender-financed M&A deals, to match transactional lender financed M&A deals with non-transactional lender-financed M&A deals, to match institutional lender financed M&A deals with non-institutional lender-financed M&A deals and to match reputable lender financed M&A deals with non-reputable lender-financed M&A deals. The PSM estimator and the bootstrap standard errors (in parentheses) are reported. Levels of statistical significance at 10%, 5% and 1% are indicated by *, ** and *** respectively.

Panel A LF vs NLF

Variables	Estimator	Bootstrap S.E.
ROA_{t+1}	9.330	2.415***
ROA_{t+2}	7.600	2.109***
$Z-Score_{t+1}$	0.958	0.074***
$Z-Score_{t+2}$	0.973	0.094***
EDF_{t+1}	-0.017	0.010*
EDF_{t+2}	-0.018	0.014

Panel B Relationship lenders

Variables	Estimator	Bootstrap S.E.
ROA_{t+1}	2.347	0.615***
ROA_{t+2}	1.705	0.897*
$Z-Score_{t+1}$	0.396	0.069***
$Z-Score_{t+2}$	0.338	0.072***
EDF_{t+1}	-0.033	0.010***
EDF_{t+2}	-0.023	0.011**

Panel C Transactional lenders

Variables	Estimator	Bootstrap S.E.
ROA_{t+1}	-0.226	0.596
ROA_{t+2}	-0.546	0.759

$Z - Score_{t+1}$	0.031	0.076
$Z - Score_{t+2}$	-0.063	0.060
EDF_{t+1}	-0.002	0.011
EDF_{t+2}	0.003	0.014

Panel D Institutional lenders

Variables	Estimator	Bootstrap S.E.
ROA_{t+1}	0.156	3.238
ROA_{t+2}	0.933	3.626
$Z - Score_{t+1}$	-0.948	0.261***
$Z - Score_{t+2}$	-0.933	0.368**
EDF_{t+1}	0.090	0.065
EDF_{t+2}	0.068	0.088

Panel E Reputable lenders

Variables	Estimator	Bootstrap S.E.
ROA_{t+1}	1.785	0.427***
ROA_{t+2}	1.728	0.584***
$Z - Score_{t+1}$	0. 271	0.071***
$Z - Score_{t+2}$	0.268	0.065***
EDF_{t+1}	-0.035	0.009***
EDF_{t+2}	-0.035	0.009***

Table 9. Summary statistics – Industry-adjusted acquirers performance and deal characteristics

The M&A sample consists of M&A deals whose acquirers are U.S. firms and transaction values are at least $1 million dollars announced in the period from 1 January, 2005 to 31 December, 2011. ROA_{IAt-1} is the acquirer's industry-adjusted ROA in the year before the M&A deal's announcement date. Z Score$_{IAt-1}$ is the acquirer's industry -adjusted Altman's Z-score in the year before the M&A deal's announcement date calculated by excluding term X4. EDF_{IAt-1} is the acquirer's industry-adjusted EDF in the year before the M&A deal's announcement date. ROA_{IAt+1}, Z_Score$_{IAt+1}$ and EDF_{IAt+1} represent the acquirer's industry-adjusted ROA, Z-score and EDF one year after the M&A deal's announcement year. ROA_{IAt+2}, Z_Score$_{IAt+2}$ and EDF_{IAt+2} represent the acquirer's industry-adjusted ROA, Z-score and EDF two years after the M&A deal's announcement year. Total loan size is defined as the natural logarithm of total size of the loan plus 1 million. Total firm size is defined as the natural logarithm of total asset of the acquirer plus 1 million. Book-to-market is the ratio of the acquirer's book value equity to its market value equity. Leverage is the ratio of the acquirer's total long term debt to its total asset. Transaction value is defined as the natural logarithm of the M&A deal's transaction value. Relative deal size is the ratio of the value of the M&A transaction to the acquirer's total asset. Cash is a dummy variable that equals to 1 if the M&A deal's payment method is 100% by cash and 0 otherwise. Combined is a dummy variable that equals to 1 if the M&A deal's payment method is by cash plus stock and 0 otherwise. Detailed variables definition can be found in Appendix A. The data for total loan size, total firm size, book-to-market, leverage, transaction value and relative deal size are winsorized at 1 percentile and 99 percentile. Levels of statistical significance of the difference between non-loan-financed and loan-financed at 10%, 5% and 1% are indicated by *, ** and *** respectively.

Panel A (Industry-adjusted: Loan-financed and non-loan-financed)

	N	Mean	S.D.	P25	Median	P75
ROA_{IAt-1}	3885	-0.66	19.75	-1.34	1.10	5.21
Z Score$_{IAt-1}$	2997	-0.20	1.70	-0.71	0.03	0.78
EDF_{IAt-1}	3172	0.03	0.13	0.00	0.00	0.00
ROA_{IAt+1}	3955	-4.62	47.04	-2.81	0.26	4.08
Z Score$_{IAt+1}$	3055	-0.33	1.64	-0.79	-0.09	0.60
EDF_{IAt+1}	3328	0.07	0.19	0.00	0.00	0.00
ROA_{IAt+2}	3955	-5.94	45.73	-3.70	0.02	3.61
$Z-Score_{IAt+2}$	3054	-0.38	1.68	-0.85	-0.11	0.56
EDF_{IAt+2}	2878	0.10	0.24	0.00	0.00	0.01
Total firm size	3891	6.88	2.12	5.47	6.82	8.16
Book-to-market	3723	0.53	0.40	0.28	0.45	0.68
Leverage	3874	0.19	0.20	0.01	0.13	0.30
Transaction value	3955	4.03	1.88	2.70	3.96	5.30
Cash	3955	0.38	0.49	0.00	0.00	1.00
Combined	3955	0.56	0.50	0.00	1.00	1.00
Relative deal size	3891	0.22	0.46	0.02	0.06	0.20

Panel B (Industry-adjusted: Non-loan-financed)

	N	Mean	S.D.	P25	Median	P75
ROA_{IAt-1}	1476	-4.77	28.53	-3.42	0.31	4.12
$Z\ Score_{IAt-1}$	1081	-0.97	2.17	-2.06	-0.37	0.41
EDF_{IAt-1}	992	0.03	0.12	0.00	0.00	0.00
ROA_{IAt+1}	1539	-12.22	73.60	-7.69	-0.29	2.70
$Z\ Score_{IAt+1}$	1130	-1.06	2.07	-2.07	-0.50	0.32
EDF_{IAt+1}	1124	0.08	0.21	0.00	0.00	0.01
ROA_{IAt+2}	1539	-13.74	70.70	-8.23	-0.53	2.19
$Z-Score_{IAt+2}$	1131	-1.12	2.14	-2.24	-0.49	0.33
EDF_{IAt+2}	997	0.12	0.26	0.00	0.00	0.07
Total firm size	1480	5.81	2.07	4.32	5.65	6.97
Book-to-market	1393	0.55	0.43	0.27	0.46	0.72
Leverage	1470	0.11	0.18	0.00	0.03	0.15
Transaction value	1539	3.32	1.70	2.08	3.23	4.40
Cash	1539	0.33	0.47	0.00	0.00	1.00
Combined	1539	0.58	0.49	0.00	1.00	1.00
Relative deal size	1480	0.30	0.58	0.03	0.09	0.29

Panel C (Industry-adjusted: Loan-financed)

	N	Mean	S.D.	P25	Median	P75
ROA_{IAt-1}	2409	1.86	10.65	-0.84	1.85	5.59
$Z\ Score_{IAt-1}$	1916	0.24	1.15	-0.40	0.20	0.91
EDF_{IAt-1}	2180	0.03	0.13	0.00	0.00	0.00
ROA_{IAt+1}	2416	0.23	10.63	-1.65	1.14	4.54
$Z\ Score_{IAt+1}$	1925	0.10	1.13	-0.47	0.08	0.76
EDF_{IAt+1}	2204	0.06	0.18	0.00	0.00	0.00
ROA_{IAt+2}	2416	-0.97	13.29	-2.37	0.65	4.12
$Z-Score_{IAt+2}$	1923	0.05	1.15	-0.52	0.04	0.71
EDF_{IAt+2}	1881	0.08	0.22	0.00	0.00	0.01
Total firm size	2411	7.54	1.86	6.30	7.39	8.67
Book-to-market	2330	0.52	0.38	0.28	0.45	0.66
Leverage	2404	0.24	0.20	0.07	0.20	0.36
Transaction value	2416	4.49	1.84	3.14	4.44	5.75
Cash	2416	0.42	0.49	0.00	0.00	1.00
Combined	2416	0.55	0.50	0.00	1.00	1.00
Relative deal size	2411	0.17	0.37	0.02	0.05	0.16

Panel D (Industry-adjusted: Descriptive Statistics)

	Non-loan-financed			Loan-financed			Mean Difference Tests	Ranksum Tests
	Mean	Median	N	Mean	Median	N		
ROA_{IAt-1}	-4.77	0.31	1476	1.86	1.85	2409	-6.625***	-9.255***
$Z\,Score_{IAt-1}$	-0.97	-0.37	1081	0.24	0.20	1916	-1.201***	-15.153***
EDF_{IAt-1}	0.03	0.00	992	0.03	0.00	2180	-0.001	-0.598
ROA_{IAt+1}	-12.22	-0.29	1539	0.23	1.14	2416	-12.450***	-11.846***
$Z\,Score_{IAt+1}$	-1.06	-0.50	1130	0.10	0.08	1925	-1.161***	-15.413***
EDF_{IAt+1}	0.08	0.00	1124	0.06	0.00	2204	0.021***	2.956***
ROA_{IAt+2}	-13.74	-0.53	1539	-0.97	0.65	2416	-12.763***	-10.511***
$Z-Score_{IAt+2}$	-1.12	-0.49	1131	0.05	0.04	1923	-1.169***	-14.845***
EDF_{IAt+2}	0.12	0.00	997	0.08	0.00	1881	0.042***	5.193***
Total firm size	5.81	5.65	1480	7.54	7.39	2411	-1.739***	-25.354***
Book-to-market	0.55	0.46	1393	0.52	0.45	2330	0.029**	0.901
Leverage	0.11	0.03	1470	0.24	0.20	2404	-0.129***	-23.982***
Transaction value	3.32	3.23	1539	4.49	4.44	2416	-1.176***	-19.255***
Cash	0.33	0.00	1539	0.42	0.00	2416	-0.086***	-5.418***
Combined	0.58	1.00	1539	0.55	1.00	2416	0.027*	1.645*
Relative deal size	0.30	0.09	1480	0.17	0.05	2411	0.126***	10.150***

Table 10. OLS regressions – Industry-adjusted acquirers' post-merger operating performance and creditworthiness (H1, H2, H3, H4 and H5)

This table analyzes the acquirers' post-merger operating performance after taking syndicated loans, taking loans from relationship lenders, transactional lenders, institutional lenders and reputable lenders using the respective *OLS* regressions. The subscripts t-1, t+1 and t+2 denote the year prior to the merger, one year and two year after the merger, respectively. The dependent variables in Column (1) - (6) are industry-adjusted ROA at $t + 1$, industry-adjusted ROA at $t + 2$, industry-adjusted Altman's Z Score at $t + 1$, industry-adjusted Altman's Z Score at $t + 2$, industry-adjusted EDF at $t + 1$ and industry-adjusted EDF at $t + 2$ respectively. The year fixed effects are controlled for in the regressions. Detailed variables definition can be found in Appendix A. For the economy of space, only coefficients and standard errors of key variables of interest and fit of the regression models are reported in the table. Standard errors are calculated at firm level and reported in parentheses. Levels of statistical significance at 10%, 5% and 1% are indicated by *, ** and *** respectively.

Panel A LF vs NLF

Regression	1 ROA_{IAt+1}	2 ROA_{IAt+2}	3 Z Score$_{IAt+1}$	4 Z Score$_{IAt+2}$	5 EDF_{IAt+1}	6 EDF_{IAt+2}
Variables	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Loan Fin dummy	3.324**	2.518	0.053	0.102**	-0.028***	-0.049***
	[1.667]	[1.553]	[0.035]	[0.042]	[0.007]	[0.010]
Obs.	3718	3718	2876	2868	2964	2520
R-Squared	0.190	0.167	0.793	0.721	0.242	0.205

Panel B Relationship lenders

Regression	1 ROA_{IAt+1}	2 ROA_{IAt+2}	3 Z Score$_{IAt+1}$	4 Z Score$_{IAt+2}$	5 EDF_{IAt+1}	6 EDF_{IAt+2}
Variables	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Relationship	2.121***	1.479*	0.056	0.061	-0.023**	-0.013
	[0.602]	[0.757]	[0.040]	[0.045]	[0.010]	[0.014]
Obs.	2280	2280	1825	1820	2029	1715
R-Squared	0.162	0.122	0.741	0.677	0.247	0.222

Panel C Transactional lenders

Regression	1 ROA_{IAt+1}	2 ROA_{IAt+2}	3 Z Score$_{IAt+1}$	4 Z Score$_{IAt+2}$	5 EDF_{IAt+1}	6 EDF_{IAt+2}
Variables	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Transactional	-0.173	-0.369	0.052	0.002	0.002	-0.008
	[0.610]	[0.767]	[0.040]	[0.046]	[0.010]	[0.014]
Obs.	2280	2280	1825	1820	2029	1715
R-Squared	0.158	0.120	0.741	0.676	0.245	0.223

Panel D Institutional lenders

Regression	1 ROA$_{IAt+1}$	2 ROA$_{IAt+2}$	3 Z Score$_{IAt+1}$	4 Z Score$_{IAt+2}$	5 EDF$_{IAt+1}$	6 EDF$_{IAt+2}$
Variables	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Institutional	**-2.449****	**-3.343*****	**0.027**	**-0.021**	**0.052*****	**0.012**
	[1.005]	**[1.287]**	**[0.067]**	**[0.076]**	**[0.017]**	**[0.023]**
Obs.	2280	2280	1825	1820	2029	1715
R-Squared	0.160	0.123	0.741	0.676	0.249	0.223

Panel E Reputable lenders

Regression	1 ROA$_{IAt+1}$	2 ROA$_{IAt+2}$	3 Z Score$_{IAt+1}$	4 Z Score$_{IAt+2}$	5 EDF$_{IAt+1}$	6 EDF$_{IAt+2}$
Variables	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Reputable	**2.044*****	**1.462***	**0.062**	**0.045**	**-0.033*****	**-0.037****
	[0.636]	**[0.798]**	**[0.042]**	**[0.048]**	**[0.011]**	**[0.014]**
Obs.	2280	2280	1825	1820	2029	1715
R-Squared	0.161	0.121	0.741	0.677	0.249	0.226