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Bank Mergers, Information Asymmetry, and the Architecture of Syndicated Loans: Global Evidence, 1982–2020

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Abstract

This study investigates how bank mergers and acquisitions (M&As) reshape the monitoring architecture of syndicated loans and, by extension, borrowers' financing conditions. Using a global panel of 20,299 syndicated loan contracts, originating in 43 countries between 1982 and 2020, we link LPC DealScan data to Securities Data Company M&A records to trace each loan's lead arrangers before and after consolidation events. Fixed-effects regressions, enriched with borrower- and loan-level controls, reveal three key patterns. First, post-merger loans exhibit significantly more concentrated syndicates: the Herfindahl–Hirschman Index rises by roughly 130 points and lead arrangers retain an additional 0.8–1.1 percentage points of the loan, consistent with heightened monitoring incentives. Second, these effects are amplified when information asymmetry is acute, i.e., for opaque or unrated firms, supporting moral hazard theory predictions that lenders internalize greater risk by holding larger stakes. Third, relational capital tempers the impact of consolidation: borrowers with repeated pre-merger relationships face smaller increases in syndicate concentration, while switchers experience the most significant jumps. Robustness checks using lead arranger market share, alternative spread measures, and lag structures confirm the findings. Overall, the results suggest that bank consolidation strengthens lead arrangers' incentives to monitor but simultaneously reduces risk-sharing among participant lenders. For borrowers, the net effect is a trade-off between potentially tighter oversight and reduced syndicate diversification, with the balance hinging on transparency and prior ties to the lender. These insights refine our understanding of how structural shifts in the banking sector cascade into corporate credit markets and should inform both antitrust assessments and borrower funding strategies.

Keywords: bank mergers and acquisitions (M&As); syndicated loans; information asymmetry; lead arranger monitoring; lending relationships; loan syndicate structure; borrower transparency; global banking consolidation

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1. Introduction

Despite the accelerated growth of the mergers and acquisitions (M&As) banking industry, there has been no conclusive evidence of the benefits of bank M&As. It is essential to explain M&As separately to understand the motivations and effects of each type of transaction. The goal of mergers is to increase income from services; however, while higher staff costs can offset the greater income, the return on equity rises as a result of a reduction in capital. An acquisition can help a bank restructure its loan portfolio, and improved lending policies result in higher profits. We study this by looking at the syndicate structure held by lead arrangers in a syndicate.

This section illustrates a crucial purpose with a clear understanding of the research problem and question of the study's context. This section begins with the background and context of the research, identifying the research problem and questions and providing a brief overview of the study's aims and objectives. It also provides a rationale for why the research is essential, describing how it contributes to existing knowledge or fills gaps in the literature.

Previous studies have shown that borrowers of acquired banks are more likely to lose their lending relationships as a result of firm-level effects based on mergers between commercial banks (Sapienza 2002; Degryse and Ongena 2005; Karceski et al. 2005). As a result of mergers, loan prices are affected by the degree of overlap between markets and the size of the merging banks (Erel 2011). However, the effects of cross-product banking mergers are unknown, as most research has highlighted the potential gains from diversification (Boyd and Graham 1988; Boyd and Runkle 1993; Estrella 2001) or has examined the impact of mergers between commercial banks and insurance companies on the value of bank shareholders (Cybo-Ottone and Murgia 2000; Carow 2001; Manasakis 2009). In their work on banking M&As, Gao et al. (2021) examine the impact of M&A characteristics on loan prices, finding that relative deal size is the primary factor impacting loan prices. The authors also find that a higher loan price is associated with worse performance in the post-acquisition years. Drucker (2005) tests M&As between commercial banks and investment banks and finds that unrated firms with substantial informational economies of scope, which issue public securities, are more likely to switch from a commercial bank to a merged commercial–investment bank, suggesting that the benefits to borrowers exceed the costs of switching lenders.

Examining the impact of M&As on the structure of syndicated loans is critically important due to the intertwined nature of these financial arrangements. M&A transactions typically necessitate substantial financing, often secured through syndicated loans. Notably, approximately 15% of syndicated loans recorded between 1986 and 2003 were used to facilitate M&As, amounting to around $6.2 trillion (Gao et al. 2021). Understanding how M&A activities alter the syndicated loan structure helps to evaluate loan pricing, lender dynamics, and risk management strategies.

Firstly, M&A activities can significantly influence the configuration and dynamics of loan syndicates. When firms engage in M&As, they often require larger loan amounts, which can lead to changes in syndicate composition, including the number of participants and their respective shares (Ambrocio et al. 2022). The variation in syndicate structure is influenced not only by the loan size but also by the shifting risk profile related to the borrowing entity post-M&A.). As highlighted by Degl'Innocenti et al. (2022), development banks' participation tends to correlate with more dispersed ownership in syndicated loans, thereby influencing risk exposure and the overall structure of the syndicate. The inclusion of various types of lenders, particularly development and non-bank institutions post-M&A, has been shown to affect the distribution of risk across the syndicate, making it imperative to examine these changes in order to understand broader market stability (Delis et al. 2021).

The effects of M&As on syndicated loan structures extend further to pricing dynamics. Factors such as the number of lenders participating in a syndicate, and the retention levels by lead banks, can significantly affect loan spreads and overall borrowing costs (Schenck and Shi 2022). The concentration of lenders can be influenced by the competitive landscape within which banks operate, introducing nuance to how M&A impacts syndicated loans (Chen and Kieschnick 2023). Changes in competition can lead to variations in yield spreads, which directly correlate with the involved entities' perceived risk post-acquisition (Schenck and Shi 2022).

Lower borrowing costs are another direct benefit. Commercial–investment banks charge loan yield spreads of 24–29 basis points lower than commercial banks when borrowers issue public securities. The author investigated loan yield spread and found significant discounts for unrated borrowers starting a new lending relationship. Commercial and investment banks lend to less profitable yet more leveraged firms, price riskier classes of term loans more generously, and offer relatively longer-term credits, usually with term contracts rather than commitment contracts (Harjoto et al. 2006).

The costs of financial intermediation may be lowered as a bank gathers and shares borrower-specific private information across divisions, producing economies of scope (Benston and Harland 1990; Kanatas and Qi 2003). At the same time, Küçükkocaoğlu and Bozkurt (2018) conducted a study intending to determine how share transfers, mergers, and acquisitions affected the profitability of Turkish banks from 2001 to 2012, and supported the notion that M&As are suitable for scaling. The study found that a bank merger enables the business to expand swiftly by attracting many new clients. In addition, the acquisition increases the amount of cash available to the bank for lending and investing. Nevertheless, it also results in a larger operating area for the newly combined entity, but, as a result, company growth objectives are more quickly met.

This research contributes to the literature on the effect of syndicate structure and information asymmetry after bank M&As. We examine how banks react after M&As and how information asymmetry affects the borrower–lender relationship. Information asymmetry affects syndicate composition and structure in a manner consistent with moral hazard theories. We find that, by increasing their share in the syndicate loan, lead arrangers ensure diligence in investigating and monitoring the borrowers. Syndicates are more concentrated when borrowers are opaque, and lead arrangers retain a larger portion of the loan. Borrower reputation after M&As has also been tested as a way to reduce the effects of information asymmetry on syndicate structure.

1.1. Bank Mergers and Acquisitions: Background and Existing Research

The financial industry has been consolidating rapidly since the 1980s (Panetta et al. 2009). In 1994, community banks with less than $10 billion in assets made up 57% of deposits and 70% of all bank branches in the United States; by 2018, these numbers had decreased to 20% and 44%, respectively (Bord 2017). This shift is primarily due to M&As in the financial industry. They suggest that these changes have led to more competitive markets, further increasing the need for additional M&As. Other research supports this idea as well. The consolidation of companies has been a reaction to growing competition in financial marketplaces and is frequently an effort to increase profits across the financial landscape (Panetta et al. 2009). When financial gains are realized through mergers, payouts can be made to shareholders, which is widely touted as one positive impact of bank mergers (Piloff and Santomero 1998).

The efficiency of bank M&As has been examined by scholars for many years. Several studies have explored this angle for different types of banks and have found a correlation between a bank's efficiency and the amount of money it can save its customers. For 12 years, the authors employed the dataset of 31 Kenyan commercial banks, using panel data models as well as a difference-in-differences approach. This enabled them to verify the influence of merging on banks' loan pricing. The results of these analysts predict that, after a merger between two banks, other disciplines in the intermediation business may gain from reduced lending rates and growing credit availability.

The effects of bank mergers on information asymmetry present a dual-edged spectrum. On one side, mergers may reduce information asymmetries through increased internal information sharing and the realization of economies of scale and scope. Conversely,

mergers can exacerbate information asymmetry by diluting relationship-specific "soft" information and increasing distances between borrowers and lenders.

One of the key benefits of mergers is the potential for improved internal information sharing, which enhances banks' abilities to assess borrower risks accurately. However, the research cited in Haakantu and Phiri (2022) does not specifically support this claim about post-merger loan-to-deposit ratios or provide sufficient evidence linking this to enhanced liquidity and credit availability. Therefore, this statement should be cautiously interpreted. Research by Na and Shimizu (2024) does indicate some effects of mergers on bank credit availability and working capital management, but it suggests a decline in the growth of bank borrowings post-merger, which contradicts the claim about improved financial performance metrics.

Moreover, bank mergers are often pursued with the expectation that they will lead to economies of scale. Ayagre et al. (2024) explore the impacts of bank mergers on stability, but do not provide direct evidence of increased operational efficiency as claimed. Tsindeliani and Mikheeva (2021) highlight the impact of M&As on information asymmetry but do not specifically connect mergers to improved information sharing.

However, there are significant drawbacks associated with bank mergers that can aggravate information asymmetry. One important concern is the dilution of relationship-specific soft information, which is vital for evaluating borrower risks. The work of Thao et al. (2023) emphasizes that mergers can result in increased distances between borrowers and lenders, undermining the intimate knowledge that banks typically possess about individual clients. This relationship-building, based on soft information, is indeed challenging to replicate in larger banking entities, but the cited references do not directly support Adhikari 's (2023) findings in this specific context.

Notably, the loss of personal connections can lead to decreased trust and increased reluctance among borrowers, ultimately stifling credit flows as, indicated by Hassan and Giouvris (2021). Moreover, studies suggest that, after mergers, firms may seek to diversify their banking relationships to mitigate issues with service quality, which could perpetuate information asymmetry, as supported by Na and Shimizu (2024)

Additionally, the overall market structure can influence information asymmetries. A lack of proximity and the replication of lending practices across different branches can complicate customer–bank relationships, hindering efficient communication and the flow of soft information (Syamlan et al. 2023). This geographical and relational distance can contribute to a mismatch in expectations between borrowers and lenders, further complicating the financial landscape post-merger.

Acquisitions enable banks to grow more effectively in their banking activities and efficiency ratios. Each bank has an established framework for compliance, risk assessment strategies, bookkeeping, administration, and information technology systems. Therefore, when two banks merge, they can more effectively integrate and manage these operational frameworks, as Tarigan et al. (2018) illustrate. Financially, these researchers also argue that a more extensive bank has a lower overall risk because it holds more complementary loans with similar threats, which reduces total institutional risk.

Despite the above findings, some studies disagree with the notion that bank mergers have increased efficiency. Accordingly, Coccorese and Ferri (2020) examined the rapid surge of M&As among Italian banks to determine whether they were able to improve their efficiency. Researchers discovered that just 5% of mergers, specifically those involving a bank that had partnered with other banks at least three consecutive times, enhanced the cost-efficiency of cooperative banks. Additionally, the study hypothesizes that repeated consolidations have caused some banks to grow exceptionally large, which could hurt marginal borrowers who tend to receive services from smaller banks but are ignored by

larger ones. Therefore, bank mergers can significantly affect growth and violate the ethics and vision statement of the financial institutions in a given country.

Moctar and Xiaofang (2014) concur with this information in their study examining how M&As affect the capital adequacy of the West African banking industry. The income reports of the selected sample were used to gather secondary data. Profit measures, such as the return on investment, investment appraisal metrics, return on equity, and liquidity ratios, demonstrated the insignificant impact of M&As on the company's financial performance in the banking industry.

M&As are among the most significant corporate development and expansion methods, and firms choose the appropriate strategy based on their objectives. Several corporate divisions have adopted M&A strategies to reduce competition and foster synergy. Meanwhile, analysts have consistently sought to determine whether the purchasing or recipient organizations earn profits from the transaction. For instance, Tarigan et al. (2018) indicate that M&As allow banks to resolve deficiencies in products or technology. Sujud and Hachem (2018) also support this notion, arguing that acquiring a regional bank that provides specific investment products or monetization strategies can sometimes be more straightforward than starting that service business from the ground up. Additionally, from a technological standpoint, a bank's purchase by a larger company can enable the organization to update its technological foundation considerably. All of these factors relate to higher efficiency, increased services, and client satisfaction, enhancing the organization's financial performance.

Küçükkocaoğlu and Bozkurt (2018) also support this notion, demonstrating that each bank gains from an acquisition or merger even when the transaction does not affect the balance sheet, due to the improvement in talent available to management or leadership. This human factor must not be overlooked or minimized, because an acquisition offers the opportunity to improve the top management team or sales force. Thus, it puts banks in a better position to effectively engage in further transactions and relate these activities to financial performance.

However, Rai et al. (2021) highlight a dark side of bank M&As that is worth considering. According to their analysis of the impact of M&A news on banks, some institutions might not benefit from an acquisition or merger because of execution risks. Hassen et al. (2018) echo that caution, further illustrating that investment bankers occasionally fail to invest sufficient time and money into integrating the two financial infrastructures. Sometimes, the consequent effect on their clients forces the newly combined bank to go out of business. Therefore, Hassen's study suggests that the managers or executives of newly merged banks should spend enough time and money to integrate the two firms to avoid making this error entirely.

Furthermore, Rahman et al. (2018) expand on the assertion made by Rai et al. (2021), arguing that merging banks should thoroughly consider the best strategies to ensure a positive outcome. Therefore, intensive market and company scrutiny is critical in identifying whether the organization will benefit from an M&A before it is pursued. At the same time, a study by Pandey and Kumari (2020) found that businesses can demonstrate a positive market share or earn excess returns if they follow appropriate procedures, drawing on the usual event study approach to evaluate the stock price response to M&A declaration news with a research sample of 14 purchasing bank organizations. Key to their results is that such information affects the share markets' reaction by causing some excess returns around the time of the release. Thus, although the study found a similar outcome regarding the negative impacts of M&As on the stock market, some firms might also draw significant results.

1.2. Syndicate Structure

They studied how M&As affected the financial results of companies in India, including banks. The study analyzes vulnerabilities by employing seven distinct business M&As throughout India in 2006–2012. The researchers found that financial performance did not increase after the merger and that indicators of profitability and liquidity declined for the chosen companies.

However, Moctar and Xiaofang (2014) offered substantial hope despite the tremendous adverse outcomes of M&As in banking, demonstrating that the system might work in the long run despite initial poor outcomes. This suggestion was reinforced in 2017 by Shah and Khan (2017), who also highlighted the poor performance of financial institutions in the early stages of acquisitions or mergers. However, they found changes over time as the firms regained momentum and effectively exploited their potential.

These loans fit into a broader scope of research that examines the importance of syndicate structure in venture capital and securities underwriting markets. Preece and Mullineaux (1996) investigated the impact of syndicated loan announcements on firms' market value, which followed research into the same topic by Megginson et al. (1995). According to Dorobantu and Müllner (2019), syndicates are geographically dispersed when investments are exposed to high levels of political risk.

In contrast, syndicates are geographically concentrated when they finance projects when systemic risk is elevated, and the authors identify systemic risk in lending markets as an impediment to creating debt-side governance. To determine how legal and financial systems influence syndicated loans, Moutinho et al. (2021) found that borrowers from different countries can negotiate different spreads on their loans. According to the authors, countries with bank-based financial systems pay less in interest rate spreads than those with market-based economic systems. Qian and Strahan (2007) studied syndicated loans with firms in different countries.

Researchers have also focused on the pricing of syndicated loans and found that these types of loans have lower yield spreads than other loan types (Angbazo et al. 1998; Altman and Suggitt 2000; Thomas and Wang 2004).

Aghion et al. (2004) derived a model to describe the incentives for general partners in venture capital syndicates. Lerner (1994) and Brander et al. (2002) empirically evaluated venture capital syndicates to explore how syndicate relationships are formed and how they persist in the syndicated loan market.

1.2.1. Syndicated Loan

Loan syndication has become more common due to the distinct characteristics of the loan syndication process and its outcomes. Simons (1993) examined the incentives to syndicate and found evidence that loan syndication results in diversification. Furthermore, lead arrangers syndicate a more significant portion of "quality" loans as a result of ex post examiner ratings. Sufi (2007) found evidence that information asymmetry affects lenders and borrowers, thereby influencing the syndicate structure and consistent moral hazard in monitoring. When intense tracking and due diligence are necessary, the lead bank retains a larger share of the loan, and a more concentrated syndicate is formed. Although some issues may be mitigated by the reputation of the lead bank and borrower, problems with the information imbalance between the two entities are not eliminated. Dennis and Mullineaux (2000) found that large loans are more easily syndicated when the lead arranger has a strong reputation and the borrowing firm is public. According to Chaudhry and Kleimeier (2015), only the most reputable arrangers can mitigate the moral hazard problem, and participants and policymakers may experience adverse selection problems when low-reputation arrangers behave opportunistically. When building relationships

with borrowers, reputable investment banks and commercial banks tend to manage loans together. An analysis of SEO syndicates by Narayanan et al. (2004) found that commercial banks typically co-manage loans with reputable investment banks.

Research by Gottesman and Roberts (2004) found that, as a result of limiting resales, larger, more diffuse syndicates are formed at the time of loan origination, which contradicts the tradeoff hypothesis. In situations where loan arrangers are more reputable, loans have longer maturities, and borrowers have more growth options, syndicates tend to be larger and more diffuse (Lee and Mullineaux 2004).

Jones et al. (2005) found that the agent bank may retain a larger portion of the loan based on information asymmetry, the quality of the borrower's loan credit, capital constraints, and maturity. An effect of multiple bank relationships on loan pricing was found by Houston and James (1996) as well as Detragiache et al. (2000). Additionally, some research has suggested that the strength of a firm's relationships with lenders influences its lending decisions and its loan pricing. As a result, banks might charge higher interest rates when they have a strong lending relationship with borrowers (Sharpe 1990; Rajan 1992; Cole 1998). Stronger relationships could increase the probability of selection for the borrower as well as lower interest rates if information production is scaled and banks pass on these savings (Boot and Thakor 1994; Petersen and Rajan 1994). It has also been demonstrated that loan interest rates are influenced by a firm's geographic distance from the lending bank (Nakamura 1991; Degryse and Ongena 2005). Bharath et al. (2011) found that repeat borrowing from the same lender reduced loan spreads by 10–17 basis points and that relationships are of particular importance when borrower transparency is low.

In their study, Ivashina and Kovner (2011) explored how leveraged buyouts and banks' relationships affected syndicated loans. The purpose of their research was to empirically examine the relationship between banks' lending decisions and firms' environmental consciousness. Maturity was also found to play a role in the relationship (Li and Rowley 2002; Lee and Mullineaux 2004). Nandy and Lodh (2012) examined whether a firm's location has an influence on corporate debt, and evidence revealed that firms that were distant from urban areas required a higher cost of collecting information, which resulted in significant implications for various corporate debt characteristics. A higher external debt of the public sector means greater borrowing costs for the corporate sector (Arena and Dewally 2012). Neither domestic public debt nor corporate borrowing costs were significantly correlated (Ağca and Celasun 2012).

1.2.2. Information Asymmetry

Co-managers play a crucial role in producing information, and previous relationships among syndicate members have a strong influence on future ones, according to Corwin and Schultz (2005). Researchers have consistently demonstrated that firms favor past partners when forming new alliances due to their knowledge of potential partners' capabilities and reliability (Li and Rowley 2002).

Furthermore, European syndicated loans to corporate borrowers have significantly smaller interest rate spreads than American syndicated loans, with all other factors being equal (Carey and Nini 2007). By capturing a firm's accounting numbers, debt-contracting value can be used to determine credit quality deterioration in the shortest time possible. As a result of this hypothesis, the lead arranger holds a smaller share of the new loan when the borrower's accounting information has a higher debt-contracting value, which results in lower information asymmetry between the lead arranger and other syndicate participants (Ball et al. 2008). Using supervisory data to investigate risk-taking in the syndicated loan market in the United States, when longer-term interest rates were exceptionally low, the authors examined loan ex ante credit risk procured by lenders, such as banks and

shadow banks (Aramonte et al. 2015). Keil and Müller (2020) investigated the Riegle–Neal Interstate Banking and Branching Efficiency Act of 1994 and its implementation. Because only out-of-state commercial banks were affected by the change in the legal framework, the authors found that bilateral lending to corporations increased while branching deregulation decreased. Unlike the supply-driven substitution effect, this shift was reflected in interest rate spreads, suggesting that credit allocation across loan types is altered due to changes in banking regulations.

In their examination of information asymmetry in the syndicated loan market, Bradley and Roberts (2015) used Loan Pricing Corporation's DealScan. They found that covenants are more likely to be included in loans to smaller firms, with higher growth opportunities and higher leverage opportunities. Pyles and Mullineax (2008) analyzed loan sales restrictions and found that smaller firms are more likely to have limits on loan sales because banks foster relationships with them.

The previous studies in this field have explored various aspects of the topic, ranging from the effects of M&A variables to the impact on the lending relationship. Drucker (2005) examines the effects of CB–IB mergers on borrowers who issue public securities by switching from pure commercial banks to CB–IB lenders, finding that, if they do, they will get a discounted lower spread. Sufi (2007) examines how information asymmetry affects syndicate structure and why lead arrangers retain more of the loan when borrowers are opaque. Our research differs from the previous authors': our model takes a fundamentally different approach to the problem. While our model focuses on M&As globally and does not limit the study to 10 banks in the United States, it also tests the lending relationship after M&As and how that affects syndicate structure. The current study marks a significant advancement in the field, as it represents the first instance of testing M&As' global lending relationships using syndication loans.

We examine the borrower relationship and assess the monitoring effort, considering why the lead arranger holds a larger stake in the loan and how a more concentrated syndicate is formed. In addition, we examine the borrower–lender relationship and why lenders prefer to keep a higher percentage when the firm is opaque. We also test whether the borrower's relationship with the market should be repeatedly assessed. If they become familiar with potential participants, lenders should hold a smaller percentage of the loans due to trust. The findings of our research help to further our understanding of borrowers' reactions after M&As in the banking industry. Our research takes a unique approach by focusing on a previously unexplored angle. Our study aims to shed new light on this relationship and contribute to a deeper understanding of the borrower–lender relationship.

The remainder of the paper is organized as follows. Section 2 details the empirical design and model specification, describing the construction of the key variables and the identification strategy that links syndicated loan records to bank M&A events. Section 3 presents the data and sample formation, defines our main outcomes (Bankallocation and HHI), and reports summary statistics. Section 4 delivers the core results on how bank M&As reshape syndicate structure and monitoring intensity, and explores three dimensions of heterogeneity: (i) information asymmetry (opacity and unrated status), (ii) borrower–lender relationships (prior relationships and post-M&A switching), and (iii) arranger reputation and market share; it also includes robustness checks with alternative measures, lag structures, and additional controls. Section 5 concludes by summarizing the findings and discussing implications for borrowers, arrangers, and policymakers.

2. Methodology

This section describes the methods, procedures, and techniques used to conduct the study and clearly describes the research design and questions.

We examine whether the change in syndicate structure after the merger of the borrowing firm is affected by the information asymmetry hypothesis. I test the following model specifications:

$$Syndy_{it} = \alpha_1 + \beta_1 After_{it} + X_{it}\beta_2{}' + \tau_t + \epsilon_{it}$$

The left-hand-side variable is a measure of the syndicate, such as bank allocation, HHI (Herfindahl–Hirschman Index). The key right-hand-side variable of interest is $After$, which is described above; the binary variable will take the value of 1 if the deal happens after the merger and 0 otherwise. Therefore, the coefficient of interest is β1, or how increased "$After$" affects the syndicate structure that identifies the differential coefficient measuring the impact of an M&A on bank allocation. In other words, beta 1 evaluates whether the dependent variable bank allocation increases or decreases after an M&A.

The control variables (X) include year, the natural log of firm sales, debt, net income, assets, spread, deal amount, and various controls for loan characteristics, syndicate structure, and lag time. Adding lag time variables to control variables helps capture the dynamic relationship between the variables in a model. Lag time variables are created by shifting the values of a variable backwards in time, which allows us to examine how changes in a variable at a single point in time affect the outcome variable later. Including lag time variables in a model can be particularly useful when analyzing data where variables may be influenced by their past values. Including lag time variables can also help control for the unmeasured variables' potential confounding effects. By including a lagged variable as a control variable, we can reduce the likelihood that the estimated impact of the variable of interest is being confounded by unobserved variables correlated with both the predictor variable and the outcome variable. Adding lag time variables for control variables can improve accuracy and reliability.

3. Data

This section demonstrates the data for the research and how the data were collected. The results are presented in a way that is easy to understand, with tables, graphs, and other visual aids used to help illustrate the key findings.

In this study, Loan Pricing Corporation's DealScan is the primary source of syndicated loan data. It contains detailed information on syndicated loan contracts, lead arrangers, and participant lenders. Data on mergers between banks were obtained from Securities Data Company Platinum's Mergers and Acquisitions database. US Securities and Exchange Commission filings, loan originator reports, and the financial press are the primary sources of deal data for DealScan. The sample includes 39,868 syndicated loan deals from January 1982 to December 2020, which were pulled from the complete DealScan database of 48,694 loan deals and confirmed syndicated loan deals to firms during these years. Syndicated loans were excluded if banks did not merge before, during, or after the syndicated loan process. This restriction resulted in a manageable data collection for the 20,299 syndication deals in 43 countries.

We have two main dependent variables. The first is Bank Allocation, which is the percentage held by the lender and has values ranging from 0 to 100. The second is HHI, the Herfindahl–Hirschman Index, which measures the concentration of shares in a syndicate. The HHI is calculated based on each syndicate member's share in the loan; it is the sum of the squares of the individual shares, ranging from 0 to 10,000, with 10,000 in the case of a lender holding 100%. The average loan has 13.2 lenders, 2.0 lead arrangers, and 11.2 participant lenders. Most loans are for general corporate purposes (36%), followed by debt repayment (16%) and working capital (11%). Most types of loans are credit lines (54%), followed by term loans (42%) and other loans (4%).

Table 1 presents summary statistics for the sample of 39,868 syndicated loan deals from 1982 to 2020.

Table 1. Summary Statistics for Syndicated Loan Deals.

Summary Statistics (Panel A)						
Variable	**Observations**	**Mean**	**Standard Deviation**	**25th Percentile**	**Median**	**75th Percentile**
Firm						
Log (Debt)	20,299	2.857479	3.433418	0.393393	2.489977	5.398271
Log (Net Income)	20,299	2.490184	2.745007	0.640801	2.325813	4.560591
Log (Sales)	20,299	21.62336	2.001795	20.32388	21.80541	23.11666
Log (Assets)	20,299	3.714186	2.714505	2.022077	3.648799	5.475534
Unrated	20,299	0.31208	0.463348	0	0	1
Opaque	20,299	0.109913	0.312785	0	0	1
Icticker	20,299	0.282031	0.449994	0	0	1
Summary Statistics (Panel B)						
Bank						
After M&A	20,299	0.292039	0.454706	0	0	1
Switch	20,299	0.625088	0.484106	0	0	1
Relationship	20,299	0.374912	0.484106	0	0	1
Infoasymm	20,299	0.03943	0.194618	0	0	1
Leadshareint	20,299	19.95906	76.79852	0	0	1
Interaction	20,299	0.216163	0.411632	0	0	1
Relinteraction	20,299	0.075875	0.264802	0	0	1
Summary Statistics (Panel C)						
Syndicate Structure						
AllInDrawn	20,299	115.7646	103.3301	37.5	75	162.5
Log (Spread)	20,299	4.383588	0.876366	3.624341	4.317488	5.090678
Log (Deal Amount)	20,299	19.73394	1.724138	18.82615	19.8676	20.90559
Log(maturity)	20,299	3.560889	0.752594	2.70805	3.871201	4.094345
Partic	20,299	14.69256	14.34397	5	11	20
Lead	20,299	1.517157	1.676717	0	1	2
HHI	20,299	1042.779	2717.743	25	75.69	277.8889
Bankallocation	20,299	18.66198	26.35388	5	8.7	16.67
Lead_share	20,299	131.8967	210.0524	4	31	179
Mktshare	20,299	14475.93	5431.016	9847	15503	19204
Preinteraction	20,299	0.204525	0.403359	0	0	0
Prev	20,299	0.783536	0.41184	0	0	0
Summary Statistics (Panel D)						
Loan Contract				0	0	0
Purpose: Acquis. line	20,299	0.031303	0.174138	0	0	0
Purpose: CP backup	20,299	0.13176	0.338234	0	0	0
Purpose: Corp. purposes	20,299	0.346418	0.475834	0	0	0
Purpose: Debt Repay	20,299	0.183004	0.386675	0	0	0
Purpose: LBO	20,299	0.011864	0.108276	0	0	0
Purpose: Other	20,299	0.056863	0.231583	0	0	0
Purpose: Takeover	20,299	0.104219	0.305548	0	0	0
Purpose: Work. Cap.	20,299	0.134569	0.341267	0	0	0
Loan_type: Credit Line	20,299	0.612496	0.487186	0	0	0
Loan_type: Other Loan	20,299	0.005142	0.071524	0	0	0
Loan_type: Term Loan	20,299	0.382362	0.48597	0	0	0

Table 2 presents the correlation matrix for the variables included in our model. In the study, Prev, Preinteraction, and the number of shares, Leadshareint, are negatively correlated with bank allocation. In contrast, Relationship, Opaque, and Infoasymmetry are positively correlated with the Bank Allocation for Opaque. Infoasymmetry demonstrates that lenders retain a greater share of their loans when borrowers are opaque, and Infoasymmetry is similar to Sufi (2007). When borrowers are opaque, lenders retain more of their loans. Interestingly, the number of leads is negatively correlated to bank allocation. This indicates that more lead arrangers in the loan firms produce loans with a lower spread.

Table 2. Correlation matrix.

	After	Opaque	Infoasymm	Prev	Preinteraction	Lead_share	Leadshareint	Relationship	Relinteraction	Log (Spread)	Log (Deal Amount)	Log (Sales)	Log (Assets)	Log (Debt)
After M&A	1													
Opaque	0.05 ***	1												
Infoasymm	0.32 ***	0.58 ***	1											
Prev	−0.13 ***	−0.15 ***	−0.12 ***	1										
Preinteraction	0.79 ***	−0.01	0.17 ***	0.27 ***	1									
Lead_share	−0.19 ***	−0.10 ***	−0.09 ***	0.18 ***	−0.12 ***	1								
Leadshareint	0.40 ***	−0.02 ***	0.05 ***	0.05 ***	0.42 ***	0.23 ***	1							
Relationship	−0.15 ***	0.06 ***	0.02 **	−0.06 ***	−0.17 ***	0.09 ***	−0.19 ***	1						
Relinteraction	0.45 ***	0.10 ***	0.26 ***	−0.15 ***	0.26 ***	−0.17 ***	−0.05 ***	0.37 ***	1					
Log (Spread)	0.04 ***	0.22 ***	0.12 ***	−0.16 ***	−0.03 ***	−0.07 ***	−0.12 ***	0.20 ***	0.17 ***	1				
Log (Deal Amount)	−0.12 ***	−0.31 ***	−0.21 ***	0.30 ***	0	0.20 ***	0.07 ***	−0.14 ***	−0.24 ***	−0.51 ***	1			
Log (Sales)	−0.08 ***	−0.36 ***	−0.21 ***	0.26 ***	0.02 ***	0.18 ***	0.08 ***	−0.15 ***	−0.20 ***	−0.55 ***	0.72 ***	1		
Log (Assets)	−0.01	0.02 ***	0.02 ***	0.05 ***	0.03 ***	0	0.01	−0.04 ***	−0.04 ***	−0.05 ***	0.09 ***	0.05 ***	1	
Log (Debt)	−0.02 **	0	0	0.07 ***	0.02 ***	0.01 *	0.02 ***	−0.04 ***	−0.04 ***	−0.08 ***	0.11 ***	0.07 ***	0.81 ***	1

Notes: All estimates are using fixed effects, and each column contains a different regression. Standard errors are reported in parentheses where *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$. The constant and time dummies are included in the specification but remain unreported for brevity.

Top M&A Lead Arrangers and Participant Banks, by Market.

Table 3 lists the top 10 banks by market share that underwent an M&A and made a loan within the past 5 years; the banks are listed by the number of syndicated loan deals for each year from 2016 to 2020. The Bank of America has the highest market share volume, followed by Citibank.

Table 3. This table lists the top 10 market share (by total number of deals) from 2016 to 2020.

(1) 2020	Mkt. Share	(2) 2019	Mkt. Share	(3) 2018	Mkt. Share	(4) 2017	Mkt. Share	(5) 2016	Mkt. Share
Bank of America Merrill Lynch	0.35	Bank of America Merrill Lynch	0.59	Bank of America Merrill Lynch	0.64	Bank of America Merrill Lynch	0.49	Bank of America Merrill Lynch	0.47
Citibank	0.13	Citibank	0.10	Citibank	0.08	Citibank	0.10	Citibank	0.13
Deutsche Bank AG	0.08	Citibank NA	0.03	Bank of Nova Scotia	0.04	Bank of Nova Scotia	0.06	Bank of Nova Scotia	0.06
Citibank NA	0.07	HSBC	0.03	HSBC	0.02	HSBC	0.03	Citibank NA	0.04
KBC Bank NV	0.04	Bank of Nova Scotia	0.03	BB&T Capital Markets	0.02	Citibank NA	0.02	BB&T Corp	0.03
National Bank of Arizona	0.04	Santander Bank NA	0.03	Citibank NA	0.02	BB&T Capital Markets	0.02	HSBC	0.03
HSBC	0.04	BB&T Capital Markets	0.02	HSBC Bank Plc	0.01	Deutsche Bank AG	0.02	BB&T Capital Markets	0.03
Bank of Nova Scotia	0.03	Deutsche Bank AG	0.02	Landesbank Baden-Wurttemberg [LBBW]	0.01	BB&T Corp	0.02	Royal Bank of Scotland Plc [RBS]	0.02
Banco Santander SA	0.02	JP Morgan	0.01	Deutsche Bank AG	0.01	Royal Bank of Scotland Plc [RBS]	0.02	Banco Santander SA	0.01
Barclays Bank Plc	0.02	Banco Bilbao Vizcaya Argentaria SA [BBVA]	0.01	Lloyds Bank	0.01	BNP Paribas SA	0.01	Deutsche Bank AG	0.01

4. Results

4.1. Syndicate Structure

The results in Table 4, Column (1), present the $After$ variable, which equals 1 if the borrower took a loan with a bank after a merger with another bank and equals 0 otherwise. There is a statistically significant positive impact on the number of leads that arrangers' banks are making in the syndicate after the M&A with another bank. Conversely, in Column (2), the number of participants decreased by 0.17, which refers to whether the borrower took a loan with a bank after it merged with another bank. In Column (3), we find that the results of $After$ and Opaque have a statistically significant effect. The results indicate a positive sign for $After$, which means that, after banks' M&A, they like to retain a higher percentage. A positive Opaque sign means that banks prefer to retain a higher percentage if the borrower is opaque for monitoring purposes. In Column (4), the HHI is

used to calculate the measure of concentration to capture the effects of whether M&A banks tend to hold a higher percentage. The HHI indicates the same results as Bank Allocation and proves that, if the borrower is opaque, banks tend to retain a higher percentage. All of these coefficient estimates are statistically distinct from 0 at the 1% level. Table 4 is consistent with the theoretical framework of agency and moral hazard outlined above.

Table 4. Impact of bank mergers and acquisitions on syndicate structure.

Variables	(1) #Lead	(2) #Parts	(3) Bankallocation	(4) Herfindahl
After M&A	0.05 ***	−0.17 **	0.80 ***	131.83 ***
	(0.01)	(0.09)	(0.21)	(23.90)
Opaque	0.05 ***	0.60 ***	2.01 ***	254.81 ***
	(0.01)	(0.10)	(0.37)	(44.29)
Log (Deal Amount)	0.27 ***	5.62 ***	−11.67 ***	−1108.18 ***
	(0.00)	(0.05)	(0.10)	(11.99)
Log (Sales)	0.06 ***	−0.11 ***	−0.08	14.15 *
	(0.00)	(0.03)	(0.07)	(8.22)
Log (Assets)	−0.02 ***	0.15 ***	0.23 ***	24.94 ***
	(0.00)	(0.02)	(0.05)	(6.19)
Log (Debt)	0.00	−0.14 ***	0.10 **	16.63 ***
	(0.00)	(0.02)	(0.04)	(5.10)
Log (Spread)	0.05 ***	0.63 ***	0.46 ***	94.35 ***
	(0.01)	(0.05)	(0.15)	(17.13)
Constant	−7.48 ***	−74.91 ***	256.47 ***	23,436.58 ***
	(0.13)	(1.01)	(2.31)	(271.35)
Control for				
Loan Purpose:	Y	Y	Y	Y
Loan Type	Y	Y	Y	Y
Observations	94,033	94,033	39,868	39,748
R-squared	0.41	0.42	0.59	0.51

Notes: All estimates are using fixed effects, and each column contains a different regression. Standard errors are reported in parentheses where *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$. The constant and time dummies are included in the specification but remain unreported for brevity.

This table reports coefficient estimates from regressions relating to the impact of bank M&As on syndicate structure. The empirical model is formulated as follows:

$$Syndy_{it} = \alpha_1 + \beta_1 After_{it} + X_{it}\beta_2{}' + \tau_t + \varepsilon_{it}$$

$$Leadpart_{it} = \alpha_1 + \beta_1 After_{it} + X_{it}\beta_2{}' + \tau_t + \varepsilon_{it}$$

where $Syndy_{it}$ represents the $\{bank\ allocation, HHI\}$ and $Leadpart_{it}$ represents $\{number\ of\ leads, number\ of\ participants\}$ in year t. $After$, which is described above as a binary variable, will take 1 if the deal happens after the merger and 0 otherwise. X control variables include year and industry indicator variables, the natural log of firm sales, debt, net income, assets, spread, deals amount, and a variety of controls for loan characteristics and syndicate structure, and $\varepsilon_{i,t}$ is the random error.

4.2. Borrowing Firm

Table 5 presents evidence that, when the borrower requires more investigation, the lender, either a participant or a lead arranger, always prefers to retain a higher percentage. As borrowers repeatedly access the market, they should become familiar with potential participants, and lenders should hold fewer loans as a result. Table 5 proves that, when a firm is opaque, the lenders prefer to keep a higher percentage, especially in cases where the borrower needs to be monitored or given more due diligence. This result, similar to that in

Sufi (2007), found that the lack of publicly available Securities and Exchange Commission filings prompts the Bank to retain a higher percentage of monitoring.

Table 5. Impact of bank mergers and acquisitions on syndicate structure with private and unrated firms.

Variables	(1) Bankallocation	(2) Bankallocation	(3) Herfindahl	(4) Herfindahl
After	1.14 ***	0.69 **	178.55 ***	113.32 ***
	(0.29)	(0.29)	(32.87)	(33.14)
Opaque	1.61 ***	0.29	198.19 ***	8.28
	(0.51)	(0.60)	(62.05)	(71.80)
Infoasymm		3.74 ***		537.98 ***
		(1.01)		(124.28)
Lag (Deal Amount)	0.84 ***	0.86 ***	87.28 ***	89.85 ***
	(0.15)	(0.15)	(18.24)	(18.27)
Lag (Sales)	−0.30 **	−0.30 **	−40.59 ***	−41.16 ***
	(0.12)	(0.12)	(14.16)	(14.14)
Lag (Assets)	−0.17 *	−0.17 *	−11.53	−11.14
	(0.09)	(0.09)	(10.80)	(10.79)
Lag (Debt)	0.12 *	0.13 *	13.11	13.48
	(0.07)	(0.07)	(8.52)	(8.51)
Lag (Spread)	0.03	0.03	−14.63	−13.71
	(0.22)	(0.22)	(25.45)	(25.51)
Log (Deal Amount)	−12.03 ***	−12.02 ***	−1151.35 ***	−1150.91 ***
	(0.17)	(0.17)	(19.97)	(20.01)
Log (Sales)	−0.23 *	−0.23 *	2.35	2.35
	(0.12)	(0.12)	(14.33)	(14.30)
Log (Assets)	0.20 **	0.19 **	23.34 **	22.02 **
	(0.09)	(0.09)	(10.71)	(10.69)
Log (Debt)	0.14 *	0.14 *	17.46 **	17.72 **
	(0.07)	(0.07)	(8.63)	(8.61)
Log (Spread)	0.43	0.44	85.33 ***	87.84 ***
	(0.27)	(0.27)	(30.43)	(30.52)
Constant	256.34 ***	256.15 ***	23,755.66 ***	23,727.09 ***
	(3.48)	(3.49)	(409.15)	(410.73)
Control for				
Loan Purpose:	Y	Y	Y	Y
Lead Type	Y	Y	Y	Y
Observations	20,299	20,299	20,299	20,299
R-squared	0.61	0.61	0.52	0.53

Notes: All estimates are using fixed effects, and each column contains a different regression. Standard errors are reported in parentheses where *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$. The constant and time dummies are included in the specification but remain unreported for brevity.

Column (1) is statistically significant for the variables *After* and Opaque, indicating that lenders prefer to maintain a higher credit after banks' M&As; additionally, banks hold a higher percentage when the borrower is opaque. Column (2) adds the variable Infoasymm, which is an indicator variable that equals 1 if the borrower took a loan with a bank after a merger with another bank and 0 if the firm is unrated and does not have a record at the time of the loan. We examine the interaction of opacity after the merge and note a statistically significant impact. The coefficient on the Infoasymm variable implies that the lender retains 3.74% more of the loan when the borrower is opaque and after bank mergers. Columns (3) and (4) use the HHI to find more concentrated results, and we find statistical significance for the variable *After* in both columns. This means that banks' money lenders prefer to retain a higher percentage after M&As. In Column (4), Infoasymm, the

interaction of opacity after a merge and a statistically significant impact, reveals that banks hold more of the loan if the borrower is opaque and after a bank merger.

This table reports coefficient estimates from regressions relating to the impact of bank M&As on syndicate structure. The empirical model is formulated as follows:

$$Syndy_{it} = \alpha_1 + \beta_1 After_{it} + \beta_2 After * Opaque + X_{it}\beta_3{}' + \tau_t + \varepsilon_{it}$$

where Syndy, *i*,*t* represents the {*bank allocation*, *HHI*} in year *t*. $After$, which is described above as a binary variable, will take 1 if the deal happens after the merger and 0 otherwise. In β_2, we run the interaction of After and Opaque firms, including private and unrated firms, which is Infoasymm. X control variables include year and indicator variables, the natural log of firm sales, debt, net income, assets, spread, deals amount, and a variety of controls for loan characteristics and syndicate structure, and $\varepsilon_{i,t}$ is the random error.

Table 6 presents the coefficients of the control variables in Column (1), all of which are positive in sign after Infoasymm. They are significant even after adding the variable Prev, which is an indicator variable that equals 1 if the firm took a previous syndicated loan and 0 otherwise. Prev is a relationship indicator that reveals whether the borrower accessed the syndicated market more than once; it reveals a statistically significant impact that the lender holds less of the credit (by 2.82%) when the borrower has more previous syndicated loans and has accessed the market previously. In Column (2), the control variables $After$ and Infoasymm remain positive and significant. Additionally, the variable Prev remains statistically significant, even after adding the variable Interaction, which is an interaction of previous syndicated loans after the merge. The interaction between $After$ and Prev shows that the previous relationship affects After. Specifically, the banks' M&A is withholding bank allocation, resulting in a 1.48% decrease. Columns (3) and (4) use the HHI to examine the results and the coefficients of the control variables. After and Infoasymm are all positive in sign and significant. The findings indicate that the variable Prev is statistically significant and confirm that, if the borrower is more active in accessing the syndicated market, the lenders retain a lesser percentage. The results reveal that the control variables have a significant effect, except for Interaction; additionally, they indicate the impact of having a previous relationship on the percentage of the loan retained after the bank M&A.

Table 6. Impact of bank mergers and acquisitions on the syndicate structure of borrowers with previous relationship.

Variables	(1) Bankallocation	(2) Bankallocation	(3) Herfindahl	(4) Herfindahl
After	0.81 ***	1.90 ***	125.22 ***	245.52 ***
	(0.29)	(0.64)	(32.98)	(75.00)
Opaque	0.28	0.36	7.30	16.54
	(0.59)	(0.60)	(71.55)	(71.69)
Infoasymm	3.73 ***	3.49 ***	536.43 ***	509.41 ***
	(1.00)	(1.01)	(123.69)	(123.54)
Prev	−2.82 ***	−2.30 ***	−279.25 ***	−222.23 ***
	(0.38)	(0.44)	(44.44)	(51.77)
Preinteraction		−1.48 **		−162.17 **
		(0.69)		(81.36)
Lag (Deal Amount)	0.87 ***	0.87 ***	91.22 ***	90.92 ***
	(0.15)	(0.15)	(18.23)	(18.22)
Lag (Sales)	−0.31 **	−0.31 **	−41.93 ***	−42.09 ***
	(0.12)	(0.12)	(14.12)	(14.12)
Lag (Assets)	−0.16 *	−0.16 *	−10.95	−10.42
	(0.09)	(0.09)	(10.78)	(10.78)

Table 6. *Cont.*

Variables	(1) Bankallocation	(2) Bankallocation	(3) Herfindahl	(4) Herfindahl
Lag (Debt)	0.14 *	0.14 *	14.85 *	14.55 *
	(0.07)	(0.07)	(8.50)	(8.50)
Lag (Spread)	0.07	0.06	−9.90	−10.55
	(0.22)	(0.22)	(25.54)	(25.52)
Log (Deal Amount)	−11.84 ***	−11.84 ***	−1132.59 ***	−1132.73 ***
	(0.17)	(0.17)	(20.27)	(20.26)
Log (Sales)	−0.20	−0.19	5.96	6.23
	(0.12)	(0.12)	(14.29)	(14.30)
Log (Assets)	0.18 **	0.19 **	21.05 **	21.51 **
	(0.09)	(0.09)	(10.67)	(10.67)
Log (Debt)	0.16 **	0.15 **	19.64 **	19.33 **
	(0.07)	(0.07)	(8.58)	(8.58)
Log (Spread)	0.55 **	0.55 **	98.98 ***	98.67 ***
	(0.27)	(0.27)	(30.62)	(30.61)
Constant	250.52 ***	249.82 ***	23,168.25 ***	23,090.04 ***
	(3.62)	(3.67)	(426.00)	(432.52)
Control for Loan Purpose:	Y	Y	Y	Y
Lead Type	Y	Y	Y	Y
Observations	20,299	20,299	20,299	20,299
R-squared	0.61	0.61	0.53	0.53

Notes: All estimates are using fixed effects, and each column contains a different regression. Standard errors are reported in parentheses where *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$. The constant and time dummies are included in the specification but remain unreported for brevity.

This table reports coefficient estimates from regressions relating to the impact of bank M&As on syndicate structure. The empirical model is formulated as follows:

$$Syndy_{it} = \alpha_1 + \beta_1 After_{it} + \beta_2 After \ * \ Prev + X_{it}\beta_3{}' + \tau_t \ + \ \varepsilon_{it}$$

where $Syndy, \ i, t$ represents the $\{bank \ allocation, \ HHI\}$ in year t. $After$, which is described above as a binary variable, will take 1 if the deal happens after the merger and 0 otherwise. In β_2, we run the interaction of $After$, and $Prev$ is an indicator variable that equals 1 if the firm took a previous loan; the interaction variable is Preinteraction. X control variables include year and indicator variables, the natural log of firm sales, debt, net income, assets, spread, deals amount, and a variety of controls for loan characteristics and syndicate structure, and $\varepsilon_{i,t}$ is the random error.

Table 7 measures the lender's reputation using the lead arranger's market share, by amount, in the year prior to the loan. Column (1) indicates that the primary independent variable and control variables, $After$, Opaque, Infoasymm, and Prev, are all significant. A new control variable (Lead_share) is added to investigate the market share, or the number of times the bank led the market prior to the year. The results indicate that the lead share prior to the year has a statistically significant impact on bank allocation. In Column (2), a new interaction variable, Leadshareint, is added to the effect of Lead_share, the lender, with the variable After if the borrower took a loan with a bank after the merger with another bank. The interaction between $After$ and Leadshareint, which is Leadshareint, has a significant impact on bank allocation. Finally, columns (3) and (4) examine the model using the HHI and the primary independent variable, which are still statistically significant, as well as the interaction Leadshareint, which shows the effects on the percentage of the loan.

Table 7. Impact of bank mergers and acquisitions on the syndicate structure of borrowers with the number of leads.

Variables	(1) Bankallocation	(2) Bankallocation	(3) Herfindahl	(4) Herfindahl
After	1.88 ***	7.37 ***	248.10 ***	269.81 ***
	(0.64)	(0.56)	(75.02)	(76.31)
Opaque	0.36	10.91 ***	16.57	21.70
	(0.60)	(0.46)	(71.69)	(71.73)
Infoasymm	3.52 ***	1.30 *	506.14 ***	491.70 ***
	(1.01)	(0.78)	(123.55)	(123.99)
Prev	−2.36 ***	−13.37 ***	−216.51 ***	−225.19 ***
	(0.44)	(0.38)	(51.83)	(51.88)
Preinteraction	−1.41 **	−2.61 ***	−168.59 **	−148.12 *
	(0.69)	(0.64)	(81.37)	(82.02)
Leadshareint		−0.03 ***		−0.47 ***
		(0.00)		(0.18)
Lag (deal amount)	0.89 ***	−4.63 ***	89.36 ***	89.28 ***
	(0.15)	(0.11)	(18.22)	(18.21)
Lag (Sales)	−0.31 **	−0.08	−41.73 ***	−41.81 ***
	(0.12)	(0.10)	(14.13)	(14.12)
Lag (Assets)	−0.17 *	0.12	−9.69	−9.99
	(0.09)	(0.08)	(10.78)	(10.78)
Lag (Debt)	0.14 *	0.05	14.19 *	14.37 *
	(0.07)	(0.06)	(8.49)	(8.50)
Lag (Spread)	0.06	0.58 ***	−10.37	−9.89
	(0.22)	(0.17)	(25.54)	(25.54)
Log (Deal Amount)	−11.84 ***		−1132.73 ***	−1132.05 ***
	(0.17)		(20.24)	(20.23)
Log (Sales)	−0.21 *		7.46	7.75
	(0.12)		(14.31)	(14.31)
Log (Assets)	0.19 **		21.75 **	21.77 **
	(0.09)		(10.67)	(10.67)
Log (Debt)	0.16 **		19.09 **	19.05 **
	(0.07)		(8.58)	(8.58)
Log (Spread)	0.59 **		94.87 ***	92.85 ***
	(0.27)		(30.67)	(30.68)
Constant	249.69 ***	118.61 ***	23,103.81 ***	23,079.95 ***
	(3.67)	(2.46)	(432.36)	(432.18)
Control for				
Loan Purpose:	Y	Y	Y	Y
Lead Type	Y	Y	Y	Y
Lead Share	Y	Y	Y	Y
Observations	20,299	20,299	20,299	20,299
R-squared	0.61	0.21	0.53	0.53

Notes: All estimates are using fixed effects, and each column contains a different regression. Standard errors are reported in parentheses where *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$. The constant and time dummies are included in the specification but remain unreported for brevity.

This table reports coefficient estimates from regressions relating to the impact of bank M&As on syndicate structure. The empirical model is formulated as follows:

$$Syndy_{it} = \alpha_1 + \beta_1 After_{it} + \beta_2 After \ * \ lead\ share + X_{it}\beta_3{}' + \tau_t \ + \ \varepsilon_{it}$$

where $Syndy,\ i, t$ represents the $\{bank\ allocation,\ HHI\}$ in year t. $After$, which is described above as a binary variable, will take 1 if the deal happens after the merger and 0 otherwise. In β_2, we run the interaction of $After$, and *Lead Share* is the number of times the bank

leads the Interaction variable Leadshareint. X control variables include year and indicator variables, the natural log of firm sales, debt, net income, assets, spread, deals amount, and a variety of controls for loan characteristics and syndicate structure, and $\varepsilon_{i,t}$ is the random error.

In Column (1) of Table 8, the model still indicates a significant impact for the leading independent variable and $After$, Infoasymm, even after adding more control variables. We attempted to examine the borrower–lender relationship by adding a control variable relationship: an indicator variable equals 1 if the borrower took a loan with a bank before it merged with another bank and then took another loan from a different bank. The variable's results examine whether the relationship was maintained or lost after the merger or acquisition and whether a higher or lower percentage of the loan was retained. The results are statistically significant, showing that, after M&As, lenders tend to keep a higher percentage if the borrower switches and takes a loan from a different bank. In Column (2), we added an interaction variable, Relinteraction, which is an interaction between the variables Switch and After, to examine the relationship between lenders and borrowers. The variable Relinteraction reveals a statistically significant impact on bank allocation. The results in Columns (3) and (4) examine the model with the HHI and find similar results.

Table 8. Impact of bank mergers and acquisitions on the syndicate structure of borrowers with a previous relationship before the merger.

Variables	**(1)** **Bankallocation**	**(2)** **Bankallocation**	**(3)** **Herfindahl**	**(4)** **Herfindahl**
After	2.01 ***	−0.20	276.09 ***	−41.21
	(0.65)	(0.67)	(76.28)	(78.40)
Opaque	0.32	0.67	9.43	60.45
	(0.60)	(0.60)	(71.86)	(72.08)
Infoasymm	3.47 ***	2.66 ***	493.79 ***	374.81 ***
	(1.01)	(1.02)	(124.07)	(124.81)
Prev	−2.30 ***	−2.57 ***	−207.36 ***	−245.93 ***
	(0.44)	(0.44)	(51.83)	(51.79)
Preinteraction	−1.32 *	−0.73	−149.89 *	−66.66
	(0.69)	(0.70)	(81.90)	(81.95)
Relationship	1.24 ***	−0.42	216.46 ***	−22.72
	(0.30)	(0.33)	(35.21)	(37.31)
Relinteraction		6.22 ***		898.02 ***
		(0.73)		(85.71)
Lag (Deal Amount)	0.87 ***	0.87 ***	86.98 ***	87.40 ***
	(0.15)	(0.15)	(18.22)	(18.13)
Lag (Sales)	−0.31 **	−0.28 **	−40.75 ***	−36.67 ***
	(0.12)	(0.12)	(14.08)	(14.00)
Lag (Assets)	−0.17 *	−0.17 *	−9.86	−10.68
	(0.09)	(0.09)	(10.79)	(10.73)
Lag (Debt)	0.14 *	0.15 **	14.43 *	14.78 *
	(0.07)	(0.07)	(8.51)	(8.47)
Lag (Spread)	0.06	0.08	−11.00	−7.22
	(0.22)	(0.22)	(25.52)	(25.34)
Log (Spread)	0.55 **	0.52 *	88.86 ***	84.59 ***
	(0.27)	(0.27)	(30.61)	(30.40)
Log (Deal Amount)	−11.79 ***	−11.74 ***	−1123.26 ***	−1116.61 ***
	(0.17)	(0.17)	(20.20)	(20.17)
Log (Sales)	−0.18	−0.16	12.10	14.37
	(0.12)	(0.12)	(14.34)	(14.27)

Table 8. *Cont.*

Variables	(1) Bankallocation	(2) Bankallocation	(3) Herfindahl	(4) Herfindahl
Log (Assets)	0.19 **	0.20 **	22.25 **	23.19 **
	(0.09)	(0.09)	(10.68)	(10.65)
Log (Debt)	0.16 **	0.16 **	18.82 **	19.12 **
Constant	247.92 ***	246.81 ***	22,787.21 ***	22,613.07 ***
	(3.69)	(3.69)	(433.23)	(433.10)
Control for				
Loan Purpose:	Y	Y	Y	Y
Loan Type	Y	Y	Y	Y
Lead Share	Y	Y	Y	Y
Observations	20,299	20,299	20,299	20,299
R-squared	0.61	0.62	0.53	0.53

Notes: All estimates are using fixed effects, and each column contains a different regression. Standard errors are reported in parentheses where *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$. The constant and time dummies are included in the specification but remain unreported for brevity.

This table reports coefficient estimates from regressions relating to the impact of bank M&As on syndicate structure. The empirical model is formulated as follows:

$$Syndy_{it} = \alpha_1 + \beta_1 After_{it} + \beta_2 After * Relationship + X_{it}\beta_3{}' + \tau_t + \varepsilon_{it}$$

where $Syndy, i, t$ represents the $\{bank\ allocation, HHI\}$ in year t. $After$, which is described above as a binary variable, will take 1 if the deal happens after the merger and 0 otherwise. We run the interaction of $After$ and $Relationship$, which is a binary variable indicating whether the borrowers have a previous relationship with the lender. The interaction variable is Rel. They take loans after the M&A. The control variables include year and industry indicator variables, the natural log of firm sales, debt, net income, assets, spread, deal amount, and various controls for loan characteristics and syndicate structure, and $\varepsilon_{i,t}$ is the random error.

5. Conclusions

Bank mergers and acquisitions (M&As) have become increasingly prevalent around the world, and these transactions have frequently been influenced by plans to reform the banking sector in many emerging nations to enhance financial system stability. This is true regardless of the evidence that M&As may improve banks' performance. Syndicated lending is a vital source of corporate finance. Privately held investment banks with high yields use syndicated lending products, with almost $1 trillion in new syndicated loans signed yearly. We explored how bank mergers and information asymmetry between borrowers and lenders influence financing arrangements in the syndicated loan market. Evidence has revealed that information asymmetry affects syndicate structure and composition, consistent with moral hazard theories. When intense investigation and monitoring of the borrowers is necessary, the lead arranger seeks to guarantee diligence in investigation and monitoring by increasing exposure to risk with the loan. Lead arrangers retain a significant portion of the loan and form a more concentrated syndicate when borrowers are opaque. The degree to which borrower reputation can reduce the effects of information asymmetry on syndicate structure has also been examined: lenders syndicate a larger loan share when the borrowers repeatedly access the syndicated loan market. When viewed only in the syndicated loan market context, the results help researchers understand this vital source of corporate finance. These results can be viewed more broadly to shed light on the importance of bank M&As in the economy. Results provide empirical evidence to

support the notion that an institution that is assigned due diligence and monitoring duties must hold a portion of the loan when the borrower is informationally opaque.

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