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Common Lender, Ex-Banker Director, and Corporate Investment

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Abstract

Due to the government-driven mergers of large banks, many competing firms in Japan ended up borrowing from a common lender. Using firm-level data, we find that the capital investments of competing firms that share a common lender decrease by 15% of the mean. When a common lender can exercise its voice through its former employees serving as firms' executive directors, investments fall significantly further. Competing firms that share a common lender increase markups and profitability ratios, suggesting that the lender induces strategic coordination among its borrowers to reduce their competitive pressures. Firms use saved resources from weaker competition for cash cushions.

I. Introduction

In the early 1920s, J. P. Morgan's bankers sat on the boards of the bank's borrowers in the transportation sector, coordinating the strategies of its borrowers at the sacrifice of consumer welfare. This anecdote shows that a shared lender ("common lender") of firms competing in the same product market induces horizontal coordination among the firms to reduce their likelihood of bankruptcy and maximize the value of the loan portfolio (Poitevin (1989)). Therefore, an anticompetitive

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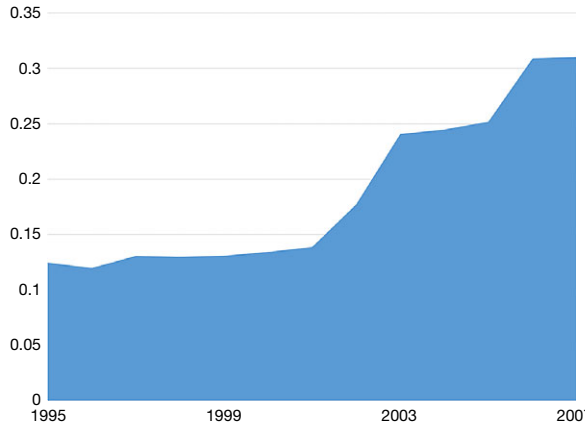
concern regarding a common lender emerges, similar to that of a common owner.[1] Although the hypothesis is intuitive, empirical studies on the anticompetitive effect of a common lender ("common lender effect") are limited. In particular, the channels of the common lender effect have yet to be explored. Using granular firm-level data, this article contributes to the literature by not only providing evidence on the common lender effect but also by showing the channels that facilitate it.

To examine the common lender effect, we utilize the mergers of large Japanese commercial banks from 1995 to 2004 as exogenous shocks that create common lender linkages among firms.[2] Figure 1 shows the annual bank concentration in Japan, where the concentration increased markedly when the number of large banks decreased from 11 in 1995 to only 4 by 2004. Because these large banks have nationwide branch networks that include borrowers in different industries, a merger of such banks creates a common lender for firms in a wide range of industries. We focus on capital investment (a principal input for a firm's production) and the markup/profitability ratio (a proxy for a firm's surplus per unit produced) to infer the extent of product market competition.[3] We show that the effect of common

FIGURE 1

Annual Bank Concentration in Japan Between 1995 and 2007

Figure 1 shows the median Herfindahl–Hirschman Index (HHI) of banks' market shares in terms of loan volume for a given industry in Japan.



[1]The increasing concentration of the banking sector is common in developed economies. See prior literature (e.g., Bikker and Haaf (2002), Janicki and Prescott (2006), Fernholz and Koch (2016), and Laeven, Ratnovski, and Tong (2016)).

[2]Our approach is also motivated by the following anecdote: A chemical giant in Japan, Sumitomo Chemical, attempted to merge with another giant, Mitsui Chemical, following the merger between their relationship banks (Sumitomo and Sakura) that formed the Sumitomo Mitsui Banking Corporation (SMBC), although the merger attempt failed.

[3]Gutierrez and Philippon (2017) employ natural experiments and instrumental variables to establish a causal relationship between competition and investment. They argue that declining competition is partly responsible for declining investment in the United States since the early 2000s.

lenders supports the anti-competition hypothesis that implies a negative impact on investment and a positive one on markup and profitability ratio.

Moreover, this article examines a potential channel of the common lender effect. We use a data set on directors' previous affiliations and identify ex-bankers who sit on the board of directors. In Japan, firms often appoint ex-bankers who were formerly affiliated with their relationship banks as directors. Such ex-banker directors can perform a monitoring role, providing information to their previous employers (Kaplan and Minton (1994)).[4] In our sample, 9.62% of firms have at least 1 ex-banker director on the board. Debtholder-friendly directors not only exist in Japan but also sit on the boards of directors in U.S. companies, where around 6% of large firms have an executive from their main bank lender on the board (Kroszner and Strahanm (2001)). We predict that a common lender can affect its borrowers' management through these directors. Consistent with the prediction, our analysis demonstrates that the effect of a common lender becomes stronger when an ex-banker director is on the firm's board.

Our empirical analysis starts by constructing a firm-level measure for the presence of common lending. In particular, we count the number of times each firm has been affected by a connection-creating bank merger, which occurs when the firm's relationship bank merges with another relationship bank of any of its industry peers. Each firm affected by such a bank merger becomes a treated firm, having a new common lender. If the anti-competition hypothesis holds, such a merger causes horizontal coordination among treated firms.

We predict that the coordination among treated firms led by a common lender disproportionately shrinks production through cutting investments. For example, when some degree of product differentiation exists among the competitors, the common lender coordinates the treated firms so that each of them cares about the positive externality of its price hike on the other firms and adopts a less aggressive pricing strategy (Deneckere and Davidson (1985)). By contrast, non-treated rivals do not internalize such externality, suggesting that a treated firm raises prices more than a non-treated rival. Because the higher price is associated with lower production, a treated firm shrinks production, increases markup, and raises its profitability ratio more than a non-treated rival.[5]

To test our predictions, we exploit the variations in the timing of a connection-creating bank merger and the difference in the changes in outcomes between treated and non-treated industry peers. The benchmark specifications include firm, industry-by-year, and relationship-bank-by-year fixed effects. We include the industry-by-year fixed effects to control for industry-specific trends that may cause a spurious correlation between corporate activities and loan market concentration. For instance, loan markets for low-growth industries may become more concentrated because fewer banks lend to low-growth firms. The relationship-bank-by-year fixed effects control for not only business trends that affect all banks and

[4]That ex-banker directors in Japan perform these functions and give primary allegiance to their old company rather than to the appointing company should not be surprising: A main bank, with the ability to withhold funds, can present real, costly threats to ex-banker directors (Kaplan and Minton (1994)).

[5]The same prediction holds in the absence of product differentiation. See the last paragraph of Section III.B.1 for details.

borrowers but also the differential effect between firms that have relationship banks involved in mergers and those that do not. Furthermore, these fixed effects absorb any effects specific to the main lenders, including the effects of their stronger bargaining power or restructuring after a bank merger.

We find that a treated firm reduces its investment by around 15% of the mean level. Also, a treated firm's markup and profitability ratio improve after a connection-creating bank merger.[6] The saved resources are used in a debt-friendly manner wherein a treated firm increases its cash cushions after a connection-creating bank merger but reduces its expenditure for research and development. This result is unique to a common lender but unlikely for a common owner who would prefer to capture the upsides from innovations as a residual claimant with limited liability. We also find that the effects on investment and markup/profitability ratio are stronger in financially distressed firms, suggesting that a common lender has a stronger incentive to coordinate its borrowers when the borrowers are financially distressed, that is, when the loans supplied to the borrowers are risky for the common lender. Moreover, we document a further reduction in a treated firm's investment by around 20%–30% of the mean when an ex-banker director is present (an executive director who was formerly affiliated with 1 of the merging banks). This result implies that a common lender manages to affect the management of its borrowers through its former employees.

We also find a reduction in the growth of credit from its relationship bank when a firm is affected by a connection-creating bank merger. Because credit growth is positively correlated with corporate investment, the result suggests that a common lender reduces its borrowers' investments by adjusting its loan supply. Furthermore, the negative correlation between a connection-creating bank merger and credit growth becomes greater in the presence of an ex-banker director. This result suggests that an ex-banker director amplifies the relationship bank's loan supply adjustment, which might explain the incremental effect of an ex-banker director on the investment of a treated firm.

Importantly, however, the effect of an ex-banker director in reducing investment survives even if we control for the change in credit from the firm's relationship bank. Thus, our result suggests that an ex-banker director is likely to have a direct role in advising to cut investment for a treated firm, beyond merely facilitating a reduction in the loan supply from the relationship bank. After accounting for the change in credit, the estimated investment effect of a connection-creating bank merger is significant only when an ex-banker director is on the board.

Overall, our article contributes in three ways to the literature on the anticompetitive effect of a common investor. First, the article explores a channel through which a common lender affects the management of its borrower. In particular, we provide evidence of a channel in which ex-banker directors play major roles in facilitating the common lender effect.[7] This result is consistent with the literature,

[6]We also compute banks' market shares for credit to a given industry to construct a credit concentration measure at the industry level in the spirit of Saidi and Streitz (2021), which we show to be negatively associated with a firm's investment level and positively correlated with its markup and profitability ratio.

[7]Recent evidence by Antón, Ederer, Giné, and Schmalz (2023) suggests that modulating managerial incentives is a potential channel of a common ownership effect. They show that managerial incentives

suggesting that banker directors monitor firms on behalf of creditors (e.g., Kaplan and Minton (1994), Morck and Nakamura (1999), and Kroszner and Strahan (2001)).[8] Second, we provide evidence using firm-level variations in common lender connections, whereas the pioneering literature uses industry-level variations (e.g., Cetorelli and Strahan (2006), Saidi and Streitz (2021)). With our firm-level identification strategy, we tease out the effects of industry-specific trends from those of shared lenders.[9] Lastly, we find that a common lender can influence borrowing firms to adopt debt-friendly policies. We find that the firms use saved resources from reduced competition to accumulate safe cash cushions rather than making risky investments in research and development. This result contrasts with recent evidence, suggesting that common ownership leads to innovation when technological spillovers are sufficiently large (e.g., Antón, Ederer, Giné, and Schmalz (2021) for evidence and López and Vives (2019) for theory) or when common owners are long-term dedicated investors (e.g., Borochin, Yang, and Zhang (2020) for evidence).

II. Financial Crisis and Bank Merger Wave in Japan

The real estate and stock market bubble burst in Japan at the beginning of the 1990s, causing a sudden decline and long-lasting sluggishness of stock and property prices in the country. In particular, the collapse in real estate value meant that the banks suffered a significant loss in their collateral value, because most Japanese banks relied heavily on real estate for collateral (Bank of Japan (1996), Hoshi (2001)). The Nikkei 225 stock index fell by over 40% in 1990, and property prices of urban land followed this trend in the following year. The downward trend of asset prices continued until the early 2000s. Consequently, Japanese banks faced substantial amounts of non-performing loans, asset write-offs, and negative profits. Simultaneously, declining stock prices constrained banks from issuing equity to supplement their capital, which resulted in diminishing bank capital.

The Japanese financial system eventually fell into a banking crisis in 1997 and 1998. During the crisis, a few banks became insolvent. Most notably, in Nov. 1997, the Hokkaido Takushoku Bank, one of the large national banks at the time, failed because of eroded capital and diminished liquidity. In Mar. 1998, the capital ratios of major banks in Japan were around 8%, which was the minimum requirement for banks with active international operations, according to the Basel capital adequacy standard at that time. Because some banks did not satisfy this standard and others barely did, major banks in Japan needed to be recapitalized via public funds.[10]

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are less sensitive to performance in firms with more common ownership, suggesting that performance-insensitive pay might facilitate the anticompetitive effect of common ownership.

[8]Our finding also relates to the literature suggesting banker directors promote their own business, either as commercial bankers or as investment bankers (e.g., Dittman, Maug, and Schneider (2010), Ferreira and Matos (2012)).

[9]Unlike the empirical literature on common lender effects, the empirical literature on the anticompetitive effects of common ownership is growing (e.g., Azar, Schmalz, and Tecu (2018), Park and Seo (2019), Gilje, Gormley, and Levit (2020), and Backus, Conlon, and Sinkinson (2021)).

[10]For details of the Japanese financial crisis in 1990 and the response of the financial authorities, see Nakaso (2001).

Injecting capital with the taxpayers' money required recipient banks to clean up their non-performing loans and regain their capital. Because restructuring and cost-cutting were straightforward ways of recovering profits and returning public funds sooner, a series of mergers occurred in the Japanese banking sector.[11] The Japanese government embraced these mergers. Unlike bank mergers in the United States, both the Japanese central bank and the government were heavily engaged in the merger process. In particular, the Bank of Japan was involved in matching merger partners out of concern about the systemic risk to the banking system (Nakaso (2001)). Thus, bank mergers during that period were driven by the government's response to the increased systemic risk of Japan's financial sector rather than by individual bank health (Hosono et al. (2009)).

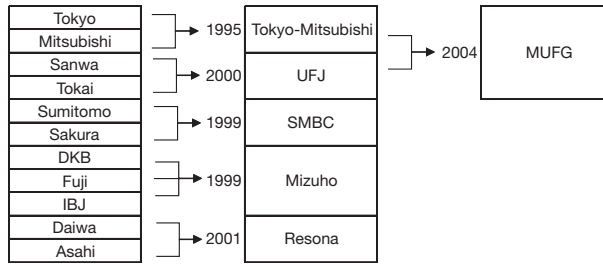
In this article, we focus on 6 mergers that occurred among large national banks between 1995 and 2004. Figure 2 lists the mergers and describes the timeline of how large national banks consolidated during the period. Restructuring of the Japanese banking sector during that decade started in 1995 with the announcement by the Bank of Tokyo and the Mitsubishi Bank that led to the creation of the Bank of Tokyo-Mitsubishi. In 1999, Sumitomo Bank announced its merger with Sakura Bank to form Sumitomo Mitsui Banking Corporation (SMBC). In the same year, the Dai-Ichi Kangyo Bank (DKB), Fuji Bank, and the Industrial Bank of Japan (IBJ) announced an agreement to consolidate the 3 banks' operations, which resulted in the formation of the Mizuho Group. In 2000, the Sanwa Bank announced its merger with the Tokai Bank to form the UFJ Bank. In 2001, Daiwa Bank announced that it would acquire Asahi Bank to create the Resona Group. Finally, in 2004, the UFJ Bank announced that it had agreed to be acquired by the Bank of Tokyo-Mitsubishi to become the Mitsubishi UFJ Group (MUFG). Over 10 large national banks that existed before 1995 were regrouped into 4.

To examine the impact of a common lender, we exploit the M&As of major Japanese banks during this period because the mergers created many common lender connections among listed firms. Because these bank mergers were triggered

FIGURE 2

Major Bank Mergers in Japan Between 1995 and 2004

Figure 2 shows how large national banks merged from 1995 to 2004. We give the announcement years next to the arrows.



[11]Prior studies (e.g., Hosono, Sakai, and Tsuru (2009)) provide empirical evidence that major Japanese banks that had been recapitalized by the government were more likely to be consolidated.

by the Japanese government's bailout policy, borrower- or bank-specific forces were not driving the mergers, minimizing endogeneity concerns.

III. Empirical Analysis

A. Data

We combine several sources for the data set used in this article. First, we obtain annual financial data of Japanese non-financial firms listed on the Tokyo Stock Exchange from 1980 to 2007 provided by the Development Bank of Japan. Second, detailed annual data on Japanese firms' bank loans are from the Nikkei Economic Electronic Databank System (NEEDS). This data set provides information on the loan amounts firms borrow from major banks each year. We use policy-driven mergers between large national banks called *Toshi-Ginko* (city banks).[12] These Japanese banks have wide networks of branches and are the main creditors for most listed firms in Japan, which allows us to find a sufficient number of sample firms that have common lenders due to bank mergers, and they comprise our sample banks.[13]

Next, we obtain annual data on firms' directors from Toyo Keizai. The data allow us to trace a director's employment history and identify whether an executive director was affiliated with the relationship bank of the firm before sitting on the firm's board. We define a director with representative rights as an executive director.[14] In Japan, such a director has the highest authority and capacity to enter into business and sign legal contracts on behalf of the corporation. Using this data set, we identify the presence of an executive director who was formerly affiliated with the firm's relationship bank. Finally, we collect data on market value and stock returns from Datastream. As one of the key variables of interest, we construct the variable of a firm's relationship bank as follows. Loosely speaking, a firm's relationship bank is a bank that can influence a firm's policies. In our article, using bank loan data, we first identify the top lender for a firm, the one that lends the largest amount to the firm among our sample banks in a given year, as the candidate of the firm's relationship bank. Some firms, however, may borrow a similar amount from more than 1 bank in a year, resulting in the absence of a single lead bank. Given this possibility, we define the top lender to a firm as the relationship bank only if the loan amount of any other bank is less than 75% of the amount lent by the top lender.[15] Once a firm's relationship bank in a given year has been established, we use the

[12]Some mergers occurred between city banks at the beginning of the 1990s. For example, Taiyo-Kobe and Mitsui merged to form Sakura in 1990. We exclude these mergers because, unlike the mergers of our interest, they targeted market share gain or business synergies and were not policy-driven.

[13]According to the definition by the Japanese Bankers Association, city banks are large in size, headquartered in major cities, and have a branch network that covers Tokyo, Osaka, other major cities, and their immediate suburbs. In addition to city banks, we include the Industrial Bank of Japan (IBJ) in our sample banks because it was involved in the merger between the 2 city banks that formed the Mizuho Group. See Figure 2 for details.

[14]We focus on a senior position of management to ensure that a director has enough power to affect a firm's policies.

[15]Under our definition, each bank except for the relationship bank lends to the firm less than 75% of the amount lent by the relationship bank. Therefore, the relationship bank of each firm is less likely to

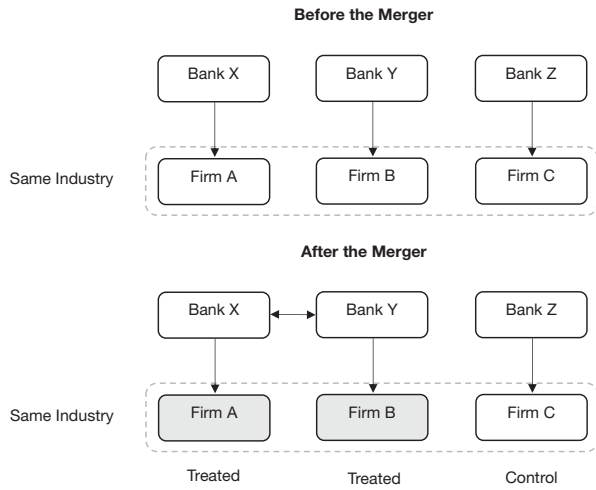
M&A information to identify whether the firm's relationship bank engaged in a merger with another bank. Figure 2 lists the mergers among our sample banks that are used in our analysis.

In our identification strategy, we define a treated firm as one having its relationship bank going through a *connection-creating* merger. A connection-creating bank merger occurs when the focal firm's relationship bank announces a merger with the relationship bank of at least one of its rival firms that operate in the same sector. For this purpose, we use the industry classification provided by Nikkei NEEDS, which categorizes firms into over 100 sectors.[16] We drop sectors that have at most four firms in any year, because those sectors are more likely to form an all-inclusive cartel when the number of sector participants is small.[17] The 25th percentile, median, and 75th percentile of the industry size (i.e., the number of firms in the industry) are 6, 10, and 18, respectively. Figure 3 illustrates how we identify treated and control firms from a merger of relationship banks. When firms' relationship banks merge, the post-merger bank becomes a common lender of those firms, which establishes a novel connection between them. If a common lender has any impact on affected borrowers, we expect to observe the impact on treated firms. We define our first key variable, MERGER_EXP, which is the cumulative frequency for a firm being affected by a connection-creating bank merger. This variable represents the firm's connections with its rivals created by connection-creating bank mergers.

FIGURE 3

Identification Strategy for Baseline Analysis

Figure 3 shows our identification strategy for baseline analysis.



change under our definition. Moreover, under our definition, the firm has no relationship bank if none of our sample banks is the firm's lender.

[16]We use the 6-digit classification of industries, which is the finest possible categorization.

[17]For example, the dropped sectors include the gas industry where all members were accused in 2011 of forming a cartel, and the construction industry, whose members have been investigated by the Japan Fair Trade Commission for forming a cartel when bidding for railroad contracts.

We next construct variables to explore a channel through which common lenders affect corporate outcomes. We examine a potential channel wherein banks exert influence over borrowers through the advice of directors who have executive power and were formerly affiliated with the banks. The presence of such executive directors on the board may amplify the influence of a common lender on the treated firm's policies. To evaluate this possibility, we construct DIR_MERGER_EXP, which is the cumulative frequency of being affected by a connection-creating bank merger conditional on having an executive director who was previously affiliated with either merging bank (i.e., ex-banker director). This variable enables us to examine the role of ex-banker directors in facilitating common lender effects. We also construct DIR_PRESENCE, a dummy variable equal to 1 if the focal firm has at least 1 executive director who was formerly affiliated with the firm's relationship bank.[18,19]

Although our main specifications use MERGER_EXP, we also examine common lender effects using banks' loan shares in the credit market of a given industry, in the spirit of Saidi and Streitz (2021). If a bank has a significant share in the loan market of an industry, it should have incentives to internalize product market externalities. In particular, we compute the proportion of each sample bank's total loan volume for each industry (market share) on an annual basis. We use these market shares to compute the variable BANK_INDUSTRY_HHI, capturing credit concentration at the industry–year level.

Finally, we construct other variables including dependent and control variables. For the dependent variables, we focus on corporate investment (CAPEX), markup (MARKUP), and the profitability ratio (EBITDA). CAPEX is measured as capital expenditure divided by total assets (as a percentage). MARKUP is the difference between revenue and the cost of goods sold divided by revenue (as a percentage). EBITDA is earnings before extraordinary items, interest, taxes, depreciation, and amortization, divided by revenue (as a percentage). We use control variables similar to those in Akdoğu and MacKay (2008). In particular, TOBINS_Q is defined as the market value of equity plus the book value of liabilities and preferred stock minus deferred taxes, divided by total assets. SALES_GROWTH is the growth in current-year sales compared with the previous year's sales (as a percentage). ROA is the ratio of net income to total assets (as a percentage). CASHFLOW is defined as earnings before extraordinary items plus depreciation minus dividends, divided by total assets (as a percentage). SIZE is the natural logarithm of total assets. CASH is the ratio of cash and deposits to total assets (as a percentage). LEVERAGE is the ratio of the book value of total liabilities to the market value of equity plus the book value of total liabilities (as a percentage). CASHFLOW_STD is the standard deviation of CASHFLOW

[18]Because of data limitations, some firms in the sample do not have data on DIR_PRESENCE for some years before 1992. For those firms, we impute missing values of DIR_PRESENCE before 1992 as follows: i) impute 0 for firms that never hired an executive director formerly affiliated with its relationship bank and that existed in our sample period for over 15 years; and ii) impute 1 for firms that always had at least one executive director formerly affiliated with its relationship bank and that existed in our sample period for over 15 years.

[19]Note that DIR_MERGER_EXP is not equal to the interaction of MERGER_EXP and DIR_PRESENCE.

for the past 10 (with a minimum of 4) annual observations (as a percentage). For firms with less than 4 observations in a given year, we use the mean CASHFLOW_STD of all firms in the same sector for that year. DIVERSIFICATION is 1 minus the HHI of sales across the firm's segments, which is measured as the sum of the squared ratios of segment sales to the firm's total sales. We occasionally represent the first four control variables (i.e., TOBINS_Q, SALES_GROWTH, ROA, and CASHFLOW) by GROWTH_EFFICIENCY and the remaining five by FIRM_CHARACTERISTICS. In addition, RB_LOAN_GROWTH is the growth in the loan the firm borrows from its top lender in the current year compared with the previous year (as a percentage).[20] This variable captures the adjustment in loan supply from the firm's relationship bank.[21] All potentially unbounded variables are winsorized at 0.5% and 99.5%.

Panel A of Table 1 presents the descriptive statistics of the variables used in this article. The average CAPEX is 2.4, indicating that sample firms on average invest 2.4% of total assets. MERGER_EXP has a maximum of 2, suggesting that some firms have their relationship banks going through connection-creating mergers up to 2 times. DIR_MERGER_EXP has a maximum of 2, meaning that firms with ex-banker directors could also have their relationship banks going through connection-creating mergers up to 2 times. The average for DIR_PRESENCE, a dummy variable, is neither large nor trivial, implying that firms with executive directors who were formerly affiliated with their relationship banks are not necessarily rare. Our sample firms, on average, produce a MARKUP of 22.79% and an EBITDA of 8.9% relative to revenue. RB_LOAN_GROWTH has a mean of almost 0, indicating a relationship bank's loan supply, on average, did not grow as much during the sample period.

Regarding the control variables, our sample firms have an average TOBINS_Q of 1.42, an average SALES_GROWTH of 3.59%, and an average ROA of 1.83%. They yield an average CASHFLOW of 7.55% relative to total assets. Firm size varies from 2.32 billion yen to 4.12 trillion yen with a mean of 154.95 billion yen. The average CASH is 12.73% relative to total assets, the average LEVERAGE is 46.96%, and the average CASHFLOW_STD is 2.32% relative to total assets.[22] The mean DIVERSIFICATION of our sample firms is 0.38.[23]

Panel B of Table 1 reports the summary statistics of pre-merger control variables for the treated firms that had their relationship banks going through connection-creating mergers and the rest (control firms) for the years of the mergers.[24] Whereas the average pre-merger TOBINS_Q, ROA, and CASHFLOW

[20]We compute the first difference in the natural logarithm of the loan the firm borrows from its top lender and multiply it by 100 so that it can be interpreted as a percentage change.

[21]The relationship bank is defined as the top lender only if the loan amount of any other sample bank is smaller than 75% of the loan amount of the top lender. By contrast, we allow RB_LOAN_GROWTH to include all the largest loans to measure the loan growth of a top lender.

[22]Akdoğu and MacKay (2008) report that the average leverage of U.S. firms in their sample is 23%. For German banks, Chirinko and Elston (2006) find that the average leverage of their sample exceeds 60%.

[23]The mean diversification index for the U.S. firms, reported by Akdoğu and MacKay (2008), is a comparable 0.31.

[24]We report the summary statistics of 1-year lagged control variables for the years of merger announcements we examine in Figure 2.

TABLE 1
Summary Statistics

Table 1 provides the variable definitions used in the entire paper. CAPEX is capital expenditure divided by total assets. MARKUP is the difference between revenue and cost of goods sold divided by revenue. EBITDA is earnings before extraordinary items, interest, taxes, depreciation, and amortization, divided by revenue. BANK_INDUSTRY_HHI is measured as the sum of the squared ratios of total loan volume each bank granted to the sector over the aggregate loan volume of the sector in a given year. MERGER_EXP is the cumulative frequency of being affected by a connection-creating bank merger, that is, a merger between the firm's relationship bank and the relationship bank of any of its rivals in the same sector. A relationship bank is defined as the top lender, that is, our sample bank lending the largest loan to the firm in a given year, only if the loan amount lent by any other sample bank is smaller than 75% of the loan amount lent by the top lender. DIR_MERGER_EXP is the cumulative frequency of being affected by a connection-creating bank merger conditional on the presence of an executive director who was previously affiliated with either merging bank. DIR_PRESENCE is a dummy variable equal to 1 if there is at least 1 executive director of the firm who was previously affiliated with the firm's relationship bank. RB_LOAN_GROWTH is the growth in the loan the firm borrows from its top lender in the current year compared with the previous year. TOBINS_Q is defined as the market value of equity plus the book value of liabilities and preferred stock minus deferred taxes, all divided by total assets. SALES_GROWTH is the growth in current-year sales compared with the previous year. ROA is the ratio of net income to total assets. CASHFLOW is defined as earnings before extraordinary items plus depreciation minus dividends, all divided by total assets. SIZE is total assets (in billion yen), but its natural logarithm is used in the remaining tables. CASH is the ratio of cash and deposits to total assets. LEVERAGE is the ratio of the book value of total liabilities to the market value of equity plus the book value of total liabilities. CASHFLOW_STD is the standard deviation of CASHFLOW using up to the past 10 (minimum 4) annual observations. DIVERSIFICATION is measured as 1 minus the Herfindahl–Hirschman Index of sales across the firm's segments, which is measured as the sum of the squared ratios of segment sales to the firm's total sales. All potentially unbounded variables are winsorized at 0.5% and 99.5%. Panel A provides descriptive statistics. Panels B and C compare pre-merger control variables between treatment and control groups in the years of bank mergers. Treated firms are firms affected by a connection-creating bank merger, and control firms are the rest. Panel B shows the simple comparison, whereas Panel C shows the comparison after controlling for relationship-bank-by-year fixed effects. A normalized difference > 0.25 in magnitude is denoted by +. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Summary Statistics for Variables Used in the Main Analysis

	N	Mean	Std. Dev.	Min	Median	Max
CAPEX (%)	45,626	2.40	5.13	−25.98	1.62	25.93
MARKUP (%)	46,625	22.79	14.70	1.00	19.46	82.27
EBITDA (%)	43,936	8.90	7.82	−9.78	7.32	49.44
BANK_INDUSTRY_HHI	46,777	0.18	0.08	0.00	0.14	1.00
MERGER_EXP	46,777	0.16	0.39	0.00	0.00	2.00
DIR_MERGER_EXP	46,777	0.01	0.12	0.00	0.00	2.00
DIR_PRESENCE	46,777	0.03	0.17	0.00	0.00	1.00
RB_LOAN_GROWTH (%)	34,960	0.12	42.03	−172.28	0.00	194.59
TOBINS_Q	40,697	1.42	0.76	0.52	1.21	6.41
SALES_GROWTH (%)	44,917	3.59	13.52	−41.66	2.74	74.30
ROA (%)	46,777	1.83	3.83	−20.97	1.79	14.96
CASHFLOW (%)	46,773	7.55	5.03	−6.55	6.96	27.07
SIZE (billion yen)	46,777	154.95	442.39	2.32	39.89	4,119.69
CASH (%)	46,776	12.73	9.65	0.00	10.76	87.94
LEVERAGE (%)	40,697	46.96	21.98	0.02	46.49	98.98
CASHFLOW_STD (%)	46,709	2.32	1.58	0.29	1.96	10.57
DIVERSIFICATION	46,767	0.38	0.34	0.00	0.48	0.89

Panel B. Pre-Merger Control Variables

	Control		Treated		Treated – Control	
	N	Mean	*N*	Mean	Normalized Difference	Mean Difference
TOBINS_Q	8,574	1.25	992	1.08	−0.25^{+}	−0.16***
SALES_GROWTH (%)	8,607	−0.63	999	−0.54	0.01	0.09
ROA (%)	8,894	1.13	1,029	0.89	−0.06	−0.24*
CASHFLOW (%)	8,894	6.82	1,029	6.44	−0.08	−0.38**
SIZE (billion yen)	8,894	164.03	1,029	106.61	−0.15	−57.42***
CASH (%)	8,894	11.64	1,029	10.41	−0.14	−1.23***
LEVERAGE (%)	8,574	51.20	992	58.94	0.35^{+}	7.74***
CASHFLOW_STD (%)	8,894	2.21	1,029	2.26	0.04	0.05
DIVERSIFICATION	8,893	0.37	1,029	0.43	0.18	0.06***

Panel C. Pre-Merger Control Variables (Detrended)

	Control		Treated		Treated – Control	
	N	Mean	*N*	Mean	Normalized Difference	Mean Difference
TOBINS_Q	8,574	0.00	992	0.00	0.00	0.00
SALES_GROWTH (%)	8,607	−0.01	999	0.11	0.01	0.13
ROA (%)	8,894	−0.02	1,029	0.14	0.04	0.15
CASHFLOW (%)	8,894	−0.01	1,029	0.10	0.02	0.12
SIZE (billion yen)	8,894	3.22	1,029	−27.81	−0.08	−31.03***
CASH (%)	8,894	−0.07	1,029	0.60	0.08	0.67**
LEVERAGE (%)	8,574	0.11	992	−0.94	−0.05	−1.05
CASHFLOW_STD (%)	8,894	−0.01	1,029	0.04	0.03	0.05
DIVERSIFICATION	8,893	0.00	1,029	0.00	0.02	0.00

are higher for control firms, the average pre-merger SALES_GROWTH is higher for treated firms. Panel C of Table 1 reports the version where each variable is detrended by subtracting the average of the corresponding relationship-bank-year observations. The results show that the average detrended levels of growth opportunities and investment returns (TOBINS_Q, SALES_GROWTH, ROA, and CASHFLOW) are higher for treated firms than control firms. Overall, the result suggests that a treated firm is unlikely to face a more severe business environment than a control firm borrowing from the same relationship bank.

Moreover, we examine whether the means of covariates differ between treated and control firms. Panel B of Table 1 reports the normalized difference (treated – control) of group raw covariate means, which is below a rule-of-thumb criterion of 0.25 (Imbens and Wooldridge (2009), Imbens and Rubin (2015)) except for TOBINS_Q and LEVERAGE.[25] The former is lower and the latter is higher for treated firms than control firms, respectively. Panel C of Table 1 reports the normalized difference in group-detrended covariate means, which may be more relevant under the control of the relationship-bank-by-year fixed effects. None of the normalized differences in detrended group covariate means exceed a rule-of-thumb criterion of 0.25, suggesting that the distributions of covariates are similar between treated and control groups having the same relationship bank.

In assessing the balance between treated and control samples, we emphasize the normalized difference with a rule-of-thumb criterion because it highlights the *economic magnitude* of the difference (see Imbens and Wooldridge (2009), Imbens and Rubin (2015)). However, for completeness, we also report the *t*-statistic from a 2-sample *t*-test of the group mean difference (treated – control) for both Panels B and C of Table 1. We find that the means of some covariates are statistically different between the treated and control groups at the 5% significance level. In particular, the means of firm size and cash significantly differ, regardless of whether the covariates are detrended. However, the statistical significance does not necessarily mean that treated and control groups are unbalanced, because even a minuscule difference in the means of a large sample size could result in a large *t*-statistic, leading to a potentially wrong conclusion of unbalanced covariates.

With the assessment of covariate balance based on the normalized difference in group covariate means, our result shows that the covariate distributions of treated and control groups are reasonably overlapped. However, for a robustness check, we undertake multiple investigations in Section III.C.5 to show that our benchmark results are robust to confounding factors caused by potentially unbalanced covariates.

B. Empirical Model

1. Bank Mergers and Corporate Outcomes

In this section, we describe the empirical models that we use to examine the impact of a common lender on its borrowers. We predict that inter-competitor connections via a common lender may attenuate aggressive competition between the competitors in the product market. The state of weak competition is associated

[25] A normalized difference is defined as $\hat{\Delta}_{ct} = (\overline{X}_t - \overline{X}_c)/\sqrt{(s_t^2 + s_c^2)/2}$, where $\overline{X}_t$ (s_t^2) and $\overline{X}_c$ (s_c^2) are the sample mean (variance) of covariates for the treated and control groups, respectively.

with lower production. Therefore, we first focus on corporate investment, because it is a major input for firm production.

To capture the extent of common lending, Saidi and Streitz (2021) use a measure of bank concentration at the industry level (the HHI of banks' market shares in terms of loan volume for a given industry). Thus, we start our analysis with a similar model:

$$(1) \quad \text{CAPEX}_{ijt} = \beta_1 \text{BANK\_INDUSTRY\_HHI}_{jt-1} + \beta_2 Z_{ijt-1} + \alpha_i + \delta_{bt} + \varepsilon_{ijt}.$$

The dependent variable is CAPEX_{ijt}, the capital expenditure of firm i in industry j in year t. The independent variable of interest is $\text{BANK\_INDUSTRY\_HHI}_{jt-1}$, the measure of bank concentration in the previous year. The variable, Z_{ijt-1}, stands for a set of 1-year lagged control variables including GROWTH_EFFICIENCY and FIRM_CHARACTERISTICS. We control for firm (α_i) and RB-year (δ_{bt}) fixed effects, where RB stands for relationship bank. In particular, we assign a dummy for each of our sample banks when the bank is a relationship bank of a firm. The RB-year fixed effects are the relationship bank dummies interacted with year dummies.

Whereas firm fixed effects capture unobservable time-invariant firm-specific characteristics, we include RB-year fixed effects for several important reasons. For example, one may be concerned that connection-creating bank mergers were triggered by the distress of involved banks linked to their borrowers. In that case, the documented effect of a connection-creating bank merger may mirror the distress of either merged relationship banks or their borrowers. By adding RB-year fixed effects, we can not only control for business trends that affect all banks and borrowers but also the differential effect between firms that have relationship banks involved in mergers and those that do not.

Furthermore, with RB-year fixed effects, we control for merger-specific effects other than common lender effects. For example, a bank merger may strengthen the bargaining power of a relationship bank against its borrowers by depriving them of an opportunity to borrow from other banks. As a result, due to the stronger bargaining power of the relationship bank, its borrowers might reduce investment to minimize default risk. Alternatively, relationship banks that become common lenders may face restructuring pressures to improve the quality of their loans as mandated by the Japanese government, where the banks may try to force their borrowers to cut down investments. In either case, we may observe a negative correlation between bank concentration and investment, so eliminating these effects is required to identify common lender effects. RB-year fixed effects absorb the time-varying impacts of relationship banks that uniformly affect their borrowers. After controlling for the fixed effects, we expect any negative correlation between BANK_INDUSTRY_HHI and CAPEX to reflect the reduction of investments by the borrowers, due to the anticompetitive practices stemming from bank mergers.

Next, we investigate the effect of a common lender on corporate markup and profitability ratio. We predict that firms connected through common lenders compete less aggressively. In this regard, we expect that such coordination improves markup and profitability ratio. Using MARKUP and EBITDA as the dependent

variables, we use a similar model as in equation (1). We expect a positive association between BANK_INDUSTRY_HHI and MARKUP as well as EBITDA, consistent with the anticompetitive effect of a common lender.

$$\text{MARKUP}_{ijt}\left(\text{EBITDA}_{ijt}\right) = \beta_1 \text{BANK\_INDUSTRY\_HHI}_{jt-1} + \beta_2 Z_{ijt-1} + \alpha_i + \delta_{bt} + \varepsilon_{ijt}. \tag{2}$$

Here, Z_{ijt-1} stands for a set of 1-year lagged FIRM_CHARACTERISTICS.[26]

Because the specification of equations (1) and (2) does not allow us to control for industry trends, we cannot rule out the possibility that both bank concentration and corporate outcomes in an industry are driven by industry-level time-varying factors. For instance, in low-growth industries, the loan market may become more concentrated because fewer banks are willing to lend to low-growth firms. In this case, we would observe a spurious correlation between firms' business activity and credit concentration. To rule out this possibility, our main specification uses the time-varying firm-level variable MERGER_EXP:

$$\text{CAPEX}_{ijt} = \beta_1 \text{MERGER\_EXP}_{ijt} + \beta_2 Z_{ijt-1} + \alpha_i + \gamma_{jt} + \delta_{bt} + \varepsilon_{ijt}, \tag{3}$$

$$\text{MARKUP}_{ijt}\left(\text{EBITDA}_{ijt}\right) = \beta_1 \text{MERGER\_EXP}_{ijt} + \beta_2 Z_{ijt-1} + \alpha_i + \gamma_{jt} + \delta_{bt} + \varepsilon_{ijt}. \tag{4}$$

Both equations illustrate our main regression models to estimate common lender effects on corporate investment, markup, and the profitability ratio, where MERGER_EXP captures the creation of a common lender by a connection-creating bank merger at the firm level. Besides the firm and RB-year fixed effects, we control for industry–year (γ_{jt}) fixed effects to capture industry-specific business trends. Because we control for industry–year fixed effects, the coefficient of MERGER_EXP represents the effect of a connection-creating bank merger on a treated firm relative to a control firm.[27]

If horizontal coordination between treated firms occurs due to a connection-creating bank merger, it disproportionately shrinks the production of a treated firm relative to that of a control firm. In a homogeneous product market, non-treated rivals have fewer incentives to reduce production, because the coordination increases the industry price (e.g., Salant, Switzer, and Reynolds (1983), Perry and Porter (1985), and Heywood and McGinty (2007)). In a differentiated product market, non-treated rivals raise prices (and consequently shrink production) to a lesser extent because they do not internalize the positive externalities of their price hikes on other firms in the same industry (e.g., Deneckere and Davidson (1985)).

In both types of markets, we also predict that treated firms increase markups and profits *per unit produced* more than non-treated rivals. This is because lower

[26]We exclude the set of variables, GROWTH_EFFICIENCY, in this specification because some variables such as ROA are defined similarly to and are highly correlated with the dependent variable, raising endogeneity concerns.

[27]See Figure 3 for the definition of treated and control firms.

production is associated with lower marginal and average costs or higher prices.[28] Thus, we predict a negative association between MERGER_EXP and CAPEX and a positive correlation between MERGER_EXP and MARKUP as well as EBITDA.

2. Channel

In this section, we present an empirical model that explores a channel through which a connection-creating bank merger affects corporate outcomes. We model a potential channel where merging banks might affect firm policies through executive directors who were formerly affiliated with them. To evaluate the channel (i.e., the director channel), we use the variable DIR_MERGER_EXP.

We use two models similar to equations (3) and (4). First, we examine whether any differential effects on corporate investment, markup, and the profitability ratio occur in the presence of an ex-banker director with equations (5) and (6) as follows:

$$\text{CAPEX}_{ijt} = \beta_1 \text{MERGER\_EXP}_{ijt} + \beta_2 \text{DIR\_MERGER\_EXP}_{ijt} + \beta_3 Z_{ijt-1} + \alpha_i + \gamma_{jt} + \delta_{bt} + \varepsilon_{ijt}, \tag{5}$$

$$\text{MARKUP}_{ijt}\left(\text{EBITDA}_{ijt}\right) = \beta_1 \text{MERGER\_EXP}_{ijt} + \beta_2 \text{DIR\_MERGER\_EXP}_{ijt} + \beta_3 Z_{ijt-1} + \alpha_i + \gamma_{jt} + \delta_{bt} + \varepsilon_{ijt}. \tag{6}$$

Whereas MERGER_EXP captures the effect of a connection-creating bank merger, DIR_MERGER_EXP captures the incremental effect of the merger conditional on the presence of an ex-banker director. Controlling for both MERGER_EXP and DIR_MERGER_EXP allows us to investigate whether an ex-banker director contributes to the common lender effect. If an ex-banker director plays a key role in coordinating corporate policies of treated firms, we expect a negative (positive) coefficient of DIR_MERGER_EXP in the CAPEX (MARKUP/EBITDA) regression, which is in line with the effect of MERGER_EXP.

Alternatively, a common lender's loan supply adjustment can be a channel wherein a connection-creating bank merger affects borrowers' policies. One may argue that an ex-banker director only helps adjust the loan supply of a common lender instead of proactively advising a firm's management. If so, the impacts of DIR_MERGER_EXP on corporate outcomes might simply reflect the channel of loan supply adjustment. To separate the director channel from the loan supply channel, we control for the growth of the loan supply from the relationship bank, RB_LOAN_GROWTH, in addition to DIR_MERGER_EXP, as follows:

[28] In the Cournot competition model with constant marginal cost curves, marginal and average costs are constant, and the price is uniform across firms. A firm's markup and profitability ratio are therefore independent of its production level. However, this model is considered unsuitable for analyzing horizontal coordination, because it predicts that coordination is mostly unprofitable for the members of a coalition. Later models overcome this paradox by assuming increasing marginal cost curves in the Cournot competition model or Bertrand competition in a differentiated product market.

$$(7)\quad \text{CAPEX}_{ijt} = \beta_1 \text{MERGER\_EXP}_{ijt} + \beta_2 \text{DIR\_MERGER\_EXP}_{ijt} + \beta_3 \text{RB\_LOAN\_GROWTH}_{ijt} + \beta_4 Z_{ijt-1} + \alpha_i + \gamma_{jt} + \delta_{bt} + \varepsilon_{ijt},$$

$$(8)\quad \text{MARKUP}_{ijt}\left(\text{EBITDA}_{ijt}\right) = \beta_1 \text{MERGER\_EXP}_{ijt} + \beta_2 \text{DIR\_MERGER\_EXP}_{ijt} + \beta_3 \text{RB\_LOAN\_GROWTH}_{ijt} + \beta_4 Z_{ijt-1} + \alpha_i + \gamma_{jt} + \delta_{bt} + \varepsilon_{ijt}.$$

If a relationship bank that becomes a common lender curbs the growth of loan supply, it might act as another channel affecting corporate outcomes. If it is acting as another channel, we should observe a positive association between RB_LOAN_GROWTH and CAPEX and a negative association between RB_LOAN_GROWTH and MARKUP as well as EBITDA.

To further examine whether a common lender affects its borrowers through adjusting loan supply, we use equation (9), where RB_LOAN_GROWTH is the dependent variable. The independent variables of interest are MERGER_EXP and DIR_MERGER_EXP. Controlling for MERGER_EXP allows us to investigate whether a connection-creating bank merger changes the growth of credit from the relationship bank to the treated firm after the merger; controlling for DIR_MERGER_EXP allows us to examine whether an ex-banker director contributes to the change in the loan supply.

$$(9)\quad \text{RB\_LOAN\_GROWTH}_{ijt} = \beta_1 \text{MERGER\_EXP}_{ijt} + \beta_2 \text{DIR\_MERGER\_EXP}_{ijt} + \beta_3 Z_{ijt-1} + \alpha_i + \gamma_{jt} + \delta_{bt} + \varepsilon_{ijt}.$$

If the loan supply adjustment is a channel of the common lender effect induced by a connection-creating bank merger, we expect a negative correlation between RB_LOAN_GROWTH and MERGER_EXP. Furthermore, if an ex-banker director on the borrower's board contributes to the loan supply adjustment, we expect a negative correlation between RB_LOAN_GROWTH and DIR_MERGER_EXP, indicating an effect in line with that of MERGER_EXP.

C. Results

1. Bank Mergers and Corporate Outcomes

Section III.C.1 presents our baseline results. Table 2 shows the effects of bank concentration on corporate outcomes. Bank concentration is captured by the two variables, BANK_INDUSTRY_HHI and MERGER_EXP. Panel A presents the results for BANK_INDUSTRY_HHI (equations (1) and (2)), and Panel B presents those for MERGER_EXP (equations (3) and (4)). In both panels, columns 1, 2, and 2-R show the results for corporate investment, and columns 3–6 show the results for markup and profitability ratio.

Columns 1 and 2 in Panel A of Table 2 present a negative effect on the CAPEX of BANK_INDUSTRY_HHI, a measure of bank concentration at the industry level. In column 1, the coefficient of −2.919 is statistically significant at the 10%

TABLE 2

Bank Concentration and Corporate Outcomes

The dependent variables in Table 2 are CAPEX, MARKUP, and EBITDA. The independent variables of interest are BANK_INDUSTRY_HHI in Panel A and MERGER_EXP in Panel B. GROWTH_EFFICIENCY includes TOBINS_Q, SALES_GROWTH, ROA, and CASHFLOW. FIRM_CHARACTERISTICS includes SIZE, CASH, LEVERAGE, CASHFLOW_STD, and DIVERSIFICATION. GROWTH_EFFICIENCY and FIRM_CHARACTERISTICS are 1-year lagged values. All potentially unbounded variables are winsorized at 0.5% and 99.5%. Robust standard errors clustered at the sector level (Panel A) and firm level (Panel B) are reported in parentheses. The number of observations and R^2 are given in the last 2 rows. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. See Table 1 for the definition of variables.

	CAPEX			MARKUP		EBITDA	
	1	2	2-R	3	4	5	6
Panel A. Bank Concentration at the Sector Level							
BANK_INDUSTRY_HHI	−2.919*	−3.573**	−3.550**	5.238*	5.015*	4.830**	5.825**
	(1.527)	(1.537)	(1.523)	(3.120)	(2.773)	(2.376)	(2.248)
TOBINS_Q	0.255**	−0.225*	−0.236*				
	(0.103)	(0.126)	(0.129)				
SALES_GROWTH	0.013***	0.016***					
	(0.004)	(0.004)					
ROA	0.118***	0.098***					
	(0.016)	(0.015)					
CASHFLOW	0.111***	0.083***	0.154***				
	(0.016)	(0.016)	(0.015)				
SIZE		−0.929***	−0.758***		−1.145***		1.175***
		(0.196)	(0.191)		(0.327)		(0.252)
CASH		0.046***	0.049***		0.018		0.005
		(0.006)	(0.006)		(0.011)		(0.007)
LEVERAGE		−0.043***	−0.049***		−0.084***		−0.085***
		(0.005)	(0.005)		(0.006)		(0.006)
CASHFLOW_STD		−0.088	−0.106*		−0.137*		−0.158**
		(0.055)	(0.057)		(0.077)		(0.066)
DIVERSIFICATION		−0.242	−0.271		−0.509		−0.954***
		(0.279)	(0.278)		(0.320)		(0.211)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RB × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	36,544	36,503	37,383	43,634	37,721	41,179	35,740
R^2	0.308	0.317	0.314	0.912	0.921	0.759	0.782
Panel B. Connection-Creating Bank Merger							
MERGER_EXP	−0.345**	−0.342**	−0.316**	0.526**	0.448*	0.387**	0.413**
	(0.149)	(0.150)	(0.149)	(0.257)	(0.251)	(0.194)	(0.189)
TOBINS_Q	0.239***	−0.241**	−0.264***				
	(0.091)	(0.104)	(0.101)				
SALES_GROWTH	0.011***	0.015***					
	(0.003)	(0.003)					
ROA	0.109***	0.087***					
	(0.016)	(0.016)					
CASHFLOW	0.097***	0.067***	0.131***				
	(0.017)	(0.018)	(0.015)				
SIZE		−0.841***	−0.659***		−0.874***		1.148***
		(0.167)	(0.166)		(0.263)		(0.227)
CASH		0.044***	0.047***		0.016		0.004
		(0.006)	(0.006)		(0.013)		(0.008)
LEVERAGE		−0.048***	−0.054***		−0.068***		−0.077***
		(0.005)	(0.005)		(0.006)		(0.006)
CASHFLOW_STD		−0.153***	−0.167***		−0.086		−0.114**
		(0.042)	(0.042)		(0.064)		(0.054)
DIVERSIFICATION		−0.417*	−0.368*		−0.409		−0.724***
		(0.237)	(0.221)		(0.359)		(0.259)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RB × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	36,505	36,466	37,351	46,610	37,690	43,902	35,697
R^2	0.384	0.392	0.389	0.928	0.936	0.792	0.819

level. In terms of economic significance, the coefficient indicates that a 1-standard-deviation increase in BANK_INDUSTRY_HHI is associated with a decrease of 9.7% in CAPEX of the sample mean. The effect is robust and even larger when we control for FIRM_CHARACTERISTICS in addition to GROWTH_EFFICIENCY in column 2. The BANK_INDUSTRY_HHI coefficient is −3.573 and statistically significant at the 5% level. The coefficient indicates that a 1-standard-deviation increase in BANK_INDUSTRY_HHI is associated with an investment reduction of 11.9% relative to the mean.

Columns 1 and 2 in Panel B of Table 2 present a negative effect of a connection-creating bank merger on CAPEX. In column 1, the MERGER_EXP coefficient of −0.345 is statistically significant at the 5% level, indicating that firms affected by the merger reduce their investment by 14.4% compared with the mean CAPEX. The negative association between a connection-creating bank merger and investment barely changes even when we control for FIRM_CHARACTERISTICS and GROWTH_EFFICIENCY in column 2. The MERGER_EXP coefficient is −0.342 and is statistically significant at the 5% level, implying an investment reduction of 14.3% of the mean CAPEX.

Although we use lagged SALES_GROWTH and ROA as independent variables to mitigate endogeneity concerns in column 2 of Table 2, this practice may not be perfect if a variable has high autocorrelation. To check the robustness of our result, column 2-R reports a model specification that does not include SALES_GROWTH and ROA. Both panels show similar results to those in column 2, suggesting that endogeneity concerns caused by SALES_GROWTH and ROA are unlikely to influence the results in column 2.

Columns 3 and 4 of Table 2 display positive coefficients for BANK_INDUSTRY_HHI and MERGER_EXP in the markup regressions. In Panel A, the coefficients of BANK_INDUSTRY_HHI are 5.238 and 5.015; both are statistically significant at the 10% level. They suggest that an increase of 1-standard-deviation in BANK_INDUSTRY_HHI leads to an increase of around 2% in MARKUP compared with the mean. In Panel B, the coefficients of MERGER_EXP are 0.526 and 0.448, which are statistically significant at the 5% and 10% levels, respectively. These figures imply that a connection-creating bank merger is associated with an increase of around 2% in MARKUP relative to the mean.

Similarly, columns 5 and 6 of Table 2 show a positive association between bank concentration and EBITDA. In Panel A, the coefficients of BANK_INDUSTRY_HHI are 4.830 and 5.825, which are statistically significant at the 5% level. They signify that an increase of 1-standard-deviation in BANK_INDUSTRY_HHI leads to an increase in EBITDA ranging from 4% to 5% of the mean. In Panel B, the coefficients of MERGER_EXP range from 0.387 to 0.413. Both estimates are statistically significant at the 5% level, showing that a connection-creating bank merger is associated with an increase in EBITDA ranging from 4% to 5% of the mean.

Overall, our findings support the conjecture that a common lender weakens the within-industry competition, which results in a reduction in investment and an improvement in the markup and profitability ratio of the involved firms. Also, in Table A1 in the Supplementary Material, we show that our results are robust to the subsample for the post-bubble period in Japan (1990–2007).

2. Ex-Banker Director Channel

Table 3 presents the results pertaining to the ex-banker director channel. Panel A presents the benchmark results discussed in this section, and Panel B reports the corresponding results in several robustness checks, which we describe in Section III.C.5. The first 6 columns in Panel A of Table 3 show the results of equations (5) through (8), where we examine a channel through which a common lender affects corporate outcomes. The results for capital expenditure are presented in columns 1 and 2 and those for markup and profitability ratio in columns 3–6. In odd columns, we report the regression results where we do not control for RB_LOAN_GROWTH, whereas, in even columns, we report the regression results in which we control for RB_LOAN_GROWTH.

Columns 1 and 2 in Panel A of Table 3 present a negative association between DIR_MERGER_EXP and CAPEX. The coefficient in column 1 is −0.620 and statistically significant at the 10% level. The coefficient indicates a further reduction in the investment of a treated firm by 26% of the mean CAPEX when a treated firm has an ex-banker director on its board compared with a firm that does not. Our result shows that the board presence of an ex-banker director at the time of the merger contributes to the investment squeeze. When we control for RB_LOAN_GROWTH in column 2, DIR_MERGER_EXP increases its explanatory power with a coefficient of −0.677, significant at the 5% level. Thus, our result suggests that an ex-banker director proactively advises the treated firm to reduce investment. Interestingly, the coefficient of MERGER_EXP in column 2 switches its sign and becomes insignificant. This observation indicates that if we control for the relationship bank's loan supply adjustment (one of the potential channels of common lender effects), the investment effect of a connection-creating bank merger is significant only when an ex-banker director is on the board. This result suggests that a common lender reduces its borrowers' investments mostly by the influence of an ex-banker director sitting on the firm's board, apart from adjusting its loan supply.

We also find some evidence that DIR_MERGER_EXP is positively associated with corporate markup and profitability ratio. Columns 3 and 4 in Panel A of Table 3 present the results for MARKUP, whereas columns 5 and 6 show the results for EBITDA. Regarding MARKUP, the coefficients of DIR_MERGER_EXP range from 0.192 to 0.868, which are statistically significant at the 10% level in column 4. The reported coefficient in column 4 implies that the MARKUP of a treated firm further improves by around 4% of the mean when an ex-banker director is present after controlling for the loan supply adjustment by the relationship bank. We find similar results for EBITDA. In particular, the coefficients of DIR_MERGER_EXP in columns 5 and 6 range from 0.834 to 1.106, significant at the 10% and 5% levels, respectively. They imply that the EBITDA of a treated firm increases by around 10% of the mean in the presence of an ex-banker director on the board. Because the coefficients of DIR_MERGER_EXP become even larger after controlling for the loan supply adjustment from the relationship bank, the finding highlights the importance of the director channel. The results are consistent with the active role of an ex-banker director in enhancing the corporate markup and profitability ratio by directly advising the firm to reduce investment.

TABLE 3

Relationship Bank Merger and Corporate Outcomes: Channel

The dependent variables in Table 3 are CAPEX, MARKUP, EBITDA, and RB_LOAN_GROWTH. The independent variable of interest is DIR_MERGER_EXP. GROWTH_EFFICIENCY includes TOBINS_Q, SALES_GROWTH, ROA, and CASHFLOW. FIRM_CHARACTERISTICS includes SIZE, CASH, LEVERAGE, CASHFLOW_STD, and DIVERSIFICATION. GROWTH_EFFICIENCY and FIRM_CHARACTERISTICS are 1-year lagged values. In Panel A, RB_LOAN_GROWTH and SALES_GROWTH are winsorized at 0.5% and 99.5%. In Panel B, two robustness checks (RC1 and RC2) are performed. In odd columns, RB_LOAN_GROWTH and SALES_GROWTH are winsorized at 5% and 95% (RC1). In even columns, RB_LOAN_GROWTH is winsorized at 5% and 95% and SALES_GROWTH is redefined as the change in the firm's revenue divided by its total assets and winsorized at 0.5% and 99.5% (RC2). All other potentially unbounded variables are winsorized at 0.5% and 99.5%. Robust standard errors clustered at the firm level are reported in parentheses. The number of observations and R^2 are given in the last 2 rows. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. See Table 1 for the definition of variables.

	CAPEX		MARKUP		EBITDA		RB_LOAN_ GROWTH	
	1	2	3	4	5	6	7	8
Panel A. Baseline Analysis								
MERGER_EXP	−0.279*	0.110	0.431*	0.096	0.330*	0.070	−4.360***	−3.946***
	(0.154)	(0.170)	(0.259)	(0.278)	(0.192)	(0.209)	(1.349)	(1.367)
DIR_MERGER_EXP	−0.620*	−0.677**	0.192	0.868*	0.834*	1.106**		−4.398*
	(0.349)	(0.343)	(0.501)	(0.520)	(0.488)	(0.497)		(2.529)
DIR_PRESENCE	−0.097	−0.148	−0.407	−0.047	0.176	0.217		3.943**
	(0.205)	(0.218)	(0.305)	(0.253)	(0.245)	(0.247)		(1.666)
RB_LOAN_GROWTH		0.015***		−0.004***		−0.005***		
		(0.001)		(0.001)		(0.001)		
TOBINS_Q	−0.237**	−0.242					−5.618***	−5.620***
	(0.104)	(0.149)					(1.409)	(1.410)
SALES_GROWTH	0.015***	0.015***					0.026	0.026
	(0.003)	(0.004)					(0.031)	(0.031)
ROA	0.087***	0.073***					0.297**	0.299**
	(0.016)	(0.018)					(0.130)	(0.130)
CASHFLOW	0.067***	0.090***					−0.479***	−0.481***
	(0.018)	(0.022)					(0.151)	(0.151)
SIZE	−0.855***	−1.005***	−0.870***	−0.452	1.167***	1.526***	0.801	0.660
	(0.168)	(0.196)	(0.263)	(0.295)	(0.229)	(0.249)	(1.476)	(1.482)
CASH	0.044***	0.055***	0.015	0.031***	0.004	0.010	−0.268***	−0.263***
	(0.006)	(0.007)	(0.013)	(0.010)	(0.008)	(0.008)	(0.068)	(0.068)
LEVERAGE	−0.048***	−0.048***	−0.068***	−0.066***	−0.077***	−0.071***	−0.406***	−0.406***
	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.047)	(0.047)
CASHFLOW_STD	−0.152***	−0.152***	−0.084	−0.110	−0.116**	−0.148**	0.022	−0.000
	(0.042)	(0.053)	(0.064)	(0.070)	(0.054)	(0.058)	(0.405)	(0.406)
DIVERSIFICATION	−0.431*	−0.350	−0.397	−0.644**	−0.706***	−0.940***	−0.500	−0.695
	(0.237)	(0.297)	(0.358)	(0.303)	(0.258)	(0.305)	(2.390)	(2.387)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RB × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	36,466	27,825	37,690	28,712	35,697	27,212	28,066	28,066
R^2	0.392	0.431	0.936	0.936	0.819	0.831	0.193	0.194
Panel B. Robustness Check								
MERGER_EXP	0.102	0.127	0.097	0.097	0.071	0.071	−2.219**	−2.174**
	(0.170)	(0.172)	(0.278)	(0.278)	(0.208)	(0.208)	(0.976)	(0.994)
DIR_MERGER_EXP	−0.680**	−0.700**	0.866*	0.866*	1.104**	1.104**	−2.931	−2.858
	(0.341)	(0.349)	(0.520)	(0.520)	(0.497)	(0.497)	(1.800)	(1.847)
DIR_PRESENCE	−0.152	−0.199	−0.045	−0.045	0.219	0.219	2.730**	2.749**
	(0.219)	(0.222)	(0.252)	(0.252)	(0.247)	(0.247)	(1.182)	(1.213)
RB_LOAN_GROWTH	0.022***	0.022***	−0.006***	−0.006***	−0.008***	−0.008***		
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)		
Robustness check	RC1	RC2	RC1	RC2	RC1	RC2	RC1	RC2
GROWTH_EFFICIENCY	Yes	Yes	No	No	No	No	Yes	Yes
FIRM_CHARACTERISTICS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RB × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	27,825	26,840	28,712	28,712	27,212	27,212	28,066	27,058
R^2	0.433	0.432	0.936	0.936	0.831	0.831	0.215	0.219

To further investigate the contribution of an ex-banker director in improving the markup and profitability ratio of a treated firm, we re-run equations (6) and (8) while restricting our sample firms to those whose loan from the top lender accounts for greater than 10% or 20% of total interest-bearing debt. Table A2 in the Supplementary Material reports the results. The estimated coefficients on DIR_MERGER_EXP are all positive and statistically significant. The reported coefficients in MARKUP regressions vary from 0.941 to 1.388, which corresponds to an increase of around 4% to 6% of the mean MARKUP. Similarly, the reported coefficients in EBITDA regressions vary from 1.262 to 1.576, which corresponds to an increase of around 14% to 18% of the mean EBITDA. With the larger coefficients relative to those in Panel A of Table 3, the results imply that the role of an ex-banker director becomes more pronounced in improving the markup and profitability ratio of treated firms when the stake of the relationship bank in the firm is larger.

Furthermore, we highlight the difference between an executive director from a non-executive one, where the former has representative rights and the latter does not. We re-run equations (5) through (8) by controlling for the presence of a non-executive director who was formerly affiliated with either merging bank. We define the variable NON_EXECUTIVE_DIR_MERGER_EXP, similar to DIR_MERGER_EXP, as the cumulative frequency of being affected by a connection-creating bank merger conditional on the fact that a non-executive director but not an executive director who was affiliated with either merging bank is present. Because we use the presence of an executive director formerly affiliated with either merging bank to construct DIR_MERGER_EXP, the connection-creating bank mergers counted by NON_EXECUTIVE_DIR_MERGER_EXP and DIR_MERGER_EXP are mutually exclusive. Controlling for both allows us to examine which ex-banker exerts its influence on the treated firm's outcome.[29]

Table A3 in the Supplementary Material presents the results. We find that the coefficients on NON_EXECUTIVE_DIR_MERGER_EXP are negative in column 1 and positive in column 2, but both are statistically insignificant. Also, we find that the coefficients are much smaller than those of DIR_MERGER_EXP in magnitude, implying the small effect of a non-executive ex-banker on the board in influencing the treated firm's investment. Similarly, the coefficients in columns 3–6 are positive but insignificant, suggesting the small effect of a non-executive ex-banker in affecting the treated firm's markup and profitability ratio. Our results imply that a common lender barely affects corporate policies through a non-executive ex-banker. By contrast, executive directors maintain their effects on corporate outcomes as the coefficients on DIR_MERGER_EXP are similar to the estimates in Panel A of Table 3.

In general, these results enable us to reconcile the debate over the influence of an ex-banker on a firm's management. Though Kaplan and Minton (1994)

[29]Because no data are available for NON_EXECUTIVE_DIR_PRESENCE before 1992, we impute NON_EXECUTIVE_DIR_PRESENCE using the presence of ex-banker directors we observe for the entire sample as follows: i) impute 0 for firms if their NON_EXECUTIVE_DIR_PRESENCE was always 0 and they existed in our sample period for over 15 years; and ii) impute 1 for firms if their NON_EXECUTIVE_DIR_PRESENCE was always 1 and they existed in our sample period for over 15 years.

emphasize the importance of an ex-banker in the monitoring and disciplinary role of the relationship bank, Miwa and Ramseyer (2006) doubt the contribution of an ex-banker to the relationship bank's control over the management of the borrowing firm. Our results are consistent with both in the sense that ex-bankers are important only if they have representative rights that allow them to exert influence over firm policies.

In summary, we find compelling evidence that an ex-banker director with sufficient power to affect a firm's management contributes to the effects of a connection-creating bank merger on corporate outcomes.

3. Loan Supply Channel

Although we find evidence that ex-banker directors might play a crucial role in affecting the corporate policies of treated firms after a bank merger, we do not reject the possibility that the loan supply adjustment by a relationship bank contributes to common lender effects. For example, in column 2 in Panel A of Table 3, we find a positive coefficient on RB_LOAN_GROWTH in the investment regression, and columns 4 and 6 show negative coefficients in the markup and profitability ratio regressions, respectively, suggesting that a decrease in the growth of credit from the firm's relationship bank may reduce its investment and improve its markup and profitability ratio. All the coefficients are statistically significant at the 1% level.

To fully examine the loan supply channel, we run equation (9) in which RB_LOAN_GROWTH is the dependent variable. Columns 7 and 8 in Panel A of Table 3 report the regression results. Both columns show that the coefficients of MERGER_EXP are negative and statistically significant at the 1% level. The coefficient of DIR_MERGER_EXP in column 8 is also negative and statistically significant at the 10% level. These results suggest that the growth of credit from the relationship bank not only decreases after the merger but also decreases further in the presence of an ex-banker director relative to firms in its absence. Taken together, our results are consistent with the possibility that an ex-banker director is involved in reducing the relationship bank's loan supply, which ultimately squeezes investment and improves the markup and profitability ratio of the treated firm.

Note that the coefficient of DIR_PRESENCE is positive and statistically significant at the 5% level. Unless a connection-creating bank merger occurs, the result suggests that the presence of an ex-banker director increases credit growth from the relationship bank, which is consistent with the view that an ex-banker director helps a firm maintain a good relationship with its lead bank to keep receiving credit. However, our result importantly suggests that credit growth is particularly reduced for treated firms with ex-banker directors, due to the coordination facilitated by common lenders.

4. Interest Expense Rate

To further investigate the loan supply channel, we examine how a common lender influences a firm's interest expense rate. For this purpose, we develop two competing hypotheses regarding the effect of a common lender on a firm's interest expense rate.

On the one hand, if a common lender reduces loan supply growth, loan rates should increase according to the standard theory of demand and supply. However,

TABLE 4

Bank Concentration and Interest Expenses

The dependent variable in Table 4 is INTEREST (interest expenses divided by total debt as a percentage). FIRM_CHARACTERISTICS includes SIZE, CASH, LEVERAGE, CASHFLOW_STD, and DIVERSIFICATION. FIRM_CHARACTERISTICS are 1-year lagged values. All potentially unbounded variables are winsorized at 0.5% and 99.5%. Robust standard errors clustered at the sector level (columns 1 and 2) and firm level (columns 3 and 4) are reported in parentheses. The number of observations and R^2 are given in the last 2 rows. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. See Table 1 for the definition of variables.

	Dependent Variable: INTEREST			
	1	2	3	4
BANK_INDUSTRY_HHI	4.245 (2.592)	2.222 (2.117)		
MERGER_EXP			−0.004 (0.214)	−0.155 (0.205)
SIZE		−0.723** (0.290)		−1.088*** (0.221)
CASH		0.061*** (0.015)		0.043*** (0.013)
LEVERAGE		−0.004 (0.006)		−0.001 (0.006)
CASHFLOW_STD		−0.025 (0.049)		−0.062 (0.050)
DIVERSIFICATION		0.227 (0.322)		0.030 (0.238)
Firm FE	Yes	Yes	Yes	Yes
RB × year FE	Yes	Yes	Yes	Yes
Industry × year FE	No	No	Yes	Yes
No. of obs.	29,414	24,972	31,466	24,829
R^2	0.694	0.710	0.757	0.776

the prior literature (e.g., Brander and Lewis (1986), Saidi and Streitz (2021)) also suggests that a common lender is incentivized to offset loan rate increases because doing so helps curb excessive competition among borrowers. Thus, if a common lender's reduced loan supply drives the decline in loan growth, the changes in loan rates should be limited because of the two offsetting effects. On the other hand, if the decline in loan growth reflects the decline in loan demand, loan rates should decrease in response. A common lender may further reduce loan rates to curb excessive competition among the borrowers (e.g., Brander and Lewis (1986), Saidi and Streitz (2021)). Taken together, we predict that loan rates should decrease if the decline in loan growth is demand-driven.

Because we cannot observe loan rates at the loan level, we use a firm's interest expense rate and estimate the effect of a common lender on it. We use equations (3) and (4) by replacing the dependent variable with a firm's interest expense rate. Our report in Table 4 shows that the impact of a common lender on a firm's interest expense rate is minimal and not statistically significant in general. This finding suggests that a decrease in the loan growth of a relationship bank reflects the decline in the common lender's loan supply, not the decline in loan demand.

5. Robustness

We start from examining whether our main results, Table 2, are robust to confounding factors due to potentially unbalanced covariates between treated and control firms. For this purpose, we present Table A4 in the Supplementary Material

with three robustness results. First, we drop borrowers from our control sample that were never affiliated with the banks involved in mergers between 1995 and 2004. Otherwise, these borrowers might become the source of imbalance because such control firms have relationship banks that differ from the banks involved in mergers. Panels A and B of Table A4 in the Supplementary Material report the results from the study corresponding to Panels A and B of Table 2. The point estimates for the coefficients of BANK_INDUSTRY_HHI in Panel A are almost the same as the benchmark estimates for the CAPEX regressions in Panel A of Table 2, while slightly larger for the MARKUP and EBITDA regressions. Panel B of Table A4 in the Supplementary Material also produces a result similar to the corresponding benchmark result.

Second, we focus on the potential imbalance of TOBINS_Q and LEVERAGE as suggested by Panel B of Table 1. Considering risky borrowers (highly levered borrowers with low Tobin's *Q*) may tend to have their relationship banks going through mergers and only merged relationship banks may disproportionately influence them, we intend to separate the effect of these confounding factors from that of a connection-creating bank merger (MERGER_EXP). For this purpose, we construct variables LOW_Q_EXP and HIGH_LEV_EXP as follows. In particular, LOW_Q_EXP is the cumulative frequency of a firm being affected by *any* (not necessarily connection-creating) bank merger conditional on the firm's TOBINS_Q in the previous year being low (LOW_Q = 1). LOW_Q is a dummy that equals 1 if the last year's TOBINS_Q of a firm was in the bottom tercile. Analogously, we define HIGH_LEV_EXP as the cumulative frequency of a firm being affected by any bank merger conditional on the previous year's LEVERAGE of a firm being in the top tercile (i.e., HIGH_LEV = 1). We reproduce Panel B of Table 2 under the control of LOW_Q_EXP and HIGH_LEV_EXP to eliminate the effect of the aforementioned confounding factors. Panel C of Table A4 in the Supplementary Material reports the result from this analysis.

Third, we adopt inverse propensity score weighting (e.g., Hirano, Imbens, and Ridder (2003), Arkhangelsky and Imbens (2018), and Yilmaz (2023)) to improve the covariate balance between treated and control firms.[30] For this purpose, we compute the propensity score of being treated during 1995 and 2004 at the firm level based on the firm's covariates, the average covariates of the firm's industry, and the average covariates of the firms sharing the same relationship bank in 1994.[31] First, we predict the propensity score using all variables to select the predictors that influence the propensity score at the 5% significance level. Then, we use the statistically significant predictors (in addition to the firm's covariates) to compute the final propensity score.[32] Using the inverse of the estimated propensity score as

[30]Because some (but few) firms were treated (affected by connection-creating bank mergers) multiple times between 1995 and 2004, we drop these firms from our original sample.

[31]Although we might want to include industry and relationship-bank fixed effects for better prediction of propensity scores, estimating a logit model consistently with many fixed effects is infeasible. To resolve this issue, following Arkhangelsky and Imbens (2018), we capture the characteristics associated with the firm's industry and relationship bank through the average covariates of the industry and the firms sharing the same relationship bank, respectively.

[32]The optimal procedure for choosing predictors for the propensity score is an open question. However, the literature suggests that including irrelevant predictors is undesirable (e.g., Bryson, Dorsett, and Purdon (2002)).

weights, we re-run equations (3) and (4) and reproduce Panel B of Table 2. The result from this analysis is reported in Panel D of Table A4 in the Supplementary Material.

In Panels B through D of Table A4 in the Supplementary Material, the estimated coefficients for MERGER_EXP range from −0.426 to −0.261 for the CAPEX regressions, comparable to the corresponding benchmark estimates in Panel B of Table 2. Moreover, these coefficients are statistically significant at the 5% or 10% level. For the MARKUP and EBITDA regressions, the estimated coefficients for MERGER_EXP range from 0.265 to 0.889, whereas the corresponding benchmark estimates in Panel B of Table 2, range from 0.387 to 0.526. Although the range for the estimated coefficients of MERGER_EXP might become wider than Panel B of Table 2, they are positive, and many of them are statistically significant at the 5% or 10% level. Thus, our benchmark results reported in Table 2 are unlikely to be influenced by confounding factors caused by potentially unbalanced covariates.

Regarding the channel regressions, we present multiple robustness checks in Panel B of Table 3 to ensure that our benchmark result in Panel A is robust. First, we winsorize RB_LOAN_GROWTH and SALES_GROWTH at 5% and 95% (instead of 0.5% and 99.5%) in the odd columns of Panel B and re-estimate the specifications for the even columns of Panel A. Second, in addition to winsorizing RB_LOAN_GROWTH at 5% and 95%, we redefine SALES_GROWTH as the change in the firm's revenue divided by its total assets and present the result in the even columns of Panel B.[33] Overall, the robustness results are similar to the results in the even columns of Panel A, indicating the outliers of loan growth and sales growth do not drive our benchmark result.

IV. Additional Analysis

A. Common Lender or Confounding Common Owner?

In Japan, relationship banks are often the owners of borrowers. Firms may have a common owner in addition to a common lender when their relationship banks merge. Although the dual-holding practice has been declining since the 1990s because of the globalization of financial markets, relationship banks often held the borrowers' stocks during our sample period. Although bank ownership is heavily regulated, we investigate the possibility that confounding common ownership might explain the effects of a shared lender we identified in the previous section.[34]

For this purpose, we assess the impacts of bank concentration on research and development (R&D) expenses and cash holding. If bank concentration exerts a

[33]Because we do not control for SALES_GROWTH, the estimates in columns 3 and 4 of Panel B are the same. For the same reason, those in columns 5 and 6 of Panel B are the same, too.

[34]Bank shareholding is regulated by the Antitrust Law and the Banking Act, which set the upper limit of 5% of outstanding shares (with exceptions such as the ownership of venture firms). It is also regulated based on the size of bank capital by the Large Credit Supply Regulation (under the Banking Act) and the Act on Limitation on Shareholding by Banks and Other Financial Institutions. Because of these regulations, confounding impacts of common ownership may be limited.

common owner effect instead of a common lender effect, treated firms should use resources saved from reduced investments for the interests of shareholders. Because shareholders are residual claimants, they prefer to capture the upside potentials of corporate innovations rather than allow firms to accumulate cash. However, lenders might want borrowers to have cash cushions to protect themselves against defaults. Therefore, if a common owner effect is stronger, we predict that treated firms would increase R&D, instead of cash, in response to a connection-creating bank merger.[35] Similarly, the bank concentration in the industry should be positively associated with R&D instead of cash. The opposite would occur if a common lender effect were stronger.

Using the same covariates as in our earlier tables, we estimate regressions using R&D in column 1 and CASH in column 2 as outcome variables in Table 5. Here, we measure R&D as research and development expenses divided by total assets (as a percentage).[36] We use the industry-level bank concentration variable in Panel A and the connection-creating bank mergers in Panel B. We find that the estimated coefficients of BANK_INDUSTRY_HHI and MERGER_EXP in the R&D regressions are all negative. For example, the estimated coefficient of BANK_INDUSTRY_HHI in column 1 of Panel A is around −1.16 and statistically significant at the 1% level, implying that a 1-standard-deviation increase in BANK_INDUSTRY_HHI is associated with a decrease in R&D by around 4% of the mean. We also find that the estimated coefficients of BANK_ INDUSTRY_ HHI and MERGER_EXP in the CASH regressions are positive. For example, the estimated coefficient (0.301) of MERGER_EXP in column 2 of Panel B is statistically significant at the 5% level, implying an increase in treated firms' cash holdings by 2.4% of the mean after a connection-creating bank merger. Overall, our results suggest that firms use saved resources from anticompetitive practices for the interests of debt holders, suggesting that common lenders rather than common owners drive the impacts of shared lending.

As a supplementary study, we assess the impacts of bank concentration on SALES_GROWTH and ROA. Table 5 reports our results for SALES_GROWTH in column 3 and ROA in column 4. As in columns 1 and 2, we use the industry-level bank concentration in Panel A and the cumulative frequency of being affected by a connection-creating bank merger in Panel B. The estimated coefficients of BANK_INDUSTRY_HHI and MERGER_EXP in the SALES_GROWTH regressions are slightly negative, and none are statistically significant, suggesting that a common lender is not incentivized to encourage their borrowers to increase sales to gain market share. Finally, we find that the corresponding coefficients in the ROA regressions are slightly positive, although none are statistically significant. These results suggest that an increase in a firm's profitability ratio caused by a common lender may improve a firm's efficiency, but the improvement seems limited. Overall, these additional results imply that firms influenced by a common lender neither adopt aggressive growth strategies nor improve their efficiency dramatically. The limited effects of a common lender on SALES_GROWTH and ROA also explain why controlling for these variables does not induce endogeneity concerns.

[35]This prediction is also consistent with López and Vives (2019).

[36]The mean and standard deviation of R&D are 2.02 and 2.24, respectively.

TABLE 5

Bank Concentration and Other Corporate Outcomes

The dependent variables in Table 5 are R&D, CASH, SALES_GROWTH, and ROA. The independent variables of interest are BANK_INDUSTRY_HHI in Panel A and MERGER_EXP in Panel B. GROWTH_EFFICIENCY includes TOBINS_Q, SALES_GROWTH, ROA, and CASHFLOW. FIRM_CHARACTERISTICS includes SIZE, CASH, LEVERAGE, CASHFLOW_STD, and DIVERSIFICATION. GROWTH_EFFICIENCY and FIRM_CHARACTERISTICS are 1-year lagged values. All potentially unbounded variables are winsorized at 0.5% and 99.5%. Robust standard errors clustered at the sector level (Panel A) and firm level (Panel B) are reported in parentheses. The number of observations and R^2 are given in the last 2 rows. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. See Table 1 for the definition of variables.

	R&D	CASH	SALES_GROWTH	ROA
	1	2	3	4
Panel A. Bank Concentration at the Sector Level				
BANK_INDUSTRY_HHI	−1.163***	0.365	−3.323	0.190
	(0.362)	(0.959)	(4.535)	(1.000)
TOBINS_Q	−0.115***			
	(0.033)			
SALES_GROWTH	0.001			
	(0.001)			
ROA	−0.002			
	(0.003)			
CASHFLOW	0.013**			
	(0.006)			
SIZE	0.030	−1.015***	−4.985***	−0.405***
	(0.072)	(0.175)	(0.801)	(0.140)
CASH	−0.002	0.620***	−0.028	0.034***
	(0.003)	(0.019)	(0.021)	(0.005)
LEVERAGE	−0.003*	0.002	−0.117***	−0.072***
	(0.002)	(0.003)	(0.010)	(0.004)
CASHFLOW_STD	−0.008	0.055*	−0.188*	−0.116***
	(0.016)	(0.030)	(0.111)	(0.040)
DIVERSIFICATION	−0.009	0.495**	−0.453	−0.309*
	(0.099)	(0.204)	(0.532)	(0.157)
Firm FE	Yes	Yes	Yes	Yes
RB × year FE	Yes	Yes	Yes	Yes
No. of obs.	10,901	37,829	37,828	37,829
R^2	0.938	0.797	0.282	0.417
Panel B. Connection-Creating Bank Merger				
MERGER_EXP	−0.029	0.301**	−0.082	0.137
	(0.090)	(0.137)	(0.340)	(0.104)
TOBINS_Q	−0.133**			
	(0.054)			
SALES_GROWTH	0.002*			
	(0.001)			
ROA	−0.002			
	(0.003)			
CASHFLOW	0.012**			
	(0.006)			
SIZE	−0.020	−1.135***	−4.966***	−0.402***
	(0.091)	(0.180)	(0.442)	(0.140)
CASH	−0.003	0.609***	−0.028*	0.034***
	(0.003)	(0.010)	(0.014)	(0.005)
LEVERAGE	−0.004**	−0.002	−0.117***	−0.072***
	(0.002)	(0.004)	(0.009)	(0.003)
CASHFLOW_STD	−0.021	0.053	−0.189*	−0.116***
	(0.015)	(0.042)	(0.101)	(0.037)
DIVERSIFICATION	−0.016	0.446	−0.442	−0.313*
	(0.092)	(0.284)	(0.522)	(0.167)
Firm FE	Yes	Yes	Yes	Yes
RB × year FE	Yes	Yes	Yes	Yes
Industry × year FE	Yes	Yes	Yes	Yes
No. of obs.	10,855	37,798	37,828	37,829
R^2	0.942	0.814	0.282	0.417

B. Financially Distressed Firms

A common lender is distinct from a common owner in that its incentive to coordinate its investees becomes stronger when the investees are financially distressed. If a common lender's borrowers are distressed, the values of loans granted to them become more sensitive to their fundamentals. The common lender therefore benefits more from the coordination of its distressed borrowers than from its healthy ones. We expect that the common lender promotes anticompetitive practices across distressed firms more aggressively. In particular, we anticipate that common lender effects on investment, markup, and the profitability ratio become more pronounced for financially distressed firms.

To examine this premise, we first estimate models that are similar to equations (1) and (2) while adding the interaction, BANK_INDUSTRY_HHI × DISTRESS, where DISTRESS is a dummy that equals 1 if the debt-to-EBITDA ratio of the firm was in the top tercile in the previous year.[37] Debt is measured as the total of long- and short-term debt obligations. The coefficient on the interaction indicates the incremental impact of the industry-level bank concentration on the outcome of a distressed firm relative to that of a healthy one.

Second, we estimate models that are similar to equations (5) and (6), while replacing DIR_MERGER_EXP with DISTRESS_MERGER_EXP and DIR_PRESENCE with DISTRESS, respectively. DISTRESS_MERGER_EXP is the cumulative frequency of being affected by a connection-creating bank merger conditional on being financially distressed in the previous year (DISTRESS = 1).[38] This variable captures the incremental effect of a connection-creating bank merger on the outcome of a distressed firm compared with that of a healthy one.

Because a common lender has stronger incentives to coordinate its borrowers who are closer to default, we expect stronger common lender effects for such firms. Regarding the investment regressions, we expect negative coefficients on BANK_INDUSTRY_HHI × DISTRESS and DISTRESS_MERGER_EXP. For the markup and profitability ratio regressions, we expect positive coefficients on BANK_INDUSTRY_HHI × DISTRESS and DISTRESS_MERGER_EXP.

Table 6 presents the regression results. Panel A reports the results with the industry-level bank concentration, and Panel B reports the results with the connection-creating bank mergers. For investments (CAPEX), columns 1 and 2 in Panel A of Table 6 show that the coefficients of BANK_INDUSTRY_ HHI × DISTRESS vary from −3.253 to −2.915 and are statistically significant at the 1% or 5% level, respectively. When firms face a 1-standard-deviation increase in BANK_INDUSTRY_HHI, distressed firms reduce their investments by around 10% of the sample mean relative to healthy firms, indicating a stronger effect of bank concentration in reducing corporate investment of distressed firms. Similarly, in Panel B, the coefficients of DISTRESS_MERGER_EXP range from −0.524 to −0.521 and are statistically significant at the 5% level. The coefficients imply that,

[37]Chava, Wang, and Zou (2019) use a similar definition of financial distress. The mean and standard deviation of the debt-to-EBITDA ratio are 5.90 and 10.86, respectively, after being winsorized at 0.5% and 99.5%.

[38]The mean and standard deviation of DISTRESS_MERGER_EXP are 0.06 and 0.24, respectively. The mean of DISTRESS_MERGER_EXP is around 40% of that of MERGER_EXP.

TABLE 6

Bank Concentration and Corporate Outcomes: Financial Distress

The dependent variables in Table 6 are CAPEX, MARKUP, and EBITDA. The independent variables of interest are the interaction BANK_INDUSTRY_HHI × DISTRESS in Panel A and DISTRESS_MERGER_EXP in Panel B. DISTRESS_MERGER_EXP is the cumulative frequency of being affected by a connection-creating bank merger conditional on being financially distressed in the previous year. DISTRESS is a dummy variable equal to 1 if, in the previous year, the debt-to-EBITDA ratio of a firm was in the top tercile where debt is measured as the total of long- and short-term debt obligations. GROWTH_EFFICIENCY includes TOBINS_Q, SALES_GROWTH, ROA, and CASHFLOW. FIRM_CHARACTERISTICS includes SIZE, CASH, LEVERAGE, CASHFLOW_STD, and DIVERSIFICATION. GROWTH_EFFICIENCY and FIRM_CHARACTERISTICS are 1-year lagged values. All potentially unbounded variables are winsorized at 0.5% and 99.5%. Robust standard errors clustered at the sector level (Panel A) and firm level (Panel B) are reported in parentheses. The number of observations and R^2 are given in the last 2 rows. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. See Table 1 for the definition of variables.

	CAPEX		MARKUP		EBITDA	
	1	2	3	4	5	6
Panel A. Bank Concentration at the Sector Level						
BANK_INDUSTRY_HHI	−2.220	−2.843**	2.455	2.116	1.610	1.703
	(1.339)	(1.366)	(2.800)	(2.561)	(2.173)	(2.080)
BANK_INDUSTRY_HHI × DISTRESS	−2.915**	−3.253***	5.754**	6.282***	7.189***	9.876***
	(1.305)	(1.229)	(2.439)	(2.364)	(2.182)	(2.203)
DISTRESS	0.026	0.397	−2.459***	−1.820***	−2.880***	−2.694***
	(0.242)	(0.250)	(0.427)	(0.397)	(0.368)	(0.358)
GROWTH_EFFICIENCY	Yes	Yes	No	No	No	No
FIRM_CHARACTERISTICS	No	Yes	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
RB × year FE	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	35,390	35,349	42,277	36,515	39,856	34,564
R^2	0.315	0.323	0.918	0.925	0.775	0.793
Panel B. Connection-Creating Bank Merger						
MERGER_EXP	−0.130	−0.137	0.319	0.270	0.310	0.244
	(0.159)	(0.161)	(0.240)	(0.233)	(0.206)	(0.203)
DISTRESS_MERGER_EXP	−0.521**	−0.524**	0.365	0.371	0.290	0.588**
	(0.206)	(0.210)	(0.423)	(0.399)	(0.271)	(0.262)
DISTRESS	−0.423***	−0.075	−1.225***	−0.650***	−1.401***	−0.833***
	(0.096)	(0.096)	(0.120)	(0.138)	(0.108)	(0.124)
GROWTH_EFFICIENCY	Yes	Yes	No	No	No	No
FIRM_CHARACTERISTICS	No	Yes	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
RB × year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry × year FE	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	35,340	35,301	42,275	36,473	39,847	34,509
R^2	0.392	0.399	0.934	0.939	0.811	0.827

after being affected by a connection-creating bank merger, distressed firms squeeze their investments by around 22% of the sample mean relative to healthy firms. In columns 3–6 of Panel A, the coefficients of BANK_INDUSTRY_HHI × DISTRESS are all positive and statistically significant at the 1% or 5% level. When BANK_INDUSTRY_HHI increases by 1-standard-deviation, MARKUP of distressed firms increases by around 2% of the sample mean relative to healthy firms, and EBITDA, by at least 8% relative to healthy firms. In Panel B, the coefficients of DISTRESS_MERGER_EXP are also all positive, although they are overall weaker than the corresponding coefficients in Panel A.[39] The coefficient of

[39]Note that we control for industry-by-year fixed effects in Panel B, but we do not do so in Panel A. The difference in the statistical significance of BANK_INDUSTRY_HHI × DISTRESS and DISTRESS_MERGER_EXP suggests that cross-industry variations substantively contribute to the identification of BANK_INDUSTRY_HHI × DISTRESS.

DISTRESS_MERGER_EXP in column 6 of Panel B is 0.588 and statistically significant at the 5% level, implying that financially distressed firms witness a further increase in EBITDA of around 7% of the sample mean after a connection-creating bank merger.

One may be concerned that only banks involved in mergers disproportionately influence their borrowers with a high distress level. In this case, this confounding effect may not be fully captured by the relationship-bank-by-year fixed effects. Furthermore, the effect of a connection-creating bank merger interacted with the firm's distress (BANK_INDUSTRY_HHI × DISTRESS and DISTRESS_MERGER_EXP) reported in Table 6 may merely reflect this confounding effect. To minimize this concern, we repeat the analyses in Table 6 by dropping borrowers who were never affiliated with any merged relationship banks between 1995 and 2004. Overall, the subsample results shown in Table A5 in the Supplementary Material are quantitatively similar to those in Table 6.

In sum, Table 6 demonstrates that bank concentration at the industry level and connection-creating bank mergers have a greater impact on distressed firms than on healthy firms. The results indicate that common lender effects become more pronounced in financially distressed firms.[40]

C. Heterogeneous Investment Effect

We next examine whether the investment effect is heterogeneous across firms in different business environments. For this purpose, we concentrate on the interaction between MERGER_EXP and the indicator for the presence of growth opportunities. We create an indicator variable PROXY based on whether the variable of interest that reflects the firm's growth opportunities is above the sector median. We use TOBINS_Q, ROA, and SALES_GROWTH as the variables that signify growth opportunities. For each of these variables, we estimate the following:

$$\begin{aligned}(10)\quad \text{CAPEX}_{ijt} = {} & \beta_1 \text{MERGER\_EXP}_{ijt} + \beta_2 \text{MERGER\_EXP}_{ijt} \times \text{PROXY}_{ijt-1} \\ & + \beta_3 \text{PROXY}_{ijt-1} + \beta_4 Z_{ijt-1} + \alpha_i + \gamma_{jt} + \delta_{bt} + \varepsilon_{ijt}.\end{aligned}$$

Under this setting, the coefficient of the interaction between MERGER_EXP and the indicator (MERGER_EXP × PROXY) captures the incremental effect of a connection-creating bank merger on the firm's investment when the firm has growth opportunities.

Table 7 reports the estimates from equation (10). Columns 1 and 2 present the results when we use TOBINS_Q as the proxy, columns 3 and 4 use ROA, and columns 5 and 6 use SALES_GROWTH. We find that the estimated coefficients of MERGER_EXP × PROXY range from −0.203 to 0.156 across proxies and specifications; none of them are statistically significant at the 10% level. This result suggests that a connection-creating bank merger does not disproportionately

[40]Because treated firms, on average, are smaller than control firms, one may be concerned that the effects documented in Section III.C.1 are consistent with merged banks strengthening bargaining power against weaker firms. However, using the same approach described in this section, we do not find any moderation effect of firm size on the common lender effects.

TABLE 7

Relationship Bank Merger and Corporate Investment Sensitivity to Growth Opportunities

The dependent variable in Table 7 is CAPEX. The independent variable of interest is the interaction between MERGER_EXP and an indicator for growth opportunities (PROXY). GROWTH_EFFICIENCY includes TOBINS_Q, SALES_GROWTH, ROA, and CASHFLOW. FIRM_CHARACTERISTICS includes SIZE, CASH, LEVERAGE, CASHFLOW_STD, and DIVERSIFICATION. PROXY is the indicator for TOBINS_Q, ROA, and SALES_GROWTH being greater than the sector median in the first 2, the middle 2, and the last 2 columns, respectively. GROWTH_EFFICIENCY and FIRM_CHARACTERISTICS are 1-year lagged. All potentially unbounded variables are winsorized at 0.5% and 99.5%. Standard errors clustered at the firm level are reported in parentheses. The number of observations and R^2 are given in the last 2 rows. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. See Table 1 for the definition of variables.

	CAPEX					
PROXY:	TOBINS_Q > Sector Median		ROA > Sector Median		SALES_GROWTH > Sector Median	
	1	2	3	4	5	6
MERGER_EXP	−0.311**	−0.296*	−0.398**	−0.382**	−0.348**	−0.359**
	(0.157)	(0.157)	(0.168)	(0.168)	(0.166)	(0.166)
MERGER_EXP × PROXY	−0.134	−0.203	0.156	0.113	0.008	0.041
	(0.195)	(0.198)	(0.164)	(0.163)	(0.156)	(0.156)
PROXY	0.168*	−0.216**	0.305***	0.134	0.441***	0.418***
	(0.086)	(0.092)	(0.083)	(0.083)	(0.078)	(0.078)
GROWTH_EFFICIENCY	Yes	Yes	Yes	Yes	Yes	Yes
FIRM_CHARACTERISTICS	No	Yes	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
RB × year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry × year FE	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	36,505	36,466	36,505	36,466	36,505	36,466
R^2	0.384	0.392	0.384	0.392	0.385	0.392

increase the investment of a treated firm with greater growth opportunities. Instead, the investment reduction by a common lender seems uniform in magnitude across firms facing various levels of growth opportunities.

D. Firms in Competitive Industries

In this section, we examine how the effect of a common lender depends on the industry's pre-merger competition intensity. If a common lender mechanically coordinates the same set of borrowers competing in the same industry, its effect increases with the market concentration level because higher market power strengthens the coordination effect. However, a common lender's incentives to coordinate its competing borrowers may decrease with the concentration level of the market because these borrowers are less likely to be distressed in oligopolistic industries. We thus conjecture that the effect of a common lender can both increase and decrease with the industry's pre-merger competition intensity.

To examine these possibilities, we separately estimate the common lender effect under competitive and concentrated industries. In particular, we run equations (1) through (4) with the subsample of firms in industries whose Herfindahl–Hirschman Index (HHI) is above 0.15 and that in the industries whose HHI is below 0.15.[41] We report the results in Table 8.

[41] A market with an HHI of less than 0.15 is considered a competitive marketplace by regulator, such as the U.S. Department of Justice. See https://www.justice.gov/atr/horizontal-merger-guidelines-08192010 for details.

TABLE 8

Bank Concentration and Corporate Outcomes: Pre-Merger Market Concentration

The dependent variables in Table 8 are CAPEX, MARKUP, and EBITDA. The independent variables of interest are BANK_INDUSTRY_HHI in Panel A and MERGER_EXP in Panel B. High (Low) HHI is a subsample of firms in industries whose HHI in the previous year is above (below) 0.15. GROWTH_EFFICIENCY includes TOBINS_Q, SALES_GROWTH, ROA, and CASHFLOW. FIRM_CHARACTERISTICS includes SIZE, CASH, LEVERAGE, CASHFLOW_STD, and DIVERSIFICATION. GROWTH_EFFICIENCY and FIRM_CHARACTERISTICS are 1-year lagged values. All potentially unbounded variables are winsorized at 0.5% and 99.5%. Robust standard errors clustered at the sector level (Panel A) and firm level (Panel B) are reported in parentheses. The number of observations and R^2 are given in the last 2 rows. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. See Table 1 for the definition of variables.

	CAPEX		MARKUP		EBITDA	
	High HHI	Low HHI	High HHI	Low HHI	High HHI	Low HHI
	1	2	3	4	5	6
Panel A. Bank Concentration at the Sector Level						
BANK_INDUSTRY_HHI	−3.133*	−5.385	4.353	6.106	5.292*	5.661*
	(1.671)	(3.848)	(3.146)	(4.969)	(2.749)	(3.329)
GROWTH_EFFICIENCY	Yes	Yes	No	No	No	No
FIRM_CHARACTERISTICS	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
RB × year FE	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	15,962	20,414	16,382	21,220	15,289	20,336
R^2	0.326	0.337	0.892	0.943	0.789	0.788
Panel B. Connection-Creating Bank Merger						
MERGER_EXP	−0.094	−0.406**	0.221	0.629**	0.772**	0.229
	(0.262)	(0.187)	(0.486)	(0.295)	(0.342)	(0.230)
GROWTH_EFFICIENCY	Yes	Yes	No	No	No	No
FIRM_CHARACTERISTICS	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
RB × year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry × year FE	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	15,931	20,408	16,355	21,216	15,250	20,332
R^2	0.427	0.381	0.918	0.950	0.833	0.813

Panel A of Table 8 shows that the point estimates for the common lender effects are larger overall for more competitive product markets when bank concentration is measured by BANK_INDUSTRY_HHI. In particular, columns 3–6 indicate that the effects on MARKUP and EBITDA are greater when the market is more competitive. Panel B reports the result using connection-creating bank mergers. For a common lender effect on investment, we find that the coefficient on MERGER_EXP is more significant for firms operating in more competitive industries. For the remaining outcomes, we see mixed results. In more competitive industries, a common lender has a larger effect on MARKUP but a weaker effect on EBITDA. Overall, although we find mixed results for EBITDA, our results show that the common lender effects on investment and markup seem stronger for more competitive markets, suggesting that a common lender may have greater incentives to coordinate its borrowers in competitive industries.

V. Conclusion

We present results showing that a common lender weakens within-industry competition. A common lender brings involved firms a reduction in investment and increases in markup and profitability ratio. We provide evidence that an ex-banker director on the board facilitates the common lender effect on corporate investment.

Our article suggests that a series of connection-creating bank mergers have induced new relationships between firms in Japan since the end of the 1990s when common lenders emerged for many firms due to the Japanese government initiating mergers of major banks. The new relationships between firms were also observable from alliances and merger talks between newly connected firms in the same industry. For example, a chemical giant in Japan, Sumitomo Chemical, attempted to merge with another giant, Mitsui Chemical, following the merger between their relationship banks (Sumitomo and Sakura) forming Sumitomo Mitsui Banking Corporation (SMBC), although the merger did not go through. In the steel industry, NKK, whose relationship bank was Fuji, and Kawasaki Steel, whose relationship bank was DKB, formed a strategic alliance, following the merger of their relationship banks forming Mizuho.[42]

The new relationships arising from those bank mergers might be surprising for commentators who suspected the mergers dissolved business groups (i.e., keiretsu) that traditionally had bound together lead banks, trading houses, and industrial firms into loosely linked conglomerates in Japan.[43] However, recognizing that, during the late 1990s and 2000s, Japanese companies (many of which competed in capital-intensive businesses that suffered from severe overcapacity) were slowly reinventing themselves by selecting and concentrating on a few core businesses is also important (Economist (2000)). Under such a business environment, newly merged banks can naturally play a crucial role in the horizontal coordination of firms in an industry, even if the traditional business groups might have lost their power.

Supplementary Material

To view supplementary material for this article, please visit http://doi.org/10.1017/S0022109023001084.

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[42]See Economist (2000) for more details.

[43]For example, Lincoln and Shimotani (2010) argue that keiretsu no longer constitutes a significant topographic feature of the Japanese economic landscape, although it was influential until the early 2000s.

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