

Holod, Dmytro; Peek, Joe; Torna, Gökhan

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Relationship Lending: That Ship Has Not Sailed for Community Banks

Dmytro Holod, Joe Peek, and Gökhan Torna

Abstract:

This study provides direct evidence of the value to banks arising from relationship lending by estimating the market premium placed on banking organizations' small business loan portfolios. Using data from the small business loan survey contained in the June bank Call Reports, we find that small commercial and industrial (C&I) loans add value to community banks both in absolute terms and relative to the value contributed by larger C&I loans. The value-enhancing effect of small business loans is observed primarily at small community banks, and it was present during the Great Recession as well as during periods of more normal economic conditions. Furthermore, the value creation emanates primarily from the smallest relationship-based C&I loans, those with original values of \$100,000 or less, and at the smallest community banks. By contrast, small commercial real estate (CRE) loans, being relatively more transactional than C&I loans, do not contribute additional value to community banking organizations. The evidence is consistent with a positive role played by small banks making relationship-based loans to small firms.

JEL Classifications: G21, G28, G31

Keywords: Small business lending, relationship lending, bank value, community banks, commercial and industrial (C&I) loans, commercial real estate (CRE) loans

Dmytro Holod (dmytro.holod@stonybrook.edu) and Gökhan Torna (gokhan.torna@stonybrook.edu) are associate professors of finance at the State University of New York at Stony Brook. Joe Peek (joe.peek@gmail.com) was a vice president and head of the macro-financial group in the Federal Reserve Bank of Boston Research Department when he coauthored this paper.

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1. Introduction

The development of long-term bank–firm relationships should provide benefits by reducing informational asymmetries, particularly when the borrowers are smaller, more informationally opaque firms. Less clear, however, is how these benefits are allocated between the lenders and the borrowers. While opaque, privately held small and medium enterprises (SMEs) can benefit from increased credit availability on better terms, relationship lenders potentially can exploit their informational monopoly over these firms by subjecting them to “hold-up” costs, whereby lenders extract the benefits for themselves by making loans on noncompetitive terms to informationally captured borrowers. Although an extensive literature has established that such borrowers tend to accrue substantial benefits, little direct evidence exists about the value of lending relationships to lenders. Instead, studies focusing on benefits to lenders tend to provide only indirect evidence about the value-enhancing effects of lending relationships on banks.

Moreover, even though relationship lending to small firms may have been profitable in the past, bank consolidation and technological advances have encouraged a shift from a reliance on soft information toward hard (quantifiable) information, such as the increased use of credit-scoring models for loan originations, that may have sharply reduced the use and profitability of soft-information-based relationship lending.¹ In fact, several studies document a rise in the use of credit scoring for small business lending, even among small and midsized banks (for example, DeYoung, Glennon, and Nigro 2008; DeYoung et al. 2011; Berger, Cowen, and Frame 2011). Still, some studies argue that a focus on relationship lending by well-managed community banks remains an economically viable strategy (for example, DeYoung et al. 2004; Beck et al. 2018; Chiorazzo et al. 2018).

Whether, or to what degree, relationship lending enhances the value of a banking organization, and thus its viability, is an important empirical question yet to be answered clearly in the literature. This study addresses this question by focusing on market premiums/discounts associated with banks’ small business loan portfolios, thus providing direct evidence of the value

¹ See Jagtiani and Lemieux (2016) for an overview of trends, challenges, and opportunities in the small business lending sector.

to banks of relationship lending. Because the great majority of U.S. banks, especially the smaller community banks that are more actively involved in relationship lending, are not publicly traded, we use the transaction prices for a set of target banks sold in merger and acquisition (M&A) deals in addition to the stock market values for a set of publicly traded banks to estimate the relationship between the book and market values of bank small business loan portfolios.

The results from our cross-sectional estimations suggest that small commercial and industrial (C&I) loans command a 23 percent purchase premium over their book values for the target community banks sold in M&A transactions during the 1994–2021 period. The value-enhancing effect of C&I loans comes primarily from the smallest size category of C&I loans, those with original amounts of \$100,000 or less, which are the most likely to be relationship-based. For those loans, the acquisition price premium is an even larger 39 percent of their book values. Moreover, because small C&I loans add value to community banks *relative to* large C&I loans that exceed \$1 million, the price premium cannot be easily attributed to an overall bank premium paid by the acquirer. Similarly, the results from our panel estimations for publicly traded banks point to a 31 percent market premium associated with small C&I loans with original values of \$100,000 or less. The premium, however, materializes exclusively when these loans are extended by community banks, particularly small community banks with book assets of less than \$2 billion that are more likely to rely on relationship lending rather than the use of credit-scoring models.² Furthermore, because they are more transactional and tend to rely on collateral rather than relationships, small CRE loans do not appear to enhance the market value of community banks more than do large CRE loans.

Notably, we observe the value-enhancing effect of small business lending not only under normal economic conditions, but also amid the 2007–2009 Global Financial Crisis (GFC), a period when access to credit was critical for SMEs. Earlier research shows that SMEs that had strong long-term relationships with community banks were the least affected by the crisis in terms of securing funding (Popov and Udell 2012; Jimenéz et al. 2012). DeYoung et al. (2015) show that

² Throughout the paper, we use the terms *banks*, *banking organizations*, and *bank holding companies* interchangeably, and define *community banks* as those with total assets of less than \$10 billion (see https://www.federalreserve.gov/supervisionreg/topics/community_banking.htm).

despite a substantial decline in business credit during the GFC, strategically focused community banks maintained higher levels of business lending to SMEs. Furthermore, Beck et al. (2018) find that relationship lending alleviates credit constraints during economic downturns, especially for small and informationally opaque firms in more severely affected regions. Our findings complement these studies by showing that relationship lending to small businesses benefited community banks during the GFC, helping them protect their franchise values during the most severe recession in the United States since the Great Depression.

Complementing the general consensus that relationship lending is crucial for borrowers dependent on bank financing, our findings underscoring the significance of small business lending in value creation for lenders, specifically community banks, contribute to this literature in several ways. First, unlike earlier studies that provide indirect evidence of the value-enhancing effects of relationship lending, we offer direct evidence by decomposing bank market valuations into premiums/discounts over the book values of the entire array of bank balance sheet items, including banks' small business loan portfolios. Second, we examine the value of small business lending to banks by studying not only stock price information of publicly traded banks, but also acquisition purchase price information contained in M&A transactions. Considering that acquired banks tend to be smaller community banks that are privately held, remarkably consistent findings from the two distinct yet complementary samples over the same time period substantially enhance the validity of our results, providing a more comprehensive and cohesive picture of the value of small business lending to community banks. Third, we build on earlier research highlighting the adverse effects of the GFC on banks' loan portfolios and present the first direct evidence that small business loans, unlike other loan categories, played a pivotal role in safeguarding the franchise values of community banks at the height of the financial turmoil, thus further highlighting the importance of relationship lending for community banks.

In what follows, Section 2 provides a brief discussion of relationship lending, emphasizing how and why it might add value to a banking organization and summarizing the literature that investigates the sources and magnitudes of any such value. Section 3 discusses the data and the specifications we employ in our empirical tests. Section 4 presents and discusses the empirical results. Section 5 concludes.

2. Background

Much of the literature on relationship lending focuses on asymmetric information problems associated with SMEs that are informationally opaque compared with large firms that are much more transparent. Small firms often have little or no collateral and, in many cases, are relatively young, lacking an extensive history from which future performance can be extrapolated. Because of their small size and the absence of substantial public information about their quality, such firms have virtually no access to external funds from national markets, such as through the issuance of commercial paper, bonds, or publicly traded equity. Therefore, small firms tend to depend primarily on banks for external funds. However, banks are not well informed about the credit risk associated with these informationally opaque firms when they receive an initial loan application. Therefore, the formation of bank–firm relationships requires that banks invest in acquiring and processing information, as well as in subsequently monitoring the activities of the firms to which they decide to lend.

Over time, the borrowing firm develops a private reputation with its lender based on the accumulated payment history of the borrower and other information gleaned from bank-monitoring activities. For example, a bank–firm relationship typically involves the bank providing various additional financial products and services to the borrowing firm. Such cross-selling of financial products and services to relationship borrowers facilitates the information-acquisition process of banks and strengthens the implicit long-term commitment to the relationships, in addition to enhancing bank revenues. By monitoring the business checking accounts of their dependent borrowers, banks can gather timely data on their cash inflows and outflows, payroll, working capital needs, and other major expenses, as well as the performance of account receivables (Nakamura 1993; Mester et al. 1998).

How might small business lending enhance bank value? First, relationship lending, unlike transactional lending, provides the bank with the opportunity to exploit the private information it acquires during the course of relationships (see, for example, Sharpe 1990; Rajan 1992; Stein 2002; Carter et al. 2004; Cole et al. 2004; Cortés et al. 2020).³ Second, the bank can benefit from its

³ Boot (2000) provides an overview of the issues associated with relationship lending by banks.

opportunities to cross-sell additional products and services, such as relatively inexpensive core deposit services and merchant banking services, to its relationship borrowers. Third, the value to banks from relationship borrowers reflects not only the profitability from current business with these customers, but also the profits that might accrue from future opportunities to continue and broaden the menu of offerings provided to these customers as the firms expand in size and scope.

A relationship bank can earn rents from informationally captured firms by exploiting the proprietary (and superior) information acquired through repeated interactions to measure more precisely the credit risk of these firms. It does so by charging an interest rate that is higher than justified by the level of credit risk an informed lender perceives yet lower than the interest rate other potential lenders would charge to compensate for the added risk associated with having less information about the firm. Thus, the firm has an incentive to remain with the relationship bank rather than defect and begin a new relationship with another lender, given that establishing new lending relationships can be costly and time consuming. Consequently, the hold-up costs imposed on these relationship borrowers enhance bank profits.

At least partly offsetting these benefits for banks are the costly information collection and processing activities required for relationship-based finance, especially given the expense associated with screening and monitoring SMEs. In particular, the advantage to the relationship bank arises from the opportunity to collect “soft” information, which is more difficult and more costly to verify, about smaller, relatively opaque firms, rather than the more widely available, less costly, and easier to evaluate “hard” (quantifiable) information available to potential lenders about larger, more transparent firms. Only the additional revenues received by a relationship bank beyond the compensation for its information production and monitoring efforts would add value for that bank.

By contrast, much of bank lending is transactional in nature.⁴ For example, many large banks, and some smaller banks, often lend to small firms using credit-scoring models, basing their loan decisions on quantifiable information rather than on private, more qualitative

⁴ See Berger and Udell (2006) for a discussion that classifies bank-lending technologies into relationship lending and five types of transactional lending: financial-statement lending, asset-based lending, factoring, fixed-asset lending, and small business credit scoring.

information acquired through direct interaction with the firm.⁵ Instead of making more subjective judgments based on direct interactions with a small firm, credit scoring applies statistical methods to quantifiable data, summarizing borrower characteristics to produce a score that can be used to evaluate the likelihood of repayment. Even though credit scoring can be applied to many small firms, lending to large firms remains quite different from lending to small firms because large firms tend to be more established, and lenders typically can evaluate more precisely the credit risk of the firm by using public information. Due to their relatively greater transparency, large firms typically have access to national debt and equity markets and can borrow from multiple banks under less restrictive loan contract terms than can small firms. Thus, financial statement lending to large, relatively transparent firms is unlikely to be a meaningful source of economic benefit to banks from bank–firm relationships established to reduce information asymmetries. Similarly, other transactions-based lending technologies, such as fixed-asset lending, are unlikely to benefit meaningfully from bank–firm relationships based on private information, since the technology for valuing collateral is relatively straightforward. Rather, the benefit to banks tends to arise primarily from economies of scale. For example, CRE lending to larger firms, which relies primarily on hard-information technology (such as appraisal values) as well as “originate-to-securitize” banking practices centered on relatively informationally transparent loans, may grant large banks an economies-of-scale advantage over smaller banks. This advantage, as Berger and Udell (2014) highlight, manifests in a value-enhancing comparative edge for large banks.

For the reasons outlined earlier, a bank can expect to receive greater value from an investment in forming and maintaining a relationship with a small firm than with a large, more transparent firm. And because large banks have greater potential to benefit from economies of scale in transactional lending, smaller banks would be expected to specialize in relationship lending, while larger, more complex banking organizations would be expected to specialize in transactional lending. Supporting this argument, Cole et al. (2004) find that large banks use

⁵ Several papers investigate the use of credit scoring models. These include Cole, Goldberg, and White (2004), Berger, Frame, and Miller (2005), DeYoung, Glennon, and Nigro (2005), DeYoung, Glennon, and Nigro (2008), DeYoung et al. (2011), and Berger, Cowen, and Frame (2011).

standard criteria, whereas small banks use information about the character of the borrower in their small business lending decisions. However, the actual distinction affecting decision-making practices is not necessarily bank size, but rather the organizational structure of the banking organization. For example, Stein (2002) argues that large hierarchies are better at processing hard information, while a decentralized structure is more conducive to using soft information, leaving the large hierarchical banking organizations, which tend to suffer from organizational diseconomies, at a comparative disadvantage in processing soft information. Similarly, Berger and Udell (2002) emphasize the agency problems associated with hierarchal organizational structures, especially for dealing with the soft information upon which relationship lending is based. In general, the literature concludes that small banks may have an advantage over large banks in relationship lending (see also, for example, Carter et al. 2004; DeYoung et al. 2004; Berger et al. 2005).

While the development of long-term bank–firm relationships certainly has the potential to provide benefits through a reduction in informational asymmetries associated with small opaque firms, the allocation of those benefits between the lenders and borrowers is unclear. In fact, previous studies establish that long-term lending relationships between banks and firms are valuable to small firms in terms of increased credit availability and protection against adverse credit shocks (for example, Petersen and Rajan 1994; Berger and Udell 1995; Cole 1998). More recently, Bharath et al. (2011) and Prilmeier (2017) find that lending relationships benefit small opaque firms via generally more favorable loan contract terms. And, even for large firms, the announcement of an origination or the renewal of a major bank loan has been shown to be a positive signal to the stock market (for example, James 1987; James and Wier 1990). Similarly, the termination (or increased probability of termination) of a lending relationship adversely affects a borrower’s market value (for example, Slovin et al. 1993; Dahiya et al. 2003).

On the other hand, there is relatively little direct evidence of the value of lending relationships to lenders. Instead, studies focusing on the potential benefits to lenders tend to offer only indirect evidence of the value-enhancing effects on banks. For example, even if lenders can leverage their informational advantage over relationship borrowers, it remains unclear whether the resulting “hold-up” revenues more than compensate for the costly information collection and

monitoring. Similarly, relationship lenders may share the benefits of cross-selling additional (current and future) products to relationship borrowers through discounted pricing. In terms of future business opportunities, Bharath et al. (2007) find that relationship lenders are much more likely than non-relationship lenders to provide future loans to their borrowers. This is especially true for smaller, unrated borrowers that suffer from greater informational asymmetry.⁶ However, it is worth noting that only very large banks might reap any potential benefits from being chosen as a lead underwriter. Smaller community banks, which are typically associated with relationship lending, tend not to be engaged in security underwriting activities.

The most likely way that banks can earn monopoly rents from informationally captured relationship borrowers is by increasing loan rates as the duration of the relationship lengthens. However, because the cost of monitoring decreases as a relationship progresses over time, a lender still can capture some of the value created by a relationship even if interest rates do not rise with the duration of the relationship. In fact, Petersen and Rajan (1994) find evidence consistent with banks capturing relationship value in this way. By contrast, Berger and Udell (1995) find that interest rates decline as relationships progress, although the important point for value creation for lenders is whether interest rates decline slower than the decay in costs of information collection and monitoring.⁷

By contrast, several studies find evidence that lenders raise interest rates as relationships progress, consistent with lenders exploiting the lock-in effect from having an informational monopoly over relationship borrowers. For example, Degryse and Van Cayseele (2000) find that interest rates rise with the duration of bank–firm relationships, although this effect is moderated to the extent that the relationship exhibits greater scope in terms of the firm purchasing additional products from the lender.

⁶ For larger borrowers, lenders with a prior relationship also have a much greater probability of being chosen as a lead underwriter for a public offering of debt or equity securities. See, for example, Ljungqvist et al. (2006), Bharath et al. (2007), and Yasuda (2005).

⁷ While Bharath et al. (2011) also find that loan spreads tend to decline with repeated borrowing from the same lender, especially for the relatively opaque borrowers, their loan sample focuses on syndicated loans to publicly traded firms rather than on smaller bank-dependent firms that are more likely to be subject to rent extraction from informational capture.

Of course, before a lender can exploit the lock-in effect, it must entice the firm to begin a relationship with the bank. Sharpe (1990) and Rajan (1992) argue that banks may initially offer below-market rates to firms, relative to their perceived credit risk, and only later be compensated by higher interest rates as the relationship progresses. Ioannidou and Ongena (2010) find such a pattern. When a firm switches to a new bank, the initial loan tends to have an interest rate substantially lower than the rates charged on comparable new loans to existing customers by the firm's new bank and its current banks. While the interest rate charged by the new bank tends to fall further during the first year of the relationship, perhaps to cement the relationship, the new bank soon begins to increase the interest rate so that the interest rate advantage from switching lenders evaporates and the firm is again exposed to hold-up costs. Moreover, this interest rate cycle is more pronounced for firms with greater potential to be exposed to hold-up costs, such as firms with greater informational asymmetries between existing lenders and potential new lenders.

Santos and Winton (2008) provide additional evidence that hold-up costs are tied to the ability of lenders to exploit their informational advantage. In particular, they find a business cycle effect whereby during recessions, lenders raise loan interest rates more for bank-dependent borrowers than for firms with access to public bond markets. Consistent with the idea that firms with access to bond markets are less exploitable by banks, Santos and Winton (2008) show that the differential increase in bank loan interest rates that they find is primarily due to hold-up costs rather than to the increase in borrower risk during recessions. Similarly, by comparing the interest rate spreads paid on loans by firms before and after the firms obtain access to public debt markets, Hale and Santos (2009) find direct evidence that firms' access to bond markets weakens bank lenders' ability to impose hold-up costs. They find that firms pay lower loan interest rate spreads after entering the bond market, that is, after a firm has a bond IPO. Moreover, the interest savings are greater for firms that obtain their first credit rating at the time of their bond IPO, consistent with a smaller increase in public information being associated with the bond IPO for those firms that had a credit rating prior to their bond IPO. Schenone (2010) takes a similar approach by focusing on equity IPOs, another information-releasing event that reduces the ability of a lender with private information to hold up a borrower.

Given banks' costs associated with collecting and processing information, and with monitoring borrowers subsequent to originating a loan, it is not clear that any rents extracted from relationship firms will be sufficient to provide relationship lenders with excess returns. To be value enhancing to the lender, the lending relationship must be profitable for the bank, either directly through the loans, through future business opportunities, or through cross-selling other products and services to borrowers. With respect to the profitability of the loans, Carter et al. (2004) find that small banks earn greater risk-adjusted returns on C&I loans than do larger banks, concluding that smaller banks have an advantage in small business lending based on soft information. This suggests that small business lending, at least by smaller banks, could be value enhancing to these banks. Looking at bank-firm relationships from a different angle, Puri et al. (2017) find evidence that banks that initially establish other (non-credit) forms of relationships with their customers are able to collect information that helps reduce default rates of future business loans to those customers.

On the other hand, Ergungor (2005) interprets his empirical results as being pessimistic about the prospect of relationship lending adding value to banks by profitably exploiting their monopoly position over small opaque firms. He uses data on small business loans made by community banks to investigate whether banks that were more actively involved in small business lending outperformed those banks that did less small business lending. He finds that for small community banks, the more active small business lenders earned lower risk-adjusted income and had less profitable business loan portfolios, although the amount of lending activity made little difference for large community banks. While issuing several caveats, he concludes that relationship loans by community banks likely do not add value to the banks.

3. Data & Methods

3.1. Data

The data for this study come from four separate sources. The primary data sources are (1) the Federal Reserve's Quarterly Consolidated Financial Statements for Holding Companies (FR Y-9C) and the Federal Reserve's Consolidated Reports of Condition and Income for individual

banks (Call Reports), (2) S&P Global Capital IQ merger transaction files, (3) the Federal Reserve Bank of Chicago’s merger database for banks and BHCs, and (4) the Center for Research in Security Prices (CRSP).

We obtain balance sheet and income statement data for each bank holding company and stand-alone bank from the Y-9Cs and Call Reports.⁸ The data for small business loans are obtained from the small business loan survey section of the June bank Call Reports (Schedule RC-C, Part II).⁹ The Small Business Lending Survey is conducted only once per year, beginning in June 1993. Furthermore, some of the explanatory variables (for example, trading assets and liabilities) can be consistently collected only starting from 1994. The Small Business Lending Survey provides information on loans with original balances of \$1 million or less in two different loan categories: commercial and industrial loans to U.S. addresses in domestic offices (C&I loans) and commercial real estate loans secured by nonfarm, nonresidential properties in domestic offices (CRE loans). In addition, information on farm-related loans with original balances of \$500,000 or less is collected for two categories: real estate loans secured by farmland in domestic offices and loans to finance agricultural production in domestic offices. The survey also disaggregates these loans into three size categories based on original loan amounts: \$100,000 or less, more than \$100,000 through \$250,000, and more than \$250,000 through \$1 million (more than \$250,000 through \$500,000 for agricultural and farm loans). The present study, however, focuses only on C&I and CRE loans as a form of business lending to capture the effect of bank–firm relationships on bank value.¹⁰ Our samples include both stand-alone banks and BHCs that have multiple bank subsidiaries. The data on small business loans are available only at the individual bank level;

⁸ The BHC asset-size threshold for filing the FR Y-9C increased several times during our sample period, from \$150 million to \$500 million in 2006, from \$500 million to \$1 billion in 2015, and from \$1 billion to \$3 billion in 2018. To avoid the loss of observations for BHCs that did not meet the minimum asset-size threshold for filing the FR Y-9C, we calculate the BHC-level series for those BHCs by aggregating balance sheet and income statement Call Reports data across the BHC’s bank subsidiaries, presuming small BHCs have little in the way of nonbank subsidiaries.

⁹ Schedule RC-C, Part II is titled “Loans to Small Businesses and Small Farms.” However, the data are based on the size of the loans, not the size of the borrower. Given the small size of the loans, it is safe to assume that the vast majority of the borrowers are small businesses or small farms, with many of the loans that are somewhat larger than the \$1 million threshold also going to small business borrowers.

¹⁰ For an average bank in our sample, the portfolio share of loans to farms is typically very small, with, on average, less than 1 percent of total assets devoted to agriculture-related loans. In fact, about one-third of the banks in our sample have no small farm loans in their portfolios.

therefore, we calculate our BHC-level small business loans by aggregating the small business loan data across a BHC's bank subsidiaries.

Since this study investigates the contribution of relationship lending to the banks' market values evident in the market premium or discount placed on small business loans held by the banks, the population of interest here depends on (1) the sample of target banks purchased in non-assisted M&A transactions and (2) the sample of publicly traded U.S. banking organizations for which market capitalization information is available. For the former, the Capital IQ merger transaction files provide both "total transaction value" (total consideration paid for the entire business, including the equity value and net assumed liabilities) and "implied equity value" of target banks paid by acquirers for 100 percent of target bank equity. Given that the majority of target banks during our sample period are privately held community banks, which are arguably more involved in relationship lending than large publicly traded banking organizations, this sample is particularly relevant for studying the value of relationship lending to banks. Capital IQ does not provide regulatory identification numbers (RSSDIDs), which are necessary to match these banks with the data from regulatory Y-9Cs and Call Reports; therefore, we exploit the Federal Reserve Bank of Chicago's merger database for BHCs and banks to obtain RSSDIDs by matching the names of targets and acquirers, their locations, and merger announcement dates. For the sample of publicly traded banking organizations, we use CRSP to retrieve the daily market price for the common stock of each banking organization and the total number of shares outstanding to calculate the average monthly market capitalization of the banking organization.

After merging market values of banks with regulatory filings, we obtain two samples for the empirical analyses in our study. The first sample consists of cross-sectional data for target banks acquired in M&A transactions. Since the transaction and implied equity values of target banks are announced at any time throughout a given year, we merge the market value data obtained from acquisition announcements with banking data from the *current* year's June reports if an acquisition is announced between July and December. If, however, an acquisition is announced between January and June, we merge the market value data with banking data from the *previous* year's June reports. The sample contains cross-sectional observations beginning in 1994 and ending in 2021. The second sample consists of annual longitudinal data for publicly

traded banking institutions. While the banking data in Y-9Cs and Call Reports are measured as of the end of June, they do not become publicly available until approximately September. However, the Securities and Exchange Commission requires publicly traded banking organizations to file 10-Q forms, which tend to become available earlier for market investors. Hence, we merge June banking data with the average of the daily market values for August. For robustness purposes, we also use September market values and obtain qualitatively very similar results. The sample contains annual observations that begin in 1994 and run through the end of 2021.

We implement several filters to clean the samples. Both samples exclude (1) foreign-owned banks, (2) banks located outside the continental United States, and (3) bank observations with negative values for assets, loans and leases, equity, and other balance sheet items. In line with earlier research (for example, Gatev and Strahan 2006; DeYoung et al. 2015), we exclude very small micro-cap banks by removing those with a book value equity of less than \$10 million. Further, to mitigate the noise in stock trading and bank valuations for publicly traded banks in our sample, we require them to be actively traded. In particular, we require non-missing daily prices during the month when bank market values are computed, and we require the market values for the banks to exist for at least three consecutive preceding years.¹¹ For the M&A target bank sample with cross-sectional data, we remove banks that had been in operation for less than three years.¹² Following earlier research (for example, Mehran and Thakor 2011), we exclude minority acquisitions of target banks whereby acquirers purchased less than 51 percent of a target bank. For the sample of publicly traded banks with longitudinal data, we remove bank-year observations in which the bank makes acquisitions to mitigate the noise resulting from an abrupt jump in bank assets and market values, consistent with Gatev and Strahan (2006) and DeYoung et al. (2015). Additionally, we remove all observations for banking organizations in both samples with book assets greater than \$100 billion to eliminate the effect on bank valuation of implicit guarantees and safety nets pertaining to too-big-to-fail banks. We also remove observations for

¹¹ The results remain similar when we require two or four consecutive years of market valuations.

¹² Following DeYoung and Torna (2013), we remove banks that are less than 3 years old because those banks' characteristics, risk-return relationships, and, in turn, valuations differ significantly from those of relatively established banks. Furthermore, the de novo banks could not yet have established long-term lending relationships with businesses.

bank holding companies with consolidated *nonbank* subsidiary assets greater than 10 percent of the total assets of the entire banking organization to avoid the potential effect of extensive nonbanking businesses on bank valuations.

Finally, for all variables in both samples, we remove observations with extreme values (outliers), defined as observations with values that are beyond the 99.5 and 0.5 percentiles on the tails of the distribution. After we apply these filters, our M&A target bank sample contains cross-sectional data consisting of a total of 982 acquisition target observations from 1994 to 2021, and our sample of publicly traded banks is an unbalanced panel that includes a total of 6,225 bank-year observations from 860 unique banking organizations from 1994 to 2021.

3.2. Specification

The key hypothesis tested in this study is that relationship lending in the form of small business loans held by banking organizations is value enhancing, both in absolute terms and relative to the large loans held by the same banking organizations. To test this hypothesis, we must relate small business lending activity to the market value of the banking organization. To do so, it is necessary to relate market value to either the book values of assets and liabilities or the flows of income they produce. One benefit of using book values is the ease of interpreting the estimated coefficients, with the deviation of the estimated coefficient of an asset (liability) component from one (minus one) indicating the value creation or destruction of that activity. However, income measures must be used for off-balance-sheet activities, since the notional values reported by banks are uninformative about the value of such activities.

The market value of the equity (MVE) of a banking organization is equal to the market value of on-balance-sheet assets (MVA), less the market value of on-balance-sheet liabilities (MVL), plus the net market value of off-balance-sheet (MVOBS) activities, plus the market's valuation of other characteristics (MVCHAR) of the banking organization, such as management quality and efficiency:

$$MVE = MVA - MVL + MVOBS + MVCHAR \quad (1)$$

Because market values for assets, liabilities, and off-balance-sheet activities are generally not reported by banking organizations, we must replace them with reported measures. For the most part, these are based on amortized costs, which will deviate from market values. The

magnitude of the deviation depends on the economic environment at the time and the quality of the bank's portfolio.¹³ Thus, dividing both sides of the equation by *the total book value of assets (TA)* to account for heteroscedasticity, we can rewrite Equation (1) empirically as:

$$MVE/TA = \sum a_i A_i - \sum b_j L_j + \rho FEE + \gamma' \mathbf{CHAR} + v + t + \varepsilon, \quad (2)$$

where the A_i 's represent the reported values of all categories of on-balance-sheet bank assets, scaled by the book value of total bank assets, and the L_j 's represent the reported values of all categories of on-balance-sheet liabilities, scaled by the book value of total bank assets.¹⁴ FEE , representing total noninterest income net of service charges on deposit accounts and net gains (losses) on sales of loans, leases, and other real estate owned, scaled by the book value of assets, serves as a proxy for the value of off-balance-sheet activities. \mathbf{CHAR} in Equation (2) represents a vector of bank characteristics, while v and t represent state fixed effects and time fixed effects when we run cross-sectional estimations using the M&A sample and bank fixed effects and time fixed effects when we run panel estimations using the publicly traded bank sample. The last term is the measurement or approximation error. This empirical framework can be used to infer market values for individual bank asset and liability categories using reported balance sheet and income data for banking organizations. Furthermore, this specification is consistent with previous studies investigating the valuation of banking organizations (for example, Kane and Unal 1990; Venkatachalam 1996; Barth et al. 1998; Flannery and Houston 1999; Kohlbeck 2004).

This specification accommodates a disaggregation of the total market premium or discount placed on banks into its components by estimating separate valuation coefficients for the individual portfolio categories of banks. In this framework, the premium or the discount (in the case of a negative premium) that the marketplaces on the respective asset category is given by $(a_i - 1)$. For liabilities, the premium or the discount would be $(1 - b_j)$, given that the model predicts negative coefficients on liability terms. To the extent that the a_i 's and b_j 's differ from unity,

¹³ Certain balance sheet items, such as securities, are reported at "fair" value rather than at amortized cost.

¹⁴ Note that the set of asset and liability categories spans the entire balance sheet items satisfying the balance sheet identity. Since many categories are correlated with other categories, a specification that excludes some asset or liability items could suffer from severe omitted variables bias, as the estimated coefficients on the included variables would partially reflect the effects of the omitted (and correlated) categories.

the activity associated with the asset or liability category can be thought of as adding value to, or subtracting value from, the banking organization. Since most of these asset and liability holdings are reported at their book values, we expect some of the estimated coefficients to deviate from (plus or minus) unity, reflecting the extent to which the book values of the on-balance-sheet assets and liabilities deviate from their market values. However, the reported values of certain asset and liability categories will be expected not to deviate from their market value. These would include categories reported at fair value, such as securities holdings and tradable assets and liabilities, as well as very short-term maturity categories, such as federal funds sold or purchased.

Why do market participants discount some on-balance-sheet assets and/or liabilities while valuing others at a premium? There are two main sources of such deviations. First, unanticipated changes in prices, interest rates, exchange rates, economic conditions, or borrower credit risk after the bank assets and liabilities have been originated or purchased can cause unrecognized (in book values) gains and losses. Second, the economic value of unbooked intangible assets closely associated with on-balance-sheet financial instruments contributes to the market capitalization of these instruments.¹⁵ Thus, the values of these intangible assets should be included in the market capitalization of the assets or liabilities with which they are associated, causing their market values to deviate from their book values. Examples include lending relationships and demand deposit relationships, as well as the implicit value of deposit insurance guarantees.

For our purposes, the extent of a bank's existing long-term relationships is assumed to be related to the degree to which a bank participates in small business lending. Insofar as informational asymmetries are likely to be more severe for small firms than for large firms, the use of small business loans as an indicator of long-term bank-firm relationships is appropriate. Thus, the key identifying assumption used to investigate the value of lending relationships to banks is that such value is reflected in the relative valuations of small business loans compared with the valuations of larger loans.¹⁶

¹⁵ Under Generally Accepted Accounting Principles (GAAP), intangible assets are not recorded unless they are purchased as part of a business combination transaction.

¹⁶ It is important to note that while most large loans are made to large businesses, some large loans are made to small businesses, given the low threshold size of \$1 million for small loans, and, unfortunately, we cannot identify those larger relationship-based loans. The presence of relationship-based loans in our large-loan category introduces a downward bias to the estimated size of the differential value of loans to small firms versus large firms in our estimation.

Consequently, this study focuses specifically on the estimated values of the a_i 's associated with bank holdings of small business loans, with the key hypothesis tests being whether these estimated coefficients are significantly greater than unity and whether the effects on a bank's market valuation differ significantly from the effects of large loans of the same type. If so, then small business lending adds to the market value of banking organizations, either in absolute terms, relative to large loans, or both. It is important to consider the relative as well as the absolute effects because the specification better controls for the average effects of changes in the economic environment (such as business cycles, unexpected changes in interest rates, etc.) on all business loans.

Although we include two categories of small business loans—C&I and CRE—our primary focus is on small C&I loans, for which repetitive loan origination decisions are more likely to be based on private information arising from long-term relationships. Small CRE loans, on the other hand, tend to be more transactional in nature, since they are a form of asset-based lending, with the real estate itself serving as collateral. Therefore, we might not expect such lending to be particularly value enhancing to the lender, other than from, for example, economies of scale. For exposition purposes, our empirical specification shows individual coefficients only on business loans (coefficients β_1 through β_4) and denotes all other assets as OAI 's, with their respective coefficients denoted as δ_i . Furthermore, given our focus on bank assets, we put the bank liability terms on the left-hand side, which makes our dependent variable, $(MVE + \sum L_j)/TA$, a Tobin's Q. The resulting baseline specification (Equation 3) is as follows:

$$\begin{aligned} \text{Tobin's Q} = & \beta_1 LGC\&I + \beta_2 SMC\&I + \beta_3 LGCRE + \beta_4 SMCRE + \sum \delta_i OAI \\ & + \varphi FEE + \lambda' CHAR + v + t + \varepsilon \end{aligned} \quad (3)$$

For robustness, we also experiment with specifications in which the liability items (Li 's) are on the right-hand side and the dependent variable is MVE/TA . Such a specification (Equation 4) offers insights into the market premia/discounts associated with various liability categories.

$$\begin{aligned} MVE/TA = & \gamma_1 LGC\&I + \gamma_2 SMC\&I + \gamma_3 LGCRE + \gamma_4 SMCRE + \sum \theta_i OAI - \sum \mu_i Li \\ & + \vartheta FEE + \rho' CHAR + v + t + \varepsilon \end{aligned} \quad (4)$$

In Equations (3) and (4), we include large C&I (*LGC&I*) and large CRE (*LGCRE*) loans as well as small C&I (*SMC&I*) and small CRE (*SMCRE*) loans, each scaled by total book value of assets. After estimating Equation (3), we test if $\beta_2 - \beta_1 = 0$ or $\beta_4 - \beta_3 = 0$ to gauge whether the estimated coefficients on *SMC&I* or *SMCRE* reflect added value above and beyond the corresponding large C&I or CRE loans. We implement similar tests for Equation (4).

Given the cross-sectional nature of the sample of target banks sold in M&A transactions, we cannot include bank fixed effects in our estimations, but we include time fixed effects and state fixed effects to soak up state-level macroeconomic conditions and market microstructure (for example, state-level banking regulation, competition, taxation, etc.) that may affect the purchase prices of target banks. We cluster the standard errors at the acquirer level to account for heteroscedasticity and the possibility of correlated errors, given that several banking institutions made multiple acquisitions during the sample period, consistent with Mehran and Thakor (2011). For our panel data estimations based on the longitudinal sample of publicly traded banks, we include time fixed effects and bank fixed effects, which allow us to additionally control for unobserved time-invariant bank characteristics, and we cluster the standard errors at the bank level to obtain heteroscedasticity-consistent estimators.

To make our equations operational, we need to specify and define not only the dependent variable, but also the various categories of assets and liabilities, off-balance-sheet activities, and the vector of other relevant bank characteristics. The variables used in Equations (3) and (4) are defined in detail as follows:

3.2.1 Dependent Variables

The dependent variable in our baseline specification, Equation (3), is Tobin's Q, defined as the market value of equity of the banking organization plus the bank's book debt in the form of borrowed money and deposits, subordinated notes and debentures, noncontrolling minority interests, preferred stock, and other liabilities divided by its total book value of assets (*TA*). Earlier research extensively uses Tobin's Q as a proxy for total business or franchise value (Keeley 1990;

Demsetz et al. 1996; Cronqvist and Nilsson 2003; Villalonga and Amit 2006; Mehran and Thakor 2011).¹⁷ As an alternative to Tobin's Q, in Equation (4), we employ MVE/TA as our dependent variable, defined as the market value of equity divided by the book value of assets, consistent with Mehran and Thakor (2011). As explained in the previous sections, we use the data on bank M&A transactions to investigate the value of small business loans to smaller community banks that are mostly privately held. Therefore, for our M&A sample, the dependent variables are constructed using the "Implied Equity Value" of target banks based on the acquisition price paid by the acquirer for 100 percent of target bank equity. Furthermore, we explore whether small business loans contribute to the bank's stock market value for those banks that are publicly traded. The dependent variables in our sample of publicly traded banks are constructed using bank stock market values of equity, measured as the average of daily market values for August (or September as a robustness check), since the banking data are measured at the end of June and publicly released with a lag, as noted earlier.¹⁸

3.2.2 On-Balance-Sheet Assets and Liabilities

Each of the balance sheet items is scaled by the book value of total assets (TA). In addition to C&I and CRE loans, the asset categories include other loan categories, such as construction, land development, and other land loans ($CSTR$); one- to four-family residential loans (RES); multifamily residential loans ($MULT$); loans secured by farmland, defined as the combination of loans to finance agricultural production and other loans to farmers ($FARM$); consumer loans, including credit card loans ($CONS$); and other loans and leases ($OTHLNS$). The last category includes all remaining loan types, such as loans to depository institutions, foreign loans, and loans to foreign governments, and leases.

¹⁷ *Bank franchise value* is technically defined as bank value net of replacement cost. Keeley (1990) and Demsetz et al. (1996) empirically measure the latter as $(MVE+book\ debt)/(TA-goodwill)$. Our results are very similar when we use this measure; thus, we do not report them separately. They are available upon request.

¹⁸ Similarly to our approach, Mehran and Thakor (2011) employ both Tobin's Q and MVE/TA as the dependent variable in an attempt to study the relationship between bank capital and value. Also note that apart from earlier research, Mehran and Thakor (2011) attempt to incorporate the market value of debt in lieu of the book value of debt when calculating Tobin's Q. However, as the authors acknowledge, the market value of debt is available "for very few banks." Therefore, they instead use the book values of debt for those banks. They further acknowledge that for banks that have information on their market value of debt and book value of debt, the difference between the two is "minimal" and "the ratio of debt market to book values is close to 1."

In addition to these loan categories, we include securities at fair value (*SEC*), trading assets (*TRADA*), reserves (*RESV*), net federal funds sold and securities repurchased under agreements to resell (*FF*), other real estate owned (*OREO*), premises and fixed assets (*FIX*), intangible assets (*INTAN*), and miscellaneous assets (*MiscA*), including investments in unconsolidated subsidiaries and other minor assets reported in Schedule RC-F. In addition, we include two measures of problem loans, nonperforming loans and other assets (*NPL*) and the loan loss reserve (*LLR*). Liability components include core deposits (*CORE*), other deposits (*OTHDEP*), trading liabilities (*TRADL*), and all other liabilities (*OTHLIAB*).

3.2.3 Off-Balance-Sheet Activities and Other Bank Characteristics

Off-balance-sheet activities are proxied by the fee income (*FEE*) generated by these activities, and the variable is scaled by the total book value of assets. This variable includes total noninterest income less any items not attributable to off-balance-sheet activities, such as service charges on deposit accounts, net gains on sales of loans and leases, and net gains on sales of other real estate owned.

The set of other bank characteristics includes bank asset concentration within the banking organization (*LHERF*) and operating (noninterest) expense relative to operating income (*OPEXPtoOPINC*) as a proxy for bank operational efficiency. For consistency of the estimated equation with Equation (1), one can think of each variable in the vector *MVCHAR* as having been multiplied by *TA*, so that *TA* cancels out when all variables in the equation are scaled by *TA*. As a part of bank characteristics, we also include size dummy variables that sort bank total assets into deciles.

As noted, a subset of the on-balance-sheet asset and liability categories are reported at fair values that should approximate their market values. Thus, the coefficients on such assets and liabilities are expected to be equal to one and minus one, respectively. We therefore restrict the estimated coefficients on *RESV*, *SEC*, *FF*, and *TRADA* to be equal to one and the coefficient on *TRADL* to be equal to minus one. We were not able to reject these restrictions, as none of the estimated coefficients on those variables in the unrestricted specification was statistically significantly different from one (minus one for *TRADL*).

For the estimations depending on the M&A sample only, we also control for merger-specific variables that are commonly used in the M&A literature and that are deemed to affect bank valuations, such as acquisition percentage (*ACQ%*) and relative size of target firm compared with the size of acquirer (*RELSIZE%*), as well as the percentage of cash offered in the total purchase price of a target bank (*CASH%*).

Table 1 shows the distribution of bank observations by asset-size class and across two sub-periods: GFC versus non-GFC periods. As Table 1 makes clear, the vast majority of observations in both of our samples, especially in our M&A sample, belong to community banks. Furthermore, as Panel A of Table 1 indicates, while there were some acquisitions during the GFC period (2008 through 2010), the overwhelming majority of the deals took place during the non-GFC period. For instance, we have full information for only 34 community banks and four larger banks that were acquired during the GFC. The lack of bank acquisition activity during the crisis makes it difficult for us to differentiate between the effects of small business lending on target bank values during this period versus the effects during the noncrisis period. Therefore, we focus on the full sample period for M&A transactions analyses and use only the sample of publicly traded banks to explore the value of relationship lending during the GFC versus the non-GFC periods.¹⁹ Table 2 presents information about the number of small business loans as a percentage of total loans in the same category for C&I loans and for CRE loans. The information encompasses both the proportions of total small business loans and the breakdown into sub-loan-size categories. Table 2 reveals that small C&I loans constitute 64 percent of all C&I loans for an average community bank sold in M&A deals, and 59 percent for an average publicly traded community bank in our sample, suggesting that (1) small C&I loans dominate our banks' C&I loan portfolios and (2) a typical community bank tends to be more focused on small C&I loans. As for CRE loans, while small C&I loans comprise the majority of our banks' C&I loan portfolios, small CRE loans tend to play a lesser role in our banks' CRE loan portfolios. They constitute only 43 percent to 48 percent

¹⁹ As a robustness check, we also exclude the COVID-19 pandemic period, 2020 through 2021, from our sample, because banks might have perceived increased risk during the pandemic, and therefore may have been less willing to lend. We show the results of this robustness check in Appendix 2A and 2B.

of all CRE loans in our samples, and CRE loans of \$100,000 or less account for only about 4 percent.

4. Estimation Results

4.1. Results from Cross-sectional Estimations Based on M&A Target Bank Sample

We start our analyses by investigating how small business loans contribute to transaction multiples of target banks sold in M&A deals. One of the main advantages of focusing on M&A transaction multiples is that we can observe market premiums/discounts for smaller, non-publicly traded community banks, which are the most likely to be involved in relationship lending with smaller businesses. We define Tobin's Q for a target bank sold in an M&A transaction as the implied market value of bank equity paid by acquirers for 100 percent of the target bank's equity plus the book value of the target bank's liabilities, scaled by the total book value of the target bank's assets. By the same token, we define MVE/TA as the implied market value of bank equity paid by acquirers for 100 percent of the target bank's equity, scaled by the total book value of the target bank assets.

Table 3 displays the descriptive statistics both for the 982 target banks sold in M&A transactions from 1994 to 2021 and for our sample of publicly traded banks for comparison. The summary statistics in Table 3 are obtained after all the filters are applied and all outliers are removed, as described in Section 3.1. The definition of each variable is provided in Appendix 1. The average values of both Tobin's Q and MVE/TA for target banks are about 1.06 and 0.18, respectively, which are larger than the average values of Tobin's Q (1.02) and MVE/TA (0.14) derived from stock market information for publicly traded banks.²⁰ This is not surprising, since valuations derived from transaction multiples based on M&A transactions tend to result in a higher multiple range than valuations based on stock market multiples for at least two reasons: (1) the control premium paid by an acquirer when purchasing a target firm and (2) anticipated synergies as a result of an acquisition (Rosenbaum and Pearl 2013). Furthermore, the average

²⁰ Demsetz et al. (1996) also report an average Tobin's Q of 1.02 for publicly traded U.S banks, suggesting that the market value of assets for an average publicly traded bank exceeds the book value of assets, on average, by just 2 percent.

asset size of \$2.19 billion for target banks acquired (the median is \$518.70 million) is substantially smaller than that of \$5.85 billion (median of \$1.8 billion) for the publicly traded banks, suggesting that banks sold in M&A transactions in our sample are predominantly community banks, the majority of which are indeed privately held.²¹ Hence, we are able to explore the value of small business loans to smaller, relatively opaque community banks, which are the most likely to engage in relationship-based lending to small businesses.

Table 4 displays the results from the cross-sectional estimation of Equation (3), with Tobin's Q as the dependent variable (Columns 1 and 2), as well as Equation (4), with *MVE/TA* as the dependent variable (Columns 3 and 4). The specifications across all columns in Table 4 include not only time fixed effects but also state fixed effects. For completeness, Columns 1 and 3 show the results for all target banks in our sample, regardless of their asset size. However, we focus our discussions primarily on community banks (Columns 2 and 4), which represent 96 percent of all acquisitions in our sample.²² In Table 4 and throughout the rest of the paper, in addition to using the "stars" to indicate that a coefficient is statistically different from zero, we use "a," "b," and "c" superscripts to indicate a statistical difference from unity for balance sheet asset items at the 1 percent, 5 percent, and 10 percent significance level, respectively. Likewise, we employ "d," "e," and "f" superscripts to indicate a statistical difference from minus unity for balance sheet liability items at the 1 percent, 5 percent, and 10 percent significance level, respectively.

The point estimates for the loan categories shown in Table 4 tend to be very close to unity, although a few of the estimated coefficients do differ significantly from unity, as indicated by the superscripts. Focusing on Equation (3) with Tobin's Q as the dependent variable, Column 2 in Table 4 shows that the estimated coefficient on *SMC&I* is 1.2097^{***a}, suggesting a 21 percent premium in M&A transactions, whereas the coefficient on *LGC&I* is smaller and not statistically different from unity, indicating no appreciable added value by large C&I loans. To evaluate the *differential* value added by *SMC&I*, compared with *LGC&I*, at the bottom of Table 4, we test if the difference in the coefficients on *SMC&I* and *LGC&I* is statistically significant. The estimated difference, 0.2161^{**}, is not only statistically significant, but also economically significant,

²¹ Publicly traded target banks constitute 36.76 percent of all acquisitions in our sample.

²² As shown in Table 1, our sample includes only 39 large-bank acquisitions (assets > \$10 bil.).

suggesting that small C&I loans command, on average, a 22 percent purchase price premium relative to large C&I loans for the community banks in acquisition transactions. This implies that community banks' expertise in originating and monitoring small C&I loans does add to their market values, as these banks tend to be in a better position to exploit the private information accumulated over the course of relationships with smaller, opaque borrowers. Unlike small C&I loans, small CRE loans are not associated with any market premium either in absolute terms or in comparison with large CRE loans. Large CRE loans, on the other hand, are valued at approximately \$1.05 per dollar of their book value, differing significantly from unity (as indicated by the superscript *b*) perhaps arising from economies of scale.

With respect to the other components of the asset side of the balance sheet, *CSTR* has estimated coefficients that are greater than unity, indicating that construction and development loans accrue value to banking institutions, perhaps arising as compensation for their higher riskiness. By contrast, *MULT* and *INTAN* have coefficients that are statistically smaller than unity, suggesting that these assets contribute to banks' acquisition price less than they contribute to their book values.

With respect to measures of problems in the asset portfolio, the estimated coefficients on other real estate owned (*OREO*), nonperforming loans (*NPL*), and loan loss reserves (*LLR*) suggest a value-destroying effect, as expected, signaling further potential loan problems. Off-balance-sheet activities, proxied by *FEE*, have no significant effect on bank values for community banks, which is not surprising, given that community banks' involvement in off-balance-sheet activities is substantially limited. On the other hand, increased operating expenses relative to total income (*OPEXPtoOPINC*), as a proxy for operational and managerial inefficiency, significantly reduce bank values.

The results of estimating Equation (4) with *MVE/TA* as the dependent variable are generally consistent with the baseline results in that they confirm the value-enhancing effect of small C&I loans for community banks (Column 4 of Table 4). While no significant acquisition purchase price premium is associated with large C&I loans, each dollar of small C&I loans (*SMC&I*) originated by community banks results in a 22 percent acquisition price premium, adding 24 cents per dollar of small loans more to overall bank value compared with large C&I

loans. One of the advantages of Equation (4) is that it allows us to observe the effects of various bank liabilities on the implied bank equity values. As seen in Column 4, each of the estimated coefficients on the liability terms is negative, providing suggestive evidence for a well-identified empirical specification. One notable finding, as denoted by superscript “*d*,” is that each dollar of core deposits (*CORE*) on a bank’s balance sheet reduces its implied equity value by only 92 cents, consistent with acquirers perceiving core deposits as a valuable component of liabilities that provides banks with stable and relatively inexpensive funding and perhaps helps build relationships with customers.

To further explore the value of small business lending to community banks, we decompose small C&I and small CRE loans into two subcategories for each loan type: (1) C&I and CRE loans with original amounts of \$100,000 or less, denoted as *SM1C&I* and *SM1CRE*, respectively, and (2) C&I and CRE loans with original amounts of more than \$100,000 through \$1 million, denoted as *SM2C&I* and *SM2CRE*, respectively.²³ The partial results of estimating Equations (3) and (4) with small business loans split into subcategories are shown in Table 5. Focusing on estimates from Equation (3) for community banks (Column 2), we observe that the smallest C&I loans, *SM1C&I*, are associated with the largest acquisition price premium. In particular, C&I loans with original amounts of \$100,000 or less are associated with an acquisition premium of 39 percent of book value and a statistically significant 39 percent premium relative to large C&I loans, as indicated at the bottom of Table 5. By contrast, C&I loans with original amounts of more than \$100,000 through \$1 million (*SM2C&I*) provide a 17 percent premium. The small CRE loans (either *SM1CRE* or *SM2CRE*), on the other hand, do not command any acquisition price premium over their book value, nor do they generate any value relative to large CRE loans. The estimates from Equation (4) are qualitatively similar (Column 4). The finding that

²³ As we mention in the Data section, the Small Business Lending Survey disaggregates loans into three size categories based on original loan amounts: \$100,000 or less, more than \$100,000 through \$250,000, and more than \$250,000 through \$1 million. For our purposes, it is important to isolate the value-enhancing effect of the smallest loans (\$100,000 or less) because for community banks, those loans are the most likely to be relationship-based. We therefore put those loans into a separate category. As for the loans with original amounts greater than \$100,000, we experimented with putting them in two separate size categories (more than \$100,000 to \$250,000, and more than \$250,000 to \$1 million) or combining them into one size category (more than \$100,000 to \$1 million), and we found that in most of our analyses, those loans do not add value to banking organizations, regardless of the groupings. To avoid unnecessary clutter in the tables, we use the combined size category for those loans.

the smallest category of small C&I loans is associated with the largest market premium (35 percent) in bank acquisition transactions provides further evidence that relationship lending to small businesses enhances the value of community banks.

4.2. Results from Fixed-effect Estimations Based on the Sample of Publicly Traded Banks

While our results from the sample of bank acquisitions indicate clearly that the acquirers are paying a premium for the target bank small business loan portfolios, it is conceivable that such a premium may be affected by the transfer of control rights and potential anticipated merger synergies, thus indicating an overvaluation of small business loans themselves in the merger transactions, although that would also affect the estimates for large loans, which is why we also look at the differential effects. To further alleviate such concerns, we analyze the contribution of small business lending to bank stock market valuations using a sample of publicly traded banks with observable market values. Since we use longitudinal data in addition to the set of explanatory variables discussed earlier, each estimated equation includes not only a set of annual time dummies to control for effects emanating from general macroeconomic conditions, such as interest rates, the business cycle, and changes in stock price indexes, but also bank fixed effects to control for unobserved time-invariant bank characteristics. We cluster standard errors at the bank level to account for any correlation of residuals for a given banking institution across years.

Table 6 shows the results for the variables of interest for both Equations (3) and (4). While small C&I loans do not appear to be associated with any market premium in the full sample of publicly traded banks (Columns 1 and 3), once we restrict the sample to community banks, we observe that the smallest C&I loans with original values of \$100,000 or less (*SM1C&I*) are valued at premiums of 34 to 36 percent, depending on whether we use Tobin's Q or *MVE/TA* as the dependent variable (Columns 2 and 4). Furthermore, compared with large C&I loans, the smallest C&I loans produce an additional premium of about 30 percent (shown at the bottom of the table). Comparing the estimated coefficients on *SM1C&I* in Table 6 and Table 5 reveals that the market premium associated with the smallest category of C&I loans for publicly traded banks is somewhat smaller than that observed for target banks acquired in M&A transactions. Nonetheless, the economic magnitude of the premium remains substantial, underscoring the

contribution of relationship lending to small businesses in value creation for community banks. Small CRE loans, on the other hand, because they are transaction-based rather than relationship-based, do not appear to add any market value relative to large CRE loans and do not differ significantly from their book value.

4.2.1. Value of Small Business Lending at Community Banks during and outside the Global Financial Crisis

Given the findings from the previous section, which highlight significant market premiums tied to relationship-based small C&I lending by community banks, a natural question that follows is if, or to what extent, the value-enhancing effects of business lending extended to small firms by these banks withstood times of economic stress. Earlier research from the bank-failure literature finds that deteriorations in the performance of commercial real estate and construction and land development loans were among the primary drivers leading banking institutions into financial distress and eventually insolvency during the GFC (Cole and White 2012; DeYoung and Torna 2013). While Cole and Damm (2020) show that overall lending to small businesses declined significantly following the onset of the GFC, Bord et al. (2021) demonstrate that community banks increased their small business lending and gained market share after the crisis. Furthermore, Beck et al. (2018) show that, in general, relationship lending tends to alleviate borrowers' credit constraints during economic downturns. To provide insights into the role that business lending relationships might have played in determining community banks' market values during the most severe economic downturn since World War II (FDIC 2018), we expand Equations (3) and (4) by including a dummy variable, *Crs*, that flags the GFC period, interacting it with all our explanatory variables. We are primarily interested in the interaction terms with *LGC&I*, *SM1C&I* and *SM2C&I*, which can be expressed as follows:

$$\begin{aligned} & \vartheta Crs + \xi_1 LGC\&I + \xi_2 LGC\&I \times Crs + \xi_3 SM1C\&I + \xi_4 SM1C\&I \times Crs + \xi_5 SM2C\&I \\ & + \xi_6 SM2C\&I \times Crs. \end{aligned}$$

The effect of the category of the smallest C&I loans on bank values during the GFC period is given by $\xi_3 SM1C\&I + \xi_4 SM1C\&I \times Crs$, with $\xi_4 \neq 0$ suggesting that this effect is different from the effect during the non-GFC period (ξ_3). Similar calculations can be made for *SM2C&I*, *LGC&I*, and for small and large CRE loans.

Earlier research considered 2007:Q4 through 2010:Q4 as the period covering the beginning, the unravelling, and the immediate aftermath of the GFC (for example, DeYoung et al. 2015).²⁴ Given that we use annual data based on the June Call Reports, our 2007 bank-year observations precede the financial crisis. Therefore, we let Crs equal one for bank-year observations from 2008 through 2010, and zero otherwise. Our baseline results (Equation 3) with Crs interactions for the sample of publicly traded community banks are displayed in Column 1 of Table 7, showing only the focus variables to save space. Columns 2 and 3 show the absolute effect for each explanatory variable by evaluating the partial derivatives when Crs equals zero and one, respectively. The last column tests if the difference in coefficients between Columns 2 and 3 differs statistically from zero.

The coefficient on large C&I loans in Table 7 does not differ statistically from unity, regardless of the time period, consistent with large C&I loans being valued at book value during normal economic conditions as well as during the GFC period. By contrast, the coefficient on $SMIC&I$ is economically and statistically larger than one for each subperiod, pointing to a remarkably consistent value-enhancing effect of small business lending for community banks across various economic conditions. A dollar of small C&I loans with original values of \$100,000 or less has a 35 percent premium for community bank values during normal times (Column 2) and had an even larger estimated premium of 59 percent during the GFC (Column 3). Although the effect of $SMIC&I$ on bank values during the financial crisis does not differ statistically from the effect during normal economic times, the presence of a statistically significant market premium associated with $SMIC&I$ loans during the financial crisis suggests that community banks were able to use their relationships with SMEs to maintain robust and value-enhancing loan portfolios, even during the most severe economic downturn since the Great Depression. The coefficients on large CRE loans demonstrate an economically and statistically meaningful shift in the magnitude of their effect from more normal times to the financial crisis period. While these loans neither contributed to nor diminished bank values during more normal economic conditions, they were associated with a significant discount amid the financial turmoil, which is

²⁴ As discussed in footnote 19 in the Data section, for robustness purposes, we exclude the period of the COVID-19 pandemic from our non-GFC period by ending our sample in 2019. We show the results in Appendix 2A and 2B.

not surprising given the pivotal role of CRE loans in creating the crisis. In terms of economic significance, investors valued \$1 of large CRE loans held by community banks at only 91.40 cents during the GFC. This evident discount on large CRE loans during the financial turmoil, when compared with the non-GFC period, is statistically significant, as demonstrated in the last column of Table 7. A similar effect is also observed for *SM2CRE*. The results indicate that each dollar of *SM2CRE* loans held in community banks' loan portfolios was valued at only 83.20 cents during the GFC, even less compared with their noncrisis valuation.²⁵ Overall, these results support the view that relationship-based small business lending is an important value driver for community banks across business cycles.

4.2.2. Community Bank Size and Value of Small Business Lending

As implied by earlier research (Carter et al. 2004; Cole et al. 2004; DeYoung et al. 2004; Berger et al. 2005; Chiorazzo et al. 2018), relationship lending and the benefits accrued thereof may vary across banks of different size categories, with the general consensus that smaller banks are more likely to engage in relationship lending and, hence, extract more value from that practice. A natural extension of our analyses, therefore, is to explore whether bank size is associated with the value of small business lending. Most of our analyses so far have focused on community banks, defined as banks with assets of less than \$10 billion. By this definition of community banks, there is minimal size variation in our M&A sample, where the median asset size for target community banks is only \$486 million (and \$2.3 billion at the 90th percentile). However, there is substantial variation, and a wider range of observations in our sample of *publicly traded community banks*, where the 50th and 90th percentiles correspond to \$1.5 billion and \$7.5 billion in assets, respectively. This apparent heterogeneity in bank size among publicly traded community banks allows us to explore the association between bank size and the value of small business lending for community banks that we documented in the previous sections.

Following earlier research, which historically employed a more conservative definition of community banks, we define small community banks as those with assets of less than \$2 billion

²⁵ While Table 7 displays the results for the variables of interest only, it is important to note that we find an economically and statistically similar discount during the GFC for construction loans (*CSTR*), which were valued at 87.03 cents per dollar of their book values. Also, when we estimate the GFC effects using the alternative specification with *MVE/TA* as the dependent variable (not shown), the results echo the findings shown in Table 7.

(DeYoung et al. 2015; Cortés and Strahan 2017; Chiorazzo et al. 2018).²⁶ Employing this sample for the full sample period, we expand our specification by including a dummy variable, *2Bil*, that flags larger community banks with assets greater than \$2 billion and interact it with all our explanatory variables, similar to our analyses in the previous section for *Crs*.

Table 8 shows the results for the main variables of interest for the Tobin's Q dependent variable specification. Column 1 shows the estimated coefficients, while Columns 2 and 3 show the estimated effects for community banks with \$2 billion or less in assets and more than \$2 billion in assets, respectively. The final column shows the difference between Columns 2 and 3. The coefficient on large C&I loans, 1.0150***, does not deviate statistically from unity for small community banks (assets ≤ \$2 bil.) as displayed in Column 2, but the effect for larger community banks, 1.0985***^b, does deviate from unity, indicating that for larger community banks, \$1 of *LGC&I* loans provide a 10 percent premium (Column 3). Furthermore, the difference in market premium associated with *LGC&I* between large and small community banks is statistically significant, as revealed by the statistically significant differential coefficient, -0.0835*, in the last column. On the other hand, the coefficient on *SMIC&I* is statistically larger than unity for small community banks but not for larger community banks. The coefficient, 1.4668***^a, suggests that *SMIC&I* loans held by small community banks contribute a 47 percent premium, and the market premium on *SMIC&I* loans exceeds that of large C&I loans as indicated at the bottom of Table 8. The effect of *SMIC&I* on bank values at small community banks is statistically different from and larger than the effect on larger community banks, as shown by the differential coefficient, 0.5321**. A large and statistically significant market premium associated with small C&I loans with original values of \$100,000 or less made by small community banks implies that smaller community banks tend to be in a better position to extract value from their relationships with SMEs. This result is consistent with Chiorazzo et al. (2018) and provides at least a partial explanation for their finding that small community banks that are more focused on traditional banking—defined by one of four hallmark characteristics as “*relationship lending*”—are more

²⁶ DeYoung et al. (2015) and Chiorazzo et al (2018) revised the \$1 billion community bank size threshold that had long been used in earlier research, justifying it by the fact that the U.S. CPI approximately doubled from 1987 to 2012.

likely to survive in the long run (8 to 13 percentage points more compared with other small banks).

Focusing on loans with original values of more than \$100,000 through \$1 million, we observe that the coefficient on *SM2C&I* is smaller for small community banks compared with large community banks. However, it is not significantly different from unity for either group of banks, suggesting that C&I loans with original values of more than \$100,000 through \$1 million do not add value to either small or large community banks. Likewise, regarding commercial real estate lending, the coefficients on *LGCRE*, *SM1CRE*, and *SM2CRE* do not appear to differ from unity for either small or larger community banks, consistent with stock market investors valuing those loans at par value irrespective of whether they are made by small or larger community banks.²⁷

Additionally, we implemented two sets of estimations for Tobin's Q and *MVE/TA*, interacting both the *2Bil* and the *Crs* dummy variables with all the regressors to examine the role of bank size in moderating the relationship between small business lending and bank values during and outside the GFC. Once again, the results and inferences concerning the effect of small business lending on bank values during and outside the GFC obtained from the previous section are primarily driven by small community banks with \$2 billion or less in assets. We do not report the results in the paper to save space, but they are available upon request.

Overall, our findings substantiate the notion that bank size is associated with the ability of community banks to leverage advantages from relationship-based lending to SMEs. In line with the implications drawn from earlier research, our results suggest that smaller community banks are more adept at exploiting their comparative advantage in nurturing and sustaining lending relationships with SMEs, and as a result, deriving value from those relationships.

5. Concluding Remarks

This study investigates the extent to which relationship lending enhances the market value of banking organizations. We use data on small business loans, defined as commercial and

²⁷ When we conduct the same analysis in Table 8 for the specification with *MVE/TA* as the dependent variable (not shown), the results depict an overall similar, consistent picture.

industrial loans and commercial real estate loans, obtained from the small business loan surveys conducted in the June Call Reports. We find that small C&I loans do enhance the market values of community banks. This suggests that, at least for these banks, the added revenue associated with relationship lending exceeds the added costs associated with evaluating and monitoring small business loans, although the estimated effect may also include the value of relationships emanating from the opportunity to profit from other lines of business with their relationship firms.

The value-enhancing effect of relationship lending manifests itself primarily in smaller community banks and arises primarily from the smallest size category of C&I loans, those with original amounts of \$100,000 or less. Such loans likely represent the loans made to small opaque firms over which these banks are most likely to be able to exploit informational monopoly power, which constitutes their comparative advantage over larger banks. As opposed to small C&I loans, small CRE loans do not appear to enhance the market value of banks more than do large CRE loans. One explanation for the contrast of this result with that of small C&I loans is that CRE lending tends to be more transactional than C&I lending. CRE loans rely to a greater extent on the evaluation of physical collateral rather than superior soft information about a relationship borrower. As a result, the advantages stemming from information-intensive relationship lending based on soft information become relatively less important.

Importantly, our findings show that for community banks, relationship lending was valuable even during the Great Financial Crisis. Community banks stood ready to fund SMEs and were able to preserve the market values resulting from those lending relationships. Given that loans for commercial real estate and construction and most of the other types of loans in community banks' portfolios were heavily discounted during the GFC, sustained value-enhancing effects associated with small business lending during this volatile period partially offset losses to those banks' franchise values and contributed to their ability to withstand the turmoil.

Our direct evidence that small business lending is a profitable, value-enhancing market niche for small community banks in the United States suggests that small community banks can continue to play a positive role by making relationship-based small loans to small firms. The

evidence is consistent with these banks having a comparative advantage in originating and monitoring small business loans.

References

- Barth, M. E., W. H. Beaver, and W. R. Landsman. 1998. "Relative Valuation Roles of Equity Book Value and Net Income as a Function of Financial Health," *Journal of Accounting and Economics*, 25, 1–34.
- Beck, T., H. Degryse, R. De Haas, and N. van Horen. 2018. "When Arm's Length Is Too Far: Relationship Banking over the Credit Cycle," *Journal of Financial Economics*, 127(1), 174–96.
- Berger, A. N., and L. K. Black. 2011. "Bank Size, Lending Technologies, and Small Business Finance," *Journal of Banking and Finance*, 35, 724–35.
- Berger, A. N., A. M. Cowen, and W. S. Frame. 2011. "The Surprising Use of Credit Scoring in Small Business Lending by Community Banks and the Attendant Effects on Credit Availability, Risk, and Profitability," *Journal of Financial Services Research*, 39, 1–17.
- Berger, A. N., W. S. Frame, and N. H. Miller. 2005. "Credit Scoring and the Availability, Price, and Risk of Small Business Credit," *Journal of Money, Credit, and Banking*, 37, April, 191–222.
- Berger, A. N., N. H. Miller, M. A. Petersen, R. G. Rajan, and J. C. Stein. 2005. "Does Function Follow Organizational Form? Evidence from the Lending Practices of Large and Small Banks," *Journal of Financial Economics*, 76, 237–69.
- Berger, A. N., and G. F. Udell. 1995. "Relationship Lending and Lines of Credit in Small Firm Finance," *Journal of Business*, 68, 351–82.
- Berger, A. N., and G. F. Udell. 2002. "Small Business Credit Availability and Relationship Lending: The Importance of Bank Organizational Structure," *The Economic Journal*, 112(February), F32–F53.
- Berger, A. N., and G. F. Udell. 2006. "A More Complete Conceptual Framework for SME Finance," *Journal of Banking and Finance*, 30, 2945–966.
- Bharath, S., S. Dahiya, A. Saunders, and A. Srinivasan. 2007. "So What Do I Get? The Bank's View of Lending Relationships," *Journal of Financial Economics*, 85, 368–419.
- Bharath, S., S. Dahiya, A. Saunders, and A. Srinivasan. 2011. "Lending Relationships and Loan Contract Terms," *The Review of Financial Studies*, 24(4), 1141–203.
- Boot, A. W. A. 2000. "Relationship Banking: What Do We Know?" *Journal of Financial Intermediation*, 9, 7–25.
- Bord, V. M., V. Ivashina, and R. D. Taliaferro. 2021. "Large Banks and Small Firm Lending," *Journal of Financial Intermediation*, 48(October), 100924.
- Carter, D. A., J. E. McNulty, and J. A. Verbrugge. 2004. "Do Small Banks Have an Advantage in Lending? An Examination of Risk-adjusted Yields on Business Loans at Large and Small Banks," *Journal of Financial Services Research*, 25(2/3), 233–52.
- Chiorazzo, V., V. D'Apice, R. DeYoung, and P. Morelli. 2018. "Is the Traditional Banking Model a Survivor?" *Journal of Banking and Finance*, 97, 238–56.
- Cole, R. A. 1998. "The Importance of Relationships to the Availability of Credit," *Journal of Banking and Finance*, 22, 959–77.
- Cole, R. A., and J. Damm. 2020. "How Did the Financial Crisis Affect Small Business Lending in the U.S.?" *Journal of Financial Research*, 43(4), 767–820.
- Cole, R. A., and L. J. White. 2012. "Déjà Vu All over Again: The Causes of U.S. Commercial Bank Failures This Time Around," *Journal of Financial Services Research*, 42(1–2), 5–29.

- Cole, R. A., L. G. Goldberg, and L. J. White. 2004. "Cookie-cutter versus Character: The Micro Structure of Small-business Lending by Large and Small Banks," *Journal of Financial and Quantitative Analysis*, 39(2), 227–51.
- Cortés, K. R., Y. Demyanyk, L. Lei, E. Loutskina, and P. E. Strahan. 2020. "Stress Tests and Small Business Lending," *Journal of Financial Economics*, 136(1), 260–79.
- Cortés, K. R., and P. E. Strahan. 2017. "Tracing out Capital Flows: How Financially Integrated Banks Respond to Natural Disasters," *Journal of Financial Economics*, 125, 182–99.
- Cronqvist, H., and M. Nilsson. 2003. "Agency Costs of Controlling Minority Shareholders," *Journal of Financial Quantitative Analysis*, 38(4), 695–719.
- Dahiya, S., M. Puri, and A. Saunders. 2003. "Bank Borrowers and Loan Sales: New Evidence on the Uniqueness of Bank Loans," *Journal of Business*, 76, 563–82.
- Dahiya, S., A. Saunders, and A. Srinivasan. 2003. "Financial Distress and Bank Lending Relationships," *The Journal of Finance*, 58(1), 375–399.
- Degryse, H., and P. Van Cayseele. 2000. "Relationship Lending within a Bank-based System: Evidence from European Small Business Data," *Journal of Financial Intermediation*, 9, 90–109.
- Demsetz, R. S., M. R. Saldenbergh, and P. E. Strahan. 1996. *Economic Policy Review*. Federal Reserve Bank of New York. October, 1–14.
- DeYoung, R., W. S. Frame, D. Glennon, and P. Nigro. 2011. "The Information Revolution and Small Business Lending: The Missing Evidence," *Journal of Financial Services Research*, 39, 19–33.
- DeYoung, R., D. Glennon, and P. Nigro. 2005. "Borrower-lender Distance, Credit Scoring, and the Performance of Small Business Loans," *Proceedings of the 41st Annual Conference on Bank Structure and Competition*, Federal Reserve Bank of Chicago.
- DeYoung, R., D. Glennon, and P. Nigro. 2008. "Borrower-lender Distance, Credit Scoring, and Loan Performance: Evidence from Informational-Opaque Small Business Borrowers," *Journal of Financial Intermediation*, 17, 113–43.
- DeYoung, R., A. Gron, G. Torna, and A. Winton. 2015. "Risk Overhang and Loan Portfolio Decisions: Small Business Loan Supply before and during the Financial Crisis," *The Journal of Finance*, 70(6), 2451–88.
- DeYoung, R., W. C. Hunter, and G. F. Udell. 2004. "The Past, Present, and Probable Future for Community Banks," *Journal of Financial Services Research*, 25(2/3), 85–133.
- DeYoung, R. and G. Torna. 2013. "Nontraditional Banking Activities and Bank Failures during the Financial Crisis," *Journal of Financial Intermediation*, 22, 397–421.
- Ergungor, O. E. 2005. "The Profitability of Bank-borrower Relationships," *Journal of Financial Intermediation*, 14(4), 485–512.
- FDIC. 2018. "Crisis and Response: An FDIC History, 2008–2013," Washington, DC: FDIC. <http://www.fdic.gov/bank/historical/crisis>.
- Flannery, M. J., and J. F. Houston. 1999. "Value of a Government Monitor for U.S. Banking Firms," *Journal of Money, Credit, and Banking*, 31(1), 14–34.
- Gatev, E., and P.E. Strahan. 2006. "Banks' Advantage in Hedging Liquidity Risk: Theory and Evidence from the Commercial Paper Market," *The Journal of Finance*, 61(2), 867–92.
- Hale, G., and J. A. C. Santos. 2009. "Do Banks Price Their Informational Monopoly?" *Journal of Financial Economics*, 93, 185–206.

- Ioannidou, V., and S. Ongena. 2010. "Time for a Change: Loan Conditions and Bank Behavior when Firms Switch Banks," *The Journal of Finance*, 65(5), 1847–77.
- Jagtiani, J. A., and C. Lemieux. 2016. "Small Business Lending: Challenges and Opportunities for Community Banks," FRB of Philadelphia Working Paper No. 16-8. <https://ssrn.com/abstract=2752863>
- James, C., and P. Wier. 1990. "Borrowing Relationships, Intermediation, and the Cost of Issuing Public Securities," *Journal of Financial Economics*, 28, 149–71.
- James, C. 1987. "Some Evidence on the Uniqueness of Banks," *Journal of Financial Economics*, 19, 217–35.
- Jiménez, Gabriel, S. Ongena, J. Peydro, and J. Saurina. 2012. "Credit Supply versus Demand: Bank and Firm Balance-sheet Channels in Good and Bad Times," European Banking Center Discussion Paper 2012-003, Tilburg University.
- Kane, E. J., and H. Unal. 1990. "Modeling Structural and Temporal Variation in the Market's Valuation of Banking Firms," *The Journal of Finance*, 45(1), 113–36.
- Keeley, M. 1990. "Deposit Insurance, Risk, and Market Power in Banking." *American Economic Review* 80(5), 1183–200.
- Kohlbeck, M. 2004. "Investor Valuations and Measuring Bank Intangible Assets," *Journal of Accounting, Auditing, and Finance*, 19 (Winter), 29–60.
- Ljungqvist, A., F. Marston, and W. J. Wilhelm, Jr. 2006. "Competing for Securities Underwriting Mandates: Banking Relationships and Analyst Recommendations," *The Journal of Finance*, 61(1), 301–340.
- Mester, L., L. Nakamura, and M. Renault. 1998. "Checking Accounts and Bank Monitoring," Federal Reserve Bank of Philadelphia, Working Paper.
- Mehran, H., and A. Thakor. 2011. "Bank Capital and Value in the Cross-section," *The Review of Financial Studies*, 23(4), 1019–67.
- Nakamura, L. 1993. "Commercial Bank Information: Implications for the Structure of Banking," in *Structural Change in Banking*, edited by M. Klausner and L. White, Irwin Publishing, 131–160.
- Petersen, M., and R. Rajan. 1994. "The Benefits of Firm-credit Relationships: Evidence from Small Business Data," *The Journal of Finance*, 49(1), 3–37.
- Popov, A., and G. F. Udell. 2012. "Cross-border Banking and the International Transmission of Financial Distress during the crisis of 2007–2008," *Journal of International Economics* 87, 147–61.
- Prilmeier, R. 2017. "Why Do Loans Contain Covenants? Evidence from Lending Relationships," *Journal of Financial Economics*, 123(3), 558–79.
- Puri, M., J. Rocholl, and S. Steffen. 2017. "What Do a Million Observations Have to Say about Loan Defaults? Opening the Black Box of Relationships," *Journal of Financial Intermediation*, 31, 1–15.
- Rajan, R. 1992. "Insiders and Outsiders: The Choice between Informed and Arm's Length Debt," *The Journal of Finance*, 47, 1367–400.
- Rosenbaum, J., and Pearl, J. 2013. *Investment Banking: Valuation, LBOs, M&A, and IPOs*, John Wiley & Sons.
- Santos, J. A. C., and A. Winton. 2008. "Bank Loans, Bonds, and Information Monopolies across the Business Cycle," *The Journal of Finance*, 63(3), 1315–59.

- Schenone, C. 2010. "Lending Relationships and Information Rents: Do Banks Exploit Their Information Advantages?" *The Review of Financial Studies*, 23(3), 1149–99.
- Sharpe, S. 1990. "Asymmetric, Information, Bank Lending, and Implicit Contracts: A Stylized Model of Customer Relationships," *The Journal of Finance*, 45, 1069–87.
- Slovin, M. B., M. A. Shuska, and J. A. Polonchek. 1993. "The Value of Bank Durability: Borrowers as the Bank Stakeholders," *The Journal of Finance*, 48, 247–66.
- Stein, J. C. 2002. "Information Production and Capital Allocation: Decentralized versus Hierarchical Firms," *The Journal of Finance*, 57(5), 1891–921.
- Venkatachalam, M. 1996. "Value-relevance of Banks' Derivatives Disclosures," *Journal of Accounting and Economics*, 22, 327–55.
- Villalonga, B., and R. Amit. 2006. "How Do Family Ownership, Control, and Management Affect Firm Value?" *Journal of Financial Economics*, 80, 385–417.
- Yasuda, A. 2005. "Do Bank Relationships Affect the Firm's Underwriter Choice in the Corporate-bond Underwriter Market?" *The Journal of Finance*, 60(3), 1259–92.

Table 1: Distribution of Observations by Asset Size and Time Period

This table displays the number of observations for target banks acquired in M&A transactions (Panel A) and for publicly traded banks (Panel B) for all banks in general and community banks specifically during the full sample period, 1994 to 2021, the Global Financial Crisis (GFC) period, 2008 through 2010, and the non-GFC period covering the full sample period excluding the years of 2008 through 2010. Community banks are defined as those with total assets of less than \$10 billion.

Panel A: M&A Bank Sample			
Sample Period:	Full Sample Period (1994–2021)	GFC Period (2008–2010)	Non-GFC Period (1994–2007 & 2011–2021)
All Banks	982	38	944
Community Banks (< \$10 bil.)	943	34	909
Panel B: Publicly Traded Bank Sample			
Sample Period:	Full Sample Period (1994–2021)	GFC Period (2008–2010)	Non-GFC Period (1994–2007 & 2011–2021)
All Banks	6,225	717	5,508
Community Banks (< \$10 billion)	5,315	637	4,678

Table 2: Small Business Loans, Scaled by Total Business Loans for M&A Bank Sample and Publicly Traded Bank Sample

This table shows the small business loan categories as a proportion of total business loans by number for all banks as well as community banks in two different bank samples for the sample period, 1994 to 2021. Community banks are defined as those with total assets of less than \$10 billion.

Samples:	M&A Bank Sample		Publicly Traded Bank Sample	
	All Banks	Community Banks (< \$10 billion)	All Banks	Community Banks (< \$10 billion)
Bank Size Categories:				
Total small C&I loans	62.31(%)	63.72(%)	54.68(%)	58.94(%)
- \$100,000 or less	17.35	17.70	16.53	18.00
- between \$100,000 and \$1 million	44.97	46.03	38.15	40.93
Total small CRE loans	47.59	48.39	42.71	45.16
- \$100,000 or less	3.70	3.78	3.82	4.11
- between \$100,000 and \$1 million	43.90	44.61	38.89	41.05

Table 3: Descriptive Statistics

This table displays descriptive statistics for the M&A bank sample and publicly traded bank sample. The M&A bank sample consists of 982 target banks sold in M&A transactions from 1994 to 2021. The publicly traded bank sample consists of 6,225 bank-year observations from 860 publicly traded banks from 1994 to 2021. Variable definitions are displayed in Appendix 1. The values for all variables except for dummy variables are truncated at 0.5 and 99.5 percentiles. All dollar-denominated variables are inflation-adjusted using the Consumer Price Index.

	M&A Bank Sample					Publicly Traded Bank Sample				
	Mean	Std.Dev	P25	P50	P75	Mean	Std.Dev	P25	P50	P75
Valuation Measures										
Tobin's Q	1.0584	0.1067	1.0164	1.0575	1.1063	1.0171	0.0684	0.9753	1.0128	1.0525
MVE/TA	0.1794	0.0729	0.1326	0.1713	0.2199	0.1424	0.0676	0.0990	0.1349	0.1763
Small Business Loans Variables										
SMC&I	0.0591	0.0416	0.0313	0.0498	0.0777	0.0540	0.0369	0.0293	0.0462	0.0693
SM1C&I	0.0147	0.0130	0.0055	0.0110	0.0196	0.0148	0.0126	0.0062	0.0116	0.0197
SM2C&I	0.0443	0.0329	0.0228	0.0367	0.0588	0.0392	0.0282	0.0205	0.0328	0.0494
SMCRE	0.0990	0.0563	0.0575	0.0922	0.1312	0.0776	0.0459	0.0448	0.0725	0.1029
SM1CRE	0.0059	0.0069	0.0015	0.0038	0.0078	0.0059	0.0066	0.0013	0.0037	0.0080
SM2CRE	0.0931	0.0536	0.0537	0.0859	0.1233	0.0718	0.0427	0.0413	0.0664	0.0951
Other Loans/Leases Variables										
LGCI	0.0444	0.0492	0.0107	0.0299	0.0596	0.0565	0.0563	0.0176	0.0386	0.0777
LGCRE	0.1287	0.0922	0.0534	0.1167	0.1878	0.1165	0.0768	0.0568	0.1025	0.1662
CSTR	0.0574	0.0490	0.0218	0.0470	0.0777	0.0566	0.0515	0.0211	0.0419	0.0745
RES	0.1924	0.1137	0.1138	0.1772	0.2533	0.2006	0.1047	0.1267	0.1901	0.2575
MULT	0.0260	0.0317	0.0067	0.0170	0.0330	0.0277	0.0405	0.0072	0.0159	0.0324
FARM	0.0198	0.0407	0.0002	0.0032	0.0170	0.0141	0.0241	0.0004	0.0036	0.0165
CONS	0.0323	0.0422	0.0057	0.0144	0.0429	0.0489	0.0544	0.0091	0.0253	0.0751
OTHLNS	0.0120	0.0183	0.0007	0.0052	0.0150	0.0199	0.0277	0.0032	0.0107	0.0250
Other Balance Sheet Items										
FF	-0.0038	0.0398	-0.0168	0.0000	0.0057	-0.0214	0.0443	-0.0394	-0.0125	0.0000
RESV	0.0595	0.0484	0.0286	0.0429	0.0738	0.0448	0.0324	0.0245	0.0358	0.0530
SEC_AFS	0.1748	0.1138	0.0899	0.1623	0.2428	0.1787	0.0967	0.1086	0.1634	0.2384
SEC_HTM	0.0284	0.0578	0.0000	0.0000	0.0306	0.0386	0.0666	0.0000	0.0054	0.0490
TRADA	0.0003	0.0026	0.0000	0.0000	0.0000	0.0012	0.0056	0.0000	0.0000	0.0000
LLR	0.0092	0.0037	0.0068	0.0086	0.0107	0.0096	0.0040	0.0071	0.0088	0.0109
NPL	0.0069	0.0082	0.0018	0.0043	0.0086	0.0083	0.0095	0.0028	0.0051	0.0097
FIX	0.0172	0.0103	0.0098	0.0157	0.0226	0.0164	0.0080	0.0109	0.0153	0.0208
INTAN	0.0063	0.0111	0.0000	0.0008	0.0079	0.0122	0.0142	0.0015	0.0070	0.0187
MiscA	0.0290	0.0147	0.0177	0.0279	0.0373	0.0325	0.0160	0.0207	0.0311	0.0404

<i>OREO</i>	0.0027	0.0050	0.0000	0.0007	0.0027	0.0024	0.0045	0.0002	0.0008	0.0024
<i>CORE</i>	0.5312	0.1439	0.4296	0.5307	0.6414	0.5012	0.1400	0.3956	0.4853	0.6060
<i>OTHDEP</i>	0.2807	0.1238	0.1887	0.2689	0.3747	0.2808	0.1210	0.1893	0.2829	0.3675
<i>OTHLIAB</i>	0.0670	0.0612	0.0173	0.0502	0.0997	0.0924	0.0716	0.0391	0.0777	0.1262
<i>TRADL</i>	0.0001	0.0006	0.0000	0.0000	0.0000	0.0004	0.0023	0.0000	0.0000	0.0000
Other Bank Characteristics & Measures										
<i>FEE</i>	0.0041	0.0040	0.0018	0.0031	0.0050	0.0066	0.0064	0.0029	0.0051	0.0081
<i>OPEXPtoOPINC</i>	0.5450	0.1559	0.4240	0.5348	0.6473	0.4795	0.1239	0.3878	0.4666	0.5615
<i>LHERF</i>	9.1541	0.2221	9.2103	9.2103	9.2103	9.0349	0.4199	9.2090	9.2103	9.2103
<i>ASSETS(\$mil)</i>	2,190.50	7,042.21	257.39	518.70	1,200.49	5,845.24	11,112.42	864.67	1,786.01	5,188.68
<i>Crs</i>	0.0387	0.1930	0.0000	0.0000	0.0000	0.1152	0.3193	0.0000	0.0000	0.0000
<i>ACQ%</i>	99.9997	0.0090	100.000	100.000	100.000					
<i>RELSIZE%</i>	25.4115	26.6371	7.7454	16.4912	34.0161					
<i>CASH%</i>	30.0137	35.9267	0.0000	19.2500	49.7300					

Table 4: Cross Section of Valuations for Target Banks Sold in M&A Transactions

This table displays results from cross-sectional estimations of valuations for target banks sold in M&A transactions from 1994 to 2021. The dependent variable in Columns 1 and 2 is Tobin's Q, defined as the implied market value of bank equity paid by acquirers for 100 percent of the target bank's equity in the M&A transaction plus the book value of target bank liabilities, scaled by the total book value of target bank assets. The dependent variable in Columns 3 and 4 is *MVE/TA*, defined as the market value of bank equity derived from the implied equity value of target banks paid by acquirers for 100 percent of the target banks' equity in M&A transactions, scaled by the total book value of target bank assets. Each equation includes *RESV*, *SEC*, *FF*, and *TRADA* with coefficients constrained to one, and *TRADL* with its coefficient constrained to minus one. Columns 1 and 3 focus on all banking institutions regardless of their asset size, while Columns 2 and 4 focus on community banks, defined as those banks with total assets of less than \$10 billion. The specifications include bank size decile dummies based on total book assets. All dollar-denominated variables are inflation-adjusted using the Consumer Price Index. ***, **, and * indicate a statistical difference from zero at the 1 percent, 5 percent, and 10 percent significance levels, respectively. For balance sheet asset categories, superscripts a, b, and c indicate that a coefficient differs from unity at the 1 percent, 5 percent, and 10 percent significance levels, respectively. For balance sheet liability categories, superscripts d, e, and f indicate that a coefficient differs from minus unity at the 1 percent, 5 percent, and 10 percent significance levels, respectively. The specifications include state fixed effects and year fixed effects. Standard errors are clustered at the acquirer bank level, as some acquirers were involved in multiple acquisitions throughout the sample period. All variables are defined in Appendix 1.

Sample: Dependent Variable:	M&A Sample, 1994–2021			
	Tobin's Q		<i>MVE/TA</i>	
	All Banks (1)	Community Banks (2)	All Banks (3)	Community Banks (4)
<i>LGC&I</i>	1.0351*** (0.0558)	0.9936*** (0.0578)	1.0193*** (0.0537)	0.9802*** (0.0564)
<i>SMC&I</i>	1.1858***a (0.0987)	1.2097***a (0.0608)	1.2000***a (0.0624)	1.2192***a (0.0999)
<i>LGCRE</i>	1.0491***c (0.0271)	1.0539***b (0.0274)	1.0410*** (0.0258)	1.0428***c (0.0263)
<i>SMCRE</i>	1.0357*** (0.0421)	1.0200*** (0.0417)	1.0103*** (0.0418)	0.9930*** (0.0417)
<i>CSTR</i>	1.0844***c (0.0452)	1.0839***c (0.0451)	1.0709***c (0.0435)	1.0723***c (0.0433)
<i>RES</i>	1.0156*** (0.0216)	1.0079*** (0.0215)	1.0231*** (0.0225)	1.0126*** (0.0227)
<i>MULT</i>	0.8522***a (0.0489)	0.8441***a (0.0523)	0.8868***b (0.0490)	0.8797***b (0.0519)
<i>FARM</i>	0.9853*** (0.0415)	0.9857*** (0.0424)	0.9782*** (0.0409)	0.9738*** (0.0419)
<i>CONS</i>	1.0034*** (0.0465)	1.0042*** (0.0478)	1.0054*** (0.0468)	1.0033*** (0.0481)
<i>OTHLNS</i>	0.9030*** (0.0885)	0.9635*** (0.0922)	0.8936*** (0.0901)	0.9634*** (0.0914)
<i>LLR</i>	-0.6367^a (0.5403)	-0.5082^a (0.5916)	-1.0290^a (0.5474)	-0.8326^a (0.5981)
<i>NPL</i>	-1.2064***a (0.2151)	-1.1785***a (0.2243)	-1.1030***a (0.2174)	-1.0843***a (0.2266)
<i>FIX</i>	0.7564*** (0.1714)	0.8265*** (0.1693)	0.6884***c (0.1721)	0.7610*** (0.1696)
<i>INTAN</i>	0.2657^a (0.1783)	0.2657^a (0.1785)	0.2364^a (0.1779)	0.2453^a (0.1809)

<i>MiscA</i>	0.9922*** (0.1165)	1.0089*** (0.1177)	1.0808*** (0.1218)	1.1003*** (0.1239)
<i>OREO</i>	0.2950^b (0.3153)	0.2981^b (0.3190)	0.4532^c (0.3132)	0.4280^c (0.3193)
<i>CORE</i>			-0.9150***^d (0.0204)	-0.9167***^d (0.0196)
<i>OTHDEP</i>			-0.9768*** (0.0277)	-0.9719*** (0.0273)
<i>OTHLIAB</i>			-1.0514*** (0.0387)	-1.0561*** (0.0388)
<i>FEE</i>	-0.0626 (0.3786)	-0.1331 (0.3645)	-0.1585 (0.3755)	-0.2244 (0.3676)
<i>OPEXPtoOPINC</i>	-0.0653*** (0.0167)	-0.0629*** (0.0173)	-0.0889*** (0.0192)	-0.0861*** (0.0198)
<i>LHERF</i>	0.0094 (0.0077)	0.0149** (0.0070)	0.0084 (0.0075)	0.0134* (0.0070)
<i>ACQ%</i>	-0.0170 (0.0435)	-0.0420 (0.0466)	-0.0338 (0.0426)	-0.0608 (0.0456)
<i>RELSIZE%</i>	-0.0003*** (0.0001)	-0.0003*** (0.0001)	-0.0002*** (0.0001)	-0.0002*** (0.0001)
<i>CASH %</i>	-0.0001* (0.0001)	-0.0001* (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)
<i>Constant</i>	1.6936 (4.3448)	4.1483 (4.6574)	3.3583 (4.2614)	6.0149 (4.5598)
<i>Test SMC&I-LGC&I=0</i>	0.1507 (0.0987)	0.2161** (0.1046)	0.1807* (0.0987)	0.2390** (0.0999)
<i>Test SMCRE-LGCRE=0</i>	-0.0134 (0.0539)	-0.0339 (0.0536)	-0.0307 (0.0527)	-0.0497 (0.0526)
State Fixed Effect	Yes	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes	Yes
Clustered Std Errors	Yes	Yes	Yes	Yes
Observations	982	943	982	943
Adj R-squared	0.901	0.905	0.886	0.889

Table 5: Cross Section of Valuations for Target Banks Sold in M&A Transactions

This table displays the results from cross-sectional estimations of valuations for target banks sold in M&A transactions from 1994 to 2021 for our variables of interest. The specifications in Columns 1 and 2 estimate Equation (3) with all its regressors (but not shown to save space), where Tobin's Q is specified as the dependent variable, defined as the implied market value of bank equity paid by acquirers for 100 percent of the target bank's equity in the M&A transaction plus the book value of target bank liabilities, scaled by the total book value of target bank assets. The specifications in Columns 3 and 4 estimate Equation (4) with all its regressors (but not shown to save space), where *MVE/TA* is specified as the dependent variable, defined as the market value of bank equity derived from the implied equity value of target banks paid by acquirers for 100 percent of the target banks' equity in M&A transactions, scaled by the total book value of target bank assets. Each equation includes *RESV*, *SEC*, *FF*, and *TRADA* with coefficients constrained to one, and *TRADL* with its coefficient constrained to minus one. Columns 1 and 3 focus on all banking institutions regardless of their asset size, while Columns 2 and 4 focus on community banks, defined as those banks with total assets of less than \$10 billion. All specifications include bank size decile dummies based on total book assets. All dollar-denominated variables are inflation-adjusted using the Consumer Price Index. ***, **, and * indicate a statistical difference from zero at the 1 percent, 5 percent, and 10 percent significance levels, respectively. The superscripts a, b, and c indicate that a coefficient differs from unity at the 1 percent, 5 percent, and 10 percent significance levels, respectively. All specifications include state fixed effects and time fixed effects. Standard errors are clustered at acquirer bank level as some acquirers involve in multiple acquisitions throughout the sample period. All variables are defined in Appendix 1.

Sample: Dependent Variable:	M&A Sample, 1994–2021			
	Tobin's Q		<i>MVE/TA</i>	
	All Banks (1)	Community Banks (2)	All Banks (3)	Community Banks (4)
<i>LGCI</i>	1.0432*** (0.0604)	1.0008*** (0.0634)	1.0242*** (0.0578)	0.9843*** (0.0612)
<i>SM1CI</i>	1.3763***^b (0.1984)	1.3876***^b (0.1993)	1.3300*** (0.2097)	1.3463***^c (0.2099)
<i>SM2CI</i>	1.1363*** (0.0868)	1.1645***^c (0.0868)	1.1669***^b (0.0848)	1.1880***^b (0.0850)
<i>LGCRE</i>	1.0496***^c (0.0284)	1.0527***^c (0.0285)	1.0399*** (0.0274)	1.0403*** (0.0276)
<i>SM1CRE</i>	0.7019** (0.2975)	0.6275** (0.2954)	0.6991** (0.3015)	0.6150** (0.2996)
<i>SM2CRE</i>	1.0495*** (0.0454)	1.0376*** (0.0445)	1.0244*** (0.0450)	1.0111*** (0.0443)
<i>Test SM1CI-LGCI=0</i>	0.3331* (0.1882)	0.3868** (0.1892)	0.3058 (0.2024)	0.3620* (0.2031)
<i>Test SM2CI-LGCI=0</i>	0.0930 (0.1313)	0.1637 (0.1342)	0.1427 (0.1258)	0.2036 (0.1291)
<i>Test SM1CRE-LGCRE=0</i>	-0.3477 (0.2940)	-0.4252 (0.2931)	-0.3408 (0.2972)	-0.4253 (0.2962)
<i>Test SM2CRE-LGCRE=0</i>	-0.0001 (0.0591)	-0.0150 (0.0577)	-0.0155 (0.0582)	-0.0292 (0.0571)
Controls	Yes	Yes	Yes	Yes
State Fixed Effect	Yes	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes	Yes
Clustered Std Errors	Yes	Yes	Yes	Yes
Observations	982	943	982	943
Adj R-squared	0.901	0.905	0.886	0.889

Table 6: Fixed-effect Model of Stock Market Valuation for Publicly Traded Banks

This table displays the results from a fixed-effect model of the stock market valuation for publicly traded banks from 1994 to 2021 for the variables of interest. The specifications in Columns 1 and 2 estimate Equation (3) with all of regressors (but not shown to save space), where Tobin's Q is specified as the dependent variable, defined as the stock market value of bank equity plus book value of liabilities, scaled by the total book value of assets. The specifications in Columns 3 and 4 estimate Equation (4) with all its regressors (but not shown to save space), where MVE/TA is specified as the dependent variable, defined as the stock market value of bank equity scaled by the total book value of assets. Each equation includes $RESV$, SEC , FF , and $TRADA$ with coefficients constrained to one, and $TRADL$ with its coefficient constrained to minus one. Columns 1 and 3 focus on all banking institutions in our sample, while Columns 2 and 4 focus on community banks, defined as those banks with total assets of less than \$10 billion. All specifications include bank size decile dummies based on total book assets. All dollar-denominated variables are inflation-adjusted using the Consumer Price Index. ***, **, and * indicate a statistical difference from zero at the 1 percent, 5 percent, and 10 percent significance levels, respectively. The superscripts a, b, and c indicate that a coefficient differs from unity at the 1 percent, 5 percent, and 10 percent significance levels, respectively. The specifications include bank fixed effects and time fixed effects. Standard errors are clustered at the bank level. All variables are defined in Appendix 1.

Sample Period:	Full Sample Period (1994–2021)			
	Tobin's Q		MVE/TA	
Dependent Variable:	All	Community	All	Community
Sample:	Banks	Banks	Banks	Banks
	(1)	(2)	(3)	(4)
<i>LGCI</i>	1.0187*** (0.0329)	1.0469*** (0.0321)	1.0106*** (0.0325)	1.0392*** (0.0325)
<i>SM1CI</i>	1.2483*** (0.1546)	1.3598***^b (0.1561)	1.2175*** (0.1529)	1.3407***^b (0.1548)
<i>SM2CI</i>	0.9445*** (0.0677)	0.9367*** (0.0513)	0.9544*** (0.0611)	0.9426*** (0.0523)
<i>LGCRE</i>	0.9800*** (0.0319)	0.9650*** (0.0341)	0.9820*** (0.0319)	0.9636*** (0.0341)
<i>SM1CRE</i>	1.0319*** (0.2074)	1.0719*** (0.2122)	1.0930*** (0.2007)	1.1086*** (0.2066)
<i>SM2CRE</i>	1.0129*** (0.0370)	0.9964*** (0.0374)	0.9943*** (0.0359)	0.9784*** (0.0363)
<i>Test SM1CI-LGCI=0</i>	0.2296 (0.1575)	0.3129** (0.1588)	0.2069 (0.1554)	0.3015* (0.1582)
<i>Test SM2CI-LGCI=0</i>	-0.0742 (0.0677)	-0.1102* (0.0577)	-0.0562 (0.0680)	-0.0966 (0.0592)
<i>Test SM1CRE-LGCRE=0</i>	0.0520 (0.2110)	0.1069 (0.2175)	0.1110 (0.2038)	0.1450 (0.2112)
<i>Test SM2CRE-LGCRE=0</i>	0.0329 (0.0408)	0.0314 (0.0408)	0.0123 (0.0394)	0.0148 (0.0392)
Controls	Yes	Yes	Yes	Yes
Bank Fixed Effect	Yes	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes	Yes
Clustered Std Errors	Yes	Yes	Yes	Yes
Observations	6,225	5,315	6,225	5,315
Number of Banks	860	790	860	790
Adj R-squared	0.823	0.846	0.843	0.862

Table 7: Value to Banks of Relationship Lending at Community Banks during and outside the Global Financial Crisis

This table investigates the value to community banks of relationship lending during the GFC and non-GFC periods using the sample of publicly traded community banks. Column 1 displays the results from the fixed-effect model of bank valuation (Equation 3) interacting the crisis dummy variable (*Crs*) with all the regressors (showing only the variables of interest to save space) for the sample of publicly traded community banks from 1994 to 2021. *Crs* takes on a value of one if the bank-year observation belongs to years from 2008 to 2010, and zero otherwise. The dependent variable is Tobin's Q. The estimation includes *RESV*, *SEC*, *FF*, and *TRADA* with coefficients constrained to one, and *TRADL* with its coefficient constrained to minus one. Columns 2 and 3 show the absolute effects evaluated during the non-GFC and GFC periods, respectively. ***, **, and * indicate a statistical difference from zero at the 1 percent, 5 percent, and 10 percent significance levels, respectively. The superscripts a, b, and c indicate that a coefficient differs from unity at the 1 percent, 5 percent, and 10 percent significance levels, respectively. The specification includes bank size decile dummies based on total book assets. All dollar-denominated variables are adjusted to constant dollars using the Consumer Price Index. The specification includes bank fixed effects and time fixed effects. Standard errors are clustered at the bank level. All variables are defined in Appendix 1.

Dependent Variable:	Tobin's Q (1)	Testing Absolute Effects		
		Non-GFC Period $\partial \text{Tobin's Q} / \partial X \mid Crs=0$ (2)	GFC Period $\partial \text{Tobin's Q} / \partial X \mid Crs=1$ (3)	Diff (3)-(2)=0
<i>LGC&I</i>	1.0456*** (0.0323)	1.0456*** (0.0323)	0.9976 (0.0490)	-0.0480 (0.0455)
<i>LGC&I x Crs</i>	-0.0480 (0.0455)			
<i>SM1C&I</i>	1.3509*** (0.1585)	1.3509***^b (0.1585)	1.5876***^a (0.2362)	0.2368 (0.2310)
<i>SM1C&I x Crs</i>	0.2368 (0.2310)			
<i>SM2C&I</i>	0.9396*** (0.0527)	0.9396*** (0.0527)	0.9360*** (0.0838)	-0.0037 (0.0836)
<i>SM2C&I x Crs</i>	-0.0037 (0.0836)			
<i>LGCRE</i>	0.9700*** (0.0367)	0.9700*** (0.0367)	0.9140***^b (0.0344)	-0.0560* (0.0340)
<i>LGCRE x Crs</i>	-0.0560* (0.0340)			
<i>SM1CRE</i>	1.0617*** (0.2253)	1.0617*** (0.2253)	0.8390*** (0.3805)	-0.2227 (0.3960)
<i>SM1CRE x Crs</i>	-0.2227 (0.3960)			
<i>SM2CRE</i>	1.0077*** (0.0378)	1.0077*** (0.0378)	0.8320***^a (0.0536)	-0.1757*** (0.0499)
<i>SM2CRE x Crs</i>	-0.1757*** (0.0499)			
<i>Test SM1C&I-LGC&I=0</i>		0.3053* (0.1615)	0.5900** (0.2329)	0.2847 (0.2319)
<i>Test SM2C&I-LGC&I=0</i>		-0.1058* (0.0588)	-0.0615 (0.1053)	0.0443 (0.1043)
<i>Test SM1CRE-LGCRE=0</i>		0.0917 (0.2297)	-0.0750 (0.3836)	-0.1668 (0.3987)
<i>Test SM2CRE-LGCRE=0</i>		0.0377 (0.0451)	-0.0820 (0.0558)	-0.1197** (0.0600)
Bank Fixed Effect	Yes			
Time Fixed Effect	Yes			
Clustered Std Errors	Yes			
Observations	5,315			
Number of Banks	790			
Adj R-squared	0.851			

Table 8: The Role of Bank Size in Value of Relationship Lending to Publicly Traded Community Banks

This table examines if the role of community bank size matters in value generation of relationship lending using the full sample period for publicly traded community banks. Column 1 displays the results from the fixed-effect model of bank valuation (Equation 3) interacting the *2Bil* dummy with all the regressors (showing the variables of interest to save space) for the full sample period from 1994–2021. The *2Bil* dummy variable takes on a value of one if the bank-year observation belongs to a community bank with book assets greater than \$2 billion. The dependent variable is Tobin's Q. The estimation includes *RESV*, *SEC*, *FF*, and *TRADA* with coefficients constrained to one, and *TRADL* with its coefficient constrained to minus one. Columns 2 and 3 show the absolute effects evaluated at small community banks (assets \$ 2 billion or less) and larger community banks (\$2 billion < assets < \$10 billion), respectively. The specification includes bank size decile dummies based on total book assets. All dollar-denominated variables are adjusted to constant dollars using the Consumer Price Index. ***, **, and * indicate a statistical difference from zero at the 1 percent, 5 percent, and 10 percent significance levels, respectively. The superscripts a, b, and c indicate that a coefficient differs from unity at the 1 percent, 5 percent, and 10 percent significance levels, respectively. The specification includes bank fixed effects and time fixed effects. Standard errors are clustered at the bank level. All variables are defined in Appendix 1.

Dependent Variable:	Tobin's Q (1)	Testing Absolute Effects		Diff (2)-(3)=0
		Small Community Banks $\partial \text{Tobin's Q} / \partial X \mid 2Bil=0$ (2)	Larger Community Banks $\partial \text{Tobin's Q} / \partial X \mid 2Bil=1$ (3)	
<i>LGC&I</i>	1.0150*** (0.0345)	1.0150*** (0.0345)	1.0985***^b (0.0442)	-0.0835* (0.0490)
<i>LGC&I x 2Bil</i>	0.0835* (0.0490)			
<i>SM1C&I</i>	1.4668*** (0.1768)	1.4668***^a (0.1768)	0.9347*** (0.2241)	0.5321** (0.2528)
<i>SM1C&I x 2Bil</i>	-0.5321** (0.2528)			
<i>SM2C&I</i>	0.9083*** (0.0572)	0.9083*** (0.0572)	1.0745*** (0.0850)	-0.1662* (0.0957)
<i>SM2C&I x 2Bil</i>	0.1662* (0.0957)			
<i>LGCRE</i>	0.9743*** (0.0347)	0.9743*** (0.0347)	0.9588*** (0.0435)	0.0155 (0.0411)
<i>LGCRE x 2Bil</i>	-0.0155 (0.0411)			
<i>SM1CRE</i>	1.0906*** (0.2288)	1.0906*** (0.2288)	0.9953*** (0.3795)	0.0953 (0.3859)
<i>SM1CRE x 2Bil</i>	-0.0953 (0.3859)			
<i>SM2CRE</i>	0.9796*** (0.0398)	0.9796*** (0.0398)	1.0125*** (0.0719)	-0.0319 (0.0759)
<i>SM2CRE x 2Bil</i>	0.0319 (0.0759)			
<i>Test SM1C&I-LGC&I=0</i>		0.4518** (0.1806)	-0.1638 (0.2227)	0.6156** (0.2523)
<i>Test SM2C&I-LGC&I=0</i>		-0.1068 (0.0660)	-0.0240 (0.1028)	-0.0829 (0.1210)
<i>Test SM1CRE-LGCRE=0</i>		0.1163 (0.2323)	0.0365 (0.3763)	0.0798 (0.3797)
<i>Test SM2CRE-LGCRE=0</i>		0.0053 (0.0424)	0.0527 (0.0558)	-0.0474 (0.0842)
Controls	Yes			
Bank Fixed Effect	Yes			
Time Fixed Effect	Yes			
Clustered Std Errors	Yes			
Observations	5,315			
Number of Banks	790			
Adj R-squared	0.848			

Appendix 1: Variable Definitions

Variable	Definition
Valuation Measures	
<i>Tobin's Q</i>	Market value of bank equity plus book value of liabilities, scaled by the total book value of assets. The market value for the publicly traded bank sample is constructed as the average of daily market values for the month of August. The market value (implied) for the M&A target bank sample is the total market value of bank equity paid by acquirers for 100 percent of a target bank's equity in an M&A transaction.
<i>MVE/TA</i>	Market value of equity, scaled by total book value of assets. The market value for the publicly traded bank sample is constructed as the average of daily market values for the month of August. The market value (implied) for the M&A target bank sample is the total market value of bank equity paid by acquirers for 100 percent of a target bank's equity in an M&A transaction.
Small Business Loans	
<i>SMC&I</i>	Total small commercial and industrial loans; measured as the bank's total commercial and industrial loans with original amounts of \$1 million or less, divided by the book value of bank assets.
<i>SM1C&I</i>	Small commercial and industrial loans with original amounts of \$100,000 or less; measured as the bank's commercial and industrial loans with original amounts of \$100,000 or less, divided by the book value of bank assets.
<i>SM2C&I</i>	Small commercial and industrial loans with original amounts of more than \$100,000 through \$1 million; measured as the bank's commercial and industrial loans with original amounts of more than \$100,000 through \$1 million, divided by the book value of bank assets.
<i>SMCRE</i>	Total small commercial real estate loans; measured as the bank's total real estate loans secured by nonfarm, nonresidential properties with original amounts of \$1 million or less, divided by the book value of bank assets.
<i>SM1CRE</i>	Small commercial real estate loans with original amounts of \$100,000 or less; measured as the bank's real estate loans secured by nonfarm, nonresidential properties with original amounts of \$100,000 or less, divided by the book value of bank assets.
<i>SM2CRE</i>	Small commercial real estate loans with original amounts of more than \$100,000 through \$1 million; measured as the bank's real estate loans secured by nonfarm, nonresidential properties with original amounts of more than \$100,000 through \$1 million, divided by the book value of bank assets.
Loans and Leases	
<i>LGC&I</i>	Total large commercial and industrial loans; measured as the bank's total commercial and industrial loans minus total small commercial and industrial loans (<i>SMC&I</i>), divided by the book value of bank assets.
<i>LGCRE</i>	Total large commercial real estate loans; measured as the bank's total loans secured by nonfarm, nonresidential properties, minus the total small commercial real estate loans (<i>SMCRE</i>), divided by the book value of bank assets.
<i>CSTR</i>	Total construction loans; measured as the bank's total construction, land development, and other land loans, divided by the book value of bank assets.
<i>RES</i>	Total loans secured by 1-4-family residential properties; measured as the bank's total loans secured by 1-4-family residential properties, divided by the book value of bank assets.
<i>MULT</i>	Total loans secured by multifamily residential properties; measured as the bank's total loans secured by multifamily residential properties, divided by the book value of bank assets.
<i>FARM</i>	Total loans to farmers; measured as the sum of the bank's loans secured by farmland and loans to finance agricultural production and other loans to farmers, divided by the book value of bank assets.
<i>CONS</i>	Total consumer loans including credit card and other revolving plan loans, divided by the book value of bank assets.

<i>OTHLNS</i>	Total other loans and leases; measured as the sum of the bank's loans to depository institutions, loans to foreign governments, loans made by the bank's foreign offices plus all lease financing receivables, divided by the book value of bank assets.
Other Balance Sheet Items	
<i>SEC_AFS</i>	Fair value of the available for sale securities holdings; measured as the sum of the bank's available for sale securities and equity securities, each measured at fair value, divided by the book value of bank assets.
<i>SEC_HTM</i>	Fair value of the held-to-maturity securities holdings; measured as the bank's securities held to maturity recorded at fair value, divided by the book value of bank assets.
<i>RESV</i>	Reserves, measured as the bank's cash and balances due from depository institutions, divided by the book value of bank assets.
<i>FF</i>	Net federal funds sold and securities purchased under agreements to resell; measured as the bank's federal funds sold and securities purchased under agreements to resell net of the bank's federal funds borrowed and securities sold under agreements to repurchase, divided by the book value of bank assets.
<i>TRADA</i>	Trading assets; measured as the bank's trading assets, divided by the book value of bank assets.
<i>NPL</i>	Nonperforming loans; measured as the sum of the bank's loans over 90 days past due and nonaccruing loans, divided by the book value of bank assets.
<i>FIX</i>	Fixed assets, divided by the book value of bank assets.
<i>INTAN</i>	Intangible assets, divided by the book value of bank assets.
<i>MiscA</i>	The sum of investments in unconsolidated subsidiaries and other assets reported in Schedule RC-F, divided by the book value of bank assets.
<i>OREO</i>	Other real estate owned, divided by the book value of bank assets.
<i>CORE</i>	Core deposits; measured as the sum of the bank's demand deposits, NOW and other transaction accounts, money market deposit accounts, and other savings accounts, divided by the book value of bank assets.
<i>OTHDEP</i>	Other deposits; measured as the bank's time deposits, divided by the book value of bank assets.
<i>TRADL</i>	Trading liabilities; measured as the bank's trading liabilities, divided by the book value of bank assets.
<i>OTHLIAB</i>	Other liabilities; measured as the sum of the bank's other borrowed money, liability on acceptances executed and outstanding, subordinated notes and debentures, minority interest in consolidated subsidiaries, perpetual preferred stock and related surplus, and other liabilities, divided by the book value of bank assets.
Other Bank Characteristics & Measures	
<i>FEE</i>	Fee income; measured as the bank's total noninterest income net of service charges on deposit accounts in domestic offices and net gains (losses) on sales of loans, leases, and other real estate owned, divided by the book value of bank assets.
<i>OPEXPtoOPINC</i>	Noninterest (operating) expense; measured as the sum of the bank's expenses on salaries and employee benefits, expenses of premises and fixed assets, and other noninterest expenses, divided by operating income.
<i>LHERF</i>	The logarithm of the Herfindahl index that measures the concentration of assets within a multibank holding company; constructed as follows: $LHERF = \text{Log} \sum_{i=1}^n \left(\frac{100 * \text{Assets of Subsidiary}_i}{\text{Sum of Assets of All Subsidiaries}} \right)^2$
<i>Crs</i>	Crisis dummy which equals 1 for bank-year observations from 2008 to 2010, 0 otherwise.
<i>ACQ%</i>	Percentage of ownership acquired in target banks sold in M&A transactions.
<i>CASH%</i>	Percentage of cash offered by acquirers in the total purchase price of target banks.
<i>RELSIZE(%)</i>	Relative size measured as the book assets of target bank divided by the book assets of acquirer.

Appendix 2A: Value to Community Banks of Relationship Lending during and outside the Global Financial Crisis Period, Excluding the COVID-19 Pandemic Period

The estimations shown in this table are the same as in Table 7 except that they exclude the COVID-19 pandemic period, 2020 to 2021. Column 1 displays the estimates for the variables of interest from the fixed-effect model of bank valuation (Equation 3) interacting the *Crs* dummy variable with all the regressors (showing only the variables of interest to save space) for the sample of publicly traded community banks from 1994 to 2019. The *Crs* dummy takes on a value of one if the bank-year observation belongs to the years of the GFC, from 2008 to 2010, and zero otherwise. The dependent variable is Tobin's Q. The estimation includes *RESV*, *SEC*, *FF*, and *TRADA* with coefficients constrained to one, and *TRADL* with its coefficient constrained to minus one. Columns 2 and 3 show the absolute effects of assets evaluated during the non-GFC period and GFC period, respectively. ***, **, and * indicate a statistical difference from zero at 1 percent, 5 percent, and 10 percent significance level, respectively. The superscripts a, b, c indicate that a coefficient differs from unity at the 1 percent, 5 percent, and 10 percent significance level, respectively. The specification includes bank size decile dummies based on total book assets. All dollar-denominated variables are adjusted to constant dollars using the Consumer Price Index. The specification includes bank fixed effects and time fixed effects. Standard errors are clustered at the bank level. All variables are defined in Appendix 1.

Dependent Variable:	Tobin's Q (1)	Testing Absolute Effects		
		Non-GFC Period $\partial \text{Tobin's Q} / \partial X \mid Crs=0$ (2)	GFC Period $\partial \text{Tobin's Q} / \partial X \mid Crs=1$ (3)	Diff (3)-(2)=0
<i>LGC&I</i>	1.0408*** (0.0345)	1.0408*** (0.0345)	0.9973 (0.0503)	-0.0435 (0.0450)
<i>LGC&I x Crs</i>	-0.0435 (0.0450)			
<i>SM1C&I</i>	1.3171*** (0.1670)	1.3171***^b (0.1666)	1.5713***^b (0.2359)	0.2542 (0.2292)
<i>SM1C&I x Crs</i>	0.2542 (0.2292)			
<i>SM2C&I</i>	0.9346*** (0.0556)	0.9346*** (0.0556)	0.9378*** (0.0844)	-0.0032 (0.0839)
<i>SM2C&I x Crs</i>	0.0032 (0.0839)			
<i>LGCRE</i>	0.9647*** (0.0394)	0.9647*** (0.0394)	0.9073***^a (0.0361)	-0.0574* (0.0347)
<i>LGCRE x Crs</i>	-0.0574* (0.0347)			
<i>SM1CRE</i>	1.1056*** (0.2234)	1.1056*** (0.2234)	0.7952*** (0.3819)	-0.3104 (0.3956)
<i>SM1CRE x Crs</i>	-0.3104 (0.3956)			
<i>SM2CRE</i>	0.9962*** (0.0392)	0.9962*** (0.0392)	0.8268***^a (0.0552)	-0.1694*** (0.0501)
<i>SM2CRE x Crs</i>	-0.1694*** (0.0501)			
<i>Test SM1C&I-LGC&I=0</i>		0.2763* (0.1690)	0.5740** (0.2321)	0.2977 (0.2297)
<i>Test SM2C&I-LGC&I=0</i>		-0.1062 (0.0618)	-0.0595 (0.1063)	0.0467 (0.1036)
<i>Test SM1CRE-LGCRE=0</i>		0.1409 (0.2281)	-0.1121 (0.3853)	-0.2530 (0.3984)
<i>Test SM2CRE-LGCRE=0</i>		0.0315 (0.0468)	-0.0805 (0.0568)	-0.1120* (0.0609)
Controls	Yes			
Bank Fixed Effect	Yes			
Time Fixed Effect	Yes			
Clustered Std Errors	Yes			
Observations	5,016			
Number of Banks	771			
Adj R-squared	0.847			

Appendix 2B: Market Capitalization at Community Banks during and outside the Global Financial Crisis, Excluding the COVID-19 Pandemic Period

The estimations shown in this table are the same as in Table 8 except that they *exclude the COVID-19 pandemic period, 2020 to 2021*. Column 1 displays the estimates for the variables of interest from the fixed-effect model of market capitalization (Equation 4) interacting the *Crs* dummy with all the regressors (showing only the variables of interest to save space) for the sample of publicly traded community banks from 1994 to 2019. *Crs* is a dummy variable which takes the value of one if the bank-year observations belong to the years of the GFC from 2008 to 2010, and zero otherwise. The dependent variable is *MVE/TA*, defined as the market value of bank equity scaled by the total book value of assets. Columns 2 and 3 show the absolute effects of assets evaluated during the non-GFC and GFC periods, respectively. ***, **, and * indicate a statistical difference from zero at the 1 percent, 5 percent, and 10 percent significance levels, respectively. The superscripts a, b, and c indicate that a coefficient differs from unity at the 1 percent, 5 percent, and 10 percent significance levels, respectively. The specification includes bank size decile dummies based on total book assets. All dollar-denominated variables are adjusted to constant dollars using the Consumer Price Index. The specification includes bank fixed effects and time fixed effects. Standard errors are clustered at the bank level. All variables are defined in Appendix 1.

Dependent Variable:	<i>MVE/TA</i> (1)	Testing Absolute Effects		<i>Diff</i> (3)-(2)=0
		Non-GFC Period $\partial(MVE/TA)/\partial X \mid Crs=0$ (2)	GFC Period $\partial(MVE/TA)/\partial X \mid Crs=1$ (3)	
<i>LGC&I</i>	1.0309*** (0.0349)	1.0309*** (0.0349)	0.9919*** (0.0504)	-0.0390 (0.0430)
<i>LGC&I x Crs</i>	-0.0390 (0.0430)			
<i>SM1C&I</i>	1.2954*** (0.1661)	1.2954*** ^c (0.1661)	1.5782*** ^a (0.2280)	0.2828 (0.0231)
<i>SM1C&I x Crs</i>	0.2828 (0.2225)			
<i>SM2C&I</i>	0.9355*** (0.0570)	0.9355*** (0.0570)	0.9500*** (0.0790)	0.0145 (0.0777)
<i>SM2C&I x Crs</i>	0.0145 (0.0777)			
<i>LGCRE</i>	0.9625*** (0.0392)	0.9625*** (0.0392)	0.9079*** ^a (0.0347)	-0.0546* (0.0330)
<i>LGCRE x Crs</i>	-0.0546* (0.0330)			
<i>SM1CRE</i>	1.1286*** (0.2137)	1.1286*** (0.2137)	0.7531*** (0.3741)	-0.3755 (0.3848)
<i>SM1CRE x Crs</i>	-0.3755 (0.3848)			
<i>SM2CRE</i>	0.9765*** (0.0376)	0.9765*** (0.0376)	0.8325*** ^a (0.0543)	-0.1440*** (0.0498)
<i>SM2CRE x Crs</i>	-0.1440*** (0.0498)			
<i>Test SM1C&I-LGC&I=0</i>		0.2645 (0.1692)	0.5863*** (0.2255)	0.3218 (0.2241)
<i>Test SM2C&I-LGC&I=0</i>		-0.0954 (0.0637)	-0.0420 (0.1009)	0.0535 (0.0966)
<i>Test SM1CRE-LGCRE=0</i>		0.1661 (0.2169)	-0.1548 (0.3792)	-0.3209 (0.3868)
<i>Test SM2CRE-LGCRE=0</i>		0.0140 (0.0450)	-0.0754 (0.0553)	-0.0894 (0.0587)
Controls	Yes			
Bank Fixed Effect	Yes			
Time Fixed Effect	Yes			
Clustered Std Errors	Yes			
Observations	5,016			
Number of Banks	771			
Adj R-squared	0.862			