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ABSTRACT

Joining the debate on the banking sector's impact on the real economy, this study examines the impact of banks' market power on local businesses' financial reporting quality. Based on the market power hypothesis and the information-based hypothesis, we propose four ways the banking market could affect the financial reporting quality. The proposed mechanisms suggest that borrowers and bank lenders face increased market power by implementing different earnings management and monitoring practices. Our documentary evidence suggests that since the banking market deregulation, restrictions on inter- and intra-state banking and branching have been removed, with banks gaining more power and the market becoming more consolidated. Using a large sample of U.S. listed firms from 1995 to 2019, we find a favourable impact of bank market power on corporate financial reporting quality, primarily driven by heightened monitoring by banks with greater market power, supporting the monitoring-stringent conjecture. In addition, this positive relationship is more pronounced among firms heavily reliant on local banks. Our results are robust to a rich set of tests, such as using alternative measurements for financial reporting quality and bank market power, including macroeconomic factors, and considering drastic changes in the bank market structure. We also address the endogeneity concerns and test the robustness of our key findings in a loan syndication setting. Our research suggests that facing increased bank market concentration and power, firms must pay additional attention to their financial reporting, which is widely used to access external finance.

1. Introduction

This investigation aims to explore the relationship between U.S. regional bank market power and the financial reporting quality of local non-financial firms. The U.S. bank market has constitutively engaged in changes in the last 30 years, especially after the passage of the Riegle-Neal Interstate Banking and Branching Efficiency Act (IBBEA) in 1994, which allows inter- and intra-state banking and

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branching. With the merger of small and inefficiently operating banks, bank consolidation has resulted in a concentrated banking market which comprises larger banks with greater market power. Prior studies have explored the relationship between changes in bank market structure and firms' financial reporting practices (e.g. Chen and Vashishtha, 2017; Gormley et al., 2012; Hagendorff et al., 2021; Huang, 2021; Su, 2021; Hou and Liang, 2023), providing intriguing yet inconsistent results.[1] There is no consensus on how bank market power influences borrowing firms' accounting choices, which remains an empirical question.

In the existing literature, some studies consider bank market structure as an indirect proxy for credit supply, providing general support for the structure–conduct–performance (SCP) theorem that bank market concentration leads to more bank market power, reduced credit supply, and higher loan rates (Gonzalez, 2009; Hannan, 1991; Shaffer, 2002). However, studies of how credit availability affects heterogeneous firms report mixed findings. For example, specifically related to banking market deregulation, small businesses can borrow more from banks and pay lower interest rates when credit supply increases with intensified banking competition (Rice and Strahan, 2010). A more competitive bank market also increases credit supply to innovative businesses, leading to improved corporate innovation activities, such as the number of patents obtained (Amore et al., 2013). In contrast, in a more concentrated bank market, borrowers are charged higher rates for syndicated loans (Mi and Han, 2020).

Another strand of literature has seen bank market power as a facilitator of private information acquisition, via relationship lending, for example, known as the 'information-based' hypothesis (Petersen and Rajan, 1995). However, the existing literature examining such information-capturing effects offers competing views. On the one hand, in a more concentrated bank market, the lending market becomes more accessible to financially constrained firms because it is easier for lenders to internalise the benefits of assisting them (Petersen and Rajan, 1995). Recent studies show that bank market power motivates banks to invest in soft information collection to alleviate the problem of asymmetric information in small-business lending markets (Han et al., 2009; Wang et al., 2020). A more detailed discussion of the value of relationship banking is available in the seminal studies of Diamond (1989) and Boot and Thakor (1994). However, businesses might also 'suffer' from the information advantage of informed banks that extract rent from borrowers (Petersen and Rajan, 1995). Such lenders are referred to as having 'monopoly-like power' (Ioannidou and Ongena, 2010) and supporting evidence has become available both theoretically (e.g. Sharpe, 1990) and empirically (e.g. Niinimäki, 2022).

In this paper, we contribute to the literature by examining how bank market power affects non-financial firms' financial reporting quality (FRQ). Following the literature above, we assert that bank market power affects FRQ via credit supply channels and/or a bank monitoring channel through the following four non-mutually exclusive mechanisms:

Following SCP, with increased bank market power, non-financial firms might face a reduced credit supply (Fraisse et al., 2018), and hence, they have a stronger motivation to signal their creditability to lenders to access external financing. In pursuit of creditability enhancement, businesses may intentionally improve their FRQ or public disclosure (Chen and Vashishtha, 2017) when facing reduced credit supply to improve their access to alternative sources of financing (Baiman and Verrecchia, 1996; Diamond, 1991) or to respond to a negative economic shock and tightening of lending standards (Khan and Lo, 2019). This ***self-disclosing*** mechanism implies a positive association between bank market power and FRQ.

The credit supply channel above may also elicit a negative association between banks' market power and FRQ via a ***manipulation-incentive*** mechanism. When credit supply decreases with increased bank market power, firms are more likely to engage in earnings management to secure positive future earnings to access external financing (Dechow et al., 2010) or avoid debt covenant violations (Dechow et al., 1996). Supporting evidence on such a manipulation incentive mechanism is available when firms have a stronger demand for external financing and engage in earnings management, for example, before an IPO (e.g. Sletten et al., 2018; Teoh et al., 1998) and surrounding debt issues (Liu et al., 2010). Furthermore, bank consolidation can result in fewer large banks and more branches. With increased financial intermediaries and information transmitted to multiple agents within their hierarchical organisation (Stein, 2002), banks may shift their monitoring method to hard information (financial statements) and are less likely to collect private information. Without the help of private information to verify the reported financial statements, we expect local borrowers to have poor-quality financial reports because their financial information is less likely to be verified due to the lack of intention for banks to collect private information.

Banks may also affect the FRQ of non-financial firms via a monitoring channel where banks have a stronger motivation to collect private information from corporate borrowers (Petersen and Rajan, 1995) when they have greater market power by developing a long-term lending relationship so that corporate borrowers are less likely to withhold bad news and are more likely to provide high-quality financial reporting. Such a ***monitor-stringent*** mechanism implies a positive relationship between banks' market power and FRQ. Examining such a ***monitor-stringent*** mechanism indirectly, Huang (2021) finds that with increased bank competition after market deregulation, local banks relax their demand for conservative reporting, and businesses report less conservatively when the bank market becomes more competitive. Furthermore, Delis et al. (2017) state that banks with market power have a superior ability to screen profitable investment ideas and monitor borrowers, thereby improving their performance.

Following the information-based hypothesis, with increased market power, banks may also relax their requirements for borrowing firms' FRQ and rely more heavily on private information acquired via lending relationships (Petersen and Rajan, 1995), referred to as the ***monitor-relax*** mechanism. Regional banks with greater market power usually communicate and interact with local borrowers.

[1] The mixed results include direct evidence (e.g. Huang, 2021; Hou and Liang, 2023) and indirect evidence (e.g. Gormley et al., 2012; Hagendorff et al., 2021). For example, Hagendorff et al. (2021) find that the increased branch density (measured by the number of branches within a 10 km radius that the firm is headquartered) is associated with better financial reporting quality. Huang (2021) reports a negative relation between bank competition (post bank deregulation) and accounting conservatism. We delve into the specifics of these studies at the end of the introduction section.

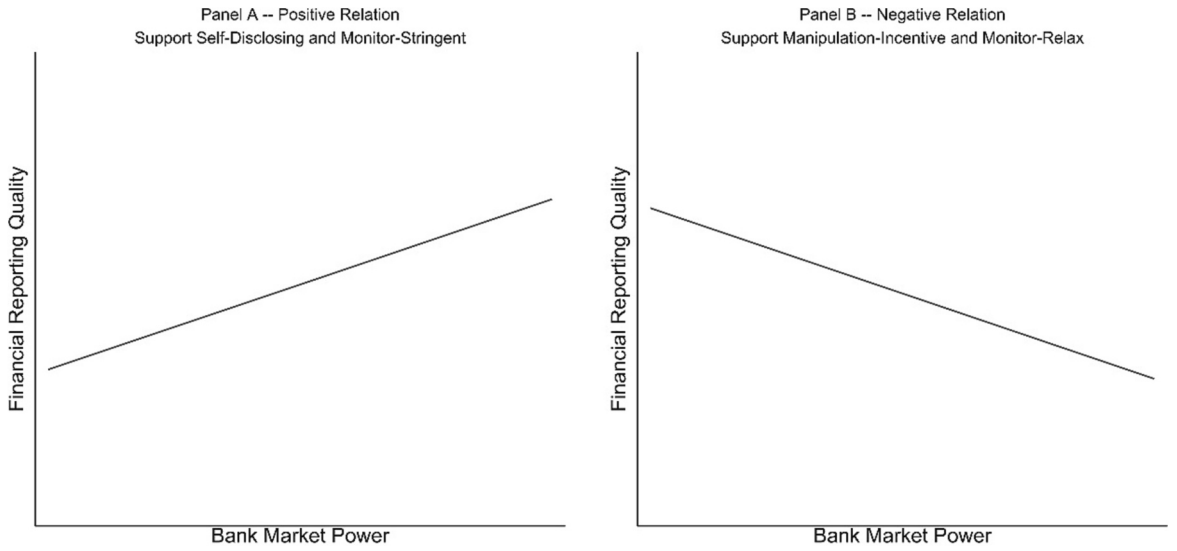


Fig. 1. Two predictions with four explanations.

This mechanism is supported by Berger et al. (2017), who examine the relationship between bank expertise and the requirement for audited financial reports and show that banks with more exposure to a sector, thus having more interaction with borrowers and are better at private information acquisition, are less likely to require audited financial reports from borrowers.

Our study examines how non-financial firms adjust their accounting practices in response to bank market changes when banks gain more power in a local bank market. The four possible relationships are presented in Fig. 1, and our further analysis focuses on identifying the mechanism that determines businesses' responses to increased bank market consolidation in terms of FRQ decision-making.

We employ a sample of 77,414 U.S. firm-year observations from 1995 to 2019. First, we construct a set of bank market power and concentration measures, including structural (Hirschman-Herfindahl index (HHI) and Concentration Ratios (CR_n)) and nonstructural measures[2] (Lerner and H-Statistic), to quantify the cross-sectional variation in the bank market environment in which local businesses operate. It was previously documented that the passage of the IBBEA in 1994 intensified banking competition, with banks merging across state boundaries, resulting in a significant decline in the number of banks and an increase in branch numbers for individual banks (Kerr and Nanda, 2009). In addition, we find that the US banking market has become more consolidated with a substantial increase in market concentration and heightened bank market power during the data period, using five different measures of bank market structure: Lerner, H-statistic, HHI, CR_3 and branch density.

Using the bank market structure measured at the state level, we find that firms operating in regions in which banks have greater market power tend to have higher financial reporting quality. Specifically, our results suggest that if state banks' market power increases by one standard deviation (0.072), firms' financial reporting quality in that region increases by 6%. Our baseline results are consistent with the predictions under both ***self-disclosing*** (borrowers' incentives to produce high-quality financial information to attract external capital) and ***monitor-stringent*** (toughened bank monitoring) mechanisms, in which a positive relationship exists between borrowing firms' financial reporting quality and their regional bank market power.

We then further distinguish which mechanism, ***self-disclosing*** or ***monitoring-stringent*** dominates the positive relationship between regional bank market power and corporate financial reporting quality. We construct two corporate performance indicators as proxies for both the intention to manage earnings and the necessity of bank monitoring, as we expect poor (good) performers to have stronger (weaker) incentives to produce high-quality financial reports to access bank credit and are more (less) likely to be monitored by banks. Our results suggest that the ***monitor-stringent*** mechanism dominates the positive relationship between bank market power and financial reporting quality, wherein specifically, *Poor-performance* (*Top_performance*) strengthens (weakens) the impact of bank market power on financial reporting quality. This result is also robust to alternative firm-level indicators, such as Kaplan-Zingales (KZ) Index. To capture bank monitoring more directly on a one-to-one basis, we collected syndicated loan data from DealScan, providing a one-to-one relationship between a corporate borrower and a group of banks involved in loan syndication. With more branches of lead arrangers located at a certain distance from the borrower (e.g. Hagendorff et al., 2021), we expecthe lead arrangers would exercise more

[2] The structural approach embraces the SCP paradigm and efficiency hypotheses, which suggests that market structure is reflected in HHI and CR_n. This literature is essentially based on the assumption that concentration weakens competition by fostering collusive behavior among firms (e.g. Berger et al., 2005; Goldberg and Rai, 1996). The non-structural approach posits that factors other than market structure and concentration may affect competitive behavior, such as entry/exit barriers and the general contestability of the market (Panzar and Rosse, 1984). The most important advantage of the approach is that it cannot be assumed a priori that concentrated markets are not competitive because contestability may depend on the extent of potential competition (Goddard et al., 2001).

monitoring with lower costs. Our results for syndicated loan markets provide additional supporting evidence for the prevailing role of the ***monitor-stringent*** mechanism.

We used two methods to address the endogeneity concerns. First, we use the two-stage least square method (2SLS) by employing branch deregulation as our instrumental variable (IV). Second, we use a placebo test to address concerns that our inference might be driven by unobservable state-level factors that determine the progress of state-level bank deregulation, consequently influencing state-level bank market power. Our results from both the 2SLS and placebo tests suggest that endogeneity is unlikely to affect our earlier findings, although we cannot rule out all endogeneity concerns.

The bank market structure may also affect business practices via its impact on local economic conditions, and our baseline result might be subject to a potential bias caused by economic conditions. This is because changes in the bank market could trigger a significant change in local economies (Jayaratne and Strahan, 1996) and in response to worsened economic conditions and the tightening of lending standards; for example, borrowers have the motive to increase their financial reporting quality (Khan and Lo, 2019). We conducted three tests to address this economic concern. First, we consider state-level economic controls such as GDP, GDP growth, and personal income. Second, we rerun the baseline models by excluding the sample from the 2007–2009 financial crisis,[3] which witnessed the largest economic shock over the last three decades (Khan and Lo, 2019). Third, we use the *state*year* fixed effect to simultaneously control for the time-varying economic shock factors and unobservable state-level factors that might affect our main results. Overall, these results indicate that exogenous shocks to the banking market do not impact our inferences.

Our results also show that the positive relationship between bank market power and corporate financial reporting quality is more pronounced for firms that depend heavily on local banking markets. Our key results are also robust to a rich set of tests such as resampling for states which experienced a dramatic change in bank market power, alternative measures of bank market power ratios (HHI, CR_n, H-statistic, and branch density) as opposed to the Lerner index used in the main analysis, and alternative measures of financial reporting quality (C-score). Finally, we rerun the baseline model at the Metropolitan Statistical Area (MSA) and county level to address the concern that 'state is too broad to be local'.

The contributions of this study are as follows. First, it contributes to recent debates concerning the effect of financial intermediaries in shaping non-financial firms' accounting practices. Chen and Vashishtha (2017)[4] state that large financial institutions shift their monitoring methods by relying more on hard than on soft information. Consequently, borrowing firms would voluntarily disclose harder financial information to appeal to the needs of potential creditors and improve their access to external financing. Hagendorff et al. (2021) document that with an increase in branch density (measured by the number of branches within a 10 km radius of the firm headquartered), non-financial firms are more likely to increase the quality of financial reporting and reduce the likelihood of fraud because it has become easier for banks to collect borrowers' information and perform monitoring. Huang (2021) investigates the relationship between bank market deregulation (IBBEA-1994) and accounting conservatism and reports that borrowers' accounting practices become less conservative with intensified banking competition after the IBBEA and banks' requirement for conservative accounting is relaxed. With banks having increasing needs for and access to borrowers' private information, borrowers may either increase (Su, 2021) or decrease (Berger et al., 2017) their reporting quality. Su (2021) documents that cross-selling improves borrowers' financial reporting quality, as banks have a closer understanding of borrowers and deter them from withholding bad information. In contrast, Berger et al. (2017) suggest that banks relax the requirement of high-quality financial reporting (audited financial statements) when they have expertise in certain industries and more interaction with borrowers, thus being more informed. Our study adds to Hagendorff et al. (2021) and Huang (2021) by reporting a more consolidated bank market structure after the IBBEA and a positive relationship between bank market power and borrowers' financial reporting quality. Our findings complement and advance those of Chen and Vashishtha (2017) and Su (2021) by differentiating between the mechanisms of ***self-disclosing*** and ***monitor-stringent***.

Second, this study provides insights into debates on bank deregulation and competition. Banks deregulation and competition have an ambiguous relationship (Berger et al., 2020). On the one hand, bank deregulation removes entry barriers for banks, thus increasing banking competition. However, after deregulation, banks expanded in size via mergers and acquisitions, resulting in a more consolidated and concentrated banking market. We use structural (e.g. HHI and CR_3) and nonstructural measures (e.g. Lerner and H-statistics) to provide a more comprehensive measure of bank market changes, in contrast to using a dummy variable for deregulation in the DID analysis. The underlying assumption made by concurrent studies using the DID approach (e.g. Francis et al., 2014; Huang, 2021) is that the banking market becomes more competitive because of intra- and inter-state deregulation. However, using various bank market structure measures, our documentary evidence shows that the US bank market became more consolidated after bank market deregulation. Therefore, our year-state measures of bank market power better capture cross-state bank market changes after the bank market deregulation.

Third, this study expands the body of literature on the implications of bank market power. Prior studies have primarily focused on

[3] Although the 2007–2009 subprime mortgage crisis is not directly resulting from the banking deregulation and changes of bank market power, it has a relation with the concentration of bank market, in which banks have imposed less credit rationing, pre-loan screening, and post-loan monitoring, leading to more loan defaults (Boyd and De Nicolo, 2005).

[4] The findings of our research may not be directly comparable to those of Chen and Vashishtha (2017) due to divergent focus areas. Their study primarily centers on bank mergers and acquisitions (M&As), which lead to complex, hierarchical organizations, thus depending more on hard information. Our paper, instead, takes a different route, where the increase in bank market power is more likely to enhance the ability to gather private information. This is underpinned by the premise that both organic growth (without resorting to M&As) and M&As with local banks could augment local knowledge and the utilization of private information.

the effect of banks' market power on deposit prices (e.g. Drechesler et al., 2017), loan prices (e.g. Wang et al., 2022), corporate innovation (e.g. Cornaggia et al., 2015) and social welfare (e.g. Maudos and de Guevara, 2007) and etc. This study provides new insights into bank market power changes by focusing on borrowers' FRQs. Although Huang (2021) and Hou and Liang (2023) investigated the impact of banking competition on corporate accounting conservatism, we differ from these two studies in four major ways.[5] First, Huang (2021) and Hou and Liang (2023) focus on bank-staggered deregulation, which permits the state to gradually lift bank branching restrictions at the state level, using empirical samples spanning 1994 to 2005. However, Favara and Imbs (2015) demonstrated that the RS index has only a short-term (e.g. three-year) impact and the relationship between bank deregulation and bank competition remains an empirical question (Berger et al., 2020).[6] Rather than presuming that bank deregulation invariably leads to a more competitive (concentrated) bank market, we adopt the Lerner Index. This index, measured at the state, Metropolitan Statistical Area (MSA), and county levels, offers a more accurate representation of the long-term shifts in banks' market power from 1995 to 2019. Second, instead of accounting conservatism ratios, we focus on earnings quality ratios (accrual) as a measure of financial reporting quality (FRQ), which is the top indicator lenders seek when evaluating reporting quality (Donelson et al., 2017). Donelson et al. (2017) also mention that conservative accounting is important in determining financial reporting quality. However, when asking lenders about their understanding of conservatism, those lenders stated that they "*looked for timely loss recognition via accruals involving receivable, inventory, and payable, consistent with the focus on working capital accrual*" (p.2080). Therefore, earnings quality (accruals) is a better proxy for evaluating bank lenders' FRQ. Third, Huang (2021) and Hou and Liang (2023) find that deregulation hinders banks' monitoring ability, leading to less conservative reporting by borrowers. We find that as a result of bank deregulation, the market for banks becomes more consolidated, resulting in greater control and monitoring capabilities, thereby enhancing FRQ. Additionally, we use our sample to test the relationship between banks' market structure and accounting conservatism, and our results differ from those of Huang (2021) and Hou and Liang (2023). This could be because of the wider sample range covered in the current study. Fourth, we compare the credit supply and monitoring channels and propose four distinct mechanisms for the relationship between bank market structure and financial reporting quality because bank deregulation can impact both monitoring and credit supply (e.g. Chava et al., 2013; Cornaggia et al., 2015).

The remainder of this paper is organised as follows. We review the relevant literature and develop our hypotheses in Section 2. Section 3 describes the data, samples, variables, and empirical models. We report the empirical results in Section 4 and conclude the paper in Section 5.

2. Literature review and hypothesis development

2.1. Background on U.S. bank market deregulation and relevant literature

The U.S. banking market was heavily regulated, and banks were restricted from opening new branches outside their local state boundaries. This situation eased in the 1970s when the U.S. banking market witnessed a deregulation wave until the 1990s (Johnson and Rice, 2008). In 1982, Maine first passed an interstate banking deregulation act, and this trend began to spread across the US. Two restrictions were lifted during this period: intra-state branching and interstate banking. Intra-state branching deregulation allows banks to expand within the local state by acquiring other branches or new branches (Strahan, 2003), which has largely increased banking market efficiency because efficient banks can take up additional market share by acquiring inefficient local bank branches as subsidiaries. Interstate banking deregulation permits banks from other states to establish chartered banks in deregulated states. By the mid-1990s, the assets held by out-of-state banks rose to 23%, compared to 0% in the mid-1970s. In 1994, the IBBEA removed restrictions on interstate banking at the federal level and allowed banks (national and state banks) to engage in interstate branching. Consequently, bank market efficiency has improved, with efficiently operating banks drastically expanding their market share (Kroszner and Strahan, 2013), and the total number of banks in the market has decreased because of the deterioration of small local banks (Kerr and Nanda, 2009).

Two empirical studies investigated the consequences of banking and branching deregulation. One stream focuses on credit supply, where with increasing market power, banks maximise profits by charging higher rates on loans and paying lower interest on deposits, leading to credit rationing and reduced credit supply (e.g. Guzman, 2000a; Pagano, 1993). Banks with greater market power charge higher loan prices because of cost inefficiency (Ariss, 2010; Delis and Tsionas, 2009). Another stream of literature promotes the notion that market consolidation is accompanied by favourable effects, such as accelerating innovation, promoting firm growth, and reducing information asymmetries (Boot and Thakor, 2000; De Haas and Van Horen, 2012; Delis et al., 2017). As the bank market becomes more consolidated, banks with greater market power have superior advantages in screening profitable investment ideas and monitoring borrowers (Delis et al., 2017). These banks prefer to collect borrowers' soft information, even though it is costly, so they can capture the benefits and cover the information collection costs through a long-term lending relationship (Dell'Ariccia and Marquez, 2004).

2.2. Creditors and borrower's financial reporting quality

High-quality financial reporting is useful to investors, creditors, managers, and contracting parties. A firm with higher-quality

[5] In addition, our paper addresses the concern on the short-term effect of RS-indexed market structure change (Favara and Imbs, 2015) by using data over a longer period and considering the impact of the credit supply of bank market.

[6] The evidence in the Appendix shows a positive relationship between bank deregulation and bank market power.

financial reporting tends to allocate resources more efficiently, make business decisions more accurately, and convey more information to its stakeholders. However, managers might manipulate earnings because of various incentives related to capital market pressure, compensation contracts, or the desire to protect their job security (Wahlen and Healy, 1999), adversely affecting firms' financial reporting quality. Information embedded in financial statements is particularly useful for creditors, where banks' lending decisions are heavily reliant on predicting future cash flows, and the quality of earnings of corporate borrowers is critical (Dechow, 1994). Higher-quality reporting provides more information about the features of a firm's financial performance relevant to a specific decision made by a specific "decision-maker" (Dechow et al., 2010). Existing literature has acknowledged the importance of financial reporting quality, as it reduces monitoring costs and improves ex-post monitoring efficiencies for lenders (Sunder et al., 2008). Therefore, high financial reporting quality can reduce creditors' (e.g. banks) risk exposure and the level of information asymmetry to improve firms' access to bank loans (García-Teruel et al., 2014).

2.3. Bank market power and financial reporting quality – alternative mechanisms

We expect bank market power to affect borrowing firms' financial reporting quality through four non-mutually exclusive mechanisms: *self-disclosing, incentive-manipulate, monitor-stringent* and *monitor-relax*, as detailed below.

Chen and Vashishtha (2017) examined the effect of bank mergers on information disclosure and found that borrowers increase their disclosure after lending banks engage in M&A activities. This finding is consistent with the prediction that borrowers need to increase public disclosure after bank mergers to access alternative financing sources, such as bonds, equity markets, and non-regional bank loans (Diamond and Verrecchia, 1991). Additionally, from the borrowers' shareholders' perspective, banks are less inclined to exercise monitoring with reduced credit supply and curtailed lending (Huang, 2021). To mitigate agency problems, shareholders of borrowing companies require more financial disclosure and closer scrutiny of the public capital market. Based on these arguments, a reduced credit supply in a less competitive banking market will trigger regional borrowers to publicly disclose more high-quality financial information to attract alternative financing. We refer to this as a ***self-disclosing mechanism*** and predict a positive relationship between banks' market power and borrowers' reporting quality.

One traditional view suggests inadequate banking competition is associated with low deposits and high loan rates, inducing stringent credit rationing (e.g. Guzman, 2000a; Pagano, 1993). Under such a credit squeeze, borrowers are motivated to manipulate earnings to secure funds from creditors. Prior studies show that managers have incentives to manipulate reported earnings before an IPO (e.g. Sletten et al., 2018; Teoh et al., 1998) and surrounding debt issues (Liu et al., 2010). From a banking perspective, prior work has shown that the consolidated U.S. bank market, with small and inefficient banks merging and becoming larger and more powerful, has changed how banks monitor (Chen and Vashishtha, 2017). With the increase in financial intermediaries and information transmitted to multiple agents within their hierarchical organizations (Stein, 2002), more frequent requests for verified financial reports seem to be a more effective method for monitoring borrowers. We propose that if banks rely more on hard accounting information (e.g. financial reports) and less on soft information (such as site-visiting and depository channels), borrowers would have stronger incentives to manipulate reported numbers for pre- and post-loan financing to enhance their borrowing capacity. Based on these arguments, we predict a negative relationship between banks' market power and borrowers' financial reporting quality, referred to as the ***incentive-manipulate mechanism***.

Monitoring is one of the banks' principal functions (Freixas and Rochet, 1997), as banks have information advantages over other financial intermediaries (Fama, 1985). A large amount of empirical evidence demonstrates the favourable effects of bank monitoring. For example, evidence from the syndicated loan market indicates that bank monitoring reduces the information asymmetry between lead lenders and participants (Champagne and Kryzanowski, 2007; Jones et al., 2005). Similarly, bank monitoring is more effective and can mitigate agency problems in a consolidated banking system, with firms benefiting from easier access to bank debt (Beck et al., 2006; Caminal and Matutes, 2002). Recent evidence suggests stronger bank monitoring can deter borrowers' accrual-based earnings management and reduce credit risk (Ahn and Choi, 2009). Banks with greater market power exert stronger controlling and monitoring effects on borrowers than their counterparts with lower market power (Caminal and Matutes, 2002; Guzman, 2000a). In a consolidated bank market, banks can maintain a longer relationship with their borrowers (Guzman, 2000b) and consequently charge higher loan prices (Mi and Han, 2020). Banks are paid off for acquiring costly information and assiduous monitoring efforts in such cases. Moreover, borrowers are more likely to take on risky projects after obtaining a loan granted at a high price in a consolidated bank market (Goetz, 2018). Thus, we conjecture that banks with greater market power are endowed with larger market shares in loans or deposits and naturally have better access to local borrowers' private information from the deposit channel or lending relationships previously established. If banks detect a negative signal during the pre-loan screening and post-loan monitoring processes, they renegotiate accounting-based contract terms with the borrowing firms (Dou, 2020). Based on these arguments, we predict that regional bank market power positively affects borrowing firms' financial reporting quality; that is, banks with greater market power are keener to monitor borrowers, leading to improved financial reporting quality, which is referred to as the ***monitor-stringent mechanism.***

In contrast, one may argue that banks with greater market power could also relax the requirement on borrowers' higher reporting quality because banks may reply to the private information they have for lending decision-making. Consistent with this view, Berger et al. (2017) examine the relationship between bank expertise and the requirement for audited financial reports, showing that the more exposure a bank has to a particular sector, the more interaction it has with borrowers in this sector, and consequently, banks are less keen to require audited financial reports from borrowing firms. Following this logic and combining the notion that regionally empowered banks normally engage in more communication and interactions with local borrowers (Petersen and Rajan, 1995), we expect that banks with greater market power would relax the requirement for financial reporting quality because banks can effectively monitor borrowers via alternative channels, such as site visits, regular deposit information from banks, and relationship loans. We refer

to this as a ***monitor-relax mechanism***. Based on these arguments, we formulate the following non-directional hypothesis:

H: Regional bank market power influences the borrowing firms' financial reporting quality.

3. Data, variables and research design

3.1. Data

We obtain banking market information from the Federal Deposit Insurance Corporation (FDIC).[7] Bank branch deposit information is collected on a yearly basis to construct structural measures of the bank market structure, such as HHI, CRn, and branch density. Financial statement information from banks is collected to construct non-structural measures such as the Lerner Index and H-statistic. Firm-level information was collected from Compustat to measure financial reporting quality. We then manually match the borrowing firms' financial reporting information with the bank market information based on the location of the firms' headquarters at the state level.[8] We exclude sample firms in the regulated sectors (financial companies with SIC Codes 6000–6999 and Utility companies with SIC Codes 4900–4949) and trim extreme observations in the top and bottom 1% of each variable. Our final sample includes 77,414 firm-year observations for the sample period of 1995–2019.

3.2. Variables

3.2.1. Bank market power measures

Following Berger and Hannan (1989) and Berger et al. (2005), we measure banks' market structure at the state level. Specifically, we measure bank market power using the Lerner index in the main tests and use four alternative measures–the HHI, CR_n, H-statistic, and branch density–in the robustness checks. The Lerner index has been widely used to measure market power, reflecting businesses' ability to price their products and services (Lerner, 1934). It is specified as.

$$Lerner_{mt} = (P_{mt} - MC_{mt})/P_{mt} \tag{1}$$

where P is the bank's output price, MC is the marginal cost of production for this output, m is the state, and t is the year. The Lerner index ranges between 0 and 1, where 0 indicates perfect bank market competition and the higher the Lerner index value, the stronger the bank's market power. In addition, the marginal cost of the Lerner index is not directly available, and most studies employ an econometric estimation approach (e.g. Delis et al., 2017) using a translog cost function and taking its derivative to estimate the marginal cost. We follow Carbó-Valverde et al. (2009) to calculate state-level bank power and the Lerner index and estimate regional bank performance based on the weighted average (regional branch distribution) of banks' financial reporting.

3.2.2. Financial reporting quality measures

We use two methods to measure nonfinancial firms' financial reporting quality: *Accrual_CF* (Francis et al., 2005) and *Accrual_MJ* (Dechow et al., 1995). *Accrual_CF* decomposes the standard deviation of the residual from the accruals model into an innovative component reflecting the firm's operating environment and a discretionary component reflecting managerial choices. *Accrual_MJ* is calculated using the Modified Jones model, in which accruals are a function of revenue growth and depreciation is a function of PPE scaled by total assets (Dechow et al., 2010).

For *Accrual_CF* (Francis et al., 2005), we first compute total current accruals as follows:

$$TCA_{i,t} = \Delta CA_{i,t} - \Delta CL_{i,t} - \Delta Cash_{i,t} + \Delta STDEBT_{i,t} - DEPN_{i,t} \tag{2}$$

where $\Delta CA_{i,t}$ is firm i's change in current assets from year $t-1$ to year t; $\Delta CL_{i,t}$ is firm i's change in current liabilities between year $t-1$ and year t; $\Delta Cash_{i,t}$ is firm i's change in cash from year $t-1$ to year t; $\Delta STDEBT_{i,t}$ is firm i's change in debt from current liabilities between year $t-1$ and year t; $DEPN_{i,t}$ is firm i's depreciation and amortisation expenses in year t. Then, we estimate the following equation for each industry group Fama and French (1997):

$$\frac{TCA_{i,t}}{AT_i} = \partial_1\frac{1}{AT_i} + \partial_2\frac{CFO_{i,t-1}}{AT_i} + \partial_3\frac{CFO_{i,t}}{AT_i} + \partial_4\frac{CFO_{i,t+1}}{AT_i} + \partial_5\frac{\Delta REV_{i,t}}{AT_i} + \partial_6\frac{PPE_{i,t}}{AT_i} + \varepsilon_{it} \tag{3}$$

[7] The branch deposit information from FDIC starts in 1994. In the empirical analysis, we use the bank market power ratio with one-year lag; thus, the final testing sample starts from 1995.

[8] We focus on the influence of bank market power at regional level, not at bank level, even though DealScan provides borrower-and-lender (1-to-1) matched data, which can be used to test the direct influence of a single bank's market power (monitoring effect) on a specific borrower under each loan contract (e.g. Delis et al., 2017). We focus on the state-level bank market power for three reasons. First, DealScan loan level data embed a selection bias because lenders or borrowers have already been paired up with a loan contract. Second, the regional bank market power captures the effect on direct borrowers and potential borrowers. Mi and Han (2020) suggest that local bank market power influences local firms' capital allocation, even if those local firms receive capital from non-local banks. Third, IBBEA 1994 has triggered a drastic change in the U.S. bank market at state level, with restrictions lifted to allow branches entering new market across state boundaries, M&As among banks, and failure of small and inefficient banks (Kerr and Nanda, 2009). Specifically, we measure the bank market power at the state level in baseline models and at MSA and county levels in robustness tests.

Table 1
Descriptive Statistics.

Variables	N	Mean	SD	P25	Median	P75
Accrual_CF	64,829	0.092	0.086	0.032	0.062	0.122
ABS(Accrual_MJ)	76,300	0.109	0.143	0.028	0.064	0.130
C-Score	76,674	0.1978	0.3626	−0.0156	0.1974	0.4180
Lerner	77,414	0.329	0.072	0.277	0.313	0.381
H-statistics	75,411	0.445	0.282	0.196	0.452	0.683
HHI	77,414	0.085	0.048	0.059	0.079	0.097
CR_3	77,414	0.424	0.110	0.354	0.425	0.488
Branch Density	73,343	0.291	0.073	0.230	0.294	0.344
Ln(Asset)	77,414	5.689	2.120	4.137	5.58	7.122
ROA	77,414	0.058	0.259	0.028	0.108	0.170
Total Debt/Total Assets	77,414	0.208	0.193	0.025	0.176	0.336
Sales Growth	77,414	0.226	0.831	−0.025	0.083	0.245
Operating Cash Flow	77,414	307.633	1749.273	0.205	16.227	111.349
Book/Market	77,391	0.643	0.531	0.28	0.499	0.829
Ln (GDP)	77,391	13.003	0.948	12.401	12.979	13.723
GDP_Growth	77,391	0.052	0.030	0.037	0.051	0.069
Ln (Personal Income)	64,829	10.459	0.282	10.239	10.452	10.672

where $CFO_{i,t}$ is firm i's cash flow from operating in year t; $\Delta REV_{i,t}$ is firm i's change in revenues from year $t-1$ to year t; $PPE_{i,t}$ is firm i's gross value of property, plant and equipment in year t. We obtain firm-year residuals from the regressions and *Accrual_CF* is calculated as the standard deviation of firm i's 5-year residuals from year $t-4$ to year t. We also follow Francis et al. (2005) to winsorise extreme values at the 1/99 percentiles. The larger the standard deviation of the residuals, the poorer the financial reporting quality, and the more severe the earnings management.

As for *Accrual_MJ* (Dechow et al., 1995), we first calculate the total accrual for firm i in year t as

$$Total\ Accrual_{i,t} = TA_{i,t} = EBXI_{i,t} - CFO_{i,t} \tag{4}$$

where $EBXI_{i,t}$ indicates earnings before extraordinary items and discontinued operations for firm i at time t. $CFO_{i,t}$ is the operating cash flow extracted from the cash flow statement. We then use the following equation to extract the estimated coefficients:

$$\frac{TA_{i,t}}{AT_{i,t-1}} = \partial_1 \frac{1}{AT_{i,t-1}} + \partial_2 \frac{\Delta REV_{i,t}}{AT_{i,t-1}} + \partial_3 \frac{PPE_{i,t}}{AT_{i,t-1}} + \varepsilon_{i,t} \tag{5}$$

where, $TA_{i,t}$ represents firm i's total assets in year $t-1$. $\Delta REV_{i,t}$ and $PPE_{i,t}$ have the same definitions as stated in $Eq(3)$. We estimate the above equation for each industry group, following Fama and French (1997): The estimated coefficients extracted are then used to estimate normal accruals:

$$Normal\ Accrual_{i,t} = \widehat{\partial}_1 \frac{1}{AT_{i,t-1}} + \widehat{\partial}_2 \frac{\left(\Delta REV_{i,t} - \Delta AR_{i,t}\right)}{AT_{i,t-1}} + \widehat{\partial}_3 \frac{PPE_{i,t}}{AT_{i,t-1}} + \varepsilon_{i,t} \tag{6}$$

In $Eq(6)$, $\Delta AR_{i,t}$ represents the change in accounts receivable between year t and the year $t-1$. Finally, we calculate *Accrual_MJ* as follows:

$$Accrual\_MJ = Abnormal\ Accrual_{i,t} = \frac{TA_{i,t}}{AT_{i,t-1}} - Normal\ Accrual_{it} \tag{7}$$

Following Kothari et al. (2005), we use the absolute values of *Accrual_MJ, Abs(Accrual_MJ)*, a subsample of *Accrual_MJ* > 0, and a subsample of *Accrual_MJ* < 0 to capture borrowing firms' earnings management, and consequently, financial reporting quality. *Abs (Accrual_MJ)* represents the level of earnings management, and we follow Chan et al. (2015) and Cohen et al. (2008) to categorise samples with *Accrual_MJ* > 0 (<0), engaging in income-increasing (decreasing) earnings management. Income-increasing earnings management can be associated with IPO, executive compensation, or loan contracts if the underlying reported financial performance cannot meet the required earnings targets (e.g. Sletten et al., 2018; Teoh et al., 1998). With a particular focus on changes in accounting estimates, Chung et al. (2022) find that firms are more likely to make income-decreasing changes to either smooth earnings or to hide bad news if the pre-adjustment earnings are relatively high or take a 'big bath' to achieve positive future earnings if the pre-adjustment earnings are already low. From the financial intermediaries' perspective, income-increasing and income-decreasing earnings management jeopardise the predictability of future cash flows. However, banks are accommodating more income-decreasing earnings management because it is less damaging to firms' repayment ability.

3.2.3. Control variables and baseline model specification

We control for the firm characteristics that can influence financial reporting quality. Following Hope et al. (2013), we control for Sales Growth (*Sales Growth*), firm size (*Asset*), book-to-market ratio (*Book/Market*), return on assets (*ROA*), and financial leverage (*Total Debt/Total Assets*). We control for firm size (*Asset*) because larger firms normally have stronger internal control systems (Doyle

Table 2
Distribution of sample by year.

Year	*N*	*Lerner*	*H-Statistics*	*HHI*	CR_3	*Branch Density*	*Accrual_CF*	*ABS(Accrual_MJ)*
1995	4050	0.274	0.451	0.057	0.333	0.292	0.067	0.152
1996	4263	0.266	0.607	0.058	0.340	0.293	0.071	0.147
1997	4720	0.271	0.547	0.065	0.368	0.291	0.077	0.159
1998	4516	0.289	0.577	0.070	0.386	0.291	0.081	0.161
1999	4207	0.278	0.616	0.072	0.393	0.291	0.086	0.158
2000	4157	0.298	0.536	0.076	0.409	0.289	0.087	0.147
2001	3767	0.284	0.506	0.079	0.412	0.284	0.095	0.118
2002	3554	0.303	0.650	0.082	0.418	0.284	0.100	0.122
2003	3383	0.365	0.560	0.083	0.426	0.283	0.099	0.106
2004	3343	0.377	0.488	0.087	0.436	0.284	0.098	0.121
2005	3258	0.374	0.444	0.086	0.430	0.290	0.097	0.106
2006	2152	0.357	0.448	0.087	0.440	0.296	0.094	0.107
2007	3004	0.317	0.475	0.086	0.430	0.301	0.095	0.107
2008	2812	0.287	0.496	0.081	0.418	0.308	0.100	0.099
2009	2730	0.281	0.432	0.086	0.427	0.313	0.102	0.139
2010	2642	0.346	0.228	0.090	0.431	0.310	0.102	0.100
2011	2550	0.366	0.392	0.093	0.442	0.305	0.101	0.104
2012	2492	0.367	0.181	0.103	0.459	0.302	0.096	0.091
2013	2479	0.387	0.289	0.106	0.465	0.297	0.091	0.088
2014	2505	0.389	0.231	0.109	0.472	0.292	0.096	0.087
2015	2424	0.396	0.215	0.112	0.480	0.285	0.100	0.095
2016	2350	0.407	0.282	0.110	0.482	0.280	0.101	0.090
2017	2325	0.421	0.158	0.109	0.479	0.273	0.105	0.085
2018	2193	0.427	0.187	0.110	0.480	0.263	0.110	0.085
2019	438	0.425	0.179	0.107	0.476	0.258	0.090	0.083

et al., 2007) and more incentives to beat earnings targets compelled by market pressure (Matsunaga and Park, 2001). We also control for sales growth (*Sales Growth*) and book-to-market ratio (*Book/Market*) because firms with better growth prospects tend to attract higher expectations from the capital market; therefore, managers would resort to earnings management to meet market expectations (e.g. Lee et al., 2006). Additionally, we include the leverage ratio (*Total Debt/Total Assets*) to control for a firm's financial health.

To examine whether bank market power affects borrowing firms' financial reporting quality, we employ the following baseline model:

$$FRQ_{i,t} = \alpha + \beta^{*}Lerner_{k,t-1} + \gamma^{*}Firm\ characteristics_{i,t-1} + \theta^{*}FRQ_{i,t-1} + Fixed\ effect + \varepsilon \quad (8)$$

where $FRQ_{i,t}$ is the financial reporting quality indicator of firm i at time t. We used *Accrual_CF*, *Abs(Accrual_MJ)*, *Accrual_MJ* > 0, and *Accrual_MJ* < 0 as measures of *FRQ*. $Lerner_{k,t-1}$ indicates the regional bank market power in state k at time *t–1*. $Firm\ characteristics_{i,t-1}$ are control variables for firm i at time $t-1$. We also consider the reversal effects of earnings management (Dechow et al., 2012) and include $FRQ_{i,t-1}$ to control for the financial reporting quality in the previous year. Both year and company fixed effects are considered. In this model, a negative (positive) β means that the regional bank market power increases (decreases) borrowing firms' financial reporting quality.

4. Results

4.1. Descriptive statistics

Table 1 presents the descriptive statistics of the key variables used in the empirical analysis. The average cash flow-based discretionary accruals (*Accrual_CF*) was 0.092, and the absolute value of *Accrual_MJ* had an average value of 0.109 with a standard deviation of 0.143, suggesting a high dispersion of financial reporting quality values in our sample. For bank market power, the Lerner index has an average value of 0.329, comparable to the ratio obtained from Federal Reserve Economic Data (FRED).[9] The log assets of our sample firms have an average size of 5.689, which indicates that our sample constituents are mainly large firms. The distribution of the other variables is consistent with prior studies, such as Huang (2021) and Su (2021).

4.2. Bank market structure and financial reporting quality: descriptive evidence

Table 2 reports the distribution of firm-year observations across years, with the annual averages of *Accrual_CF*, *ABS(Accrual_MJ)*, *Lerner*, *H-statistic*, *HHI*, CR_3 and Branch density. An underlying assumption applied in earlier studies (e.g. Rice and Strahan, 2010) is that removing restrictions on inter- and intra-state banking and branching by the IBBEA in 1994 improved banking competition. In

[9] Data from FRED show that the Lerner index had an average value of 0.27 in the U.S banking market between 1996 and 2014 at country level.

Table 3
The effect of bank market structure on financial reporting quality.

	(1)	(2)	(3)	(4)
Dependent variable	*Accrual_CF*	*ABS(Accrual_MJ)*	*Accrual_MJ > 0*	*Accrual_MJ < 0*
Lerner	−0.0245***	−0.0897***	−0.0850***	0.0694***
	(0.0038)	(0.0122)	(0.0114)	(0.0185)
$Accrual\_CF_{t-1}$	0.6763***			
	(0.0064)			
$ABS(Accrual\_MJ)_{t-1}$		0.1059***		
		(0.0090)		
$Accrual\_MJ_{t-1}$			−0.0466***	0.0955***
			(0.0150)	(0.0099)
Ln(Asset)	0.0144***	−0.0219***	−0.0145***	0.0255***
	(0.0006)	(0.0016)	(0.0017)	(0.0020)
ROA	−0.0127***	0.0369***	−0.0648***	−0.1139**
	(0.0025)	(0.0131)	(0.0140)	(0.0489)
Total Debt/Total Assets	−0.0006	0.0107**	−0.0083	−0.0281***
	(0.0019)	(0.0052)	(0.0075)	(0.0101)
Sales Growth	−0.0003	0.0268***	−0.0346***	−0.0775***
	(0.0005)	(0.0053)	(0.0090)	(0.0147)
Book/Market	−0.0000***	−0.0090***	0.0001***	0.0040
	(0.0000)	(0.0018)	(0.0000)	(0.0038)
Constant	−0.0396***	0.2461***	0.2115***	−0.2352***
	(0.0033)	(0.0089)	(0.0092)	(0.0131)
Observations	60,446	76,053	40,961	35,092
R-squared	0.5549	0.0875	0.0641	0.2118
Year FE	YES	YES	YES	YES
Company FE	YES	YES	YES	YES

This table presents the results by testing the relation between bank market power and financial reporting quality. The sample includes all unregulated Compustat firms from 1995 to 2019.excluding financials (SIC Codes 6000–6999) and utilities (4900–4949) firms. Definitions of the variables are summarized in Appendix 1. The independent variable is Lerner index which measures state level bank market power. In Columns (1)–(2), the dependent variables are *Accrual_CF* and *ABS(Accrual_MJ)*. In columns 3 and 4, our dependent variables are *Accural_MJ*. In column (3), we use the subsample with *Accrual_MJ* > 0 and use subsample with *Accrual_MJ* < 0 in column (4). We included dummy variables to capture firm- and year-fixed effects. Standard errors are clustered by firm and reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

contrast, our analysis using more recent data (1995–2019) demonstrates that despite the intensification of banking competition, the banking market has become more consolidated, and banks have gained more market power via intra- and inter-state mergers and acquisitions in the banking sector.[10] As shown in Fig. 3, the Lerner index, HHI (right axis), and CR_3 exhibit an overall upward trend, except for the financial crisis period, suggesting increased concentration and market power in the banking market since the passage of the IBBEA in 1994. This pattern is supported by the gradual decline in the H-statistic and branch density, with lower values indicating less market competition. In contrast to DID studies on how bank deregulation affects corporate accounting and finance decisions (e.g. Francis et al., 2014; Huang, 2021), our key objective is to identify the cross-sectional variations in the bank market structure and investigate how businesses behave differently under the divergent local (state-level) bank market structure. To provide preliminary descriptive evidence, we plot the average financial reporting quality, *Accrual_CF* and *ABS(Accrual_MJ)* against the local bank market power at the state level. Fig. 4 depicts a negative cross-sectional association between local bank power/concentration and the degree of accrual earnings management, supporting our hypothesis that bank market power and consolidation improve borrowing firms' financial reporting quality.

4.3. Baseline results and endogeneity concerns

The baseline model (Eq. (8)) is on 77,414 firm-year observations; the results are reported in Table 3. Our main independent variable is the Lerner index, and the dependent variables are *Accrual_CF* in Column 1, *Abs(Accrual_MJ)* in Column 2, the subsample of *Accrual_MJ* > 0 in Column 3, and the subsample of *Accrual_MJ* < *0* in Column 4.[11] Our baseline results suggest that borrowing firms tend to provide better quality financial reports in regions with higher bank market power after controlling for a set of risk variables and

[10] Further evidence regarding changes in the bank market structure after 1994 has been added to the Appendix for the sake of thoroughness, despite this is not the focus of this paper. In Appendix Fig. 1, we present data that clearly indicate a decrease in the total number of banks, juxtaposed with an increase in the total number of branches post-1994. This suggests a period of consolidation in the banking market, as each bank came to possess a greater number of branches during this timeframe. In Appendix Table 2, we examine the influence of bank deregulation events on bank market power. Our analysis reveals that bank deregulation events correlate with an increase in bank market power, reinforcing the narrative of an increasingly consolidated banking market.

[11] To mitigate the impact of biased coefficient estimates and unreliable t-statistics in our two-step approach, we also employ the 'single regression' method mentioned by Chen et al. (2018), with the results being consistent.

Table 4
Endogeneity.

	(1)	(2)	(3)	(4)
Panel A: 2SLS	*Accrual_CF*		*ABS(Accrual_MJ)*	
Dependent variable	*First Stage*	*Second Stage*	*First Stage*	*Second Stage*
Panel A: 2SLS				
Lerner		−0.0424***		−0.1228***
		(0.0051)		(0.0162)
$Accrual\_CF_{t-1}$	0.039***	0.6750***		
	(0.0044)	(0.0063)		
$ABS(Accrual\_MJ)_{t-1}$			−0.007***	0.1044***
			(0.0015)	(0.0095)
Branch_Deregulation	0.007***		0.007***	
	(0.0003)		(0.0003)	
Constant	Yes	Yes	Yes	Yes
Control variables	Yes	Yes	Yes	Yes
Observations	56,674	56,674	71,054	71,054
R-squared	0.5527	0.5473	0.5701	0.0680
Year FE	YES	YES	YES	YES
Company FE	YES	YES	YES	YES
Kleibergen-Paap rk LM	Chi-sq = 108.366		Chi-sq = 97.341	
	P-value = 0.00		P-value = 0.00	
Gragg-Donald Wald F	24,000		32,000	
Stock-Yogo (15%)	11.59		11.59	
	(5)	(6)	(7)	(8)
Panel B: Placebo test				
Fake_Lerner	0.0027	0.0083	0.0175	0.0146
	(0.0026)	(0.0079)	(0.00186)	(0.0106)
$Accrual\_CF_{t-1}$	0.6715***			
	(0.0063)			
$ABS(Accrual\_MJ)_{t-1}$		0.1078***		
		(0.0095)		
$Accrual\_MJ_{t-1}$			−0.0513***	0.0925***
			(0.0157)	(0.0103)
Constant	Yes	Yes	Yes	Yes
Control variables	Yes	Yes	Yes	Yes
Observations	57,530	72,085	39,112	32,973
R-squared	0.5469	0.0847	0.0613	0.2131
Year FE	YES	YES	YES	YES
Company FE	YES	YES	YES	YES

This table presents the results by testing the relation between bank market power and earnings quality. The sample includes all unregulated Compustat firms from 1995 to 2019, excluding financials (SIC Codes 6000–6999) and utilities (4900–4949) firms. Definitions of the variables are summarized in Appendix 1. The independent variable is Lerner index which measures state level bank market power. Panel A reports the result of 2sls. We use Branch_Deregulation as IV. Columns (1) and (3) are the first stage. In Columns (2) and (4), the dependent variables *Accrual_CF* and *ABS (Accrual_MJ)*. We report the result of placebo test in Panel B. In Columns (5)–(6), the dependent variables are *Accrual_CF* and *ABS(Accrual_MJ)*. In columns 3 and 4, our dependent variables are *Accural_MJ*. In column (7), we use the subsample with $Accrual\_MJ > 0$ and use subsample with $Accrual\_MJ < 0$ in column (8). We included dummy variables to capture firm- and year-fixed effects. Standard errors are clustered by firm and reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

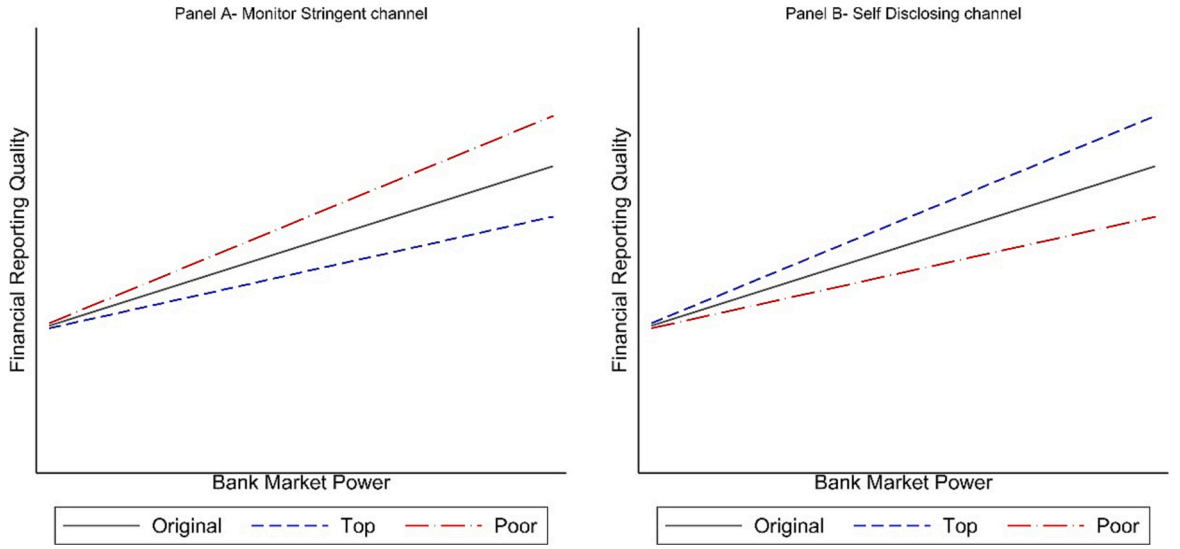


Fig. 2. Further differentiating Monitor-Stringent and Self-disclosing.

fixed effects, consistent with the predictions under ***monitor-stringent*** and ***self-disclosing*** mechanisms. The effect of banks' market power on FRQ is statistically and economically significant. For example, when local bank market power increases by one standard deviation (0.072), borrowing firms operating within that state will improve their FRQ level by 6% less in *Abs(Accrual_MJ)* and 2% less in *Accrual_CF*. Thus far, our findings lend support to both ***monitor-stringent*** and ***self-disclosing*** mechanisms. We differentiate between these two mechanisms in Section 4.4.

Our baseline results might be subject to an endogeneity issue. First, reverse causality could exist where better financial reporting quality from non-financial companies may induce changes in the regional bank market structure. Specifically, borrowers with lower information asymmetries (better financial reporting quality) may minimise the 'lemons' problem in the market (Akerlof, 1970),[12] which can subsequently reduce the possibility of loan default and bankruptcy of banks. In such cases, one may expect fewer M&A between banks, more frequent entry of new banks, and more competition in the bank market. However, our findings suggest the opposite trend. In addition, bank market power is measured at the state level and borrowing firms' financial reporting quality is measured at the firm level. To this end, it is highly unlikely that the accounting practices of a single firm, such as earnings management, would influence the state-level bank market power as a whole. Furthermore, we employed the lagged value of bank market power in the model, and it is unlikely that the future financial reporting quality of non-financial firms would influence the current bank market structure.

Second, our results may be driven by correlated omitted variables that can simultaneously influence regional banks' market power and firms' FRQ. Such unobservable factors could determine the timing of state-level bank deregulation and may further influence the market (Mi and Han, 2020). We apply two methods to address this endogeneity concern: instrumental variable estimation and a placebo test. First, in Panel A of Table 4, we employ the two-stage least squares method (2SLS) and use *Branch Deregulation*'[13] as an instrumental variable. We aggregate the number of restrictions for each state from Rice and Strahan (2010) and update these data to 2019[14] using individual state statutes and provisions of the Dodd-Frank Act of 2010.[15] Our branch deregulation ratio was calculated as the inverse of the number of restrictions, yielding a value between zero and four. A higher ratio indicated fewer restrictions. Prior research (e.g. Biswas et al., 2017; Bushman et al., 2016) posits that branch deregulation is an appropriate instrumental variable for banks' market power. This is attributed to the fact that branch deregulation, a political process, correlates directly with alterations in the banks' competitive environment. However, this is exogenous to a firm's financial characteristics (Dou et al., 2018).

Second, we perform a placebo test to address the endogeneity problem arising from omitted variables that reflect state-level characteristics. We followed Cornaggia et al. (2015) to perform the test by randomly reordering the Lerner index within the same state, replacing *Lerner* with *Fake-Lerner* and rerunning the analysis. State-level bank market power should result from the timing of deregulation and state characteristics. Randomly reordering *Lerner* by time can eliminate the influence of the deregulation time and

[12] Financial statement is the main source of hard information accessed by banks with low cost. Banks better predict borrowers' repayment ability with good quality of financial reporting.

[13] Branch_Deregulation is calculated using the state's restriction on interstate branching. The IBBEA-1994 removed restrictions on inter- and intra-state banking and branching. However, each state is still given the authority to impose anti-competitive obstacles to interstate branching. These obstacles can be summarized as follows: (1) imposing a minimum age requirement on target institutions of interstate acquisitions, (2) if permitting de novo interstate branching, (3) if permitting the acquisition of individual branches by an out-of-state bank, and (4) imposing a deposit cap.

[14] Our results are consistent with the 1994–2005 sample.

[15] Dodd-Frank Act of 2010 removed remaining restriction at the national level. (Biswas et al., 2017)

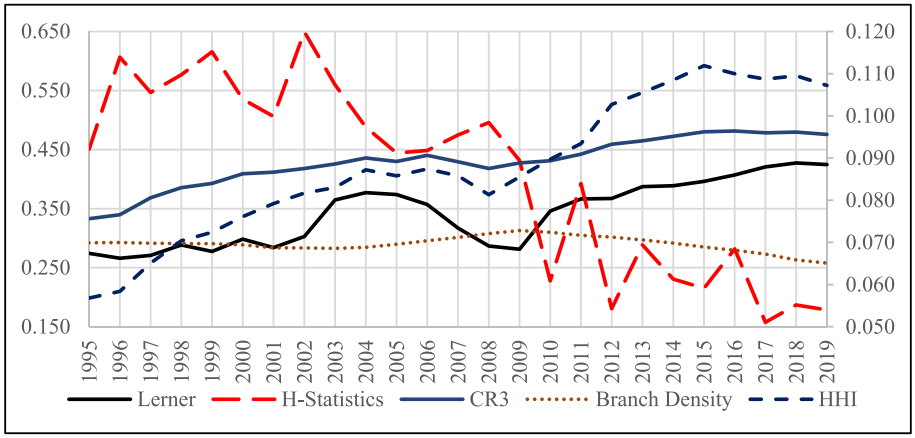


Fig. 3. Bank market structure over time (1995–2019).

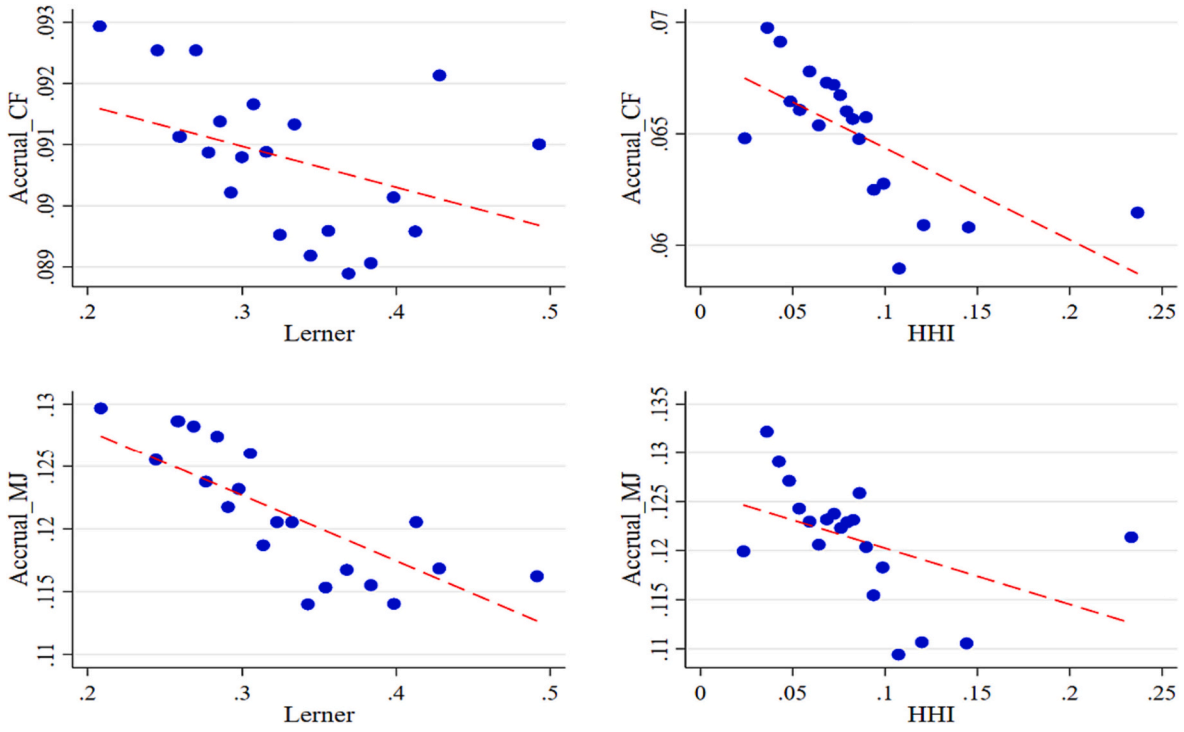


Fig. 4. Relation Between Financial Reporting Quality and Bank Market Structure.

maintain other state-level characteristics in the estimation. If Fake *Lerner* is significant in the test, we can conclude that some unobservable state-level characteristics drive our results. Panel B in Table 4 shows that all the coefficients of *Fake-Lerner* are statistically insignificant, suggesting that our findings are not driven by omitted variables associated with state-level characteristics.

4.4. Why does bank market power improve financial reporting quality?

We further investigate which mechanism–either ***self-disclosing*** or ***monitor-stringent***, dominates the positive relationship between regional bank market power and corporate financial reporting quality by employing a corporate performance index. First, we introduce a dummy variable, *Poor_performance*, coded as 1 if the company's earnings growth is in the bottom 25% of all firms' earnings

Table 5
The mechanism test-Earnings Growth.

	(1)	(2)	(3)	(4)
Dependent variable	*Accrual_CF*	*Accrual_MJ > 0*	*Accrual_CF*	*Accrual_MJ < 0*
Lerner	−0.0142***	−0.0083	−0.0268***	−0.0255*
	−0.004	−0.0105	−0.004	−0.0142
Poor_performance	0.0138***	0.1110***		
	−0.002	−0.0078		
*Lerner*Poor_performance*	−0.0296***	−0.1107***		
	−0.0065	−0.0219		
Top_performance			−0.0073***	−0.1627***
			−0.0022	−0.0115
Lerner Top_performance*			0.0221***	0.0836**
			−0.0061	−0.0325
$Accrual\_CF_{t-1}$	0.6740***		0.6756***	
	−0.0065		−0.0066	
$Accrual\_MJ_{t-1}$		−0.0451***		0.0688***
		−0.0143		−0.0079
Ln(Asset)	0.0144***	−0.0150***	0.0144***	0.0207***
	(0.0006)	(0.0017)	(0.0006)	(0.0019)
ROA	−0.0111***	−0.0327***	−0.0127***	−0.0922**
	(0.0024)	(0.0104)	(0.0026)	(0.0402)
Total Debt/Total Assets	−0.0007	−0.0101	−0.0006	−0.0038
	(0.0020)	(0.0070)	(0.0019)	(0.0087)
Sales Growth	0.0006	−0.0149**	−0.0003	−0.0517***
	(0.0005)	(0.0069)	(0.0005)	(0.0101)
Book/Market	−0.0000***	0.0001***	−0.0000***	0.0026
	(0.0000)	(0.0000)	(0.0000)	(0.0026)
Constant	−0.0435***	0.1555***	−0.0381***	−0.1378***
	(0.0035)	(0.0087)	(0.0031)	(0.0091)
Observations	60,446	40,961	60,446	35,092
R-squared	0.5560	0.1643	0.5551	0.3605
Year FE	YES	YES	YES	YES
Company FE	YES	YES	YES	YES

We define samples having *poor (top) performance* if their earnings growth is in the bottom (top) 25% of the sample. This table presents the results by testing the relation between bank market power and earnings quality. The sample includes all unregulated Compustat firms from 1995 to 2019, excluding financials (SIC Codes 6000–6999) and utilities (4900–4949) firms. Definitions of the variables are summarized in Appendix 1. The independent variable is Lerner index which measures state level bank market power. In Columns 1 and 3, the dependent variables are *Accrual_CF*. In columns 2 and 4, our dependent variables are *Accural_MJ*. In column (2), we use the subsample with *Accrual_MJ* > 0 and use subsample with *Accrual_MJ* < 0 in column (4). We included dummy variables to capture firm- and year-fixed effects. Standard errors are clustered by firm and reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

growth within the same year and industry and 0 otherwise. Poor performers are considered to have more incentives to engage in earnings management[16] to secure external capital or avoid debt covenant violations. If the ***self-disclosing*** mechanism dominates, we expect *Poor-performance* to weaken the relationship between bank market power and financial reporting quality because *Poor-performance* will erode borrowing firms' incentives to self-disclose high-quality financial reports. On the contrary, the ***monitor-stringent*** mechanism has a dominant effect. We predict that *Poor-performance* will strengthen the relationship between bank market power and financial reporting quality because banks will cast doubts over the repayment abilities of these underperforming firms and exercise closer oversight over their financials.

Second, we employ a *Top_performance* variable to separate firms with excellent earnings growth (the top 25% in the same industry and year). Banks with a promising prospect of guaranteed future interest payments are expected to be less inclined to exert costly monitoring efforts on these top-performing firms. Thus, top Performance is expected to weaken the relationship between bank market power and financial reporting quality by alleviating the pressure from bank monitoring if the ***monitor-stringent*** effect dominates. Similarly, if the ***self-disclosing*** effect dominates, we predict that *top Performance* will strengthen the relationship between banks' market power and financial reporting quality because these top-performing firms are less incentivised to manage their earnings. Alternatively, such a disincentivizing effect on earnings management may result from a trade-off between income-decreasing earnings management and the 'true and fair' reporting and, therefore, has an insignificant effect on the relation between bank market structure and financial reporting quality. Nonetheless, under the ***self-disclosing*** mechanism. The proposed distinction between monitor-

[16] This is not in contrast to the incentive-manipulate mechanism. The proposed incentive-manipulate mechanism suggests that only the borrower reacts to the change of bank market power. We still acknowledge that firms do have other motivations to engage in earning management.

Table 6
The mechanism test-Financial Constraint.

	(1)	(2)	(3)	(4)
VARIABLES	*Accrual_CF*	*Accrual_MJ > 0*	*Accrual_CF*	*Accrual_MJ < 0*
Lerner	−0.0198***	−0.0522***	−0.0270***	−0.0214
	(0.0040)	(0.0120)	(0.0041)	(0.0180)
Poor_kz-index	0.0104***	0.0934***		
	(0.0018)	(0.0078)		
*Lerner*Poor_kz-index*	−0.0215***	−0.1276***		
	(0.0055)	(0.0199)		
Top_kz-index			−0.0041**	−0.1576***
			(0.0018)	(0.0106)
*Lerner*Top_kz-index*			0.0135***	0.1085***
			(0.0050)	(0.0295)
ACC_CF_t-1	0.6753***		0.6762***	
	(0.0065)		(0.0066)	
Accrual_MJ$_{t-1}$		−0.0424***		0.0771***
		(0.0149)		(0.0080)
Ln(Asset)	0.0145***	−0.0137***	0.0144***	0.0268***
	(0.0006)	(0.0019)	(0.0006)	(0.0021)
ROA	−0.0117***	−0.0494***	−0.0126***	−0.0894**
	(0.0025)	(0.0114)	(0.0026)	(0.0406)
Total Debt/Total Assets	−0.0007	−0.0094	−0.0006	−0.0129
	(0.0020)	(0.0071)	(0.0020)	(0.0086)
Sales Growth	0.0003	−0.0245***	−0.0003	−0.0689***
	(0.0005)	(0.0074)	(0.0005)	(0.0100)
Book/Market	−0.0002	0.0032	0.0002	0.0293***
	(0.0006)	(0.0026)	(0.0006)	(0.0047)
Constant	−0.0423***	0.1710***	−0.0386***	−0.1820***
	(0.0035)	(0.0088)	(0.0033)	(0.0107)
Observations	60,446	40,961	60,446	35,092
R-squared	0.5556	0.1158	0.5550	0.3576
YEAR FE	YES	YES	YES	YES
COMPANY FE	YES	YES	YES	YES

We define samples having *poor (top) kz-index* if their kz-index is in the top (bottom) 25% of the sample. This table presents the results by testing the relation between bank market power and earnings quality. The sample includes all unregulated Compustat firms from 1995 to 2019, excluding financials (SIC Codes 6000–6999) and utilities (4900–4949) firms. Definitions of the variables are summarized in Appendix 1. The independent variable is Lerner index which measures state level bank market power. In Columns 1 and 3, the dependent variables are *Accrual_CF*. In columns 2 and 4, our dependent variables are *Accural_MJ*. In column (2), we use the subsample with *Accrual_MJ* > 0 and use subsample with *Accrual_MJ* < 0 in column (4). We included dummy variables to capture firm- and year-fixed effects. Standard errors are clustered by firm and reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

stringent and self-disclosing mechanisms is illustrated in Fig. 2.

Columns 1 and 2 in Table 5[17] present the results of *Poor-performance*, showing that poor performance strengthens the inference by 68% (=0.0296/(0.0296 + 0.0142)), suggesting that facing increased bank market power and reduced credit supply, poorly performing firms would need to reduce accrual-based earnings management to improve FRQ because of bank monitoring. The results for *top Performance are presented in Columns 3 and 4* and are consistent with our prediction that bank market power has less influence on top-performing firms. Overall, the results reported in Table 5 suggest the dominant role of ***monitor-stringent*** mechanism; that is, stringent monitoring from banks predominantly drives the positive association between local bank market power and borrowing firms' financial reporting quality.

In addition to using performance indicators, we also use KZ-index (Kaplan-Zingales Index) as a financial constraint indicator and our above result, the dominant role of monitoring-stringent, still holds (Table 6). To further test the robustness of this result, we collect syndicated loan data from DealScan and capture stringent monitoring[18] by the number of branches of the lead arranger (leading bank in loan syndication) within a 20 km radius around the headquarter of the sample firm. The stringency of the monitoring increases with the number of branches. Our results in Table 7 support the ***monitor-stringent*** approach and show that with stringent monitoring by the leading lender, the FRQ of syndicated loan borrowers improves. Our results for the number of branches (including participant bank

[17] We only run the tests with *Accrual_MJ > 0* for *poor_performance* firms and *Accrual_MJ < 0* for *top_performance* firms, because poor-performing firms are more likely to engage in earning-increasing accruals management and top-performing firms are more likely to engage in earning-decreasing accruals management (Chung et al., 2022).

[18] Syndicated loans involve multiple lenders. The lead arranger is typically responsible for performing ex-post monitoring activities (Delis et al., 2017). The presence of multiple branches of the lead arranger in the vicinity of the borrower can have a positive effect on the borrower's risk profile, as the borrower is monitored more stringently and, as a result, is less likely to default on the loan.

Table 7
The mechanism test-monitor effect.

	(1)	(2)	(3)	(4)
VARIABLES	*Accrual_CF*	*ABS(Accrual_MJ)*	*Accrual_CF*	*ABS(Accrual_MJ)*
Ln (Branches-Lead)	−0.0001***	−0.0012*		
	(0.0000)	(0.0007)		
Ln (Branches-No-Lead)			−0.0012	0.0099
			(0.0032)	(0.0199)
ACC_CF_t-1	0.6775***		0.6374***	
	(0.0037)		(0.0196)	
ABS(Acc_MJ)_t-1		0.0682***		0.0237
		(0.0229)		(0.0357)
Ln(Asset)	0.0099***	−0.0290***	0.0106***	−0.0354***
	(0.0002)	(0.0033)	(0.0011)	(0.0053)
ROA	−0.0197***	0.0251	−0.0342***	0.0472
	(0.0013)	(0.0271)	(0.0084)	(0.0548)
Total Debt/Total Assets	0.0004	0.0292***	−0.0029	0.0470**
	(0.0008)	(0.0108)	(0.0033)	(0.0212)
Sales Growth	−0.0009***	0.0935***	−0.0012	0.1225***
	(0.0003)	(0.0207)	(0.0009)	(0.0224)
Book/Market	−0.0004**	0.0009	−0.0010	0.0010
	(0.0002)	(0.0034)	(0.0010)	(0.0050)
Constant	−0.0376***	0.2719***	−0.0295**	0.2522***
	(0.0013)	(0.0200)	(0.0144)	(0.0938)
Observations	27,180	32,610	13,498	16,253
R-squared	0.9125	0.1099	0.5039	0.1313
YEAR FE	YES	YES	YES	YES
COMPANY FE	YES	YES	YES	YES

In this table, we use syndicated loan data to verify the monitor effect on financial reporting quality. The sample includes all unregulated Compustat firms from 1995 to 2019.excluding financials (SIC Codes 6000–6999) and utilities (4900–4949) firms. Definitions of the variables are summarized in Appendix 1. The independent variables are Ln (Branches-Lead) and Ln (Branches-No-Lead). In Columns (1) and (3), the dependent variables is *Accrual_CF*. In columns 2 and 4, our dependent variables are *ABS(Accrual_MJ)*. We included dummy variables to capture firm- and year-fixed effects. Standard errors are clustered by firm and reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

branches in syndication and other branches not involved in syndication) in[19] Columns 3 and 4 are not statistically significant, further indicating that our inference is not based on a credit supply channel.

4.5. Effects of reliance on local bank market and bank loan

An underlying assumption thus far is that firms borrow locally from banks in their home states or depend more heavily on local than non-local banking markets; this is especially true for small and young firms (Petersen and Rajan, 2002). However, firms borrow distantly from out-state banks, particularly large firms. In the syndicated loan market, for example, in-state lending, where the lead arranger and the borrower reside in the same state, has reduced from 25% in 1994 to 8% in 2011 (Mi and Han, 2020). Simultaneously, the influence of banks' market power increases as the distance between banks and borrowers increases (Degryse and Ongena, 2005). Based on such observed patterns, we predict that the positive impact of local bank market power on firms' financial reporting quality will intensify when these borrowing firms rely heavily on their local banks because local banks have information advantages over distant banks and can more efficiently monitor borrowers at a lower cost. To ensure the out-of-state lending market structure changes do not drive our baseline results, we use syndicated loan data to establish a 1-to-1 lending relation between lender, namely, lead arranger who performs due diligence and ex-post monitoring (Ivashina, 2009), and borrower in loan syndication. We measure dependence on the local banking market *local relation*, by the number of in-state (local) lead arrangers of syndicated loan deals raised by a sample firm in the last five years. The higher the value of *local relation*, the more heavily the sample firm relies on local banking markets. We use the interaction term between *Lerner* and *local relation* to measure the moderating effect of reliance on the local banking market. Table 8 shows that our findings remain robust for *Accrual_CF* and *Accrual_MJ* < 0, where *local relation* heightens the positive impact of bank monitoring on borrowers' financial reporting quality.

4.6. Effects of macro-economic conditions

The results of our primary analysis suggest a positive relationship between banks' market power and borrowers' FRQ. Considering that banking deregulation has triggered significant changes in the local economy (e.g. Jayaratne and Strahan, 1996), one may argue

[19] Those branches do not have a monitoring function in syndication, but they are potential banks that can supply credit to borrowers or rivals to the current lead arranger.

Table 8
Reliance on local bank market.

	(1)	(2)	(3)	(4)
Dependent variable	*Accrual_CF*	*ABS(Accrual_MJ)*	*Accrual_MJ > 0*	*Accrual_MJ < 0*
Lerner	−0.0224***	−0.0830***	−0.0835***	0.0599***
	(0.0040)	(0.0128)	(0.0132)	(0.0178)
Local Relation	0.0008***	0.0018**	−0.0003	−0.0039***
	(0.0002)	(0.0008)	(0.0007)	(0.0013)
*Local Relation*Lerner*	−0.0023***	−0.0038*	0.0019	0.0091***
	(0.0007)	0.0018**	(0.0018)	(0.0034)
ACC_CF_{t-1}	0.6762***			
	(0.0064)			
$ABS(Acc\_MJ)_{t-1}$		0.0836***		
		(0.0098)		
$Accrual\_MJ_{t-1}$			−0.0471***	0.0720***
			(0.0156)	(0.0112)
Ln(Asset)	0.0145***	−0.0187***	−0.0135***	0.0195***
	(0.0006)	(0.0015)	(0.0017)	(0.0018)
ROA	−0.0127***	0.0275**	−0.0639***	−0.0992**
	(0.0025)	(0.0118)	(0.0139)	(0.0486)
Total Debt/Total Assets	−0.0007	0.0105**	−0.0051	−0.0227**
	(0.0020)	(0.0050)	(0.0083)	(0.0106)
Sales Growth	−0.0003	0.0241***	−0.0483***	−0.0799***
	(0.0005)	(0.0048)	(0.0115)	(0.0172)
Book/Market	−0.0000***	−0.0072***	0.0001***	0.0033
	(0.0000)	(0.0018)	(0.0000)	(0.0032)
Constant	−0.0404***	0.2254***	0.2037***	−0.1976***
	(0.0034)	(0.0090)	(0.0098)	(0.0130)
Observations	60,446	70,994	39,116	31,878
R-squared	0.5550	0.0485	0.0817	0.1926
Year FE	YES	YES	YES	YES
Company FE	YES	YES	YES	YES

We measure the reliance on local banking market by *local relation* which is defined as the number of local (in-state) lead arrangers in last 5 years deals of loan syndication. This table presents the results by testing the relation between state bank market power and earnings quality. The sample includes all unregulated Compustat firms from 1995 to 2019. excluding financials (SIC Codes 6000–6999) and utilities (4900–4949) firms. Definitions of the variables are summarized in Appendix 1. The independent variable is Lerner index which measures state level bank market power. In Columns (1)–(2), the dependent variables are *Accrual_CF* and *ABS(Accrual_MJ)*. In columns 3 and 4, our dependent variables are *Accural_MJ*. In column (3), we use the subsample with *Accrual_MJ* > 0 and use subsample with *Accrual_MJ* < 0 in column (4). We included dummy variables to capture firm- and year-fixed effects. Standard errors are clustered by firm and reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

that local economic conditions can influence borrowers' financial reporting quality. Khan and Lo (2019) find that borrowers are motivated to increase their financial reporting quality (measured by timely loss recognition) in response to worsened economic conditions and tightened lending standards. We perform three tests to consider the influence of macroeconomic conditions on our research questions.

First, we employ three state-level controls for local economic conditions–state-level annual GDP, annual GDP growth rate, and personal income–to capture variations in economic conditions resulting from banking deregulation. The results in Table 9 show that adding economic condition controls has little impact on the main inferences. For example, the coefficients for *Accrual_CF* (column 1) decrease slightly from −0.0245 (Table 3) to −0.0196 and remain statistically significant. The coefficient of *Accrual_MJ < 0* (Column 4) is still positive but statistically insignificant.

Second, to further consider the impact of economic conditions, we exclude the sample from the to 2007–2009 financial crisis period, as it was the largest economic shock over the past three decades. As banks tighten their lending requirements, borrowers improve their financial reporting quality (Khan and Lo, 2019). The results in Table 10 show that our findings remained robust when the financial crisis period was removed. In the third test, we include *the state*2 year*[20] fixed effect to simultaneously control for time-varying macroeconomic factors and unobservable state-level factors that might affect our main results. In Table 11, we rerun the model by replacing the year fixed effect with *the state*2 year* fixed effect, and our results still hold.

[20] We incorporate a state*2 year fixed effect in the analysis. This decision is driven by two primary reasons. First, our Lerner index is measured at the state-year level, thus we cannot control at state*year fixed effect. Second, given that other potential omitted variables, such as policy changes, are unlikely to fluctuate on a yearly basis, the state*2 year fixed effect becomes a suitable control. Consequently, by employing the state*2 year fixed effect, we are able to control for the majority of omitted variables influenced by both the state and the year.

Table 9
Economic conditions concern – additional state level controls.

	(1)	(2)	(3)	(4)
Dependent variable	*Accrual_CF*	*ABS(Accrual_MJ)*	*Accrual_MJ > 0*	*Accrual_MJ < 0*
Lerner	−0.0196***	−0.0762***	−0.1199***	0.0151
	(0.0046)	(0.0131)	(0.0148)	(0.0173)
$Accrual\_CF_{t-1}$	0.6779***			
	(0.0066)			
$ABS(Accrual\_MJ)_{t-1}$		0.1050***		
		(0.0089)		
$Accrual\_MJ_{t-1}$			−0.0506***	0.0892***
			(0.0149)	(0.0097)
Ln(Asset)	0.0149***	−0.0208***	−0.0188***	0.0160***
	(0.0007)	(0.0017)	(0.0019)	(0.0024)
ROA	−0.0132***	0.0360***	−0.0597***	−0.1102**
	(0.0027)	(0.0131)	(0.0136)	(0.0472)
Total Debt/Total Assets	−0.0007	0.0094*	−0.0063	−0.0222**
	(0.0020)	(0.0051)	(0.0075)	(0.0102)
Sales Growth	−0.0003	0.0266***	−0.0338***	−0.0760***
	(0.0005)	(0.0053)	(0.0089)	(0.0145)
Book/Market	−0.0000***	−0.0089***	0.0001***	0.0039
	(0.0000)	(0.0017)	(0.0000)	(0.0037)
Ln(GDP)	0.0016	−0.0455***	−0.0418***	0.0674**
	(0.0046)	(0.0158)	(0.0135)	(0.0278)
GDP_growth	−0.0165***	0.0116	−0.0854***	0.0327
	(0.0054)	(0.0219)	(0.0236)	(0.0293)
Ln(Personal Income)	−0.0055	0.0491***	0.0792***	−0.0132
	(0.006)	(0.0188)	(0.0163)	(0.0311)
Constant	0.0040	0.3126***	−0.0351	−0.8992***
	(0.0180)	(0.0571)	(0.0455)	(0.1013)
Observations	60,426	76,030	40,949	35,081
R-squared	0.5552	0.0879	0.0672	0.2155
Year FE	YES	YES	YES	YES
Company FE	YES	YES	YES	YES

This table presents the results by testing the relation between bank market power and earnings quality. The sample includes all unregulated Compustat firms from 1995 to 2019, excluding financials (SIC Codes 6000–6999) and utilities (4900–4949) firms. Definitions of the variables are summarized in Appendix 1. The independent variable is Lerner index which measures state level bank market power. In Columns (1)–(2), the dependent variables are *Accrual_CF* and *ABS(Accrual_MJ)*. In columns 3 and 4, our dependent variables are *Accural_MJ*. In column (3), we use the subsample with *Accrual_MJ* > 0 and use subsample with *Accrual_MJ* < 0 in column (4). We included dummy variables to capture firm- and year-fixed effects. Standard errors are clustered by firm and reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

4.7. Robustness tests

4.7.1. Alternative measures of bank market power

In this section, we use alternative measures of bank market power (H-statistics, HHI, CR_3 and branch density) for robustness checks. We use branch deposit information from the FDIC to calculate the concentration ratio of deposits (CR_3) and the Herfindahl-Hirschman Index (HHI) at the state-year level to evaluate the scale of competition in the bank market. CR_3 and HHI range from 0 to 1, with a higher ratio indicating lower competition and higher bank market power. Branch density is measured as the total number of branches scaled by the state population. Bank branches per capita are positively associated with competition. The H-statistic is derived from the profit-maximising equilibrium (Claessens and Laeven, 2004; Shaffer, 2004) and has been widely used as a proxy for bank market competition (e.g. Bikker and Haaf, 2002; Molyneux et al., 1994). We follow Tian et al. (2019) in measuring the H-statistic at the state-year level, ranging from zero (monopolistic market) to one (competitive market). Overall, our results using alternative bank market power measures reported in Table 12 (Panel A for HHI, Panel B for H-Statistics, Panel C for CR_3 and Panel D for branch density) are consistent with the baseline results using the Lerner Index (Table 3) that the greater the local bank market power (lower competition or more consolidated/concentrated), the better the borrowing firms' financial reporting quality.

4.7.2. Alternative measure of financial reporting quality

In the primary test, we used accruals quality to measure the quality of financial reporting. In this section, we use an alternative measure, the C-score, which is the accounting conservatism ratio, to capture the variations in the incremental sensitivity of earnings to bad news versus good news (e.g. Ettredge et al., 2012; García Lara et al., 2016). We followed Khan and Watts (2009) to construct the C-score and rerun Eq-8, again, our results (Table 13) still hold. Column 1 of Table 13 shows that firms with a greater Lerner index (high bank market power) tend to report more conservatively (better financial reporting quality)—a one-standard-deviation increase in Lerner (0.072) results in a 25% increase in accounting conservatism.

Table 10
Economic conditions concern - excluding financial crisis.

Dependent variable	(1) *Accrual_CF*	(2) *ABS(Accrual_MJ)*	(3) *Accrual_MJ > 0*	(4) *Accrual_MJ < 0*
Lerner	−0.0186***	−0.0814***	−0.0508***	0.1015***
	−0.0038	(0.0151)	−0.0124	−0.0221
ACC_CF_{t-1}	0.6698***			
	−0.0075			
$ABS(Acc\_MJ)_{t-1}$		0.1014***		
		(0.0090)		
Acc_MJ_tm1			−0.0456***	0.0912***
			−0.016	−0.0103
Ln(Asset)	0.0143***	−0.0221***	−0.0154***	0.0241***
	(0.0006)	(0.0016)	(0.0017)	(0.0022)
ROA	−0.0128***	0.0402***	−0.0656***	−0.1109**
	(0.0024)	(0.0150)	(0.0131)	(0.0524)
Total Debt/Total Assets	0.0001	0.0141**	−0.0008	−0.0283***
	(0.0022)	(0.0059)	(0.0083)	(0.0108)
Sales Growth	−0.0001	0.0286***	−0.0334***	−0.0795***
	(0.0004)	(0.0059)	(0.0085)	(0.0151)
Book/Market	−0.0000***	−0.0113***	0.0002***	0.0036
	(0.0000)	(0.0018)	(0.0000)	(0.0035)
Constant	−0.0394***	0.2441***	0.2013***	−0.2386***
	(0.0035)	(0.0091)	(0.0091)	(0.0137)
Observations	53,363	67,618	35,944	31,674
R-squared	0.5539	0.0913	0.0640	0.2135
Year FE	YES	YES	YES	YES
Company FE	YES	YES	YES	YES

This table presents the results by testing the relation between bank market power and earnings quality by excluding observations in the financial crisis period (2007–2009). The sample includes all unregulated Compustat firms from 1995 to 2019, except for 2007–2009, excluding financials (SIC Codes 6000–6999) and utilities (4900–4949) firms. Definitions of the variables are summarized in Appendix 1. The independent variable is Lerner index which measures state level bank market power. In Columns (1)–(2), the dependent variables are *Accrual_CF* and *ABS(Accrual_MJ)*. In columns 3 and 4, our dependent variables are *Accural_MJ*. In column (3), we use the subsample with *Accrual_MJ* > 0 and use subsample with *Accrual_MJ* < 0 in column (4). We included dummy variables to capture firm- and year-fixed effects. Standard errors are clustered by firm and reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

4.7.3. Bank market power effects: evidence from MSA and county level

One may argue that calculating bank market power at the state level seems too broad and could undermine the measurement of 'localness'. In this section, we re-calculate *Lerner* at both the county and MSA[21] levels and rerun our analysis. The results presented in Table 14 show that at the MSA and county levels, most of our primary results remain robust, except for Column 4. This can be explained by the fact that "local" (in smaller areas) banks with greater market power may not react to firms that engage in income-decreasing earnings management because banks can resort to alternative information acquisition channels (Berger et al., 2017).

4.7.4. States with drastic changes in bank market structure

In Section 4.3 (baseline results and endogeneity concerns) and Section 4.6 (Effects of macroeconomic conditions), we address the concerns associated with omitted variables at the state level (baseline results and endogeneity concerns). In this section, we rerun our analysis on a subsample of states that have experienced drastic changes in bank market power since 1994 to eliminate the potential impact of sample states where bank market power changes did not drive changes in borrowing firms' financial reporting quality. This ensures a causal effect of banks' market power on improved financial reporting quality. To define whether a state has undergone significant changes in bank market power, we compute the standard deviation of the state-level Lerner Index for 25 years (1995–2019), and those states with an above-median standard deviation are extracted as the subsample for this robustness test. As shown in Table 15, the coefficients of the Lerner index remained positive, in line with our baseline results in Table 3, and the influence (coefficient value) of the Lerner index remained similar to the primary results from the entire sample. Overall, our key results and inferences remain robust in this accentuated setting.

5. Conclusion

In recent decades, there has been extensive research on the impact of US bank market deregulation on corporate financial decisions (e.g. Rice and Strahan, 2010). However, only a few studies have examined how banks respond to changes in the local banking market structure in terms of their due diligence in monitoring borrowing firms. Businesses react to bank market structure changes with less conservative financial reporting after bank market deregulation (Huang, 2021). This study aimed to quantify the cross-sectional

[21] Metropolitan Statistics Areas (MSA) consist of a city and surrounding communities that are lined by social and economic factors.

Table 11
Economic conditions concern – state*2 year fixed effect.

	(1)	(2)	(3)	(4)
Dependent variable	*Accrual_CF*	*ABS(Accrual_MJ)*	*Accrual_MJ > 0*	*Accrual_MJ < 0*
Lerner	−0.0061	−0.0767***	−0.1332***	0.1052***
	(0.0079)	(0.0246)	(0.0234)	(0.0361)
$Accrual\_CF_{t-1}$	0.6717***			
	(0.0068)			
$ABS(Accrual\_MJ)_{t-1}$		0.0967***		
		(0.0090)		
$Accrual\_MJ_{t-1}$			−0.0557***	0.0822***
			(0.0151)	(0.0093)
Ln(Asset)	0.0155***	−0.0204***	−0.0194***	0.0123***
	(0.0007)	(0.0017)	(0.0021)	(0.0024)
ROA	−0.0133***	0.0362***	−0.0573***	−0.0957**
	(0.0027)	(0.0129)	(0.0129)	(0.0433)
Total Debt/Total Assets	−0.0010	0.0084	−0.0056	−0.0171
	(0.0021)	(0.0052)	(0.0077)	(0.0106)
Sales Growth	−0.0003	0.0265***	−0.0324***	−0.0741***
	(0.0004)	(0.0052)	(0.0087)	(0.0140)
Book/Market	−0.0005	−0.0101***	0.0066**	0.0488***
	(0.0005)	(0.0017)	(0.0026)	(0.0050)
Constant	−0.0540***	0.2334***	0.2455***	−0.1221***
	(0.0054)	(0.0123)	(0.0145)	(0.0185)
Observations	60,446	76,053	40,961	35,092
R-squared	0.5627	0.0839	0.0950	0.2411
State*2 Year FE	YES	YES	YES	YES
Company FE	YES	YES	YES	YES

This table presents the results by testing the relation between bank market power and earnings quality. The sample includes all unregulated Compustat firms from 1995 to 2019, exlcuding financials (SIC Codes 6000–6999) and utilities (4900–4949) firms. Definitions of the variables are summarized in Appendix 1. The independent variable is Lerner index which measures state level bank market power. In Columns (1)–(2), the dependent variables are *Accrual_CF* and *ABS(Accrual_MJ)*. In columns 3 and 4, our dependent variables are *Accural_MJ*. In column (3), we use the subsample with $Accrual\_MJ > 0$ and use subsample with $Accrual\_MJ < 0$ in column (4). We included dummy variables to capture firm- and state*2 year-fixed effects. Standard errors are clustered by firm and reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Table 12
Robustness test – alternative bank market structure measures.

	(1) *Accrual_CF*	(2) *ABS(Accrual_MJ)*	(3) *Accrual_MJ*	(4) *Accrual_MJ*
Panel A: HHI	**−0.0230***** **(0.0068)**	**−0.0245** **(0.0278)**	**−0.0101** **(0.0227)**	**0.0426** **(0.0399)**
Accrual _CF$_{t-1}$	0.6747*** (0.0065)			
ABS(Accrual_MJ)$_{t-1}$		0.1081*** (0.0090)		
Accrual_MJ$_{t-1}$			−0.0488*** (0.0148)	0.0970*** (0.0099)
Observations	60,446	76,053	40,961	35,092
R-squared	0.5545	0.0691	0.0619	0.2112
Panel B: H-Statistics	**0.0042***** **(0.0007)**	**0.0075**** **(0.0022)**	**0.0064***** **(0.0023)**	**−0.0093***** **(0.0035)**
Accrual_CF$_{t-1}$	0.6801*** (0.0070)			
ABS(Accrual_MJ)$_{t-1}$		0.1108*** (0.0089)		
Accrual_MJ$_{t-1}$			−0.0495*** (0.0128)	0.0982*** (0.0100)
Observations	60,446	76,053	40,961	35,092
R-squared	0.5675	0.0726	0.0619	0.2153
Panel C: CR$_3$	**−0.0127***** **(0.0035)**	**−0.0235*** **(0.0137)**	**0.0015** **(0.0104)**	**0.0554***** **(0.0205)**
Accrual_CF$_{t-1}$	0.6750*** (0.0065)			
ABS(Accrual_MJ)$_{t-1}$		0.1079*** (0.0090)		
Accrual_MJ$_{t-1}$			−0.0489*** (0.0148)	0.0962*** (0.0098)
Observations	60,446	76,053	40,961	35,092
R-squared	0.5545	0.0691	0.0619	0.2115
Panel D: Branch-Density	**0.0218*** **(0.0123)**	**0.2049***** **(0.0392)**	**0.1942***** **(0.0346)**	**−0.1549**** **(0.0687)**
Accrual_CF$_{t-1}$	0.6715*** (0.0063)			
ABS(Accrual_MJ)$_{t-1}$		0.1073*** (0.0095)		
Accrual_MJ$_{t-1}$			−0.0510*** (0.0157)	0.0926*** (0.0103)
Observations	57,512	72,064	39,102	32,962
R-squared	0.5470	0.0671	0.0622	0.2133

All models include constant, control variables, year fixed effect and company fixed effects. Results are not reported by available upon request. This table presents the results by testing the relation between bank market power and earnings quality. The sample includes all unregulated Compustat firms from 1995 to 2019, excluding financials (SIC Codes 6000–6999) and utilities (4900–4949) firms. Definitions of the variables are summarized in Appendix 1. The independent variable are HHI (Panel A), H-statistics (Panel B), CR_3 (Panel C), and Branch-Density (Panel D), which measure state level bank market power. In Columns (1)–(2), the dependent variables are *Accrual_CF* and *ABS(Accrual_MJ)*. In columns 3 and 4, our dependent variables are *Accural_MJ*. In column (3), we use the subsample with *Accrual_MJ* > 0 and use subsample with *Accrual_MJ* < 0 in column (4). We included dummy variables to capture firm- and year-fixed effects. Standard errors are clustered by firm and reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Table 13
Robustness test – alternative financial reporting quality measure.

	(1)	(2)	(3)	(4)	(5)
	Lerner	HHI	H-Statistics	CR_3	Branch-Density
Lerner	0.7088***				
	(0.0389)				
HHI		1.2482***			
		(0.1086)			
H-Statistics			−0.0967***		
			(0.0061)		
CR_3				0.8089***	
				(0.0323)	
Branch-Density					−0.4702***
					(0.0838)
C-score$_{t-1}$	0.1321***	0.1425***	0.1540***	0.1283***	0.1558***
	(0.0189)	(0.0187)	(0.0188)	(0.0186)	(0.0188)
Ln(Asset)	−0.0773***	−0.0693***	−0.0608***	−0.0792***	−0.0612***
	(0.0049)	(0.0045)	(0.0043)	(0.0045)	(0.0047)
ROA	−0.0961***	−0.0968***	−0.1053***	−0.0861***	−0.0997***
	(0.0308)	(0.0321)	(0.0335)	(0.0292)	(0.0336)
Total Debt/Total Assets	0.4487***	0.4429***	0.4319***	0.4519***	0.4389***
	(0.0202)	(0.0200)	(0.0200)	(0.0199)	(0.0208)
Sales Growth	−0.0168***	−0.0168***	−0.0193***	−0.0156***	−0.0178***
	(0.0037)	(0.0038)	(0.0041)	(0.0035)	(0.0040)
Book/Market	0.0004	0.0003	0.0004	0.0004	0.0003
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Constant	0.2963***	0.3780***	0.4800***	0.2007***	0.3061***
	(0.0201)	(0.0219)	(0.0232)	(0.0183)	(0.0316)
Observations	70,035	70,035	68,202	70,035	66,246
R-squared	0.1563	0.1478	0.1355	0.1595	0.1279
Year FE	YES	YES	YES	YES	YES
Company FE	YES	YES	YES	YES	YES

This table presents the results by testing the relation between bank market power and alternative measures of financial reporting quality (C-score). The sample includes all unregulated Compustat firms from 1995 to 2019, excluding financials (SIC Codes 6000–6999) and utilities (4900–4949) firms. Definitions of the variables are summarized in Appendix 1. The independent variables are Lerner (Column 1), HHI (Column 2), H-Statistics (Column 3), CR_3 (Column 4), and Branch-Density (Column 5), which measure state level bank market power. The dependent variable is C-score which measures the accounting conservatism. We included dummy variables to capture firm- and year-fixed effects. Standard errors are clustered by firm and reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Table 14
Robustness test – County & MSA level.

Panel A	(1)	(2)	(3)	(4)
Dependent variables	*Accrual_CF*	*ABS(Accrual_MJ)*	*Accrual_MJ > 0*	*Accrual_MJ < 0*
Lerner (MSA)	−0.0051*	−0.0433***	−0.0551***	0.0011
	(0.0027)	(0.0092)	(0.0097)	(0.0199)
$Accrual\_CF_{t-1}$	0.6745***			
	(0.0088)			
$ABS(Accrual\_MJ)_{t-1}$		0.1079***		
		(0.0161)		
$Accrual\_MJ_{t-1}$			−0.0488**	0.0977***
			(0.0200)	(0.0156)
Other Controls	YES	YES	YES	YES
Observations	60,089	75,651	40,713	34,938
R-squared	0.5546	0.0696	0.0625	0.2115
Year FE	YES	YES	YES	YES
Company FE	YES	YES	YES	YES
Panel B	(5)	(6)	(7)	(8)
Dependent variables	***Accrual_CF***	***ABS(Accrual_MJ)***	***Accrual_MJ > 0***	***Accrual_MJ < 0***
Lerner (County)	−0.0149***	−0.0517***	−0.0404**	0.0675**
	(0.0045)	(0.0170)	(0.0160)	(0.0256)
$Accrual\_CF_{t-1}$	0.6746***			
	(0.0089)			
$ABS(Accrual\_MJ)_{t-1}$		0.1074***		
		(0.0161)		
$Accrual\_MJ_{t-1}$			−0.0490**	0.0935***
			(0.0201)	(0.0153)
Other Controls	YES	YES	YES	YES
Observations	60,395	75,984	40,925	35,059
R-squared	0.5544	0.0693	0.0630	0.2187
Year FE	YES	YES	YES	YES
Company FE	YES	YES	YES	YES

variation in financial reporting quality of non-financial firms in response to bank market power. We documented that local banks gained greater market power since deregulation via mergers and acquisitions within and across state boundaries in the US. To respond to these changes, both banks and businesses adjust their behaviours. This study deepened our understanding of banking relationships in this scenario.

Using data collected from both banks and firms, we tested how local bank market power affects local businesses' FRQ. The results suggested a favourable effect of increased bank market power on improving local businesses FRQ regarding reduced accrual-based earnings management. Further tests indicated that such a favourable effect works via a monitoring-stringent mechanism where banks, with increased market power, have stronger incentives to monitor borrowing firms. Our results were robust to a rich set of tests, including alternative measures, subsampling, and endogeneity tests. In the heterogeneity tests, we also demonstrated that firms relying more on local banks are more likely to improve their FRQ when market power increases.

These results have important implications for policymakers and business practitioners. First, although the benefits of bank market competition have been widely acknowledged to reduce financial costs, improve corporate access to financing, and promote corporate innovation, the unintentional side effects of bank market competition should not be ignored (Huang, 2021). Bank market consolidation and power also positively impact corporate financial decisions and accounting practices. Second, facing increased bank market concentration and power, firms must pay additional attention to their financial reporting, which is widely used to access external financing.

This table presents the results by testing the relation between bank market power and earnings quality. The sample includes all unregulated Compustat firms from 1995 to 2019, excluding financials (SIC Codes 6000–6999) and utilities (4900–4949) firms. Definitions of the variables are summarized in Appendix 1. Panel A reports the result at MSA level and Panel B reports the result at county level. The independent variable is Lerner index which measures MSA/county level bank market power. In Columns (1)–(2) and (5)–(6), the dependent variables are *Accrual_CF* and *ABS(Accrual_MJ)*. In column (3) and (7), we use the subsample with $Accrual\_MJ > 0$ and use subsample with $Accrual\_MJ < 0$ in column (4) and (8). We included dummy variables to capture firm- and year-fixed effects. Standard errors are clustered by firm and reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Data availability

The authors do not have permission to share data.

Table 15
Robustness test – Subsampling.

	(1)	(2)	(3)	(4)
Dependent variables	*Accrual_CF*	*ABS(Accrual_MJ)*	*Accrual_MJ > 0*	*Accrual_MJ < 0*
Lerner	−0.0199***	−0.0886***	−0.0839***	0.0636***
	(0.0051)	(0.0142)	(0.0133)	(0.0219)
$Accrual\_CF_{t-1}$	0.6723***			
	(0.0067)			
$ABS(Accrual\_MJ)_{t-1}$		0.1037***		
		(0.0107)		
$Accrual\_MJ_{t-1}$			−0.0564***	0.0955***
			(0.0163)	(0.0107)
Ln(Asset)	0.0147***	−0.0225***	−0.0148***	0.0280***
	(0.0007)	(0.0018)	(0.0024)	(0.0026)
ROA	−0.0116***	0.0359**	−0.0536***	−0.0976*
	(0.0031)	(0.0155)	(0.0144)	(0.0508)
Total Debt/Total Assets	0.0010	0.0141**	−0.0048	−0.0294**
	(0.0025)	(0.0069)	(0.0086)	(0.0134)
Sales Growth	−0.0003	0.0273***	−0.0296***	−0.0763***
	(0.0005)	(0.0056)	(0.0082)	(0.0140)
Book/Market	−0.0000***	−0.0100***	0.0001***	0.0027
	(0.0000)	(0.0021)	(0.0000)	(0.0028)
Constant	−0.0382***	0.2517***	0.2127***	−0.2507***
	(0.0034)	(0.0093)	(0.0121)	(0.0131)
Observations	35,346	45,162	23,959	21,203
R-squared	0.5543	0.0729	0.0576	0.2079
Year FE	YES	YES	YES	YES
Company FE	YES	YES	YES	YES

We run the baseline model on subsample with significant changes in banking market power (Lerner). This table presents the results by testing the relation between state bank market power and earnings quality. The sample includes all unregulated Compustat firms from 1995 to 2019, excluding financials (SIC Codes 6000–6999) and utilities (4900–4949) firms. Definitions of the variables are summarized in Appendix 1. The independent variable is Lerner index which measures state level bank market power. In Columns (1)–(2), the dependent variables are *Accrual_CF* and *ABS (Accrual_MJ)*. In columns 3 and 4, our dependent variables are *Accural_MJ*. In column (3), we use the subsample with *Accrual_MJ* > 0 and use subsample with *Accrual_MJ* < 0 in column (4). We included dummy variables to capture firm- and year-fixed effects. Standard errors are clustered by firm and reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Appendix A. Appendix

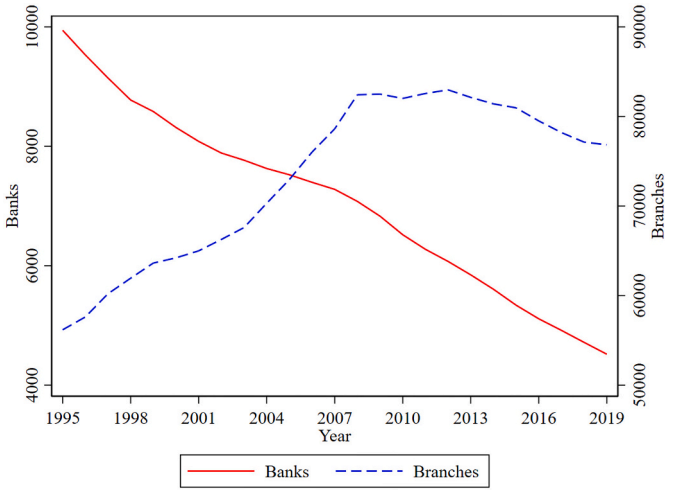
Appendix Table 1
Definition of variables and sources of data.

Variable Names	Definition	Source
Dependent Var:		
Accrual_CF	The ratio of accrual earnings management. We follow Francis et al. (2005) to measure this ratio. The higher the ratio, the more earnings management engaged.	Compustat
Accrual_MJ	The ratio of accrual earnings management. We follow Dechow et al. (1995) to calculate this ratio. The higher the ratio, the more earnings management engaged.	Compustat
ABS(Accrual_MJ)	The absolute value of Accrual_MJ.	Compustat
Accrual_MJ > 0	The sample if Accrual_MJ is larger than zero, where firms taking income increasing earnings management.	Compustat
Accrual_MJ < 0	The sample if Accrual_MJ is samller than zero, where firms taking income decreasing earnings management.	Compustat
C-Score	Accounting conservatism ratio to capture the variations in the incremental sensitivity of earnings to bad news versus good news. We follow Khan and Watts (2009) to construct this ratio.	
Independent Var:		
Lerner	Measure of bank market structure (Lerner, 1934), ranging from 0 to 1. The higher the ratio, the more power that banks have.	FDIC
H-statistics	Panzar and Rosse (1984) H-statistic of bank market structure, ranging from 0 to 1. The higher the ratio, the more competitive the banks in the market.	FDIC
HHI	Herfindahl-Hirschman index of bank market structure. We calculate this ratio based on the bank deposit share at state level. The higher the ratio, the more concentrated the local bank market.	FDIC
CR3	Concentration ratio of top 3 banks. We calculate this ratio based on the top 3 banks' deposit share at the state level. The higher the ratio, the more concentrated the local bank market.	FDIC
Branch density	Branch density by population at state level. The higher the ratio, the more competition in the local bank market.	FDIC
Ln (Branches-Lead)	Natural log of lead arranger's branches within 20 km radius of borrower's headquarter	DealScan
Ln (Branches-No-Lead)	Natural log of other branches (including participant branches in syndication and other branches not involved in syndication) within 20 km radius of borrower's headquarter	DealScan

(*continued on next page*)

Appendix Table 1 (*continued*)

Variable Names	Definition	Source
Borrower control:		
Ln(asset)	Natural Log of the total asset of sample firm at the end of fiscal year	Compustat
ROA	Return on Asset	Compustat
Book/Market	Book to Market ratio	Compustat
Sales Growth	Annual sales growth rate	Compustat
Total Debt/Total Assets	Total debt over total asset.	Compustat
State control:		
Ln(GDP)	Natural log of the annual gross domestic product by state	Federal Reserve Bank of ST. Louis
GDP_Growth	The growth rate of state gross domestic product	Federal Reserve Bank of ST. Louis
Ln(Personal Income)	Natural log of the average personal income in state	Federal Reserve Bank of ST. Louis



Appendix Fig. 1. Total Number of Banks and Branches (1995–2019).

Appendix Table 2
The effect of bank deregulation events on bank market power.

	(1)	(2)
Dependent variable	Lerner	Lerner
RS-Index	0.0041**	
	(0.0017)	
$Before^{3+}$		−0.0047
		(0.0036)
$Before^{2}$		0.0020
		(0.0038)
$Before^{1}$		0.0016
		(0.0033)
$After^{1}$		0.0030
		(0.0027)
$After^{2}$		0.0045*
		(0.0027)
$After^{3+}$		0.0050***
		(0.0018)
$Lerner_{t-1}$	0.6594***	0.6391***
	(0.0318)	(0.0336)
Constant	0.1054***	0.1120***

(*continued on next page*)

Appendix Table 2 (*continued*)

	(1)	(2)
Dependent variable	Lerner	Lerner
	(0.0099)	(0.0110)
Observations	663	663
R-squared	0.4667	0.4727
YEAR FE	YES	YES
STATE FE	YES	YES

In this table, we examine the relationship between bank deregulation and bank market power. The samples start from 1994 to 2005 at state year level. In Column 1, we collect the bank deregulation index from Rice and Strahan (2010) and inverse the ratio. *RS-Index* ranges from 0 to 4, where a higher the *RS-index* indicates a lower degree of regulation at the state level. In Column 2, we follow Cornaggia et al. (2015) to construct a dynamic effect of bank deregulation event on bank market power. $Before^{3+}$ equals the value of 1*Δ*RS-Index* from 1994 up to 3 years prior to a bank regulation change and zero otherwise. $Before^{2}$ equals the value of 1*Δ*RS-Index* two years prior to a bank deregulation change and zero otherwise. $Before^{1}$ equals the value of 1*Δ*RS-Index* one year prior to a bank deregulation change and zero otherwise. $After^{1}$ equals the value of 1*Δ*RS-Index* in one year following to a bank deregulation change and zero otherwise. $After^{2}$ equals the value of 1*Δ*RS-Index* in the second year following to a bank deregulation change and zero otherwise. $After^{3+}$ equals the value of 1*Δ*RS-Index* in the third year following to a bank deregulation change until to the end 2005 and zero otherwise. The dependent variable is *Lerner* index which is measured at state year level. We included dummy variables to capture state- and year-fixed effects. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

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