Bank CSR, Misconduct and Governance: evidence from China

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Abstract

The banking sector plays a vital role in economic development, as it is closely connected to the survival and growth of all industries. Previous studies in Western context and Islamic financial contexts have examined the relationships between various corporate governance and Corporate Social Responsibility (CSR). However, China's banking sector has experienced significant changes in recent decades, including privatisation and board reforms. The improvement of bank governance mechanisms, particularly within the board of directors, along with the entry of foreign capital, introduces new perspectives on CSR involvement.

This thesis contains three empirical chapters. In the first empirical chapter, we contribute to the literature on bank ownership by examining the influence of different types of ownership on CSR disclosure. We find a positively significant relationship between CSR and foreign ownership. In contrast, neither private nor state shareholdings are associated with CSR. We conclude that different owners have varying effects on CSR disclosure due to their distinct economic roles within society.

In the second empirical chapter, we attempt to find the mechanisms between independent directors' reputation concerns and CSR disclosure. The results show that reputation serves as a powerful motivator for independent directors, encouraging them to effectively monitor and advise on CSR activities. We also contribute to the literature on CSR disclosure by using content analysis and constructing a CSR index based on Chinese banks' characteristics in the first two empirical chapters.

In the third empirical chapter, we find that the relationship between board size and bank misconduct is non-linear. We extend the understanding of board mechanisms within the context of an emerging economy, and contribute to the bank misconduct literature by arguing that board size necessarily affects the risk of misconduct.

Declaration

I, Hanpei Zhang, confirm that the Thesis is my own work. I am aware of the University's Guidance on the Use of Unfair Means (www.sheffield.ac.uk/ssid/unfair-means). This work has not been previously presented for an award at this, or any other, university.

Chapter 2: Does Ownership Matter for Corporate Social Responsibility Disclosure in Banks? Evidence from China has been accepted at the 45th (2023) Annual Congress of the European Accounting Association.

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Chapter 1: Introduction

1.1 Research background and research questions

The role of banks in the economic development process is crucial, and they are closely related to the survival and development of all industries (Beck et al., 1999; Shen and Lee, 2005). This is because the banking sector plays a key role in regulating the optimal allocation of social resources, stabilising the economy and financial risks. At the same time, since the banking industry takes up a lot of social resources compared to other industries, it also needs to contribute more to society (Wu and Chen, 2013).

CSR in the Chinese banking industry started late. Before 2005, no bank issued a separate CSR report. In 2009, the China Banking Association (CBA) issued the "Corporate Social Responsibility Guidelines for Chinese Banking Financial Institutions," which marked the beginning of efforts to promote and regulate the CSR behaviour of commercial banks (CBA, 2009). The guideline also reflects the characteristics of CSR in the Chinese banking industry, which encompasses economic, social and environmental responsibility. For the Chinese banking industry, the fulfilment of social responsibility is more about accepting the obligations assigned by the state (Tang, 2012), such as: maintaining financial stability, implementing poverty alleviation policies, and carrying out green finance.

However, since the implementation of China's opening-up policies, the Chinese banking sector has undergone a series of remarkable ownership reforms, These reforms have transformed traditional wholly state-owned banks into modern commercial banks (Jiang et al., 2013). Furthermore, long-standing problems in China's banking sector, such as an excessive presence of state-owned capital, inadequate corporate governance mechanisms, and lack of competitiveness in the market, have also been gradually improved with the process of bank privatisation. Therefore, the improvement of the corporate governance (board of directors) mechanism and the entry of foreign capital open up a new perspective for Corporate Social

Responsibility (CSR) engagement. The overall aim of this study is to investigate whether a series of ownership and governance reforms (such as board independence and board size) in China's banking industry have had an impact on banks' CSR disclosure and misconduct.

In the first two chapters of this thesis, we address two very important research questions that link bank's changing ownership and governance with CSR disclosure. First, does ownership type affect banks' CSR differently due to their distinct economic roles within society? Second, has the improvement of board mechanisms, especially reputation incentives of independent directors, enhanced the disclosure of CSR? In addition, we also explore the potential mechanism between the board of directors and bank misconduct. In recent years, the increase in misconduct cases has not only damaged the reputation of banks and the interests of investors, but also posed a serious threat to the stability of the financial system (Nguyen et al., 2016). How to strengthen financial regulation and prevent financial risks has become a key concern of the banking industry. However, regulatory reform may not be effective without changes in bank corporate governance. Therefore, what banks can do to prevent misconduct is an important question.

1.2 Research gaps and contributions

In the mainstream literature, the limited research on corporate governance and CSR in the financial sector has mainly focused on the Western (Cornett et al., 2016) and Islamic finance context (Platonova et al., 2018). In recent decades, China's banking industry has undergone significant reforms, leading to changes in both ownership structure and the composition of boards of directors. Concurrently, the evolution of CSR policies has given China's banking sector distinct characteristics compared to Western and Islamic banks. These changes bring us a new question, who is making the decisions in China's banking industry? This paper aims to address these gaps by examining the influence of different ownership types and independent

directors on CSR disclosure within the Chinese banking sector, as well as exploring the impact of board size on bank misconduct. Our study contributes to the literature in the following ways.

Firstly, this study enriches the literature by exploring the underexamined impact of ownership structures on banks' CSR disclosure, particularly in the Chinese banking sector. We shift the focus from the well-researched area of CSR's impact on bank performance (e.g., Cornett et al., 2016; Lin and Zhang, 2009; Platonova et al., 2018) to understanding how different types of ownership influence CSR initiatives. This includes the novel examination of independent directors' reputational incentives and their role in enhancing CSR disclosure, building on the works of Chen et al. (2020) and Dyck et al. (2019), and providing fresh insights into corporate governance and CSR within the banking industry (Sila et al., 2017).

Secondly, this study makes a significant contribution by developing a new CSR index tailored to the Chinese banking industry, based on the social responsibility guidelines issued by the China Banking Association. This index requires disclosure across economic, social, and environmental dimensions, providing a more accurate and context-specific measure of CSR performance in China's banking sector. This approach addresses the limitations of previous research that relied on broader ESG scores or indices (e.g., Dam and Scholtens, 2012; Jizi et al., 2014; Khan et al., 2013).

Thirdly, this study offers new insights into board governance and risk-taking within the Chinese banking industry. We present the first empirical analysis of how board size affects the likelihood of misconduct in banks, highlighting the importance of an effective and well-sized board in fulfilling supervisory and monitoring roles. This contribution extends the understanding of board mechanisms following reforms in China's banking industry.

1.3 Thesis structure

This thesis includes four chapters. The first chapter is a brief introduction to the research background and research questions. The next three chapters of empirical research are as follows:

Chapter 2: Does Ownership Matter for Corporate Social Responsibility Disclosure in Banks? Evidence from China

We explore the relationship between ownership structure and CSR disclosure in this chapter. Using a sample of 110 Chinese commercial banks from 2009 to 2020, we find that foreign ownership has positively associated with CSR disclosure. We further confirm the causal effect of foreign ownership on CSR by using IV-2SLS, PSM, Heckman two-stage and GMM approaches. We also find that the relationship between bank CSR and foreign ownership is more pronounced when banks' headquarters are located in economic zones or provinces with a high level of government transparency.

Chapter 3: Independent Directors' Reputation Incentive and Corporate Social Responsibility Disclosure: Evidence from Chinese Banking Sector

In this chapter, we explore the effect of independent directors' reputation incentives on CSR disclosure. Using a sample of 110 Chinese commercial banks over the period from 2009 to 2020, the empirical results indicate that independent directors motivated by reputation are positively associated with CSR disclosure. We use PSM and GMM identification strategies to confirm that our results are robust. Further evidence shows that this relationship is stronger in non-state owned banks and banks not in the economic zones.

Chapter 4: Bank Board Size and Misconduct: Evidence from China

In this chapter, we investigate the impact of board size on bank misconduct. Using a sample of 110 Chinese commercial banks from 2009 to 2020, we find an inverted U-shaped relation between board size and bank misconduct. The results are robust by using the PSM approach

and cross-sectional analysis. We further find that this relationship is much more significant for state-owned banks and banks that are not in the top 50 competitiveness ranking. This research enhances our understanding of board mechanisms in the weak institutional environment.

Chapter 2: Does Ownership Matter for Corporate Social Responsibility Disclosure in Banks? Evidence from China

Abstract

Few studies have examined the impact of ownership on the corporate social responsibility (CSR) of banks. In addition, the majority of CSR research conducted by banks has been conducted in Western contexts and Islamic finance contexts. Using a sample of 110 large Chinese banks from 2009 to 2020, we investigate the impact of different shareholder types on the CSR engagement of banks. We categorise ownership into state, foreign, and private shareholder groups. We find a significant, positive relation between the CSR index and foreign ownership. In contrast, neither private nor state shareholdings are associated with the CSR index of banks. We conclude that different owners have varying effects on a company's CSR involvement. This is due to their distinct economic roles within society. The research provides empirical support for the relationship between ownership structure and CSR engagement in the Chinese banking sector. As a result, it provides a new emphasis on the content of shareholder activism, namely that shareholder background must be considered. Furthermore, we demonstrate that it is essential to consider the multidimensional nature of bank CSR.

Keywords: Banks' CSR; Ownership; Investor Activism

Does Ownership Matter for Corporate Social Responsibility Disclosure in Banks? Evidence from China

2.1 Introduction

After the outbreak of the financial crisis, banks on the brink of failure in the United States and Europe have had a disastrous effect on society (Grove et al., 2011). Since then, corporate social responsibility (CSR) activities of banks have been subject to increasing public oversight, and banks must also consider their long-term interests (Gill, 2008; Jizi et al., 2014). Practitioners, academics, and the media are paying a growing amount of attention to how the bank sector assists the economy in addressing significant and complex social challenges such as financial stability, financial equity and inclusion, and global climate change (e.g., Deloitte, 2019).[1] In the limited studies of CSR in financial sectors, most have been conducted in Western contexts (Cornett et al., 2016) and Islamic finance contexts (Platonova et al., 2018). As Chinese banks continue to integrate into the global financial system, their approach to CSR becomes important in aligning with international norms and best practices.

What is the uniqueness of CSR in banking sectors compared to non-financial companies in China and banks in other countries? Does the type of ownership affect banks' CSR differently due to their distinct economic roles within society in emerging markets? To answer these questions, our study provides an innovative bank CSR index to capture bank CSR engagement in multidimensions and examine how bank ownership affects CSR in China. China's banking sector is particularly chosen for this study for two reasons. First, Chinese banks have obligations to engage in social activities and disclose their CSR activities due to the pressure from the regulators. China has enacted several directives to ensure that banks adhere to CSR

[1] Recent research has examined the effects of ownership structures on CSR in non-financial firms, revealing contradictory findings (Graves and Waddock, 1994; Johnson and Greening, 1999; Oh et al., 2017; McGuinness et al., 2017).

practices. Notably, in 2007, the China Banking Regulatory Commission (CBRC) issued the "Opinions on Strengthening the Social Responsibilities of Banking Financial Institutions." This directive underscored the importance of CSR in banking as an integral component for fostering a harmonious society (CBRC, 2007). Following this, in 2009, the China Banking Association (CBA) released comprehensive social responsibility guidelines specifically tailored for banks. These guidelines detailed explicit criteria for CSR involvement within the banking sector (CBA, 2009). Consequently, this regulatory environment has led to a significant shift in reporting practices among major Chinese banks. Most have begun to include extensive details about their CSR activities in their annual and CSR-specific reports, reflecting a heightened commitment to social responsibility in line with national policy objectives.

Secondly, CSR disclosures in the Chinese banking sector cover multiple dimensions, which show the uniqueness of how financial institutions (banks) engage in CSR. Previous studies on bank CSR disclosure (e.g., Jizi et al., 2014; Platonova et al., 2018) mainly focus on commitments (such as philanthropies and investment) towards community involvement, employees, environment and social products, and service quality.[2] These aspects are commonly observed in both financial and non-financial institutions. However, in the context of emerging economies, financial intermediaries are crucial in incorporating moral, ethical, and environmental concerns into their business operations (Evangelinos et al., 2009). The CSR guidance in China's banking sector is notably distinct from those in other sectors. For instance, the social responsibility guidelines issued by the CBA explicitly state that the CSR of banking institutions should encompass economic, social, and environmental responsibilities (CBA, 2009). A primary focus of CSR in Chinese banks is to contribute to financial stability within the economy. Additionally, the CBRC's notice on green credit guidelines mandates that

[2] Studies focus on Islamic banks (e.g., Platonova et al., 2018) also see whether Islamic banks comply Zakah guidance.

banking institutions strategically promote green credit to bolster the green economy (CBRC, 2012).[3] Furthermore, under the guidance of the Financial Poverty Alleviation Office of the State Council, China's banking industry has also fully implemented a micro-credit responsibility system, expediting credit allocation progress. This shift in Chinese banks' CSR commitments towards promoting financial stability and addressing environmental and social issues through responsible lending practices marks a significant departure from traditional CSR approaches centred on philanthropy and community engagement. This evolution in CSR practices suggests the potential for developing an innovative CSR index tailored to the banking sector, reflecting the unique characteristics of CSR in this field.

One of the most notable characteristics of Chinese banks is their diverse ownership structures, encompassing state-owned, privately held, and foreign-owned shares. This variety in ownership leads to differing priorities, strategies, and commitments to CSR, shaped by distinct governance models, stakeholder expectations, and regulatory frameworks. Our objective is to explore the relationship between ownership types and CSR practices in the Chinese banking sector. The majority of banks in China are transformed state-owned enterprises (SOEs), with the central or local government often remaining as the largest shareholder. Additionally, like many emerging markets, Chinese banks typically exhibit a concentrated ownership structure and operate within a weaker institutional environment characterized by limited investor protection and prevalent insider dealings, as noted by Jiang et al. (2019). Post-ownership reforms, foreign and other forms of ownership have gained significance in bank governance. For instance, Liu et al. (2020) discovered that state and

[3] Taking the Bank of China (BOC) as an example, the BOC has green grading of financing projects and marked them with green plus, green, yellow, and red. BOC will increase credit support for projects marked with green plus and green, such as clean energy, ecological protection, and circular economy. At the same time, BOC will strictly control credit businesses marked with red for industries with high pollution, high energy consumption, and overcapacities, such as steel, paper, and other manufacturing industries.

domestic ownership predominantly influence banks' deposit efficiency, whereas foreign ownership significantly impacts loan efficiency.

Investigating the role of different owners in banks' CSR engagement is crucial, especially in emerging markets where the largest shareholder wields considerable control over firm decisions. State-owned banks in China, for instance, often engage in CSR as a response to government directives aimed at maintaining political, social, and economic stability (Li and Zhang, 2010). These banks frequently undertake tasks like supporting the poor and addressing the financial challenges of agricultural enterprises. However, due to government backing, state-owned banks might not prioritize additional CSR investments for financial gains (Shah, 2011).

The entry of foreign investors into Chinese banks brings not only capital and improvements in corporate governance but also introduces operational expertise and skills (Cheng et al., 2020). These investors often collaborate with Chinese banks on initiatives like employee training and education. However, as Choi et al. (2013) point out, foreign investors might seek immediate financial returns, potentially at the expense of significant CSR investments. In contrast, private ownership uses CSR as a tool to mitigate stakeholder conflicts, linking stakeholders through social activities to reduce information asymmetry and agency costs (Harjoto and Jo, 2011). Private owners also tend to oversee management activities closely, often curtailing CSR spending to boost profits and firm value (Barnea and Rubin, 2010). This diverse landscape of ownership in Chinese banks presents a complex and varied picture of CSR engagement, making it imperative to understand the nuanced influences of different ownership types on CSR practices in the context of China's evolving economic and social environment.

To find out how different types of ownership link with CSR, we examine a sample of all the large Chinese banks over the period of 2009-2020. We manually collect the bank's CSR reports and annual reports to obtain detailed information about economic, social and environmental responsibility that cover the features of the bank's CRS such as financial stability, green finance,

and poverty alleviation, it provides a more comprehensive review of CSR activities in Chinese banks. Unlike previous research into CSR disclosure, which relied on social rating agencies (Cornett et al., 2016). We use content analysis to measure the quality of disclosed information in banks' reports. Consistent with the framework and methodology used in the mainstream CSR literature (Jizi et al., 2014; Chen et al., 2020), we develop a CSR index based on the social responsibility guidelines issued by the China Banking Association. It covers three dimensions according to the relevant policies: economic responsibility, social responsibility and environmental responsibility. Each dimension is then scored based on its content richness and whether it discloses specific numbers in sub-dimensions.

Our regression results show that foreign ownership has a positive impact on CSR disclosure. After the entry of foreign investors, they have brought new management strategies to local banks, influencing the organizational structure of banks, as well as providing more direct and accessible technical support and assistance to domestic banks in non-interest activities. This relationship is robust using different measurements of foreign ownership. The positive effects of foreign ownership on CSR are significant in all dimensions. In addition, we use five methods to address endogeneity issues: 1) our research design mitigates omitted variable bias and reverses causality by controlling for bank and year fixed effects. 2) We also use propensity score matching (PSM) and 3) GMM approach to address these issues. 4) We adopt the Heckman two-stage method to mitigate the self-selection bias. 5) We construct an instrument variable using two-stage least squares (2SLS) to further enrich our identification of the causal effect of bank ownership and CSR disclosure. The results of these methods all remain significant and positive, which provide strong suggestive evidence that the relationship between bank ownership and CSR disclosure is causal in nature. Despite the notable impact of foreign ownership on CSR practices, our research found no substantial correlation between CSR engagement and the proportion of state-owned or privately-held shares in Chinese banks.

We further document that the relationship between bank CSR and foreign ownership is more pronounced when the bank's headquarters are located in the Pearl River Delta and Yangtze River Delta economic zones. The economic zones introduced foreign investment earlier and faster, and restrictions on introducing foreign investment in China's banking sector were gradually liberalised with China's accession to the WTO (Jia, 2014). With the support of government and policy, foreign investment in CSRs in the form of political linkages has resulted in greater potential gains (Hung et al., 2017). We also find that the relationship between bank CSR and foreign ownership is more pronounced when banks' headquarters are located in provinces with a high level of government transparency. The local government policy has a huge impact on bank operations in China. CSR activities have more benefits in high government transparency provinces to gain more social capital for the bank, so foreign owners are more likely to engage in CSR activities.

Our study contributes to the literature in the following ways. First, our study enriches the literature by delving into the underexplored influence of ownership structures on banks' corporate social responsibility (CSR), a niche largely neglected by studies focusing on general enterprises or manufacturing sectors (e.g., Harjoto et al., 2017; Li and Zhang, 2010; McGuinness et al., 2017). We shift the focus from the well-trodden path of CSR's impact on bank performance (e.g., Cornett et al., 2016; Lin and Zhang, 2009; Platonova et al., 2018) to how diverse types of ownership shape CSR initiatives within banks. Building upon the empirical findings of Chen et al. (2020) on institutional shareholders' social influence and Dyck et al.'s (2019) international evidence on shareholder-driven CSR, our research provides fresh insights. By also integrating Bian and Deng's (2017) findings on ownership dispersion and financial performance, we offer a comprehensive analysis that bridges corporate governance, ownership structures, and CSR in the banking sector, highlighting strategic levers for enhancing social responsibility.

Second, we contribute to the literature on the measure of bank CSR. Unlike previous research into CSR measurement, which relied on the environment, social and governance (ESG) score or index (e.g., Dam and Scholtens, 2012; Jizi et al., 2014; Khan et al., 2013), we develop a new CSR index based on the social responsibility guidelines issued by the China Banking Association. The guidelines require disclosure of social responsibilities from the economic, social and environmental aspects. Based on this, it will be more accurate to measure the social responsibility performance of China's banking industry. Third, paying attention to the background of emerging countries has important theoretical and empirical significance. It is worth noting that China has adopted a gradual reform approach, which is different from banking reforms in other transition economies. Policymakers in other developing countries will pay special attention to China's experience and lessons.

The remainder of the paper is organized as follows. Section 2 reviews the institutional background of the Chinese banking sector. Section 3 develops our testable hypotheses. Section 4 presents the data and methodology. Section 5 presents our descriptive statistics and preliminary results. The conclusion is given in the final section.

2.2 Institutional background

2.2.1 CSR in the Chinese banking sector

CSR often reflects broader cultural, regulatory and market dynamics. In this section, we summarize the development history of CSR in China's banking industry. It reflects China's unique social, economic and political background. Moreover, the CSR activities of China's banking industry are closely related to government policies and national development goals.

In 2006, in order to enrich its "creating excellence" corporate culture, Shanghai Pudong Development Bank took the lead in publishing the first report on social responsibility in the banking industry, which laid the foundation for the subsequent introduction of relevant regulations. In 2008, the Shanghai Stock Exchange (SSE) put forward Suggestions for the requirements of social responsibility work and social responsibility report of listed companies in the notice on strengthening social responsibility work of listed companies. In 2009, the China Banking Association (CBA) put forward the basic connotation of commercial Banks' social responsibility and the requirements of their social responsibility management in the "Guidelines on Corporate Social Responsibility of Chinese Banking Financial Institutions"(CBA, 2009). The guidelines stipulate that the corporate social responsibility of banking financial institutions shall at least include:

(1) Economic responsibility: create economic value for the country, shareholders, employees, customers, and the public in compliance with legal conditions. Inclusive finance is the best testimony of this responsibility.

(2) Social responsibility: follow the business philosophy in line with social ethics, actively protect the public interest; Advocate charity responsibility, and establish social harmony. The most distinctive feature of banks is targeted poverty alleviation.

(3) Environmental responsibility: support national environmental protection policies and socially sustainable development. Green credit is one of the policies with the most distinctive characteristics of China's banking industry.

Although this regulation issued by CBA is not mandatory and the definition of the three responsibilities is not very clear, as a signal, commercial banks headed by China's "big four" banks gradually began to issue CSR reports. With the continuous development and improvement of social responsibility in China's banking industry, each part of the responsibility has its own specific goals, which is also its biggest feature. Below we summarise the most representative features of the Chinese banking sector in terms of economic, social and environmental responsibility.

2.2.1.1 Economic responsibility- Inclusive finance

Inclusive finance refers to providing necessary financing for groups without funds and production capacities, such as farmers and small enterprises, while being able to bear a certain cost. The concept of inclusive finance was first proposed by the United Nations in 2005. In 2017, the Chinese Government Work Report Conference proposed that the government should support domestic commercial banks in building inclusive financial institutions and developing inclusive financial services. In October 2018, the China Banking and Insurance Regulatory Commission (CBIRC) issued the "Report on China's Inclusive Financial Development". The report shows that as of the end of 2017, the balance of loans for small and micro enterprises in the banking industry was 30.74 trillion yuan, and loan services were provided to 15.21 million small and micro-enterprises (CBIRC, 2018). Inclusive finance has made great progress in China and has become an important field for the sustainable development of China's banking industry.

2.2.1.2 Social responsibility- Financial poverty alleviation

Financial precision poverty alleviation is the precise connection between financial policies and poverty alleviation goals, supplemented by relatively reasonable financial products and financial norms, to a large extent improve the effectiveness and efficiency of poverty alleviation work. The important idea of "precision poverty alleviation" was first proposed by President Xi Jinping in 2013. In March 2016, at the Twelfth Chinese People's Congress, it was clearly instructed to give full play to the advantages of financial institutions in targeted poverty alleviation, increase cooperation between fiscal finance and commercial finance, and strive to achieve the goal of targeted poverty alleviation. In 2017, the People's Bank of China (PBC), the CBRC, the China Securities Regulatory Commission, and the China Insurance Regulatory Commission jointly issued the "Opinions on Financial Support for Poverty Alleviation in Deep Poverty Areas", requiring funds from various financial sectors and financial services to give priority to those in deep-poverty areas. As of March 2018, the PBC released news: China's poverty alleviation loan balance reached 635.3 billion yuan, and 8.35 million poor people received credit support (PBC, 2018). Financial poverty alleviation has become a characteristic part of the sustainable development of China's banking industry.

2.2.1.3 Environmental responsibility- Green finance

Green credit refers to helping and prompting enterprises to save resources and integrating ecological and environmental factors into the accounting and decision-making of the financial industry. In 2012, CBRC issued the Green Credit Guidelines, which normalized the credit structure of commercial Banks and made Suggestions for the adjustment of the credit structure of commercial Banks (CBRC, 2012). China's government policies and laws and regulations related to green credit are becoming more and more perfect. Appendix 1 shows the relevant major policies issued by China since 2007.

Under the supervision requirements of the PBC, the CBRC and the State Environmental Protection Administration, credit control is strictly controlled, and loans are not allowed to enterprises that do not meet environmental requirements and projects that may cause environmental pollution. As of June 2017, the green credit balance of 21 major banks in China was 8.22 trillion yuan, and the green financing balance had reached nearly 9 trillion yuan at the end of 2017 (PBC, 2017). From these data, we can see that the results of the green credit policy show that the policies introduced provide good policy guidance for the development of China's green credit business and are of great significance to the structural transformation and sustainable development of the Chinese economy.

2.2.2 The status of bank ownership in China

We summarize a comprehensive review of China's banking industry and its reform in Appendix 2. In this section, we focus on the changes in ownership of banks.

The ownership structure of China's banking industry is very complex for historical reasons, but it has gradually become modernised with the progress of reform. Prior to China's accession to the World Trade Organisation (WTO) in 2001, China had been very conservative about the entry of foreign capital. Regulators banned foreign financial institutions from holding shares in Chinese commercial banks, while progress in allowing foreign investors to take minority stakes has been very slow. The first foreign shareholding occurred in 1996, when the Asian Development Bank purchased a 1.9% stake in China Everbright Bank (Cheng et al., 2020). The second case followed in 1998, when the International Finance Corporation bought a 5% stake in the Bank of Shanghai (Cheng et al., 2020). As can be seen, the total amount of foreign investment in equity at that time was small and most of them were non-profit organisations due to strict policies and regulations.

In 2003, with the establishment of the China Banking Regulatory Commission (CBRC), foreign investment was encouraged to enter. The CBRC also updated the regulations on foreign investment, increasing the proportion of shares that a single foreign investor can legally hold in Chinese banks from 15% to 20%, and the proportion of shares that all foreign investors can legally hold in Chinese banks from 20% to 25% (Berger et al., 2009). The first time a foreign investor became the largest controlling shareholder of a local bank occurred in 2004, when Newbridge Capital purchased 18% of Shenzhen Development Bank's shares. At the same time, HSBC bought a 19.9% stake in the Bank of Communications, but the Ministry of Finance increased its stake after this investment and remains the largest shareholder (Cheng et al., 2020). This behaviour proves that the Chinese government is still cautious about foreign investment. At this stage, foreign ownership gradually increased and began to participate in the internal management of the bank, such as risk management, staff training and corporate governance (Berger et al., 2009). Empirical studies show that ownership reform has brought a lot of benefits to the banking sector. Berger et al. (2009) point out minority foreign owners may increase Chinese bank efficiency. This view is also supported by Boateng et al. (2015), who find that foreign banks have better asset quality and overall performance. Unlike institutional investors expecting financial returns, the Chinese government usually intervenes in management to pursue political goals rather than maximize shareholder wealth (Du et al., 2016).

These changes have resulted in a diverse ownership structure within Chinese banks. While state ownership continues to hold a dominant position, the importance of foreign and privately owned shares has been increasing. This evolving ownership landscape is critical to our study, as it sets the stage for the redefinition and implementation of CSR in this context. we aim to illuminate the influence of dominant ownership forms on CSR practices. It is within this interplay of varied ownership stakes that the nuances of CSR performance are manifested. Hence, our research implicitly captures the impact of institutional holdings on CSR through

their embeddedness in state or private shares, a reflection of the real-world complexities in China's banking sector. This approach allows us to underscore the subtleties of ownership reforms and their implications for CSR, contributing a unique perspective to the literature.

2.3 Literature review and hypotheses development

2.3.1 Related studies about CSR and ownership

Corporate social responsibility is about the impact of corporate performance on people, the environment, and society, so as to contribute to sustainable economic development in a way that is conducive to corporate development (Starks, 2009). Bowen (1953) first proposed that businessmen need to consider social responsibilities and social values in their management decisions. Since then, CSR activities have turned into a hot topic of discussion in the academic world.

Existing theoretical research remains inconclusive in terms of the impact of CSR. Agency theory explains the relationship between owner and firm well because their interests are often not consistent, which will generate agency costs (Jensen and Meckling, 1976). Investment in improving CSR could be a sign of a company's agency problems. External stakeholders without a financial interest will not bear the cost of improving CSR and are more likely to demand it. if company managers care about these external pressures or can derive other private benefits from investing in CSR, they will overinvest (Dyck et al., 2019; Cronqvist and Yu, 2017). However, stakeholder perceptions of CSR indicate that CSR is an important tool for creating long-term shareholder value. Particularly, under the monitoring and supervision of long-term investors, managers can properly use CSR to create more shareholder value (Ferres and Marcet, 2021). Therefore, CSR provides a channel that can promote the relationship between companies and stakeholders. In addition, by participating in CSR, managers can improve their reputation and establish a good image of the company (Gill, 2008), so as to gain the trust of stakeholders (Matten, 2006) and enhance the competitive advantage of the company (Kolk and Pinkse, 2010). Companies that perform well in CSR tend to have higher customer and employee satisfaction and brand loyalty (Mackenzie, 2007), which reduces the risk of corporate performance being affected by consumer complaints and product safety scandals

(Salama et al., 2011). CSR activities can also provide entrepreneurial businesses with several advantages, such as gaining legitimacy and valuable resources from governments (Liu et al., 2021). Due to these potential benefits of CSR to companies, investors are increasingly willing to consider CSR in their investment decisions, which further influences companies' CSR policies. (Chen et al., 2020; Dyck et al., 2019).

Several recent studies explore the link between CSR and ownership, the results are mixed. For example, Jia and Zhang (2013) studied the relationship between CSR and managerial ownership, they find that managers are willing to be more involved in CSR to maintain the company's reputation, because damaging the company's reputation could endanger their personal reputation and wealth. However, Soliman et al. (2013) find a negative association between CSR and managerial ownership, managers will reduce corporate social responsibility participation and potential short-term expenditures with the increase in equity ownership to avoid a decline in the value of their own stocks. Mahoney and Roberts (2007) find that institutional ownership is positively associated with CSR, because companies with low levels of corporate social responsibility are considered to have higher investment risks. In contrast, Harjoto et al., (2017) find that institutional ownership does not strictly increase or decrease in CSR. They also find that investors do not regard CSR as an activity that can enhance the company's value. The different types of owners come from the regulations of the system and the development of society (Brammer et al., 2008). They usually play different roles and positions in society with different interests. The size and horizon of the owner will also affect their investment decisions. Therefore, companies need to resolve conflicts of interest between multiple stakeholders (Mitchell, 1997). At this time, CSR as an instrument that can closely connect different stakeholders will reduce information asymmetry and agency costs (Harjoto and Jo, 2011).

In summary, direct financial benefits are not the only criterion considered by owners. Corporate social responsibility is also used as an instrument to resolve conflicts between different stakeholders. At the same time, through corporate social responsibility, potential risks in the future can also be reduced, and the company's reputation can be improved to prevent performance from being affected. Shareholders' preference for corporate social responsibility will vary due to different shareholding structures and ownership types. So that's why we are interested in the relationship between different types of ownership and CSR, and exploring whether and how certain types of ownership affect CSR.

2.3.2 Related studies about CSR and state ownership

The characteristics of state ownership are still mainly reflected in emerging economies such as China. Not only state-owned enterprises account for a large part of Chinese enterprises, but state-owned banks also have an important position in China's banking industry. Previous studies present generally positive but also negative results, as well as insignificant results. The study of Dam and Scholten (2012) stated that in order to meet government policies, state-owned enterprises are usually used as tools to follow policy directions to achieve social and environmental goals. Shah (2011) believes that state-owned enterprises will receive government protection from market pressures, and therefore are not economically competitive and lack the motivation to issue CSR.

When the government is the largest shareholder of a company, its purpose is not to simply pursue interests, but to link public interests with social and environmental responsibilities, so that it can help solve a series of social problems, such as economic stability, better employment and infrastructure (Li and Zhang, 2010). Therefore, CEOs of state-owned enterprises usually receive incentives or pressure from the government to implement relevant social responsibility activities (Kim and Jo, 2021). In addition, the managers in state-owned firms are more likely

to be involved in CSR activity due to pressure from career development. For managers, most of them are nominated and appointed by the state. In recent years, the government has taken a more positive attitude towards social responsibility. For example, the China Banking Regulatory Commission issued the Opinions on Strengthening the Social Responsibility of Banking Financial Institutions in 2007, which pointed out that the fulfilment of social responsibility of banking financial institutions is an inevitable requirement for building a harmonious society and an important way to enhance the competitiveness of banking financial institutions. In order to preserve their positions or get promoted, top managers will keep the same attitude with the government to a better assessment result (Firth et al., 2006; Zhou, 2019).

In contrast, state ownership can also lead to lower CSR participation. Firstly, managers of SOEs lack the motivation to manage the business effectively and profitably (Dharwadkar et al., 2000). They frequently exhibit unethical behaviours and prioritize personal gain over the best interests of government institutions (Agbiboa, 2012). This leads to state ownership reducing the financial performance of the company (Tihanyi et al., 2019). Secondly, agency problems are more likely to arise in state-owned enterprises. As China's banking industry is still in a weak institutional environment and limited investor protection, society's allocable resources will prioritize economic development and be allocated less to social and environmental-related investments (Musacchio et al., 2015). Thirdly, due to government backing, state-owned banks do not have to worry about the market forces, and thus might not prioritize additional CSR investments for financial gains (Shah, 2011).

H1a: State ownership is positively associated with banks' CSR.

H1b: State ownership is not associated with banks' CSR.

2.3.3 Related studies about CSR and foreign ownership

Evaluating the consequences of foreign ownership on local banks in developing countries is a vital concern for both academics and policymakers. Scholars who hold a positive view of foreign ownership argue that the entry of foreign investors can provide lower cost financial services and help to achieve economic growth through a more efficient allocation of capital (Havrylchyk and Jurzyk, 2011). Foreign ownership also improves bank profitability and enhances risk taking in the local market (Berger et al., 2009; Jiang et al., 2013). In recent decades, several papers have confirmed the effect of foreign ownership on CSR (Zhou, 2019; Dyck et al., 2019)

There are several reasons that could motivate foreign investors to improve the performance of banks' social responsibility. Firstly, customers' demand for sustainable development has increased. Compared to domestic investors, foreign investors are more attuned to the expectations of a broader set of stakeholders. This stakeholder perspective aligns well with CSR activities. When making investment decisions, more and more foreign investors pay attention to social and environmental impacts in addition to financial performance. Previous research has shown that investors will invest according to social preferences, and they are willing to give up their income to invest in socially responsible companies (Riedl and Smeets, 2017; Chen et al., 2020). In addition, foreign investors are often influenced by their domestic supervision and market pressure. Especially those from developed countries, are usually more concerned with maintaining their global reputation. These pressures emphasize moral investment may promote them to better fulfil their social responsibilities in companies investing overseas to reduce the risk of investment and reputation caused by poor governance or immoral behaviour (McGuinness et al., 2017).

Secondly, foreign investors promote CSR by influencing the strategic decisions of Chinese banks. After the entry of foreign investors, they began to participate in the internal management of banks, which made Chinese banks realize the weaknesses in their corporate governance,

especially the gap in non-interest activities (Cheng et al., 2020). In recent years, several prominent Chinese banks, including the Bank of China, Industrial and Commercial Bank of China, and China Merchants Bank have implemented a strategic plan to expand their non-interest activities.

Thirdly, foreign ownership participates in CSR through cooperation with Chinese banks in human resources training and development. For instance, in 2006, the Big Four banks together with foreign partners undertook 305 joint initiatives across 53 distinct sectors, facilitating over 10,000 training events through 75 specific training schemes (Cheng et al., 2020). Since the involvement of foreign investors, cooperation with domestic banks has focused mainly on training and education, with a commitment to strategic transformation and business expansion. Chinese banks are also increasingly aware of the importance of staff training and talent development in bank management.

However, banks with foreign ownership might impose higher net interest margins, leading to potential unprofitability, inefficiency, and a lack of competitiveness (Lee and Hsieh, 2014). Moreover, foreign investors are generally regarded as delegated regulators, and their investment is to obtain financial returns. They will monitor management activities to reduce CSR expenditures to increase the company's revenue and value (Barnea and Rubin, 2010).

H2a: Foreign ownership is positively associated with banks' CSR.

H2b: Foreign ownership is not associated with banks' CSR.

2.3.4 Related studies about CSR and private ownership

In this study, private ownership is classified as ownership in addition to state ownership and foreign ownership, and as a type of institutional ownership. In recent decades, institutional ownership has increased rapidly (Sethi, 2005), and the unclear relationship between CSR and institutional investor equity is reflected in the empirical results.

From the perspective of agency theory, companies reduce the cost of CSR investment to improve firm value and profits under the monitoring of institutions (Barnea and Rubin, 2010). However, investments that engage in CSR are often considered risk-averse (Mahoney and Roberts, 2007). Therefore, if CSR reduces investment risk, then institutional investors will perceive CSR to be useful. The core focus of institutional investors is investment risks and financial return. If CSR is believed to have a positive impact on one of these aspects, investors will consider participating in CSR. In addition, private ownership may typically operate on a smaller scale, with fewer social and financial resources and less visibility than state and foreign ownership (Perrini et al., 2011). The result is that they will put the survival and interests of the company first and will not prioritise involvement in CSR. In this context, private investors are expected to be less involved in long-term oriented CSR (Faller and Knyphausen, 2018).

H3a: Private ownership is positively associated with banks' CSR.

H3b: Private ownership is not associated with banks' CSR.

2.4 Methodology

2.4.1 Data and sample construction

This paper examines how Chinese banks with different ownership types affect corporate social responsibility. According to the "List of legal persons of banking financial institutions" issued by the China Banking and Insurance Regulatory Commission in 2021, there were 4044 banks in 2020, including 54 listed banks and 3990 unlisted ones. To obtain a large sample of Chinese banks, we initially selected the top 300 banks based on two ranking lists: *Brand Finance Banking 500* and *S&P Global Worldwide Bank Ranking*.[4] The top 300 banks cover over 95% of the total assets of Chinese banks. Then, we exclude the central bank of China, policy banks and credit unions, which have different disclosure and regulatory requirements from commercial banks.[5] We also exclude banks whose total assets are less than $1 billion.

The selection of large banks for this study is well-founded due to their substantial influence on the Chinese banking sector and their pivotal role within the Chinese economy. Large banks, particularly state-owned banks, control the majority of banking assets in China, making them crucial to the stability and performance of the entire financial system (Lin and Zhang, 2009). These banks have undergone extensive reforms, including recapitalisation, privatisation, and the involvement of foreign strategic investors, all of which have markedly impacted their efficiency and profitability (Jiang et al., 2013). Given their market dominance and the availability of comprehensive data, large banks offer an in-depth perspective on the outcomes of these reforms and the overall status of the Chinese banking sector. In addition, focusing on large banks is vital for understanding the effects of ownership structure and regulatory changes.

[4] Brand Finance Banking 500 is the 500 most valuable and strongest banking brands in the world. S&P Global Worldwide Bank Ranking is sorted by bank total assets and can be filtered by country.

[5] Policy banks refer to non-commercial professional financial institutions founded by the government to implement the government's economic policies and conduct financial business in a specific field. Such as Exim Bank of China, Agriculture Development Bank of China etc.

Large banks with different ownership differ in governance and operating strategies, making them particularly suitable for studying the impact of privatization and foreign ownership (Cheng et al., 2020).

Our sample period starts from 2009 because most of the corporate social responsibility data of Chinese banks can only be found from 2009, due to the China Banking Association (CBA) issued the first guidelines on the disclosure of social responsibility reports in China's banking industry in 2009 (China Banking Association, 2009). Therefore, we restrict our analysis to 2009 onwards when CSR data for most banks became available. To ensure data accuracy and comprehensiveness, we manually collected 2009-2020 social responsibility data from China's banking corporate social responsibility reports and annual reports. To apply panel data techniques, we removed the banks that did not disclose corporate social responsibility and that disclosed social responsibility for less than three years. This leaves us with an unbalanced panel that includes 110 Chinese banks during 2009-2020. Appendix 3 summarizes the sample selection procedure.

Among the 110 Chinese banks, we have all 6 state-owned commercial banks, 11 joint-stock commercial banks, 24 rural commercial banks and 69 urban commercial banks (See Appendix 4 for a detailed list of Chinese banks). The assets of these 110 Chinese banks account for more than 90% of the total assets of Chinese commercial banks, so the sample in this paper can basically reflect the overall characteristics of China's banking industry.

Data on bank ownership is collected in the bank's annual reports and CSMAR database, and financial data is collected in the CSMAR and BankFocus databases. As one of China's leading financial data providers, the CSMAR database has more comprehensive data on the Chinese banking industry, and data on non-listed banks is mainly collected here.

2.4.2 Variable measurements

2.4.2.1 Dependent variable: CSR performance

A review of the literature identified three main types of social responsibility disclosure measurement. The first type is to measure the disclosure content, such as number of words (Deegan and Gordon, 1996), sentences (Tsang, 1998) and pages (Patten, 1991) in the CSR or annual report. However, there are obvious limitations to this type. Measuring by the number of words or pages may be problematic, because a single word may not have any meaning if no context is provided (Milne and Adler, 1999). One argument against measuring CSR disclosures based on the number of sentences and pages is that any unit of measurement that fails to consider graphs, charts or photographs will ignore the valid information contained in them (Beattie and Jones, 1997). It could even be said that photographs can provide more CSR disclosure information than texts. The second type is to use CSR ratings provided by social rating agencies (Cornett et al., 2016; McGuinness et al., 2017; Chen et al., 2020). Social ratings provided by Kinder, Lydenberg, Domini & Co. (KLD) have become a mainstream of CSR research. In contrast to the KLD, recent academic surveys have highlighted the prominent role of the China RKS in guiding investors through the quality and content of the overall social reporting activities of listed companies (McGuiness et al., 2017). The limitations of these rating agencies are that they focus primarily on the disclosure status of listed companies and the ratings are easily influenced by the information disclosed by the companies (Jizi et al., 2014).

The third type is the construction of a CSR index based on content analysis. Content analysis was defined by Abbot and Monsen (1979) as "a technique for gathering data that consists of codifying qualitative information in anecdotal and literary form, into categories in order to derive quantitative scales of varying levels of complexity." Krippendoff (1980) further stated that "content analysis is a research technique for making replicable and valid inferences from data according to their context." This approach is extremely useful for the study of specific types of companies. So in order to better evaluate CSR disclosure, our study analyzes the

contents of the bank's social responsibility reports and generates a CSR disclosure index to measure the CSR performance of China's banking industry.

Content analysis has been widely utilized in CSR research to evaluate the quality of CSR disclosures. For example, Jizi et al. (2014) apply content analysis to examine the quality and comprehensiveness of CSR disclosures in the annual reports of major U.S. commercial banks. Based on the definition and framework of CSR in Western countries, they divided CSR disclosure into four main areas: community involvement, environment, employees, and product and customer service quality. Similarly, Platonova et al. (2018) use content analysis to investigate CSR disclosures, with a particular emphasis on the ethical aspects of CSR within Islamic banks. They develop the CSR index based on standards set by the Accounting and Auditing Organization for Islamic Financial Institutions. In this paper, we not only construct the CSR index based on the disclosure policies and characteristics of China's banking industry (text information), but we also extend the analysis by evaluating the disclosure of financial and numerical information, such as green credit loans, poverty alleviation loans and rural loans. We aim to provide a more comprehensive perspective on CSR disclosure, encompassing both the qualitative and quantitative aspects of CSR.

The index is divided into four dimensions according to the relevant policies of the Chinese banking industry and corporate social responsibility literature (Gray et al., 1995): general, economic responsibility, social responsibility, and environmental responsibility. Each dimension is divided into several sub-dimensions according to the guidelines issued by the China Banking Association (See Appendix 5).

According to the existence and comprehensiveness of the information disclosed in each dimension, score the content in these four CSR dimensions. Therefore, the total score of the four CSR dimensions is 36 points. Then, the level of CSR for each bank is derived from the following equation (1).

$$CSR = \sum(points\ of\ general, economic, social\ and\ environmental\ dimentions)\ /36 \quad (1)$$

CSR (General) = Disclose CSR report (2), disclose CSR in the annual report (1), not disclosed (0)

CSR (Economic responsibility) = Scores for six sub-dimensions (0~12)

CSR (Social responsibility) = Scores for six sub-dimensions (0~12)

CSR (Environmental responsibility) = Scores for five sub-dimensions (0~10)

In content analysis, coding reliability and consistency are crucial. To assess the reliability of the content analysis in this study, the following steps were undertaken (Platonova et al., 2018). First, a pilot study was conducted to evaluate the reliability of the coding process. We selected a random sample covering 10% of the CSR reports and scored them ourselves. Second, to assess the consistency of the scoring, the same CSR reports from the pilot study were re-analysed and re-scored after a one-month interval. Third, the same CSR reports were provided to two additional individuals for scoring, with explanations of each CSR dimension and sub-dimension given in advance. The scores they assigned were then compared with our initial scores. Finally, based on the results and feedback received, we revised and confirmed the CSR scoring criteria and independently completed the entire CSR scoring process.

2.4.2.2 Independent variables: ownership

For the Chinese banking industry, since the beginning of the ownership reform in 2003, ownership has been defined according to historical classifications, namely: state-owned commercial banks, joint-stock commercial banks, city commercial banks, and rural commercial banks. Although this classification is still in use today, the classification of the

nature of ownership is no longer sufficient, and the distinction between various types of banks has become blurred. For example, joint-stock commercial banks such as Shanghai Pudong Development Bank and China CITIC Bank are mainly controlled by the government and should still belong to the state ownership. Our method of defining ownership is based on observing the nature of the holding owner agreed in the academic literature (Berger et al., 2010; Boateng et al., 2015), dividing ownership into state ownership, domestic private ownership and foreign ownership.

There are two main ways to measure ownership. The first way is to calculate the percentage held by shareholders of different natures (Berger et al., 2010; McGuinness et al., 2017). The second way is to use the dummy variables (Berger et al., 2009; Boateng et al., 2015; Cheng et al., 2020). In China, ownership is highly concentrated and dominated by one or two blockholders compared to developed economies, which can significantly influence the firm's decision-making process (Jiang and Kim, 2020). Dummy variables are particularly useful in this context, as they capture the presence or absence of specific types of shareholders (such as state-owned shareholders or foreign shareholders) rather than relying solely on the exact ownership percentage, which may lack sufficient information. Furthermore, since the relationship between ownership percentage and management decisions is not always linear or straightforward, and in line with international accounting reporting standards, even a small change in ownership stakes (from 49% to 51% or from 19% to 21%) effectively grants the shareholder majority control (Jiang et al., 2019). Therefore, we use dummy variables rather than their actual shares to measure different types of ownership in this paper.

Following empirical studies of Chinese listed companies by Jiang et al. (2019), a bank is assumed to be controlled when at least one shareholder owns more than 5% of the total outstanding shares. We defined State is a dummy variable that equals 1 for state owned banks and 0 otherwise and a bank is classified as state owned if the largest shareholder is state and

greater than 5% of total outstanding shares. Foreign is a dummy variable that equals 1 for foreign banks and 0 otherwise and a bank is classified as foreign owned if the largest shareholder is a foreign investor and greater than 5% of total outstanding shares. Private is a dummy variable that equals 1 for domestic private banks and 0 otherwise and a bank is classified as privately owned if the bank is neither a state owned bank nor a foreign bank. Following the study by Jiang et al. (2019), we further divided state owned banks into central government owned banks (CGOB), local government owned banks (LGOB) and state enterprise owned banks (SEOB). CGOB is a dummy variable that equals 1 if the largest state shareholder is the central government and 0 otherwise. LGOB is a dummy variable that equals 1 if the largest state shareholder is the local government and 0 otherwise. SEOB is a dummy variable that equals 1 if the largest state shareholder is a state owned enterprise and 0 otherwise.

2.4.2.3 Control variables

We include control variables that have been used in prior studies (e.g., Jizi et al., 2014; Chen et al., 2020; Kim and Jo, 2021). Bank characteristics such as bank size, bank age, return on assets (ROA) and leverage are included in the analysis. Leverage increases the business risk of a company, which in turn encourages managers to participate in corporate social responsibility to reduce risk (Chakroun et al., 2017). Leverage is calculated by dividing fully loaded Tier 1 capital as a percent of its total exposure. Total exposure is the sum of on-balance sheet and off-balance sheet exposures. There is evidence that smaller companies don't care much about corporate social responsibility because it reflects the slack of the firm (Goss and Roberts, 2011). Bank size is measured by the natural logarithm of the total assets at the end of the fiscal year. Companies with better performance may have more financial resources to participate in corporate social responsibility activities (Clark and Hebb, 2005), so we control the return on

assets, return on assets is net income divided by total assets. Bank age is measured as the number of years since the establishment of the bank.

Corporate board characteristics can also affect firms' CSR (Oh et al., 2017). A higher proportion of independent directors on the board improves monitoring capacity and external legitimacy, which will lead to better CSR performance. The proportion of independent directors is the percentage of independent directors on the board. We also include core bank regulatory indicators as control variables (Wu and Shen, 2013). Non-performing loan is the ratio of impaired (non-performing) assets to total loans. Liquidity is the ratio of current assets to current liabilities. Capital adequacy ratio is net capital divided by risk weighted assets. Detailed definitions of the variables are provided in Appendix 6.

2.4.3 Regression model

Based on Cheng et al. (2021) and Jizi et al. (2014), we offer the following lead-lag panel regression model to test our three hypotheses. This is done to solve potential reverse causality problems. If we study the immediate relationship between corporate social responsibility and ownership, these problems may arise.

$$\begin{aligned} CSR_{i,t} = {} & \beta_0 + \beta_1 State_{i,t-1} + \beta_2 Private_{i,t-1} + \beta_3 Foreign_{i,t-1} + \beta_4 CGOB_{i,t-1} \\ & + \beta_5 LGOB_{i,t-1} + \beta_6 SEOB_{i,t-1} + \beta_7 SIZE_{i,t-1} + \beta_8 LEV_{i,t-1} + \beta_9 ROA_{i,t-1} \\ & + \beta_{10} NPL_{i,t-1} + \beta_{11} AGE_{i,t-1} + \beta_{12} ID_{i,t-1} + \beta_{13} LIQ_{i,t-1} + +\beta_{14} CAR_{i,t-1} \\ & + Year\ Fixed\ Effect + Firm\ Fixed\ Effect + \varepsilon \end{aligned} \quad (2)$$

Where $CSR_{i,t}$ is the CSR score of bank i in year t, measured as the ratio of the number of disclosure points to the highest score the bank can achieve; $State_{i,t-1}$ is a dummy variable that equals 1 for state owned banks and 0 otherwise of bank i in year t-1; $Private_{i,t-1}$ is a dummy

variable that equals 1 for domestic private banks and 0 otherwise of bank i in year t-1; $Foreign_{i,t-1}$ is a dummy variable that equals 1 for foreign banks and 0 otherwise of bank i in year t-1; $CGOB_{i,t-1}$ is a dummy variable that equals 1 for central government owned banks and 0 otherwise of bank i in year t-1; $LGOB_{i,t-1}$ is a dummy variable that equals 1 for local government owned banks and 0 otherwise of bank i in year t-1; $SEOB_{i,t-1}$ is a dummy variable that equals 1 for state enterprise owned banks and 0 otherwise of bank i in year t-1; $SIZE_{i,t-1}$ bank's size measured by the natural logarithm of total assets of bank i in year t-1; $LEV_{i,t-1}$ leverage measured by dividing fully loaded Tier 1 capital as a percent of its total exposure of bank i in year t-1; $ROA_{i,t-1}$ profitability measured by net income over total assets of bank i in year t-1; $NPL_{i,t-1}$ non-performing loans measured by impaired (non-performing) assets to total loans of bank i in year t-1; $AGE_{i,t-1}$ bank's age measured by the number of years since the establishment of the bank; $ID_{i,t-1}$ independent directors measured by the percentage of independent directors on the board; $LIQ_{i,t-1}$ liquidity measured by current assets over current liabilities of bank i in year t-1. $CAR_{i,t-1}$ capital adequacy ratio measured by net capital divided by risk weighted assets of bank i in year t-1.

2.5. Empirical results

2.5.1 Descriptive statistics

Table 2.1 presents descriptive statistics for the variables used in our empirical analyses for state ownership, foreign ownership and private ownership. All continuous variables are winsorized at the 1% and 99% levels to mitigate the effects of outliers. The minimum value of the corporate social responsibility score is 0 and the maximum value is 0.972, indicating that the social responsibility scores of various banks are quite different. The mean of the state ownership of the banks in the sample is 0.602, suggesting that most of the banks in this study are majority state owned. This is in line with research by Jiang et al. (2019) who find that between 2006 and 2015, approximately 54% of the banks are state-controlled. The mean of the foreign ownership of the banks in the sample is 0.153. This finding is comparable to that by Cheng et al. (2020), which suggests that between 2001 and 2016, 25% of Chinese banks have introduced foreign strategic investors. The main reason for this difference is that not all foreign investors play a dominant role in domestic banks. This is also confirmed by Cheng et al. (2020) that 18.5% of foreign strategic investors appointed directors or senior managers to domestic banks. Table 3 further presents descriptive statistics for the sub-CSR. The minimum value of the economic, social and environmental scores is 0 and the maximum value is 1, indicating that each bank's sub-CSR scores are quite different.

2.5.2 Baseline empirical results

Table 2.2 presents the main evidence on the relation between banks' ownership and CSR. In column 1, the coefficient on foreign ownership is positive and significant at the 5% level, suggesting that, in line with H2a, foreign ownership is more likely to participate in CSR. This is also in line with previous research into the relationship between foreign ownership and CSR (Chen et al., 2020; Cheng et al., 2020). These findings indicate that foreign banks could affect

the CSR development of domestic banks. The entry of foreign investors promoted local banks to begin adjusting their strategic planning, governance structure and non-interest activities. The coefficient on state ownership and private ownership are insignificant, which means state ownership and private ownership are uncorrelated with CSR. These results reject H1 and H3. One possible explanation might be that state-owned banks are protected by the government in many ways and they do not need to increase or decrease CSR investments to achieve greater financial returns and solve social problems (Shah, 2011). Turning to the control variables, the results show that bank size and independent directors are positively associated with CSR, while capital adequacy ratio, non-performing loan and liquidity are negatively associated with CSR. In column 2, we further divided state ownership into central government ownership (CGOB), local government ownership (LGOB) and state enterprise ownership (SEOB). They are consistent with the state ownership result, which is not relevant to CSR.

2.5.2.1 Alternative measures of ownership

We also use alternative measures of ownership to test the hypotheses, our results are consistent and robust. In regression equation (2), a bank is assumed to be controlled when at least one shareholder owns more than 5% of the total outstanding shares. In this subsection, we assume that banks are controlled only if at least one shareholder owns more than 10% of the total outstanding shares. The results in columns 3 and 4 of Table 2.2 show that the effect of foreign ownership on CSR is positive and significant. While the effects of state ownership and private ownership on CSR still are insignificant. These results are in line with our main findings.

2.5.2.2 Results of three components of CSR

Our previous findings show that foreign investors have a positive impact on CSR. To explore further how foreign investors influence CSR, we separate CSR into three subgroups

based on the CSR index: economic, social and environmental. Table 2.3 reports CSR subgroup regression results. In Table 2.3, foreign ownership is positive and significant in columns 1, 2 and 3. These results indicate that foreign ownership has a positive impact on all three aspects of CSR, but the impact on the environment is more significant. The impact on the economy and society is easy to understand, as the entry of foreign investors has not only improved the banks' capital and governance structure, but has also led to cooperation in employee training and internal education (Cheng et al., 2020). One possible reason for the environment is that in the context of China's vigorous development of green credit, foreign investors are more involved in maintaining their legitimacy and political ties with the government.

2.5.3 Identification strategies

A major concern in the baseline regression is endogeneity. Our main results show that foreign ownership has a positive effect on bank CSR disclosure. However, it is difficult to statistically define the causal effect of foreign ownership and CSR disclosure. It is also possible that omitted variables affect both foreign ownership and CSR disclosure. Furthermore, banks' ownership and disclosure of CSR may be non-random, this may cause a self-selection bias.

Previously, we used the fixed effect model (bank and year fixed effect), lagged values of independent variables and control variables to mitigate the potential endogeneity concern. In the following sections, we use four approaches to further address the endogeneity issues: 1) Propensity Score Matching (PSM) analysis; 2) Heckman two-stage method; 3) Instrument Variable (IV) with two-stage Least Square (2SLS) regression analysis; 4) Generalized Method of Moments (GMM).

2.5.3.1 Propensity Score Matching (PSM)

This section utilizes the propensity score matching technique introduced by Rosenbaum and Rubin (1983) to analyse the impact of foreign ownership on CSR. PSM is particularly useful in observational studies where random assignment is not feasible, as it allows for the creation of a quasi-experimental design by matching treated and control units based on their propensity scores, thereby reducing selection bias. The first step in implementing PSM involves estimating the propensity scores for each bank-year observation. We calculate the propensity scores via a probit model, selecting foreign ownership as the dependent variable, while all control variables specified in equation (2) serve as the explanatory variables. This approach ensures that the propensity scores capture the likelihood of foreign ownership given the bank's observed characteristics.

Subsequently, we match each foreign ownership bank (treated group)with the non-foreign ownership bank (control group) with the closest score. The nearest-neighbour matching is conducted with replacement, ensuring that each foreign-owned bank is paired with the most similar non-foreign-owned bank in terms of their propensity score. This process results in a matched sample with 247 bank-year observations. The outcomes presented in Table 2.4 from the PSM analysis indicate a positive effect of foreign ownership on CSR.

To validate the quality of the matching process, we conduct a balancing test, as presented in Table 2.5. The test confirms that the application of PSM significantly reduces the standardised biases across all covariates. Specifically, column 6 shows that the standard biases for all variables are reduced, with each falling below the 10% threshold in column 5, which indicates that the matched sample is well-balanced and comparable. Additionally, the t-test indicates no significant differences between the control and the treated group regarding the variables in column 7.

Further analysis includes a re-estimation of equation (2) using the matched sample. The regression outcomes in Table 2.6 show that the coefficient of foreign ownership continues to

be positive and statistical significance at the 5% level. This finding reinforces the baseline results presented in Table 2.2 and alleviates any potential concerns regarding the influence of unobserved bank characteristics on the results.

2.5.3.2 Heckman two-stage method

Banks with good CSR disclosure may be more willing to accept foreign investors, therefore foreign ownership may be non-random and potentially introduce self-selection bias into analyses. To address this concern, we use the Heckman two-stage method. In the first stage, we construct a probit model with foreign ownership dummy and all control variables in our baseline regression. Heckman's estimator requires an exogenous variable that are correlated with foreign ownership and are uncorrelated with CSR. We use the mean value of foreign owners in provincial level to satisfy this requirement. This variable is suitable because it reflects the general tendency for foreign investment in the region, which influences whether a particular bank is foreign-owned, but it is unlikely to be directly related to the CSR activities of individual banks. Results of the first-stage regression are reported in column 1 of Table 2.7. The coefficient estimate on foreign owner mean is significant and positive, suggesting that banks with more foreign owner are more likely be a foreign bank.

Following the first-stage estimation, we compute the inverse Mills ratio (IMR), which captures the likelihood of selection into foreign ownership based on the bank's observed characteristics. The IMR is then include as an additional explanatory variable in the second-stage to control for the potential sample selection bias. The second-stage regression results are reported in column 2 of Table 2.7. Our findings are in line with baseline results, indicating that the observed effects and conclusions drawn from our study are robust.

2.5.3.3 Instrument variable (IV) regression

In order to better understand the causal relationship between foreign ownership and CSR disclosure, we use an instrumental variable (IV) within a two-stage least squares (2SLS) regression framework. The key to the IV-2SLS method is the selection of an appropriate instrumental variable that satisfies two main conditions: it must be strongly correlated with the endogenous independent variable (foreign ownership) but must not have a direct effect on the dependent variable (CSR disclosure). To meet such criteria, an instrumental variable is designed to calculate the average annual number of foreign owners at the provincial level for each bank. This approach aims to utilise changes in foreign ownership by province as an exogenous factor affecting the foreign ownership status of individual banks, while assuming that this does not directly affect their CSR disclosure.

In the first stage of the IV-2SLS approach, we use foreign ownership as dependent variable, while IV and all control variables in equation (2) as independent variables. After completing the first-stage regression, we have the fitted value for foreign ownership. This step generates the fitted values of foreign ownership, which represent the variation in foreign ownership explained by the instrumental variable, effectively isolating the exogenous component of foreign ownership. In the second stage, the fitted value is used to replace the original endogenous.

Table 2.8 reports the IV results using 2SLS. In column 1, the instrument variable is strongly correlated with foreign ownership. In column 2, we replace foreign ownership with the fitted value derived from the first-stage regression, the regression result shows that foreign ownership still has a significant positive effect on CSR disclosure, consistent with the results observed in the baseline regression. In addition, the F-statistic for the first-stage regression is 21.890, further demonstrating the robustness of the instrumental variables. This value exceeds the cutoff point of 10 suggested by Staiger and Stock (1997), highlighting the validity and strength of the instrumental variables. These results suggest that the instrument effectively addresses

potential endogeneity issues and ensures a reliable estimation of the causal impact of foreign ownership on CSR disclosure.

2.5.3.4 Generalized Method of Moments (GMM)

To address endogeneity issues and control for time-invariant fixed effects that may affect the dependent variable, we employ the systematic Generalised Method of Moments (GMM) approach proposed by Blundell and Bond (1998). This methodological strategy allows us to treat all independent variables as potentially endogenous and use their past lags as instrumental variables. To implement this approach, we use the "xtabond2 " module in Stata designed by Roodman (2009) specifically for performing systematic GMM estimation.

The diagnostic tests in Table 2.9 confirm the robustness and proper fit of the model using the system GMM approach. The AR1 and AR2 tests are conducted to detect the absence of first and second-order serial correlation in the residuals. As expected, the residuals in the first-order difference show serial correlation (AR1) and the residuals in the second difference do not show serial correlation (AR2), which suggests that the model is correct in capturing the dynamics without introducing autocorrelation problem at this order.

In addition, the Hansen test assesses the validity of the instrumental variables used in GMM estimation. The statistically insignificant results of the Hansen test indicate that the instruments are valid and do not over-identify the model, thus supporting the reliability of the GMM estimation. The results presented in Table 2.9, including the AR1, AR2, and Hansen test results, confirm the validity of our methodology and show that our baseline regression results remain consistent and robust when accounting for endogeneity and time-invariant effects.

2.5.4 Additional tests

In the baseline regression, we find a positive relationship between foreign ownership and CSR disclosure. However, the disclosure of banks' social responsibility may vary depending on the external environment and local policies in which they operate. In this section, we perform the following subgroup analysis: 1) economic zone, 2) government transparency.

2.5.4.1 Pearl River Delta Economic Zone and Yangtze River Delta Economic Zone

The interplay between CSR and banking in China is profoundly influenced by the country's regional economic and market development, which varies considerably across its vast landscape. In regions with advanced economies and more mature markets, the pressure is higher on banks to adopt comprehensive CSR strategies. These areas typically boast stronger regulatory frameworks and greater public awareness about social and environmental issues, prompting banks to weave CSR into their core business functions to stay competitive and responsive to stakeholder demands. On the other hand, in less economically developed regions where immediate growth is a priority, banks' CSR efforts are often closely aligned with local developmental objectives, such as expanding access to financial services, supporting small and medium-sized enterprises (SMEs), and initiating community development programs that address the most pressing regional needs (Liu et al., 2020). This alignment ensures that CSR initiatives are not only socially responsible but also relevant and impactful within the specific socioeconomic context of the region.

The grouping according to economic zones is in fact related to China's policy of opening up to the west. After the Opium War in 1840, China's previously closed doors were forced open, and ports of entry were established in Guangzhou, Xiamen, Fuzhou, Ningbo and Shanghai. Within these designated ports, Westerners were given the privilege of conducting free international trade (Jia, 2014). With this as a start, China established the Pearl River Delta and Yangtze River Delta economic zones from 1979 onwards under the auspices of the open-

door policy, as a way to introduce foreign investment and accelerate the modernisation process. Restrictions on investment in Chinese banks by foreign financial institutions were relaxed following China's accession to the WTO in 2001. As a result, banks in economic zones have earlier access to foreign capital than banks not located in economic zones. Moreover, foreign banks are more likely to be supported by governments and policies that influence their governance structure, strategies and noninterest activities in many ways (Cheng et al., 2020).

We employ an economic zone dummy variable to measure bank location. If the bank location is in the Pearl River Delta Economic Zone and the Yangtze River Delta Economic Zone, then equals one and zero otherwise. The results are shown in the column 1 - 4 of Table 2.10 suggest that the regression results are much more significant for banks in economic zones than for banks not in economic zones. The coefficient on foreign ownership in column 1 is 0.145 (positive and significant at the 1% level), while in column 3 is 0.039 (insignificant). The results indicate that foreign banks in economic zones are more willing to engage in CSR, support our main findings.

As we mentioned above, economic zones are characterized by high levels of economic development, innovation and international trade. These economic zones attract significant foreign investment and often have more progressive policies, including environmental regulations and social welfare measures. Banks operating in these areas face higher expectations from local governments and communities to make a positive contribution to the sustainable development of the region. Furthermore, banks in economic zones benefit from being at the centre of China's economic growth and innovation. This proximity to cutting-edge industries can encourage banks to adopt forward-looking CSR strategies that support sustainable development, innovation in financial products and services, and community engagement. For banks that effectively integrate CSR into their core businesses, a dynamic economic environment can provide them with a competitive advantage (Liu et al., 2020).

2.5.4.2 Government transparency

Increased government transparency in China could fundamentally reshape the relationship between CSR and banks by imposing more explicit and stringent regulatory expectations. Transparent governance would provide clearer guidelines and policies regarding CSR, enabling banks to better align their initiatives with national standards and priorities (Lester et al., 2008). This transparency can ensure consistency in how CSR is implemented across the banking sector, leading to more effective and accountable practices. It also creates a more equitable environment where all financial institutions operate under the same set of expectations, fostering fair competition and driving overall improvements in CSR. Furthermore, a transparent government framework bolsters public trust, as stakeholders can more easily access and assess information regarding banks' CSR engagements and their adherence to regulations (Jiang et al., 2016). This increased trust can incentivize banks to elevate their CSR efforts to satisfy stakeholder scrutiny and enhance their reputational capital. With heightened accountability, banks may adopt a more proactive stance on CSR, not only complying with current mandates but also anticipating future regulatory trends and societal expectations. This forward-thinking approach could manifest in more innovative and impactful CSR strategies, as banks strive to meet both the demands of a more informed public and the evolving landscape of government policy.

We obtain the government transparency data from the China Government Transparency Index Report (2020).[6] The report provides a third-party assessment of the performance of 31 provincial governments in conducting their public affairs work. In addition, the report points out that the higher the level of government transparency, the more it helps to regulate

[6] China Government Transparency Index Report (2020) is available from here: https://www.pishu.com.cn/skwx_ps/initDatabaseDetail?siteId=14&contentId=12467755&contentType=literature

government management, which can effectively optimise the local business environment and thus promote the sustainable development of the local economy. We could assume that in provinces with a high level of government transparency, foreign banks can achieve their legitimacy through CSR, and governments are more willing to attract foreign investment to boost local economic prosperity.

We use government dummy variable measures for government transparency. Government dummy equals to 1 if the bank's local government ranks in the top 15 in terms of transparency, 0 otherwise. In Table 2.10, foreign ownership is positive and significant in columns 4 and 6. The results indicate that in places with more government transparency, foreign banks are more inclined to engage in CSR, supporting our main findings. However, the coefficient on state ownership is -0.16 (negative and significant at the 5% level). The result indicates that in places where government transparency is low, state-owned banks will be less involved in CSR. This finding is interesting and in line with the research by Kim and Jo (2021), countries or regions without administrative capacity and a weak sense of national interest can have a negative impact on CSR.

Institutional theory suggests that the behaviour and practices of organizations are largely influenced by the norms, values and culture that exist in the institutional environment around them (North, 1990). Banks located in regions with high government transparency are subject to institutional pressures that favour ethical behaviour and social responsibility. These pressures drive banks' social responsibility practices to align with these expectations in order to gain legitimacy, resources, and competitive advantage (Zattoni and Cuomo, 2008). Moreover, from the perspective of stakeholder theory, which emphasizes the importance of meeting the needs and expectations of all stakeholders, including customers, employees, investors, and the community (Roberts, 1992). Where government transparency is high, civil society tends to be more active and the public more engaged, which puts pressure on banks to

adopt and implement strong CSR practices. Particularly, banks with foreign ownership are likely to respond more aggressively to these pressures as they seek to safeguard their local and global reputations (Barnea and Rubin, 2010).

2.6 Conclusions

In recent years, China's banking industry has undergone several significant changes, with ownership reform having the most far-reaching impact. Given its unique regulatory, economic and cultural context, China may affect the relationship between bank ownership and CSR activities in different ways.

Using data from China's banks for 2009-2020, we investigate the links among CSR, state ownership, foreign ownership and private ownership. Our key finding is that ownership features matter for banks' CSR. First, our paper shows that foreign ownership has a positive impact on CSR. This is mainly because following the entry of foreign investors, they have brought new management strategies to local banks, influencing the organizational structure of banks, as well as providing more direct and accessible technical support to domestic banks in non-interest activities (Cheng et al., 2020). The fact that foreign investors are partnering with domestic banks for employee education, training, etc. also shows that they are more willing to engage in CSR.

Second, foreign ownership has a positive impact on CSR in the Pearl River Delta and Yangtze River Delta economic zones, as well as in provinces with high government transparency. This can be explained by China's open to west policy and political connections. The economic zones introduced foreign investment earlier and faster, and restrictions on the introduction of foreign investment in China's banking sector were gradually liberalised with China's accession to the WTO. With the support of government and policy, foreign investment in CSRs in the form of political linkages has resulted in greater potential gains.

Third, our paper reveals that state ownership is not correlated with CSR, but in the subgroup analysis state ownership has a negative effect on CSR where government transparency is low. This is mainly because banks with state-owned shareholders are protected from market forces by the government and whether or not they invest in CSR does not affect their operations (Faller

and Knyphausen, 2018). The managers of state-owned banks are mostly appointed by the government. If the local government itself has weak supervision of CSR, banks will naturally reduce their participation in CSR in provinces with low government transparency.

For the Chinese banking industry, on the one hand, while there is uncertainty as to whether participation in CSR is always a good thing for commercial banks, the ownership reform of banks has certainly made them aware of the importance of CSR. On the other hand, with such rapid globalisation, it is even more important for policymakers to broaden their horizons and explore better equity structures to make local commercial banks more competitive in the international arena.

List of tables

Table 2.1 Summary Statistics

Variable	*N*	*Mean*	*Sd*	*Min*	*Max*
CSR	889	0.504	0.348	0	0.972
-Economic	889	0.522	0.340	0	1
-Social	889	0.535	0.341	0	1
-Environment	889	0.517	0.379	0	1
State ownership	889	0.602	0.490	0	1
-Central government	889	0.069	0.253	0	1
-Local government	889	0.121	0.327	0	1
-State enterprise	889	0.412	0.492	0	1
Foreign ownership	889	0.153	0.360	0	1
Private ownership	889	0.288	0.453	0	1
Bank age	889	17.20	10.11	2	60
Bank size	889	12.83	1.547	10.44	16.76
Independent director	889	0.301	0.085	0.083	0.444
CAR	889	13.01	1.684	10.14	17.59
ROA	889	0.962	0.336	0.154	1.821
NPL	889	1.417	0.660	0.230	3.730
Leverage	889	6.966	1.399	4.157	10.47
Liquid	889	21.14	11.03	5.258	51.58

This table reports the summary statistics of key variables in this research.

Table 2.2 Bank ownership and CSR disclosure

Dependent variable	*CSR*			
			Alternative measures of bank ownership	
	(1)	(2)	(3)	(4)
Foreign ownership	0.069**	0.074**	0.097***	0.104***
	(0.034)	(0.034)	(0.031)	(0.032)
Private ownership	-0.016	-0.018	0.043	0.045
	(0.029)	(0.029)	(0.030)	(0.030)
State ownership	-0.020		0.020	
	(0.032)		(0.029)	
-Central government		0.065		0.105
		(0.067)		(0.065)
-Local government		-0.026		0.017
		(0.033)		(0.030)
-State enterprise		-0.010		0.003
		(0.055)		(0.053)
Bank age	0.011	0.014	0.012	0.015
	(0.011)	(0.012)	(0.011)	(0.012)
Bank size	0.102***	0.103***	0.100***	0.097**
	(0.037)	(0.038)	(0.038)	(0.038)
Independent director	0.275***	0.277***	0.288***	0.292***
	(0.105)	(0.105)	(0.105)	(0.105)
CAR	-0.012**	-0.012**	-0.013**	-0.013**
	(0.005)	(0.005)	(0.005)	(0.005)
ROA	0.023	0.025	0.022	0.023
	(0.029)	(0.029)	(0.029)	(0.029)
NPL	-0.025*	-0.025*	-0.028**	-0.028**
	(0.014)	(0.014)	(0.014)	(0.014)
Leverage	0.003	0.003	0.004	0.004
	(0.008)	(0.008)	(0.008)	(0.008)
Liquid	-0.001*	-0.002**	-0.002**	-0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
Constant	-0.853*	-0.909**	-0.867*	-0.871*
	(0.447)	(0.455)	(0.448)	(0.457)
N	889.000	889.000	889.000	889.000
R-square	0.341	0.343	0.343	0.345
Entity Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes

This table reports the baseline results of the impact of bank ownership on CSR disclosure in the sample period of 2009-2020. Columns (1) and (2) are our main evidence, ownership variables are defined as at least one type of shareholder owns more than 5% of the total outstanding shares. Columns (3) and (4) use alternative measures of ownership, which defined as at least one type of shareholder owns more than 10% of the total outstanding shares. See Appendix 6 for detailed variable definitions. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 2.3 Bank ownership and CSR disclosure: Components of CSR

Dependent variable	*Economic*	*Social*	*Environment*
	(1)	(2)	(3)
Foreign ownership	0.063*	0.069*	0.086**
	(0.034)	(0.035)	(0.038)
Private ownership	-0.027	-0.029	0.013
	(0.029)	(0.030)	(0.033)
State ownership	-0.006	-0.014	-0.014
	(0.032)	(0.034)	(0.037)
-Central government			
-Local government			
-State enterprise			
Bank age	0.005	0.007	0.015
	(0.011)	(0.012)	(0.013)
Bank size	0.113***	0.127***	0.087**
	(0.038)	(0.039)	(0.042)
Independent director	0.282***	0.279**	0.292**
	(0.105)	(0.109)	(0.119)
CAR	-0.012**	-0.012**	-0.010
	(0.005)	(0.006)	(0.006)
ROA	0.013	0.021	0.024
	(0.029)	(0.030)	(0.033)
NPL	-0.028**	-0.028**	-0.020
	(0.014)	(0.014)	(0.016)
Leverage	0.005	0.002	0.001
	(0.008)	(0.009)	(0.009)
Liquid	-0.001*	-0.001*	-0.002**
	(0.001)	(0.001)	(0.001)
Constant	-0.907**	-1.079**	-0.756
	(0.448)	(0.463)	(0.506)
N	889.000	889.000	889.000
R-square	0.334	0.341	0.301
Entity Fixed Effect	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes

This table reports the impact of bank ownership on the three components of CSR disclosure. The dependent variables in Columns (1)-(3) are Economic, Social, and Environment, respectively. See Appendix 6 for detailed variable definitions. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 2.3 (continued)

Bank ownership and CSR disclosure: Components of CSR.

Dependent variable	*Economic*	*Social*	*Environment*
	(4)	(5)	(6)
Foreign ownership	0.066*	0.076**	0.094**
	(0.034)	(0.035)	(0.039)
Private ownership	-0.028	-0.031	0.011
	(0.029)	(0.030)	(0.033)
State ownership			
-Central government	0.037	0.090	0.108
	(0.067)	(0.069)	(0.075)
-Local government	-0.011	-0.021	-0.020
	(0.033)	(0.034)	(0.037)
-State enterprise	0.012	-0.010	-0.025
	(0.055)	(0.056)	(0.062)
Bank age	0.006	0.011	0.019
	(0.012)	(0.012)	(0.013)
Bank size	0.115***	0.128***	0.085**
	(0.038)	(0.039)	(0.043)
Independent director	0.281***	0.283***	0.298**
	(0.105)	(0.109)	(0.119)
CAR	-0.012**	-0.012**	-0.009
	(0.005)	(0.006)	(0.006)
ROA	0.015	0.023	0.027
	(0.029)	(0.030)	(0.033)
NPL	-0.028**	-0.029**	-0.020
	(0.014)	(0.014)	(0.015)
Leverage	0.005	0.002	0.001
	(0.008)	(0.009)	(0.009)
Liquid	-0.001*	-0.001*	-0.002**
	(0.001)	(0.001)	(0.001)
Constant	-0.959**	-1.136**	-0.794
	(0.456)	(0.471)	(0.513)
N	889.000	889.000	889.000
R-square	0.335	0.343	0.305
Entity Fixed Effect	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes

This table reports the impact of bank ownership on the three components of CSR disclosure. The dependent variables in Columns (1)-(3) are Economic, Social, and Environment, respectively. See Appendix 6 for detailed variable definitions. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 2.4 The Propensity Score Matching (PSM) results

		Mean				
Variable	*Sample*	*Treatment*	*Control*	*Difference*	*S.E.*	*T-statistic*
CSR	*Unmatched*	0.677	0.473	0.204	0.032	6.420***
	ATT	0.677	0.587	0.090	0.044	2.050**

This table reports the PSM results. Unmatched indicates unmatched sample. ATT indicates average treatment effects on treatment group. See Appendix 6 for detailed variable definitions. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 2.5 The balancing property tests

		Mean				
Variable	*Sample*	*Treatment*	*Control*	*Bias(%)*	*Reduct|bias|(%)*	*T-statistic*
Bank age	*Unmatched*	19.853	17.339	21.000		2.080**
	Matched	19.853	19.449	3.400	83.900	0.270
Bank size	*Unmatched*	13.540	12.702	57.800		5.870***
	Matched	13.540	13.533	0.500	99.200	0.040
Independent director	*Unmatched*	0.331	0.295	45.100		4.470***
	Matched	0.331	0.330	1.300	97.200	0.120
CAR	*Unmatched*	12.776	13.101	-16.700		-1.830*
	Matched	12.776	12.876	-5.200	69.000	-0.450
ROA	*Unmatched*	0.974	0.963	3.500		0.340
	Matched	0.874	0.946	8.700	-152.700	0.800
NPL	*Unmatched*	1.348	1.441	-13.600		-1.410
	Matched	1.348	1.318	4.300	68.300	0.390
Leverage	*Unmatched*	6.656	7.041	-27.900		-2.780***
	Matched	6.656	6.704	-3.500	87.500	-0.310
Liquid	*Unmatched*	19.630	21.565	-18.600		-1.810*
	Matched	19.630	19.036	5.700	69.300	0.530

This table reports the validity test of the balancing property of PSM results. Unmatched indicates unmatched sample. Matched indicates matched sample. See Appendix 6 for detailed variable definitions. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 2.6 Foreign ownership and CSR disclosure: PSM analysis

Dependent variable	*CSR*
	(1)
Foreign ownership	0.106**
	(0.042)
Bank age	-0.060
	(0.057)
Bank size	-0.057
	(0.079)
Independent director	0.036
	(0.230)
CAR	-0.006
	(0.010)
ROA	-0.003
	(0.070)
NPL	-0.042*
	(0.024)
Leverage	-0.005
	(0.017)
Liquid	-0.002
	(0.002)
Constant	2.174*
	(1.226)
N	247.000
R-square	0.351
Entity Fixed Effect	Yes
Year Fixed Effect	Yes

This table reports the regression results using a PSM procedure. See Appendix 6 for detailed variable definitions. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 2.7 Foreign ownership and CSR disclosure: Heckman two-stage regression

Dependent variable	*Foreign ownership*	*CSR*
	Stage 1: Probit regression	*Stage 2: OLS regression*
Foreign ownership		0.075**
		(0.031)
Bank age	-0.006	0.000
	(0.006)	(0.018)
Bank size	0.086	0.074
	(0.064)	(0.046)
Independent director	1.910**	-0.290
	(0.868)	(0.414)
CAR	-0.024	-0.009
	(0.046)	(0.008)
ROA	0.139	-0.010
	(0.230)	(0.041)
NPL	0.018	-0.022
	(0.115)	(0.014)
Leverage	-0.109	0.028
	(0.067)	(0.024)
Liquid	-0.009	0.000
	(0.006)	(0.002)
Foreign owner mean	0.254**	
	(0.112)	
IMR		-0.323
		(0.254)
Constant	-1.714*	0.053
	(0.940)	(0.757)
N	780.000	780.000
R-square	0.079	0.334
Entity Fixed Effect	Yes	Yes
Year Fixed Effect	Yes	Yes

This table reports the regression results using Heckman two-stage selection model. In the first stage, Foreign ownership is the dependent variable. Foreign owner mean is an exogenous variable, which is the mean of foreign owners at provincial level in our sample. In the second stage, we use Inverse Mills Ratio (IMR) from the first stage to run the fixed effect regression. See Appendix 6 for detailed variable definitions. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 2.8 Foreign ownership and CSR disclosure: Two-stage least square (2SLS) regression

Dependent variable	*Foreign ownership*	*CSR*
	First stage	*Second stage*
Foreign owner mean	0.310***	
	(0.068)	
Foreign ownership (fitted value)		0.369**
		(0.185)
Bank age	-0.031	0.007
	(0.022)	(0.019)
Bank size	0.122**	0.056
	(0.053)	(0.052)
Independent director	-0.153	0.260**
	(0.133)	(0.115)
CAR	0.003	-0.016***
	(0.007)	(0.006)
ROA	-0.044	0.043
	(0.038)	(0.033)
NPL	0.030*	-0.025
	(0.017)	(0.015)
Leverage	-0.007	0.000
	(0.010)	(0.009)
Liquid	-0.003***	-0.001
	(0.001)	(0.001)
Constant	-0.948	-0.302
	(0.672)	(0.604)
N	780.000	780.000
R-square	0.091	0.241
F-statistics	21.890	
Entity Fixed Effect	Yes	Yes
Year Fixed Effect	Yes	Yes

This table reports the Instrumental Variable (IV) regression analysis with 2SLS estimator. In the first stage, we use Foreign ownership as dependent variable. Foreign owner mean is our IV, which is the mean of foreign owners at provincial level in our sample. In the second stage, we use the fitted value of Foreign ownership from the first stage in our regression. See Appendix 6 for detailed variable definitions. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 2.9 Foreign ownership and CSR disclosure: Generalized Method of Moments (GMM) regression

Dependent variable	*CSR*
	(1)
L.CSR	0.542***
	(0.121)
Foreign ownership	0.123**
	(0.059)
Bank age	-0.002
	(0.001)
Bank size	0.064***
	(0.022)
Independent director	0.174
	(0.140)
CAR	-0.014***
	(0.005)
ROA	0.015
	(0.042)
NPL	-0.032
	(0.022)
Leverage	0.016*
	(0.010)
Liquid	-0.003*
	(0.002)
Constant	-0.477*
	(0.251)
N	760.000
AR1	-3.568
(p-value)	(0.000)
AR2	0.103
(p-value)	(0.918)
Sargan	119.925
(p-value)	(0.659)
Hansen	66.443
(p-value)	(1.000)

This table reports the regression results using the GMM model. See Appendix 6 for detailed variable definitions. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 2.10 Bank ownership and CSR disclosure: Cross-sectional analysis

Dependent variable	*CSR*			
	In the economic zone	*Outside the economic zone*	*In the economic zone*	*Outside the economic zone*
	(1)	(2)	(3)	(4)
Foreign ownership	0.145***	0.039	0.141***	0.040
	(0.046)	(0.052)	(0.046)	(0.053)
Private ownership	0.009	-0.011	0.008	-0.013
	(0.039)	(0.044)	(0.039)	(0.044)
State ownership	-0.009	0.018		
	(0.041)	(0.049)		
-Central government			0.000	0.041
			(.)	(0.075)
-Local government			-0.019	0.018
			(0.042)	(0.050)
-State enterprise			0.060	-0.020
			(0.071)	(0.075)
Bank age	-0.020**	-0.001	-0.020**	-0.000
	(0.009)	(0.004)	(0.009)	(0.004)
Bank size	-0.021	0.006	-0.008	0.002
	(0.036)	(0.028)	(0.038)	(0.029)
Independent director	0.468***	0.120	0.459***	0.128
	(0.165)	(0.136)	(0.166)	(0.137)
CAR	-0.025***	-0.006	-0.024***	-0.006
	(0.008)	(0.007)	(0.008)	(0.007)
ROA	0.033	0.046	0.043	0.047
	(0.049)	(0.035)	(0.050)	(0.035)
NPL	-0.020	-0.023	-0.018	-0.022
	(0.030)	(0.014)	(0.030)	(0.014)
Leverage	0.016	-0.011	0.013	-0.012
	(0.014)	(0.010)	(0.014)	(0.010)
Liquid	-0.003**	-0.001	-0.003**	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Constant	0.889**	0.381	0.721*	0.426
	(0.407)	(0.345)	(0.429)	(0.355)
N	347.000	565.000	347.000	565.000
R-square	0.468	0.321	0.470	0.322
Entity Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes

Table 2.10 (continued)

Bank ownership and CSR disclosure: Cross-sectional analysis.

Dependent variable	CSR			
	High government transparency	*Low government transparency*	*High government transparency*	*Low government transparency*
	(5)	(6)	(7)	(8)
Foreign ownership	0.084**	0.013	0.092**	0.013
	(0.039)	(0.077)	(0.040)	(0.078)
Private ownership	0.018	-0.057	0.014	-0.057
	(0.037)	(0.053)	(0.038)	(0.054)
State ownership	0.041	-0.160**		
	(0.040)	(0.066)		
-Central government			0.104	0.000
			(0.069)	(.)
-Local government			0.028	-0.159**
			(0.041)	(0.067)
-State enterprise			0.090	-0.163**
			(0.097)	(0.080)
Bank age	0.014	0.037	0.014	0.037
	(0.013)	(0.039)	(0.013)	(0.039)
Bank size	0.069	0.195***	0.077	0.195***
	(0.048)	(0.065)	(0.050)	(0.065)
Independent director	0.303**	0.287*	0.309**	0.287*
	(0.142)	(0.163)	(0.142)	(0.164)
CAR	0.003	-0.035***	0.004	-0.035***
	(0.007)	(0.009)	(0.007)	(0.009)
ROA	0.076*	-0.062	0.079*	-0.062
	(0.041)	(0.045)	(0.041)	(0.045)
NPL	-0.026	-0.029	-0.025	-0.029
	(0.019)	(0.021)	(0.019)	(0.021)
Leverage	-0.019*	0.043***	-0.018	0.043***
	(0.011)	(0.013)	(0.011)	(0.013)
Liquid	-0.003**	0.000	-0.003***	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Constant	-0.677	-1.836**	-0.790	-1.832**
	(0.604)	(0.802)	(0.630)	(0.806)
N	541.000	348.000	541.000	348.000
R-square	0.340	0.429	0.342	0.429
Entity Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes

This table reports the regression results using subsamples split by bank characteristics. Economic zone is defined as whether the bank is in the Pearl River Delta Economic Zone and the Yangtze River Delta Economic Zone. High government transparency is defined as the bank's local government ranks in the top 15 in terms of transparency. See Appendix 6 for detailed variable definitions. All continuous independent variables are winsorized at the 1%

and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

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Appendix

1. Relevant Policies and Legal Provisions of Green Credit in China

Release date	Host Department	Relevant policies, documents or legal requirements
2007	The People's Bank of China (PBC), the China Banking Regulatory Commission (CBRC) and the State Environmental Protection Administration	"Opinions on Implementing Environmental Policies and Regulations to Prevent Credit Risks" has become the main guide for China's green credit policies
2008	PBC, the Municipal Development and Reform Commission, the Municipal Environmental Protection Bureau and the CBRC	Opinions on Strengthening the Construction of "Green Credit" to Support Capital Energy Conservation and Emission Reduction
2009	China Banking Association	Guidelines on Corporate Social Responsibility of Chinese Banking Financial Institutions
2012	CBRC and Environmental Protection Administration	The "Green Credit Guidelines" were issued to integrate bank supervision and environmental protection supervision, and require banks to use financial leverage to promote energy conservation, emission reduction, and environmental protection.
2013	CBRC	Issuing the "Green Credit Statistics System" to strengthen the quality management of green credit statistics
2014	CBRC	"Notice on Submitting Green Credit Statistics Table" to strictly monitor the implementation status of my country's green credit business
2015	PBC and The National Development and Reform Commission	Regulate the issuance of green financial bonds
2016	The National People's Congress and the Chinese Political Consultative Conference (NPC&CPPCC)	The 13th Five-Year Plan outlines the establishment of a green financial system.
2017	The State Council	"Guidelines on Green Bond Evaluation and Certification" improve the quality of green bonds and promote the healthy development of the green bond market.
2018	China Banking Association	Printed and issued the "China Banking Green Bank Evaluation Implementation Plan (Trial)"

2. The development of Chinese banking industry

China’s banking industry before reform and opening up (Pre 1990s)

After the founding of New China and before the reform and opening up in 1978, China implemented a planned economic system based on product distribution. In the planned economy system, the form of financial assets was limited to bank deposits, loans and cash. National finance implements unified revenue and expenditure, and bank credit is only an appendage of the real economy. Under the planned economy system at that time, everything in the national economy was planned as the center, and banks were only passive fund providers or distributors.

At this stage, China’s banking industry implemented the "unified" management system of the People’s Bank of China. The People’s Bank of China is not only the national financial management and currency issuing agency of China, but also an operating agency that comprehensively operates banking services. Under the "unified" management system, China’s banking industry was highly monopolized, mainly serving the highly concentrated Chinese planned economic system at that time. The state highly controlled all aspects of economic activities, and banks had no independent management decision-making power.

China’s banking industry after reform and opening up until WTO entry in 2001

In December 1978, China’s work shifted its focus to economic construction, and it made a major decision to implement reform and opening up in an all-round way, and began to gradually get rid of the shackles of the traditional and highly centralized planned economic system. Against this special historical background, China’s "unified" banking system was also broken. The Agricultural Bank of China, Bank of China, and Industrial and Commercial Bank of China were successively separated from the People’s Bank of China, and China Construction Bank was also separated from the Ministry of Finance; Since 1984, the People’s Bank of China has exclusively performed the functions of the central bank. This marked the formation of China’s

financial system with the People's Bank of China as the central bank and national professional banks as the main body, and thus opened the prelude to the reform and development of China's banking industry. From the initial stage of reform and opening up to WTO entry, the development of China's banking industry can be roughly divided into the following stages.

In 1979, China successively restored three state-owned banks, the Agricultural Bank of China, Bank of China, and China Construction Bank, and they were managed by the People's Bank of China. The Agricultural Bank of China is mainly responsible for rural credit and leading rural credit cooperatives. Bank of China serves as the country's professional foreign exchange bank. China Construction Bank is mainly responsible for managing fixed asset investment for the country. In September 1983, the State Council decided that the People's Bank of China should exclusively perform the functions of the central bank. In January 1984, the Industrial and Commercial Bank of China was established to take over the urban industrial and commercial credit business of the People's Bank of China. After that, a number of emerging joint-stock commercial banks (such as Bank of Communications, China Merchants Bank, etc.) were established between 1987 and 1988. These emerging commercial banks have been different from state-owned banks in terms of systems and mechanisms since their inception. Most of them learn from the practices of Western commercial banks, and basically operate according to the mode of modern corporate enterprises in terms of personnel systems and management methods. Most of the outlets are distributed in large and medium cities.

In October 1992, China determined that the goal of economic system reform was to establish a socialist market economic system. In order to meet the needs of reforms and make the four major state-owned banks turn into the real commercial banks as soon as possible, during the period from March to November 1994, China successively established three new policy banks (China Development Bank, The Agricultural Development Bank of China and the Export-Import Bank of China), stripped all the policy businesses in the hands of the four major state-

owned professional banks and put them under the management of the policy bank, so that the four major state-owned banks in China began to transform into real state-owned commercial banks. While reforming the internal operating mechanisms of the four major state-owned commercial banks, China is also constantly cultivating new competitors to join the Chinese banking industry, trying to create a business pattern that breaks monopoly and promotes competition from the external environment. Therefore, from 1992 to 1996, China's second batch of joint-stock commercial banks (China Everbright Bank, Pudong Development Bank, China Minsheng Bank, and Huaxia Bank, etc.) were established successively.

The development of China's banking industry after joining WTO

With the continuous shortening of the transition period of China's accession to the WTO, China's preparations for the full opening of the banking industry to foreign capital are also accelerating. In January 2004, the State Council announced the use of US$45 billion in foreign exchange reserves to inject capital into Bank of China and China Construction Bank (the two received US$22.5 billion each). In November 2008, Central Huijin Investment company injected 130 billion US dollars into the Agricultural Bank of China; in December 2008, China Development Bank was officially listed in Beijing with a registered capital of 300 billion yuan. The Ministry of Finance and Central Huijin Investment company hold 51.3% and 48.7% of the shares of China Development Bank Corporation. Central Huijin Investment company represents the country as a major shareholder of a state-owned commercial bank, exercises the rights of investors, and obtains investment returns and dividends accordingly. The state's implementation of capital injections into commercial banks has laid a solid foundation for the next step in the joint-stock reform of state-owned commercial banks.

Under the influence of the state's policy of encouraging state-owned commercial banks to implement equity cooperation with foreign banks, in 2004 China Construction Bank, Bank of

China and Industrial and Commercial Bank of China launched strategic investment attraction. China Construction Bank was listed in Hong Kong in October 2005, Bank of China was listed in Hong Kong on June 1, 2006, and Industrial and Commercial Bank of China was listed in Hong Kong and Shanghai in October 2006. The listing of China's large commercial banks (mainly refers to the five state-controlled commercial banks of Industrial and Commercial Bank of China, Agricultural Bank of China, Bank of China, Construction Bank and Bank of Communications) is only a key stage in the reform of China's banking industry. The ultimate goal of the reform is to establish a new market incentive and restraint mechanism, emphasize the interests of investors, and transform the state-controlled commercial bank into a real market entity through a reasonable performance incentive mechanism, adequate risk control and capital restraint. In July 2010, the Agricultural Bank of China was listed in Shanghai and Hong Kong respectively, marking the staged victory of China's banking reform.

3. Sample selection

Description	Banks
Total number of Chinese banks	4044
Less: banks that are not on the Brand Finance Banking 500 and S&P Bank Ranking	3744
Less: central bank of China, policy banks, credit unions and banks with total assets of less than $1 billion.	101
Less: banks that did not disclose corporate social responsibility and that disclosed social responsibility for less than three years	89
Final sample	110

4. Chinese Bank List

Number	Bank name	Category
1	Industrial and Commercial Bank of China	State-owned commercial bank
2	China Construction Bank	State-owned commercial bank
3	Agricultural Bank of China	State-owned commercial bank
4	Bank of China	State-owned commercial bank
5	Bank of Communications	State-owned commercial bank
6	Postal Savings Bank of China	State-owned commercial bank
7	China Merchants Bank	Joint-stock commercial bank
8	Industrial Bank	Joint-stock commercial bank
9	Shanghai Pudong Development Bank	Joint-stock commercial bank
10	China CITIC Bank	Joint-stock commercial bank
11	China Minsheng Bank	Joint-stock commercial bank
12	China Everbright Bank	Joint-stock commercial bank
13	Ping An Bank	Joint-stock commercial bank
14	Huaxia Bank	Joint-stock commercial bank
15	China Guangfa Bank	Joint-stock commercial bank
16	China Zheshang Bank	Joint-stock commercial bank
17	China Bohai Bank	Joint-stock commercial bank
18	Bank of Beijing	Urban commercial bank
19	Bank of Shanghai	Urban commercial bank
20	Bank of Jiangsu	Urban commercial bank
21	Bank of Ningbo	Urban commercial bank
22	Bank of Nanjing	Urban commercial bank
23	Chongqing Rural Commercial Bank	Rural commercial bank
24	Shengjing Bank	Urban commercial bank
25	Shanghai Rural Commercial Bank	Rural commercial bank
26	Huishang Bank	Urban commercial bank

27	Hengfeng Bank	Joint-stock commercial bank
28	Beijing Rural Commercial Bank	Rural commercial bank
29	Bank of Hangzhou	Urban commercial bank
30	Guangzhou Rural Commercial Bnk	Rural commercial bank
31	Xiamen International Bank	Urban commercial bank
32	Bank of Jinzhou	Urban commercial bank
33	Bank of Tianjin	Urban commercial bank
34	Harbin Bank	Urban commercial bank
35	Zhongyuan Bank	Urban commercial bank
36	Chengdu Rural Commercial Bank	Rural commercial bank
37	Bank of Guangzhou	Urban commercial bank
38	Bank of Chengdu	Urban commercial bank
39	Bank of Guiyang	Urban commercial bank
40	Bank of Changsha	Urban commercial bank
41	Bank of Jilin	Urban commercial bank
42	Bank of Zhengzhou	Urban commercial bank
43	Dongguan Rural Commercial Bank	Rural commercial bank
44	Bank of Chongqing	Urban commercial bank
45	Taian Bank	Urban commercial bank
46	Jiangxi Bank	Urban commercial bank
47	Bank of Kunlun	Urban commercial bank
48	Bank of Huludao	Urban commercial bank
49	Bank of Gansu	Urban commercial bank
50	Bank of Suzhou	Urban commercial bank
51	Shunde Rural Commercial Bank	Rural commercial bank
52	Tianjin Rural Commercial Bank	Rural commercial bank
53	Jiangnan Rural Commercial Bank	Rural commercial bank
54	Bank of Hebei	Urban commercial bank
55	Qingdao Rural Commercial Bank	Rural commercial bank

56	Bank of Jiujiang	Urban commercial bank
57	Bank of Dalian	Urban commercial bank
58	Hubei Bank	Urban commercial bank
59	Bank of Xi’an	Urban commercial bank
60	Huarong Xiangjiang Bank	Urban commercial bank
61	Bank of Dongguan	Urban commercial bank
62	Hangzhou United Bank	Rural commercial bank
63	Bank of Qingdao	Urban commercial bank
64	Bank of Luoyang	Urban commercial bank
65	Bank of Lanzhou	Urban commercial bank
66	Qilu Bank	Urban commercial bank
67	Guilin Bank	Urban commercial bank
68	Wuhan Rural Commercial Bank	Rural commercial bank
69	Nanhai Rural Commercial Bank	Rural commercial bank
70	Jinshang Bank	Urban commercial bank
71	Hankou Bank	Urban commercial bank
72	Bank of Langfang	Urban commercial bank
73	Taizhou Bank	Urban commercial bank
74	Fudian Bank	Urban commercial bank
75	Zhejiang Chouzhou Commercial Bank	Urban commercial bank
76	Xiamen Bank	Urban commercial bank
77	Wuxi Rural Commercial Bank	Rural commercial bank
78	Bank of Ganzhou	Urban commercial bank
79	Guangxi Beibu Gulf Bank	Urban commercial bank
80	Changshu Rural Commercial Bank	Rural commercial bank
81	Zhejiang Tailong Commercial Bank	Urban commercial bank
82	Sichuan Tianfu Bank	Urban commercial bank
83	Longjiang Bank	Urban commercial bank
84	Chang’an Bank	Urban commercial bank

85	Bank of Tangshan	Urban commercial bank
86	China Resources Bank of Zhuhai	Urban commercial bank
87	Guangdong Huaxing Bank	Urban commercial bank
88	Chongqing Three Gorges Bank	Urban commercial bank
89	Xiamen Rural Commercian Bank	Rural commercial bank
90	Foshan Rural Commercial Bank	Rural commercial bank
91	Wenzhou Bank	Urban commercial bank
92	Xiaoshan Rural Commercial Bank	Uural commercial bank
93	Bank of Liuzhou	Urban commercial bank
94	Yantai Bank	Urban commercial bank
95	Bank of Urumqi	Urban commercial bank
96	Jilin Jiutai Rural Commercial Bank	Rural commercial bank
97	Jiangsu Zijin Rural Commercial Bank	Rural commercial bank
98	Suzhou Rural Commercial Bank	Rural commercial bank
99	Bank of Ningxia	Urban commercial bank
100	Ningbo Yinzhou Rural Commercial Bank	Rural commercial bank
101	Zhejiang Shaoxing RuiFeng Rural Commercial Bank	Rural commercial bank
102	Dalian Rural Commercial Bank	Rural commercial bank
103	Ningbo Commerce Bank	Urban commercial bank
104	Bank of Jinhua	Urban commercial bank
105	Bank of Huzhou	Urban commercial bank
106	Bank of Handan	Urban commercial bank
107	Bank of Rizhao	Urban commercial bank
108	Bank of Jiaxing	Urban commercial bank
109	Bank of Jining	Urban commercial bank
110	Bank of Yingkou	Urban commercial bank

5. CSR index

CSR dimension	CSR sub-dimension	Content	Score	Criteria
General (2)	CSR report	Disclose separate CSR reports.	0,1,2	0 = Not disclosed 1= Disclosure of CSR in the annual report 2= Disclosure of CSR report
Economic responsibility (12)	Financial stability	Preventing financial risks and safeguarding financial assets.	0,1,2	0 = Not disclosed 1 = Only text content is disclosed 2 = Further disclosure of non-textual content (images, tables etc.)
	Business Ethics	Oppose commercial bribery and unfair competition.	0,1,2	0 = Not disclosed 1 = Only text content is disclosed 2 = Further disclosure of non-textual content (images, tables etc.)
	Corporate governance	Corporate structure, information disclosure and board.	0,1,2	0 = Not disclosed 1 = Only text content is disclosed 2 = Further disclosure of non-textual content (images, tables etc.)
	Stakeholder management	Protecting employee and customer rights and creating value for employees and customers.	0,1,2	0 = Not disclosed 1 = Only text content is disclosed

				2 = Further disclosure of non-textual content (images, tables etc.)
	Inclusive finance	Inclusive finance policy and loans to SMEs and rural finance.	0,1,2	0 = Not disclosed 1 = Only text content is disclosed 2 = Further disclosure of non-textual content (images, tables etc.)
	Overall	Disclosure of quantitative content in this section	0.1.2	0 = Not disclosed 1 = Specific figures are disclosed 2 = The relevant figures are compared
Social responsibility (12)	Customer management	The responsibility of consumer education to guide and nurture the financial awareness of the public.	0,1,2	0 = Not disclosed 1 = Only text content is disclosed 2 = Further disclosure of non-textual content (images, tables etc.)
	Community management	Community economic development and facilitating financial services for the community.	0,1,2	0 = Not disclosed 1 = Only text content is disclosed 2 = Further disclosure of non-textual content (images, tables etc.)
	Employee management	Focus on employee health and safety and enhance employee training.	0,1,2	0 = Not disclosed 1 = Only text content is disclosed 2 = Further disclosure of non-textual content (images, tables etc.)

	Charity and donation	Charitable donations, volunteer activities and commitment to social welfare activities.	0,1,2	0 = Not disclosed 1 = Only text content is disclosed 2 = Further disclosure of non-textual content (images, tables etc.)
	Poverty alleviation	Poverty alleviation loans.	0,1,2	0 = Not disclosed 1 = Only text content is disclosed 2 = Further disclosure of non-textual content (images, tables etc.)
	Overall	Disclosure of quantitative content in this section	0,1,2	0 = Not disclosed 1 = Specific figures are disclosed 2 = The relevant figures are compared
Environmental responsibility (10)	Environmental policy	Develop environmental policies to support social, economic and environmental sustainability.	0,1,2	0 = Not disclosed 1 = Only text content is disclosed 2 = Further disclosure of non-textual content (images, tables etc.)
	Environmental disclosure	Disclosure of energy consumption information and promotion of environmentally friendly office.	0,1,2	0 = Not disclosed 1 = Only text content is disclosed 2 = Further disclosure of non-textual content (images, tables etc.)
	Environmental management	Customers conduct environmental training, strengthen staff awareness of environmental protection and	0,1,2	0 = Not disclosed 1 = Only text content is disclosed

		participate in practical and promotional activities for environmental protection.		2 = Further disclosure of non-textual content (images, tables etc.)
	Green finance	Green finance policy and green credit loans.	0,1,2	0 = Not disclosed 1 = Only text content is disclosed 2 = Further disclosure of non-textual content (images, tables etc.)
	Overall	Disclosure of quantitative content in this section	0,1,2	0 = Not disclosed 1 = Specific figures are disclosed 2 = The relevant figures are compared

6. Variable definition

Variable	Description	Source
CSR	Corporate social responsibility disclosure score of bank i at the end of year t-1, which equals to the ratio of the number of disclosure points to the highest score the bank can achieve.	CSR report and annual report
State ownership	Dummy = 1 if the largest shareholder is state and greater than 5% of total outstanding shares of bank i at the end of year t-1.	CSMAR and annual report
Private ownership	Dummy = 1 if the bank is neither a state owned bank nor a foreign bank of bank i at the end of year t-1.	CSMAR and annual report
Foreign ownership	Dummy = 1 if the largest shareholder is a foreign investor and greater than 5% of total outstanding shares of bank i at the end of year t-1.	CSMAR and annual report
Central government	Dummy = 1 if the largest state shareholder is the central government of bank i at the end of year t-1.	CSMAR and annual report
Local government	Dummy = 1 if the largest state shareholder is the local government of bank i at the end of year t-1.	CSMAR and annual report

State enterprise	Dummy = 1 if the largest state shareholder is the state owned enterprise of bank i at the end of year t-1.	CSMAR and annual report
Bank age	The number of years since the establishment of bank i at the end of year t-1.	CSMAR
Bank size	Natural logarithm of total assets of bank i at the end of year t-1.	BankFocus
Independent	The percentage of independent directors on the board of bank i at the end of year t-1.	CSMAR
ROA	Return on assets (net income / total assets) of bank i at the end of year t-1.	BankFocus
Liquid	Liquidity: the ratio of current assets to current liabilities of bank i at the end of year t-1.	BankFocus
Leverage	Leverage for bank i, measured as Tier 1 capital as a percent of its total exposure at the end of year t-1.	BankFocus
NPL	Impaired (non-performing) assets to total loans of bank i at the end of year t-1.	BankFocus
CAR	Capital adequacy ratio: net capital divided by risk weighted assets of bank i at the end of year t-1.	BankFocus

Chapter 3: Independent Directors' Reputation Incentive and Corporate Social Responsibility Disclosure: Evidence from Chinese banking sector

Abstract

This paper explores how the reputational incentives of independent directors influence corporate social responsibility (CSR) within banks. Our findings indicate a positive relationship between the reputational incentives of independent directors and CSR disclosure. Moreover, this relationship is found to be stronger in non-state-owned banks compared to state-owned banks. These results imply that reputation serves as a powerful motivator for independent directors, encouraging them to effectively monitor and advise on CSR activities. Our study provides new insights into the discussion of independent directorship and CSR disclosure.

Key words: Independent director, Reputation incentive, Corporate social responsibility, Corporate governance

Independent directors' reputation incentive and corporate social responsibility disclosure: Evidence from Chinese banking sector

3.1 Introduction

The board of directors serves as a vital internal mechanism in corporate governance, and independent directors play a crucial role in mitigating conflicts of interest and safeguarding the interests of small and medium-sized investors (Fama and Jensen, 1983; Adams et al., 2010). However, in countries with weak investor protection and corporate governance mechanisms, the appointment of independent directors is mainly decided by the controlling shareholder or management (Dahya et al., 2008). Since the controlling shareholder dominates the company, independent directors have been criticized that they do not have enough incentives to monitor the CEO and the firm business strategies (Luo and Liu, 2023; Jiang et al., 2016). Under such circumstances, how to effectively motivate independent directors to maintain independence and play their monitoring and advisory role is undoubtedly a valuable question.

Reputation incentives are an important factor for independent directors to play their role effectively. Research shows that independent directors who are motivated to maintain or enhance their reputation can have a positive impact on company performance and can also increase the transparency of company information, thereby improving governance practices (Bryan and Mason, 2020; Sila et al., 2017). Jiang et al. (2016) find that independent directors with good reputations are more likely to express dissenting views at board meetings. Such directors tend to actively play a monitoring role, thereby examining management decisions more strictly and ensuring that the firm complies with high standards of governance requirements, which greatly contributes to the improvement of corporate governance. Hence, the reputation of independent directors often hinges on their perceived ability to act in the best interests of stakeholders.

Corporate social responsibility (CSR) as part of company operations often receives special attention from boards of directors. Previous studies have shown that board independence has a positive effect on CSR (Harjoto et al., 2015; Jizi et al., 2014). However, these studies only focus on the quality of directors and ignore the personal motivations of independent directors. More importantly, most studies on CSR and board of directors are conducted in non-financial firms (Beji et al., 2021; Liao et al., 2021; Katmon et al., 2019). Consequently, it is essential to examine the independent directors' reputational impact on bank CSR engagement. Independent directors, by virtue of their position, are supposed to provide unbiased oversight of a bank's activities. Their reputational incentives can influence the type of CSR projects that a bank undertakes, the scale of these activities, and how these initiatives are communicated to stakeholders. Studying how these reputational incentives influence CSR can provide insights into whether the bank's CSR activities are truly aligned with stakeholder expectations and societal needs.

We argue that reputational concerns might motivate independent directors to push for CSR activities that address potential risks (McGuire et al., 1988; Starks, 2009), especially ESG (Environmental, Social, and Governance) risks, which could have long-term implications on the bank's operations and stakeholder relations. In addition, a good reputation is an intangible asset. Independent directors who are motivated by maintaining or enhancing their reputation may advocate for CSR initiatives that ensure long-term sustainability and value creation for the bank.

To find out how independent directors' reputation incentives link with CSR, we examine a sample of all the large Chinese banks over the period of 2009-2020. We manually collect banks' CSR reports and annual reports to obtain detailed information about economic, social and environmental responsibility that cover the features of the bank's CSR. Unlike previous research into CSR disclosure, which relied on social rating agencies (Cornett et al., 2016). We

use content analysis to measure the quality of disclosed information in banks' reports. Consistent with the framework and methodology used in the mainstream CSR literature (Jizi et al., 2014; Chen et al., 2020), we develop a CSR index based on the social responsibility guidelines issued by the China Banking Association (CBA). It covers three dimensions according to the relevant policies: economic responsibility, social responsibility and environmental responsibility. Then, each dimension is scored based on its content richness and whether it disclosed specific numbers in sub-dimensions. We also construct the independent directors' reputation index by performing a principal component analysis (PCA) of the three individual measurement items: independent directors' career background, educational level and age.

Our regression results show that independent directors' reputation has a positive impact on CSR. This effect is more pronounced in non-state-owned banks than in state-owned banks, and also much stronger when the bank's headquarters are not located in the Pearl River Delta and Yangtze River Delta economic zones. This relationship is robust using different measurements of independent directors' reputation. To mitigate omitted variable bias and reverse causality, we use bank-year fixed effects panel data analysis, GMM (Generalized Method of Moments) and PSM (Propensity Score Matching) approach to address the endogeneity issues. The results of these methods all remain significant and positive, which provides strong evidence that the relationship between the reputation incentives of independent directors and CSR disclosure is causal in nature.

Our study contributes to the literature in the following ways. First, this paper provides new insights into the impact of independent directors' reputational incentives on CSR disclosure. Prior studies have emphasised the significant impact of boards on CSR activities, focusing on traditional characteristics of boards (such as board independence or diversity) and their impact on CSR performance (e.g., Hung, 2011; Jamali et al. 2008; Rao and Tilt, 2016; Zhang et al.

2013). Our paper expands on these studies by examining the specific role of reputational incentives on independent directors. We find that independent directors who are motivated by reputational incentives tend to improve banks' CSR disclosure. Notably, we are the first to examine the reputational incentive impact of independent directors in the context of the Chinese banking industry. Most of the existing studies have been conducted mainly in Western contexts (Sila et al., 2017), and the applicability of these findings in non-Western contexts, especially in emerging markets, has not been explored. Therefore, our findings provide valuable insights that may be relevant and instructive for emerging economies.

Second, we contribute to the literature on the measure of bank CSR. Unlike previous research into CSR measurement, which relied on the environment, social and governance (ESG) score or index (Dam and Scholtens, 2012; Khan et al., 2013; Jizi et al., 2014), we develop a new CSR index based on the social responsibility guidelines issued by the China Banking Association. The guidelines require disclosure of social responsibilities from the economic, social and environmental aspects. Based on this, it will be more accurate to measure the social responsibility performance of China's banking industry.

The remainder of the paper is organized as follows. Section 2 reviews the institutional background of independent directors in the Chinese banking sector. Section 3 develops our testable hypotheses. Section 4 presents the data and methodology. Section 5 presents our descriptive statistics and preliminary results. The conclusion is given in the final section.

3.2 Institutional background: Independent director in the Chinese banking sector

In 1997, Chinese listed firms began appointing independent directors to their boards in order to improve corporate governance and reduce the manipulative actions of controlling shareholders, with the ultimate aim of protecting the interests of minority shareholders. For the Chinese banking sector, the earliest regulation on independent directors came from the "Guidelines for Independent Directors and Outside Supervisors of Joint-Stock Commercial Banks" issued by the People's Bank of China (PBC) in 2002. The PBC required that commercial banks should have at least two independent directors on their boards of directors, and that independent directors should not hold concurrent positions in other commercial banks and should not serve in the same commercial bank for more than three years. In addition, the responsibilities of independent directors are also clarified: independent directors shall express their opinions on matters discussed by the board of directors, especially when it comes to the profit distribution plan, the appointment and removal of senior management, and matters that may be detrimental to the interests of depositors or small and medium-sized shareholders.

Since 2003, China has begun to deepen the reform of the banking sector and promote its transformation into a modern market-oriented financial industry. With the establishment of the China Banking Regulatory Commission (CBRC), more guidelines have been issued to further improve and strengthen the role of independent directors in banks. For example, the "Guidelines on Further Improving the Corporate Governance of Small and Medium-sized Commercial Banks" issued in 2009 pointed out that commercial banks should improve the system of independent directors and appropriately increase the proportion of independent directors on the board of directors. The selection criteria for independent directors should be refined, with emphasis on qualifications in terms of knowledge, experience, ability and age. The CBRC expects to achieve better governance through effective bank directors and to reflect the results of bank reforms through the board's supervisory and advisory roles.

In 2013, in order to promote the stable operation and healthy development of commercial banks and to protect the legitimate rights and interests of depositors and other stakeholders, the CBRC further issued “Guidelines on the Corporate Governance of Commercial Banks”, in which the number of independent directors was changed from not being allowed to hold concurrent positions in other banks to not being allowed to hold positions in more than two commercial banks at the same time. It can be seen that one of the characteristics of independent directors in China’s banking industry is that they do not have many directorships. The guidelines also require that shareholders holding more than 1 percent of the total number of voting shares issued by a commercial bank can propose candidates for independent directors to the board of directors. In actuality, it is common for principal stakeholders, such as controlling shareholders, to propose and nominate independent directors. According to a report from the Shanghai Stock Exchange in 2004, 70% of independent directors were chosen by the largest shareholders of listed companies. The motivation of controlling shareholders to exploit minority shareholders has sparked a long-standing debate about whether corporations have a strong incentive to select independent directors who can effectively oversee management and limit the expropriation of assets by controlling shareholders. Appendix 1 is the regulations and policies regarding independent directors in China’s banking industry over the years.

3.3 Literature Review

3.3.1 Bank CSR strategies and activities

In recent years, the concept of corporate social responsibility (CSR) has received increasing attention, with more and more organizations embracing its principles and practices (Dhaliwal et al., 2011; Simnett et al., 2009). Companies engage in CSR for a variety of reasons. Bansal and Roth (2000) find that companies perform CSR to enhance their competitive position and legitimacy. Husted and Allen (2000) argue that the pursuit of strategic goals is a key driver, implying that CSR activities are essential to achieving long-term business success. Aguilera et al. (2007) emphasize ethical principles as the primary motivation, arguing that companies engage in CSR in order to act in accordance with ethical values and social expectations.

However, there is only limited bank CSR research. Existing research on corporate social CSR in the banking sector focuses mainly on its relationship with financial performance. For example, Malin et al. (2014) specifically study this relationship in depth within Islamic banks, assessing the correlation between CSR activities and financial outcomes. A similar study is also conducted by Platonova et al. (2018), whose findings indicate that there is a significant positive relationship between CSR disclosure and the financial performance of Islamic banks in the Gulf Cooperation Council countries. In addition, Jizi et al. (2014) examine how corporate governance affected the quality of CSR disclosure at large US commercial banks over the period 2009-2011. Their findings show that board independence and board size are positively related to CSR disclosure. Cornett et al. (2016) explore the link between banks' CSR and financial performance in the context of the financial crisis. They find that financial performance is positively and significantly related to CSR scores. However, there is no empirical research addressing the issue of CSR in the Chinese banking context.

There are several reasons that banks should fulfil their social responsibility. Banks engage in CSR for different purposes depending on their stakeholders. According to Waddock and

Graves (1997), banks develop relationships with the government through engaging in CSR, thereby potentially enhancing government support. Becker and Gerhart (1996) emphasise that CSR by banks towards their employees enhances team cohesion and work passion. This in turn develops a motivated and committed workforce to enhance the bank's competitive advantage. In addition, banks' CSR to shareholders as discussed by Ferrell et al. (2016) is conducive to building trust and safeguarding shareholder interests. Focusing on sustainability practices can also help banks attract new shareholders and support their long-term stability.

3.3.2 Reputation of independent directors

Prior studies imply that the incentives of directors to maintain their reputations could be a possible reason why certain independent directors perform better in their positions. Fama and Jensen (1983) propose that outside directors are motivated by the opportunity to develop their reputations as skilled decision-makers. By holding multiple directorships, they can convey their expertise in decision-making to both internal and external stakeholders. This argument is largely supported by research conducted in the Western context. Independent directors typically have the opportunity to secure additional directorships if they demonstrate a high level of competence in fulfilling their responsibilities and protecting the interests of investors (Eminet and Guedri, 2010; Yermack, 2004). Conversely, if they are implicated in corporate scandals, they may face the consequence of losing their directorships (Brochet and Srinivasan, 2014; Fos and Tsoutsoura, 2014; Johnstone et al., 2011). Independent directors with strong reputational incentives also play a significant role in enhancing the performance of the companies they serve. For example, they can increase CEO pay-performance sensitivity and improve the transparency of corporate information (Bryan and Mason, 2020; Sila et al., 2017).

According to Fama and Jensen (1983), reputation concerns drive independent directors to monitor managers, as a positive reputation attracts more future directorships. Prior studies of

independent directors' reputation concern have largely focused on the number of directorships. Masulis and Mobbs (2014) find that independent directors tend to dedicate greater time and effort towards their more significant directorships, ultimately resulting in improved firm performance. Jiang et al. (2016) find that independent directors with good reputations are more likely to express dissenting views at board meetings. Such directors tend to actively play a monitoring role, thereby examining management decisions more strictly and ensuring that the firm complies with high standards of governance requirements, which greatly contributes to the improvement of corporate governance. Luo and Liu (2023) examine the relationship between reputable independent directors and governance quality, they find that firms with reputable independent directors have higher profitability, operating efficiency and productivity.

However, focusing on the number of directorships does not apply in the Chinese banking industry because independent directors are not allowed to serve in more than two commercial banks at the same time. In contrast, this paper explores independent directors' reputation concerns using three dimensions: career background, educational level and age. Previous research on risk-taking suggests that legal experts among independent directors are more effective in overseeing bank risk-taking than other directors. Previous studies also support the positive impact of director expertise (financial, consulting, legal, management, etc.), which brings new perspectives and experience to the boardroom (Harjoto et al., 2015). Hsu et al. (2013) suggest that a person's ability to process information and take in new concepts is largely influenced by their level of education, which forms the basis of their cognition. Katmon et al. (2019) also emphasize that improved cognitive abilities which are driven by diverse perspectives can promote creativity and innovation in problem solving. Chen et al. (2019) suggest that academic reputation prompts independent directors to actively play their governance functions, promote company operations, and protect minority shareholders' interests. Furthermore, according to Ararat et al. (2010), the presence of diverse age groups

among board members can result in a range of values and viewpoints, as each generation possesses a unique perspective shaped by distinct experiences, social, political, and economic conditions, and historical events. Hence, we believe that independent directors with specific career backgrounds, educational level and age have more reputation concerns because their professional expertise directly impacts their ability to oversee financial integrity, legal compliance, and corporate governance, which are critical to their personal reputation and professional standing.

3.3.3 The independent directors' reputation and CSR

In this paper, we examine the effect of independent directors' reputation concerns on CSR disclosure in the Chinese banking sector. Banks that have strong CSR practices are often viewed as being more socially responsible and ethical, which can enhance their reputation among investors and other stakeholders. There are several reasons that could encourage independent directors to engage in corporate social responsibility activities to improve their reputation.

First, several studies have demonstrated that board independence is positively related to CSR disclosure (Jizi et al., 2014; Mallin and Michelon, 2011; Zhang et al., 2013), as CSR can be used as a mechanism to resolve conflicts between stakeholders. Independent directors are responsible for protecting the interests of stakeholders and promoting effective governance, which includes the supervision of the corporate social responsibility strategy. Their reputation for honesty and responsibility can contribute to a greater dedication to CSR as an essential component of good governance practices (Jiang et al., 2016). Particularly, directors with excellent reputations usually bring rich professional skills, knowledge and social networks that enable companies to operate more efficiently and seize broader business prospects (Giannetti et al., 2015). Moreover, engaging in CSR can improve independent directors' reputations in the

job market, as a strong reputation tends to lead to more future directorship opportunities (Jiang et al., 2016). Directors who participate in CSR are often regarded as having stronger networks and closer connections with key stakeholders (Khoo et al., 2022). These relationships not only enhance the director's reputation but also increase their influence, making them more appealing candidates for other board positions. Consequently, independent directors with reputation concerns are more inclined to embrace corporate social responsibility that contributes to the welfare of stakeholders, and also makes them more attractive in the job market.

Second, several studies have confirmed that CSR activities are adopted to reduce risk (Stark, 2009). Particularly, CSR activities build a kind of moral capital or goodwill for a company, acting as an "insurance-like" protection against potential negative events (Godfrey et al., 2009; Jiraporn et al., 2014). Therefore, reputational concerns might motivate independent directors to push for CSR activities that address potential risks, especially ESG (Environmental, Social, and Governance) risks, which could have long-term implications on the bank's operations and stakeholder relations.

However, it is also possible that independent directors' reputation concern may not improve corporate social responsibility. CSR is commonly perceived as a risk-averse investment (Starks, 2009). Managers may overinvest in CSR to mitigate their risk exposure as managers do not possess diversified investment portfolios like shareholders, and their self-interests are often closely aligned with the company, which makes them a high degree of risk aversion (Chintrakarn et al., 2020). This overinvestment is also an agency problem. However, reputable directors are motivated by reputation concerns to effectively monitor managers' performance. Consequently, independent directors, as representatives of efficient management, will reduce or eliminate this overinvestment in CSR to protect their reputation.

H1a: Independent directors' reputation is positively related to CSR.

H1b: Independent directors' reputation is not positively related to CSR.

3.4 Methodology

3.4.1 Data and sample construction

This study investigates the influence of independent directors' reputation concern on corporate social responsibility (CSR). The banking industry in China serves as the sample for this study. To ensure a comprehensive and representative sample, the top 300 banks were selected based on two ranking lists: *Brand Finance Banking 500* and *S&P Global Worldwide Bank Ranking*.[7] The selected top 300 banks account for over 95% of the total assets of Chinese banks. The sample was then limited by excluding China's central banks, policy banks, and credit unions, which are subject to different disclosure and regulatory requirements compared to commercial banks.[8] Moreover, banks with total assets less than US$1 billion were also excluded from the study. The selection of large banks for this study is well-founded due to their substantial influence on the Chinese banking sector and their pivotal role within the Chinese economy. Large banks control the majority of banking assets in China, making them crucial to the stability and performance of the entire financial system (Lin and Zhang, 2009). Given their market dominance and the availability of comprehensive data, large banks offer an in-depth perspective on the outcomes of bank governance reform and the overall status of the Chinese banking sector.

Our sample period commences in 2009 since most Chinese banks' CSR data is only available from that year onwards. This is due to the CBA's release of the first CSR reporting disclosure guidelines for the Chinese banking sector in 2009 (CBA, 2009). As a result, we limited our analysis to the years following 2009 when most banks had reported CSR data. To

[7] Brand Finance Banking 500 is the 500 most valuable and strongest banking brands in the world. S&P Global Worldwide Bank Ranking is sorted by bank total assets and can be filtered by country.

[8] Policy banks refer to non-commercial professional financial institutions founded by the government to implement the government's economic policies and conduct financial business in a specific field. Such as Exim Bank of China, Agriculture Development Bank of China etc.

ensure data accuracy and completeness, we manually collected CSR and annual report data from the Chinese banking industry for the years 2009 to 2020. Banks that did not disclose CSR and those that disclosed CSR for less than three years were excluded to apply panel data techniques, resulting in an unbalanced panel of 110 Chinese banks from 2009 to 2020. Appendix 1 provides an overview of the sample selection process.

Among the 110 Chinese banks, we have all 6 state-owned commercial banks, 11 joint-stock commercial banks. The assets of these 110 Chinese banks account for more than 90% of the total assets of Chinese commercial banks, so the sample in this paper can basically reflect the overall characteristics of China's banking industry. Data on independent directors' reputation is collected in the bank's annual reports and CSMAR database, and financial data is collected in the CSMAR and BankFocus databases. As one of China's leading financial data providers, the CSMAR database has more comprehensive data on the Chinese banking industry, and data on non-listed banks is mainly collected here.

3.4.2 Variables

3.4.2.1 Dependent variable

The literature highlights three main types of social responsibility disclosure measurement. The first type is to measure the disclosure content, such as number of words (Deegan and Gordon, 1996), sentences (Tsang, 1998) and pages (Patten, 1991) in the CSR or annual report. The second type is to use CSR ratings provided by social rating agencies (Cornett et al., 2016; McGuinness et al., 2017; Chen et al., 2020). The limitations of these rating agencies are that they focus primarily on the disclosure status of listed companies and the ratings are easily influenced by the information disclosed by the companies (Jizi et al., 2014).

The third type is the construction of CSR index based on content analysis. Content analysis was defined by Abbot and Monsen (1979) as "a technique for gathering data that consists of

codifying qualitative information in anecdotal and literary form, into categories in order to derive quantitative scales of varying levels of complexity." Krippendoff (1980) further stated that "content analysis is a research technique for making replicable and valid inferences from data according to their context." This approach is extremely useful for the study of specific types of companies. In order to better evaluate CSR disclosure, our study analyzes the contents of the bank's social responsibility reports and generates a CSR disclosure index to measure the CSR performance of China's banking industry.

The index is divided into four dimensions according to the relevant policies of the Chinese banking industry and CSR literature (Gray et al., 1995): general, economic responsibility, social responsibility, and environmental responsibility. Each dimension is divided into several sub-dimensions according to the guidelines issued by the CBA. According to the existence and comprehensiveness of the information disclosed in each dimension, score the content in these four CSR dimensions. Therefore, the total score of the four CSR dimensions is 36 points. Then, the level of CSR for each bank is derived from the following equation (1).

$$CSR = \sum (points\ of\ general, economic, social\ and\ environmental\ dimentions)\ /36 \quad (1)$$

CSR (General) = Disclose CSR report (2), disclose CSR in the annual report (1), not disclosed (0)

CSR (Economic responsibility) = Scores for six sub-dimensions (0~12)

CSR (Social responsibility) = Scores for six sub-dimensions (0~12)

CSR (Environmental responsibility) = Scores for five sub-dimensions (0~10)

In content analysis, coding reliability and consistency are crucial. We follow Platonova et al. (2018) to assess the reliability of the content analysis. First, a pilot study was conducted through a random sampling of social responsibility reports (covering 10% of the sample) to determine reliability. Second, in order to check the consistency of the scores, content analysis of the social responsibility report used in the pilot study will be carried out again one month later. Third, the social responsibility report used in the pilot study will be provided to two independent people for grading, which will then be compared with the previous grading. Finally, revise and confirm the social responsibility scoring rules, and then complete the social responsibility scoring of all banks.

3.4.2.2 Independent variables

Prior literature shows that reputation is measured by the number of directorships held by independent directors (Jiang et al., 2016; Khoo et al., 2022). However, for policy reasons, this may not be entirely applicable to banks, as independent directors in the Chinese banking industry rarely hold multiple directorships. In this paper, combined with the unique institutional environment of China's banking industry, we use the following three variables to capture an independent director's reputation: independent directors' career background, educational level and average age.

The first variable is whether the independent director has a law, economic or financial related professional background. Harjoto et al. (2017) find that the professional backgrounds of directors play a crucial role in determining their involvement in CSR activities. Varied career backgrounds bring diverse perspectives and skills to engage with the firm's social responsibilities. The second variable is whether the independent director holds a master, PhD or MBA degree. Shahgholian (2017) suggests that directors with higher education levels possess a greater awareness of environmental issues, potentially guiding the board towards the

adoption of environmental activities. The third variable is the average age of independent directors. Jiang et al. (2016) propose that younger directors tend to have a greater motivation to establish their reputation due to their longer career horizons.

In this paper, we construct the independent directors' reputation index by performing a principal component analysis (PCA) of the three individual measurement items, see equation (2). This approach is consistent with past research that utilised PCA as a key technique for creating composite indicators (Abernethy et al., 2019). Through PCA, principal factors with eigenvalues exceeding 1 are identified and selected to construct the reputation index. The factor structure is also rotated to improve interpretability. Tables 3.1 and 3.2 present the detailed statistics of the PCA, including the loadings of the variables.

$$Reputation = PCA(Career + Age + Education) \quad (2)$$

3.4.2.3 Control variables

We include control variables that have been used in prior studies. Bank characteristics such as bank size, bank age, return on assets (ROA) and leverage are included in the analysis. Leverage increases the business risk of a company, which in turn encourages managers to participate in corporate social responsibility to reduce risk (Chakroun et al., 2017). Leverage is calculated by dividing fully loaded Tier 1 capital as a percent of its total exposure. Total exposure is the sum of on-balance sheet and off-balance sheet exposures. There is evidence that smaller companies don't care much about corporate social responsibility because it reflects the slack of the firm (Goss and Roberts, 2011). Firm size is measured by the natural logarithm of the total assets at the end of the fiscal year. Companies with better performance may have more financial resources to participate in corporate social responsibility activities (Clark and Hebb, 2005), so we control the return on assets, return on assets is net income divided by total

assets. Bank age is measured as the number of years since the establishment of the bank. We also include core bank regulatory indicators as control variables (Wu and Shen, 2013). Non-performing loan is the ratio of impaired (non-performing) assets to total loans. Liquidity is the ratio of current assets to current liabilities.

In addition, corporate board characteristics can also affect firms' CSR (Oh et al., 2017). A higher proportion of independent directors on the board improves monitoring capacity and external legitimacy, which will lead to better CSR performance (Chang et al., 2017). Board size is measured by the number of directors on the board. The proportion of independent directors is the percentage of independent directors on the board. Gender diversity within boards plays a critical role in influencing corporate outcomes, particularly in relation to the essential functions of the board (Terjesen et al., 2009; Gul et al., 2011). Gender is calculated as the percentage of women among the independent directors. Directors with overseas experience can gain valuable international exposure and a comprehensive understanding of international responsibilities, including communication skills (Liao et al., 2018). Overseas is calculated as the percentage of foreign directors or foreign backgrounds among the independent directors. Politically connected independent directors refer to the proportion of independent directors with government backgrounds. Detailed definitions of the variables are provided in Appendix 2.

3.4.3 Regression model

Following Jiang et al. (2016) and Khoo et al. (2022), we offer the following lead-lag panel regression model to test our hypotheses. This is done to solve potential reverse causality problems. If we study the immediate relationship between corporate social responsibility and independent directors' reputation, these problems may arise.

$$CSR_{i,t} = \beta_0 + \beta_1 Reputation_{i,t-1} + \beta_2 Political_{i,t-1} + \beta_3 Gender_{i,t-1} + \beta_4 Oversea_{i,t-1} \quad (3)$$
$$+ \beta_5 Independent_{i,t-1} + \beta_6 Boardsize_{i,t-1} + \beta_7 State\ ownership_{i,t-1}$$
$$+ \beta_8 Bank\ age_{i,t-1} + \beta_9 Bank\ size_{i,t-1} + \beta_{10} ROA_{i,t-1} + \beta_{11} NPL_{i,t-1}$$
$$+ \beta_{12} Leverage_{i,t-1} + \beta_{13} Liquid_{i,t-1} + Year\ Fixed\ Effect$$
$$+ Firm\ Fixed\ Effect + \varepsilon$$

Where $CSR_{i,t}$ is the CSR score of bank i in year t, measured as the ratio of the number of disclosure points to the highest score the bank can achieve; $Reputation_{i,t-1}$ is the index of independent directors' career background, educational background and average age. $Political_{i,t-1}$ political connected independent directors measured by the percentage political connected directors among the independent directors; $Gender_{i,t-1}$ independent director gender measured by the percentage of women among the independent directors; $Oversea_{i,t-1}$ oversea independent directors measured by the percentage of foreign directors or foreign background among the independent directors; $State\ ownership_{i,t-1}$ is a dummy variable that equals 1 for state owned banks and 0 otherwise of bank i in year t-1; $Bank\ size_{i,t-1}$ bank's size measured by the natural logarithm of total assets of bank i in year t-1; $Leverage_{i,t-1}$ leverage measured by total debt over assets of bank i in year t-1; $ROA_{i,t-1}$ profitability measured by net income over total assets of bank i in year t-1; $NPL_{i,t-1}$ non-performing loans measured by impaired (non-performing) assets to total loans of bank i in year t-1; $Bank\ age_{i,t-1}$ bank's age measured by the number of years since the establishment of the bank; $Independent_{i,t-1}$ independent directors measured by the percentage of independent directors on the board; $Boardsize_{i,t-1}$ board size measured by the number of directors on the board; $Liquid_{i,t-1}$ liquidity measured by current assets over current liabilities of bank i in year t-1.

3.5 Empirical results

3.5.1 Descriptive statistics

Table 3.3 presents descriptive statistics for the variables used in our empirical analyses. All continuous variables are winsorized at the 1% and 99% levels to mitigate the effects of outliers. The minimum value of corporate social responsibility score is 0 and the maximum value is 1, indicating that the social responsibility scores of various banks are quite different. The minimum value of the economic, social and environmental score are 0 and the maximum value is 1, indicating that each bank's sub-CSR scores are also quite different. The average proportion of independent directors in our sample banks is 0.301 with a standard deviation of 0.085. This suggests that about one-third of each bank's board consists of independent directors, which is in line with the legal requirements of bank governance. Among all independent directors, 49% are highly educated and 31% have financial, economic or law related career backgrounds. The average age of independent directors in our sample is 52 years. This result is comparable to that of Jiang et al. (2016), whose remaining career longevity is similar to ours.

3.5.2 Baseline regression results

Table 3.4 presents the main evidence of the relationship between independent directors' reputation and CSR. The first column of our regression shows the results of a univariate test, where the coefficient associated with reputation is positive and significant at the 1% significance level. In column 2, the positive significant relationship between reputation and CSR remains consistent at the 1% level by incorporating control variables reflecting bank characteristics such as bank size, return on assets (ROA), leverage (lev), non-performing loans (NPL), liquidity (liquidity), and ownership (state ownership). Column 3 extends the model by adding control variables related to board characteristics. The coefficient of reputation is 0.065 and its significance remains at the 1% level. These consistent findings across different model

specifications emphasise the positive impact of independent directors' reputations on CSR disclosure. This supports our first hypothesis that the reputation mechanism effectively encourages independent directors to fulfil their role in enhancing CSR. From the perspective of agency theory, independent directors mitigate conflicts of interest between management and stakeholders. They treat CSR as a tool to align interests and promote transparency, thereby building trust, strengthening governance, and ultimately enhancing their reputation for safeguarding stakeholder interests (Mallin and Michelon, 2011; Zhang et al., 2013). From a stakeholder theory perspective, independent directors are responsible for protecting the interests of all stakeholders, not just shareholders. Their active participation in CSR makes them more respected and attractive in the job market for their ability to promote effective and ethical governance (Khoo et al., 2022). CSR activities serve as "insurance-like" protection against potential risks. Independent directors care about their own reputation and may advocate CSR activities that benefit both the company and their own reputation (Godfrey et al., 2009; Jiraporn et al., 2014). Columns 4 to 7 break down the reputation index into three components (education level, career background and average age), each of them remaining significant, which further strengthens our baseline results.

3.5.2.1 Alternative measures of independent directors' reputation

We also use alternative measures of the reputation index to test the hypotheses. In constructing the alternative reputation index, we follow Mollah et al. (2021). First, each reputation factor is normalized. This normalization process ensures that each component of the reputation index is comparable, thus equalizing the contribution of each factor. Second, we assign equal weights to the normalization factor and combine them to form a comprehensive reputation index of independent directors. This approach ensures that the index considers

various dimensions of independent directors' reputational attributes in a standardized and fair manner, thus accurately reflecting the overall reputation of independent directors.

$$Reputation = STDZ(Career) + STDZ(Education) + STDZ(age) \quad (4)$$

The main results in Table 3.5 show that the effect of independent directors' reputation on CSR is still positive and significant. These results are in line with our main findings.

3.5.2.2 Results of three components of CSR

Our previous findings show that independent directors' reputation have a positive impact on CSR. To explore further how independent directors influence CSR, we separate CSR into three subgroups based on the CSR index: economic, social and environmental. Table 3.6 reports CSR subgroup regression results. In Table 3.6, reputation is positive and significant in columns 4, 5 and 6. The results indicate that independent directors' reputation has a positive impact on all three aspects of CSR.

3.5.3 Identification strategies

3.5.3.1 Generalized Method of Moments (GMM)

Overall, independent directors with strong reputations may be more likely to promote CSR activities within the company, which can further enhance the company's reputation and social responsibility. However, we are also aware that our results may have endogeneity issues due to reverse causality, for example, banks prioritising CSR may be more likely to attract high-quality independent directors who are committed to good governance and ethical business practices. Therefore, we use GMM to mitigate this concern (Blundell and Bond, 1998). To

implement this approach, we use the "xtabond2 " module in Stata designed by Roodman (2009) specifically for performing systematic GMM estimation.

The diagnostic tests in Table 3.7 confirm the robustness and proper fit of the model using the system GMM approach. The AR1 and AR2 tests are conducted to detect the absence of first and second-order serial correlation in the residuals. As expected, the residuals in the first-order difference show serial correlation (AR1) and the residuals in the second difference do not show serial correlation (AR2), which suggests that the model is correct in capturing the dynamics without introducing an autocorrelation problem at this order. In addition, the Hansen test assesses the validity of the instrumental variables used in GMM estimation. The statistically insignificant results of the Hansen test indicate that the instruments are valid and do not over-identify the model, thus supporting the reliability of the GMM estimation. The results presented in Table 3.7, including the AR1, AR2, and Hansen test results, confirm the validity of our methodology and show that our baseline regression results remain consistent and robust when accounting for endogeneity and time-invariant effects.

3.5.3.2 Propensity Score Matching (PSM)

This section utilizes the PSM introduced by Rosenbaum and Rubin (1983) to analyse the impact of independent directors' reputation concerns and CSR. PSM is particularly useful in observational studies where random assignment is not feasible, as it allows for the creation of a quasi-experimental design by matching treated and control units based on their propensity scores, thereby reducing selection bias and making the treatment and control groups more comparable.

Firstly, we calculate the propensity scores via a probit model, selecting the year average reputation dummy as the dependent variable, while all control variables specified in equation (3) serve as the explanatory variables. Secondly, we match each bank with above-average

reputation concerns (treated group) with a bank that has below-average reputation concerns (control group) based on the closest propensity score. The nearest-neighbour matching is done without replacement, meaning that each control bank is used only once for matching, ensuring a one-to-one correspondence between treated and control units. This process results in a matched sample with 413 bank-year observations. Finally, we re-estimate equation (3) using the matched sample. This step helps to ensure that the estimation is not biased by differences in the observable characteristics between banks with different levels of reputation concerns. The regression results in Table 3.8 show that the coefficient of reputation is positive and significant at the 1% level. This finding is in line with our baseline regression, and alleviates any potential concerns regarding the influence of unobserved bank characteristics on the results. Therefore, our findings provide strong evidence that the positive relationship between independent directors' reputational concerns and CSR is not driven by underlying differences in bank characteristics, but reflects a genuine causal effect.

3.5.4 Additional tests

We also conduct a subgroup analysis to assess the robustness of our findings. This involves examining the impact of independent director reputation on CSR in different subsets of the sample. In this section, we perform the following subgroup analysis: 1) economic zone, 2) government shareholdings.

3.5.4.1 Pearl River Delta Economic Zone and Yangtze River Delta Economic Zone

The grouping according to economic zones is in fact related to China's policy of opening up to the west. With this as a start, China established the Pearl River Delta and Yangtze River Delta economic zones from 1979 onwards under the auspices of the open-door policy, as a way to introduce foreign investment and accelerate the modernisation process. In regions with

developed economies and mature markets, there is greater pressure on banks to adopt comprehensive CSR strategies. These regions typically have stronger regulatory frameworks and greater public awareness of social and environmental issues, which motivates banks to integrate CSR into their core business functions to remain competitive and responsive to stakeholder needs. On the other hand, in less economically developed regions, the imperative is to achieve economic growth and therefore banks' CSR tends to be closely aligned with local development objectives. Therefore the interplay between CSR and China's banking sector is profoundly influenced by regional economic and market development.

Table 3.9 columns 1 - 2 reports CSR regression results, separating the sample banks by location: whether the bank is located in the Pearl River Delta Economic Zone or the Yangtze River Delta Economic Zone. We employ an economic zone dummy variable to measure bank location. If the bank location is in the economic zone, then equals one and zero otherwise. The results shown in Table 3.9 column 1 and column 2 suggest that the regression results are much more significant for banks not in economic zones than for banks in economic zones. For example, the coefficient on reputation in column 1 is 0.119 (positive and significant at the 1% level), while in column 2 is 0.000 (insignificant). The results indicate that independent directors not in economic zones are more willing to engage in CSR. Engaging in CSR activities can provide banks with a competitive advantage that may be more significant in non-economic zones where banks compete for market share. In these regions, bank independent directors may be more inclined to engage in CSR activities because they are motivated by reputational incentives rather than market pressures.

3.5.4.2 Government shareholdings

One of the unique characteristics of Chinese banks is that the government still holds controlling ownership in large banks. Cull and Xu (2005) discuss the impact of increased

government intervention in markets, emphasising that such intervention leads to greater government control over resource allocation. Therefore, whether a bank is state-owned affects the extent to which independent directors engage in CSR.

Columns 3 and 4 of Table 3.9 report the results after differentiating the sample banks by government shareholding. We use state ownership dummy variable measures for government shareholdings. State ownership equals to 1 if the bank's government shareholding is greater than 50% of total outstanding shares, 0 otherwise. In Table 3.9, reputation is positive and significant in column 3. The results indicate that independent directors in non-state-owned banks are more inclined to engage in CSR. State owned banks are often controlled by the government or other state entities, which can limit the independence of their directors in decision-making. In addition, government involvement increases the transparency and accountability in bank governance, and state-owned banks can be subject to stricter government regulation and intervention (Lin and Zhang, 2009; Jiang et al., 2019), which may reduce independent directors' involvement in CSR.

3.6 Conclusion

In this paper, our research question is whether independent directors could be motivated by their reputation and then promote better CSR disclosure. Based on our regression results, we have the following key findings.

First, we document that independent directors' reputation matter for banks' CSR. Independent directors can benefit greatly from maintaining a good reputation, as it demonstrates their expertise, integrity and competence to the market, and also facilitates their access to a variety of resources (Khoo et al., 2022). As such, reputation serves as a powerful incentive for independent directors.

Second, independent directors' reputation has a positive impact on CSR in the Pearl River Delta and Yangtze River Delta economic zones, as well as in state-owned banks. This can be explained by China's open to west policy and political connections. The economic zones introduced foreign investment earlier and faster, and restrictions on the introduction of foreign investment in China's banking sector were gradually liberalised with China's accession to the WTO. With the support of government and policy, foreign investment in CSRs in the form of political linkages has resulted in greater potential gains.

This study provides valuable insights for regulators and policymakers seeking to improve the effectiveness of independent directors in CSR practices. One of the key recommendations is the establishment of effective reputational mechanisms to incentivise independent directors to diligently perform CSR. Our findings emphasise the importance of such reputational incentives, providing empirical support for their relevance in the current regulatory framework. By demonstrating the positive impact of reputational incentives on independent directors' engagement in CSR, this study contributes to China's ongoing efforts to promote responsible business practices.

List of tables

Table 3.1 Principal Component Analysis (PCA)

Component	*Eigenvalue*	*Proportion*
Comp1	1.66155	0.5538
Comp2	0.785485	0.2618
Comp3	0.552967	0.1843

This table reports the components derived from the PCA.

Table 3.2 PCA results

Variable	*Comp1*
Career	0.5995
Education	0.6250
Independent age	0.5000

This table reports the variable loadings after rotation.

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Table 3.3 Summary Statistics

Variable	*N*	*Mean*	*SD*	*Min*	*Max*
CSR	719	0.506	0.346	0	0.972
-Economic	719	0.526	0.337	0	1
-Social	719	0.537	0.337	0	1
-Environment	719	0.519	0.375	0	1
Political	719	0.204	0.240	0	0.800
Gender	719	0.116	0.167	0	0.667
Oversea	719	0.140	0.222	0	0.800
Boardsize	719	13.500	2.496	8	18
Independent director	719	0.301	0.085	0.083	0.444
State ownership	719	0.608	0.489	0	1
Bank age	719	17.43	10.46	2	61
Bank size	719	12.89	1.583	10.65	16.84
ROA	719	0.972	0.324	0.231	1.821
NPL	719	1.388	0.600	0.380	3.380
Leverage	719	7.006	1.344	4.271	10.05
Liquid	719	21.03	11.24	5.503	51.82

This table reports the summary statistics of key variables in this research.

Table 3.4 Independent directors' reputation and CSR disclosure

Dependent variable	*CSR*						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Reputation	0.057***	0.058***	0.065***				
	(0.010)	(0.010)	(0.011)				
Career				0.114***			0.092***
				(0.029)			(0.029)
Education					0.130***		0.115***
					(0.029)		(0.029)
Independent directors' age						0.002***	0.002**
						(0.001)	(0.001)
Political			-0.065*	-0.008	-0.056	-0.028	-0.065*
			(0.037)	(0.036)	(0.038)	(0.037)	(0.038)
Gender			-0.105**	-0.083*	-0.115**	-0.084*	-0.107**
			(0.049)	(0.049)	(0.050)	(0.050)	(0.049)
Oversea			-0.075	-0.026	-0.048	-0.003	-0.077
			(0.054)	(0.053)	(0.054)	(0.053)	(0.054)
Board size			0.003	0.002	0.005	0.003	0.003
			(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Independent			0.007	0.009	0.005	0.011	0.007
			(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
State ownership		-0.053**	-0.051**	-0.042*	-0.052**	-0.042*	-0.051**
		(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
Bank age		0.002	0.001	0.002	0.002	-0.002	0.002
		(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Bank size		0.061	0.038	0.043	0.054	0.068	0.038
		(0.045)	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)
ROA		0.034	0.037	0.045	0.035	0.046	0.036
		(0.033)	(0.033)	(0.033)	(0.033)	(0.034)	(0.033)
NPL		-0.022	-0.018	-0.019	-0.018	-0.020	-0.017
		(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)

Leverage		-0.017**	-0.019**	-0.020***	-0.018**	-0.015*	-0.020***
		(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)
Liquid		-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
_cons	0.390***	-0.143	0.099	-0.051	-0.199	-0.413	-0.068
	(0.023)	(0.559)	(0.560)	(0.570)	(0.564)	(0.571)	(0.563)
N	719.000	719.000	719.000	719.000	719.000	719.000	719.000
R-square	0.287	0.338	0.351	0.329	0.333	0.320	0.351
Entity Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This table reports the baseline results of the impact of independent directors' reputation incentive on CSR disclosure in the sample period of 2009-2020. Variable definitions are provided in Appendix 3. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 3.5 Independent directors' reputation and CSR disclosure (alternative measure of reputation)

Dependent variable	*CSR*						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Reputation	0.033***	0.033***	0.037***				
	(0.006)	(0.006)	(0.006)				
Career				0.114***			0.092***
				(0.029)			(0.029)
Education					0.130***		0.115***
					(0.029)		(0.029)
Independent directors' age						0.002***	0.002**
						(0.001)	(0.001)
Political			-0.065*	-0.008	-0.056	-0.028	-0.065*
			(0.037)	(0.036)	(0.038)	(0.037)	(0.038)
Gender			-0.103**	-0.083*	-0.115**	-0.084*	-0.107**
			(0.049)	(0.049)	(0.050)	(0.050)	(0.049)
Oversea			-0.071	-0.026	-0.048	-0.003	-0.077
			(0.054)	(0.053)	(0.054)	(0.053)	(0.054)
Board size			0.003	0.002	0.005	0.003	0.003
			(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Independent			0.008	0.009	0.005	0.011	0.007
			(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
State ownership		-0.052**	-0.050**	-0.042*	-0.052**	-0.042*	-0.051**
		(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
Bank age		0.001	0.001	0.002	0.002	-0.002	0.002
		(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Bank size		0.062	0.040	0.043	0.054	0.068	0.038
		(0.045)	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)
ROA		0.034	0.037	0.045	0.035	0.046	0.036
		(0.033)	(0.033)	(0.033)	(0.033)	(0.034)	(0.033)
NPL		-0.023	-0.018	-0.019	-0.018	-0.020	-0.017
		(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)

Leverage		-0.017**	-0.019**	-0.020***	-0.018**	-0.015*	-0.020***
		(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)
Liquid		-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
_cons	0.390***	-0.160	0.079	-0.051	-0.199	-0.413	-0.068
	(0.023)	(0.559)	(0.560)	(0.570)	(0.564)	(0.571)	(0.563)
N	719.000	719.000	719.000	719.000	719.000	719.000	719.000
R-square	0.286	0.337	0.350	0.329	0.333	0.320	0.351
Entity Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This table reports the regression results of the impact of independent directors' reputation incentive on CSR disclosure by using the alternative measurement of reputation index. Variable definitions are provided in Appendix 3. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 3.6 Independent directors' reputation and CSR disclosure: Components of CSR

Dependent variables	*Economic*	*Social*	*Environment*	*Economic*	*Social*	*Environment*
	(1)	(2)	(3)	(4)	(5)	(6)
Reputation				0.060***	0.065***	0.075***
				(0.011)	(0.011)	(0.012)
Career	0.078***	0.087***	0.109***			
	(0.030)	(0.030)	(0.033)			
Education	0.115***	0.127***	0.118***			
	(0.030)	(0.030)	(0.034)			
Independent directors' age	0.001*	0.001*	0.002**			
	(0.001)	(0.001)	(0.001)			
Political	-0.038	-0.056	-0.090**	-0.036	-0.054	-0.092**
	(0.039)	(0.040)	(0.044)	(0.038)	(0.039)	(0.042)
Gender	-0.119**	-0.100*	-0.099*	-0.115**	-0.094*	-0.099*
	(0.050)	(0.051)	(0.056)	(0.049)	(0.051)	(0.056)
Oversea	-0.078	-0.093	-0.105*	-0.075	-0.087	-0.105*
	(0.055)	(0.056)	(0.062)	(0.055)	(0.056)	(0.062)
Board size	0.002	0.004	0.004	0.001	0.004	0.004
	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)	(0.005)
Independent	0.008	0.006	0.007	0.009	0.007	0.007
	(0.007)	(0.008)	(0.008)	(0.007)	(0.007)	(0.008)
State ownership	-0.028	-0.041*	-0.072***	-0.027	-0.039*	-0.072***
	(0.022)	(0.023)	(0.025)	(0.022)	(0.023)	(0.025)
Bank age	-0.004	-0.003	0.009	-0.004	-0.005	0.009
	(0.013)	(0.014)	(0.015)	(0.013)	(0.014)	(0.015)
Bank size	0.073	0.069	0.019	0.072	0.070	0.019
	(0.047)	(0.048)	(0.053)	(0.046)	(0.047)	(0.052)
ROA	0.021	0.039	0.044	0.023	0.041	0.044
	(0.034)	(0.034)	(0.038)	(0.033)	(0.034)	(0.038)
NPL	-0.020	-0.020	-0.009	-0.020	-0.020	-0.009
	(0.016)	(0.016)	(0.018)	(0.016)	(0.016)	(0.018)

Leverage	-0.017**	-0.021***	-0.019**	-0.017**	-0.020***	-0.019**
	(0.008)	(0.008)	(0.009)	(0.008)	(0.008)	(0.009)
Liquid	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
_cons	-0.379	-0.340	0.040	-0.214	-0.186	0.252
	(0.574)	(0.587)	(0.646)	(0.571)	(0.585)	(0.643)
N	719.000	719.000	719.000	719.000	719.000	719.000
R-square	0.330	0.344	0.309	0.330	0.343	0.310
Entity Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes

This table reports the regression results of the impact of independent directors' reputation incentive on the three components of CSR disclosure. The dependent variables in Columns (1)-(3) and (4)-(6) are Economic, Social, and Environment, respectively. Variable definitions are provided in Appendix 3. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 3.7 Independent directors' reputation and CSR disclosure: GMM regression

Dependent variable	*CSR*
	(1)
L.CSR	0.514***
	(0.178)
Reputation	0.064**
	(0.029)
Political	-0.135
	(0.165)
Gender	0.008
	(0.089)
Oversea	0.043
	(0.084)
Board size	0.015
	(0.021)
Independent	-0.017
	(0.022)
State ownership	0.058
	(0.113)
Bank age	-0.003
	(0.002)
Bank size	0.044
	(0.028)
ROA	-0.036
	(0.082)
NPL	-0.030
	(0.058)
Leverage	-0.006
	(0.025)
Liquid	-0.003
	(0.005)
_cons	-0.236
	(0.399)
N	565.000
AR1	-1.681
(p-value)	0.093
AR2	0.347
(p-value)	0.729
Sargan	36.720
(p-value)	0.529
Hansen	37.374
(p-value)	0.498

This table reports the regression results using the GMM model. Variable definitions are provided in Appendix 3. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 3.8 Independent directors' reputation and CSR disclosure: PSM analysis

Dependent variable	*CSR*
	(1)
Reputation	0.084***
	(0.013)
Political	-0.104**
	(0.052)
Gender	-0.288***
	(0.078)
Oversea	-0.136**
	(0.065)
Board size	0.002
	(0.005)
Independent	0.334**
	(0.145)
State ownership	-0.025
	(0.027)
Bank age	-0.007
	(0.069)
Bank size	-0.022
	(0.068)
ROA	0.050
	(0.051)
NPL	0.009
	(0.026)
Leverage	-0.039***
	(0.011)
Liquid	-0.003***
	(0.001)
_cons	1.033
	(1.207)
N	413.000
R-square	0.437
Entity Fixed Effect	Yes
Year Fixed Effect	Yes

This table reports the regression results using a PSM procedure. Variable definitions are provided in Appendix 3. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 3.9 Independent directors' reputation and CSR disclosure: Cross-sectional analysis

Dependent variable	*CSR*	
	Outside the economic zone	*In the economic zone*
	(1)	*(2)*
Reputation	0.119***	-0.000
	(0.013)	(0.018)
Political	-0.132***	0.104
	(0.043)	(0.069)
Gender	-0.102*	-0.076
	(0.056)	(0.099)
Oversea	-0.101	-0.036
	(0.064)	(0.098)
Board size	-0.001	0.014*
	(0.005)	(0.008)
Independent	-0.007	0.015
	(0.008)	(0.013)
State ownership	-0.017	-0.088***
	(0.029)	(0.034)
Bank age	0.007	-0.052
	(0.012)	(0.035)
Bank size	0.090*	0.050
	(0.048)	(0.087)
ROA	0.045	0.048
	(0.037)	(0.063)
NPL	-0.039**	0.032
	(0.018)	(0.033)
Leverage	-0.014*	-0.026*
	(0.008)	(0.015)
Liquid	-0.003***	-0.005***
	(0.001)	(0.001)
_cons	-0.539	0.359
	(0.590)	(1.133)
N	436.000	283.000
R-square	0.456	0.390
Entity Fixed Effect	Yes	Yes
Year Fixed Effect	Yes	Yes

Table 3.9 (continued)

Independent directors' reputation and CSR disclosure: Cross-sectional analysis

Dependent variable	*CSR*	
	Non state owned	*State owned*
	(3)	*(4)*
Reputation	0.069***	0.024
	(0.013)	(0.023)
Political	-0.046	0.030
	(0.043)	(0.081)
Gender	-0.158***	0.094
	(0.058)	(0.109)
Oversea	-0.148**	0.099
	(0.073)	(0.085)
Board size	0.004	0.013*
	(0.006)	(0.007)
Independent	0.009	0.003
	(0.009)	(0.015)
Bank age	0.022	-0.002
	(0.028)	(0.013)
Bank size	0.053	-0.037
	(0.056)	(0.084)
ROA	0.063	0.007
	(0.040)	(0.079)
NPL	-0.022	0.059*
	(0.021)	(0.032)
Leverage	-0.020**	-0.021
	(0.009)	(0.016)
Liquid	-0.003***	-0.002
	(0.001)	(0.001)
_cons	-0.386	0.933
	(0.741)	(1.123)
N	532.000	172.000
R-square	0.374	0.317
Entity Fixed Effect	Yes	Yes
Year Fixed Effect	Yes	Yes

This table reports the regression results using subsamples split by bank characteristics. The economic zone is defined as whether the bank is in the Pearl River Delta Economic Zone or the Yangtze River Delta Economic Zone. State owned is defined as whether the bank's government shareholding is greater than 50% of total outstanding shares. Variable definitions are provided in Appendix 3. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

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Appendix

1. Relevant regulations of independent directors in the Chinese banking sector

Release date	Host department	Regulations
2002	People's Bank of China (PBC)	Guidelines for Independent Directors and Outside Supervisors of Joint-Stock Commercial Banks
2005	China Banking Regulatory Commission (CBRC)	Corporate Governance Guidelines for Foreign Banks
2006	CBRC	Corporate Governance and Related Supervisory Guidelines for State-owned Commercial Banks
2009	CBRC	Guidelines on Further Improving the Corporate Governance of Small and Medium-sized Commercial Banks
2013	CBRC	Corporate Governance Guidelines for Commercial Banks
2021	China Banking and Insurance Regulatory Commission (CBIRC)	Corporate Governance Guidelines for Banking and Insurance Institutions

2. Sample selection

Description	Banks
Total number of Chinese banks	4044
Less: banks that are not on the Brand Finance Banking 500 and S&P Bank Ranking	3744
Less: central bank of China, policy banks, credit unions and banks with total assets of less than $1 billion.	101
Less: banks that did not disclose corporate social responsibility and that disclosed social responsibility for less than three years	89
Final sample	110

3. Variable definition

Variable	Description	Source
CSR	Corporate social responsibility disclosure score of bank i at the end of year t-1, which equals to the ratio of the number of disclosure points to the highest score the bank can achieve.	CSR report and annual report
Reputation	The index of independent directors' career background, educational background and average age.	CSMAR and annual report
-Career	The percentage of financial, economic and law related background directors among the independent directors of bank i at the end of year t-1.	CSMAR and annual report
-Education	The percentage of hold master, MBA and PhD degree directors among the independent directors of bank i at the end of year t-1.	CSMAR and annual report
-Independent directors' age	The average age of independent directors of bank i at the end of year t-1.	CSMAR and annual report
Political	The percentage of political connected directors among the independent directors of bank i at the end of year t-1.	CSMAR and annual report
Gender	The percentage of women among the independent directors of bank i at the end of year t-1.	CSMAR and annual report

Oversea	The percentage of have foreign experience directors among the independent directors of bank i at the end of year t-1.	CSMAR and annual report
Independent	The percentage of independent directors on the board of bank i at the end of year t-1.	CSMAR and annual report
State ownership	Dummy = 1 if the largest shareholder is state and greater than 5% of total outstanding shares of bank i at the end of year t-1.	CSMAR and annual report
Board size	The number of directors of bank i at the end of year t-1.	CSMAR and annual report
Bank size	Natural logarithm of total assets of bank i at the end of year t-1.	BankFocus and annual report
Bank age	The number of years since the establishment of bank i at the end of year t-1.	CSMAR and annual report
ROA	Return on assets (net income / total assets) of bank i at the end of year t-1.	BankFocus and annual report
NPL	Impaired (non-performing) assets to total loans of bank i at the end of year t-1.	BankFocus and annual report
Leverage	Leverage for bank i, measured as Tier 1 capital as a percent of its total exposure at the end of year t-1.	BankFocus and annual report
Liquid	Liquidity: the ratio of current assets to current liabilities of bank i at the end of year t-1.	BankFocus and annual report

Chapter 4: Bank Board Size and Misconduct: Evidence from China

Abstract

This paper addresses the critical issue of governance and risk-taking within the banking industry by presenting the first empirical examination of how board size influences misconduct in the Chinese banking sector. We use a large sample of 110 Chinese commercial banks to test the effect of board size on bank misconduct. We argue that the board of directors, as a crucial element of corporate governance, could reduce the risk of misconduct by modifying the size and composition of the board to effectively exercise its monitoring and advisory roles. We find an inverted U-shaped relation between board size and bank misconduct. This finding suggests that larger boards appear to be more effective in their monitoring and advising roles, and thus can increase bank value and reduce the risk of misconduct. Our research extends the understanding of board mechanisms within the context of China's banking industry, and underscore the importance of an effective and well-sized board of directors for ensuring robust supervision and governance in Chinese banks.

Key words: Board of directors, Misconduct, Corporate governance

Bank Board Size and Misconduct: Evidence from China

4.1 Introduction

In recent years, the topic of financial misconduct has garnered increased attention in policy debates. After the global financial crisis, numerous instances of financial misconduct captured the attention of both financial and academic communities. Between 2008 and 2018, the world's largest banks were subject to unprecedented misconduct fines of more than £370 billion (Arnaboldi et al., 2021). In 2018, the China Banking and Insurance Regulatory Commission (CBIRC) issued more than 4,000 administrative penalties, with a total amount of fines of approximately 2.156 billion yuan. Among them, the Chengdu Branch of Shanghai Pudong Development Bank was fined 462 million yuan for illegally granting credit to 1,493 shell companies in exchange for the relevant companies to contribute capital to bear the bank's huge non-performing loans.[9] The relevant bank executives were banned from working in the banking industry for life. These incidents reflect the reputational and financial threats that misconduct poses to banks and individuals. Preventing bank misconduct is an important objective of international regulators and policymakers. However, the effectiveness of regulatory reforms may be limited without corresponding improvements in the corporate governance structure of banks. Therefore, identifying what banks can do to avoid misconduct is an urgent issue.

In this paper, Our view is that the board of directors, as a crucial element of corporate governance, could reduce the risk of misconduct by modifying the size of the board to effectively exercise its monitoring and advisory roles (Fama and Jensen, 1983; Adams and Ferreira, 2007). Many studies have examined the effects of board size on bank performance, the results are mixed (Andres and Vallelado, 2008; Adams and Mehran, 2012; Grove et al., 2011; García-Meca et al., 2015; Pathan and Faff, 2013). However, few studies have examined

[9] This information is obtained from the administrative penalties issued by the CBIRC. Data are available here: https://www.cbirc.gov.cn/branch/sichuan/view/pages/common/ItemDetail.html?docId=169090&itemId=2025

the mechanism of the impact of board size on bank misconduct. A recent study by Arnaboldi et al. (2021) highlights that boards with gender diversity significantly reduce the incidence of misconduct fines. They argue that gender diversity enriches the board skills, expertise, and its monitoring capacity, which reduces the risk of bank misconduct.

Nguyen et al. (2016) investigate the impact of board monitoring and advising on the prevention of misconduct within US banks, focusing on regulatory enforcement actions as a measure of effectiveness. Their study shows that enhanced board monitoring is associated with a higher probability of detecting misconduct. Moreover, they find that rigorous board oversight leads to more severe penalties for CEOs in the event of misconduct and helps to reduce the loss of shareholder wealth once misconduct is identified by regulators. We could see that all this research still focuses on the western context. Consequently, it is essential to examine the role of board size in bank misconduct in an emerging market context.

The Chinese banking industry is well-suited for studying the link between board size and bank misconduct for two reasons. First, there are major differences in the banking regulatory and penalty systems between China and the western countries. For example, there are three major regulatory agencies in the United States (the Federal Reserve Board (FRB), the Federal Deposit Insurance Corporation (FDIC), and the Office of the Comptroller of the Currency (OCC)) take regulatory and enforcement actions against banks that engage in unsafe, unsound, and illegal practices (Nguyen et al., 2016). In contrast, China has a relatively single banking regulator, with supervision and penalties mainly carried out by the CBIRC (which has been merged into the National Administration of Financial Regulation in 2023). A single regulatory authority is more conducive for observing and gaining a comprehensive understanding of administrative penalties imposed on banking industry. Second, the Chinese government has prioritized the board as a crucial component of bank governance reform. In 2005, the China Banking Regulatory Commission (CBRC) issued the "Guidelines for Board of Directors Code

of Conduct of Joint Stock Commercial Banks." This initiative aims to standardise the structure of board of directors and ensure that powerful boards are in place in Chinese banks. The implemented governance rules and ongoing reforms have raised significant questions regarding the impact of these changes on the structure and effectiveness of the bank board.

To find out how board size link with bank misconduct, we examine a sample of all the large Chinese banks over the period of 2009-2020. Our regression results show that there is an inverted U-shaped relation between board size and bank misconduct. Therefore, once the number of directors reaches a specific point, bank misconduct will decrease as the number of directors increases. In our sample, this specific point of board size is around 10. This board size is relatively small compared to the sample of Chinese banking directors with a maximum of 19 and an average of 13. Determining the causal relationship between bank board size and bank misconduct is a major challenge. This is due to the potential emergence of endogeneity issues, which may arise when board characteristics are considered as endogenously chosen by firms rather than exogenous random variables. The possibility of omitted variable bias and reverse causality presents two sources of endogeneity that could compromise the validity of our estimations. To mitigate these concerns, we implement a fixed effect model, incorporate the lagged value of the regressor, and employ the propensity score matching technique. The results are all remain significant and negative, which provide strong suggestive evidence that the relationship between board size and bank misconduct is causal in nature.

Our study contributes to the literature in the following ways. First, our paper is focuses on the issue of governance and risk-taking in the banking industry (Ellul and Yerramilli, 2013; Nguyen et al., 2016). We contribute to the literature on this topic by presenting the first empirical study that examines the effect of board size in avoiding misconduct in the Chinese banking sector, while existing literature mainly focuses on the impact of board structure on bank performance (Fernandes et al., 2018; Pathan and Faff, 2013; Liang et al., 2013). Our

empirical approach allows us to pinpoint the specific mechanisms through which corporate governance affects the propensity for misconduct within the banking sector. Second, our study extends the understanding of board mechanisms in the Chinese banking industry. After China's banking industry has undergone various reforms, corporate governance mechanisms have been improved and managers have more decision-making power over banks. Therefore, an effective and strong board of directors is of great significance to Chinese banks. Our study also confirms that the size of a bank's board of directors is fundamental to its ability to adequately fulfil its supervisory and monitoring functions.

The remainder of the paper is organized as follows. Section 2 reviews the institutional background of the Chinese banking misconduct. Section 3 develops our testable hypotheses. Section 4 presents the data and methodology. Section 5 presents our descriptive statistics and preliminary results. The conclusion is given in the final section.

4.2 Institutional background

Since the establishment of the China Banking Regulatory Commission (CBRC) in 2003, the CBRC has undertaken the majority of banking regulatory functions. This financial regulatory structure lasted for over a decade until 2018, when the State Council of China merged the China Banking Regulatory Commission with the China Insurance Regulatory Commission, forming the China Banking and Insurance Regulatory Commission (CBIRC). This financial regulatory reform separated the legislative and executive powers of supervision. The People's Bank of China (PBOC) was responsible for formulating relevant laws and regulations. while the CBIRC was charge of the actual regulatory implementation. Thus, the Chinese banking industry was subject to dual supervision by the People's Bank of China and the CBIRC. In 2023, the State Council, based on the foundation of the CBIRC, established the National Administration of Financial Regulation (NAFR), which took over the responsibility for regulating all financial sectors except the securities industry, and the CBIRC was no longer retained. This was a significant move to deepen the reform of the financial regulatory system, strengthen modern financial supervision, and promote comprehensive coverage of financial regulation.

With regard to regulatory penalties for banks specifically, China's administrative penalties for banks have been backed by law for a long time, but have only been gradually standardised in recent years. The main authorities in China that can directly penalise banks are the NAFR and the PBOC. The penalties imposed by Chinese regulatory authorities for bank misconduct mainly include warnings, fines, confiscation of illegal income, orders for suspension and rectification, revocation of financial and business licences, cancellation or revocation of qualifications, and prohibition from engaging in the banking industry. According to the latest revised "Administrative Penalty Measures of the China Banking and Insurance Regulatory Commission." When regulatory authorities issue formal penalty notices to banks, they generally need to go through procedures of case investigation, evidence collection, trial,

deliberation, rights notification and hearing, decision and execution. The laws and regulations based on which regulatory authorities impose penalties on banks can be seen in Appendix 1.

In April 2017, the CBRC issued the "Notice on Effectively Compensating for Supervision Weaknesses and Improving Supervision Efficiency", which emphasises the need to strengthen and standardise regulatory penalties, increase the severity of penalties and improve the transparency of penalties. Since 2017, confiscation of illegal income and fines have become the most frequent forms of penalties taken by the CBRC against banking institutions, while warnings and fines have become the most frequent forms of penalties taken by the CBRC against individuals. From 2017 to 2020, the cumulative amount of fines imposed by the CBRC on banking financial institutions and individuals exceeded 8 billion RMB, which is greater than the total amount of fines in the previous ten years. The increase in penalties reflects a commitment to address misconduct more effectively and marks a significant evolution in regulation after 2017.

4.3 Literature review and hypotheses development

4.3.1 Corporate governance in the banking sector

We follow Andre and Vallelado (2008) to define corporate governance as a set of mechanisms used by stakeholders to address agency problems within the company and ensure that directors effectively manage resources and control risks. A large body of literature has emphasized the importance of corporate governance. Boards of directors always play an important role in corporate governance, but research on boards of directors in the banking sector has not been fully discussed, especially in developing countries. Adam and Mehran (2012) point out that we know very little about whether corporate governance in banks is effective, as most studies on boards of directors exclude financial firms. Pathan and Faff (2013) also point out that the board of directors, as one of the main corporate governance mechanisms, plays a crucial role in achieving effective bank governance.

Compared with other unregulated industries, banks' business is more complex and opaque, such characteristics increase the problem of information asymmetry and require stricter supervision and monitoring (Levine, 2004). Furthermore, regulation holds a significant place in the banking industry. The additional monitoring entrusted to the regulator may also lead to additional governance challenges, as the regulator directly impacts the bank's decision-making and prioritizes its own interests (Laeven and Levine, 2009; Liang et al., 2013). Since 2003, China's banking sector has undergone a large number of reforms aimed at changing its operational and governance landscape. Key areas of reform include diversifying the ownership structure to reduce the dominance of state ownership, minimising government intervention to achieve more market-oriented operations, and giving bank managers greater autonomy in decision-making. In 2005, the CBRC released the "Guidelines for Board of Directors Code of Conduct of Joint Stock Commercial Banks." This initiative aimed to standardise the functioning of bank boards and strengthen the internal governance of banks. In addition, bank

boards serve as the primary decision-making bodies, they should bear the ultimate responsibility for the management and operational oversight of banks. Despite the government retaining controlling stakes in major banks, every governance mechanism like board of directors and the ownership structure should fulfil a complementary function that could be instrumental in mitigating various aspects of agency issues.

Most of the literature on bank governance has focussed on exploring the relationship between boards of directors and bank performance. Pi and Timme (1993) find that chairman-CEO banks are negatively related to cost efficiency and investment efficiency by using US commercial banks from 1987 to 1990. Andres and Vallelado (2008) use a sample of large international commercial banks from 1995 to 2005 and find that bank performance has an inverted U-shaped relationship with board size and the proportion of non-executive directors. Liang et al. (2013) use a sample of 50 largest Chinese banks from 2003 to 2010 and examine the relationship between board characteristics and bank performance. They find a negative relationship between board size and bank performance, while the proportion of independent directors and board meeting have a positive impact on bank performance. Pathan and Faff (2013) make a similar point in their study of board structure in banks. They examine a broad sample of US bank holding companies from 1997 to 2011, and find that increasing board size negatively impacts bank performance. However, they also find that gender diversity within the board enhances bank performance in the period prior to the Sarbanes-Oxley Act (SOX).

4.3.2 Board size and bank misconduct

The governance literature suggests that the board of directors can effectively fulfill its advisory and monitoring roles over management by carefully selecting its composition and size. (Adams and Ferreira, 2007; Harris and Raviv, 2008). Fama and Jensen (1983) along with Adams and Ferreira (2007) highlight the critical role of directors in monitoring and advising

the CEO to ensure that the interests of managers and shareholders are aligned, with the ultimate goal of maximizing shareholder value. Given the potential for corporate misconduct to significantly diminish shareholder value (Karpoff et al., 2008), we propose that an effective board of directors would play a crucial role in mitigating the risk of misconduct.

What size of board is considered effective? The answers from the literature are mixed. The advantage of large board size is that they could potentially enhance firm performance by facilitating more effective supervision by managers and providing greater access to human capital for advising managers (Liang et al., 2013). This view is also supported by Dalton et al. (2005), they argue that larger boards may provide advantages by broadening the range of expertise and resources accessible to the organization. Furthermore, Coles et al. (2008) suggest that larger boards can have a positive impact on firm performance, especially in firms that require extensive guidance. This is particularly important for companies that operate across multiple sectors and have complex organisational structures.

In fact, banks are considered to be complex compared to non-financial firms (Adams and Mehran, 2012). For example, larger bank boards could be indicative of their intricate organizational structures and mergers and acquisitions (M&A). Pathan and Skully (2010) and Adams and Mehran (2012) observe that bank boards tend to expand after M&A to accommodate additional directors from the acquired or merged financial institution. Bank boards might also expand by adding directors from subsidiaries to enhance information exchange. Similarly, Coles et al.(2008) find that Larger boards of directors are more likely to benefit complex firms, which include those that are diversified, large, or highly leveraged. This is consistent with the recent study by Arnaboldi et al. (2021), they find that gender-diverse bank boards could reduce the frequency of misconduct fines, because women are more risk-averse and ethicality. These arguments suggest that board size may have a positive effect on bank misconduct.

However, larger boards also have disadvantages. Firstly, coordination and communication challenges arise due to the difficulty of scheduling board meetings and achieving consensus, resulting in slower and less efficient decision-making processes (Lipton and Lorsch, 1992; Jensen, 1993). Secondly, board cohesion can be negatively impacted by factors such as a lack of shared purpose, poor communication, and a failure to reach consensus that takes into account the unique perspectives of each director (Lipton and Lorsch, 1992; Jensen, 1993). Thirdly, The likelihood of director free-riding grows as the cost to each individual director for failing to exercise due diligence decreases in line with the size of the board (Lipton and Lorsch, 1992; Jensen, 1993). This view is supported by Adams and Ferreira (2011) who argue that outside directors on the boards of large bank holding companies (BHC) tend to have higher rates of absence at board meetings compared to non-financial firms. This suggests that free-riding may be a prevalent issue on these boards.

In summary, from the perspective of agency theory, larger boards may initially enhance monitoring effectiveness due to the diversity of opinions and expertise, thereby reducing the likelihood of misconduct. However, as board size increases, monitoring efficiency may decline due to coordination challenges, communication barriers, and the potential for directors to engage in free-riding (Jensen, 1993; Lipton and Lorsch, 1992). This decline in monitoring effectiveness may, in turn, elevate the risk of misconduct. From the perspective of resource dependence theory, directors provide valuable resources such as advice, consultation, and access to external networks. Larger boards can strengthen a bank's resource base and improve decision-making and governance (Coles et al., 2008). However, as the board continues to expand, the marginal benefits of adding directors may decrease, and the complexity of managing a larger group may outweigh these advantages, leading to inefficiencies and a higher risk of misconduct. This means that for simple or smaller banks, an increase in board size may bring benefits (reduce misconduct), but for complex or larger banks, an increase in board size

may increase risks (increase misconduct). Therefore, we predict that the relationship between board size and bank misconduct is initially positive but turns negative beyond a certain point.

H1a: Board size is positively associated with bank misconduct.

H1b: Board size is negatively associated with bank misconduct.

H2: The relationship between board size and bank misconduct is nonlinear.

4.4 Methodology

4.4.1 Data and sample construction

Our dataset is derived from a variety of sources. Initially, we selected the top 300 Chinese banks based on two ranking lists: *Brand Finance Banking 500* and *S&P Global Worldwide Bank Ranking*.[10] Afterward, we eliminate the central bank of China, policy banks, and credit unions, as they have distinct regulatory obligations compared to commercial banks. Furthermore, we omit banks with total assets below $1 billion from our sample. By this stage our sample contains 199 Chinese banks.

We then begin to collect data on board characteristics from CSMAR for the period 2009 to 2020, but due to the incomplete CSMAR database, we manually collect missing board-related data from bank annual reports.[11] Next, we obtain financial data from CSMAR and BankFocus databases. Bank misconduct data is collected from CnOpenData, which covers all the contents of the administrative penalty decisions published on the official website of the China Banking and Insurance Regulatory Commission (CBIRC), including the punished bank name, the cause of the case, the basis, the penalty decision, the name of the institution that issued the penalty, the fine amount, and the fine date.[12] At this stage, we remove banks from our analysis that have missing data on board size, and we further exclude those banks that have fewer than three observations across the sample period. This leaves us a final sample of 110 Chinese banks, which covers more than 90% of the total assets of Chinese commercial banks. Among the 110

10 Brand Finance Banking 500 is the 500 most valuable and strongest banking brands in the world. S&P Global Worldwide Bank Ranking is sorted by bank total assets and can be filtered by country.

11 As a prominent financial data provider in China, the CSMAR database boasts extensive data on the banking industry in the country.

12 CnOpenData is a comprehensive data platform covering multiple disciplines such as economics, law, and humanities. It not only provides continuous data services to many universities and famous scholars in China, but has also been selected into the Princeton Library's "Data from China" series.

Chinese banks, we have all 6 state-owned commercial banks, 11 joint-stock commercial banks, 24 rural commercial banks and 69 urban commercial banks.

The selection of large banks for this study is well-founded due to their substantial influence on the Chinese banking sector and their pivotal role within the Chinese economy. Large banks control the majority of banking assets in China, making them crucial to the stability and performance of the entire financial system (Lin and Zhang, 2009). Given their market dominance and the availability of comprehensive data, large banks offer an in-depth perspective on the outcomes of bank governance reform and the overall status of the Chinese banking sector.

4.4.2 Variable measurements

4.4.2.1 Dependent variable: bank misconduct

In contrast to western countries that have numerous banking regulatory authorities (Ferrés and Marcet, 2021; Arnaboldi er al., 2021), China has a relatively limited number of regulatory authorities. Prior to 2023, the China Banking and Insurance Regulatory Commission (CBIRC) was primarily responsible for imposing regulatory penalties on banks. All information about bank misconduct can be found from the administrative penalty information disclosure form issued by the CBIRC.

According to mainstream literature, there are two ways to measure bank misconduct. One way to assess the extent of bank misconduct is by calculating the annual number of misconduct fines a bank receives (Ferrés and Marcet, 2021; Nguyen et al., 2016). The second way is to use the dummy variables (Arnaboldi er al., 2021). In this paper, we use the number of misconduct fines to test our hypotheses. We define the dependent variable Fine is the number of misconduct fines received by a bank in a specific year. Fine is calculated as the natural logarithm of one plus the number of misconduct fines.

4.4.2.2 Independent variable and control variables

In this paper, we use board size as our independent variable. Board size is defined as the number of directors serving on bank board. We also include a series of control variables that have been used in prior studies (e.g., Liang et al., 2013; Arnaboldi, 2021), including bank and board characteristics.

Bank specific controls such as bank size, bank age, return on assets (ROA), leverage and capital adequacy ratio (CAR) are included in the analysis. Bigger banks are more likely to face fines, and this is due to their size and complexity. This can make it harder for the board to prevent misconduct effectively (Arnaboldi et al., 2021). Bank size is measured by the natural logarithm of the total assets at the end of the fiscal year. Bank age is measured as the number of years since the establishment of the bank. Companies with better performance may have more financial resources to reduce risk and avoid fraud (Clark and Hebb, 2005). Return on assets is measured as net income divided by total assets. Leverage increases the business risk of a company, measured as dividing fully loaded Tier 1 capital as a percent of its total exposure. Total exposure is the sum of on-balance sheet and off-balance sheet exposures. We also include core bank regulatory indicators as control variables (Wu and Shen, 2013). Capital adequacy ratio measured as net capital divided by risk weighted assets.

Corporate board characteristics can also affect firms' CSR (Oh et al., 2017). A higher proportion of independent directors on the board improves monitoring capacity and external legitimacy, which will lead to better CSR performance. The proportion of independent directors is the percentage of independent directors on the board. Gender diversity within boards plays a critical role in influencing corporate outcomes, particularly in relation to the essential functions of the board (Terjesen et al., 2009; Gul et al., 2011). Gender calculated as the percentage of female directors on the board. Directors with oversea experience can gain

valuable international exposure and a comprehensive understanding of international responsibilities, including communication skills (Liao et al., 2018). Oversea calculated as the percentage of directors who have overseas study or working background on the board. Detailed definitions of all the variables are provided in Appendix 2.

4.4.3 Regression model

Based on Nguyen et al. (2016) and Arnaboldi et al. (2021), we offer the following lead-lag panel regression model to test our three hypotheses. This is done to solve potential reverse causality problems. If we study the immediate relationship between board size and ownership, these problems may arise.

$$\begin{aligned} Fine_{i,t} = {} & \beta_0 + \beta_1 Boardsize_{i,t-1} + \beta_2 Boardsize^2{}_{i,t-1} + \beta_3 Gender_{i,t-1} \\ & + \beta_4 Independent_{i,t-1} + \beta_5 Oversea_{i,t-1} + \beta_6 Stateownership_{i,t-1} \\ & + \beta_7 Banksize_{i,t-1} + \beta_8 Bankage_{i,t-1} + \beta_9 ROA_{i,t-1} + \beta_{10} LEV_{i,t-1} \\ & + \beta_{11} LIQ_{i,t-1} + \beta_{12} CAR_{i,t-1} + Year\ Fixed\ Effect \\ & + Firm\ Fixed\ Effect + \varepsilon \end{aligned} \quad (1)$$

Where $Fine_{i,t}$ is the natural logarithm of one plus the number of misconduct fines of bank i in year t; $Boardsize_{i,t-1}$ is measured by the natural logarithm of total directors of bank i in year t-1; $Boardsize^2{}_{i,t-1}$ is the square of board size of bank i in year t-1; $Gender_{i,t-1}$ is measured by the percentage of female directors on the board of bank i in year t-1; $Independent_{i,t-1}$ is measured by the percentage of independent directors on the board of bank i in year t-1; $Oversea_{i,t-1}$ is measured by the percentage of directors who has oversea experience on the board of bank i in year t-1; $Stateownership_{i,t-1}$ is a dummy variable that equals 1 for state owned banks and 0 otherwise of bank i in year t-1; $Banksize_{i,t-1}$ is measured by the natural logarithm of total assets of bank i in year t-1; $Bankage_{i,t-1}$ is measured by the number of years since the establishment of the bank i in year t-1; $ROA_{i,t-1}$ is measured by net income over total assets of bank i in year t-1; $LEV_{i,t-1}$ is measured by total debt over assets of bank i in year t-1; $LIQ_{i,t-1}$ is measured by current assets over current liabilities of bank i in year t-1; $CAR_{i,t-1}$ is measured by net capital divided by risk weighted assets of bank i in year t-1.

4.5 Empirical results

4.5.1 Descriptive statistics

Table 4.1 presents descriptive statistics for the variables used in our empirical analyses for board size and bank misconduct. All continuous variables are winsorized at the 1% and 99% levels to mitigate the effects of outliers. The minimum board size is 7 and the maximum board size is 19, indicating that the board size of various banks is quite different. The average board size in our sample is 13.5, which is comparatively smaller than that observed in developed countries. Specifically, Arnaboldi et al. (2021) report an average of 16.1 directors on the boards of 83 publicly listed banks across 21 European Union (EU) countries, based on data collected from 2007 to 2018. This difference highlights potential differences in governance structures and regulatory requirements between our study context and developed European countries, suggesting that board composition and size may differ significantly across different banking systems and regulatory environments. In our sample, about 15% of directors are female, 6% of directors have oversea experience, and 31% of directors are independent.

4.5.2 Baseline empirical results

Table 4.2 presents the main evidence on the relation between board size and bank misconduct. Column 1 and 2 presents the result of the univariate test. The results show a nonlinear relation between board size and bank misconduct, The coefficient on board size square is negative and significant at the 5% level. Column 3 incorporates control variables related to board characteristics, including the presence of female board members, board independence, and directors' overseas experience. The regression coefficient for board size square remains negative and significant at the 5% level. In column 4, we further enhance our model by adding control variables that reflect the banks' characteristics. The regression coefficient for board size square is -1.660, maintaining its significance at the 1% level. These

findings collectively support the hypothesized inverted U-shaped relationship between board size and bank misconduct. In our analysis, the negative and significant coefficient on the squared term of board size suggests that there is a specific point at which the addition of new directors begins to reduce bank misconduct. For our sample banks, the board size is about 10 directors. It is worth noting that this size is considered relatively small in the Chinese banking sector. This finding implies that small boards may lack the diversity and expertise required for effective oversight, leading to inefficiencies. Large boards possess the capacity to allocate additional individuals to oversee and offer guidance on the decisions made by managers. The presence of a greater number of supervisors and advisors either diminishes the authority of managers or at the very least, facilitates the identification of any manipulative actions on their part (Andres and Vallelado, 2008).

4.5.3 Identification strategies

To mitigate endogeneity issues in our analysis of the relationship between board size and bank misconduct, we implement two methodological approaches. First, we use a fixed effects model with bank-specific and year-specific fixed effects. This approach controls for unobserved heterogeneity, which may vary by bank or time, but remains constant for each bank over the study period. By using lagged independent variables related to board characteristics and bank-level controls, we aim to reduce the possibility of reverse causality and omitted variable bias (Dittmann et al., 2010).

Second, we utilize the PSM introduced by Rosenbaum and Rubin (1983) to analyse the impact of board size on bank misconduct. PSM is particularly useful in observational studies where random assignment is not feasible, as it allows for the creation of a quasi-experimental design by matching treated and control units based on their propensity scores, thereby reducing selection bias and making the treatment and control groups more comparable. Firstly, we

calculate the propensity scores via a probit model, selecting year average board size dummy as the dependent variable, while all control variables specified in equation (1) serve as the explanatory variables. Secondly, each bank with an above-average board size (treated group) is matched with a bank that has a below-average board size (control group) based on the closest propensity score. This nearest-neighbour matching is performed without replacement, ensuring that each control bank is used only once, which enhances the comparability of the treated and control groups. This process results in a matched sample with 423 bank-year observations. Finally, we re-estimate equation (1) using the matched sample. The regression results in Table 4.3 show that the coefficient of board size square remain negative and significant at the 1% level. This finding is in line with our baseline regression, and alleviates any potential concerns regarding the influence of unobserved bank characteristics on the results.

4.5.4 Additional tests

We also conduct subgroup analysis to assess the robustness of our findings. We perform the following subgroup analysis: 1) state ownership, 2) top 50 bank competitiveness ranking.

4.5.4.1 State ownership

One of the unique characteristics of Chinese banks is that the government still holds controlling ownership in large banks. For managers, most of them are also nominated and appointed by the state. In addition, state-owned banks have more government resources and politically connected directors (Liang et al., 2013; Boateng et al., 2019). Therefore, there may be differences between state-owned banks and non-state-owned banks in terms of management structure, supervision, and policy objectives. These differences may have an impact on the relationship between board size and misconduct.

We separate the sample by ownership: whether the bank is state-owned. We employ a state ownership dummy variable, a bank is classified as state owned if the largest shareholder is state and greater than 5% of total outstanding shares. If the bank is state owned, then equals one and zero otherwise. The results are shown in the column 1 and column 2 of Table 4.4 suggest that the regression results are much more significant for state-owned banks. For example, the coefficient on board size square in column 1 is 1.425 (negative and significant at the 10% level), while in column 2 is -1.869 (insignificant). The results indicate that after board size reach to a certain point, as the size of the board increases, the incidence of bank misconduct decreases.

In state-owned banks, the board of directors is composed of government officials or government-appointed representatives, who may be more concerned with compliance and risk management to avoid loss of public funds and political consequences (Sun and Zhou, 2021; Xie et al., 2022). Therefore, as board size increases, monitoring and internal controls are likely to increase, thereby reducing bank misconduct. In addition, government involvement may increase the transparency and accountability of bank governance, and state-owned banks may be subject to stricter government supervision and intervention, which may strengthen the impact of board size on bank misconduct (Lin and Zhang, 2009; Jiang et al., 2019).

4.5.4.2 Top 50 bank competitiveness ranking

Empirical results so far suggest that banks in different market environments and market positions have different strategies for facing risks. In a competitive market, banks may be inclined to take on more risk (Boyd and De Nicoló, 2005). Moreover, larger banks tend to derive greater benefits from competition (Tabak et al., 2012). As a result, highly competitive and low-competitive banks may have different governance structures and risk management needs, and thus perform differently.

The bank competitiveness ranking comes from the research report on the competitiveness of China's mainland banking industry released by Tsinghua University's Institute for Global Securities Market. [13] This ranking has the following characteristics: First, the bank competitiveness ranking is stable. If any bank's operating performance does not have any significant changes, its ranking should be quite stable. Secondly, bank competitiveness rankings are extremely sensitive. If bank has any problems in its operation and management, it will definitely be reflected in the ranking. Finally, the bank competitiveness ranking aims to provide financial regulatory authorities with an objective, professional and fair bank operating performance evaluation report, and assist regulatory authorities in improving the efficiency of bank supervision. Therefore, we can use this ranking to divide the sample into two groups according to whether the bank is in the top 50, thus reflecting the differences in governance structure and risk management needs of banks with different market positions, and how they adapt and respond to these needs.

We employ a top50 dummy variable to separate our sample. Top50 dummy equals to 1 if the bank's competitiveness ranking in the top 50, zero otherwise. The results are shown in the column 3 and column 4 of Table 4.4 suggest that the regression results are much more significant for banks that not in top 50. In bank competitiveness rankings, higher-ranked banks have better financial performance, which means that banks may have established effective supervision and incentive mechanisms to reduce agency problems. Banks with low competitiveness need more resources and additional directors to reduce risks and face market challenges. In addition, lower-ranked banks may be more affected by the external environment (such as regulatory policies and market competition), which may prompt them to adapt to these external pressures by expanding their board size.

[13] All the information and data could be found from this website: https://igsm.tsinghua.edu.cn/yjxm/yhpbyj/yjbg/e39503af6a19457fb370e1986763e778.htm

4.6 Conclusions

This study examines the relationship between board size and bank misconduct in the context of emerging economy. Misconduct within the banking sector can have far-reaching consequences, affecting not only individual financial institutions but also the wider banking industry. Significant regulatory fines can compromise the soundness of banks and contribute to systemic risk. Thus, it is crucial to examine how board size can help mitigate such misconduct and bolster financial stability.

Using data from China's banks for 2009-2020, we find an inverted U-shaped relationship between board size and bank misconduct. The results suggest that the addition of more directors is expected to enhance the monitoring and advisory functions, strengthen governance, and lead to reduce bank misconduct risk (Nguyen et al., 2016). Furthermore, our findings suggest that state-owned banks may be more effective in reducing misconduct when additional directors are appointed. This can be attributed to the distinct management framework, supervisory practices, and policy objectives that distinguish state-owned banks from non-state-owned banks.

The research presented in this paper demonstrates that the role of boards in the risk management of banks is significant. This finding also has important policy implications. Specifically, it highlights the necessity of implementing a robust corporate governance system within the Chinese banking sector as the banks undergo a major transformation into modern, market-oriented financial institutions.

List of Tables

Table 4.1 Summary Statistics

Variable	*N*	*Mean*	*Sd*	*Min*	*Max*
Fine	637	1.110	1.304	0	4.787
Board size	637	13.575	2.521	7.000	19.000
Ln(Board size)	637	2.590	0.197	1.946	2.944
Gender	637	0.152	0.0870	0	0.400
Independent	637	0.311	0.0790	0.133	0.462
Oversea	637	0.0670	0.109	0	0.421
Bank age	637	18.49	13.91	2	101
Bank size	637	12.99	1.646	10.41	16.96
Independent director	637	13.15	1.692	10.45	18.55
ROA	637	0.991	0.345	0.165	2.158
Leverage	637	7.067	1.366	4.173	10.69
CAR	637	13.15	1.692	10.45	18.55

This table reports the summary statistics of key variables in this research.

Table 4.2 Board size and bank misconduct

Dependent variable	*Fine*			
	(1)	(2)	(3)	(4)
Board size	-0.594***	7.425**	7.632**	7.680**
	(0.217)	(3.177)	(3.202)	(3.168)
Board size square		-1.612**	-1.655**	-1.660***
		(0.637)	(0.641)	(0.635)
Gender			-0.071	0.094
			(0.446)	(0.444)
Independent director			-0.423	-0.281
			(0.602)	(0.593)
Oversea			-0.901	-0.961*
			(0.579)	(0.570)
State ownership				0.178*
				(0.103)
Bank size				-0.197
				(0.194)
Bank age				-0.049
				(0.086)
CAR				0.048*
				(0.027)
ROA				0.151
				(0.145)
Leverage				0.067*
				(0.039)
_cons	1.675***	-8.184**	-8.263**	-6.749
	(0.584)	(3.941)	(3.987)	(4.678)
N	637.000	637.000	637.000	637.000
R-square	0.486	0.492	0.495	0.522
Entity Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes

This table reports the baseline results of the impact of board size on bank misconduct in the sample period of 2009-2020. Variable definitions are provided in the appendix 2. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 4.3 Board size and bank misconduct: PSM analysis

Dependent variable	*Fine*
	(1)
Board size	12.614**
	(4.975)
Board size square	-2.658***
	(0.971)
Gender	-0.165
	(0.611)
Independent director	-0.253
	(0.804)
Oversea	-0.503
	(0.689)
State ownership	0.161
	(0.121)
Bank size	-0.160
	(0.290)
Bank age	0.024
	(0.098)
CAR	0.014
	(0.039)
ROA	0.150
	(0.230)
Leverage	0.081
	(0.058)
_cons	-13.628*
	(7.392)
N	423.000
R-square	0.608
Entity Fixed Effect	Yes
Year Fixed Effect	Yes

This table reports the regression results using a PSM procedure. Variable definitions are provided in the appendix 2. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

Table 4 Board size and bank misconduct: Cross-sectional analysis

Dependent variable	*Fine*			
	State	*Non state*	*In top50*	*Not in top50*
	(1)	(2)	(5)	(6)
Board size	6.501	9.040	3.422	8.235*
	(4.071)	(5.902)	(4.225)	(4.602)
Board size square	-1.425*	-1.869	-0.782	-1.767*
	(0.826)	(1.155)	(0.839)	(0.931)
Gender	-0.106	-0.118	-0.249	1.110*
	(0.559)	(0.839)	(0.577)	(0.626)
Independent director	-0.472	-1.046	-0.398	-0.082
	(0.752)	(1.150)	(0.803)	(0.799)
Oversea	-1.015	0.634	-0.292	-2.789***
	(0.779)	(1.047)	(0.684)	(0.939)
Bank size	-0.438	-0.055	-0.382	0.281
	(0.288)	(0.407)	(0.306)	(0.253)
Bank age	-0.016	0.189***	0.030	-0.449*
	(0.088)	(0.072)	(0.088)	(0.251)
CAR	0.036	0.060	0.060	-0.032
	(0.037)	(0.043)	(0.043)	(0.034)
ROA	0.246	0.316	-0.289	-0.022
	(0.191)	(0.265)	(0.368)	(0.155)
Leverage	0.039	0.017	0.105	0.096**
	(0.053)	(0.069)	(0.073)	(0.045)
State ownership			0.121	0.097
			(0.156)	(0.132)
_cons	-2.227	-13.727*	0.405	-9.337
	(6.422)	(7.648)	(6.953)	(6.720)
N	410.000	227.000	319.000	318.000
R-square	0.544	0.470	0.699	0.329
Entity Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes

This table reports the regression results using subsamples split by bank characteristics. State is defined as whether the bank is state owned. Top50 is defined as whether the bank is in the top 50 bank competitive rank in China. Variable definitions are provided in the appendix 2. All continuous independent variables are winsorized at the 1% and 99% levels. Standard errors are in parentheses. *, **, and *** denote the 10%, 5%, and 1% significance levels, respectively.

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Appendix

1. Chinese Financial Administrative Penalty Related Documents

Release date	Host Department	Relevant policies or law
1996	National People's Congress (NPC)	Administrative Punishment Law of the People's Republic of China
2003	NPC	Banking Supervision Law of the People's Republic of China
2003	NPC	Commercial Bank Law of the People's Republic of China
2004	China Banking Regulatory Commission (CBRC)	Administrative Punishment Measures of the China Banking Regulatory Commission (2004)
2007	CBRC	Administrative Punishment Measures of the China Banking Regulatory Commission (2007)
2013	CBRC	Measures for the Administration of Qualifications of Directors (Councillors) and Senior Managers of Banking Financial Institutions
2015	CBRC	Administrative Punishment Measures of the China Banking Regulatory Commission (2015)
2020	China Banking and Insurance Regulatory Commission (CBIRC)	Administrative Punishment Measures of the China Banking and Insurance Regulatory Commission

2. Variable definition

Variable	Definition	Source
Fine	The natural logarithm of one plus the number of misconduct fines of bank i at the end of year t.	CnOpenData
Board size	The natural logarithm of directors serving on the board of bank i at the end of year t-1.	CSMAR and annual report
Gender	The percentage of female directors on the board of bank i at the end of year t-1.	CSMAR and annual report
Oversea	The percentage of oversea experience directors on the board of bank i at the end of year t-1.	CSMAR and annual report
Independent	The percentage of independent directors on the board of bank i at the end of year t-1.	CSMAR and annual report
State ownership	Dummy = 1 if the largest shareholder is state and greater than 5% of total outstanding shares of bank i at the end of year t-1.	CSMAR and annual report
Bank size	The natural logarithm of total assets of bank i at the end of year t-1.	BankFocus
Bank age	The number of years since the establishment of bank i at the end of year t-1.	CSMAR
ROA	Return on assets (net income / total assets) of bank i at the end of year t-1.	BankFocus

Leverage	Leverage for bank i, measured as Tier 1 capital as a percent of its total exposure at the end of year t-1.	BankFocus
CAR	Capital adequacy ratio: net capital divided by risk weighted assets of bank i at the end of year t-1.	BankFocus

Chapter 5: Conclusions

In recent years, China's banking industry has undergone several major changes, with ownership reform being the most far-reaching. In the unique regulatory, economic and cultural context of China, the relationship between banks' ownership structure, board of directors and corporate social responsibility (CSR) shows unique characteristics. Using data of 110 Chinese banks from 2009 to 2020, this study aims to explore the impact of different ownership structures on banks' CSR disclosure, the role of independent directors' reputation incentives on CSR disclosure, and analyse the relationship between board size and bank misconduct.

The results show that foreign ownership has a positive impact on the CSR disclosure. After the entry of foreign capital, it not only brought new management strategies, but also provided technical support to domestic banks in non-interest activities, improving the organizational structure and management level of banks (Cheng et al., 2020). In addition, foreign shareholding has a more significant positive impact on CSR in economically developed regions and provinces with higher government transparency, indicating that in these regions, foreign capital has promoted the development of CSR through cooperation with local banks. Moreover, our study also found that the relationship between state ownership and the CSR disclosure is more complex. Overall, state-owned shareholding has no significant impact on CSR, but in regions with lower government transparency, state-owned shareholding has a negative impact on CSR. This may be because state-owned banks are protected by the government in these regions and lack market competition pressure, resulting in their insufficient investment in CSR.

In addition, our study also shows that the reputation incentive of independent directors plays an important role in improving the CSR disclosure. In particular, in economically developed regions and state-owned banks, the positive impact of independent directors' reputation incentives on CSR is more obvious. This shows that independent directors, by improving their own reputation, not only contribute to the development of their personal careers, but also

promote the performance of banks in CSR. Furthermore, research on board size and bank misconduct found an inverted U-shaped relationship between the two. A moderate increase in board size can enhance monitoring and advisory functions, thereby reducing the occurrence of misconduct. However, when the size of the board exceeds a certain limit, the governance effect may decline, and the risk of misconduct may increase.

Our study contributes to the existing literature in several aspects. First, our study fills the gap in the impact of ownership structure on CSR activities in the Chinese banking industry, which has a unique economic and regulatory environment. By analysing the different effects of foreign, state-owned and private shareholdings on CSR, this study provides a new perspective for understanding how the banking industry can optimize CSR strategies through ownership structure.

Second, this study is the first to empirically test the role of independent directors' reputation incentives in promoting CSR disclosure, especially in the context of the Chinese banking industry. Existing studies have mostly focused on traditional board characteristics such as independence or diversity (Jamali et al. 2008; Rao and Tilt, 2016), while this study expands the theoretical boundaries of the field of corporate governance by introducing a new factor of reputation incentives.

Third, this study develops a new CSR index based on the social responsibility guidelines issued by the China Banking Association, covering economic, social and environmental aspects. This index provides a more accurate tool for measuring the CSR performance of the Chinese banking industry, addressing the limitations of existing studies that rely on broader ESG scores or indices (Dam and Scholtens, 2012; Jizi et al., 2014; Khan et al., 2013).

Finally, our study reveals an inverted U-shaped relationship between board size and bank misconduct, and proposes the view that increasing board size may reduce misconduct to a certain extent. This finding has important policy implications for China's banking sector, which

is undergoing modernization and market-oriented transformation, and highlights the key factors in promoting an effective corporate governance system.

Overall, this study explores the impact of ownership structure, independent directors' reputation incentives, and board size on bank CSR and misconduct by analysing the unique background and characteristics of China's banking industry. These findings not only provide a new theoretical perspective on corporate governance in China's banking industry, but also provide useful inspiration for policymakers and regulators, emphasizing the importance of establishing an effective governance mechanism in the process of promoting modernization and market-oriented transformation of the banking industry.