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Article

# Antecedent Configurations of ESG Disclosure: Evidence from the Banking Sector in China

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Abstract: This study examines the complex joint effect of firm and board characteristics on environmental, social, and governance (ESG) disclosure by Chinese listed banks, viewed from a configurational perspective. By utilizing fuzzy-set qualitative comparative analysis (fsQCA) on a sample of 33 Chinese listed banks from 2020, we obtained results that explain some of the inconsistent findings in the current literature and suggest that four specific configurations of firm and board characteristics are equally conducive to high levels of ESG disclosure. Specifically, bank attributes (i.e., size, state ownership, and cross-listing) are the most salient aspects of promoting ESG disclosure, but the final effect relies on a combination of these attributes and other board characteristics (i.e., board size, independence, gender diversity, and a corporate social responsibility committee). We demonstrate the significance of employing configurational thinking to evaluate corporate governance in relation to ESG disclosure. Our findings indicate that the connection between board characteristics and high levels of ESG disclosure varies according to bank attributes.

Keywords: ESG disclosure; firm characteristics; board characteristics; fsQCA; Chinese listed banks



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# 1. Introduction

ESG responsibilities have emerged as crucial concerns in recent decades. Increasingly, various stakeholders are eager to find out about companies' ESG practices through public ESG disclosure [1]. To this end, relevant policies and legislation have been implemented to guarantee stakeholders' access to vital information for evaluating companies' ESG practices. For instance, the European Union Corporate Sustainability Reporting Directive (2022/2464/EU) came into effect on 5 January 2023, requiring around 50,000 companies in the EU to disclose information on their ESG practices (see https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting\_en (accessed on 5 January 2023)). However, ESG disclosure remains voluntary in some developing countries. Nevertheless, many companies actively publish ESG reports and use disclosure as a business strategy, in order to gain organizational legitimacy and fulfill the expectations of their various stakeholders [2].

Still, ESG disclosure varies across different firms. Previous empirical research has investigated various determinants of ESG disclosure [3–6], with firm-level characteristics emerging as the primary variables responsible for discrepancies in ESG disclosure [7,8]. The body of research on corporate governance (CG), especially board characteristics and ESG disclosure, has grown rapidly in recent years [9–13]. Among the characteristics scrutinized by these studies, board size, independence, gender diversity, and a firm's other visible attributes (e.g., firm size, state ownership, and cross-listing) are widely discussed as determinants of ESG disclosure, but the findings remain inconsistent. According to Cuadrado-Ballesteros et al. [14], the contrasting results could be caused by the use of

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symmetric methods that only examine the net impact of either a single firm or board characteristic on ESG disclosure. To resolve such linear correlations, it is advisable to utilize fsQCA since this novel methodology considers the intricate interplay among antecedents and asymmetrical relationships [15,16]. In accordance with the work of Cucari [17], more and more scholars are endorsing the application of fsQCA in CG and ESG research. For instance, some studies utilize fsQCA to explore different corporate governance configurations that lead firms to follow better ESG practices [14,18]. Nevertheless, the role of corporate social responsibility (CSR) committees does not receive much attention. Additionally, the samples used are concentrated in developed countries and non-financial industries. However, the financial sector plays a vital role in driving ESG practices through financing sustainable projects and engaging with companies on ESG issues. This is especially true for developing countries, where banks are the primary source of financing [19]. For example, banks can promote the ESG practices of their supply chain enterprises through ESG-related capital bonds and loans. Given China's ascent as the world's second-largest economy and the substantial environmental pollution that it generates, combined with the social and governance problems that usually characterize emerging markets, investigating ESG disclosure within a Chinese context is, thus, both crucial and urgent. This is particularly relevant as the Chinese government has placed considerable emphasis on advancing ESG improvements in the banking sector over the preceding decade. For instance, the China Banking Regulatory Commission has released documents requiring banks to incorporate elements of ESG into their management systems and strengthen their communication with stakeholders through ESG disclosure [19]. Additionally, regulators place great importance on the role of board members and mandate their active involvement in ESG disclosure. However, ESG practice remains at its nascent stage in China, and little is known about the effect of these regulations. In addition, the mechanisms by which bank attributes and board characteristics influence ESG practices are not yet well understood in the Chinese context. Therefore, analyzing the ESG disclosure practices of the banking sector in China can provide some insights in order to help managers perform better and ultimately contribute to achieving the SDGs.

Therefore, our study attempts to explore the combined effect of firm attributes and board characteristics on ESG disclosure in Chinese listed banks. Namely, our research question is set up as follows: Which configurations of firm attributes and board characteristics can also lead to high ESG disclosure levels? Based on the premise that various combinations of causal factors can bring about a specific result [15], we assert that several possible combinations of firm attributes (e.g., firm size and state ownership) and board characteristics (e.g., board size and independence) can lead to high ESG disclosure levels. In order to realize the research goal, we analyzed a sample of 33 Chinese listed banks in the year 2020, utilizing data from the Bloomberg and China Stock Market Accounting Research (CSMAR) databases. Our fsQCA results illustrate that the level of ESG disclosure is determined by the interactions of firm and board characteristics. We identify four specific configurations of these characteristics that are consistently associated with high ESG disclosure levels. These configurations illustrate various conditions in which bank attributes such as size and cross-listing are most salient to high ESG disclosure levels, whereas board independence (BID) only exerts a weak positive or negative influence on ESG disclosure. Moreover, corporate social responsibility committees (CSRCs) contribute positively to high ESG disclosure levels in large state-owned banks, while board gender diversity (BGD) plays a negative role in most configurations.

Our study, therefore, makes valuable contributions to the existing literature in multiple aspects. First, although the literature concerning the determinants of ESG disclosure is not scarce, our research synthesizes and extends the theory in this field by using fsQCA to examine four distinct configurations of bank attributes and board characteristics that have an equal likelihood of resulting in high levels of ESG disclosure. Therefore, we have shifted our focus from the net effect of firm-level determinants on ESG disclosure to the combinations of firm and board characteristics in order to advance comprehension of the

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complex relationship between CG and ESG disclosure. Second, we highlight the strategic role of the board in promoting ESG disclosure in different kinds of banks. For instance, while state-owned banks may have significant advantages in terms of various resources for achieving high ESG disclosure scores, non-state-owned banks can also attain similar outcomes by adding more directors to their boards. Third, we emphasize the increasingly important role of CSR committees in consulting on and supervising ESG issues and examine their effectiveness versus other characteristics in enhancing ESG disclosure in large Chinese state-owned banks. Fourth, our study addresses the gaps identified in the literature due to its focus on the ESG practices of banks in developed countries. As ESG is still at an early stage in China, these findings provide valuable insights for researchers and regulators in guiding different kinds of banks to strengthen their ESG disclosure practices through varying board compositions.

Section 2 of this paper discusses the pertinent literature, while Section 3 describes the methodology employed. Section 4 outlines an analysis of the results obtained. Finally, Section 5 provides a comprehensive discussion, and Section 6 presents our conclusions, proposes suggestions for potential future topics, and evaluates the limitations of our research.

#### 2. Literature Review

#### 2.1. The Effects of Firm and Board Characteristics on ESG Disclosure

A considerable amount of the literature has been focused on strengthening our comprehension of the factors impacting ESG disclosure [3-6]. However, the conclusions of these studies remain inconsistent. Considering that firm-level attributes are the primary factors accounting for variations in ESG disclosure [7,8], we discuss the visible attributes and board characteristics of the studied firms below. In order to better comprehend the relationship between these firm-level characteristics and ESG disclosure, it is beneficial to investigate relevant theories such as legitimacy theory, the resource-based view, and agency theory. Generally speaking, legitimacy theory illustrates that ESG disclosure is published by firms in order to gain social acceptance and establish legitimacy [2]. Specifically, the resource-based view propounds that firms own diverse resources that can be transformed into distinct capabilities and competitive advantages [20]. Accordingly, firm heterogeneity may result in different levels of ESG disclosure. Additionally, agency theory suggests that effective corporate governance can better supervise and motivate managers to maximize the interests of shareholders and mitigate agency problems [21]. For instance, boards with features such as independent directors and supervision committees can decrease information asymmetries and agency costs by monitoring ESG practices effectively.

Most scholars agree that firm size is a notable antecedent of information disclosure [4,5,22]. Previous studies have found that firm size positively affects ESG reporting [22] since larger firms have more formal ESG reporting structures and greater resource availability than smaller firms [5]. However, Baumann-Pauly et al. [23] suggest that firm size signifies little about the development of ESG implementation. They report that small firms are also strongly engaged in ESG practices and provide transparent ESG information, regarding ESG disclosure as a means of attaining legitimacy and gaining a competitive advantage. Additionally, Nguyen and Dang [24] find that the role of ESG disclosure is becoming more significant in small firms.

State-owned enterprises (SOEs) are required to take on more responsibilities than non-state-owned enterprises. Their inherent political ties enable SOEs to enjoy financial advantages but force them to seek social and strategic objectives alongside financial gains [25]. Indeed, SOEs are generally more active in ESG issues because social pressure prompts them to disclose such information. Conversely, SOEs are found to operate less efficiently and perform less effectively than non-state-owned firms, due to various structural and organizational factors [26]. Furthermore, risk-taking may be increased in these institutions due to higher proportions of state ownership [27]. However, Zhu and Li [22] believe that there is no significant correlation between state ownership and ESG disclosure.

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Cross-listing in the capital market, with its stricter disclosure requirements, may send signals to investors that cross-listed firms will issue high-quality ESG reports [5,7]. However, Del Bosco and Misani [28] point out that the impact of cross-listing on ESG depends on the investor protection mechanisms of listing destinations and find that cross-listing only improves practices concerning social aspects and environmental aspects, having a limited impact on the corporate governance component.

Furthermore, abundant research has highlighted the significant role of governance in ESG [6,13,18,29]. As the board is a cardinal feature of corporate governance, board characteristics gain a great deal of attention due to their critical role in coordinating management priorities with those of external shareholders [13]. Existing studies have examined the impact of board size, gender diversity, independence, and the existence of a board committee on ESG disclosure but have likewise provided only inconsistent findings [6,11,13,14,29,30].

Greater board size improves resource availability and facilitates comprehensive decision-making, increasing the sensitivity of the board to shareholder concerns and ESG participation [13,14]. However, Kassinis and Vafeas [31] suggest that larger boards in companies are associated with increased chances of violating environmental laws and negatively impacting environmental disclosure, while Post et al. [32] indicate that no significant correlation exists between board size and ESG disclosure.

The agency perspective suggests that increased board independence can better meet shareholders' requirements by enabling objective decision-making, as supported by studies indicating that having a greater percentage of independent directors can strengthen the transparency of ESG disclosure [1,11,33,34]. However, Cuadrado-Ballesteros et al. [33] point out that the positive association between board independence and ESG disclosure is weak in family enterprises, owing to the significant effect of family owners and personal ties on independent directors. Similarly, Yu et al. [35] also consider how property ownership and firm size moderate the relationship between incentives for independent director reputation and CSR. Furthermore, Eng and Mak [36] suggest that a negative correlation exists between independent directors and ESG disclosure. Other scholars have also drawn uncertain conclusions [37].

Gender diversity is extensively debated as a prominent board characteristic in relation to social and environmental aspects [30]. However, findings about the effect of increased gender balance on ESG disclosure are also inconsistent. From a resource-based perspective, the human capital of female directors can be seen as a key resource for companies as they are more engaged and diligent in making decisions, thereby bolstering the effectiveness of the board of directors [32]. Furthermore, women directors are found to attach more importance to moral behaviors and long-term goals that positively affect ESG strategies [38]. In contrast, Cucari et al. [11], as well as Husted and Sousa-Filho [39], indicate an inverse correlation between female directors and ESG disclosure. Additionally, De Masi et al. [38] apply the critical mass theory to elucidate the influence of female directors on ESG disclosure, demonstrating that female directors can only improve ESG disclosure when there are more than three of them on the board.

New types of board committees, such as public policy committees and CSR committees, emerged in the 1970s, acting in both supervisory and advisory roles [40]. These committees are accountable for devising and executing CSR strategy and supervising CSR-related activities and are often also known as ethics committees and environmental committees [41]. Stakeholder theory explains the necessity of establishing such board committees [42], and a growing number of researchers are paying attention to the positive effect of these committees on the corresponding disclosures [9,11,29,43]. Nevertheless, CSR committees may be used as window-dressing devices for firms to present their CSR commitment without implementing substantive actions. For instance, Michelon and Parbonetti [6] do not discover a notable correlation between these committees and the transparency of the relevant disclosure.

In summary, several firm- and governance-related characteristics are proposed as impacting factors on ESG disclosure, but there are controversial findings for almost every

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factor. This suggests that some factors can function differently under different conditions and that specific combinations of factors can lead to equivalent high or low levels of ESG disclosure.

#### 2.2. ESG Disclosure in the Banking Sector

In this paper, we assume that ESG activities in financial industries are different from those in non-financial industries and are economically influential. On the one hand, specific initiatives have been put in place that involve the financial industry specifically, confronting it with the challenge of reconciling sustainability and economy [44]. Additionally, the financial industry, particularly the banking sector, can leverage ESG to maximize the financial benefits [8]. For instance, banks can integrate an ESG element into their core business, such as the issuing of ESG-related bonds and loans, thus showcasing their commitment to social responsibility.

In recent years, the banking sector has assumed a progressively more prominent role in ESG implementation, as banks can impact ESG issues both directly and indirectly [8]. On the one hand, banks can carry out ESG activities such as protecting their employees' welfare, advocating diversity, being responsible in their trading, and minimizing operations that damage the environment or society, for instance by reducing their use of paper, air conditioning, electricity, or transportation [45]. On the other hand, banks can also act as catalysts to drive sustainable business practices in other industries, especially among their debtors, by providing loans at a lower interest rate for eco-friendly and social enterprises and offering credit that is conditional on the company's adherence to ESG-related standards [46]. The banking sector, therefore, has a unique power to promote ESG movement because it can not only highlight the banks' own sense of responsibility and establish a positive image for them but also drive other industries to pursue sustainable development through the allocation of credit [47]. Realizing the importance of ESG in the banking sector, global regulators have introduced initiatives that pressure banks to scrutinize ESG issues in their own operation and reporting process. For instance, in 2019, the UNEP Finance Initiative launched its Principles for Responsible Banking (PRB) project. This project aims to ensure that signatory banks' strategies and practices are consistent with the SDGs and the Paris Climate Agreement and to guide banks towards disclosing ESG-related information via six principles and three steps (see https://www.unepfi.org/banking/bankingprinciples/ (accessed on 22 September 2019)).

Currently, both developed and developing countries are taking measures to stimulate their banking sectors in order to improve ESG reporting. Nevertheless, the ESG disclosures of banking sectors in different countries vary in terms of both content and determinants. For example, Harun et al. [48] point out that banks in Malaysia prioritize the disclosure of labor and decent work policies over the disclosure of issues of human rights, while Kılıç and Kuzey [8] indicate that banks in Turkey tend to value issues relating to the environment. Correspondingly, factors influencing banks' ESG disclosure may also be distinct in different countries. In line with the firm-level determinants of ESG disclosure discussed above, banks' visible characteristics (e.g., their size, whether they are state-owned, and their cross-listing status) and board characteristics (e.g., board size, gender diversity, and independence) are generally considered to influence the level of ESG disclosure pursued by banks. To be specific, Kılıç and Kuzey [8] indicate that bank size, ownership dispersion, and listing status significantly contribute to fostering ESG disclosure among Turkish banks, while Lui et al. [45] demonstrate that intense ownership concentration in Malaysian banks exerts a negative influence on ESG disclosure. As for board characteristics, Gurol and Lagasio [49] illustrate the positive effect of board size, gender diversity, and board independence on the ESG disclosure score of banks by examining a sample of 35 European publicly listed banks. Shakil et al. [30] find evidence of the favorable influence of board gender diversity on the integration of ESG practices within US banks. However, Bose et al. [50] demonstrate the lack of a significant relationship between board independence and ESG disclosure in Bangladeshi commercial banks. Birindelli et al. [51] reveal an inSustainability **2023**, 15, 13234 6 of 17

verted U-shaped relationship between female directors and banks' ESG performance. In China, commercial banks have been actively enhancing their ESG disclosure practices in recent years due to growing regulatory requirements and market demands. Despite these improvements, several studies claim that the ownership structure and board governance of Chinese banks can lead to better ESG disclosure [52]. Additionally, none of these studies examine the combined impact of firm-level attributes on banking firms' ESG disclosure from a configurational perspective.

#### 2.3. A Configurational Perspective in CG and ESG Field

A configurational perspective focuses on causal complexity and incorporates features of equifinality and nonlinearity, creating opportunities for diverse combinations of factors that lead to their equivalent outcomes [53]. In this field, QCA has been intentionally created for the objective of conceptualizing and analyzing intricate causality, which considers that various factor configurations may have an equivalent effect on results [15,16]. The fsQCA, one type of QCA, allows us to identify those configurations of firm attributes and board characteristics that are linked to high ESG disclosure levels. In addition, fsQCA is a case-oriented method that enables researchers to use a relatively small and unrepresentative sample [15], which is precisely suited for the context of our research. Based on these benefits, we adopt fsQCA to explore how different configurations of firm attributes and board characteristics affect ESG disclosure scores.

Recently, applying fsQCA in both CG and ESG studies has attracted growing interest among scholars. On the one hand, using fsQCA in CG research can be critical to identifying superior governance mechanisms with different configurations of board characteristics [17]. On the other hand, the application of fsQCA can introduce novel and beneficial enhancements to ESG practices [54]. Additionally, such a new analytical method has the potential to resolve the inconsistent results between CG and ESG, for most of the prior research studies implement symmetric tests to investigate hypotheses without considering the complicated interactions between antecedents [14,18]. Thus, fsQCA helps to examine the combined effects and investigate various causal combinations that produce identical outcomes [55].

However, to the best of our understanding, only a few studies connect CG and ESG practices by utilizing fsQCA. For instance, Cuadrado-Ballesteros et al. [14] suggest that various configurations of firm and board characteristics can result in an equivalent level of ESG performance, drawing upon their analysis of 471 non-financial firms in the United States. More recently, by utilizing fsQCA, Dwekat et al. [18] examined the combined impact of board and audit committee traits on ESG disclosure among the top 69 non-financial European firms. They find that ESG disclosure is an intricate event shaped by different corporate governance configurations. Although these studies have offered significant insights into CG and ESG lines of research through fsQCA, the role of the increasingly prevalent board CSR committees in corporate governance configurations and ESG disclosure remains unexplored. Furthermore, research has now been conducted within the framework of the financial sector in developing countries.

## 3. Methodology

# 3.1. Sample and Data

Our initial sample included all the 42 commercial banks listed on the Shanghai Stock Exchange and Shenzhen Stock Exchange, due to data availability. Currently, only listed banks will issue separate ESG reports regularly; thus, the ESG disclosure data of these Ashare listed banks are relatively freely available. After eliminating those cases with missing data, the final sample contained 33 listed banks with data from the year 2020. As shown in Table 1, the sample banks can be divided into four categories (large state-owned banks, joint-stock banks, urban commercial banks, and rural commercial banks) and these banks disclose their ESG information in three forms (CSR reports, ESG reports, and sustainability reports). To realize the research goal, we collected data from two sources: (i) firm and board characteristics were garnered from the CSMAR database; (ii) ESG disclosure scores were

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obtained from the Bloomberg database. In addition, the official websites of the sampled banks were used as sources of other relevant information. We chose the year 2020 because the China Banking Regulatory Commission enacted its Guidelines on Advancing High-Quality Development of the Banking and Insurance Sectors at the end of 2019 and officially published them at the beginning of 2020, strengthening the importance of ESG disclosure in the banking sector. Furthermore, China's Hong Kong Stock Exchange (HKSE) revised its ESG Reporting Guidelines at the end of 2019, requiring listed companies to implement the principle of "disclose or explain" when disclosing ESG information. This initiative will gradually enhance the transparency of ESG disclosure among all listed banks in China.

Table 1. Sample description.

<b>Bank Category</b>	Number	Bank Name	ESG Disclosure Form (Report Name)	
		Agricultural Bank of China	CSR report	
	6	Bank of China	CSR report	
Large state-owned		Bank of Communications	CSR report	
commercial banks		China Construction Bank	CSR (ESG) report	
		Industrial and Commercial Bank of China	CSR (ESG) report	
		Postal Savings Bank of China	CSR (ESG) report	
	9	China Citic Bank	Sustainability report	
		China Everbright Bank	CSR report	
		China Merchants Bank	Sustainability report	
*		China Minsheng Bank	CSR report and ESG report	
Joint-stock commercial banks		China Zheshang Bank	CSR report	
		Hua Xia Bank	CSR report	
		Industrial Bank	Sustainability report	
		Ping An Bank	Sustainability report	
		Shanghai Pudong Development Bank	CSR report	
	13	Bank of Ningbo	CSR report	
		Bank of Zhengzhou	CSR (ESG) report	
		Bank of Jiangsu	CSR report	
		Bank of Hangzhou	CSR report	
		Bank of Nanjing	CSR report	
		Bank of Beijing	CSR report	
Urban commercial banks		Bank of Shanghai	CSR report	
		Bank of Changsha	CSR report	
		Bank of Chengdu	CSR report	
		Bank of Guiyang	CSR report	
		Bank of Xi'an	CSR report	
		Bank of Qingdao	CSR report	
		Bank of Suzhou	CSR report	
Rural commercial banks	5	Changshu Rural Commercial Bank	CSR report	
		Chongqing Rural Commercial Bank	CSR report	
		Qingdao Rural Commercial Bank	CSR report	
		Rural Commercial Bank of Zhangjiagang	CSR report	
		Zijin Rural Commercial Bank	ESG report	

One of the banks in our sample, Shanghai Pudong Development Bank, pioneered the publication of a CSR report in China back in 2006. However, the CSR report at that time only briefly reviewed the developmental history, social responsibility, and work of the bank, providing what was basically a purely qualitative description. Subsequently, other banks such as China Minsheng Bank and China Merchants Bank also released CSR reports in 2007. These mainly described the operational processes of these banks in terms of social responsibility, without using a unified disclosure framework. As these concepts developed theoretically, the terms used to refer to CSR reports in the banking sector also changed. In 2009, Industrial Bank stated their commitment to further implementing sustainable

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development and reflecting the practice of social responsibility. As such, the bank's CSR report would be officially renamed its sustainability report. Similar phenomena have occurred frequently in recent years. For example, Ping An Bank, Citic Bank, and China Merchants Bank have successively renamed their CSR reports as sustainability reports since 2018. Due to the increasing importance of the ESG concept and its similarity with CSR, some banks have begun to refer to their CSR reports as CSR (ESG) reports or ESG reports since 2020. These contain more quantitative information, and these changes reflect the evolution of the connotations of CSR. In line with theoretical studies, we treat ESG reports, CSR reports, and sustainability reports as sources of ESG disclosure.

#### 3.2. Variables and Measurement

We used ESG disclosure scores from the Bloomberg database that focus on the disclosure level or transparency of companies' ESG information, based on their ESG reports and public official websites. The Bloomberg database gives equal weight to each pillar of ESG and provides an in-depth exploration of ESG issues and sub-issues, covering more than 900 data points on various ESG metrics. For example, the environmental pillar includes issues such as air quality, climate change, GHG emissions management, ecological impact, water management, etc. These issues consist of several sub-issues that aggregate the associated ESG data fields. Additionally, Bloomberg transforms the practical and industry-specific context into ESG scores. The scoring scale spans from 0.1 for companies with limited ESG data disclosure to 100 for those disclosing all the data points collected by Bloomberg, encompassing a broad range of scores. Thus, it has found extensive usage in the literature [4,11,56].

Critical firm and board characteristics were identified from previous studies as the antecedents of ESG practices. According to Ragin [57], in QCA, having a number of conditional variables within the range of 4–7 is appropriate for medium-scale samples (10–40). Hence, we focus on seven important and controversial variables in order to investigate the connection between combinations of these seven conditional variables and the ESG disclosure of listed banks in the year 2020. Bank attributes included bank size, bank state ownership, and bank cross-listing, while board characteristics included board size, independence, gender diversity, and the existence of a CSR committee. Table 2 shows the measurements of these conditional variables.

Table 2. Measurements of the conditional variables.

Conditional Variables	Label	Operational Definition
Bank Size	BAS	The natural logarithm of the total assets of the bank [58]
Bank State Ownership	BSO	A dummy variable that equals 1 if the bank is directly controlled by the state, or 0 otherwise [59]
Bank Cross-listing	BCL	A dummy variable that equals 1 if the bank is simultaneously listed on the other stock exchange, or 0 otherwise [60]
Board Size	BOS	The total number of directors on the company's board [18]
Board Independence	BID	The percentage of independent directors on the board [11]
Board Gender Diversity	BGD	The percentage of female directors on the board [30]
CSR Committee	CSRC	A dummy variable that equals 1 if the bank has a board CSR committee, or 0 otherwise [56]

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# 3.3. Technique: fsQCA

When performing fsQCA, the first step is to transform the original sample data into scores that represent membership in fuzzy sets; this is the calibration procedure used to assign set membership scores to cases and conditions [61]. According to Ragin [57], three breakpoints are usually used to calibrate the variables: 1 (full membership), 0.5 (cross-over point), and 0 (full non-membership). For instance, a membership value of 0.7 indicates a higher inclination toward being inside the defined set rather than outside of it [15]. As is consistent with prior research [55,62], we chose direct methods of calibration to deal with the initial dataset through objective quantile values. Following the lead of prior studies [57], we chose the values of 95%, 50%, and 5% to represent full membership, the crossover point, and full non-membership, respectively. We then completed the calibration process after defining the thresholds using the fsQCA 3.0 software [54]. After calibration, a "truth table" was created for further analysis, where all potential antecedent configurations were reproduced with a degree of consistency. The indicators of consistency and coverage were used to assess which configurations represented sufficient conditions to produce the outcome, as with the coefficient of R-squared and correlations in a symmetric test [63]. Finally, we established a threshold of 0.80 to ensure consistency [57].

#### 4. Results

# 4.1. Descriptive Statistics

Our analysis focused on a sample of data from 2020 regarding 33 Chinese listed banks. An overview of the relevant variables is provided in Table 3. The mean score for ESG disclosure was 41.205 out of 100, which suggests that the average level of ESG disclosure for A-share listed banks is relatively high in China and that most of these banks are willing to disclose higher levels of ESG information. According to the Bloomberg database, the mean value of ESG disclosure for all the A-share listed companies with data (i.e., 1371) in 2020 is 33.850. This indicates that the ESG disclosure practices in the banking sector are better than average. The highest ESG disclosure score (59.320) was achieved by China Merchants Bank, while the lowest score was that of the Qingdao Rural Commercial Bank, at 21.698. The mean values of bank size (BAS) and state ownership (BSO), as shown in Table 3, were 12.352 and 0.182, respectively. There were 6 large state-owned commercial banks and 14 cross-listed banks (BCL). The summary statistics of board characteristics display that the average board size (BOS) was 13 directors, of which about 38.8% were independent board members (BID), although only 15.9% of members were female (BGD). Finally, six of our sample banks established a board CSR committee (CSRC). We can see that the average board independence score is much higher than that of gender diversity. To be specific, nearly half of the members of the sample banks' boards are independent directors, while there are only several female directors or even no female directors in most boards. This indicates that the board compositions of these banks have not focused on gender diversity and that gender inequality in the workplace still exists in China.

**Table 3.** Descriptive statistics.

Obs	Mean	SD	Min	Max
33	41.205	9.400	21.698	59.320
33	12.352	0.681	11.158	13.523
33	0.182	0.392	0	1
33	0.424	0.502	0	1
33	13.333	1.963	9	18
33	0.388	0.052	0.313	0.556
33	0.159	0.101	0	0.400
33	0.182	0.392	0	1
	33 33 33 33 33 33 33 33	33 41.205 33 12.352 33 0.182 33 0.424 33 13.333 33 0.388 33 0.159	33    41.205    9.400      33    12.352    0.681      33    0.182    0.392      33    0.424    0.502      33    13.333    1.963      33    0.388    0.052      33    0.159    0.101	33    41.205    9.400    21.698      33    12.352    0.681    11.158      33    0.182    0.392    0      33    0.424    0.502    0      33    13.333    1.963    9      33    0.388    0.052    0.313      33    0.159    0.101    0

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# 4.2. Fs-QCA Results

Before analyzing the truth table, necessity analysis is required to identify if any specific condition alone can attain a high level of ESG disclosure. When a specific condition must be met for the desired result, it is considered essential and typically requires high consistency thresholds above 0.9 [57]. According to Rihoux and De Meur [64], evaluating the coherence of a condition as a requisite involves addressing the subsequent query: "To what extent is the statement 'the condition is necessary for the outcome' consistent?". Table 4 displays the degree of consistency and the range of coverage across all conditions. The consistency index quantifies the degree to which cases leading to a particular outcome share either a simple or complex condition, while the coverage index assesses how both simple and complex conditions are taken into account when determining a specific outcome [14]. Our results indicate that BCL is a potentially necessary condition for high levels of ESG disclosure. This could be attributed to the strict regulations and specific guidelines that HKSE implements: A+H-share listed banks are under stricter supervision and higher governance standards; thus, they disclose more ESG information. However, BCL alone is not enough to explain high ESG disclosure levels as ESG disclosure is a complex phenomenon in which impacts are generated by the interactions between firm and board characteristics. We, thus, continued the analysis by exploring the antecedent configurations of ESG disclosure.

Table 4. Analysis of the necessary conditions.

	High ESG	Disclosure	Low ESG Disclosure	
Conditions Tested	Consistency	Coverage	Consistency	Coverage
BAS	0.836	0.853	0.405	0.418
~BAS	0.429	0.416	0.857	0.841
BSO	0.785	0.672	0.675	0.584
~BSO	0.514	0.610	0.621	0.745
BCL	0.945	0.681	0.698	0.509
~BCL	0.318	0.510	0.561	0.912
BOS	0.717	0.657	0.608	0.563
~BOS	0.523	0.569	0.630	0.692
BID	0.560	0.611	0.551	0.607
~BID	0.639	0.584	0.646	0.598
BGD	0.588	0.588	0.657	0.664
~BGD	0.665	0.657	0.593	0.592
CSRC	0.796	0.637	0.727	0.588
~CSRC	0.484	0.637	0.551	0.732

Note: The symbol (~) represents the negation of the characteristic.

Various combinations were produced, based on the truth table, so that we could further conduct a sufficiency analysis in order to generate sufficient configurations for each outcome. Table 5 presents four different configurations of firm and board characteristics that lead to high levels of ESG disclosure. According to Fiss [55], core conditions are supported by robust evidence regarding their association with a desired outcome, while peripheral conditions are connected to an outcome based on relatively weaker evidence. For example, BAS, BSO, and BCL are core conditions in configurations 1 and 2 because they have stronger positive impacts on high ESG disclosure levels, while BID is a peripheral condition in all the configurations because it has weaker positive or negative influences on high ESG disclosure levels.

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		Configu	urations	
Conditions	1	2	3	4
BAS	•	•	•	•
BSO	•	•	$\otimes$	$\otimes$
BCL	•	•	•	•
BOS	$\otimes$	•	•	$\otimes$
BID		•	$\otimes$	•
BGD	$\otimes$		$\otimes$	$\otimes$
CSRC	•	•	$\otimes$	$\otimes$
Consistency	0.909	0.872	0.879	0.867
Raw coverage	0.367	0.403	0.310	0.214
Solution coverage	0.556			
Solution consistency		0.0	380	

**Table 5.** Configurations for a high level of ESG disclosure.

Note: lacktriangledown = the presence of a core condition; lacktriangledown = the presence of a peripheral condition; lacktriangledown = the presence of a peripheral condition; lacktriangledown = the presence of a peripheral condition; blank spaces indicate conditions irrelevant to the outcome.

In general, our results show that four configurations of firm and board characteristics are linked to high ESG disclosure levels, with overall solution coverage and consistency at 0.556 and 0.880, respectively. In line with the work of Woodside [61], the acceptable range of overall solution coverage is between 0.25 and 0.65, while the consistency is efficient when it is above 0.74. Contrasting with the generalized results of previous studies, the results indicate that one particular board or firm attribute may have a positive, negative, or neutral effect on ESG disclosure levels. For instance, BID appears in three of four configurations predicting high ESG levels, with positive effects in configurations 2 and 4, negative effects in configuration 3, and no effect in configuration 1, respectively. Similarly, the presence of BSO (i.e., configurations 1 and 2) and the absence of BSO (i.e., configurations 3 and 4) can both contribute positively to high ESG levels. CSRC has a similar effect to BSO as it was only established by large state-owned banks in 2020. In this respect, the governance role of CSRC has been proven to be effective in promoting ESG disclosure practices within large stateowned banks. However, bank size (BAS) and cross-listing (BCL) consistently contribute positively to high ESG disclosure levels, whereas board gender diversity (BGD) seems to impact ESG disclosure negatively in most configurations. Finally, no core condition exists for configuration 4, indicating that high levels of ESG disclosure can also be achieved using a combination of peripheral conditions.

Configuration 1 suggests that large, state-owned, and cross-listed banks with smaller board sizes, fewer female board members, and a CSR committee will have high ESG disclosure levels. Cases corresponding to configuration 1 include the Agricultural Bank of China (ABC), Industrial and Commercial Bank of China (ICBC), Postal Savings Bank of China (PSBC), and China Construction Bank (CCB). Similar to configuration 1, configuration 2 includes large, state-owned, and cross-listed banks, albeit with larger board sizes, a relatively high percentage of independent directors, and the presence of a CSR committee. The Bank of Communications (BCM) and Bank of China (BOC) are included in this configuration. Conversely, state-owned banks are not included in configurations 3 and 4, indicating that non-state-owned banks can also achieve high ESG disclosure levels through certain combinations of other characteristics. In configuration 3, BAS, BCL, and BOS are core conditions that have strong positive influences on ESG disclosure levels, while other board characteristics, especially board gender diversity (BGD), impact ESG disclosure negatively. The China Minsheng Banking and China Merchants Bank fit this configuration. This means that banks with a large size and a cross-listing attribute are necessary to achieve high levels of ESG disclosure since they possess greater capabilities and must meet higher supervision requirements regarding ESG practices. Additionally, non-state-owned banks may enhance their governance in ESG disclosure by augmenting their board with additional directors in order to achieve a comparable level of ESG disclosure to that observed in state-owned

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banks. Nonetheless, attributes alone do not generate results since, in our research, they interacted with each other, relying on a combination of other characteristics. Interestingly, all conditions in configuration 4 are peripheral, meaning that they are only linked to high ESG disclosure levels by comparatively weak evidence. Only China Everbright Bank is included in configuration 4.

Additionally, we performed the two robustness checks that Fiss [55] recommends when using fsQCA, namely, modifying the calibration thresholds and exploring multiple consistency thresholds. The results remained robust.

#### 5. Discussions

This study set out to examine how firm and board characteristics jointly impact ESG disclosure levels from a configurational perspective. Generally, according to the aforementioned results, we found that different antecedent configurations of firm and board characteristics can lead to high levels of ESG disclosure. This finding aligns with the equifinality premise [16], which indicates that the desired outcome is equally achievable using various configurations. Our results corroborate the research of Cuadrado-Ballesteros et al. [14] and Dwekat et al. [18], who indicate that the final effect of a particular firm or board characteristic on ESG practice is influenced by other firm or board characteristics.

Specifically, it is notable that bank attributes (i.e., size, state ownership, and crosslisting) are crucial variables in configurations that demonstrate high ESG disclosure levels. This could be because large, state-owned, and cross-listed banks, especially the six large state-owned banks, are under more pressure to fulfill their social responsibilities and play leading roles in current ESG disclosure practices in China's banking sector. From a resource-based view, it is clear that the resources of large banks, in terms of human capital, allow them to publish better ESG reports. For instance, in comparison to small banks, large banks can more easily use resource-intensive structured management and reporting tools, allowing them to provide more information and data and thus comply with the requirements of ESG policies and rating agencies. In addition, the institutional legacy of state ownership in China acts as an incentive for state-owned banks to give greater consideration to ESG issues. This shows that institutional forces, in the Chinese context, motivate state-owned banks to better serve their stakeholders and act responsibly. In particular, the six large state-owned banks are responsible for implementing national policy guidelines to adjust their operational centrality. For example, the Bank of China, Bank of Communications, and China Construction Bank take the lead in incorporating separate chapters on addressing climate change risks in their ESG disclosures due to the necessity of moving toward carbon neutrality. Last, but not least, cross-listing is proven to be a necessary condition for the achievement of high ESG disclosure levels by banks. In cross-listed firms, ESG practices are regarded as a significant legitimating mechanism for improving their credibility within foreign financial markets [28]. In our sample, nearly half of the banks were listed on both the A- and H-share markets (see Table 1). This means that the banks are visible and must satisfy more requirements, thus increasing the transparency of their ESG disclosures.

Despite the predominant role of bank attributes in ESG disclosure, the ultimate effect stems from other features such as board size, dependence, and whether the firm has established a board CSR committee. High ESG disclosure levels can be affected positively or negatively by the interplay between these board characteristics and the presence or absence of other firm attributes (firm size, state ownership, and cross-listing). In line with previous studies, board size and the establishment of a CSR committee tend to be sufficient characteristics for predicting improved ESG disclosure. For instance, García-Sánchez et al. [65] indicate that greater board size improves resource availability, helping directors to make more comprehensive decisions and facilitate corporate sustainability. Radu and Smaili [56] demonstrate that a specialized board committee related to ESG can not only present the board's concerns about stakeholders' expectations but also exert more pressure on managers to take ESG practices into account and disclose more information, thus

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reducing information asymmetry. Regarding BID, notwithstanding its wide application in management supervision and its solid theoretical foundations, our results indicate that it only has a weak influence on ESG disclosure by Chinese listed banks, either positively or negatively, along with other firm or board characteristics. In particular, configuration 1 shows that BID seems to be of indifferent importance in large state-owned banks, with the presence of a CSRC, smaller BOS, and lower BGD. The most plausible explanation for this is that the independent director possesses additional characteristics beyond his/her independence [18]. For instance, the situation could vary if the dependent director is female or male, on a small or a large board, and other attributes. On the other hand, it may be because the supervisory role of independent directors is substituted by CSRCs, which usually constitute 3–5 board members, with half of them being independent directors.

Additionally, we find that BGD is a special variable since it appears with "negation" or "absence" in most configurations (e.g., configurations 1, 3, and 4) and with "irrelevant" in configuration 2. This suggests that the presence of female directors does not inherently indicate a distinct perspective on ESG issues and that the negative result is related to the involvement of women on the board [11]. Indeed, Chinese listed banks generally have low percentages of female directors (see Table 3); most banks have only one or two female director(s) on their boards. Furthermore, China Minsheng Banking, Bank of Hangzhou, and Bank of Xi'an had no female director on their boards in 2020, which, in turn, reflects the common phenomenon of gender inequality in the workplace in most developing countries.

Finally, it is interesting to find a unique case (China Everbright Bank) in configuration 4. In 2020, China Everbright Bank was a joint-stock commercial bank listed on both the A-and H-share markets, with a board of 12 directors in total, including 6 independent directors (50%), 1 female director, and no CSRC. Based on this balance, BID is the only board characteristic that showed a positive effect on ESG disclosure levels in this configuration. Given that the majority of these independent directors are renowned professors from prestigious universities, one plausible explanation for this phenomenon could be the reputation effect associated with elite academics. Indeed, reputation-based incentives for independent directors significantly influence ESG outcomes in non-state-owned and relatively larger firms [35]. However, their identity and nature can matter as well. As this configuration fits only one bank (China Everbright Bank), we interpret this result with caution, especially with regard to its potential generalizability to other banks in similar situations. Future studies should use a more fine-tuned design and a larger sample size to study this phenomenon.

# 6. Conclusions

Our study examines the combined effect of seven widely discussed but controversial or newly introduced firm and board characteristics (i.e., bank size, state ownership, crosslisting, board size, independence, gender diversity, and a CSR committee) on ESG disclosure within the Chinese banking sector, utilizing a configurational perspective. The results suggest that four configurations of firm and board characteristics can equally contribute to high levels of ESG disclosure. We also find that bank attributes such as size and cross-listing are the most salient factors in these configurations, but that their final impact relies on other crucial bank and board characteristics. In contrast, BID exerts only a weak positive or negative influence on ESG disclosure. Finally, CSRC contributes positively to high ESG disclosure levels, while BGD always exerts a negative effect in most configurations.

These findings have several theoretical and practical implications, as outlined below. Firstly, our research synthesizes and extends theory in this field by identifying the combined effect of firm attributes and board characteristics on the ESG disclosure level from a configurational perspective. The application of fsQCA in this study addresses inconsistent conclusions in the existing literature caused by symmetrical approaches such as regression analysis, which only considers linear relationships among independent variables and outcomes [14,18,54]. Secondly, this study indicates the increasingly important role of a novel type of board committee (i.e., CSRCs) in consulting and supervising ESG issues. In accor-

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dance with previous investigations that emphasize the importance of establishing CSRCs to promote ESG performance [42,56], we observe the beneficial influence of CSRCs on ESG disclosure by Chinese large state-owned banks. Future avenues of research could examine the effectiveness and composition of CSRCs in emerging markets and could also assess the influence of complex configurations of CSRC attributes. Thirdly, unlike the existing research, which focuses on the ESG disclosure practices of non-financial firms operating in developed countries, our study sheds light on ESG disclosure in the Chinese banking sector, an issue that is assuming a significant role in moving society towards a greener and more sustainable future. Given that banks have more influence on ESG disclosure in the Chinese context, regulators and policymakers in China can implement specialized policies aimed at encouraging banks to drive ESG development, not only in the banking sector but also in other industries. In this regard, model banks can formulate their own ESG assessment systems aimed at the enterprises on the capital chain, in order to accelerate the speed and efficiency of ESG practices in China. Additionally, although Chinese banks are capable of attaining high ESG disclosure levels with a low level or even no representation of female directors in the configurations, it is crucial to draw attention to the fact that gender diversity is not effectively integrated within the majority of Chinese firms. Regulators and policymakers in China should reflect on the gender quota acts implemented in developed countries to promote gender equality in a compulsory way.

However, as in most studies, this research also has certain limitations. These limitations offer potential avenues for future research. The fsQCA method itself has been disputed on the grounds of issues related to its calibration. When using fsQCA, the number of optional variables is limited due to the exponential growth of combinations, which may negatively impact reasoning. Future studies performed using this novel method could explore more sophisticated modes of calibration and variable selection so as to broaden the understanding of this methodology. Finally, since Chinese ESG practice is in its infancy, the availability of data on ESG disclosure is also limited. This decreases the number of cases available for study and, thus, limits the generalizability of our findings. Future studies can test these findings using larger samples. It would, therefore, be beneficial to make ESG disclosure data more comprehensively available through various institutional frameworks in order to expand the number of potential samples received from different countries. Future research could also consider different ESG disclosure measures, such as building evaluation systems.

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