An analytical study of internal and external factors influencing greenhouse gas emissions reporting in the Chinese banking sector

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ABSTRACT

This paper utilises Bourdieu’s theory of practice and secondary and interview data to investigate the impact of internal and external factors on the GHG reporting practices of Chinese banks. The paper shows in response to external stimulation; banks utilise measures to boost awareness and modify habitus via internal management reforms towards transparent and reliable GHG disclosures. These changes, in turn, allow the accumulation of social, economic and cultural capital. In addition, the findings reveal shortcomings in conducting internal management reform and external assurance. The paper provides insights into the motivations and changes required to improve the extent and quality of GHG disclosures.

1. Introduction

The rapid transformation of China’s economy has come with a heavy environmental price tag, with China overtaking the US in 2008 to become the highest GHG emitter in the world (Ge et al., 2014). By 2017, not only did China account for approximately 27% of global GHG emissions, but it also faced environmental degradation challenges. These developments inter alia have heightened the Chinese government’s awareness of the importance of developing a low-carbon economy to retain its current economic growth (Ruo et al., 2015). Consequently, various stakeholders now encourage Chinese organisations to identify, evaluate and disclose their activities concerning climate-related issues (Amran et al., 2014) and hence, improve the transparency of such disclosure (Luo et al., 2013).

Although China has committed to fulfilling the Paris Agreement, it currently does not have a specific mandatory GHG reporting regime (Chu et al., 2012; Cui and Song, 2016; Situ and Tilt, 2018). However, the country targets the banking sector through specific climate-related directives as a way of establishing a green finance system (Sustainable Banking Network, 2018; NDRC, 2017; Wu et al., 2020). Through directly allocating resources into low-carbon companies and industries, banks can drive low-carbon transformation throughout the economy (Bowman, 2010). In addition, banks’ GHG disclosures represent an essential mechanism for various stakeholders (e.g., governments, the public and investors) to understand the impact of green finance and the implementation status of green policy (Zheng, 2019). Transparency in GHG-related information disclosures is necessary for banks to reduce information asymmetry to their stakeholders and lower credit risk. In turn, clients are also required to be transparent in their disclosures to avoid hiding climate-related risks from banks (Bai et al., 2014). Consequently, the banking sector’s GHG disclosures can act as exemplars for other sectors and be deployed and leveraged to enhance transparency (Bowman, 2010; International Finance Corporation [IFC], 2017; Nath et al., 2014).

The empirical findings of previous studies have identified the interplay between internal and external factors that drive GHG reporting in China (e.g., Alrazi et al., 2016; Li et al., 2017; Patten et al., 2015; Peng et al., 2015), or internationally (Borghei, 2021; Veite et al., 2020; Mateo-Márquez et al., 2022). Some studies within Journal of Cleaner Production have investigated policy drivers and other enablers (barriers) to lower-carbon production in China (Huang et al., 2022; Peng and Liu, 2016; Bai et al., 2015). However, previous studies neglect the interrelationship...
between internal and external factors, with the effects of such factors on GHG disclosures investigated separately. Further, by empirically examining the association between factors and disclosure directly, limited is known about the mechanisms through which the impact occurs, i.e. organisations’ attitudes towards and subsequent internal adjustments to improve GHG reporting practices in response to external stimuli (Lehman, 2001). In the case of China, this means that we do not know how green finance policy (and other factors) can uplift the current status of GHG reporting by banks. Consequently, how banks can fulfil their roles in driving the low-carbon transformation of the economy remains unexplored.

To address these gaps, the study investigates the following research question:

What are the internal and external factors impacting GHG reporting in the Chinese banking sector?

The study explores the factors that influence GHG disclosures and the internal process of disclosing GHG-related information and how such process changes in response to external factors. Specifically, we investigate how Chinese bank actors’ attitudes and behaviour influence the process of disclosure. Accordingly, the findings of this study provide insights into the incentives for GHG reporting, and the internal adjustments made to achieve the best GHG reporting practices. This is achieved via two stages. First, to identify the internal and external factors and trends over time, a qualitative and quantitative content analysis is conducted of banks’ published reports and corporate websites from 2014 to 2016. Second, to provide insights into banks’ GHG reporting practices, 25 semi-structured in-depth interviews were conducted with an emphasis on how banks make adjustments to the internal procedure of disclosing GHG-related information.

The remainder of this study is structured as follows: the next section explores the status of Chinese GHG disclosures and the banking sector’s role in promoting GHG disclosures. A review of the existing literature relating to the factors and existing accounting theories of GHG reporting is then provided, followed by the methods used. Following that, the findings and a discussion of the interrelationship between the external and internal factors influencing GHG disclosures is presented. Finally, a summary of the main findings and the research implications and limitations is provided.

2. GHG reporting in the Chinese banking sector

The Paris Agreement 2016 represented a watershed moment in global efforts to address climate-related policy, with 189 countries committing to managing the impact of climate change (United Nations Framework Convention on Climate Change [UNFCCC], 2019). As part of this global effort, many countries, such as England, Australia and Singapore, have also established mandatory GHG reporting regimes for GHG-intensive organisations (Rankin et al., 2012). While committing to fulfilling the Paris Agreement, China, as the world’s largest emitter of GHG emissions, currently does not have a specific mandatory GHG reporting regime (Chu et al., 2012; Cui and Song, 2016; Situ and Tilt, 2018).

Rather, China has adopted a more direct strategy in line with its centrally planned economy, which involves top-down policy instruments aimed at enhancing GHG reporting (China Carbon Forum, 2018). The strategy includes the “13th Five-year Plan” (2016–2020), which established a trajectory towards a low-carbon economy, with a view to a 40–45% reduction in emissions target by 2020 (McGregor, 2017). The plan promotes establishing the GHG reporting system and encouraging companies to voluntarily disclose GHG-related information (The State Council of the People’s Republic of China, 2016a). In addition, the plan sets the grand objective of building a green finance system via directing public funds towards low-carbon projects, with Chinese banks developing a series of consistent and comparable methods to rate the green impact of projects (Green Finance Task Force, 2015).

Accordingly, a series of guidelines were developed, including the green credit policy in 2007 launched by the People’s Bank of China and China Banking Regulatory Commission (CBRC), comprehensive guidelines for green credit in 2012 issued by CBRC, and the release of the “Guiding Opinions on Building a Green Financial System” by the central government in 2016 (Sustainable Banking Network, 2018; CBRC, 2012). Under the guidance of these policies, Chinese banks evaluate and allocate loans in accordance with GHG-related risks and mitigation activities (McElwee, 2010). They also disclose relevant information (e.g., green credit rating, the mechanism for green loan allocation) to help investors assess the climate-related impact of projects and guide them towards low-carbon projects (Green Finance Task Force, 2015). It is also anticipated that Chinese banks’ GHG-related disclosure will promote other sectors to disclose climate-related information (Bai et al., 2014; IFC, 2017). Disclosure by other sectors will assist banks in evaluating their GHG performance and mitigation strategies, thereby enhancing these sectors’ green credit rating and the likelihood of receiving green loans (Busch, 2010). Overall, their GHG disclosures can play a significant role in achieving the state’s green financial system and GHG reporting policy.

Besides directly influencing Chinese economic activities (IFC, 2017), the Chinese banking sector competes in the world market as a new economic force, particularly in lending to developing countries (Bai et al., 2014). For instance, Chinese state-owned commercial banks rank in the top four in terms of Tier 1 capital compared with other countries’ banks (The Banker, 2019). The five largest state-owned commercial banks are the dominant players in the Chinese banking sector, accounting for 43% of total loans and 42% of total deposits in 2016 (CBRC, 2016). Consequently, state-owned commercial banks’ lending practices can ensure the most efficient capital in alignment with the government’s climate policy and strategies (Bejkovský, 2016).

3. The influence of internal and external factors on GHG reporting

A review of the literature reveals that several internal and external factors have been found to influence the reporting practices of Chinese companies. Internal factors influencing GHG reporting can be grouped into company performance, environmental performance and governance function. In terms of company performance (firm size and leverage), the majority of previous studies (e.g., Chu et al., 2012; Li et al., 2017; Luo et al., 2013) reveal a positive relationship between firm size and GHG disclosures. However, there exists an unclear relationship between leverage and GHG disclosures, with some reporting either no relationship (Alrazi et al., 2016; Gallego-Alvarez, 2012), negative relationship (Luo et al., 2013; Peng et al., 2015) or a positive relationship (Luo, 2019). In respect to environmental performance, most previous studies (e.g., Gallego-Alvarez, 2012; Luo, 2019; Luo et al., 2013) assert a positive relationship between GHG performance and GHG disclosures. Only a few previous studies have investigated the effect of the governance function (corporate governance, independence, board size and gender diversity) on GHG disclosures, again, with conflicting results (Amran et al., 2014; Peng et al., 2015).

The external factors influencing GHG reporting examined in prior studies can be grouped into three categories: industrial context (industry peer and industry sector), regulatory context (legal enforcement, state ownership, Kyoto Protocol and ETS) and media. Previous studies (e.g., Chu et al., 2012; Peng et al., 2015) show that industry peer and industry sector positively affect GHG disclosures. In response to the regulatory context, a few studies indicate that the Kyoto Protocol and ETS positively affect GHG disclosures. However, there is conflicting evidence regarding the relationship between other regulatory factors (legal enforcement and state ownership) and GHG disclosures (e.g., Chu et al., 2016).
4. Awareness-habitus-capital framework based on Bourdieu’s theory of practice

Practice theory can contextualise business operations within a series of actor activities that help to understand how actors and actions are shaped when incorporating GHG-related issues into management systems (Schatzki, 2001, 2005). For instance, the process of disclosing GHG-related information involves cognition, planning, collecting, interpreting and the disclosure of GHG-related information (Hahn et al., 2015), with Bourdieu’s theory of practice helping to understand this process of GHG disclosure and the relevant rules and activities conducted by individual actors and banks. Bourdieu’s (1977) theory of practice emphasises that GHG reporting decisions are based on organisational actors’ awareness, habitus, and capital. This theory helps to provide a practical insight into organisational actors and their work environment (Everett, 2004; Shenkin and Coulson, 2007).

According to Thompson (1991, p. 12), habitus can be “inculcated, structured, durable, generative and transposable” and involves “a set of dispositions”, which then generate “practices, perceptions, and attitudes”. In terms of “inculcation”, dispositions are acquired through education and training, improving organisational actors’ awareness. For example, the actors can align their interests with organisational GHG-related interests while disclosing GHG-related information. This cognition process fosters the actors’ capacity to create and makes them form the required habitus efficiently.

Concerning “structure”, dispositions are produced in a structured “field” with policies, strategies, and rules to influence organisational actors’ activities and practices. Dispositions are also “durable”, which reflects the difficulty of amending organisational actors’ habitus and their conscious reflection. Finally, they are “generative” and “transposable”, meaning organisational actors generate various practices and expectations in the structured field rather than those in which they are initially obtained. In effect, “habitus” can act as an instrument to enable persons to make a choice among various norms and principles to serve their intentions best (Malsch et al., 2011; Recke, 2011). Accordingly, bank actors’ behaviour can be shaped to fit banks’ GHG-related strategic plans and choices, policies and management through a process of environmental training and management adjustments.

As part of the structured field, organisational actors practice accumulating capital with potential capabilities. Three categories of capital are identified (Bourdieu, 1986, p. 82): (i) “economic capital” which refers to cash and benefits converted into money; (ii) “cultural capital” which refers to resources such as skills and knowledge, representing a field’s cultural competence; and (iii) “social capital” which emphasises relationships and social communication, which entitle organisational actors to share capital mastered by a “field”. Arguably, banks attempt to gain “economic capital”, foster “cultural capital” and promote “social capital” during business operations. When banks integrate GHG-related issues into their business operations, bank actors will perceive the benefits and challenges of doing so, i.e. the capitals. Specifically, they will seek a better solution to maximise the benefits by optimising their processes and the capitals, for example, fostering skilful and experienced employees and improving communications.

Altogether, the works of Bourdieu (1977, 1986, 1990) and Lodhia and Jacobs (2013) reveal that the factors influencing GHG reporting can influence company actors’ habitus in a complicated and particular context. In effect, Bourdieu’s theory of practice builds an inter-linkage between the factors and actors’ reporting practices to explain why and how banks disclose GHG-related information. Therefore, based on the critical elements of Bourdieu’s theory of practice (i.e., awareness, habitus, capital), an Awareness-Habitus-Capital framework (see Fig. 1) is developed to explore the factors influencing GHG disclosure and forms the basis of this study.

This framework helps to explore the factors that influence the process of disclosing GHG information. As shown in Fig. 1, bank actors’ awareness of GHG reporting is represented by “cognition”, which can be boosted by various factors, such as the external environment (e.g., legitimacy, competitiveness), GHG-related training and education, and communication. Actors’ understanding of GHG disclosures helps them to take specific actions to promote GHG reporting, such as making detailed and exhaustive plans, setting up GHG-related strategies, and making adjustments in the internal management system. This understanding also enables the collection, recording and analysis of GHG-related data in a timely and accurate manner to prepare GHG reports. These actions help foster bank employees’ and organisations’ climate-friendly habitus and achieve extensive economic, environmental and social outcomes. They also assist bank actors in seeking capital in relation to GHG-related activities following a consideration of the potential benefits and challenges associated with such activities, which can in turn, influence the nature and extent of GHG disclosures (Adams, 2002).

5. Method

The research involved a case study of the Chinese banking sector. Case studies allow a deep understanding of the primary issues and dynamics in a specific context (Yin, 2003; Hogan and Lodhia, 2011). The case study approach also facilitates an integrated view of the factors influencing GHG reporting and their effect on bank actors’ practices (Azevedo et al., 2011).

Five cases from three state-owned commercial banks (A, B and C) and two joint-stock commercial banks (D and E) were selected for the study. In addition to being the major commercial banks in China (Bian and Deng, 2017; Cui et al., 2018; Tam et al., 2016), the banks in these two categories play a significant role in developing China’s economy and maintaining sustainability (Bai et al., 2014; Berger et al., 2009). Considering generalisability and external validity (Flyvbjerg, 2006), these banks are comparable to a similar sector context internationally for three reasons: (i) they are all world-class financial institutions; (ii) they are leaders in environmental disclosure practices in China; and (iii) their CSR (or sustainability) reports follow the GRI G4-guidelines.

As case studies provide an invaluable method for unearthing evidence involving different sub-methods, including documents, interviews and observations (Gillham, 2006; Yin, 2003), this method was applied in two stages to collect the relevant data. The first stage focused on a content analysis of banks’ published reports and corporate websites. The second stage then verified the findings of the first stage, using semi-structured interviews to gain insight into bank actors’ perspectives (Ahrens, 2008; Shapiro, 1997).
Content analysis of published reports is a useful technique to gain insight into the factors influencing GHG disclosures and to codify the development trend from pre-defined categories (Guthrie and Abeysekera, 2006). In line with the content analysis of previous studies (Guthrie and Abeysekera, 2006; Hogan and Lodhia, 2011), the annual reports, CSR (or sustainability) reports, and corporate websites of each bank (from 2014 to 2016) were analysed in four steps, focusing on (i) the unit of analysis; (ii) systematic data capture; (iii) quantifying changes concerning the extent and quality of GHG reporting during the 2014–2016 reporting year; and (iv) the demonstration of reliability and validity. The annual and CSR (or sustainability) reports were sourced from the bank’s websites.

First, the unit of analysis is the volume (number) of the disclosures with respect to the factors influencing GHG reporting, which is suitable for drawing inferences relating to the importance of these factors for banks (Guthrie and Abeysekera, 2006). Following Hogan and Lodhia (2011), two measures are used: i) the number of paragraphs was counted for each disclosed category, and ii) the proportion of a page was applied for the paragraph’s meaningfulness. Secondly, regarding systematic data capture, the factor frameworks of Adams (2002) and Delmas and Burbano (2011) were used, as they strongly reflect how banks shape their decisions to adopt financial industry climate-related practices. Thirdly, using the number of disclosures, quantitative content analyses were conducted to evaluate the changes in the extent and quality of GHG reporting over 2014–2016. Finally, the reliability and validity of the content analysis was ensured via: i) defining categories of factors, extent and quality of GHG reporting from well-grounded scholar sources; ii) extensive training in coding decision rules, and iii) pilot testing the coding tree using a representative sample across the different coders (Guthrie and Abeysekera, 2006; Guthrie et al., 2004).

Accordingly, data were coded in relation to four categories of factors: “general context (regulatory, social and political context, media)”; “market external context (stakeholder demands, competitive pressure)”; “internal context (compnay characteristics, corporate culture, green commitment, stakeholder engagement)” and “individual psychological context (behaviour, awareness)”. To analyse the extent and quality of GHG reporting, the aspects of disclosures were identified following GRI G4-guidelines and financial sector supplements (GRI, 2015a, 2015b; Hogan and Lodhia, 2011). These aspects were then grouped into the following main categories: the extent of disclosure, including the categories of “GHG-related strategies”, “GHG-related governance”, “climate-related economic performance”, “energy”, “emissions”, “GHG-related product portfolio”, and quality of disclosure including the categories of “external assurance” and “compliance” (see Appendix 1).

5.2. Interviews

Three state-owned and two joint-stock commercial banks in Wuhan Hubei were selected via convenience sampling as these banks have many subsidiaries across various regions of China (Battaglia, 2008). A total of 25 bank actors from the subsidiaries of the five banks were interviewed. They were selected based on a snowball sampling technique (Johnson et al., 1989), starting with bank actors who are most likely to have the desired insights and experiences to share and then relying on their personal contacts within social networks to enlist bank actors with similar backgrounds and interests (Hogan et al., 2014; Sadler et al., 2010). Generally, these interviewees span from junior to senior levels, understood or dealt with climate-related risks and/or arrangements, or were actively involved in preparing, collecting, interpreting and disclosing GHG-related issues.

Semi-structured in-depth interviews were used, as they allow the flexibility to discover “why”, to change the nature and focus of questions to address important aspects relating to each participant (Fylan, 2005; Dunn, 2005) and afford room for “spontaneous descriptions” (Brinkmann, 2014, p. 1008). Twenty-five face-to-face interviews were performed, ranging from 24 to 70 min (see Appendix 2).

Interview questions were developed following the AHC framework (Fig. 1), with Adams’ (2002) interview themes used to identify the following five categories/themes that possibly influence disclosing GHG-related information.

4 2014 was selected as the initial year given that GRI G4-guidelines were updated from GRI G3-guidelines in May 2013 (Lakawaduge and Heenetigala, 2017).

1. Factors of GHG reporting
2. Awareness of GHG reporting
3. GHG reporting practices
4. Effectiveness of GHG reporting
5. Views of the future development of GHG reporting

The data analysis involved transcribing and translating all interview data from Mandarin Chinese into English. The NVivo software package was used to code and analyse the transcriptions. The data was analysed manually and electronically to address validity and reliability concerns. To minimise potential bias, all interview data was open-coded into the primary themes that emerged from participants. Personal impressions were also noted and reviewed against the initial data. Similar and unique themes across multiple participants were identified, noted,
coded, and reconciled (Oke and Gopalakrishnan, 2009). Further, a cross-case analysis aggregated and rearranged the themes to help categorise the factors of GHG reporting and compare participants’ responses within the categories (Azevedo et al., 2011; Oke and Gopalakrishnan, 2009).

6. Research findings

Taking advantage of its theoretical and practical structure, the two-stage case study provides valuable insights into how internal and external factors influence GHG reporting and how banks adjust their internal operations to improve GHG disclosures in response to external influences.

6.1. GHG disclosure via reports and corporate websites

The first stage of the case study involves qualitative and quantitative content analysis. From the perspective of the volume of disclosure, the qualitative content analysis aims to explore the importance of internal and external factors that influence GHG reporting by the banks. From the perspective of the number of disclosures, the quantitative content analysis reveals the changes in the extent and quality of GHG disclosure in the 2014–2016 reporting year.

6.1.1. Qualitative analysis: internal and external factors influencing GHG reporting

Evidence of the internal and external factors influencing GHG reporting was found in the published annual and CSR reports and the corporate websites of the three state-owned (A, B, C) and two joint-stock commercial banks (D, E) from 2014 to 2016. However, the corporate websites were less likely to address these factors, with the website of joint-stock bank E providing no evidence of any relevant factor.

Within “general context”, “regulatory context” appears to be a significant factor influencing GHG disclosures, with emphasis placed on the “13th Five-Year Plan” and national “green credit policy” in the published reports and corporate websites. While not evident in the five banks’ corporate websites, “social context” and “political context” are mentioned in published reports. “Social context” refers to the contribution to society through low-carbon development, and “political context” associates with financial “supply-side structural reform” for green and sustainable development. Only joint-stock bank D and state-owned commercial bank C provided evidence of the influence of media on their corporate websites: “To ensure that green credit is conducted in a disciplined manner, the bank has established a surveillance and reporting system to keep an eye on media relating to companies’ environmental information” (Corporate Website, Bank C, 2014).

In relation to the “market external context”, there is evidence that to meet stakeholder demands, the banks are likely to disclose GHG-related information through various channels over time. Except bank E, the other four banks highlight that improving GHG-related information transparency through multiple channels can help them stand out from the fierce competition in the green finance market.

In terms of the “internal context”, all three state-owned banks emphasise their social responsibilities to develop low-carbon financial businesses in their CSR reports and/or corporate websites. Joint-stock bank D points out the importance of being an Equator Bank and following Equator Principles for “determining, assessing and managing the environmental and social risks involved in the financing projects” (Sustainability Report 2014). Further, it is stated that “Equator Bank and green finance have become the most eye-catching business card of the bank” (Corporate Website, 2014, 2015, 2016), while the bank fulfils its responsibilities as it “incorporates the green low-carbon concept into operation and management to reduce GHG emissions” (Annual report, 2014, p. 120), “improves the internal management” and “promotes communication and interaction with various stakeholders through multiple disclosure channels” (Sustainability report, 2014, 2015, 2016).

In relation to “corporate culture”, three state-owned banks reported the promotion/creation of an environment-friendly atmosphere, while two joint-stock banks emphasised integrating green development into the corporate culture. All five banks indicated that they are likely to make a green commitment to supporting low-carbon development. Further, in terms of “stakeholder engagement”, all five banks promoted communication and cooperation with stakeholders through various disclosure channels.

Concerning the final aspect, “individual psychological context”, three state-owned and one joint-stock (E) commercial bank informed stakeholders of their GHG-related behaviour through annual and CSR reports. However, joint-stock bank D used sustainability reports and corporate websites to inform stakeholders. The reported disclosures included energy efficiency, green office, low-carbon development and/or other environment-friendly activities. The banks also reported how they promoted awareness regarding green development through training programs and knowledge sharing activities.

6.1.2. Quantitative analysis: extent and quality of disclosure

Appendices 3 and 4 summarise the results of the quantitative analysis and show that the overall extent of GHG reporting is relatively low, with the number of aspects disclosed per page for both types of banks below 44% (see Fig. 7). However, there is an increasing trend in the extent of GHG disclosures from 2014 to 2016 (see Figs. 2 and 3).

Figs. 2 and 3 illustrate that the joint-stock commercial bank D disclosed more on GHG-related issues than other banks. Notably, Bank D is the first bank in China to adopt the Equator Principles5 and is the domestic green finance leader.

Figs. 4 and 5 show a significant increase in the quality of GHG disclosures from 2014 to 2016. Interestingly, bank B released higher-quality GHG reports than other banks in 2015 and 2016. From 2014 to 2016, bank B demonstrated an increase in the quality of GHG disclosures, with 12 total aspects in 2016. This situation can be attributed to the fact that bank B discloses a third-party certification for green bonds. However, in terms of the number of paragraphs per page, the quality of bank B’s GHG disclosures appears to be similar to three of the other banks (A, C and D) in 2016. Bank B has the highest total number of pages in the published reports (annual and CSR reports) and corporate

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5 Equator Principles provide an operational guide for banks to evaluate and manage environmental and social risks (The Equator Principles Association, 2019). Equator banks are required to disclose implementation processes and experiences of the principles, thus improving the transparency of banks’ GHG disclosures (The Equator Principles Association, 2014).

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Fig. 2. Total number of paragraphs – Extent.

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websites with GHG-related information (598) followed by banks A (400), C (328) and D (398) (see Appendices 3 and 4). Compared to the other four banks, the quality of Bank E’s disclosures is lowest in terms of the number of paragraphs per page across the three years (0.008, 0.008 and 0.009).

Fig. 6 reveals that from 2014 to 2016, the average extent of joint-stock commercial banks’ GHG disclosures was higher than that of state-owned commercial banks. This result is consistent with the arguments of Chu et al. (2012) and Patten et al. (2015) that Chinese state-owned companies are unlikely to legitimise their activities by using GHG disclosures as they have political legitimacy arising from the government control and protection. Therefore, they do not disclose as much on GHG-related strategies, governance or performance. However, the average quality of state-owned commercial banks’ GHG disclosures, as reflected in assurance and compliance aspects, is slightly higher than that of joint-stock commercial banks (Fig. 7). The average number of paragraphs per page for state-owned commercial banks over the three years was 0.0093, 0.011 and 0.02, while for the joint-stock commercial banks, the averages were 0.009, 0.009 and 0.0145. These results can be attributed to the fact that joint-stock bank D does not perform external auditing on its sustainability reports (see Appendix 4).

Further, state-owned commercial banks comply with more guidelines for disclosing GHG-related information. This situation indicates no rules regarding the Chinese banking sector’s external auditing and reporting guidelines (Qiu, 2017). In addition, it agrees with the finding of Cui et al. (2018) and Wang et al. (2016) that state-owned commercial banks are more likely to respond to national programs and guidelines than joint-stock commercial banks. This is because they are controlled by the state government, which guides and encourages them to issue better GHG-related information.

The overall results show that the extent and quality of the state-owned and joint-stock commercial banks’ GHG reporting are
increasing. However, although the banks have made some achievements in promoting GHG disclosures, an improved understanding of managing the factors that influence GHG disclosures is required.

6.2. The process of GHG disclosure via the interviews

The examination of secondary data does not provide an insight into the process of disclosing GHG-related information. Hence, the interviews can make up for this shortcoming by evaluating bank actors’ views and opinions on the influence of internal and external factors on disclosing GHG-related information.

6.2.1. The external factors influencing GHG disclosures

External factors can influence the process of disclosing GHG-related information, specifically “cognition”, “planning”, “collecting”, “interpreting” and “disclosure” (Hahn et al., 2015). The external factors influencing this process include market-related factors, social context, political/regulatory factors, media, and an environment-friendly culture.

6.2.1.1. Market-related factors. The market-related factors promoting employee awareness of GHG-related issues include stakeholder demands, competitive pressure, and market perceptions. Specifically, as stakeholders pay more attention to climate-related issues, including low-carbon development, environmental protection and energy-saving, banks will release relevant GHG-related information to attract their attention and investments.

Competitive pressure is recognised as a main driver of GHG disclosure: “If banks do not further improve the framework, settings and work environment of the branches, they will lack competitiveness in these aspects, particularly for GHG disclosures” (AP5, Bank A). Therefore, to enhance their competitiveness, banks “should understand the merits of competitors, and then learn from their good disclosure practices to avoid the mistakes they have made” (AP1, Bank A).

Market perception refers to the clients’ responses to green financial products and services. As clients start to express their low-carbon desires, banks will meet these desires by using various channels to advocate green products, such as green bonds and securities: “The businesses related to energy-saving and environmental protection promote a large market and business development potential” (DP2, Bank D).

6.2.1.2. Social context and political/regulatory factors. Social context and political/regulatory factors can also promote awareness of the importance of GHG disclosures. The factors influencing GHG reporting include: national policies, industrial policies, a mandatory reporting regime, political context, supervision context, and international guidelines.

National policies drive banks to achieve green objectives and encourage low-carbon development: “Our bank’s internal system is highly sensitive to the direction of national policies” (CP3, Bank B). These national policies focus on low-carbon development and the transparency of environmental information: “The national credit policy gives priority support to some green, energy-saving and environment-friendly industries” (CP5, Bank C). Similarly, the industrial policy promotes green innovation. It upgrades the industrial structure to achieve low-carbon and sustainable development, thereby influencing GHG disclosures: "GHG disclosures are not only a compulsory requirement of the industry but a compulsory requirement of policies...we should require every company to disclose GHG-related information” (BP5, Bank B).

While a mandatory GHG reporting regime can promote disclosure quality, it remains a controversial topic. For example, Bank A supports such a regime: “Compulsory disclosure can ensure that our data collection has a systematic source” (AP2, Bank A), while Bank B pointed out the negative side of compulsory disclosure: “If we make information disclosure compulsory, our staff will be in a passive state like a spring that does not move unless you press on it. If you do not press on it someday, it will not bounce back. [Therefore], it is not necessary to make the disclosure compulsory” (BP1, Bank B).

Supervision context involves enforcement and supervision by a government-run supervisory department. It is believed that this department will have a positive impact on the quality of GHG disclosures:

“[our bank] requires the companies to disclose GHG-related information. Some companies may falsify numbers to obtain bank loans. [Therefore], it is difficult for us to identify the authenticity of this data. If a supervisory department can be set up to monitor the authenticity of the data that is disclosed by these companies, particularly building a platform for the disclosure, which can ensure the convenience, authenticity and reliability of data”. (AP1, Bank A)

International guidance primarily includes environment-friendly programs of international non-governmental organisations, GRI G4-guidelines and the Equator Principles. One interviewee highlights the effect of the Earth Hour launched by the World Wide Fund for Nature:

“This is not only a global activity, but also shows support for energy-saving and low-carbon life. By conducting this activity, it gives all people a reminder and inspiration. We all have psychological preparation and awareness to resist climate warming” (BP1, Bank B). In addition, GRI G4-guidelines are seen to “make GHG disclosure more systematic and enhance the comparability of GHG-related information” (AP3, Bank A). They also inform users “how to disclose GHG-related information, how to implement, and what information to be disclosed” (BP2, Bank B), and provide “standards that can be used to assess our bank’s qualifications and capabilities” (CP2, Bank C).

6.2.1.3. Media and an environment-friendly culture. The media and an environment-friendly public culture encourage banks to disclose GHG-related information and increase transparency. This is because banks recognise the impacts of positive news in the media on their competitiveness: “These media can expand our bank’s influence and let clients know our bank’s status and role in society. The propaganda of these media can attract potential clients to cooperate with us.” (AP1, Bank A). At the same time, the media contributes to the development of an environment-friendly public culture, leading to increased awareness and demand for GHG information: “Because of the promotion of environmental protection culture, people’s concept began to change and enhance the awareness of the importance of GHG disclosures” (CP4, Bank C).

6.2.2. The internal factors (adjustments) influencing GHG disclosures

In response to these external influences, banks will apply their best effort towards improving GHG disclosures by conducting a series of GHG-related activities. They include enhancing employee awareness of GHG disclosures, implementing a detailed plan for releasing GHG-related information, achieving efficient data collection, interpreting data effectively and accurately, and ensuring the quality of GHG disclosures. In line with Fig. 1, the internal factors are grouped into: awareness, habitus and capital.

6.2.2.1. Awareness. Banks’ awareness of the importance and usefulness of GHG disclosures is susceptible to external influences. In particular, to respond to stakeholder demands, the financial market, the legal environment and national culture, banks have the incentive to enhance employees’ awareness of the importance and usefulness of GHG disclosures. Accordingly, banks aim to improve employee awareness by strengthening climate-related training and promoting an internal communication circle.

Climate-related training aims to give individuals and companies a competitive edge in low-carbon development by improving employees’ awareness and skills regarding preparing GHG reporting, i.e., the ability to make a good plan, collect accurate data, and make a precise interpretation of data. An interviewee from Bank B highlights the importance
of systematic training in GHG-related matters: “Our bank needs to provide systematic training ... If we can carry out a unified training consistent with this [GHG] propaganda, there will be more [employee] beneficiaries” (BP2, Bank B).

The communication circle is a typical feature of Chinese companies, including top-down and bottom-up communication, which assists companies in forming clear and unified plans and goals for GHG reporting. Top-down communication refers to the top-down propaganda and implementation of GHG-related matters and is utilised by both state-owned and joint-stock banks. The benefits of this type of communication include: “maintaining a smooth exchange of GHG-related information with the grassroots level” (BP3, Bank B), and “making relevant policies and [ensuring] GHG-related information [is] transmitted smoothly between employees” (Product Manager 2, Bank D). Bottom-up communication is also crucial as it provides “bottom-up support” (Bank Clerk 1, Bank B) to the process of GHG disclosure, helps “report immature aspects or matters that require support to the head office” (AP1, Bank A), and “encourages staff to engage and understand the details of GHG disclosure” (DP5, Bank D). Overall, this two-way communication model creates a shared understanding among employees about how to implement more appropriate GHG reporting practices to improve GHG disclosures.

6.2.2.2. Habitus. With the increasing awareness of the importance and usefulness of GHG disclosures, banks will make some changes and adjustments to their internal context to improve GHG disclosures. These changes and adjustments will enable bank actors’ activities to move towards implementing the best GHG reporting practices. They vary across state-owned and joint-stock banks in two dimensions: organisational attitude and internal management practices.

6.2.2.2.3. Organisational attitude. The organisational attitude refers to organisations’ awareness, emotion, and behavioural tendencies in regard to GHG-related issues, including their green commitment, corporate culture, internal policy and assurance. It can be shaped and changed to achieve the best GHG reporting practices. Making a green commitment at the top level and throughout the organisation is the first step to promote GHG disclosures. For example, Bank A “propagandised and promoted green and energy-saving office, [and] required [employees] to save resources, energy, electricity and printing” (AP4) while Bank D “takes green finance as a strategic business” (DP5), and Bank C “bears green social responsibility” (CP2).

The green corporate culture is developed to guide employees to better integrate themselves into the process of disclosing GHG-related information. Building a green corporate culture and ethical climate can foster shared values and objectives that bind employees together in a joint effort to promote green development. For example, Bank C formed “a low-carbon and energy-saving corporate culture” (CP3). In contrast, the supportive culture for green development in Bank D centred on “unity and cooperation” (DP2). In turn, such a green corporate culture directly benefited GHG behaviour as it “demonstrated comprehensive solidarity and collaboration”, (CP5, Bank C), and helped “build a mechanism of low-carbon development and changed our awareness and behavour” (AP1, Bank A). Further, this culture led employees to “unconsciously incorporate the green concept into our behaviour in both daily work and lives” (DP2, Bank D), and “combine our interests with our bank’s interests to actively communicate and cooperate with clients” (EP4, Bank E).

Formulating the internal policy and facilitating assurance aim to ensure the quality of GHG disclosures. The internal policy reflects internal decision-makers’ emphasis and actions on improving the transparency and quality of GHG disclosures. For example, in Bank B, top management “make great efforts to disclose GHG-related information, [via] setting up internal policies to monitor the process of disclosing GHG-related information” (BP5). Alternatively, assurance refers to seeking external verification on GHG disclosures. It is seen to have “a strong binding force on companies” (BP3, Bank B) because it “not only exerts a positive effect on the quality of GHG disclosure but also reflects fair, just and open to the public” (CP4, Bank C). The interviewees emphasised the benefits of external assurance, including enhancing the reliability, credibility, completeness, accuracy, and authenticity of GHG-related information, and enhancing public recognition and client confidence.

6.2.2.4. Internal management reform. Internal management reform is an efficient way to implement GHG-related policies, with such reforms helping to enhance the transparency of GHG disclosures. Internal management reforms can improve GHG disclosures through making adjustments to internal management, including environmental management, HRM, financial management and comprehensive management.

Environmental management is established to “manage GHG disclosures, such as conducting in-line or out-line research, focusing on or guiding the measures and implementation” (AP1, Bank A). For example, the two joint-stock commercial banks have standardised their environmental management system (EMS) to help enhance the quality and transparency of GHG reporting, and create desired green financial products, services, facilities, and procedures.

Green HRM practices can improve the level of GHG disclosures through fostering and improving employees’ ability and willingness to disclose GHG information. Specifically, these practices cover top management support, teamwork, employee relations and engagement, rewards, and employee empowerment. Various forms of top management support are observed: “the development of low-carbon application program to share the understanding of the importance of GHG disclosures” (AP2, Bank A), and “a powerful team to develop and update green products and services and disclose this as good news to attract investors” (BP3, Bank B), or the publication of “professional books, such as From Green to Gold (2017) and Green Profits (2018)” (DP3, Bank D).

Teamwork improves work efficiency and assists employees in improving GHG reporting. All five banks demonstrated a positive team spirit in dealing with GHG-related issues, with the benefits provided including helping “employees learn from each other and exchange relevant information” (AP3, Bank A), and “[Dealing with GHG-related issues] via collective efforts and participation” (BP1, Bank B).

Employee relations and engagement focus on building a stable and sound relationship between employees and the company, thereby promoting employees’ commitment and investment in the green development of companies. Specifically, when a good relationship exists, employees will exert effort to enhance GHG disclosures and demonstrate environment-friendly behaviour that positively affects the company’s operation. For example, Bank Clerk 2 in Bank B stated “I communicated with my colleagues in the process of disclosing GHG-related information [and] share with them what I have done well in this aspect, including low-carbon travel, energy-saving and electricity-saving.”

The provision of rewards also encourages employee effort to improve GHG disclosures. They can be explicit, including “reward[s] or punishment mechanisms for implementing environment-friendly policies [e.g., GHG reporting policies]” (AP1, Bank A), and/or involve recognition or “encouragement for good performance in achieving the transparency of GHG disclosures” (EP3, Bank E). Such reward systems help “bind employees’ words and deeds and enhance their consciousness when dealing with GHG disclosures” (BP4, Bank B).

Employee empowerment can also enable employees to deal with GHG reporting creatively and spontaneously. Compared to joint-stock commercial banks, state-owned commercial banks exhibit higher employee empowerment. For example, within Bank A, “employees are actively and freely involved in the management in relation to GHG reporting” (AP5, Bank A) while a clerk in Bank B stated that they “make decisions from the perspective of green, energy-saving, low-carbon and environmental protection, and integrate these concepts into my work” (BP2, Bank B). Such empowerment arouses the employees’ enthusiasm and enhances their accountability with regards to GHG disclosures.
Financial management also influences GHG disclosures through three stages, including project planning, capital allocation and financial supervision. In the first stage, managers will make a business case for the GHG reporting-project, focusing on the improved performance or cost savings resulting from GHG information. Primarily, the case rests on the reduction in operating costs (Bank A), for example, “saving energy and cutting material consumption” (Bank Clerk 3, Bank B), and “efficiency improvement” (Financial Product Manager, Bank E). The second stage focuses on capital allocation, with managers providing specific financial support to deal with GHG reporting. The more financial support is provided, the more likely actors are to be involved in the process of disclosing GHG-related information. For example, Bank A indicates that they “provide financial support and consulting services when dealing with GHG-related information” (AP1, Bank A) while in Bank B, decision-makers “need financial support after making relevant decisions and plans based on GHG information” (BP1, Bank B). In the final stage, financial supervision monitors the materialisation of the promised savings and contributes directly to the quality of GHG disclosures:

“The bank needs to review the report of green projects, including the amount of saving coal after implementing energy-saving renovation. Then, the bank will use this information to calculate [the actual] GHG emissions reduction”. (DP2, Bank D)

Finally, comprehensive management is established to monitor the process of disclosing GHG-related information, ensuring GHG disclosures’ quality. Such management involves checking the implementation status of GHG reporting practices, regularly inspecting and maintaining companies’ fixed assets (e.g., innovative equipment, office supplies) and strengthening green financial services. Interestingly, unlike the joint-stock commercial banks, the state-owned commercial banks have set up a comprehensive management system to be responsible for GHG management.

“The general office conducts a dedicated and responsible review of implementing GHG emission reductions. We will assign an executor to supervise it, as it is within the scope of our responsibilities”. (BP1, Bank B)

“Our bank provides a lot of support when dealing with GHG-related information. [And] we have set up a comprehensive management system for this respect”. (CP4, Bank C)

6.2.2.5. Capital. Bank actors attempt to improve the transparency and quality of GHG reporting and achieve extensive economic, environmental and social benefits through accumulating capital with potential capabilities. The internal factors that can provide capital include perceived benefits, perceived challenges, and green innovation and stakeholder engagement. Integrating GHG reporting practices into business operations, banks need to be aware of the effectiveness of GHG disclosures via evaluating the benefits and challenges associated with such disclosures. The perceived benefits include economic capital arising from “a competitive edge for business development and market share” (AP5, Bank A), and “enriching profit chain and promoting green innovations” (BP1, Bank B). More frequently, GHG disclosures are seen to improve cultural capital due to improved skills and knowledge regarding “obtaining a clear picture of organisations’ practical situations” (EP5, Bank E) and “enhancing the comparability of data” (BP1, Bank B). Gaining social capital is also a critical benefit of GHG disclosures, in particular “strengthening the relationship with stakeholders, enhancing social responsibilities, image and reputation, and improving awareness of client demand and satisfaction” (CP1, Bank C), and “gaining stakeholders’ support” (DP2, Bank D). These benefits motivate banks to adjust their internal procedures to improve GHG disclosures and maximise the benefits.

In contrast, as indicated in the following quotes, challenges comprise technical problems within the process of disclosing, such as “data falsification”, (CP5, Bank C) and the “lack of standardised implementation procedures and replenishment system” (EP4, Bank E). Other challenges include the lack of reinforcement and support from top management, for example, “the lack of emphasis of decision-makers, management reform, insufficient propaganda and different awareness of GHG disclosures” (BP1, Bank B), “insufficient financial support” (CP5, Bank C) and “unspecified policy support and substantive measures” (DP3, Bank D). Interestingly, this directly speaks to different aspects within organisational attitude and internal management reforms as part of habits.

After weighing up the benefits and challenges associated with GHG disclosures, the appropriate way to maximise the capital is to make proper adjustments to the habitus - by taking a stand, laying out policies, formulating strategies and plans of execution, and undertaking initiatives aimed towards establishing a higher level of GHG disclosures.

Green innovation is a vital part of the decision-making process affecting GHG disclosures. As a competitive advantage source, it is reflected in green financial products and services, which can be transferred to economic capital, i.e., revenue and profit. The social capital is promoted via “Increasing client satisfaction, engagement and loyalty” (BP5, Bank B) and “meeting clients’ needs” (DP4, Bank D). Green innovation further reflects outstanding GHG-related performance: “Achieving success in energy-saving and environmental protection” (CP5, Bank C). In turn, this performance can attract positive public attention and recognition via high-quality GHG disclosures.

Finally, GHG disclosures can facilitate stakeholder engagement which generates significant capital. Other stakeholders, including clients, investors, the government and the public, can engage in social communication with the banks by improving their GHG disclosure or sharing their feedback and concerns about the banks’ GHG disclosures. As indicated in the following quotes, high-quality disclosures lead to stakeholder satisfaction (cultural capital) and stimulate their propaganda of the banks’ performance:

“If clients are satisfied with our green products and services, they will propagandise them. This is word-of-mouth marketing” (CP4, Bank C).

“The state government and some other local governments are already involved. Government propaganda can mobilise the enthusiasm of everyone” (DP1, Bank D).

As shown in the following quotes, stakeholder engagement can also provide economic capital, including investment by investors, and loans provided to clients.

“Companies that are involved in environmental protection should participate in the process of disclosing GHG-related information. Their participation helps our bank to provide financial support to them. If the companies’ business grows, we will support them with more capital. Their disclosure also helps us update your relevant reports”. (AP1, Bank A)

“Information that is disclosed by our bank not only influences investors’ judgment on our bank’s overall business direction, but also affects their future investment decisions. If our measures for energy-saving and emission reduction lag behind those of other banks, some investors will reduce investment”. (BP4, Bank B).

6.2.3. Inter-relationships between external and internal factors

In summary, GHG disclosures are influenced by bank actors’ strategic decisions in response to external stimuli. Specifically, due to various external influences (e.g., legitimacy, stakeholder demands), banks start integrating GHG disclosures into their strategic decisions and objectives. Then, to improve GHG disclosures, banks conduct a series of internal adjustments to achieve the best GHG reporting practices.

There is also evidence of an interrelationship between the external and internal factors influencing GHG disclosures. Specifically, banks increase their awareness of the importance and usefulness of GHG
disclosures under external stimuli. Given their enhanced understanding, they then attempt to enhance employee awareness further via training, education and communication channels. The enhanced understanding also guides decision-makers in conducting GHG-related activities to enhance transparency through GHG disclosures. Meanwhile, they also develop green products and services and promote other stakeholder engagement to improve GHG disclosures and achieve economic, environmental and social benefits. Such interrelationships play a vital role in improving GHG disclosures. They can facilitate behaviour aimed at implementing the best GHG reporting practices, achieving good internal management reform, and ensuring smooth communication within and outside the company.

7. Discussion

This study sought to investigate the internal and external factors influencing the process of disclosing GHG-related information. Integrating the results of the content analysis and interviews provides insights into the internal and external factors that influence the process of disclosing GHG-related information. Compared with previous studies, the integrated results explore the factors influencing GHG disclosures from various perspectives, including the external influences, internal habitus and actions shaped by adjustments and changes and social communication, and consideration of the economic benefits and challenges associated with the reforms. This allows us to provide alternative and multiple perspectives to explain the factors influencing GHG disclosures. The integrated results demonstrate that the process of disclosing GHG-related information derives from social and environmental responsibility, and it is a result of inner cognition, adjustment, and action in response to the external environment stimuli. The results help identify the strengths and weaknesses in respect to the adjustments and changes made to the process of GHG disclosure.

The quantitative content analysis indicates the current state of Chinese banks’ GHG disclosures and reveals an increasing trend in the extent and quality of Chinese banks’ GHG disclosures. This rising trend shows that GHG disclosures have gradually become a significant concern for Chinese banks. It also reflects the increasing emphasis of the Chinese government on promoting a systematic GHG disclosure framework. Further, it reveals that Chinese banks have moved towards streamlining the disclosure of GHG-related information by making adjustments and reforms to internal operations.

In line with institutional theory, it is apparent that the national green credit policy has influenced banks to improve their GHG disclosures, forcing each bank to meet such requirements to obtain support (Scott, 2013). Similarly, in line with legitimacy theory, Chinese banks are influenced by specific policies and standards. However, the extent and quality of the five banks’ GHG disclosures remain relatively low, and there is a significant difference between state-owned and joint-stock commercial banks. In particular, the one joint-stock commercial bank that adopts the Equator Principles discloses more GHG-related information than other banks. However, state-owned banks seem to adopt higher-quality disclosure due to external assurance and compliance with relevant GHG standards and guidelines.

GHG disclosures are influenced by external factors, including policies, legislation and the rules released by the government and industry associations, the media and an environment-friendly culture. Given these external influences, banks will be aware of GHG disclosures’ importance and integrate them into their business operations to fulfil their social and environmental responsibilities. In particular, banks can also adopt the Equator Principles to ensure the transparency of clients’ GHG disclosures, which helps financial institutions to minimise the negative impact of climate change when financing and advising projects (The Equator Principles Association, 2019).

Fig. 8 summarises the various external and internal factors that influence the process of disclosing GHG-related information and highlights the interrelationship between external and internal factors. Competitive pressures, market perceptions and social context also encourage banks to enhance their awareness of GHG disclosures and pay attention to social and environmental responsibilities. These external influences help banks understand stakeholders, financial market and society demand trends, guiding banks to shape their awareness, habitus and capital towards transparent and reliable GHG disclosures.

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Fig. 8. Factors influencing GHG reporting.
First, after banks assess the influence of external factors, they attempt to affect and increase their employees’ awareness via climate-related training and communication circles that focus on GHG-related information. This fosters the understanding and skills required for high-quality reporting and provides a two-way feedback mechanism to develop a shared understanding of the best reporting practices.

With the increased awareness of the importance of GHG disclosures, the banks’ strategic GHG-related activities can be adjusted and changed to cope with external factors. In particular, banks will shape organisational attitudes by adopting green commitment, developing a green corporate culture, establishing an internal policy regarding GHG activities, and acquiring external assurance of GHG data. Internal management reform is conducted to ensure the organisational attitude is effectively aligned with stakeholders. The reform encompasses environmental management, HRM practices, financial management, and comprehensive management. Environmental management systems are updated to ensure accurate data collection and monitoring. Financial management also needs to be strengthened and comprehensive management systems adopted to ensure GHG disclosures’ accuracy, comparability and quality (Cohen, 2007).

Employees play an integral role in implementing plans and policies for GHG reporting and collecting and interpreting required data. Consequently, the green reform of HRM plays a crucial role in influencing employee habitus. Ineffective reform of environment-friendly HRM practices may result in low-level GHG disclosures, in terms of extent and quality. Specifically, low awareness and GHG-related skills limit the effectiveness of GHG-related strategies, governance, and lower carbon and GHG-related performance, leading to a limited extent of GHG disclosure. The disclosure quality also suffers as employees are less likely to support external assurance or achieve compliance with external guidelines or standards. Therefore, HRM reform should be made concerning different HRM aspects, including top management support, climate-related training, teamwork, employee relations and engagement, rewards and employee empowerment (Armstrong, 2006; Daily and Huang, 2001; Ngo et al., 2008). Accordingly, it is recommended that Chinese banks make internal adjustments to their HRM system to improve their GHG disclosures.

In terms of capital, there is evidence that the perceived benefits and challenges of GHG reporting, green innovation and other stakeholder engagement can influence the extent and nature of GHG disclosures. An analysis of the perceived benefits and challenges of GHG reporting provides insights into the importance and usefulness of GHG disclosures. GHG reporting is considered to generate significant economic, social, and cultural capital. To maximise such capital banks need to minimise the challenges relating to inadequate organisational attitudes and the lack of internal management reforms. Hence, as part of internal management reforms, banks will improve their extent of disclosure on GHG strategies and carbon performance, and/or improve the quality of disclosure via the adoption of assurance and compliance with relevant external guidelines and standards.

When widely disclosed, green innovation of financial products and services can bring in capital. In particular, banks communicate information about such innovations to the public as good news to obtain economic benefits. Banks should also use GHG disclosure through various channels to strengthen their stakeholder engagement. This involves discussions with stakeholders regarding the banks’ and stakeholder firms’ GHG data and performance and any actions plans to address GHG-related issues. Overall, banks should make internal adjustments and introduce management reform, to improve the extent and quality of GHG disclosures following the analysis of the perceived benefits and challenges of such disclosures, the extent of green innovation and the feedback received from other stakeholders.

While the achievement of low-carbon development is a long-term goal, in the short term the goal of banks is to improve transparency and the quality of GHG disclosures. Understanding the interrelationship between capital and habitus reform assists banks in attaining the most appropriate GHG-related behaviour and practices. Specifically, to optimise cultural capital, appropriate GHG policies, rules, culture, ethical stances and assurance processes (organisational attitude) and HRM reforms (internal management reforms) are adopted to guide employees’ values, skills and knowledge towards implementing the best GHG reporting activities and practices. Suppose economic capital is what banks wish to maximise. In that case, they should focus on financial management and comprehensive management, as these ensure that GHG plans and projects achieve desired real cost savings, revenue enhancements and investment inflows. Alternatively, if banks emphasise social capital, using GHG disclosures to propagandise green products and services or engage with stakeholders is advisable.

The process of disclosing GHG information (from formulating a good and detailed plan, collecting accurate data, making precise interpretations of relevant data, to reporting via relevant channels), is facilitated by awareness and habitus, reinforced via organisational attitude and streamlined via various internal management reforms. GHG disclosures in turn lead to stronger green values and skills by employees, gaining relevant economic resources and enhanced relationships with relevant stakeholders. With these forms of capital, banks have the foundations to move a low-carbon development business model ultimately. Therefore, achieving the short-term goals of GHG disclosures makes long-term goals possible.

8. Conclusion

This research employed a two-stage case study to investigate the internal and external factors influencing the GHG reporting of five Chinese state-owned and joint-stock commercial banks from the perspectives of bank actors’ thoughts and experiences. The findings suggest that, motivated by external influences, bank actors’ GHG disclosure practices mirror the tenets of Bourdieu’s theory of practice. Initially, bank actors can enhance their awareness of the importance and usefulness of GHG disclosures by providing climate-related training and enhancing communication. They then conduct internal adjustments and management reforms to achieve greater transparency and enhanced reliability of GHG disclosures, emphasising environment-friendly HRM reforms to shape organisational and employee attitudes and habitus. Banks seek to maximise economic, environmental and social capital by analysing GHG disclosures’ potential benefits and challenges and promoting green innovation and stakeholder engagement. Underpinned by Bourdieu’s theory of practice, these themes jointly reflect that exploring the external and internal factors influencing GHG disclosures provides a vital insight into why and how banks disclose GHG-related information.

These findings make two main contributions to the literature. First, previous empirical studies (Alrazi et al., 2016; Li et al., 2018; Patten et al., 2015; Peng et al., 2015) have explored factors driving GHG disclosure in a Chinese context, but considering such factors in an isolated and independent manner. This study contributes to this body of literature by exploring the internal and external factors that influence GHG disclosures from a process perspective, considering the external motivation for GHG reporting, and the adjustments and changes made to the internal operations influencing GHG disclosures. Accordingly, the findings provide insights into the bank’s incentives for GHG reporting and how the internal processes influencing GHG disclosures derive from external influences, which in turn shape organisational and individual awareness, habitus and capital. As such, the Awareness-Habitus-Capital framework based on Bourdieu’s theory of practice is a comprehensive framework to facilitate an improved understanding of the why and how of GHG disclosure practices.

Secondly, there is currently a lack of empirical evidence regarding the extent and quality of banks’ GHG disclosure in response to the recent Chinese government’s policies and strategies to promote GHG disclosure transparency. Our findings indicate an increasing trend in the extent and quality of state-owned and joint-stock commercial banks’ GHG disclosures from 2014 to 2016. This trend reflects that the habitus and
attitudes of bank employees have been shaped towards better GHG reporting practices. It can partly be attributed to the government’s efforts in formulating GHG-related policies, including the “13th Five-Year Plan”, the green credit policy and advancing green financial reforms. This points to similar positive effects of the government’s recent carbon and green finance policies found in other studies (Huang et al., 2022; Wu et al., 2020). Nevertheless, the Chinese banks’ experiences reveal that the overall level of their GHG reporting remains relatively low, and disparities exist between the GHG disclosure practices of different banks. This situation is reflected in the discrepancies between state-owned and joint-stock commercial banks in conducting external assurance and internal management reforms. These discrepancies reflect inadequate oversight (government and social supervision) and the lack of a systematic GHG reporting system. As such, this research provides a somewhat varied perspective on the implementation status of the green credit policy and the development status of green finance.

The findings provide practical insight to governments, industrial practitioners and companies, into the current GHG disclosure practices of Chinese banks, thereby assisting them in developing a standardised GHG reporting system. The study provides new insights into the Chinese banking sector’s preparation and role in the transition to a low-carbon future at the national level. In this respect, banks seem well aware of their role and actively use GHG disclosures to motivate investors and clients to improve GHG transparency and adopt the best GHG practices.

Some implications arise from the discrepancies in the extent and quality of disclosures and perceived challenges. In an attempt to overcome the current weaknesses in GHG reporting in the Chinese banking sector, the government can develop a standardised reporting system and platform to enhance the consistency and comparability of GHG reports. Further, the banking sector should participate in the equator principles group and follow the guidelines to achieve greater transparency in GHG disclosures. Banks should also pay greater attention to implementing environment-friendly HRM reforms via training, rewards and empowerment mechanisms whilst formulating and implementing effective policies and rules and advancing the bank’s climate-friendly culture and ethical stance. Further, banks can strengthen the internal monitoring of their GHG-related activities to see whether there is further potential to optimise adjustments already made to the internal management system. Further, they should focus on external assurance as a crucial GHG-related activity that can improve GHG disclosures’ reliability, completeness, and authenticity.

The study relies on a small sample of Chinese banks and demands caution when generalising the findings. In addition, this study is restricted to examining the Chinese banking sector’s GHG disclosures. Accordingly, further research should be undertaken to examine the relationships between these factors and GHG disclosures by conducting a broader-scale survey.

CRediT authorship contribution statement

Rong Bao: Conceptualization, Methodology, Investigation, Formal analysis, Writing – original draft. Binh Bui: Writing – review & editing, Visualization, Supervision. Kevin Baird: Writing – review & editing, Supervision. Hope Ashiabor: Conceptualization, Supervision. Catriona Lavermicocca: Conceptualization, Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that has been used is confidential.

Appendix 1. Categories of the extent and quality of GHG reporting

<table>
<thead>
<tr>
<th>Aspects</th>
<th>Descriptions</th>
</tr>
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<tbody>
<tr>
<td>Extent</td>
<td></td>
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<tr>
<td>GHG-related strategies</td>
<td>Providing organisation’s strategies to address GHG-related issues. Describing GHG-related risks and opportunities.</td>
</tr>
<tr>
<td>GHG-related governance</td>
<td>The highest governance role in dealing with GHG-related issues in various aspects (e.g., interaction with stakeholders, evaluation of performance, risks management).</td>
</tr>
<tr>
<td>Climate-related economic performance</td>
<td>Financial implications, risks and opportunities of climate-related activities.</td>
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<tr>
<td>Energy</td>
<td>Providing energy consumption within/outside the organisation, energy intensity ratio and energy consumption reductions.</td>
</tr>
<tr>
<td>Emissions</td>
<td>Providing Scope 1 (direct), Scope 2 (energy indirect), Scope 3 (other indirect) GHG emissions, GHG emissions intensity ratio and GHG emission reductions.</td>
</tr>
<tr>
<td>GHG-related product portfolio</td>
<td>The processes of designing and delivering financial products/services in line with low-carbon-development (e.g., implementing GHG-related policies, evaluating GHG-related risks, monitoring clients’ commitments and improving staff capabilities).</td>
</tr>
<tr>
<td>Quality</td>
<td></td>
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<tr>
<td>External assurance</td>
<td>Policies and practices relating to seeking external assurance. Providing assurance report or scope and basis of any external assurance.</td>
</tr>
<tr>
<td>Compliance</td>
<td>Compliance with voluntary codes concerning GHG measurement and GHG disclosure.</td>
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</tbody>
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Appendix 2. Details of interviews and interviewees

<table>
<thead>
<tr>
<th>Types of banks</th>
<th>Banks</th>
<th>Participants</th>
<th>Position</th>
<th>Approx. length of interviews (minutes)</th>
</tr>
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<tbody>
<tr>
<td>State-owned commercial banks</td>
<td>A</td>
<td>AP1</td>
<td>Branch President 1</td>
<td>63</td>
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<tr>
<td></td>
<td></td>
<td>AP2</td>
<td>Branch President 2</td>
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<tr>
<td></td>
<td></td>
<td>AP3</td>
<td>Sales Manager</td>
<td>30</td>
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<tr>
<td></td>
<td></td>
<td>AP4</td>
<td>Credit Management Staff</td>
<td>26</td>
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<tr>
<td></td>
<td></td>
<td>AP5</td>
<td>Bank Channel Department Staff</td>
<td>44</td>
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<tr>
<td></td>
<td>B</td>
<td>BP1</td>
<td>Personal Finance Department Manager</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BP2</td>
<td>Bank Clerk 1</td>
<td>28</td>
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<tr>
<td></td>
<td></td>
<td>BP3</td>
<td>Personal Finance Department Account Manager</td>
<td>36</td>
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<tr>
<td></td>
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<td>BP4</td>
<td>Bank Clerk 2</td>
<td>33</td>
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<tr>
<td></td>
<td></td>
<td>BP5</td>
<td>Bank Clerk 3</td>
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<td></td>
<td>C</td>
<td>CP1</td>
<td>Account Manager 1</td>
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</table>

(continued on next page)
### Appendix 3. The quantitative content analysis of the five banks’ published reports and corporate websites

<table>
<thead>
<tr>
<th>Area</th>
<th>C (Non-comment)</th>
<th>B (Non-comment)</th>
<th>A (Non-comment)</th>
<th>D (Non-comment)</th>
<th>E (Non-comment)</th>
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</thead>
<tbody>
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<td>181</td>
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<tr>
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<td>1.0</td>
<td>1.9</td>
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<tr>
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<td>135</td>
<td>139</td>
<td>544</td>
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</tbody>
</table>

**Note:** AR = Annual Report; CSR = CSR Report; CW = Corporate Website; SR = Sustainability Report; Total = Total number of paragraphs; Total pages = Total number of pages of the report/website.
Appendix 4. The quantitative content analysis of the five banks’ published corporate websites

<table>
<thead>
<tr>
<th>Aspects</th>
<th>D (limit-stock)</th>
<th>E (limit-stock)</th>
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</thead>
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<tr>
<td>GHG-related strategies</td>
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<td>8</td>
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<tr>
<td>GHG-related governance</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>Climate-related economic performance</td>
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<td>Energy</td>
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<td>4</td>
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<tr>
<td>Emissions</td>
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<td>5</td>
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<td>GHG-related product portfolio</td>
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<tr>
<td>Total</td>
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<td>2</td>
</tr>
<tr>
<td>Total/Total pages</td>
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<td>75</td>
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<tr>
<td>0</td>
<td>0.05</td>
<td>0</td>
</tr>
</tbody>
</table>
| Note: AR = Annual Report; CSR = CSR Report; CW = Corporate Website; SR = Sustainability Report; Total = Total number of paragraphs; Total pages = Total number of pages of the report/website.


