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The Construction of Two-tier Equity Structure of Joint Stock Companies in China from the Perspective of Green Finance



Abstract: - In this modern era business and changing landscapes, the construction of a two-tier equity structure within Chinese joint stock companies has proved to be a very innovative and augmented strategy. This paper scrutinizes the unorthodox integration of financial architecture and ecological sustainability by evaluation of this structure through the lens of green finance. The interlacing of the principles of environmental responsibility with mainframes of corporate governance enlightens the unique dynamics and outcomes of the two-tier equity model. This study comprehensively analyses and elucidates how this mainframe facilitates the shareholder interests as they align with long-term ecological objectives. This in turn cultivates a promising environment for sustainable development. As we draw onto the theoretical calculations and perspective supplemented with empirical evidences, this research study gives birth to amenable perspectives that the green finance has the potential to transform the Chinese context by shaping the future trajectory of corporate structures. Using a dataset consisting of Chinese publicly traded companies from 2001-2017, this study investigates how a lack of funding has led to a scarcity of environmentally friendly technologies in China. We also investigate how green finance laws help businesses overcome financial hurdles on the road to eco-friendly innovation. It has been observed that a company's capacity for green innovation decreases as its financial constraints grow, and that privately held businesses are at greater danger of this happening than government-owned ones.

Keywords: Green Finance; Joint Stock Companies; Banking; Finance; Equity Structure; Two-Tier

1. Introduction

As the world delves into global environmental challenges, the sustainable development has become indispensable and has gained incomparable leverage across industries and economies. As the statistics claim, China is the world's largest emitter of greenhouse gases and a major role player in the global economy, it has the power to shift paradigms towards sustainability from the forefront. Simultaneously, the Chinese joint stock companies are scrutinized for the evolution of corporate governance mechanisms, particularly with the emergence of a two-tier equity structure. The two-tier equity structure is characterized by its hierarchical division of voting rights and dividend entitlements. It has outcomes of utmost importance for corporate governance and financial sustainability and stability. This paper unveils and discusses this dual-layer equity structure within Chinese joint stock companies and view it specifically through with a focus on its alignment with principles of green finance. By interlinking the spheres of finance and sustainability, this study intends to uncover the underlying dynamics and motivations for the adoption and utilization of such a structure. Moreover, this research intends to explore how this framework will facilitate the fusion of considerations relating to environment into corporate decision-making processes, while cultivating the roots of a more sustainable business ecosystem. The core of this exploration focuses on the concept of green finance which comprises of various financial instruments and mechanisms that are intended to promote investments that are financially sustainable. As we harness the principles of green finance, the Chinese joint stock companies can not only peak their financial performance but they can also contribute to environmental objectives in a larger picture.

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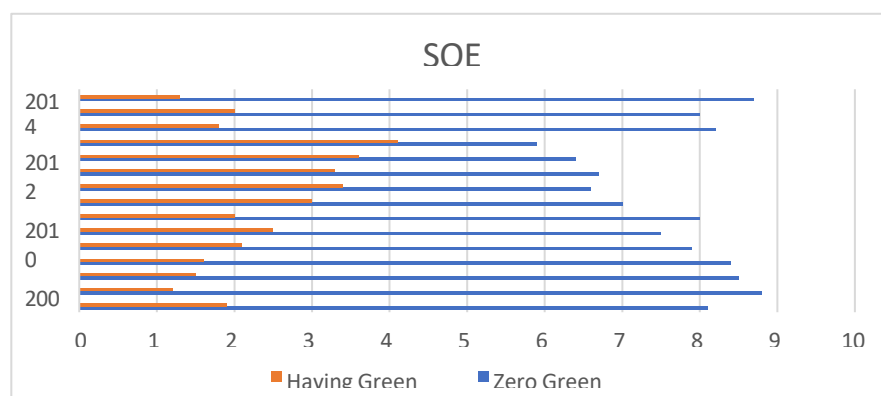
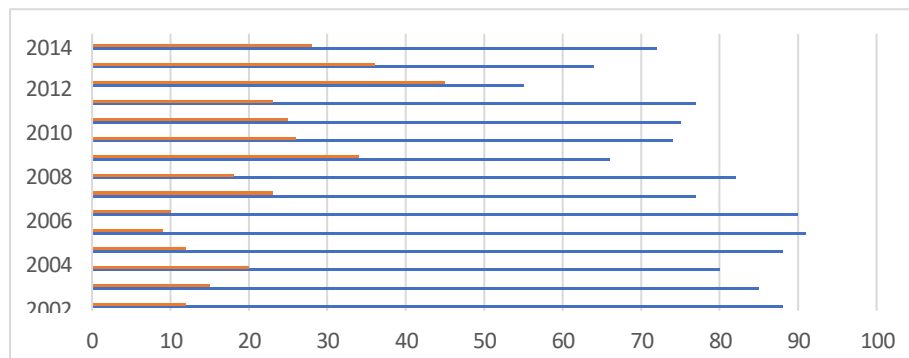
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The incorporation of green finance principles into corporate governance structures, including the two-tier equity model, is an important step towards aligning interests of shareholders with long-term ecological sustainability plans. Amidst the context, this paper facilitates a comprehensive understanding of the construction and the significance of the two-tier equity structure within Chinese joint stock companies from the lens of the green finance. Through a fusion of theoretical analysis which is supplemented by empirical evidence, this paper addresses the primary key questions against the backdrop of the rationale behind the adoption of this structure, the influence it laid on the corporate governance dynamics, and its potential that contributes to the advanced goals of environmental sustainability.

Sustainable development is receiving considerable attention in China. The country has become the most desirable destination in the world for green investment thanks to a boom in investment in environmentally friendly firms. (Wang & Chen, 2023) To meet its goal of becoming carbon neutral by 2060, China has recently pledged to spend heavily in green infrastructure and technologies. Nothing accomplished in the past and nothing planned for the future would have been possible without government support. The Chinese government has devoted a great deal of resources to preventing pollution and halting environmental decline. There were two reports produced in 2007 by China's banking watchdog: "Opinions on Implementing Environmental Protection Policies and Rules and Preventing Credit Risks" and "Guiding Opinions on the Credit Work for Energy Conservation and Emission Reduction." Two papers were written, both titled "Opinions on Implementing Environmental Protection Policies and Rules and Preventing Credit Risks." In Table A1 of their 2019 report, the Natural Resources Defense Council provides an overview of green finance initiatives. Since these regulations were enacted, China has made significant progress in developing eco-friendly technologies. The number of granted green patents has skyrocketed from around 16,000 in 2006 to 223,000 in 2017, as recorded by the International Patent Classification (IPC) green inventory of the (WIPO) and filed with the Chinese National Intellectual Property Administration (CNIPA). The Chinese Ministry of Industry and Information Technology provided us with this data. Between 2006 and 2017, the number of environmentally friendly patents held by publicly traded industrial businesses rose from 30,000 to 96,000, an increase of 14 times.

The situation has improved, yet there are still obstacles to overcome. One example of this is the unequal availability of environmentally friendly innovations amongst different types of enterprises. Figure 1 shows that considerably less than half of all publicly traded manufacturers do not own any green patents. It's especially worrisome because the percentage of such enterprises has been rising steadily since 2014. Evidence suggests that the gap is greatest between privately held corporations (also called SOEs) and publicly traded companies (also called POEs).



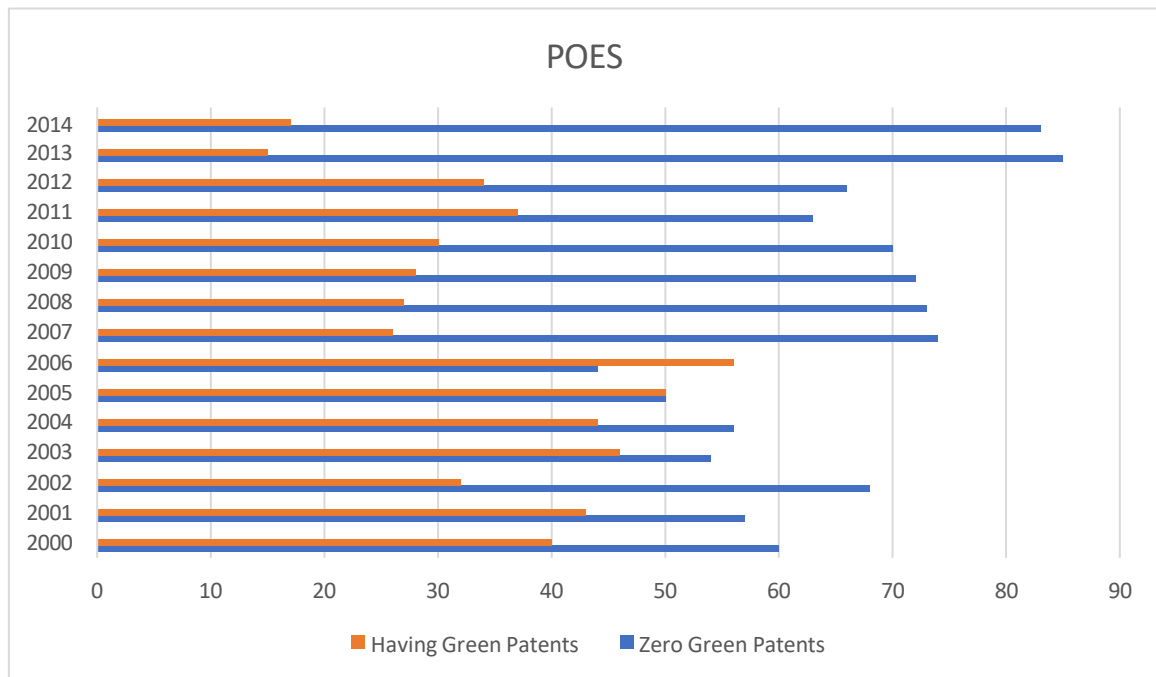


Figure 1 – Ratio of Firms having Green Patents from 2000 to 2014

Zero-sum green innovation businesses have proliferated as a result of POEs, as seen in Fig. 1. Uneven loan distributions from state-controlled banks have been linked to more financial restraints on research and development activities at state-owned enterprises (POEs) (Deng & Zhang, 2023). The poor results of POEs suggest they still do not have access to resources for funding, despite the existence of legislation governing environmentally responsible finance. To reach its carbon reduction target by 2060, China will need stronger private sector participation in environmentally beneficial innovation. Due to the dominance of large banks in the Chinese financial system, POEs are more susceptible to "ownership discrimination" than SOEs. When it comes to getting bank loans, SOEs have certain advantages over POEs. Among these benefits are lower interest rates, longer repayment durations, and simpler application processes. These benefits are exclusive to SOEs and cannot be found in POEs. This makes it harder and more expensive for POEs to secure external financing. If removing financial barriers is the key to increasing the potential for green innovation, then it is critical to ascertain whether or not current regulations controlling green finance are slanted in favor of POEs. This study analyzes the topics that are mentioned above by evaluating the data from a statistically significant subset which is of publicly traded Chinese companies.

2. Literature Review

The Impact of Environmental Regulation on the Choice of Corporate Governance Structure: Evidence from China by Jing Qian and Xiaohong Zhang (2019): The research paper has tried to investigate and evaluate that how the environmental regulations affect the structures in the corporate governance of the Chinese firms. It further scrutinizes the potential outcomes that are associated with the adoption of two-tier equity structures in the context of green finance.

Green Finance and Corporate Governance: A Review and Research Agenda by Jing Zhang and Liang Han (2018): This literature review has an objective to utilize the existing research on the green finance and the corporate governance. It offers valuable insights into how these two areas manage to intersect and the potential implications for the construction of the equity structure in the Chinese joint stock companies. Corporate Governance and Environmental Performance: A Systematic Literature Review by Xianming Zhou and Meng Li (2017): This review article study is targeted at probing the relationship between the mechanism of the corporate governance and the environmental performance in turn providing the significant views into how the governance structures may influence the adoption of the green finance initiatives and the two-tier equity structures in Chinese firms.

The Role of Green Finance in Corporate Governance: A Perspective from Emerging Markets by Chunhui Liu and Xin Wang (2016): This paper examines the role of the green finance in enhancing the practices of the corporate governance, majorly with a focus on its consequences and outcomes for the joint stock companies in the emerging markets like in China. These studies tend to provide a detailed and in depth understanding of the intersection between the green finance, the corporate governance and the construction of two-tier equity structures in the Chinese joint stock companies.

Commonly cited drivers of green innovation include environmental regulations (Nasution & Kalanjati, 2022; Velte, n.d.). Using data from a large panel of Dutch manufacturing firms, (Khan, 2022) investigated the impact of environmental regulation on eco-investments. It was discovered that current environmental legislation, along with those that are expected to be approved in the future, greatly encourage environmental investments and innovations. It's commonly held that a company's ability to innovate suffers when its budget is tight. (P. Liu et al., 2022) found that monetary constraints significantly inhibit originality. From 2000 to 2017, the share of enterprises with green patents is shown in Figure 1. friction. The inverted U-shaped relationship between financial limitations and corporate output was discovered by (Long et al., 2020) in their analysis of data from China's manufacturing industry. According to (Yang et al., 2020), financial limitations can have an impact on both the choices and the results that businesses make in relation to innovation. However, (Jouber, 2020) contended that financial constraints actually spur greater innovation on the part of businesses. They came to this conclusion because, with fewer financial options available, businesses would be better off making deliberate investments.

There is a growing corpus of research looking into how monetary constraints affect the development of environmentally friendly inventions (Bauer et al., 2022; Dordi et al., 2022; Jiang et al., 2021) state that there is a lack of writing on the subject of financing environmentally friendly innovation. (Pu et al., 2022) used EU-level survey data to examine the influence of financial restrictions on environmental innovations of small and medium companies. Financial concerns were found to be a barrier to environmental innovation in businesses. They proposed that one method to speed up the dissemination of eco-friendly innovations was to reduce entry barriers for funding businesses. Between 1995 and 2009, (Tjahjadi et al., 2021) compared the innovation activities of 1300 European businesses working with renewable vs. fossil fuel technologies and assessed the influence of financial constraints. Cash flow, long-term debt, and stock issuance were used to evaluate the company's financial health, while patents were utilized to quantify the company's innovative capacity. It was found that fossil fuel technologies were more interesting and new to explore than the renewable energy alternatives.

They concluded that a company's financial health has an impact on its propensity which then affects the initiation of a novel initiative. Furthermore, the financial constraints hinder the innovations which is likely to be perceived otherwise depending on the kind of ownership. Research suggests that state-owned enterprises (SOEs) are able to manage to fund the R&D for the sake of innovation. This is possible because the government provides access to state-owned banks and provides guarantees on the provision of loans (Matuszak et al., 2019). For instance, (Kouki, 2021) discovered that SOEs are more innovative when owned by the state since it removes obstacles to financial support. These findings have come up with the realization that R&D expenditures are influenced by state ownership.

Methodology

The methodology comprises of:

-Literature Review: The method employed is initiated with an extensive evaluation of the literature that already exists, related to two-tier equity structures in Chinese joint stock companies, corporate governance, green finance, and sustainable development. This review helps to establish a theoretical mainframe and it highlights the gaps and research questions that needs to be addressed through this paper.

-Data Collection: This study involves a multi faceted approach towards the collection odds data. The quantitative data will be collected from the financial reports, disclosures related to corporate governance, and sustainability reports of Chinese joint stock companies. The qualitative data will be obtained from the interviews conducted with the key stakeholders, including the executives, regulators, and the field experts of the finance and sustainability.

-Selection Criteria: The selection criteria of sample includes the Chinese joint stock companies that have adopted a two-tier equity structure and those that possess a significant presence in the industries that are relevant to green finance and sustainability, such as the utilization of renewable energy, clean technology, and environmental services.

-Quantitative Analysis: Analysis of the quantitative data involves the descriptive statistics that scrutinize the financial performance. The attributes of governance of the companies with a two-tier equity structure compared to those with traditional equity structures are also examined and evaluated. Regression analysis may also be utilized in order to assess the existing relationship between the practises of corporate governance, financial performance, and sustainability of environment.

-Qualitative Analysis: The qualitative data is collected from the interviews and then is evaluated by the utilization of the analysis based on themes which is to pin point the recurring themes or repeated patterns which may be related to the motivations, obstacles faced, and the outcomes that are associated with the adoption of a two-tier equity structure in the light of green finance and sustainability.

-Integration of Findings: In order to lay down a thorough and detailed understanding of the construction and significance of two-tier equity structures in Chinese joint stock companies in the light of green finance, the quantitative and qualitative findings will be triangulated. The fusion or integration of these findings will also provide an avenue which will help us with the identification of primary success factors and best practices that helps in promoting environmental sustainability through the utilization of mechanisms of corporate governance.

-Validation: The findings will be validated and ensured through peer review, expert validation, and through comparison with the existing research and standards of industry. If there is any potential biases or limitations in the methodology, it will be acknowledged and addressed to increase the robustness and credibility of the study. Overall, the methodology and strategy utilized in this study intends to integrate rigorous quantitative analysis supplemented with the rich qualitative insights to enable a holistic understanding of the intricate intertwining between corporate governance, green finance, and environmental sustainability through the lens of two-tier equity structures within the Chinese joint stock companies.

Financial statements such as balance sheets and income statements from the China Stock Market & Accounting Research (CSMAR) Database are mined for the indicators needed to create an index of restrictions. Balance sheets, income statements, and cash flow statements all fall under this category. Using the IPC Green Inventory as a guide, we combed through CNIPA patent data organized by year and by the names of industrial enterprises cited to see how well it matched the information in the CSMAR database. The variables and their definitions, as well as their data origins, are presented in Table 1.

Table 1 – Variables and their definitions

Variable	Symbols	Definitions	Source
Green Patents	Counts	One plus number of green patents	CNIPA
Ratio	Green Ratio	Ratio of green patents to total	CNIPA
Patent claims	Claims	One plus average	CNIPA
Restrictions	FC	Composite indicator of corporate attractiveness based on size, profitability, liquidity, and Capacity for generating cash flow, Financial Stability	CSMAR
Firm age	Age	Number of years of the firm	CSMAR

Labor ratio	K/L	Net fixed assets over employees	CSMAR
Ownership	SOEs/POEs	Ownership types include state owned, privately owned, and foreign owned	CSMAR
High energy industry	High EI	High energy consuming firms are valued as 1	CSTSY
Provincial level Research and development	R&D	R&D Investment	CCSY
GDP per capita	City GDP	GDP city level	CCSY
Technological investment	City Tech	Technological investment to GDP	CCSY
FDI	City FDI	FDI to GDP	CCSY

(Naheed et al., 2021) created a synthetic index that we use to quantify funding restraints. When a business grows larger, it has fewer financing hurdles to go over. A higher return on investment is a direct result of this. A company's liquidity and its ability to generate cash flow can be used as indicators of its short-term debt repayment viability. Two primary aspects that establish a company's solvency are the stability of its financial system and the adequacy of its resources in light of its commitments. Significant indicators of a company's requirement for external funding are the ratio of accounts payable to total assets and the ratio of net tangible assets to total assets. The following are the stages involved in making a synthetic index. To begin, we rate each organization annually across all seven variables in descending order to calculate its quantile value. We may now evaluate the growth of various businesses side by side. Since the i th company in year t has the highest profitability of any company in that year, the i th firm's profitability indicator has a quantile value of 100%. The largest profits can be found there. Second, a quantile range of 1 to 5 is provided, whereby quantiles 1, 2, 3, 4, and 5 each indicate the top, middle, middle-low, middle-high, and bottom 20% of the distribution. Third, we use two sets of scale data to synthesize the index of financing constraints. Each company and year in the dataset have been assigned one of seven values, and this is the first thing to do. The resulting aggregate index has a range of 7–35, and Index A is derived by rescaling that index from 7–35 to 1–10. In year t , the value of the i th firm's index would be 3 if three of its seven indicators were in the first quantile. The correlation between Index A and Index B is very good ($r = 0.70$), making Index B the second index. When the values of these indices increase, the financial constraints on a publicly traded industrial corporation become more severe.

5.1. Descriptive statistics

The majority of our study is premised on a dataset that includes all of the industrial companies that traded on the major boards of the ShanghaiWinsorization at the 1% and 99% levels is performed on firm-level metrics in order to eliminate the effects of outliers and incorrect data. Table 2 displays the descriptive data for your perusal. It is important to keep in mind that the observations collected between the years 2000 and 2016 are the source of the data for the lagging variables. In addition, both Indexs demonstrate that, on average, SOEs are constrained by funding in a manner that is more severe than that of POEs.

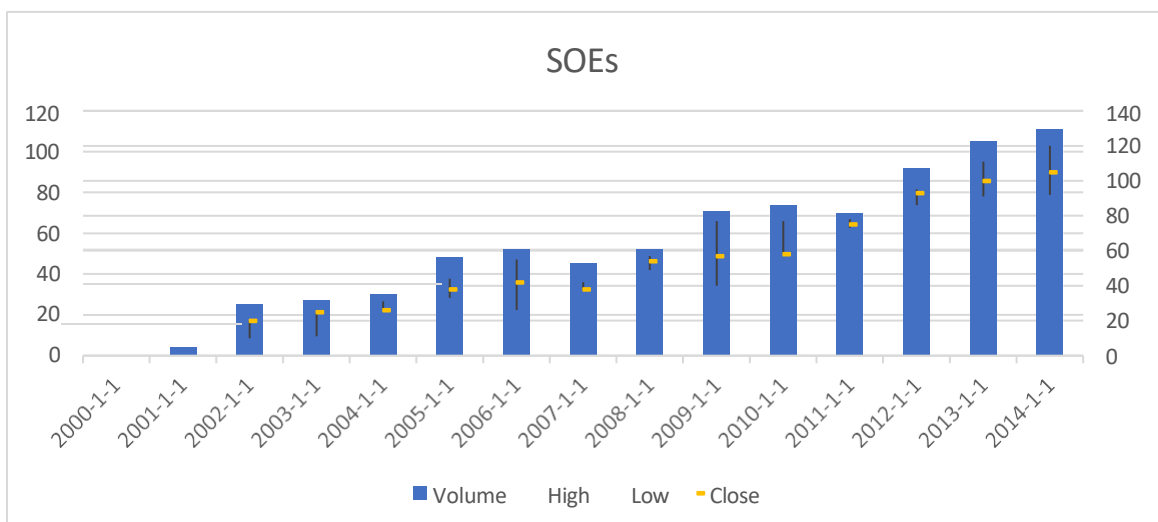
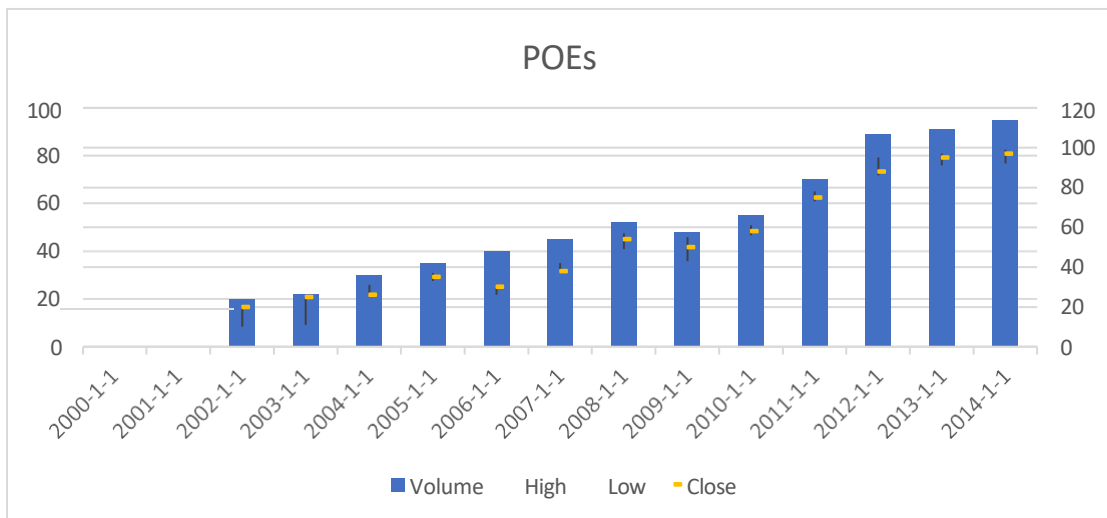
According to Fig. 2, which shows a comparison of the counts of green patents held by POEs (the graph on the left) and SOEs (the graph on the right), the former have held a considerable number of green patents since 2006, whilst the latter didn't start doing so until two years later.

Table 2 – Statistics

Variables	Observations	Average	Standard Deviation	Minimum	Maximum
Panel A; Full					

Patent counts	12000	2	1.5	0	3.2
Claims	12000	0.4	0.2	10	22
Ratio	12000	0.9	0.3	11	31
Restrictions A	12000	3	4.1	14	28
Restrictions B	12000	7	2.2	15	23
Age	12000	12	0.3	6	8
K/L	12000	25.21	1.6	4	7
High EI	12000	23.21	6.3	3	6
Ownership	12000	11.44	2.1	61%, 17%	22%
R&D	12000	0.4	0.1	7	
GDP	12000	1.32	0.22	0	0.22
City Tech	12000	5.11	3.1	0	0.66
City FDI	12000	4.2	1.5	0	0.025

Figure 2 – Green Patents to POEs and SOEs



Since 2008, the number of patents held by POEs and SOEs has increased dramatically. Figure 3 shows that the disparity in patent quality between SOEs (solid line) and POEs (dashed line) has grown wider from 2009 to 2014. It's worth noting that since 2015, SOEs have been making a greater share of patent claims while POEs have been making a smaller share. The means for the budgetary constraints are shown in Figure 4. From a higher starting point, POE scores drop while SOE scores grow, eventually closing the gap between

them by the year 2005. Some speculate that this is because of "Interim Measures for the Stock Issuance and Listing Sponsorship System," an order issued by the China Securities Regulatory Commission in 2004 that sought to improve the quality of information disclosed by publicly traded companies and tighten controls on the issuance of new stocks. Stock issuances by SOEs are typically time consuming, complicated, and expensive (Bortolotti et al., 2019), hence this law decreased the financing options available to SOEs. Concerns that issuing new stocks will dilute state shares, so weakening the state's power over the companies, may discourage state-owned enterprises (SOEs) from doing so.

3. Result and Discussion

-Adoption of Two-Tier Equity Structure: This evaluation unveils a growing trend among Chinese joint stock companies towards adopting a two-tier equity structure. This structure which is identified by the division of the voting rights and the dividend entitlements between different classes of shareholders enables and ensures greater flexibility in financing and arrangements related to the governance of the companies.

-Governance Dynamics: The effect of the two-tier equity structure on the corporate governance dynamics is one of the primary findings of this study. The interests are diverted between the controlling shareholders and the minority shareholders and then this is led by the separation of the control and the ownership rights of the structure. Additionally, this divergence may impact the decision-making processes, the allocation of resources and ultimately, the performance of the firm.

-Alignment with Green Finance Principles: Although there have been many potential challenges related to the governance, the two-tier equity structure has provided an avenue of the opportunities that aligns with principles of the green finance. It enables the companies to attract the long-term investors who always prioritize the sustainability, the environmentally friendly projects and the initiatives that are facilitated by this study. Moreover, it empowers by the hierarchical distribution of the voting rights of the environmentally conscious shareholders that influence the corporate decision-making towards the more sustainable practices.

-Influence on Environmental Sustainability: This analysis has helped to reveal that the companies that have adopted the two-tier equity structure are more likely to prioritize the environmental sustainability initiatives as compared to those without the structure. This analysis proposes that the integration of the environmental considerations into the corporate governance frameworks may serve as the mechanism. The companies that have the diversified shareholder bases including the investors that focus on the environment, those who are incentivized to adopt the sustainable business practices which helps them enjoy the shareholder support and the enhance long-term value of their creations.

-Challenges and Opportunities: As much as there are many potential benefits that are involved, the two-tier equity structure also presents the challenges with respect to the transparency which is related to the governance, the accountability involved and the engagement of the stakeholders. These challenges are addressed through the utilization of robust mechanisms of governance, communication channels that are very effective, and a commitment to transparency and accountability. At the same time, the structure is innovated through the opportunities of corporate governance, such as the introduction of environmental performance metrics and incentives for sustainable behavior.

-Policy Implications: The analysis of this study shows that the shaping the governance terrain of the two-tier equity structure within Chinese joint stock companies is through a crucial role of policymakers and regulators involved in the process. The balance between promoting innovation and protecting the interests of minority shareholders and other stakeholders should be struck by regulatory mainframes. Moreover, the two-tier equity structure and green finance principles can be further enhanced by the policies that incentivize companies to adopt sustainable practices and disclose environmental performance data.

In conclusion, the intertwining between the two-tier equity structure, corporate governance dynamics, and environmental sustainability within Chinese joint stock companies is highlighted through the results and discussions. Although the structure poses many challenges relating to governance, but it also offers immense opportunities for promotion of sustainability through the fusion of green finance principles. With the help of addressing governance related issues and utilization of the innovative opportunities, companies can create

long term value for shareholders and stakeholders by harnessing the full potential of the two-tier equity structure to advance environmental sustainability goals.

In Table 3 below,, we have compiled a summary of our findings from an investigation into the factors that influence patent counts, patent claims, and the green ratio. This investigation took into account the influence that resource limits have on Index A. The OLS estimates are displayed in columns (2), (4), and (6), and these estimates are compared to the 2SLS estimates that are provided in columns (1), (3), and (5). The preliminary findings of the 2SLS calculations are presented for our perusal in Table A3. A natural logarithmic model is employed in order to describe the distribution of patents and claims of the patents. According to the findings, for every percentage point that rises in the financing restrictions, the number of green patents declined by 16.4%. The number of claims that are submitted for green inventions decline by 10.5%. This gives an idea that the businesses face relatively modest impediments to increasing their investments in green technology when they are compared to overall improvements. According to the findings of this research, one of the hindrances to green innovation is demonstrated by the companies' limited access to external funding. The most primary reason for this is that there is high incidence of failure experienced by the investments made in environmentally friendly innovation which emohasises on the necessity of having access to reliable funding of adequate amounts. If it is difficult to secure financing from external sources. Those sources are more likely to be unreliable and there is a greater chance that newly initiated ventures will be unsuccessful. Clean development mechanism (CDM) programs financially assist those businesses who are making advances due to their innovation which is to reduce emissions but are being hampered by a lack of resources. This type of program is known as a clean development mechanism (CDM). The CDM project design document, also known as the CDM-PDD, is where the majority of applicants highlight the importance of overcoming financial obstacles. They are unable to recruit investors for the development of their initiatives since they have an inadequate amount of capital and an inadequate internal rate of return.

We present estimates for the extremely energy-intensive, privately held qualities listed in Table 3, and we provide a brief discussion on the topic of financial restrictions. When compared to their counterparts in other industries, businesses operating in sectors with high energy consumption have a lower total number of patents but a higher green ratio. In spite of the fact that they have 25.7% fewer patents, which indicates that they are more likely to advance environmentally friendly ideas. There does not appear to be any numeric difference between the different ownership types, despite the fact that POEs produce green inventions of a higher quality than SOEs. POEs hold 16.3 percentage points more patent claims than SOEs do, making them the more dominant entity in this comparison. According to Rong et al. (2016), the quality of work may take a back seat to quantity in the field of green innovation because many SOEs are likely to support government efforts to accomplish green innovation goals.

Table 3 – Estimations

Variables	Counts		Claims		Ratio	
	(1)	(2)	(3)	(4)	(5)	(6)
FC A	-0.11	-0.15	-0.14	-0.12	-0.16	-0.19
High EI	(0.034)	(0.014)	(0.0378)	(0.033)	(0.074)	(0.63)
Age	-0.155	-0.333	-0.412	-0.111	-0.153	-0.132
K/L	(0.044)	(0.014)	(0.244)	(0.744)	(0.844)	(0.146)
R&D	-0.115	-0.2314	-0.541	-0.41	-0.42	-0.643
GDP	(0.053)	(0.024)	(0.156)	(0.355)	(0.124)	(0.04)
Tech	-0.541	-0.171	-0.58	-0.541	-0.346	-0.682
FDI	(0.072)	(0.245)	(0.43)	(0.64)	(0.42)	(0.44)
POEs	-0.533	-0.241	-0.251	-0.51	-0.841	-0.141
SOEs	(0.074)	(0.177)	(0.154)	(0.0174)	(0.677)	(0.554)
Constant	-2.55	-3.54	-2.45	-1.65	-4.543	-2.18
Fixed Impact	Yes	Yes	Yes	Yes	Yes	Yes

Province	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Impact						
Obs	12000	12000	12000	12000	12000	12000
Firms	1100	1100	1100	1100	1100	1100

The findings are presented in Table 4. The comparison between the years 2001 and 2007 and the years 2008 to 2012 in Table 4, Panels A and B, reveals that a severe lack of money was a major impediment to environmentally friendly innovation. For every point increase in the level of financial restriction represented by Index A, there was a 13.4% decrease in the number of patents issued between the years 2001 and 2007, and there was a 28% decrease in the number of patent claims made between the years 2001 and 2012. Despite the fact that firms were subject to greater financial restrictions on patents over that time period (Figs. 3 and 4), they created a significantly greater number of patents from 2008 to 2012 than they did from 2001 to 2007 (Fig. 2). In addition, when compared to the years 2001-2007, the effectiveness of environmentally friendly technologies saw a significant increase between the years of 2008 and 2012. According to the findings, the launch of green finance regulations in 2007 considerably helped the development of environmentally friendly technologies. Businesses that have a high rate of energy consumption or severe pollution problems have been subjected to more stringent financing criteria ever since the green credit policy was put into effect in 2007. As a result of the increased caution being shown by banking institutions, firms are being encouraged to create environmentally friendly solutions. As a result, it is a possibility that the global financial crisis of 2008 contributed to the worsening of the restriction on patent numbers that was in place between 2008 and 2012.

Table 5 – Effects of Green Finance Policies

Variables	Full Sample		
	Patent Counts	Patent Claims	Ratio
Index A			
2000-2005	-2.415 (0.08)	-1.213 (0.002)	-2.526 (0.003)
2006-2010	-1.271 (0.055)	-2.222 (0.041)	-1.542 (0.048)
2010-2014	-0.114 (0.06)	-1.156 (0.025)	-1.134 (0.015)
Index B			
2000-2005	-1.241 (0.052)	-2.262 (0.011)	-1.542 (0.038)
2006-2010	-2.217 (0.09)	-1.215 (0.006)	-1.326 (0.013)
2010-2014	-5.217 (0.043)	-1.136 (0.028)	-1.124 (0.025)
Controls	Yes	Yes	Yes

When compared to the period between 2008 and 2012, businesses have more discretion in terms of financing green patents throughout the period between 2013 and 2017. The obligation placed on businesses to make investments in environmentally friendly products has become less onerous as a result of the passage of numerous pieces of green credit legislation between 2013 and 2017. These pieces of legislation remove the barriers that prevent firms from gaining access to green finance from commercial banks. It would appear that POEs were not able to benefit from the loosening of financial limitations that took place between the years 2013 and 2017. Due to the fact that SOEs are frequently insured by the government, commercial banks are more ready to lend loans to these organizations (Brandt and Li, 2003). POEs have a disproportionate amount of green money despite the fact that their comparatively high potential for innovation is hindered by financial restrictions. Because of credit bias, POEs are able to maintain or enhance production while using the same amount of money or less from

environmentally friendly sources of finance. This allows the POEs to reduce their impact on the environment. Green innovation will be hampered by investors being more conservative. As a result, we will proceed to investigate the several ways in which SOEs and POEs are impacted by legislation regarding environmentally friendly funding.

4. Conclusion

This research paper examined the construction and outcomes of the two-tier equity structure within Chinese joint stock companies as it is viewed from the perspective of green finance. The dynamics of governance, alignment with the principles of green finance, and the influence on environmental sustainability were analysed through this paper. Firstly, a strategic response is reflected by the adoption of a two-tier equity structure by Chinese joint stock companies with an attempt to evolve the dynamics of corporate governance and financing. The two-tier structure enables the raising of capital and governance arrangements to the companies with great flexibility. However, certain challenges come along that are related to the shareholder rights and accountability. Secondly, the two-tier equity structure provides a stage to align the corporate governance with the principles of green finance. Companies make their decisions while considering the environmental factors and enhance their commitment to sustainability by attracting long-term investors that prioritize the sustainability and empower environmentally conscious shareholders.

Thirdly, the analysis also emphasised on the fact that the companies are more inclined towards prioritizing the environmental sustainability initiatives that are with a two-tier equity structure. This analysis emphasizes the potential of the structure to serve as a source that will drive positive environmental outcomes and align it with shareholder interests in conjunction with the long-term ecological objectives. As much benefits as the two-tier structure offers, the structure also poses governance challenges that need to be addressed. The engagement of stakeholders, transparency and accountability are the factors that are very critical in alleviating these challenges and ensuring the effective operation of the structure.

This article explores the role that financing barriers play in preventing Chinese enterprises from going green, and if green finance legislation could foster green innovations by reducing the impact of financing barriers. Privately held organizations (POEs) face greater financial hurdles when attempting to green their operations than do state-owned enterprises (SOEs). Although green finance guidelines can lessen the impact of financing gaps on green technologies, there is little proof that they benefit public interest organizations. In addition, the government should encourage financial institutions and corporations to factor climate change risk into their investment decisions and funding allocations. Furthermore, the government should encourage the use of green technologies and distribute funding across diverse industries while formulating green financing guidelines. Therefore, we offer a set of principles that can serve as a basis for the creation of green financial policies.

The study's limitations stem from the fact that it does not examine how green finance legislation can affect the reallocation of bank loans to firms. A bank loan is an essential source of capital for companies during economic downturns when stimulus measures are being considered. China's green finance programs and 2008 Economic Stimulus Package both appear to have contributed to the relief of the crediting system. But green innovations are slowed by the inefficiency of bank loans in funding companies working on green innovation initiatives. Studies in the future should look into how these green finance policies might distribute loan funds to PEOs who show promise as green innovators.

So overall, this research lays a platform for a deeper understanding of the intersection between corporate governance, green finance, and environmental sustainability as viewed through the lens of the two-tier equity structure in Chinese joint stock companies. The full potential of this structure can be harnessed to bring about positive environmental outcomes while offering long term value to stakeholders by addressing governance challenges and leveraging opportunities for innovation.

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