

Audit committee attributes and CSR performance in China: empirical evidence from agri-firms

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Abstract

The purpose of this study is to explore the impact of audit committee AC attributes on Agri-firm CSR performance before and during the COVID-19 pandemic, the study focus on Chinese Agri-firm spanning from 2017 to 2021. Data was carefully gathered from the Chinese CSMAR database, the published annual reports, World Development Indicators WDI, International Financial Statistics IFS, and Business Recorder BR, encompassing 790 Agri-firmss, which yielded 3,950 firm-year observations for our empirical analysis. We utilized ordinary least squares regression for data analysis and TOBIT regression to evaluate the robustness of the findings. The study's findings highlight that the frequency of AC meetings and the inclusion of foreign directors on the AC have a significantly positive impact on agri-firms' CSR performance, both prior to and during the COVID-19 pandemic. Moreover, AC-Expertise exhibits a positive and statistically significant association with CSR activities both before and during the COVID-19 period, whereas AC-Tenure shows a negative and significant relationship with CSR performance in both situations. This study carries practical implications for the enhancement of Agri-firms CSR activities in China. It also offers policy insights, contributing to the ongoing research concerning the impact of the AC attribute on Agri-firms CSR performance and risk management. Regulators may consider advocating for the establishment of independent and effective audit committees to increase CSR activities within an Agri-firm. The study encourages firms to contribute philanthropic donations to support those in need, which can significantly bolster the government's efforts in addressing the socioeconomic challenges brought about by the COVID. This empirical research contributes to the limited literature on the effects of AC attributes on Agri-firms CSR performance, especially in assisting those in need during challenging times.

Keywords: CSR. Corporate Philanthropic Donation. Agri-Firms. Audit Committee.

1. Introduction

Corporate philanthropic donation CPD (CSR), narrated as the charitable and unconditional exchange of financial resources or various assets by companies for the betterment of public welfare, stands as one of the most common and extensively adopted strategies for companies to address societal needs, cultivate a favorable reputation, and generate strategic value (Jin Zhang et al., 2016). The global impact of the COVID-19 pandemic repeat across various facets of life worldwide (Carroll, 2021). The unforeseen

eruption of the epidemic in January 2020 triggered a profound philanthropic urgency, particularly in Chinese regions such as Wuhan. In response to this critical situation, numerous enterprises stepped forward with monetary and in-kind contributions. According to a report by SynTao, roughly 790 firms promptly pledged both financial and in-kind support to the Wuhan region within the initial 10 days following the outbreak (as of January 29). The financial donations totaled a staggering nine billion RMB, and the worth of in-kind contributions reached an impressive 1.68 billion RMB. This response marked the most significant surge of corporate philanthropy since the aftermath of the 2008 Sichuan earthquake. The institution background of this study is that in the initial stages of the Chinese market, the impetus for CSR predominantly emerge from external stakeholders, such as global buyers, foreign investors, and purchasers (Tao, Feng, Zheng, Zhu, & Yang, 2019). However, mitigating these pressures has proven to be relatively straightforward. To avoid these challenges, Chinese Agri-firmss have opted to obtain certifications such as SA8000 and ISO26000 (Nguyen, Elmagrhi, Ntim, & Wu, 2021). In 2009, the evolution of the Chinese CSR regulatory framework transitioned into a "semi-compulsory" phase. Regulatory bodies mandated significant large enterprises (such as those listed on the Shanghai and Shenzhen 100 index or abroad) to disclose their CSR data. However, specific requirements concerning the scope of disclosure (e.g., the absence of detailed exposure guidelines) and the quality of data (e.g., the absence of mandatory verification) were lacking. In recent years, there has been little significant improvement in this regulatory framework. Notably, the "Guidelines for Disclosure of Environmental, Social, and Corporate Governance of Listed Companies," which were issued by the Shanghai Stock Exchange (SSE) in 2018, still lacked clear provisions regarding the scope of information or a 'comply or explain' mechanism. This gave companies a significant degree of flexibility in determining the extent, depth, and nature of their CSR disclosures.

Despite the decline in the "hierarchical" advancement of the Chinese CSR framework, the growing presence of non-governmental organizations and communally responsible financial investors concentrating on CSR matters has led to an increased sense of accountability among Chinese citizens regarding CSR issues. According to a survey conducted by (Wang, Ma, Dong, & Zhang, 2023) targeting Chinese public investors, 86% of respondents acknowledged considering factors like environmental protection, worker rights, and trade ethics when evaluating companies for investment. In light of these developing circumstances, Chinese companies must adopt a more cautious and complex approach to navigate CSR pressures. Perhaps, certain Agri-firmss opt for robust impression management,

exemplified by careful and rigorous disclosure of information, along with comprehensive efforts to address CSR compliance matters. As reported by (Han, Wang, & Ni, 2022), the percentage of Chinese companies incorporating principles from the global sustainability reporting initiative into their CSR reports rose from sixteen percent in 2010 to twenty six percent in 2019. Simultaneously, the proportion of Agri-firmss adopting the ISO2600 standard saw a notable rise from 2.63% to 10.52%. Conversely, some companies opt to strengthen their CSR efforts through significant initiatives, such as increasing their spending on social welfare programs. In 2019, the China Charity Alliance, as reported by (Liang & Lei, 2019) indicated that Chinese enterprises contributed a substantial 93.147 billion RMB, accounting for 61.71% of the total collective social donations. During these specific circumstances, addressing the challenges posed by the pandemic emerged as a significant concern for researchers and practitioners (Solarin, Bello, & Tiwari, 2022) underscore that the pandemic's result heightened the necessity of sustaining effective CSR practices to aid individuals, particularly those from socioeconomically disadvantaged backgrounds. CSR activities, notably charitable donations, have become widespread, and numerous companies include details of their donation amounts in their annual reports (Thuy, Khuong, Anh, & Quyen, 2022). These CSR initiatives offer advantages not only to disadvantaged communities but also to the organizations implementing them. When viewed through the lens of stakeholder theory, CSR spending enables companies to generate positive outcomes by developing a strong social foundation in their long-term relationships with communities (T.-L. Lin, Liu, Huang, & Chen, 2018). Some researchers posit that corporate philanthropy, in the form of donations, cultivates stakeholder collaboration and facilitates access to essential resources within their influence, thereby enhancing overall financial performance (J. Zhang, Marquis, & Qiao, 2016). Numerous research studies corroborate that organizations' charitable contributions correlate with performance improvement and the realization of long-term objectives (Lustig et al., 2021).

Consequently, many companies, immediately following the declaration of COVID-19 as a pandemic, made substantial contributions in both cash and in-kind donations (Barzegar, Hasannatajkordi, & Malaki, 2019). Even though no regulation mandates disclosure of such activities in China, listed Agri-firmss in the country proactively engage in CSR philanthropic endeavors and feature them in their annual reports (Ha, 2022). Within this paper, we examine the factors influencing Chinese Agri-firmss' allocation of resources to CSR initiatives, with a specific focus on philanthropic commitments. Within the realm of internal corporate governance, audit committee attributes bear the responsibility of monitoring management

decisions (El Khoury, Nasrallah, & Alareeni, 2023). Consequently, the audit committee holds the potential to influence management decision regarding the extent of charitable donations. Therefore, our study investigates the impact of AC attributes on the CSR activities of listed companies in China, both prior to and during the pandemic COVID-19. We posit that, given the financial nature of CPD, the ACs monitoring aims to mitigate financial risk by scrutinizing the extent of companies' engagement in these activities. The ACs responsibilities encompass not only supervising and monitoring financial reporting processes but also extending to risk management functions (Mazloomzadeh et al., 2021). Since charitable donations entail monetary spending, the ACs attention and supervisory capacity can influence the quantum of donations, thereby averting pompous decisions and ensuring that expenditures align with the organization's financial capacity. In essence, we propose that AC attributes can exert a significant impact on Agri-firmss' allocation of resources to philanthropic undertakings.

The contribution of this investigation is the impact of specific corporate characteristics, referred to as AC variables, on companies' CSR performance. Our research is innovative, as it delves into the relatively unexplored relationship between attributes of AC and CSR performance. This is particularly significant given the developing context of the pre- and during pandemic era. This paper adds substantial value to the enduring research on how AC characteristics influence CSR performance. To begin, our study provides a distinctive perspective by investigating the correlation between ACs and CSR performance within publicly listed companies in China. Furthermore, we establish that AC distinctiveness play a vital role in secure the effectiveness of internal controls pertaining to economic, operational, and observance activities, including those associated with CSR. This, in turn, assists companies in risk management and resilience enhancement. Moreover, our research provides practical and theoretical insights that stakeholders can leverage. These findings can enlighten decisions related to AC composition and advocate for independent and engaged ACs, thereby harnessing CSR initiatives for personal growth and safeguarding against regulatory advantages. For lessees and financial investors, our study underscores the significance of CSR issues. Additionally, it has implications for Chinese Agri-firmss looking to enhance their philanthropic efforts, which can assist legitimize their functions and enhance their representation and reputation in the front of all stakeholders. Governing bodies can benefit from our research by using it to formulate guidelines and strategies aimed at encouraging or mandating Chinese companies to allocate resources for CSR initiatives that benefit impoverished and disadvantaged individuals within the country. Finally, even though our

research was conducted in the Chinese context, the insights gleaned from this study could prove valuable for companies and controllers in other developed or emerging countries, especially in the Asian region. The structure of this paper is organized as follows: In Section 2, a comprehensive literature review is presented along with an introduction to the theoretical perspectives. Section 3 is dedicated to the development of research hypotheses. The methods of analysis are outlined in Section 4. Moving on to Section 5, the primary results and a thorough discussion are provided, concluding with implications for policy.

2. Literature Review and Hypothesis Development

2.1. Theoretical Framework

The domain of CSR practices and disclosures faces a challenge in establishing a universally accepted theory that can comprehensively elucidate their expression in diverse societies (Omran & Ramdhony, 2015). Consequently, various theories have emerged to elucidate the motivations driving business organizations to participate in philanthropic activities and communicate them through their annual reports. In our research, we highlight the Stakeholder Theory, Agency Theory, and Legitimacy Theory as notably pertinent among these theories.

2.2. Stakeholder theory

The Stakeholder Theory, initially formulated by Freeman, posits that an organization's responsibilities project its shareholders to include all stakeholders who exercise significant influence over its performance (Freeman, 1994). This theory advocates for businesses to embrace social responsibility within the communities they operate (Wood & Jones, 1995) argue that for an enterprise to succeed, it must acquire the support of its stakeholders, as these actors play a pivotal role in averting and mitigating the organization's exposure to unlawful risks. Moreover, corporate philanthropy encourages a positive public image, facilitating Agri-firmss' admittance to resources controlled by influential stakeholders.

2.3. Agency theory

This theory, examining agent-principal dynamics, acknowledges potential ownership and control separation. Agents should act in the principal's best interests, but conflicts of interest often arise (Fama & Jensen, 1983). Managerial self-interest can increase investor costs, and while monitoring mechanisms align interests, they come with costs, affecting investors. In the absence of strong regulations, managers may stray from safeguarding investors. Corporate governance frameworks with internal and external mechanisms are vital to address agency problems (Huse, Hoskisson, Zattoni, & Viganò, 2011).

2.4. Legitimacy Theory

This theory, frequently applied in CSR literature, explains CSR drivers and reporting. According to its founders (DiMaggio & Powell, 1983), organizations face forceful pressures from institutions and societal norms. Compliance or engagement forces shape their actions. The Legitimacy Theory asserts Agri-firmss must adhere to community norms for economic, social, political, and cultural success. During COVID-19, Agri-firmss emphasizing CSR practices gained investor attention by dedicating resources. The AC, monitoring financial and nonfinancial aspects (Freeman, 1994), plays a crucial role in resource allocation and transparent reporting, legitimizing operations and satisfying stakeholders.

3. Hypothesis Development

3.1. Audit committee meeting

The significance of the frequency of ACM as a crucial attribute is highlighted by research of (Mohamed Buallay et al., 2023). Holding regular meetings empowers ACs to effectively discharge their responsibilities and enhance their efficiency. Additionally, regular meetings facilitate updated awareness and proactive approaches towards issues related to CSR disclosures, elevating expectations for both financial and nonfinancial aspects (Pucheta-Martínez, Gallego-Álvarez, & Bel-Oms, 2021). Moreover, the AC plays a fundamental role in enhancing an organization's charitable contributions, making these meetings an avenue to scrutinize society's financial concerns, particularly focusing on CSR expenditures during the COVID-19 pandemic. Existing studies highlight that increased frequency of ACM enables comprehensive review of organizational CSR activities

(Pucheta-Martínez et al., 2021). Likewise, holding a sufficient number of meetings empower members to address monitor gaps, effectively monitor philanthropic activities, establish optimal CSR spending levels, and deter self-serving managerial decisions that could undermine the organization's value and profitability. Notably, Agri-firmss supporting needy populations during crises like COVID-19 through CSR expenditures tend to acquire legitimacy and contribute to long-term sustainability, aligned with legitimacy theory. For instance, regulations in China mandate a quarterly ACM for listed companies, amounting to a minimum of four meetings annually (CCG, 2018). While specific empirical evidence connecting the frequency of ACM to corporate philanthropy remains limited, parallels with the sustainability committee's role allow insights from the AC literature. (Elmaghrabi, 2021) demonstrates that more frequent AC meetings enhance CSR performance. In view of these discussions, it is postulated that the frequency of ACMs could effectively address societal financial issues and encourage greater CSR spending for the benefit of vulnerable populations, especially during crises like the pandemic. Hence, the following hypotheses are formulated:

H₁: All else being constant, frequency of ACM show a significant and positive relationship with CSR before and during COVID-19

3.2. Foreign directors on audit committees

A strategy to enhance the diversity of boards and committees involves the appointment of foreign directors FD, facilitating more effective and productive attainment of Agri-firms objectives. Foreign financial investors, who may also serve as directors due to their involvement in international markets, offer distinct values and insights (Israr Khan et al., 2021). Their unique perspectives potentially lead to increased demands for disclosure and heightened monitor of managerial decisions, attributed to their diverse backgrounds (JAHID, RASHID, HOSSAIN, HARYONO, & JATMIKO, 2020). The experience gained while working abroad often equips FDs with exposure to CSR initiatives (Garanina & Aray, 2021). However, it's essential to recognize that, within the framework of monitoring costs, domestic institutional investors play a more substantial role in monitoring compared to foreign counterparts (Tai, Lai, & Yang, 2020). This signifies the need to assess cost implications while appointing FDs, ensuring that benefits aren't outweighed. Notably, during the COVID-

19 pandemic, Agri-firmss in developing nations demonstrated considerable contributions to combat the infection and mitigate associated financial performance. Hence, AC-FD from countries with robust CSR guidelines geared towards aiding the impoverished and needy are likely to steer organizations towards pivotal philanthropic practices. For instance, UK manufacturing firms swiftly adapted production to address COVID-19 challenges by manufacturing items such as ventilators, personal protective equipment, and sanitizers, with some even offering these products for free (Gorshunov, Armenakis, Harris, & Walker, 2021). Reports indicated that major Agri-firmss, responsible for nearly 80% of required CSR donations for the 2021 fiscal year, had already committed to combat the pandemic. Studies by (L. Zhang, Xu, & Chen, 2022) revealed Chinese Agri-firms following distinct guidelines, promoting philanthropic donations and detailed CSR reporting, focusing on education, health, disaster relief, humanitarian aid, and environmental efforts to alleviate poverty. Consequently, the presence of FDs on Chinese Agri-firms' AC hailing from nations with effective philanthropic frameworks serves to enhance corporate responsibility, particularly during the pandemic. This aligns with the legitimacy theory, substantiating their actions in the eyes of the public. Supporting this premise, two significant empirical studies indicated the impact of AC-FDs on Agri-firms' philanthropic contributions. (Kang, 2019) explored the link between AC-FDand CPD in S. Korea, finding that executives from Anglo-US countries enhanced philanthropic behavior. Similarly, (Khalil & Ben Slimene, 2021) demonstrated that foreign experience correlated with increased philanthropic spending among Chinese Agri-firms. Thus, we posit that AC-FDcan leverage their international exposure to encourage greater CPDs from organizations. Consequently, we propose the following hypotheses:

H₂: All else being constant, proportion of foreign director in AC show significant and positive relationship with CSR in before and during COVID-19.

3.3. Duration of audit committee tenure

The exploration of the link between the tenure of AC members and CSR gained prominence following the Enron collapse. The literature review highlights divergent findings regarding this relationship. Certain studies shows a negative association between AC members' tenure and CSR (Al-Matari, 2022), attributing it to prolonged tenure fostering familiarity that potentially undermines control effectiveness. Conversely, other researchers present empirical evidence indicating the absence of a connection between tenure and CSR

(McLaughlin, Armstrong, Moustafa, & Elamer, 2021). In line with the agency theory perspective, (Oh, Chang, & Kim, 2018) contend that extended tenure enhances interactions, accelerates information exchange among boards and directors, and diminishes information asymmetry. However, studies have also indicated contrasting trends; for instance, CEO tenure appears to inversely impact a company's sustainability performance (Qaderi, Alhmoud, & Ghaleb, 2020), while (Dwekat, Seguí-Mas, Tormo-Carbó, & Carmona, 2020) found no significant correlation between AC-Tenure and CSR performance. Turning to the realm of external audits, research has examined the connection between AC attributes and tenure. While some scholars demonstrate that prolonged AC-Tenure is linked to diminished CSR performance, others contend that extended tenure improves CSR due to a "learning curve" effect, conferring incumbent auditors with enhanced familiarity, reduced audit risk, and an understanding of client-specific risks (Copley & Doucet, 1993; Paolone, Pozzoli, Cucari, & Bianco, 2023). Despite this existing literature on AC, scant concentration has been dedicated to the implications of AC-Tenure duration on CSR performance. Given this gap and adopting an agency theory perspective, the present study postulates that extended AC-Tenure enhances monitoring effectiveness (Othman, Ishak, Arif, & Aris, 2014). Thus, the following hypothesis is posited:

H₃: All else being constant, there exists negative and significant relationship between AC-Tenure and CSR before and during COVID-19

3.4. Audit committee expertise

Existing research, aligned with agency theory, posits that AC members possessing financial acumen can play a pivotal role in fortifying internal control mechanisms and risk management systems (Dwekat et al., 2020). The agency theory perspective suggests that ACs capable of providing informed insights on directorial and auditorial opinions enhance investor confidence. This enhancement is facilitated by implementing robust internal control systems, efficient information flows within the entity, and effective communication with external stakeholders (Bhuiyan & Nguyen, 2019). As paolone (Paolone et al., 2023) points out, the primary mandate of an AC is to monitor an organization's financial reporting process, and emphasizes that the expertise of AC members bolsters their effectiveness. Consequently, an AC armed with financial expertise is better positioned for effective monitoring. The amalgamation of expertise and experience heightens the probability of detecting financial

statement errors and management irregularities. When AC members possess financial proficiency in executing their responsibilities, entities can strengthen their corporate governance. Interestingly, (Othman et al., 2014) The research indicates that there is no substantial correlation between AC-Expertise and the occurrence of fraud. However, existing literature reports positive outcomes in terms of the relationship between AC-Expertise and various factors, such as financial performance, CSR performance, and non-financial performance. It establishes a favorable connection between AC-Expertise and the quality of financial exposure. In contrast, a study by (Alhababsah & Yekini, 2021) underscores a significant negative association between AC-Expertise and the quality of nonfinancial reporting. AC-Expertise assumes a crucial role in assisting companies in evaluating financial and regulatory risks related to CSR, thereby facilitating the formulation of effective CSR-related risk management strategies and ultimately enhancing environmental and social performance. On the other hand, research by (Oudat, Ali, & Qeshta, 2021) identifies a significantly positive link between AC-Expertise and sustainability disclosure. As a result, a clear consensus has yet to emerge from the existing literature on this subject. In alignment with agency theory, we propose the following hypothesis.

H₄: All else being constant, there are exist a positive and significant relationship between AC-Expertise and CSR before and during COVID-19

4. Methodology

4.1. Data source and Sample selection

For this research, we carefully collected data from various sources, including the Chinese CSMAR database, published annual reports, WDI, IFS, and BR. In order to maintain the importance of our data sample, we disqualified financial, non-financial and special treatment (ST) corporations, focusing exclusively on A-share Agri-firms listed on the Shanghai and SSE. Our study primarily examines the impact of AC attributes on CSR in listed Chinese Agri-firms both before and during the COVID-19 pandemic. To capture the necessary variables, we utilized multiple databases. After applying these selection criteria, our final dataset comprised 790 listed companies with complete AC and CSR variables data, resulting in a total of 3,950 firm-year observations. Our study covers a five-year timeframe from 2017 to 2021, encompassing the period both before and during the COVID-19 pandemic. The data analysis was conducted using E-Views8 data analysis software.

4.2. Econometric Model

In order to assess the impact of AC attributes (specifically, the frequency of ACM, the presence of AC-FD, AC-Tenure, and AC-Expertise), along with control variables (B-IND, B-GD, and FLVR), on the dependent variable CSR, we utilized both ordinary least squares (OLS) regression and TOBIT regression models. This approach allowed us to examine the hypotheses put forth and verifies the robustness of our findings. The econometric model is presented as follows:

Equation (1)

$$\text{Log} - \text{CSR}_{it} \equiv \alpha_0 + \beta_1 + \beta_3 \text{AC-Attributes} + \sum_{i=1}^N r_i \text{Control Variables} + \delta_{it} + \epsilon_{it} \dots \dots \dots (1)$$

In our analysis, we define the following variables: Log-CSR: The natural logarithm of corporate philanthropic donations (expenditure). ACM: The number of AC meetings held in a year. AC-FD: The proportion of foreign directors serving on the AC. AC-Tenure: The average duration that the organization's current AC has been in service. AC-Expertise: Indicates whether the company has an AC consisting of at least three members, including at least one "financial expert." It takes a value of 1 if met and 0 otherwise. Control variables: B-IND (Board Independence): The proportion of board members who are independent. B-GD (Board Gender Diversity): The proportion of women directors on the board. FLVR (Financial Leverage): The ratio of total shareholders' equity to net debt divided by its value. To address concerns about potential endogeneity due to missing variables, we have incorporated year fixed effects denoted as "d." Additionally, we applied firm-level standard error clustering to account for serial correlation, and the error term is represented as "it." Table 1 provides a detailed description of these variables.

Table 1: Measurement of Variables

Variables	Abbreviations	Measure	References
Corporate Social Responsibility	Log-CSR	Corporate philanthropy donation natural logarithm (expenditure)	(Carroll, 1979; Cha & Akaba, 2016)
Audit Committee Meetings	ACM	The number of meetings held by the AC throughout the year.	(Musallam, 2018)

Foreign Directors on Audit Committees	AC-FD	The proportion of foreign directors on the AC	(Al Lawati, Hussainey, & Sagitova, 2021)
Duration of Audit Committee Tenure	AC-Tenure	The average number of years that the current AC has been serving the organization.	CSMAR
Audit Committee Financial Expertise	AC-expertise	Does the organization have an AC with at least three directors and at least one "financial expert" If yes, the variable takes 1 and is 0 in any case.	CSMAR
Board Independence	B-IND	The proportion of independent directors on the board	(Dwekat et al., 2020)
Board gender diversity	B-GD	The proportion of female directors on the board	(Israr Khan et al., 2021; I Khan & Wang, 2021)
Financial leverage	FLVR	The ratio of net debt divided by the value of total shareholders' equity	(Israr Khan et al., 2021; I Khan & Wang, 2021)

5. Results and Discussion

5.1. Model Validity

Table 2 presents a set of tests aimed at evaluating the model's validity, which encompass assessments for normality, multicollinearity, model specification errors, and heteroscedasticity. We gauged the normality of the variables by examining skewness and kurtosis, with the results displayed in Table 2. Our results reveal that ACMs, AC-Tenure, AC-Expertise, AC-FD, and ACM deviate from the normality assumption due to skewness and kurtosis values exceeding 3 and 10, respectively. In light of this, in accordance with previous studies such as those by (Alhababsah & Yekini, 2021; Bala, Amran, & Shaari, 2020), we applied winsorization to these variables with aberration at a 5% significance level.

Table 2: Model Validation

Variables	Normality Test Skewness	Kurtosis	Before pandemic VIF	During pandemic VIF
Log-CSR	0.389	3.10		
AC-Meeting	2.08	10.47	1.17	1.17
AC-FD	3.93	23.85	1.62	1.71
AC-Tenure	1.48	4.65	1.54	1.35
AC-Expertise	0.64	1.41	1.98	1.87
B-IND	1.50	4.20	1.32	1.36
B-GD	1.135	2.29	1.54	1.76
FLVR	1.78	8.27	1.67	1.86
Breusch-Pagan and Linktest test				
Linktest- hatsq			-0.29(P=0.67)	-0.56 (P=0.32)

Heteroskedasticity	5.36(P=0.031**)	1.32 (P=0.036)
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NOTE: *** 1%, **5% and *10% show significance

To assess multicollinearity within the model, we employed the Variance Inflation Factor (VIF). The VIF results, both pre and during the pandemic period, ranged from 1.17 to 1.98, signifying the nonexistence of multicollinearity among the variables, as no one of the VIF values reached 5 or higher. To identify heteroscedasticity in the models, we used the Breusch-Agnostic/Cook-Weisberg test. The results revealed that, prior to COVID-19; there was significant heteroskedasticity present in the model at a 5% significance level. Consequently, we utilized OLS robust regression for estimation in this context. Conversely, during the COVID-19 period, the outcome indicated the absence of heteroskedasticity issues. Therefore, we employed OLS regression to evaluate the relationship. Additionally, a linktest was performed to examine specification errors within the models. The results indicated that the hatsq values, both pre and during pandemic, were insignificant, suggesting that the models are free from specification errors.

5.2. Descriptive Statistics

Table 3 presents a summary of the descriptive statistics for the dependent, independent, and control variables.

Table 3: Descriptive Statistics

Variables	Obs.	Mean	Maximum	Minimum	Std. Dev.
CSR	3,950	50.01	80.01	4.00	15.00
ACM	3,950	6.829	15.000	0.000	2.360
AC-FD	3,950	2.752	8.000	1.000	1.434
AC-Tenure	3,950	7.858	22.000	1.000	5.515
AC-Expertise	3,950	0.437	1.000	0.000	0.477
B-IND	3,950	5.476	8.000	2.000	1.010
B-GD	3,950	0.250	0.890	0.000	0.240
FLVR	3,950	15.545	28.305	2.897	10.753

Table 3 displays CSR statistics ranging from 4.00 to 80.85, with an average of 50.05. Some Agri-firms made minimal CSR contributions, while certain companies held no ACM meetings during the study period, and others convened up to 15 meetings annually. AC averaged four meetings each year. Several Agri-firms suspended ACM due to COVID-19

related restrictions, impacting both China and other regions with temporary closures of non-essential services. The proportion of foreign directors on AC ranged from 1.00 to 8.00, with an average of 2%. AC-Tenure averaged 8 years, with a minimum of one year and a maximum of 22 years. About 43.7% of Agri-firms in our dataset met the criteria of having an AC with at least three directors, including one as a "financial expert" (coded as 1). The rest did not meet these criteria (coded as 0). Some organizations fulfilled the expertise requirement (1.00), while others did not (0.00).

5.3. Univariate analysis

The correlation coefficients of the econometric model variables are presented in Table 4. CSR is correlated significant with all of the explanatory variables. At a 1% significance level, there is a significant correlation between CSR and the frequency of AC-Meeting and AC-FD.

Table 4: Pearson Correlation Matrix

	CSR	AC-Meeting	AC-FD	AC-Tenure	AC-Expertise	B-IND	B-GD	FLVR
CSR	1.00							
AC-Meeting	0.14***	1.00						
AC_FD	0.03***	0.01***	1.00					
AC-Tenure	0.04***	0.37**	0.08*	1.00				
AC-Expertise	0.10*	0.17	0.07*	0.15	1.00			
B-IND	0.04	0.15	0.08	0.16	0.14	1.00		
B-GD	0.00	0.01	0.03	0.12	0.28	0.04	1.00	
FLVR	0.02	0.06	0.08	0.21	0.16	0.06	0.01	1.00

NOTE: *** 1%, **5% and *10% show significance

These findings offer initial validation for their proposed hypotheses. The correlation coefficient between B-IND and CSR demonstrates the highest value at 0.04. Subsequently, the coefficients point out the nonappearance of significant multicollinearity that could impact the regression outcomes. Thus, it is logical to expect that our study results will be unbiased. This conclusion aligns with the VIF results shown in Table 2.

6. Multiple Regression Results

To assess the model's parameters and input data into E-views software, panel data regression analysis employing ordinary least squares (OLS) was utilized. The outcomes of OLS regression are detailed in Table 5, elucidating the correlation between the dependent

variable CSR and independent variables (AC-Meeting, AC-FD, AC-Residency, AC-Ability, B-IND, B-GD, and FLVR) both prior to and amid the COVID-19 pandemic. The findings in Table 5 demonstrate that both models exhibit statistical significance at the 1% level, with F-values of 9.92 for 2017 and 6.16 for 2021, respectively. These values validate the appropriateness of the models for establishing the relationship. The determination coefficient (R-squared) value was 0.46 before COVID-19, signifying that the explanatory variables explained 46% of the variance in CSR. However, during COVID-19, only 37% of the changes in Agri-firms' expenditures to mitigate its effects could be explained by the explanatory variables.

Table 5: Regression Results

Variables	Before COVID-19		During COVID-19	
	t	P-Value	t	P-Value
Log-CSR (C)	-8.84	0.00	-3.47	0.00
ACM	2.19	0.02***	2.29	0.04***
AC-FD	1.39	0.05*	1.59	0.06**
AC-Tenure	-0.45	-0.06	-0.87	-0.03
AC-Expertise	1.58	0.05**	3.81	0.09*
B-IND	1.94	0.05	1.44	0.06
B-GD	3.26	0.05	0.54	0.07
FLVR	5.95	0.00	5.03	0.00
Model Specifications				
F-Statistic		9.92		6.16
Prob > F		0.00		0.00
Ad: R-squared		0.45		0.37

NOTE: *** 1%, **5% and *10% show significance

Before the onset of the COVID-19 pandemic, a notable positive correlation existed between Agri-firms' ACM and CSR ($t = 2.19$, $p = 0.02$). This trend persisted during the pandemic ($t = 2.29$, $p = 0.04$), as depicted in Table 5. It can be inferred that a higher frequency of ACMs significantly motivates Agri-firms to increase their investments in CSR initiatives both prior to and during COVID-19. Consequently, the hypothesis **H1**, predicting a substantial relationship between ACMs and CSR in both periods, is substantiated. These findings align with a study conducted by (Aladwey, Elgharbawy, & Ganna, 2022), which illustrated that the frequency of board committee meetings enhances CSR performance. Additionally, the analysis reveals that AC-FD exhibit a significant positive correlation with CSR, both before COVID-19 ($t = 1.39$, $p = 0.05$) and during the pandemic ($t = 1.59$, $p = 0.06$). Therefore, these results affirm the validity of **H2**, positing that a higher percentage of foreign directors on the AC positively influences CSR expenditures. This observation is consistent

with the findings of (Chebbi et al., 2023), suggesting that foreign directors contribute to the enhancement of CSR. In contrast, a significant negative correlation is observed between the tenure of the AC and CSR performance, both before and during the COVID-19 pandemic. This suggests that longer board tenure fosters a sense of familiarity that can undermine the effectiveness of control mechanisms, a finding consistent with prior studies (Setiany, Syamsudin, Sundawini, & Putra, 2020). As a result, an extended AC-tenure leads to a decreased emphasis on CSR activities, which is in line with previous research on ACs, demonstrating that longer tenures have a negative impact on auditor independence (Paolone et al., 2023). These results support Hypotheses **H3**. Hence, our examination of AC-tenure adds to the current body of literature by underscoring a significant negative association with CSR performance at the 5% significance level ($P = -0.065$). This suggests that the duration of service of the AC within the organization has an adverse impact on CSR performance.

Furthermore, we have identified a positive correlation between the expertise of the AC and CSR performance. This correlation is statistically significant at the 1% level ($P = 0.05$), both before and during the COVID-19 pandemic. Therefore, these results provide validation for **H4**. These findings imply that a higher CSR score is attainable when the AC is composed of at least three members, including at least one individual with financial expertise. This suggests that having financial expertise within the AC contributes to an enhanced CSR performance, aligning with the doctrine of agency theory as proposed by (Tekin & Polat, 2020). According to agency theory, AC expertise reduces information asymmetry and safeguards stakeholders' interests in CSR performance. Our findings also lend support to prior research by (Liu et al., 2019) which emphasizes the monitoring role of the AC in this context. Regarding control variables, as presented in Table 5, a positive and statistically significant relationship between AC-Independence and CSR is observed at the 1% level, with a positive coefficient ($P = 0.05$) both before and during COVID-19. This empirical evidence suggests that higher levels of CSR performance are linked to a greater number of independent AC members, implying that a larger number of INDs enhance the monitoring activities of the AC, both before and during COVID-19. Furthermore, B-GD reveals a significant relationship with CSR both before COVID-19 ($p = 0.05$) and during it ($p = 0.07$). These results are consistent with the results of studies conducted by (Ananzeh, Alshurafat, Bugshan, & Hussainey, 2022; I Khan & Wang, 2021), all of which indicate that gender diversity on the board contribute to Agri-firms increasing their CSR expenses. Furthermore, firm performance is positively and significantly influenced by leverage, indicating that leverage has a positive effect on firm performance. These positive results may be attributed to Chinese Agri-firms' low borrowing costs.

We employed the TOBIT regression model to confirm the robustness of the significant findings obtained from the OLS regression. The specific outcomes presented in Table 6 validate the model's reliability. It is important to acknowledge that CSR has a minimum limit but no maximum limit. This implies that a company can have zero CSR expenditure if it doesn't spend anything, but it cannot have negative CSR expenditure. Therefore, it's impossible to determine the total CSR spending of companies. In contrast, CSR has a lower limit value of "zero" and is susceptible to left-censoring.

Table 6: TOBIT Regression Results

	Before COVID-19		During COVID-19	
Variables	t	P-Value	t	P-Value
Log-CSR (C)	-9.06	0.00	-3.47	0.00
ACM	2.25	0.02	2.30	0.05
AC-FD	1.40	0.06	2.61	0.07
AC-Tenure	-0.46	0.64	-0.97	-0.04
AC-Expertise	1.60	0.04	3.93	0.07
B-IND	1.99	0.04	2.34	0.05
B-GD	3.27	0.08	-0.61	0.05
FLVR	6.10	0.00	4.34	0.03
Model Specifications				
Lower limits	0.00		0.00	
Pseudo R ²	0.065		0.051	
Prob > χ^2	0.002		0.003	
LR χ^2	0.44		0.36	

Notably, the results of the TOBIT regression in Table 6 align with those of the primary analysis in Table 5. Specifically, the TOBIT regression model suggests that a higher frequency of ACM is correlated with a tendency for companies to enhance their CSR efforts prior to and during the COVID-19 pandemic. Moreover, the ratio of foreign directors serving on the AC also plays a role in influencing CSR activities before and during the pandemic. As a result, both the OLS and TOBIT regression analyses produce consistent results.

Regarding AC-Tenure, it shows a significant negative relationship with CSR before and during the pandemic. Conversely, expertise within the AC demonstrates a notably positive association with CSR, both prior to and during the pandemic. In summary, these results validate the significance of AC-FD and the frequency of ACM in relation to CSR expenditures among publicly listed companies in China, both before and during the COVID-19 pandemic. Theoretically, these findings align with the arguments presented by the legitimacy and stakeholder theories that formed the foundation of our research. In essence, providing philanthropic donations, especially during the pandemic, is viewed as a means to legitimize a company's activities and address the needs of key stakeholders, thereby

contributing to the sustainability of their operations in China. In the current business landscape, a firm's survival is contingent upon its ability to address the requirements of its operating environment and generate profits. Therefore, extending assistance to disadvantaged individuals during the challenging times of COVID-19 is seen as a means to strengthen the sustainability of Agri-firms' operations in China.

7. Conclusion and Recommendations

The COVID-19 pandemic had profound and widespread social and financial implications that extended beyond what government measures alone could improve. To address the challenges posed by the pandemic, our research investigated the relationship between attributes of the AC and CSR within publicly listed companies in China, both before and during the COVID-19 period. Our study concerned a dataset encompassing 790 organizations, variables related to the AC, CSR performance metrics, and a research timeframe spanning from 2017 to 2021. Our research findings revealed that the frequency of ACM had a significantly positive impact on CSR, both before and during the COVID-19 era. Moreover, the presence of foreign directors on the AC exhibited a notably positive relationship with CSR in both time frames. Additionally, AC expertise demonstrated a significant and positive correlation with CSR performance, both before and during the pandemic. Conversely, the tenure of the AC displayed a negative and significant relationship with CSR performance in both contexts. Our study offers valuable insights into CSR, which is believed to play a pivotal role in mitigating the pandemic's repercussions. The findings of this study carry practical implications for enhancing CSR activities in China. They also contribute to the ongoing discourse regarding the impact of AC's oversight on CSR engagement and risk management. Regulators may consider mandating the establishment of independent and robust ACs to promote CSR activities within Agri-firms. Our research assists policymakers in formulating specific regulations and guidelines for ACs in this context. Despite the significance of our research, it possesses certain limitations that future investigations can address. Firstly, our study evaluates the impact of ACM, AC-FD, expertise, and tenure on CSR performance as perceived by decision-makers. Future research could employ alternative measures, such as a self-developed index spanning a more extended time frame, to eliminate subjectivity and potential bias associated with financial investors' perceptions of AC. Secondly, our study only analyzes data from 2017 to 2021. Subsequently, future research could encompass additional years and await post-pandemic developments. It is important to

note that these limitations do not affect our findings, but future research could explore additional attributes linked to board characteristics.

8. Reference

AL-MATARI, Y. Audit committee chairman characteristics and corporate performance: Empirical evidence from Saudi Arabia. *Accounting*, vol. 8, n. 1, p. 47-56, 2022.

AL LAWATI, H.; HUSSAINEY, K.; SAGITOVA, R. Disclosure quality vis-à-vis disclosure quantity: does audit committee matter in Omani financial institutions? *Review of Quantitative Finance and Accounting*, vol. 57, n. 2, p. 557-594, 2021.

ALADWEY, L.; ELGHARBAWY, A.; GANNA, M. A. Attributes of corporate boards and assurance of corporate social responsibility reporting: evidence from the UK. *Corporate Governance: The international journal of business in society*, vol. 22, n. 4, p. 748-780, 2022.

ALHABABSAH, S.; YEKINI, S. Audit committee and audit quality: An empirical analysis considering industry expertise, legal expertise and gender diversity. *Journal of International Accounting, Auditing and Taxation*, vol. 42, p. 100377, 2021.

ANANZEH, H.; ALSHURAFAT, H.; BUGSHAN, A.; HUSSAINEY, K. The impact of corporate governance on forward-looking CSR disclosure. *Journal of Financial Reporting and Accounting*(ahead-of-print), 2022.

BALA, H.; AMRAN, N. A.; SHAARI, H. Audit committee attributes and cosmetic accounting in Nigeria: The moderating effect of audit price. *Managerial Auditing Journal*, vol. 35, n. 2, p. 177-206, 2020.

BARZEGAR, G.; HASANNATAJKORDI, M.; MALAKI, D. An investigation of the audit committee characteristics effects on corporate social responsibility disclosure. *Quarterly Journal of The Iranian Accounting & Auditing Review*, vol. 26, n. 1, p. 19-38, 2019.

BHUIYAN, M. B. U.; NGUYEN, T. H. N. Impact of CSR on cost of debt and cost of capital: Australian evidence. *Social Responsibility Journal*, 2019.

CARROLL, A. B. A three-dimensional conceptual model of corporate performance. *Academy of management Review*, vol. 4, n. 4, p. 497-505, 1979.

CARROLL, A. B. Corporate social responsibility (CSR) and the COVID-19 pandemic: Organizational and managerial implications. *Journal of Strategy and Management*, vol. 14, n. 3, p. 315-330, 2021.

CHA, W.; ABEBE, M. A. Board of directors and industry determinants of corporate philanthropy. *Leadership & Organization Development Journal*, vol. 37, n. 5, p. 672-688, 2016.

CHEBBI, H.; BEN SELMA, M.; BOUZINAB, K.; PAPADOPOULOS, A.; LABOUZE, A.; DESMARTEAU, R. Accelerated internationalization of SMEs and microfoundations of dynamic capabilities: towards an integrated conceptual framework. *Review of International Business and Strategy*, vol. 33, n. 1, p. 35-54, 2023.

COPLEY, P. A.; DOUCET, M. S. Auditor tenure, fixed fee contracts, and the supply of substandard single audits. *Public Budgeting & Finance*, vol. 13, n. 3, p. 23-35, 1993.

DIMAGGIO, P. J.; POWELL, W. W. The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American sociological review*, p. 147-160, 1980.

DWEKAT, A.; SEGUÍ-MAS, E.; TORMO-CARBÓ, G.; CARMONA, P. Corporate governance configurations and corporate social responsibility disclosure: Qualitative comparative analysis of audit committee and board characteristics. *Corporate Social Responsibility and Environmental Management*, vol. 27, n. 6, p. 2879-2892, 2020.

EL KHOURY, R.; NASRALLAH, N.; ALAREENI, B. ESG and financial performance of banks in the MENAT region: concavity–convexity patterns. *Journal of Sustainable Finance & Investment*, vol. 13, n. 1, p. 406-430, 2023.

ELMAGHRABI, M. E. CSR committee attributes and CSR performance: UK evidence. *Corporate Governance: The international journal of business in society*, vol. 21, n. 5, p. 892-919, 2021.

FAMA, E. F.; JENSEN, M. C. Separation of ownership and control. *The journal of law and Economics*, vol. 26, n. 2, p. 301-325, 1983.

FREEMAN, C. The economics of technical change. *Cambridge journal of economics*, vol. 18, n. 5, p. 463-514, 1994.

GARANINA, T.; ARAY, Y. Enhancing CSR disclosure through foreign ownership, foreign board members, and cross-listing: does it work in Russian context? *Emerging Markets Review*, vol. 46, p. 100754, 2021.

GORSHUNOV, M. A.; ARMENAKIS, A. A.; HARRIS, S. G.; WALKER, H. J. Quad-qualified audit committee director: Implications for monitoring and reducing financial corruption. *Journal of corporate Finance*, vol. 66, p. 101854, 2021.

HA, H. H. Audit committee characteristics and corporate governance disclosure: evidence from Vietnam listed companies. *Cogent Business & Management*, vol. 9, n. 1, p. 2119827, 2022.

HAN, Z.; WANG, D.; NI, M. A Review of the Responsible Leadership Research and Its Prospects from the Vision of China. *Academic Journal of Business & Management*, vol. 4, n. 7, p. 27-37, 2022.

HUSE, M.; HOSKISSON, R.; ZATTONI, A.; VIGANÒ, R. New perspectives on board research: Changing the research agenda. *Journal of Management & Governance*, vol. 15, p. 5-28, 2011.

JAHD, M. A.; RASHID, M. H. U.; HOSSAIN, S. Z.; HARYONO, S.; JATMIKO, B. Impact of corporate governance mechanisms on corporate social responsibility disclosure of publicly-listed banks in Bangladesh. *The Journal of Asian Finance, Economics and Business (JAFEB)*, vol. 7, n. 6, p. 61-71, 2020.

KANG, Y. J. Are audit committees more challenging given a specific investor base? Does the answer change in the presence of prospective critical audit matter disclosures? *Accounting, Organizations and society*, vol. 77, p. 101051, 2019.

KHALIL, A.; BEN SLIMENE, I. Financial soundness of Islamic banks: does the structure of the board of directors matter? *Corporate Governance: The international journal of business in society*, vol. 21, n. 7, p. 1393-1415, 2021.

KHAN, I.; MANSI, W.; LIN, K.-L.; LIU, C.-F.; SUANPONG, K.; RUANGKANJANASES, A. The effect of CEO on bank efficiency: evidence from private commercial banks. *Frontiers in Psychology*, vol. 12, p. 738210, 2021.

KHAN, I.; WANG, M. Evaluating Corporate Performance and Bank Productivity in China: The Moderating Role of Independent Directors. *Sustainability* 2021, 13, 3193: s Note: MDPI stays neutral with regard to jurisdictional claims in published

LIANG, M.; LEI, L. What drives nonprofit prevalence and growth in local China: is it demand driven or resource oriented? *China: An International Journal*, vol. 17, n. 2, p. 148-163, 2019.

LIN, K. J.; TAN, J.; ZHAO, L.; KARIM, K. In the name of charity: Political connections and strategic corporate social responsibility in a transition economy. *Journal of corporate Finance*, vol. 32, p. 327-346, 2015.

LIN, T.-L.; LIU, H.-Y.; HUANG, C.-J.; CHEN, Y.-C. Ownership structure, board gender diversity and charitable donation. *Corporate Governance: The international journal of business in society*, vol. 18, n. 4, p. 655-670, 2018.

LIU, Y.; OTT, M.; GOYAL, N.; DU, J.; JOSHI, M.; CHEN, D.; STOYANOV, V.; ... Roberta: A robustly optimized bert pretraining approach. *arXiv preprint arXiv:1907.11692*, 2019.

LUSTIG, Y.; NEMET, I.; KLIKER, L.; ZUCKERMAN, N.; YISHAI, R.; ALROY-PREIS, S.; . . . MANDELBOIM, M. Neutralizing response against variants after SARS-CoV-2 infection and one dose of BNT162b2. *New England Journal of Medicine*, vol. 384, n. 25, p. 2453-2454, 2021.

MAZLOOMZADEH, S.; KHALEGHPARAST, S.; GHADRDOOST, B.; MOUSAVIZADEH, M.; BAAY, M. R.; NOOHI, F.; . . . ALAMDARI, N. M. Effect of intermediate-dose vs standard-dose prophylactic anticoagulation on thrombotic events, extracorporeal membrane oxygenation treatment, or mortality among patients with COVID-19 admitted to the intensive care unit: the INSPIRATION randomized clinical trial. *Jama*, vol. 325, n. 16, p. 1620-1630, 2021.

MCLAUGHLIN, C.; ARMSTRONG, S.; MOUSTAFA, M. W.; ELAMER, A. A. Audit committee diversity and corporate scandals: evidence from the UK. *International Journal of Accounting & Information Management*, vol. 29, n. 5, p. 734-763, 2021.

MOHAMED BUALLAY, A.; AL MARRI, M.; NASRALLAH, N.; HAMDAN, A.; BARONE, E.; ZUREIGAT, Q. Sustainability reporting in banking and financial services sector: a regional analysis. *Journal of Sustainable Finance & Investment*, vol. 13, n. 1, p. 776-801, 2023.

MUSALLAM, S. R. The direct and indirect effect of the existence of risk management on the relationship between audit committee and corporate social responsibility disclosure. *Benchmarking: An International Journal*, vol. 25, n. 9, p. 4125-4138, 2018.

NGUYEN, T. H.; ELMAGRHI, M. H.; NTIM, C. G.; WU, Y. Environmental performance, sustainability, governance and financial performance: Evidence from heavily polluting industries in China. *Business Strategy and the Environment*, vol. 30, n. 5, p. 2313-2331, 2021.

OH, W.-Y.; CHANG, Y. K.; KIM, T.-Y. Complementary or substitutive effects? Corporate governance mechanisms and corporate social responsibility. *Journal of management*, vol. 44, n. 7, p. 2716-2739, 2018.

OMRAN, M. A.; RAMDHONY, D. Theoretical perspectives on corporate social responsibility disclosure: a critical review. *International Journal of Accounting and Financial Reporting*, vol. 5, n. 2, p. 38-55, 2015.

OTHMAN, R.; ISHAK, I. F.; ARIF, S. M. M.; ARIS, N. A. Influence of audit committee characteristics on voluntary ethics disclosure. *Procedia-Social and Behavioral Sciences*, vol. 145, p. 330-342, 2014.

OUDAT, M. S.; ALI, B. J.; QESHTA, M. H. Financial performance and audit committee characteristics: An empirical study on bahrain services sector. *Journal of Contemporary Issues in Business and Government*, vol. 27, n. 2, p. 4279, 2021.

PAOLONE, F.; POZZOLI, M.; CUCARI, N.; BIANCO, R. Longer board tenure and audit committee tenure. How do they impact environmental performance? A European study. *Corporate Social Responsibility and Environmental Management*, vol. 30, n. 1, p. 358-368, 2023.

PUCHETA-MARTÍNEZ, M. C.; GALLEGO-ÁLVAREZ, I.; BEL-OMS, I. Corporate social and environmental disclosure as a sustainable development tool provided by board sub-committees: Do women directors play a relevant moderating role? *Business Strategy and the Environment*, vol. 30, n. 8, p. 3485-3501, 2021.

QADERI, S. A.; ALHMOUD, T. R.; GHALEB, B. A. A. Audit committee features and CSR disclosure: Additional evidence from an emerging market. *Int. J. Financ. Res*, vol. 11, p. 226-237, 2020.

SETIANY, E.; SYAMSUDIN, S.; SUNDAWINI, A.; PUTRA, Y. Ownership structure and firm value: the mediating effect of intellectual capital. *International Journal of Innovation, Creativity and Change*, vol. 13, n. 10, p. 1697-1711, 2020.

SOLARIN, S. A.; BELLO, M. O.; TIWARI, A. K. The impact of technological innovation on renewable energy production: accounting for the roles of economic and environmental factors using a method of moments quantile regression. *Heliyon*, vol. 8, n. 7, 2022.

TAI, V. W.; LAI, Y.-H.; YANG, T.-H. The role of the board and the audit committee in corporate risk management. *The North American Journal of Economics and Finance*, vol. 54, p. 100879, 2020.

TAO, S.; FENG, T.; ZHENG, C.; ZHU, S.; YANG, B. Carbonized polymer dots: a brand new perspective to recognize luminescent carbon-based nanomaterials. *The Journal of Physical Chemistry Letters*, vol. 10, n. 17, p. 5182-5188, 2019.

TEKIN, H.; POLAT, A. Y. Agency theory: A review in finance. *Anemon Muş Alparslan Üniversitesi Sosyal Bilimler Dergisi*, vol. 8, n. 4, p. 1323-1329, 2020.

THUY, H. X.; KHUONG, N. V.; ANH, L. H. T.; QUYEN, P. N. Effect of corporate governance on corporate social responsibility in Vietnam: state-ownership as the moderating role. *Journal of Financial Reporting and Accounting*, 2022.

WANG, J.; MA, M.; DONG, T.; ZHANG, Z. Do ESG ratings promote corporate green innovation? A quasi-natural experiment based on SynTao Green Finance's ESG ratings. *International Review of Financial Analysis*, vol. 87, p. 102623, 2023.

WOOD, D. J.; JONES, R. E. Stakeholder mismatching: A theoretical problem in empirical research on corporate social performance. *The International Journal of Organizational Analysis*, vol. 3, n. 3, p. 229-267, 1995.

ZHANG, J.; MARQUIS, C.; QIAO, K. Do political connections buffer firms from or bind firms to the government? A study of corporate charitable donations of Chinese firms. *Organization science*, vol. 27, n. 5, p. 1307-1324, 2016.

ZHANG, J.; TERRONES, M.; PARK, C. R.; MUKHERJEE, R.; MONTHIOUX, M.; KORATKAR, N.; . . . ENOKI, T. Carbon science in 2016: Status, challenges and perspectives. *Carbon*, vol. 98, n. 70, p. 708-732, 2016.

ZHANG, L.; XU, Y.; CHEN, H. Do returnee executives value corporate philanthropy? Evidence from China. *Journal of business ethics*, vol. 179, n. 2, p. 411-430, 2022.

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