




## THE IMPACT OF GREEN GOVERNANCE ON SUSTAINABILITY REPORTING & CORPORATE SOCIAL RESPONSIBILITY: FINANCIAL RISK AS MODERATOR

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KEYWORDS	ABSTRACT
Green Governance (GG), Sustainability Reporting (SR), Corporate Social Responsibility (CSR), Financial Risk (FR)	The present research endeavors to examine the effects of green governance namely board gender diversity, committee size, board independence, and board size, on corporate social responsibility and sustainability reporting. The study also considers the moderating effect of financial risk, including liquidity risk and capital risk. The data has been obtained from banking institutions in financial sector of Pakistan. Dataset comprises information from 33 banks that were included in our analysis. Convenience sampling technique was employed to gather the time series and cross-sectional data, which was utilized to construct panels in order to obtain desired outcomes. The results show significant and favorable relationship amid board's size & degree of independence when it comes to corporate social responsibility and sustainability reporting. There is a negative correlation amid presence of a board committee, board gender diversity and practice of sustainability reporting. Regression has confirmed consistent findings, indicating that both board size and board independence exhibit positive association with SRI & CSR, whereas board committee and board gender diversity show a negative link.
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### INTRODUCTION

Green governance structures, such as board of directors, contribute to the protection of company's proprietors and other stakeholders' interests. They are instrumental in determining the performance and survivability of a company due to their responsibility for supervising and guiding the reporting process (Abbas & Sabah, 2024). The CG is responsible for handling agency matters and executive direction (Nazir & Afza, 2018). The Board of Directors (BODs) exerts an influence upon the strategic

decision-making processes and organizational goals, policies and strategic indicators in accordance with the shareholders' rights. The involvement of BODs is fundamental to "Green Management," and this relationship is directly linked to success or failure of an organization (Farooq, Noor & Magbool, 2023). A crucial factor in ongoing monitoring of green governance practices and corporate board symbols could be the implementation of an advanced organizational reporting system (Roos, 2017). Creditors within the organization facilitate the acquisition of loans and other types of financial aid from an extensive array of the sources. Thus, despite the concerted efforts of governments, firms, and legislators to advance the green governance for EG, research in this area is still in its nascent stages (Zeng & Chen 2016).

The number of directors may impact company's social responsibility practices and decision-making to a greater or lesser extent. Resource-dependency-wise, there are a number of benefits associated with more diverse and expansive boards of directors with regard to enhancing corporate reporting standards (Post, Rahman & McQuaid, 2011). There is a higher probability that the larger boards will comprise members from diverse stakeholder groups, some of whom may be more concerned with the disclosure of SR and CSR. Non-financial risks such as liquidity risk, credit risk, and market risk are among the most prevalent perils encountered by organizations (Abbas & Sabah, 2024). The risk of financial loss if refunds abruptly increase or decrease. Financial risks manifest an extensive variety of forms and magnitudes. These hazards exert an adverse impact on financial matters. An instance of financial risk being employed as a generic term to encompass various facets of financial risk is when a company borrows money for financial operations at its own peril. A financial risk is created by the decline in stock market, which may be consequence of volatility in asset diversification. Assigning liabilities and responsibilities that are insufficient to offset current assets is the concern frequently associated with debt.

Financial success is significant in determining a company ability to accomplish its goals, objectives, and generate high returns. The smart economic banks, like all other financial institutions, contribute significantly to overall development of the nation (Salam, Shamsuddin & Bakar, 2019). Thus, the financial prosperity of banks is significant, as it contributes to an improvement in the quality of life as a whole. My experience working in banks and other financial institutions has been extremely instructive. The diverse effects on global financial performance have been identified by researchers. The body of research examining the potential impact of financial risk management that has grown noticeably over past few years (Abbas & Sabah, 2024). According to a number of studies, financial system of nation is critical to its economic success and stability. An effective financial management system must consider potential risks and rewards associated with assets it oversees. An assortment of economic values known as "risk factors" determines worth of every element in a portfolio. An owner of firm may minimize losses, seize chances and achieve the intended outcomes by actively managing risks. Following the early 2020 COVID-19 outbreak, there has been push for political, economic, and commercial development.

Think about how COVID-19 emergency notifications have affected financial markets. A number of domestic directives have been issued by each of the G7 nations. Global security market prices have decreased in tandem with economic productivity (Akhtar, 2021). Despite an increase in the number

of the academicians investigating cross-company cooperation, there are still numerous unanswered questions in the field of risk management. As stated by [Gattringer, Wiener and Strehl \(2017\)](#), open foresight remains comparatively novel concept, and only limited number of studies have examined its practical implementation. It is critical to bear in mind that in order to achieve effective financial risk management, "novel theoretical concepts and instruments" are necessary. Collective justice has emerged as a contentious issue within the contemporary business sector. The importance of GG in organizations is increasing in tandem with the positive trend towards reporting on corporate social responsibility. Thus, when evaluating financial risk in the banking industry, consideration should be given to sustainability reporting, corporate responsibility, and green governance. Previous research has examined the significant impact of board characteristics, including structure and membership, on sustainability reporting.

The study develops a green framework index that enables comprehensive and unbiased evaluation of the sustainability and proactivity of the companies in relation to social responsibility. The risk of financial loss if refunds abruptly increase or decrease. Financial risks manifest in extensive variety of forms and magnitudes. These hazards exert an adverse impact on financial matters. Additionally, they disregard the influence of GG on SR. To fill this research void, this investigation employs the GG framework, which comprises BS, BI, BC, and BGD. This research neglects elements of the Green Governance framework, which directly affects Sustainability Reporting. [Li, Zheng and Liu \(2020\)](#) proposed that additional research be conducted in the context of privately owned institutions. Thus, understanding the impact of green governance on sustainability reporting and CSR, moderated by financial risk, provides valuable insights into how companies can navigate the complex interplay between environmental responsibility & financial performance. Our investigation focused on both banking sectors in order to address this deficiency. Thus, encouraging transparency in sustainability reporting can drive the better environmental and social outcomes. Furthermore, our research has looked at how CSR, Green Governance and Sustainability Reporting, and financial risk are related in Pakistani banking.

### LITERATURE REVIEW

The stakeholder theory promotes implementation of corporate transparency laws, corporate social responsibility (CSR) initiatives, and risk management regulations to effectively manage conflicting interests of many stakeholders. Members of Board of Directors, who represent different stakeholder groups, play a vital role in safeguarding and advancing company legitimate interests via improved corporate disclosures, transparency, which includes implementation of sustainable and responsible practices. Therefore, the businesses must rely on the financial resources that society has available to them in order to meet their objectives. Because of this, resource dependence hypothesis emphasizes how crucial external links and networks are to operations of enterprises ([Pfeffer & Salancik, 2003](#)). In study conducted in 1967, Lawrence and Lorsch found that resource dependence has a significant effect on the CG, leading them to offer that thriving organizations should have internal CG devices that align with the external environmental regulation. Also, it is believed that board characteristics such as size of the board and the presence of independent directors, play a crucial role in connecting the organization with external resources, which is essential for its long-term sustainability ([Kiel & Nicholson, 2003](#)).

The number of administrators and the size of the board may impact the extent and intensity of social responsibility practices, and decision-making processes. From a resource-dependency perspective, large forums enhance reporting processes by incorporating diverse perspectives, beliefs & opinions from members into corporate decision-making. Large forums also include participation from many stakeholder firms, which may support incorporation of more diverse characteristics in the company social responsibility practices. This may expand the breadth and enhance the company's already commendable social responsibility practices (Rao & Tilt, 2012). Presently, forums are increasingly gaining prominence as platforms for discussing sustainability reporting concerns. Though a great deal of study has been done on the boards of directors, not many studies have focused on how they affect sustainability reporting. The previous research by Liu and Zhang (2017) has shown that the implementation of several committees, regular meetings, and reporting systems has been helpful in enhancing governance and organizational performance. Committee members play a crucial role in pressuring board members and senior executives to provide more information, especially on certain subjects and sports linked to committee. Another study (Lee & Kim, 2014) has found a correlation between improved sustainability indices and presence of CSR committees upon developing market company boards.

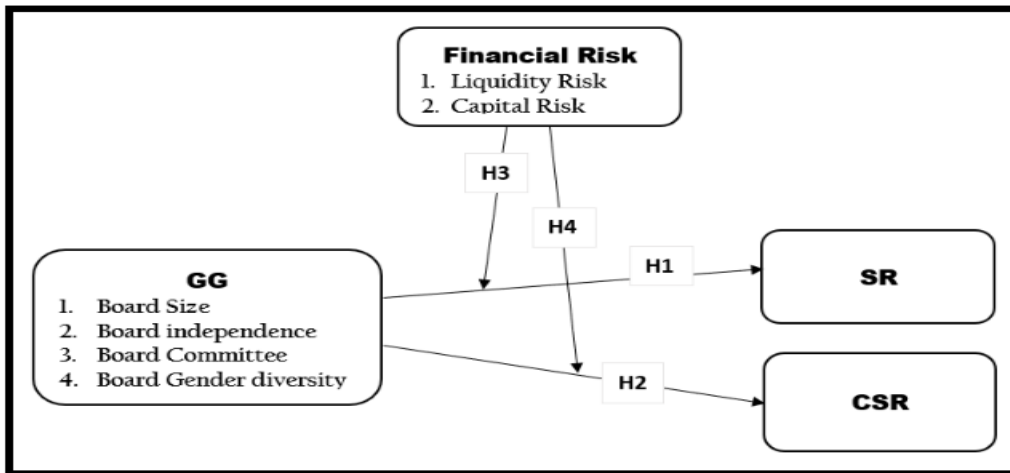
The previous research has shown a strong correlation between a company's disclosure of financial information and the composition of its board committees. Taking into account the aforementioned theory. Independent administrators advise on level of financial reporting to safeguard shareholders' interests (Petra, 2005). The efforts of well-organized forums provide benefits for all parties involved, including stakeholders beyond simply stockholders. Independent administrators mitigate conflicts of interest between the corporate leaders and other stakeholders that have a vested interest in its performance. The study conducted by Said, Zainuddin and Haron (2009) found no evidence of a correlation between unbiased administrators and CSR disclosure in Malaysian enterprises. During a financial crisis, individuals who have not received full amount of their mortgage loans withdraw their funds from financial institutions in order to address their immediate liquidity and investment requirements. In this linking, the aforementioned considerations are most relevant to crises in the banking sector, while lenders of financial institutions are primarily concerned with the soundness of the banks, they provide loans to. Thus, the reason for our hypothesis is the significant influence of a catastrophe on the correlation between liquidity risk and the performance of financial institutions during the crisis.

### **Moderating Impact of CR**

The ability of a financial institution to ensure high-risk assets is known as "capital chance" (Mousa, Judit & Haitham, 2018). This is measured by difference between equity obligations and the market value of assets. Sukmadewi (2020) investigated various factors, including capital adequacy ratio, and their impact on investment performance of twenty-three publicly listed banks on Indonesian stock market from 2016 to 2018. According to the study, fairness ratios at banks positively impact the profitability of banks. Research conducted by financial institutions has shown that depositors are likely to extract their funds from banks during periods of economic crisis if they have concerns about the bank's solvency. The presence of a significant pre-disaster liquidity risk in a bank may be

influenced by the specific kind of economic crisis occurring. In addition, the research by Salam et al. (2019) examined how risks affected 33 Pakistani banks' financial results between 2008 and 2018. A statistic called capital sufficiency is used to evaluate the risk attached to capital. It's interesting to note that it has the opposite effect when evaluating banking performance in terms of returns on the capital. An analysis of capital risk's overall effects on the corporate social responsibility (CSR) and green governance.

Figure 1 Theoretical Framework



### RESEARCH METHODOLOGY

Pakistan had a total of thirty-three financial institutions, which including the microfinance and investment banks. We have excluded the institutions from our sample whose data was not available on official websites of Annual Reports or SBP websites. To validate our idea, we have included data from over 33 banks.

### Sampling Technique & Data Collection Method

In our analysis, we used convenience sampling technique, where we obtained data by downloading it from the official websites or State Bank of Pakistan (SBP) websites of particular institutions we focused on. The data was obtained from secondary sources, including the financial statements of the selected banks, State Bank of Pakistan's website, Pakistan Stock Exchange, and the official websites of banking institutions. The data covers period from 2009 to 2020. The research mostly focused on gathering secondary data.

### Data Coding & Analysis Techniques

Panel data including quantitative factors was how the information was shown. Panel data is a kind of database that contains records for several observational units throughout variety of time periods. Panel data are a collection of cross-sectional data gathered on same set of observations throughout a variety of time periods. The panel data is more information-rich, varied, and efficient than cross-sectional or pure time series data. By combining data into a single time series, panel data may help

to minimize estimate biases. This data has been analyzed using following tests. The JB (Jarque-Bera) Test was also run to see whether the data was typical enough for further analysis. The preliminary assessment will make use of a descriptive test unit called the Fisher type unit. Therefore, the Pearson Correlation Coefficient calculation will be performed next. Furthermore, the OLS and other panel regression techniques with fixed and random effects will be used. Lastly, there will be a moderating analysis done.

**DATA ANALYSIS**

Table 1 Pooled OLS Regression (SRI)

Hypothesis	Predictors	Dependent variables				
		Coef.	St.Err.	t-value	p-value	Remarks
H1a	BS→SRI	9.815	1.062	9.24	0.000***	Significant
H1b	BI→SRI	45.191	9.165	4.93	0.000***	Significant
H1c	BC→SRI	-60.659	20.364	-2.98	0.003***	Significant
H1d	BGD→SRI	-22.316	18.55	-1.20	0.23	Insignificant
Controlled Variables	CR2→SRI	-.228	.111	-2.07	0.04**	Significant
	L. T. A→SRI	2.016	1.079	1.87	.062*	Insignificant
	Cap→SRI	-45.648	7.434	-6.14	0.000***	Significant
	Constant	-20.053	29.038	-0.69	0.49	Insignificant
R-squared		0.354	Observe			367
F - test		28.059	Prob > F			0.000

The table displays the correlation between the independent variables and the Social Responsibility Index (SRI). This showcases components of Green Governance. The p-value for BI is 0.000, indicating a significant positive link with SRI.  $\beta$  coefficient for this relationship is 45.191. BC, on the other hand, has substantial negative relationship with SRI, with p-value of 0.003 and a  $\beta$  coefficient of -60.659. BGD, however, has a negative and insignificant relationship with SRI, with a p-value of 0.23 and a  $\beta$  coefficient of -22.316. There is strong positive correlation between BS and SRI, with a statistically significant p-value of 0.000. The factors that we are controlling in our study are CR2, capitalization, and log total assets. There is strong negative relationship between CR2 and capitalization with SRI, but the relationship between log total assets and SRI is not significant and positive. The first model, IVs and DV1, demonstrated a statistically significant association with a F value of (0.000). R-squared figure indicates that our independent variables accounted for 35% of variation in our dependent variables (DVs). The F value (0.000) demonstrated a strong and significant relationship between the independent variables (IVs) and the dependent variable 2 (DV2) in Model 2. Thus, the R-squared number indicates that our independent variables (IVs) accounted for 26% of the variance in our dependent variable (DV).

Table 2 Pooled OLS Regression (CSR)

Hypothesis	Independent	Dependent variables				
		Coef.	SE	t-value	p-value	Remarks
H2a	BS→CSR	5.532	.869	6.37	0.000***	Significant
H2b	BI→CSR	27.812	7.496	3.71	0.000***	Significant



H2c	BC → CSR	-42.487	16.656	-2.55	0.011**	Significant
H2d	BGD → CSR	-17.349	15.172	-1.14	0.254	Insignificant
Controlled variables	CR2 → CSR	-.194	.09	-2.15	0.032**	Significant
	L. T. A → SRI	-1.162	.882	-1.32	0.189	Insignificant
	Cap → CSR	-38.606	6.08	-6.35	0.000***	Significant
	Constant	56.373	23.751	2.37	.0018**	Significant
	R-squared	0.266		Number of Obs		367
	F-test	18.611		Prob > F		0.000

Table (2) displays the association between corporate social responsibility (CSR) and independent factors. Shown are the components of Green Governance. A significant positive correlation exists between BS and CSR, as shown by a  $\beta$  coefficient of 5.532 and a p-value of 0.000. Similarly, with a  $\beta$  coefficient of 27.812 and p-value of 0.000, BI and CSR likewise have strong positive connection. Conversely, BC and CSR have a statistically significant negative correlation (p-value of 0.011 and  $\beta$  coefficient of -42.487). Last but not least, with a  $\beta$  coefficient of -17.349 and a p-value of 0.254, BGD and CSR have a non-significant negative association. We included capitalization and CR2 as controlled variables in our study. In this linking, we discovered that there is a significant inverse relationship between CR2 and capitalization and SRI (Socially Responsible Investing). However, there is a small/fever but favorable correlation exists between log total assets and CSR (Corporate Social Responsibility).

Table 3 Panel Regression Analysis

Variables	Model 1	Model 2
BS → SRI	0.000*** (9.815)	
BI → SRI	0.000*** (45.191)	
BC → SRI	0.069* (-60.659)	
BGD → SRI	0.262 (-22.316)	
CR2 → SRI	0.025** (-.228)	
Log total assets → SRI	0.004*** (2.016)	
capitalizations → SRI	0.001*** (-45.648)	
BS → CSR		0.000*** (5.246)
BI → CSR		0.006*** (23.383)
BC → CSR		0.188** (-44.01)
BGD → CSR		0.026** (-29.375)
CR2 → CSR		0.018*** (-.254)
Log total assets → CSR		0.004*** (-2.003)
capitalizations → CSR		0.001** (-37.222)
Overall r-squared	0.354	0.277
Chi-square	1315.528	3456.181
R-squared within	0.345	43.817
Number of Obs	367	367
Prob > chi2	0.000	0.000

\*\*\* p < .01, \*\* p < .05, \* p < .1

In Model 1, SR variables are regressed on the board features and controls using a panel regression approach. The computed BS coefficients are positive and significant at the 1% level, indicating that

larger board size is associated with better sustainability reporting (SRI). This supports Hypothesis 1a, which posits that increase in board size enhances ecological, social, and environmental standards of sustainable development. As a result, data for BI, which show substantial and favorable correlation amid independent directors and all of SR indicators, completely support and validate Hypothesis 1b. According to research, boards that have greater independence are able to give more reliable and uniform sustainability statistics. The presence of board committees is indicated by a negative association between BC and SR. There is no statistically significant link seen between computed coefficients of BC and the variances of ECO, SOC, and SR. Besides, (Hypothesis 1c) does not provide any evidence for this claim. Hypothesis 1d is not supported by evidence on the positive link between gender diversity and environmental information. According to data, there is harmful link between SRI and BGD.

The BS coefficients have significantly increased. This group asserts that increasing the number of members on the CSR board would result in enhanced practices. The composite CSR index has the significant and favorable correlation with Business Sustainability (BS) as well. Based on Hypothesis 2a. The greater the efficacy of business strategy (corporate social responsibility). The data analysis confirms that independent directors are significantly and positively correlated with all the CSR indicators, providing evidence in support of Hypothesis 2b. This demonstrates that increased board independence results in more uniformity of information on corporate social responsibility. Our study establishes that independent boards have higher likelihood of being cognizant of corporate social responsibility (CSR) concerns. The presence of board committees is inversely related to the extent of corporate social responsibility (CSR). The correlation between variability of CSR, computed coefficients, and BC is not statistically significant. Therefore, there is a lack of evidence supporting Hypothesis 2c. There is no evidence to support the supposition that there is a positive correlation between gender diversity and CSR information (supposition 2d). Therefore, the results demonstrate a correlation between BGD and SRI. In addition, I would want to get more detailed information on the company's corporate social responsibility (CSR) initiatives. Therefore, there existed evidence contradicting the idea.

### **Moderation Analysis**

In our model, we formulated Hypothesis 3 to examine the impact of liquidity risk on the dimensions of Green Governance. Additionally, Hypothesis 4 was constructed to investigate the influence of capital risk on SRI and CSR. The findings shown in Tables 7 and 8 validate impact of moderating variable on the connection between independent variable (IVS) and the dependent variable (DVS). The table illustrates impact of Liquidity risk on correlation between corporate social responsibility and Green Governance (BS, BI, BC & BGD) and Sustainability Reporting. The analysis reveals that Board Committee is only factor that shows a significant positive link amid Sustainability Reporting and Liquidity Risk. Despite previously having a significant positive correlation, connections amid Green Governance (BS, BI) lose their significance when liquidity risk arises. The study examines the impact of Capital Risk on correlation amid CSR, Sustainability Reporting, and Green Governance (BS, BI, BC, and BGD). The results illustrate how capital risk alters this relationship. When there is a risk to capital, the formerly substantial positive correlations between Green Governance (BS, BI, BC, and BGD) linkages turn into negative and negligible. It may be expected that the Board does



not priorities Sustainability and corporate social responsibility when liquidity risk and capital risk become significant.

Table 4 Moderation Test Liquidity Risk

Variables	Model 1	Model 2
BS	0.000, _ (4.444)	0.000, _ 3.366
BI	0.189, _ (9.039)	0.481, _ 3.691
BC	0.011, _ (-765.619)	0.71, _ -85.245
BGD	0.012, _ (31.38)	0.454, _ 7.084
Liq Risk	0.012, _ (-1167.301)	0.723, _ -125.025
BS*Liқ Risk	0.996, _ (-.002)	0.769, _ .103
BI*Liқ Risk	0.837, _ (-.548)	0.700, _ -.779
BC*Liқ Risk	0.012, _ (1167.51)	0.724, _ 124.777
BGD*Liқ Risk	0.96, _ (.107)	0.583, _ -.89
CR2	0.847, _ (-.015)	0.900, _ -.007
Log total assets	0.074, _ 0	0.847, _ 0
Capitalizations	.447, _ (-4.342)	0.034, _ -9.268
R-squared	0.097	0.080
F-test	2.894	2.335
Number of obs	367	367
Prob > F	0.000	0.000

Table 5 Moderation Test Capital Risk

Variables	Model 1	Model 2
BS	0.007, _ 3.664	0.000, _ 3.786
BI	0.293, _ 7.925	0.689, _ 2.3
BC	0.221, _ 35.117	0.455, _ -16.333
BGD	0.012, _ 32.907	0.376, _ 8.824
Cap Risk	0.061, _ 2450.169	0.56, _ -581.191
BS* Cap Risk	0.366, _ -2.435	0.603, _ -1.07
BI* Cap Risk	0.764, _ -5.021	0.697, _ 4.981
BC* Cap Risk	0.064, _ -2427.951	0.554, _ 591.761
BGD* Cap Risk	0.505, _ -16.222	0.304, _ -19.088
CR2	0.93, _ -.006	0.848, _ -.01
Log total assets	0.063, _ 0	0.67, _ 0
Capitalizations	0.767, _ -2.913	0.059, _ -14.19
R-squared	0.095	0.073
F-test	2.811	2.113
Number of obs	367	367
Prob > F	0.000	0.000

This study investigates the influence of moderations and their interaction with Socially Responsible Investment (SRI) and Corporate Social Responsibility (CSR) in the banking sector of Pakistan. In our model, Hypothesis 3 aimed to investigate the influence of liquidity risk on the aspects of Green Governance, while Hypothesis 4 aimed to evaluate the effect of capital risk on socially responsible investment (SRI) and corporate social responsibility (CSR). Results suggest that there is no substantial correlation amid moderating factor and the connection between the independent variable (IV) and dependent variable (DV).

## DISCUSSION & CONCLUSION

The positive relationship between board size (BS) and both the Sustainability Reporting Index (SRI) and Corporate Social Responsibility (CSR) ( $\beta = 9.815$ ,  $p = 0.000$  for SRI;  $\beta = 5.532$ ,  $p = 0.000$  for CSR) aligns with prior research. Studies such as Akhtar Uddin, Frias-Aceituno, and Alvarez (2013) have shown that larger boards bring diverse perspectives & expertise, enhancing both sustainability reporting and CSR initiatives. This broader range of insights helps in making the informed decisions that benefit overall corporate governance and ethical practices. Similarly, the significant positive impact of board independence (BI) on SRI and CSR ( $\beta = 45.191$ ,  $p = 0.000$  for SRI;  $\beta = 27.812$ ,  $p = 0.000$  for CSR) corroborates findings by Cheng & Courtenay (2006), indicating that independent directors, who are less influenced by management, tend to prioritize the transparency and ethical standards, thereby improving sustainability and social responsibility. Conversely, the negative impact of board committees (BC) on SRI and CSR ( $\beta = -60.659$ ,  $p = 0.003$  for SRI;  $\beta = -42.487$ ,  $p = 0.011$  for CSR) contrasts with some literature that suggests board committees should enhance governance & sustainability efforts. This divergence could indicate potential inefficiencies/conflicting priorities within committees.

The insignificant relationship between board gender diversity (BGD), both SRI & CSR ( $\beta = -22.316$ ,  $p = 0.23$  for SRI;  $\beta = -17.349$ ,  $p = 0.254$  for CSR) suggests that the gender diversity alone may not be sufficient to drive better sustainability practices without kind policies and a conducive corporate culture. This finding nuance broader literature that typically activists for gender diversity positive impacts on corporate governance and ethical practices (Bear, Rahman, & Post, 2010). In conclusion, the study's findings underscore significant role of board size and board independence in enhancing SRI and CSR, aligning with existing literature that highlights the positive impact of the diverse and independent board members. Conversely, the negative relationship between board committees and both SRI & CSR suggest potential ineptitudes in these committees, that may hinder comprehensive sustainability efforts. Additionally, the insignificant impact of the board gender diversity indicates that mere representation is not enough to drive substantial improvements in sustainability practices without accompanying the supportive measures. Overall, these results emphasize the importance of carefully structuring board features/characteristics to optimize the sustainability as well as social responsibility outcomes.

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