European Journal of Sustainable Development (2025), **14**, 4, 393-954 ISSN: 2239-5938
Doi: 10.14207/ejsd.2025.v14n4p939

Sustainable Corporate Governance and Reporting Quality: Evidence from Developing Economy

By Muhammad Yar Khan[1]

ABSTRACT:
This study investigates the relationship between sustainable corporate governance practices and financial reporting quality. Using a sample of non-financial firms listed on the Pakistan Stock Exchange from 2014-2024, the study adopts panel logistic regression random effect model as baseline analysis. The current study finds a significant negative correlation between sustainable corporate governance score, institutional ownership and board size with the likelihood of financial reporting quality in firms listed in non-financial sector in Pakistan. The empirical findings also showed a weak effect of independence of the board and family ownership on the quality of the financial information. To the best of our information, this is the first ever study to develop a governance score based on the recently introduced code of corporate governance and explore its possible relation with the risk to financial reporting quality in term of manipulations in an Asian emerging market. Based on M-score model, this research adds to the existing literature on sustainable corporate governance and financial reporting quality in emerging economies.

Keywords: Sustainable Corporate Governance, Financial Reporting Quality, Corporate Governance Index, Ownership Structure, Board Independence

1. Introduction

Financial information manipulation is ongoing and global phenomena for the business, investors and policy makers. This involved planned maneuvering of financial information and common practice around the world. The objectives might be to save tax and earning disbursement to shareholders. Earning manipulation practice frequently increase in the emerging economies (Arman & Sharmin, 2019). Such practices are often driven by firms' incentives to present stable earnings, attract investors, and minimize their tax liabilities. However, emerging economies remain particularly vulnerable to such manipulation because of systemic weaknesses. Tax evasion, shareholder pressures, and weak regulatory enforcement collectively create fertile ground for fraudulent reporting (Houqe et al., 2019; Leuz & Oberholzer-Gee, 2006). In countries like Pakistan, limited institutional capacity and governance shortcomings exacerbate these risks, making financial markets more prone to manipulation and misreporting (Khan, 2019). An extended evaluation of these causes highlights the structural challenges that continue to undermine transparency and accountability in emerging markets.

The financial statements prepared by the chief financial officer and his team under the supervision of directors of the company. Further, the prepared financial statements are verified/certified by the external auditors in line with the law, accounting standards and auditing standards. Ibadin and Oladipupo (2015), suggest that audited financial reports should be timely, complete and reliable. The ACFE claimed that the losses due the

[1]Effat College of Business, Effat University, Jeddah, Saudi Arabia.

financial fraud is 3.6 billion losses across the world in 2022. Association of Certified Fraud Examiners study 2210 cases across the 133 countries. The losses due the financial statement fraud is 9% of the total losses. The ACFE report claimed that financial statement fraud schemes are the least common but most costly. In the Asia-Pacific, the financial statement fraud is almost 11% (Wilson et al., 2024). Loss of investors' confidence is the consequence of financial statement fraud or statements manipulation that affects the capital markets and ultimately damages a company's reputation.

The scenario in the emerging market is the same, and even worse, due to weak corporate governance practices, weak institutional control, poor government policies, a lack of technological innovation & usage, inadequate financial information disclosure, and low-level competencies. Above these factors the intentional manipulation in the earnings, assets and expenditures, which results in fraudulent financial statement. Moreover, the deliberate distortion of an organization's data, whether as per company, nonprofit or government, is unethical management behavior, reflected in deceptive financial statements.

The consequences of misstated financial statements or financial malfeasance is huge losses in the companies and face reputational loss cost. The global corporate world has evidence of mega corporate scandals in financial statements manipulations and fraud in the financial information disclosures. Furthermore, the bankruptcy of leading companies like Adelphia, AIG, WorldCom, Lehman Brothers, Freddie Mac and Xerox in the United States, Barlow Clowes (UK), Biovail (Canada) Anglo Irish Bank (Ireland), Tyco International (Bermuda), and Halliburton (Nigeria), Amir-Mansour (Iran). In Pakistan Taj Group, KASB Bank, the National Savings Scheme, Nestle and numerous microfinance banks and Exact, have been victims of financial fraud and financial information misrepresentation (Awan et al., 2016; Kemal, 2019; Rashid et al., 2022).The misrepresentation of information on financial statements cause the loss of stakeholder's confidence on the financial statements. The concern of investors about financial statements misrepresentation increase day by day (Kassem & Higson, 2012).

The environment of corporate governance in Pakistan is significantly different, not just from other emerging markets but also from the developed markets like the U.S and U.K, mainly due to the distinctive institutional background, family-owned business, concentrated ownership and week control a facto due to the political pressure and buttress with the business tycoons. Besides, as an emerging market, Pakistan has implemented new code of corporate governance by passing new corporate laws to cater to the international standards. This code stresses the adoption and implementation of international accounting standards, appropriateness of book of accounts and the periodicity of unaudited financial statements.

Despite above measurements taken by the SECP, still the likelihood of misrepresentation is very high in Pakistan. The malpractices in corporate accounting reports rooted in culture of habitual corruption in the business environment of the country (Rashid et al., 2022). The misstatement in financial reporting is the major concern in emerging, corporate accounting reporting manipulation has in recent years and that is often characterized as the norms(Rashid et al., 2022; Rizwan, 2019; Salman & Siddiqui, 2013; Siddiqui & Fahim, 2013). The report published by PWC in 2020, 47% listed companies in Pakistan had experienced financial reporting fraud in the last two-year

accounting periods. The high frequency of fraudulent financial statements had badly affected the Pakistani market, damaging both corporate credibility and overall investor confidence. This alarming percentage underscores the need for a closer examination of the underlying causes that allow such practices to persist.

One key issue lies in the structural deficiencies within Pakistan's corporate environment. Weak regulatory oversight, cultural acceptance of corruption, and significant enforcement gaps collectively create conditions where fraudulent practices can thrive (Afza & Nazir, 2014; Khan, 2019). These factors not only encourage the manipulation of financial statements but also undermine transparency and accountability within the capital markets. As a result, investor trust erodes, discouraging both domestic and foreign investment (Uddin & Choudhury, 2008). Addressing these systemic weaknesses is therefore crucial for strengthening market integrity, improving governance standards, and restoring confidence in Pakistan's financial system. Corporate scandals have long raised concerns about the integrity of capital markets, and scholarly debates often attribute such crises to weak oversight, permissive organizational culture, or regulatory gaps. Weak oversight is frequently identified as a central driver of misconduct, as boards of directors, audit committees, and external auditors may fail to provide effective monitoring of managerial actions (Beasley et al., 2000). For instance, the collapse of Enron revealed how ineffective board monitoring and compromised auditor independence facilitated financial misrepresentation, ultimately eroding public trust in corporate governance mechanisms (Healy & Palepu, 2003). Such failures in oversight undermine investor confidence, since unreliable financial reporting increases information asymmetry and deters capital allocation.

Beyond oversight, cultural acceptance of corruption and unethical behavior within organizations has been shown to exacerbate misconduct. The "tone at the top" plays a crucial role in shaping employee behavior, and cultures that emphasize short-term financial gains over ethical standards create fertile ground for fraud (Treviño et al., 2006). Empirical evidence indicates that firms embedded in corrupt environments or with leadership from corruption-prone backgrounds are more likely to engage in fraudulent practices, suggesting that culture is not only a reflection of leadership but also of broader institutional norms (Johnson et al., 2000). Such cultures normalize unethical conduct and diminish the effectiveness of formal oversight structures, further eroding investor trust.

Regulatory gaps represent a third dimension contributing to corporate scandals. Weak enforcement of disclosure requirements, inadequate penalties for misconduct, and the possibility of regulatory capture reduce the deterrent effect of existing laws (Carpenter & Moss, 2013). The Wirecard scandal in Germany, for example, highlighted how inadequate regulatory scrutiny and delayed responses to whistleblower allegations allowed misconduct to persist unchecked, undermining the credibility of financial markets. Historical responses such as the Sarbanes-Oxley Act of 2002 illustrate that regulatory strengthening often follows major scandals, as policymakers attempt to restore investor trust by reinforcing compliance and disclosure standards (Coates IV, 2007).

Taken together, these factors, weak oversight, cultural acceptance of corruption, and regulatory gaps interact to undermine confidence in capital markets. While regulation provides the legal framework and oversight offers institutional safeguards, cultural norms often shape whether these mechanisms succeed or fail. Importantly, investor trust is not

only damaged by the occurrence of scandals but also by perceptions of systemic failure, where misconduct is seen as tolerated or inadequately punished. In such contexts, investors demand higher risk premia, increase monitoring costs, or withdraw capital altogether, raising the cost of capital for firms and impairing market efficiency. Therefore, a comprehensive understanding of corporate scandals must recognize that their roots are multidimensional, and effective governance reforms must simultaneously strengthen oversight, foster ethical cultures, and close regulatory gaps.

Consequently, the investors lost confidence on the capital markets due to the widespread corporate reporting fraud (Awan et al., 2016; Kemal, 2019; and Rizwan, 2019). The present study analyzes the nexus of sustainable corporate governance and financial reporting manipulation. So, the literature on this issue is very scant. This research contributes to reporting misrepresentation investigations with reference to the corporate governance practices in emerging markets. This study also extends support to the Beneish M-score model reliability beyond developed Markets by extending it to the companies listed at emerging markets, specifically for Pakistan.

2. Literature Review

Corporate accounting report manipulation continues to be major concern for the companies of both the developed and developing markets and of both the large and small business. The fraud or misrepresentation of financial statements is often defined as "The intentional misrepresentation of the financial condition of an enterprise accomplished by the intentional misstatement or omission of amounts or disclosures in the financial statement to deceive financial statement users" (Repousis, 2016; Rezaee, 2002) a three wants at institute level fraud case motive choice, condition, corporate culture was identified. Additionally, (Rezaee, 2002) argues that financial statement fraud is more under the management's discretion (not employees) as the managers and accountant are more involved in the processes and financial statement preparations which employees. In addition, the economically motivated managers can be more likely to participate in financial statistics, as when situations are adverse and preserving the business image usually overshadows any ethical principle for reliable reporting (Rashid et al., 2022; Rezaee, 2002). The key drivers of the financial fraud in organizations are opportunity, economy and rationalization according to Doody (2009). It identified competitors and pressure of shareholder as drive forces of financial statement manipulations (Guidry, Leone, & Rock, 1999; Healy & Palepu, 2003; Merchant & Rockness, 1994; Sholeh, Triyuwono, & Achsin, 2018; Tsui & Gul, 1996).

Based on the analysis of the financial statements via Beneish model, Kara, Ugurlu and Korpi (2015) find that Beneish model is an effective tool to detect the accounting manipulation for the companies listed at Bombay Stock Exchange. Therefore Repousis (2016), conduct analysis of eight-variable Beneish model to detect occurrence of financial statement fraud for firms and mention that 33% of the firms are in engaged in the financial statement fraud in Greece. Financial reporting practices and decisions made by relevant parties can impact the quality of financial reporting. It has led to improving the quality the financial reporting, through the implementation and adoption of international audit quality standards (Talab, Flayyih, & Ali, 2017). Iqbal, Saleem (2013) investigate earning

manipulation practices index and corporate governance index to examine the extent of coordination between PKSE (Pakistan Stock Exchange) listed sectors. The study is States that there is a strong negative effect of corporate governance mechanism on earning manipulation activities. Nonetheless, the quality of financial reporting is good but varies as per the existence of independent directors in such audit committee. The prevalence of fraudulent practices and low quality of financial reporting will be galvanized when there are dominant individuals/groups (Hamdan, Mushtaha & Musleh Al-Sartawi, 2013) Financial reporting quality will be decreased due to CEO duality. Widespread concern with voluntary corporate disclosures and transparency (Gul & Leung, 2004). A good corporate governance structure will minimize the risk of fraudulent financial reporting. Additionally, it is critical in improving the credibility of financial reporting (Razali & Arshad, 2014). Syamsudin, Imronudin, Utomo, and Praswati (2017) examine the effect of ownership structure on the probability of fraudulent financial statements, and find that foreign ownership, domestic ownership and public ownership significantly negatively correlated with fraudulent financial statements. Firm size positively affects fraud financial statement. CEO duality and Board size play a significant role to improve the financials reporting quality through monitoring activities and reducing the opportunistic behaviours of managers. Shah, Rashid, & Shahzad (2019) showed a significant positive association between board independence and earnings manipulation regardless of the financial situation of the firm.

Shah et al (2020) explores the association between ownership structure and financial reporting quality of sample of 150 non-financial firms listed at Pakistan Stock exchange for the time frame 2008- 2017. The result shows that institutional ownership and managerial ownership have a significant negative relationship with the real earnings manipulations. The study provides evidence of a managerial ownership and institutional ownership, role in reducing the manipulation earnings and improve the quality of the financial reporting. In contrast, the family ownership and the institutional ownership are positively correlated with earnings manipulation, which suggest family, state ownerships are indulged in real earnings manipulation and thus lower the financial reporting quality. Salehi, Ammar Ajel, and Zimon (2022) find a strongly negative link among financial reporting transparency, independence of audit and board committees, directors' remuneration, and the stability of the management team. On the other hand, the study confirms a positive significant association between managerial ownership, audit committee expertise, board expertise and transparency of financial reporting. The effects of corporate governance practices on financial reporting quality within the political influence environment of Pakistan was analyzed by Sadiq, Pantamee, Mohamad, Aldeehani, and Ady (2020). The study finds out there is a positive strong relationship between corporate governance with audit quality and negative strong relationship with political influence. They argue strong corporate governance practices mitigate political influence over the quality of financial reporting. Hasan, Aly and Hussainey (2022), study the effect of corporate governance on the financial reporting quality of firms in Pakistan and UK and find ownership, board independence has significant positive impact on financial reporting quality in Pakistan. That means, research show adverse effect as board size, independence of audit committee and frequency of meeting of board on the quality of financial statement in Pakistan and opposite evidence for UK firms. Moreover, in the

case of UK firms' ownership concentration and BOARDBGD were negatively related with financial reporting quality, while in the case of Pakistani firms, it was not the case. Inspired from the above-cited literature, we formed the following hypothesis:

H_1: Sustainable corporate governance has a negative relationship with reporting manipulation.

3. Methods

The study population is non-financial corporate sector of the emerging market (Pakistan) over the period of 2014-2024. The non-financial firm, which forms a sound, stable and robust industrial base. The present study considers non-financial companies for the following reasons. The non-financial companies are vital for the economic development of country. Second, although non-financial corporate sector is free from errors and structural breaks, the availability of data is important. We exclude the financial sector due to unique accounting practices and corporate governance requirements (Elshandidy et al., 2015; Hasan et al., 2022; Udin et al., 2017). Additionally, financial sector firm have unique and complex characteristics and different earnings manipulation strategies from the non-financial corporate sector (Davidson et al., 2005; Elshandidy et al., 2015; Tureng, 2018).

Therefore, this study focuses on 369 non-financial firms listed on the Pakistan Stock Exchange (PSX), as identified in the State Bank of Pakistan's Financial Statements Analysis (2016–2021). A final sample of 215 firms (58.26% of the population), representing 2,365 firm-year observations, was selected based on three criteria: availability of data over the study period, disclosure of corporate governance details (e.g., ownership structure, board meetings, audit committee), and exclusion of companies with consistently negative or null values for dividends, equity, or profit margins over three years. The sample includes both small and large firms, with corporate governance data manually collected from annual reports and financial data sourced from Orbis Global and Eikon/Refinitiv.

3.1 Dependent variable

Financial reporting manipulation is used as a dependent variable in this study and measured by the Beneish M-Score model. The M-Score provides a threshold level to predict firm financial reporting manipulation. Beneish M-Score model[1] is used to detect and predict manipulation during financial reporting (Kara et al., 2015; Warshavsky, 2012). Typically, companies that M-Score (M-Score > -2.22) is greater than -2.22, indication of likelihood of financial reporting manipulation. Similarly, companies that M-Score less than -2.22 (M-Score < -2.22) indicates that companies does not engage in financial reporting manipulation (Mahama, 2015; Messod, 1999; Nwoye Ugochukwu et al., 2015). The mathematical equation is below:

$$MScore = -4.84 + 0.92DSRI + 0.528GMI + 0.404AQ + 0.892SGI + 0.115DEPI - 0.172SGAI + 4.679TATA - 0.327LVGI \quad \text{(i)}$$

Whereas DSRI = Days sales in Receivables index, GMI= Gross Margin index, AQI= Assets Quality index, SGI= Sales Growth index, DEPI= Depreciation index, SGAI= Sales and General Administrative index, LVGI= Leverage index, TATA= Total Accruals and Total Assets. The sample companies classified on the basis Beneish M-score value i.e. financial reporting manipulation companies and non-financial reporting manipulations. If the value of Beneish M-score is greater than -2.22 (M-Score > -2.22), companies having financial reporting manipulations and assigned "1". If the value Beneish M-score is less than -2.22 (M-Score <-2.22), indication of likelihood of non-financial reporting manipulation and assigned "0". The binary coding is used "1" and "0" for the likelihood of financial reporting manipulation.

3.2 Independent Variable and Control variables

In sustainable corporate governance, companies incorporate environmental, social and governance components in their decision-making process for the week being of all stakeholders including society and the environment. The present study utilized the sustainable corporate governance index (SCGI) as an independent variable. To develop SCGI for the listed companies of Pakistan. The CG Code has 33 provisions, which further classified into six major classes or provisions (Securities & Pakistan, 2017). Further, the 33 provisions are categorized into six sub-categories/sub-indices named as, No of Directorship &Composition of the Board of Directors, Functions of the Board of Directors, Committees of the Board of Directors, Chief Financial Officer, Internal Auditor and Company Secretary and Others. Following the previous researcher (such as; (Arora & Bodhanwala, 2018; Black et al., 2017; Javaid & Saboor, 2015; Khan, 2016; Srivastava et al., 2019) SCGI is constructed using binary coding system. The provisions of CG code are coded in the form of "Yes" and "No" questions. Then the responses are assigned "1" for yes, otherwise "0". The SCGI divided into six sub-indices that constitute 31 parameters. For sub-indices, aggregate value of the provisions is used to standardize the index. Further, generated mean of each value that came from sub-indices is used to calculate the total SCGI for the sample firms. Following the studies of Naz et al. (2023), (Arora & Bodhanwala, 2018), Younas et al. (2021) and Ting and Lean (2015), leverage , size of the firm, growth in sales and ROA incorporated in this study as control variables. Table I presents and define the control variables.

Table 1: Control Variable

Variables	Symbols	Computation
Leverage	LEV	Total Liability divided by Total Assets
Firms Size	FSZ	Log of Total Assets
Sales Growth	SGT	Current Sales divided by previous year's sales
Return on Asset	ROA	Income divided by Assets

This study applied panel logistic regression to examine the hypothesis as linear regression is not appropriate for such type of studies due to binary nature of dependent variable (Stoltzfus, 2011). The primary benefit of panel logistic regression model is that overwhelms limitations of linear regression parameters, when dependent variable taken as binary variable. The general specification of the logistic regression model is as follow.

$$Probaility\ of\ Y_i(Y=1) = \frac{e^{\beta_o+\beta_1X_1+\beta_2X_2+\beta_3X_3.....+\beta_nX_n}}{1+e^{\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3.....+\beta_nX_n}} \qquad \text{(ii)}$$

Where,

$Probaility\ of\ Y_i(Y=1)$ is the likelihood of financial reporting manipulation and

$e = E$xponential Function

Several prior studies, Elloumi and Gueyié (2001), Ibadin and Ehigie (2019), Udin et al. (2017) and Ueng (2016) used panel logistic regression model to investigate CG and reporting quality. Considering equation (i), the following panel logit regression used.

$$FRM_{it} = \beta_0 + \beta_1 CGI_{it} + \beta_2 INSOW_{it} + \beta_3 FAOW_{it} + \beta_4 BIND_{it} + \beta_5 BSZ_{it} + \beta_6 LEV_{it} + \beta_7 FSZ_{it} + \beta_8 SGT_{it} + \beta_9 ROA_{it} + \varepsilon_{it} \qquad \text{(iii)}$$

Where, FRM_{it} is manipulation in financial data, dummy variable value "1" and "0". i = index for firm (1 through 200), and t = index for year (2010 through 2022). For a total of panel cross-sectional sample of 2365 firm-year observations and ε_{it} has been used as composite error term.

4. Analysis and Discussion

The univariate analysis is reported by providing the descriptive analysis and sample frequency distribution of financial reporting manipulation in table II. The descriptive statistics shows that fifty-six percent board independence in the sample data. Independence of board values varies between nine percent to zero percent. Average board members in non-financial firms equal to eight members which is consistent with the findings of Hasan et al. (2022). The study sample companies consist of both government owned companies and other enterprises as well. The mean value of SCGI is eighty while the maximum score of SCGI range to ninety-six, evidence of good CG adoption and implementation in sample emerging markets, like Pakistan. The minimum value of the SCGI score observed was approximately twenty-three, which indicates that some firms have not fully adopted the provisions of the CG code issued by the SECP, lacking implementation of good corporate practices in the true spirit and letter.

Table II: Summary Statistic

Variables	Mean	Max	Min	Std	Skew	Kur	Obs
Board Independence (%age)	0.551	9.1	0.0	0.20	-0.034	2.541	2365
Board Size	8.0	16.0	3.0	1.63	1.324	6.928	2365
Corporate governance index	80.3	96.7	22.5	11.26	-1.513	6.727	2365
Family ownership (%age)	0.11	0.95	0.0	0.20	1.923	5.685	2365
Institutional Ownership (%age)	0.12	0.87	0.0	0.10	1.361	7.157	2365
Leverage (%age)	0.56	2.46	0.015	0.27	1.885	11.507	2365
Banish M-score (value)	-1.97	20.77	-13.9	1.17	5.211	91.486	2365
Return on Assets (%age)	0.060	0.70	-0.5	0.10	0.556	8.528	2365
Sales Growth	1.143	7.35	0.02	0.43	5.207	53.248	2365
Total Assets (PKR Billions)	41460	1129983	10.00	100468	-	-	2365

Similarly, family-owned shares average is eleven percent, maximum value is ninety-five percent and minimum value of zero percent. Institutional ownership has average value of twelve percent, with maximum value of eight seven percent and minimum value of zero percent. The mean value of leverage is fifty-six percent and varies between 2.46 percent and 1.5 percent. Likewise, the mean value of Banish M-score is -1.97 with maximum value of 20.77. The Banish M-score used as proxy for the likelihood of financial reporting manipulation. Typically, the value of M-Score less than -2.22 represents the likelihood of non-manipulation in financial reporting and vice versa. The mean value of M-score is less than threshold value (M-score <-2.22) evident practice of financial reporting manipulation in study sample companies. The mean value of ROA and sales growth is 6.0% and 1.43% respectively. Average value of firm's total assets is PKR 41460 billion and varies between PKR: 1129983 to PKR 10.00. Skewness and Kurtoses values lies in the threshold values and represents that data series are normally distributed.

4.1 Bivariate Analysis

Correlation coefficient along with VIF and TOL test for independent variables are presented in table III. We observed positive correlation between corporate governance index with board independence and institution ownership. The board size and family ownership negatively correlated with corporate governance score. Institutional ownership

positively correlated with board independence but report negative association board size and family ownership. Leverage is negative association with board independence, board size and family ownership, but exhibit a positive correlation coefficient with board size, corporate governance index and institutional ownership.

Table III: Correlation Table, VIF and TOL Test Results

Variables	Board Independence	Board Size	CG Score	Family Ownership	Institutional Ownership	Leverage	Return on Asset	Sales Growth	Firm's Size
Board Independence	1								
Board Size	-0.0424 (0.0394)	1							
CG Score	0.0462 (0.0245)	-0.0785 (0.000)	1						
Family Ownership	0.0993 (0.0000)	-0.2396 (0.0000)	-0.0007 (0.9744)	1					
Institutional Ownership	0.1091 (0.0000)	-0.0057 (0.7830)	0.0980 (0.0000)	-0.0175 (0.3961)	1				
Leverage	-0.0164 (0.4250)	0.0188 (0.3618)	0.0164 (0.4243)	-0.0772 (0.0002)	0.0356 (0.0838)	1			
Return on Asset	0.0185 (0.3689)	-0.0238 (0.2468)	0.0031 (0.8812)	0.1120 (0.0000)	0.0235 (0.2539)	-0.4271 (0.0000)	1		
Sales Growth	0.0117 (0.5701)	-0.0351 (0.0879)	0.0588 (0.0042)	0.0003 (0.9889)	-0.0219 (0.2865)	0.0406 (0.0483)	0.0717 (0.0005)	1	
Firm's Size	-0.0946 (0.0000)	0.1384 (0.0000)	0.0654 (0.0000)	-0.1473 (0.0000)	0.1863 (0.0000)	0.0942 (0.0000)	0.1000 (0.0000)	0.0386 0.0603	1
VIF and TOL Test Results									
VIF	1.028	1.085	1.030	1.100	1.061	1.260	1.282	1.017	1.125
TOL	0.97	0.92	0.97	0.91	0.94	0.79	0.78	0.98	0.89

Further, Table III reveals that sales growth, firms' size measures significantly positively correlated with corporate governance, leverage and return on asset. The Variance Inflation Factor (VIF) and Tolerance test deployed to test whether the independent variables are high correlated or not. The value of VIF will not 10 and the

value TOL not near to 0 (Gujrat, 2003). Table 3 (Row 12 & 13) depicts the maximum value for VIF 1.282, proposing multi-collinearity is not a problem in this study data.

4.2 Panel Logistic Regression Results

Table IV provides the results of panel logistic regression random effect model, to examine the nexus between good corporate practices and financial reporting manipulation for 2014-2024. SCGI is calculated CG code issued by SECP and Banish M-Score model is used to measure reporting manipulation. Based on threshold value of M-score the sample companies financial reports are classify as manipulating and non-manipulated. A binary variable with coding "1" for financial reporting manipulation and "0" for non-financial reporting manipulation. Panel logistic regression is highly recommended (such as;Gerged et al., 2022; Ibadin & Ehigie, 2019; Udin et al., 2017), in case of binary variable. Additionally, random effect analysis used to overwhelm the problem of firm-level heterogeneities. Moreover, the coefficients/ parameter estimates of the independent variables based on the Panel logistic regression model cannot be directly interpret or explained as in ordinary least square method as "the change in dependent variable with one unit change in coefficients of independent variables". To get meaningful interpretation of the coefficients, odd ratios or marginal effects of each coefficient are estimate.

The findings presented in Table IV reveals significant negative coefficient between reporting manipulation and SCGI, which indicates the implementation will normalize the opportunistic behaviors of the managers and resolve the principle- agent. Further, SCGI may limit reporting engineering behavior among executives, such as earning management and creative accounting to avoid tax payments, getting benefits from financial institutions and fake disclosures strategies to attract the investors.

Table IV: Panel Logistic Regression Random Effect Model and Marginal Effects

Variables	Random-effects logistic regression		Marginal Effects	
	Coefficients	*p-values*	*Coefficients*	*p-values*
Corporate Governance Score	-1.57***	0.000	-1.57***	0.000
Institutional Ownership	-0.14***	0.0065	0.14***	0.0065
Family Ownership	0.285	0.825	0.285	0.825
Board size	-0.789***	0.011	-0.789***	0.011
Board Independence	-0.168	0.54	-0.168	0.54
Firm's Size	-1.172***	0.000	-1.172***	0.000
Leverag	-0.656	0.97	-0.656	0.10
Return on Asset	-8.59***	0.000	-8.59***	0.000
Sales Growth	-6.64***	0.000	-6.64***	0.000
McFa R-square	0.47			
LR statistic	45.77	0.000		
Walid Chi- square	255.68	0.000		
No of Observations	2365			
No of Firms	215			

The study reveals negative significant impact of institutional ownership on the probability of financial reporting manipulation in the non-financial companies at Pakistan Stock Exchange. This might that institutional investors are actively monitor the financial activities of the firm, due to their large investments in the company. This finding is consistent with prior studies of Siregar and Utama (2008), Hasan et al. (2022), Saleem Salem Alzoubi (2016) and Alves (2012), posits the effective role of institutional investors reducing manipulations probability in financial reporting.

We observed insignificant probability of reporting manipulation (FRM) and board independence. Statistically insignificant negative coefficient of board independence suggests that these directors play no active role due to the dominant decisions of controlling shareholders (Hasan et al., 2022).

This study reports significant negative nexus with probability of manipulation in financial reports and board size. This negative association is supplement by the agency theory that larger corporate board can strengthens supervision and improve financial reporting quality. Our finding are in line with literature such as Hasan et al. (2022) , Aygun et al. (2014), Dobija et al. (2022). Surprisingly, we found insignificant positive nexus between the probability financial reporting manipulation and family ownership in Pakistan. Our this finding is contrary to the findings of Cascino et al. (2010), suggest that financial reporting has no significant impact in family controlled firms. At the same time, our finding is consistent with Razzaque et al. (2016) and Subastian et al. (2021) argue that financial information in family controlled firms are manipulated and does not reflect at actual condition of firms earnings. The family controlled business in Asia are involved higher earning management practices through accrual transaction as compared to other developed countries, where better CG compliance and regulations are more stringent and disciplined (Razzaque et al., 2016). Insignificant positive influence of family ownership on probability financial reporting manipulation might be due to active monitoring role of regulatory bodies like SECP and corporate regulations restrict involvement in higher earning management to manipulate financial information.

This research observed negative and significant nexus between size of the firm, ROA and sales growth with financial reporting manipulation, which meant that large firms, financial stable companies and growing firm are not involved in financial information manipulation due to market reputation and future investment opportunities. Leverage has insignificant negative impact on likelihood financial reporting manipulation in Pakistani listed firms.

5. Conclusion and Recommendations

This research investigated the nexus of sustainable corporate governance practices proxied through sustainable corporate governance score, ownership structures, and board characteristics on the likelihood of financial reporting manipulation among Pakistani listed non-financial firms from 2014 to 2024. The Beneish M-Score model was employed as a proxy for manipulation, while a random-effect panel logistic regression model addressed firm-level heterogeneities. The results reveal that sound governance practices significantly reduce the probability of manipulation, with corporate governance score, institutional ownership, and board size showing strong negative associations. These findings underscore the important role of institutional investors in protecting minority shareholders

and curbing excessive earnings management, while larger and more diverse boards foster better coordination and higher-quality financial reporting.

At the same time, family ownership and board independence were found to have an insignificant influence on manipulation. The limited impact of independence appears to be linked to the dominance of controlling shareholders, which restricts independent directors from exercising objective oversight. This highlights an important area for future research: exploring how independent directors might adopt a more assertive role in Pakistan. Comparative analysis with other markets where independence is more effective could reveal whether cultural or institutional reforms are necessary to strengthen this mechanism. Positioning these findings within the broader governance literature, they align with existing scholarship stressing transparency (Bushman & Smith, 2003), board diversity (Adams & Ferreira, 2009), and digital oversight tools (García-Meca & Pucheta-Martínez, 2018) as pathways to improve reporting integrity.

The study also offers practical implications for regulators, policymakers, and non-financial firms in Pakistan. Strengthening the role of independent directors, discouraging dominant shareholder control, and adopting modern governance practices such as digital monitoring systems could improve accountability and restore investor confidence. While this research focuses on Pakistani non-financial firms, its generalizability is limited to other contexts with different institutional structures. Future studies should examine the effects of board diversity, ownership concentration, and cross-market comparisons in other emerging economies to provide deeper insights into how governance reforms interact with cultural and institutional dynamics. Moreover, adopting alternative accrual-based models alongside the M-Score could enrich the understanding of financial manipulation. Ultimately, situating Pakistan's experience within the global conversation on sustainable governance not only reinforces existing scholarship but also opens dialogue on adapting modern governance tools to strengthen market credibility in emerging economies.

5.1 Implications for Asian Business

The findings suggest that while stronger governance mechanisms reduce financial reporting manipulation, their benefits vary across firm size and industry. Large listed corporations are better positioned to adopt comprehensive governance codes, independent directors, and institutional monitoring, which align with international investor expectations. These firms can further enhance transparency by investing in advanced tools such as AI-driven audits and blockchain-enabled reporting systems, thereby improving market credibility and access to foreign capital.

Smaller enterprises and family-owned businesses, which dominate many Asian economies, face different challenges due to limited resources and the dominance of controlling shareholders. For these firms, regulators should promote simplified disclosure standards, accessible digital monitoring tools, and ethics-focused training to encourage compliance without imposing excessive costs. Additionally, governance practices should reflect sectoral risks, such as inventory misreporting in manufacturing or oversight of intangible assets in technology-driven industries. By tailoring governance reforms to firm size, ownership structure, and industry characteristics, Asian businesses can reduce manipulation risks and build stronger investor trust.

5.2 Future Recommendations

Future research should move beyond aggregate results to explore whether the observed negative relationship between sustainable corporate governance and financial reporting manipulation holds consistently across firms of different sizes and industries. A sectoral breakdown would help clarify whether governance reforms disproportionately benefit large enterprises while leaving smaller or family-owned firms more vulnerable to misreporting. Disaggregating results by ownership structures, particularly in family-controlled businesses, is also critical for understanding how concentrated ownership influences the effectiveness of governance mechanisms.

In addition, future studies should examine emerging governance dimensions such as board diversity, ethical leadership, and digital oversight tools, including AI-enabled audits and blockchain-based reporting. Comparative analyses across Asian emerging markets could also reveal how institutional and cultural factors mediate the relationship between governance quality and reporting practices. Such work would provide a more nuanced understanding of how governance reforms interact with contextual dynamics, ultimately offering actionable insights for improving transparency and investor trust across heterogeneous firms.

References

Afza, T., & Nazir, M. S. (2014). Audit quality and firm value: A case of Pakistan. *Research Journal of Applied Sciences, Engineering and Technology*, *7*(9), 1803-1810.

Alves, S. (2012). Ownership structure and earnings management: Evidence from Portugal. *Australasian Accounting, Business and Finance Journal*, *6*(1), 57-74.

Arman, M., & Sharmin, S. (2019). Likelihood of a Company's Manipulation of Its Financial Statement: An Empirical Analysis Using Beneish M-Score Model. International Conference on Management and Information Systems September,

Arora, A., & Bodhanwala, S. (2018). Relationship between corporate governance index and firm performance: Indian evidence. *Global Business Review*, *19*(3), 675-689.

Awan, J. H., Memon, S., Shah, M. H., & Awan, F. H. (2016). Security of eGovernment services and challenges in Pakistan. 2016 SAI computing conference (SAI),

Aygun, M., Ic, S., & Sayim, M. (2014). The effects of corporate ownership structure and board size on earnings management: Evidence from Turkey. *International Journal of Business and Management*, *9*(12), 123.

Beasley, M. S., Carcello, J. V., Hermanson, D. R., & Lapides, P. D. (2000). Fraudulent financial reporting: Consideration of industry traits and corporate governance mechanisms. *Accounting horizons*, *14*(4), 441-454.

Black, B., De Carvalho, A. G., Khanna, V., Kim, W., & Yurtoglu, B. (2017). Corporate governance indices and construct validity. *Corporate Governance: An International Review*, *25*(6), 397-410.

Carpenter, D., & Moss, D. A. (2013). *Preventing regulatory capture: Special interest influence and how to limit it*. Cambridge University Press.

Cascino, S., Pugliese, A., Mussolino, D., & Sansone, C. (2010). The influence of family ownership on the quality of accounting information. *Family Business Review*, *23*(3), 246-265.

Coates IV, J. C. (2007). The goals and promise of the Sarbanes–Oxley Act. *Journal of economic perspectives*, *21*(1), 91-116.

Davidson, R., Goodwin-Stewart, J., & Kent, P. (2005). Internal governance structures and earnings management. *Accounting & Finance*, *45*(2), 241-267.

Dobija, D., Hryckiewicz, A., Zaman, M., & Puławska, K. (2022). Critical mass and voice: Board gender diversity and financial reporting quality. *European Management Journal*, *40*(1), 29-44.

Elloumi, F., & Gueyié, J. P. (2001). Financial distress and corporate governance: an empirical analysis. *Corporate Governance: The International Journal of Business in Society*.

Elshandidy, T., Fraser, I., & Hussainey, K. (2015). What drives mandatory and voluntary risk reporting variations across Germany, UK and US? *The British Accounting Review*, *47*(4), 376-394.
Gerged, A. M., Yao, S., & Albitar, K. (2022). Board composition, ownership structure and financial distress: Insights from UK FTSE 350. *Corporate Governance: The International Journal of Business in Society*(ahead-of-print).
Hasan, A., Aly, D., & Hussainey, K. (2022). Corporate governance and financial reporting quality: a comparative study. *Corporate Governance: The International Journal of Business in Society*(ahead-of-print).
Healy, P. M., & Palepu, K. G. (2003). The fall of Enron. *Journal of economic perspectives*, *17*(2), 3-26.
Houqe, M. N., van Zijl, T., Waresul Karim, A., & Mahoney, A. (2019). What is the impact of corruption on audit fees? *Public Money & Management*, *39*(2), 123-131.
Ibadin, P. O., & Ehigie, A. H. (2019). Beneish Model, Corporate Governance and Financial Statements Manipulation. *Asian Journal of Accounting & Governance*, *12*.
Ibadin, P. O., & Oladipupo, O. A. (2015). Determinants of Intangible Assets Disclosure in Quoted Companies in Nigeria. *Asian Journal of Accounting & Governance*, *6*.
Javaid, F., & Saboor, A. (2015). Impact of Corporate Governance index on Firm Performance: evidence from Pakistani manufacturing sector. *Journal of Public Administration and Governance*, *5*(2), 1-21.
Johnson, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2000). Tunneling. *American economic review*, *90*(2), 22-27.
Kara, E., Ugurlu, M., & Korpi, M. (2015). Using Beneish model in identifying accounting manipulation: an empirical study in BIST manufacturing industry sector.
Kassem, R., & Higson, A. (2012). The new fraud triangle model. *Journal of emerging trends in economics and management sciences*, *3*(3), 191-195.
Kemal, A. A. (2019). Mobile banking in the government-to-person payment sector for financial inclusion in Pakistan. *Information Technology for Development*, *25*(3), 475-502.
Khan, M. Y. (2016). *Corporate governance and cost of capital: Evidence from Pakistani listed firms* University of Glasgow].
Khan, S. (2019). CFO outside directorship and financial misstatements. *Accounting horizons*, *33*(4), 59-75.
Leuz, C., & Oberholzer-Gee, F. (2006). Political relationships, global financing, and corporate transparency: Evidence from Indonesia. *Journal of financial economics*, *81*(2), 411-439.
Mahama, M. (2015). Detecting corporate fraud and financial distress using the Altman and Beneish models. *International Journal of Economics, Commerce and Management*, *3*(1), 1-18.
Messod, B. D. (1999). The detection of earnings manipulation. *Financial Analyst Journal*, *5*(55), 22-36.
Naz, F., Lutfullah, T., Arshad, S., Ishfaq Ahmad, M., & Ueng, J. (2023). Board gender diversity and the financial performance of Pakistani non-financial firms: A fuzzy-set QCA approach. *Journal of Corporate Accounting & Finance*, *1*(15).
Nwoye Ugochukwu, J., Obiorah Justina, N., & Chukwunonso, E. (2015). Assessing the Risk of Fraud in Published IFRS and Nigerian GAAP Financial Reports: A Comparative Application of the Beneish Models. *IUP Journal of Accounting Research & Audit Practices*, *14*(1).
Rashid, M., Khan, N. U., Riaz, U., & Burton, B. (2022). Auditors' perspectives on financial fraud in Pakistan–audacity and the need for legitimacy. *Journal of Accounting in Emerging Economies*(ahead-of-print).
Razzaque, R. M. R., Ali, M. J., & Mather, P. R. (2016). Real earnings management in family firms: Evidence from an emerging economy. *Pacific-Basin Finance Journal*, *40*, 237-250.
Repousis, S. (2016). Using Beneish model to detect corporate financial statement fraud in Greece. *Journal of Financial Crime*, *23*(4), 1063-1073.
Rezaee, Z. (2002). *Financial statement fraud: prevention and detection*. John Wiley & Sons.
Rizwan, S. (2019). Corporate frauds, information asymmetry and stock market reaction. *Global Regional Review*, *4*(2), 126-133.
Saleem Salem Alzoubi, E. (2016). Ownership structure and earnings management: evidence from Jordan. *International Journal of Accounting & Information Management*, *24*(2), 135-161.
Salman, F., & Siddiqui, K. (2013). Mehrangate Scandal: Corporate Governance Failure. *The IUP Journal of Corporate Governance*, *12*(4), 41-46.
Securities, & Pakistan, E. C. o. (2017). Listed companies (code of corporate governance) regulations. In: SECP Islamabad.
Siddiqui, K., & Fahim, S. M. (2013). Khanani and Kalia International: Corporate Governance Failure. *IUP Journal of Corporate Governance*, *12*(4).

Siregar, S. V., & Utama, S. (2008). Type of earnings management and the effect of ownership structure, firm size, and corporate-governance practices: Evidence from Indonesia. *The international journal of accounting*, *43*(1), 1-27.

Srivastava, V., Das, N., & Pattanayak, J. K. (2019). Impact of corporate governance attributes on cost of equity: evidence from an emerging economy. *Managerial Auditing Journal*.

Stoltzfus, J. C. (2011). Logistic regression: a brief primer. *Academic emergency medicine*, *18*(10), 1099-1104.

Subastian, L. U., Widagdo, A. K., & Setiawan, D. (2021). Related party transactions, family ownership, and earnings management in Indonesia. *Jurnal Keuangan dan Perbankan*, *25*(3), 688-670.

Ting, I. W. K., & Lean, H. H. (2015). Does government ownership matter? Comparative study between GLCs and NGLCs in Malaysia. *The Singapore Economic Review*, *60*(02), 1550019.

Treviño, L. K., Weaver, G. R., & Reynolds, S. J. (2006). Behavioral ethics in organizations: A review. *Journal of management*, *32*(6), 951-990.

Tureng, N. (2018). Effects of borrowing costs, firm size, and characteristics of board of directors on earnings management types: a study at Borsa Istanbul. *Asia-Pacific Journal of Accounting & Economics*, *25*(1-2), 42-56.

Uddin, S., & Choudhury, J. (2008). Rationality, traditionalism and the state of corporate governance mechanisms: Illustrations from a less-developed country. *Accounting, Auditing & Accountability Journal*, *21*(7), 1026-1051.

Udin, S., Khan, M. A., & Javid, A. Y. (2017). The effects of ownership structure on likelihood of financial distress: an empirical evidence. *Corporate Governance: The International Journal of Business in Society*.

Ueng, C. J. (2016). The analysis of corporate governance policy and corporate financial performance. *Journal of Economics and Finance*, *40*, 514-523.

Warshavsky, M. (2012). Analyzing earnings quality as a financial forensic tool. *Financial Valuation and Litigation Expert Journal*, *39*(16), 16-20.

Wilson, A. B., Hirschl, B. W., Stott, D. M., & Stott, F. A. (2024). An Examination into the Methods of Fraud Inquiry: Impact of Written Response on Reporting Intention. *Journal of Forensic and Investigative Accounting*, *16*(2).

Younas, N., UdDin, S., Awan, T., & Khan, M. Y. (2021). Corporate governance and financial distress: Asian emerging market perspective. *Corporate Governance: The International Journal of Business in Society*, *21*(4), 702-715.