

Corporate governance reforms and risk disclosure quality: Evidence from an emerging economy

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Abstract

Purpose: The purpose of this paper is to examine the impact of corporate governance (hereafter, CG) reforms on the risk disclosure quality in an emerging economy, namely Pakistan. We also investigate the impact of CG reforms on the relationship between CG practices and risk disclosure quality.

Design/methodology/approach: We use a manual content analysis method to a sample of non-financial companies listed on the PSX-100 index for 2009–2015, to examine the impact of CG reforms on risk disclosure quality. We use pooled ordinary least squares and the system GMM estimations to test the research hypotheses.

Findings: We find that CG reforms have a positive impact on risk disclosure quality. The results indicate that certain CG practices such as CEO duality and board independence are associated with risk disclosure quality. Interestingly, our findings also highlight the effectiveness of CG reforms by showing that the revised code positively moderates the CG practices and risk disclosure relationship.

Originality: We provide new empirical evidence for the impact of CG reforms on risk disclosure quality using a unique setting of an emerging economy, namely Pakistan.

Practical implications: The findings of the study have policy implications for regulatory bodies of emerging economies trying to strengthen the CG structures and to introduce risk disclosure regulations to cater the information need of stakeholders.

Keywords: Corporate governance; corporate governance (CG) reforms; risk disclosure quality; Pakistan.

Paper type: Research paper

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1. Introduction

Corporate scandals have brought into limelight the need for sound corporate governance (hereafter, CG) practices (Rajab & Handley-Schachler, 2009) and have reignited the debate about lack of transparency, inadequate risk management and risk reporting by corporations. Recently, there has been a steady surge of interest in the quality and extent of corporate risk disclosure practices. The underlying reasons include multi-level pressure from corporate stakeholders including regulators and investors, and the need to maintain sustainable corporate operations (Abraham & Cox, 2007; Miihkinen, 2013; Salem et al., 2019). Accounting literature has stressed the significance of risk disclosure to cater to the investors' needs in assessing the company's risk profile and the market value (e.g., Abraham et al., 2012; Miihkinen, 2013).

There is a growing body of literature which investigates the influence of corporate governance mechanisms on risk disclosure quality. These studies provide evidence that risk disclosures are affected by governance structures (Abraham and Cox, 2007; Salem et al., 2019). According to institutional isomorphism (DiMaggio & Powell, 1983), coercive pressure leads regulators to enforce rules in order to have better performance and practices of companies. The extant research documents the role of reporting incentives to determine accounting quality (e.g., Ball & Shivakumar, 2005; Leuz, 2003). CG regulations and guidelines can provide reporting incentives for the firms and act as institutional regulative pressure to improve disclosure quality. However, despite its significance, there is limited empirical evidence concerning the impact of CG reforms on disclosure quality particularly, risk disclosure quality.

This study examines whether CG reforms improve the quality of risk disclosure in an emerging market setting. Pakistan provides a unique country context to examine risk disclosure quality as Pakistan has gone through two waves of CG reforms, aimed at promoting foreign direct

investment and implementing international best CG practices. In 2012, Securities and Exchange Commission of Pakistan (SECP) published a revised CG code for public companies. The revised CG code introduces reforms to strengthen board independence, improve managerial monitoring, promote board gender diversity, and to establish the audit committee's independence. These reforms also emphasize the need for firms to assess their significant risks and provide disclosure in annual reports. However, there is absence of mandatory risk disclosure standard and disclosure of risk information is voluntary for companies.

This study is motivated by two considerations. First, are specific CG practices (e.g., CEO role duality, board independence, board gender diversity and the audit committee independence) associated with risk disclosure quality. Second, whether reforms in CG practices improve risk disclosure quality after promulgation of revised CG code in 2012. To heed the recent call to study the corporate risk disclosures in the weak form information environment and restrictive risk legislative set up (Dobler et al., 2011), we study risk disclosure in an emerging economy where weak judicial system, poor law enforcement and lower regulatory quality enhance the significance of internal governance mechanisms in reducing agency costs (Saggar & Singh, 2017). So, Pakistan is an intriguing institutional setting to investigate our research questions.

Although extensive literature has examined the impact of CG mechanisms on risk disclosure, there is meager evidence concerning the impact of CG reforms on risk disclosure quality in general and in emerging economies, in particular. Previously, Miihkinen (2012) provide evidence of a positive impact of detailed national disclosure standard on risk disclosure quality of Finnish listed firms. Apart from that, no other study, to the best of our knowledge has examined the impact of reforms in CG practices on risk disclosure quality of an emerging economy. The present study contribute to the existing risk disclosure literature by providing

evidence for the impact of reforms in CG practices on risk disclosure quality, as firms with good governance structure provide effective risk disclosure (Taylor et al., 2010)². Furthermore, this study extends our knowledge of risk disclosure by Pakistani listed firms in the absence of mandatory accounting standard on non-financial risks disclosure, a country where most of the risk reporting is voluntary in nature. Pakistan deserves attention as an emerging economy because of its common law origin, weak information environment and risk reporting legislation, inefficient legal system causing irrational delay in the justice delivery system and less investor protection which exacerbates the significance of internal CG mechanisms in reducing agency conflict and information asymmetry (Abid et al., 2018). Finally, some of the CG reforms are also voluntary in nature. We therefore examine whether recent CG reforms really improve the governance quality in Pakistani firms and result in higher risk disclosure quality.

Using data for non-financial firms listed on the PSX-100 index for 2009–2015 and developing comprehensive risk disclosure index, we find that CG reforms have a positive impact on the risk disclosure quality. Our findings also demonstrate that key role of certain CG practices in improving risk disclosure quality. Finally, we show that the association between CG practices and risk disclosure quality is positively significant for the post-CG reforms period (i.e., after 2012). These findings are robust to alternative econometric and variable specifications.

Our paper makes several important contributions to CG and risk disclosure literature. First, to the best of our knowledge, this is the first empirical study investigating the impact of CG reforms on risk disclosure quality using unique institutional setting of Pakistan. The findings of this study have important implications for both academic research and policy making. From an academic perspective, the study contributes to the body of literature on CG and risk disclosure (Ntim et al.,

² The revisions in CG practices such as board independence, CEO role duality, board gender diversity and audit committee's independence are aimed at improving the CG quality in Pakistani listed firms.

2013; Saggar & Singh, 2017; Elshandidy et al., 2018; Salem et al., 2019) by investigating the link between certain CG practices and risk disclosure quality in the wake of reforms in CG practices. Further, this study offers new insights for policy makers regarding the effectiveness of different CG reforms in addressing the issue of information asymmetry and improving corporate risk disclosure quality. Given our findings policy makers in emerging economies should consider strengthening CG mechanisms, by ensuring board independence, promoting board gender diversity and monitoring capabilities of the board as well as audit committees. Finally, our findings are based on a comprehensive risk disclosure quality index that includes both financial and non-financial risk disclosures. The risk disclosure quality index is based on seventy dimensions extracted from the existing literature (Ntim et al., 2013; Taurigana & Chithambo, 2016; Agyei-Mensah, 2017) that further strengthens the findings of the study.

The remainder of the paper is as follow. Section 2 presents the CG reforms in the context of Pakistan. Section 3 reviews the literature and develops hypotheses. Data and methodology are discussed in Section 4. Section 5 presents the results and Section 6 concludes the paper.

2. CG and risk disclosure in Pakistan

Corporate regulatory body, Securities & Exchange Commission of Pakistan (SECP) has been pursuing the CG reforms since last two decades. The revised CG code was issued in 2012 aiming at directors' accountability for their performance. The revised code was characterized with an array of amendments in board structure. For instance, the revised CG code requires the presence of at least one independent director on the board and recommends that one third of directors shall be independent, while in the earlier version of the code, only one independent director was recommended. The revised code further requires that more than one third of the board members shall not be executive directors, audit committee shall be composed of non-executive directors,

the role of the board chair and CEO should be separated and recommends forming gender-diverse boards. Moreover, the code requires that annual performance evaluation of the board of directors should be carried out within 2 years of the implementation of the revised code.

With regard to the risk disclosure regime in Pakistan, the provision of financial risk information is mandatory for listed companies, because they comply with the International Financial Reporting Standards (IFRS). Firms are required to provide disclosures related to the financial risk management under IFRS 7. However, the provision of information on non-financial risks is voluntary, due to the absence of specific disclosure requirements or filings by SECP. However, firms are encouraged to voluntarily disclose any significant risk exposures and measures taken to mitigate those risks under the revised CG code.

[Please insert Table 1 here]

3. Literature review and hypotheses development

The concept of risk is related to business strategies, objectives, policies, and performance. That is why; risk is defined as “uncertain future events which could influence the achievement of the organization’s strategic, operational and financial objectives (IFAC 1999; p.6).” Likewise, King II defined risk as “uncertain future events that could influence the achievement of a company’s objectives” (King Committee, 2002). Beretta and Bozzolan (2004; p.269) also define risk disclosures as “a communication of information concerning firms’ strategies, characteristics, operations and other external factors that have the potential to affect expected results”.

One of the CG principles is to ensure the transparency of firms’ financial reporting and improve the disclosure quality (Hassan, 2014). A good CG system would be designed to ensure that comprehensive risk management occurs in the normal course of events and there is effective and transparent communication of the nature, extent and management of the risk to various

stakeholders (Elliot & Elliot 2013, p.804). Risk disclosure can play a vital role by providing information about uncertainty surrounding the business and the firms' management of these risks to investors and other stakeholders, to help make them effective decisions (Cabedo and Tirado, 2014). Previous literature has also provided evidence that firms with good CG structure are effective in risk management and risk disclosure (Taylor et al., 2010; Ntim et al., 2013; Oliveira et al., 2011; Salem et al., 2019).

3.1. CG reforms and risk disclosure quality

Accounting literature has highlighted the significance of risk information disclosure and the measures to improve it. However, there is limited research aimed at examining the impact of changes in national disclosure standard or CG reforms on corporate risk disclosure quality with the exception of Miihkinen (2012). Miihkinen (2012) studied the impact of a detailed national disclosure standard on the quality of firms' overall risk reviews under IFRS. The Finish national disclosure standard describes how firms should assess their significant risks and report in their operating and financial reviews. So, Miihkinen (2012) has investigated the impact of reforms in national disclosure standard on the quality of risk reporting. However, our study examines the impact of CG reforms on the risk disclosure quality of Pakistani listed firms. As empirical literature has documented the effect of CG practices on risk disclosure quality, our paper aims to fill the literature void by providing evidence of the amendments in CG practices on firms' risk disclosure quality in an emerging economy. CG mechanisms provide a framework to ensure that suppliers of firms' finance receive return on their investment (Shleifer and Vishny, 1997). The board of directors and audit committee are two important internal governance mechanisms to monitor managerial opportunistic behavior and ensure the quality of financial reporting (Hutchinson et al., 2008). Extant research has been conducted to investigate the relation between

risk disclosure quality and CG mechanisms including the board and audit committee composition (Salem et al., 2019; Sagggar and Sigh, 201; Ntim et al., 2013). These studies provide evidence that risk disclosure quality is better for firms with sound CG practices including board independence, board gender diversity and effective audit committee.

CG mechanisms are designed to align interest of managers with those of shareholders and reduce inherent conflict of interest in the corporate form of organization (Fama & Jensen, 1983). CG regulations are aimed at reducing information asymmetry between managers and shareholders and protect stakeholders by mandating CG practices. Changes in CG regulations comprise a source of experiments (Hermalin and Weisbach, 1991) and therefore, this study examines the impact of recent CG reforms on the risk disclosure quality.

Makhaiel and Sherer (2018) examined the impact of socioeconomic factors on the quality of financial reporting. They argue that according to the institutional theory, a coercive pressure leads regulators to enforce rules to have better practices in place to govern organizations (Salem et al., 2019). Similarly, we conjecture that regulatory pressure can affect the quality of financial reporting and corporate disclosures. Miihkinen (2012) examines the impact of a national disclosure standard on the quality of firms' overall risk reviews and report higher quality of risk disclosure after the release of comprehensive standard on risk disclosure. This finding supports the notion that the comprehensive standard has a significant coercive effect on the firms' reporting and disclosure practices.

The revised CG code promulgated in 2012 is intended to improve the strength of CG mechanisms and to ensure the application of international CG best practices in Pakistan. The revisions in the CG code specifically include provisions related to strengthening the board and audit committee independence, discouraging CEO duality, and promoting board gender

diversity. These revisions in the CG code are likely to improve the CG quality and work as an institutional regulatory pressure to enhance the quality of risk disclosure. We therefore argue that CG reforms are strong enough to impact risk disclosure practices and hypothesize the following.

H1: CG reforms have a positive impact on the quality of corporate risk disclosure.

The objective of this study is to examine the impact of CG reforms on risk disclosure quality. Although, the empirical literature has already documented the effect of various CG mechanisms including board characteristics and ownership structure on risk disclosure quality, this study only focusses on those CG practices that have undergone changes in the revised code of corporate governance in 2012 and develop hypotheses accordingly. Secondly, we examine the moderating effect of CG reforms on the relationship between CG practices and risk disclosure quality. The CG mechanisms that have seen reforms in the revised CG code are CEO duality, board independence, board gender diversity and audit committee independence. Therefore, we focus on the relationship between these selected CG mechanisms and risk disclosure quality.

3.1.1. CEO duality and risk disclosure quality

Agency theory suggests that splitting the roles of CEO and chairperson significantly improves the board's capacity to discipline and monitor the managers. Such separation of duties enhances board independence and accountability (Barako et al., 2006), which could have a positive effect on risk disclosure. In addition, resource-dependence theory suggests that dual board leadership structure enhances corporate access to critical resources like executive talent and experience and also improves the legitimacy of the firm (Minsky & Kaufman, 2008). Role separation also demonstrates the stakeholders' orientation by practicing greater democracy in managerial decision making (Elzahar & Hussainey, 2012) as well as signalling management commitment towards transparency, accountability and responsibility. CEO duality concentrates the decision

making that can harm the board's governance role regarding disclosure policies (Li et al., 2008), and may negatively affect disclosure quality. CEO role duality also reduces the monitoring ability of the board; impede transparency and independence leading to lower disclosure quality (Samaha et al., 2015).

Previous empirical studies (Barako et al., 2006; Mokhtar & Mellet, 2013; Samaha et al., 2015) report a negative relationship between CEO duality and corporate disclosures, implying that separating the roles of CEO and chairperson facilitates extensive disclosure and restrain firms from withholding negative information. However, risk disclosure literature does not find any relationship between CEO duality and risk disclosure (Elzahar & Hussainey, 2012; Mokhtar & Mellet, 2013; Salem et al., 2019).

The revised CG code of 2012 introduces reforms to lessen the negative impact of CEO duality and requires that the position of chairperson and chief executive officer (CEO) should be separate in listed companies. Consistent with the aim revised CG code, we expect that this reform will improve the monitoring ability of the board, create transparency in firms' operations and independence in decision making leading to extensive disclosure and improving risk disclosure quality. Based on the discussion above, we propose the following hypotheses.

***H2a:** CEO duality is negatively associated with risk disclosure quality.*

***H2b:** CG reforms positively moderate the relationship between CEO duality and risk disclosure quality.*

3.1.2 Board Independence and risk disclosure quality

Legitimacy theory suggests that there is a perception of the existence of legitimacy gap in the corporate form of organization. This gap can be plugged by appointing independent directors to represent various stakeholders (Ntim et al., 2013), to bridge the gap between societal and

corporate values as well as to signal transparency and independence in corporate affairs. Agency and stakeholder theories argue that independent directors can be appointed to resolve the agency conflicts between managers and shareholders (Oliveira et al., 2011), improve managerial monitoring, and advance the interests of various stakeholders (Amran et al., 2008). Independent directors are expected to provide supervision required to improve the effectiveness of the board in advising, decision making, monitoring and disciplining the management (Saggar & Singh, 2017). Independent directors demand a higher level of transparency and accountability from management because of higher risk of losing their personal reputation. Both the agency and stakeholder theories suggest that the independent directors are an important pillar of governance structure to reduce information asymmetry between managers and shareholders (Linsley & Shrivies, 2006). Therefore, firms with more independent directors are likely to disseminate more risk information (Ntim et al., 2013) to reduce agency costs.

Based on these theoretical predictions, prior studies report a positive relation between the proportion of independent directors on the board and corporate risk disclosure (Ntim et al., 2013; Elshandidy & Neri, 2015; Salem et al., 2019). However, some studies (Al-Maghzom et al., 2016; Saggar & Singh, 2017) do not find any significant impact of independent directors on the provision of risk information.

The CG code of 2012 introduces various reforms to increase board independence. For instance, the revised CG code requires the presence of at least one independent director on the board and recommends that one third of directors to be independent, while in the earlier version of the code, only one independent director was recommended. The revised code further requires that maximum one third of the board members could be executive directors. If regulation does have a positive effect on increasing the board independence, then we expect board independence to have

a positively significant association with risk disclosure quality in post-reforms period. The previous discussion leads to the following hypotheses:

H3a: Board independence is positively associated with risk disclosure quality.

H3b: CG reforms positively moderate the relationship between board independence and risk disclosure quality.

3.1.3. Board gender diversity and risk disclosure quality

Gender is one of the most debated elements of board composition (Saggar & Singh, 2017; Gull et al., 2018; Nekhili et al., 2020; Gull et al., 2021; Usman et al., 2022). Board gender diversity refers to the presence of female directors on the board. Recruiting women on the board carry diversity of opinion and bring different perspectives to board discussion (Barako & Brown, 2008). Resource dependence theory states that board gender diversity can help the firm to link with the external environment and get access to resources which are critical for firm's survival (Ntim et al., 2013). The presence of women is likely to improve the efficiency of the board, because they are interested in all economic, social and societal issues (Nadeem et al., 2020). Further, a more gender-diverse board signals the firm's commitment to societal laws and values, and its ability to cater to the stakeholders' needs (Miller & Triana, 2009). Agency theory argues that the gender-diverse boards can increase board independence and improve managerial monitoring (Elzahar & Hussainey, 2012). Signalling theory postulates that the firms use female representation on the board as a signal for image building which leads to improved performance. Adams and Ferriera (2009) suggests that women directors are active compared to their male counterparts and are more likely to sit on monitoring committees and to attend board meetings. Female directors provide a collaborative approach to leadership and decision making which leads to greater communication among the board members leading to better decision making and

corporate outcomes including performance and disclosures (Gul et al., 2011). In addition, the presence of female directors on board enhances deliberations for better decision making by providing different opinions and perspectives (Salem et al., 2019). Previous studies report a positive effect of board gender diversity on risk disclosures (Ntim et al., 2013; Saggar & Singh, 2017).

The revised CG code of 2012 recommends forming gender-diverse boards and promoting female representation on the boards of listed firms. If this regulation does have a positive effect of increasing the level board gender diversity, then we expect a positively significant association between gender diversity on the board and risk disclosure quality. Based on above conjectures, we propose the following hypotheses:

***H4a:** Board gender diversity is positively associated with risk disclosure quality.*

***H4b:** CG reforms positively moderate the relationship between board gender diversity and risk disclosure quality.*

3.1.4 Audit Committee Independence and risk disclosure quality

Audit committee plays an important monitoring role in ensuring financial reporting quality, combating financial statements fraud, and improving voluntary disclosure by public companies (Li et al., 2008; Al-Shaer et al., 2017; Gull et al., 2018). A large audit committee is likely to have more power, greater access to knowledge sharing to unearth problems, improving internal control mechanisms which will enhance the monitoring role of audit committee and the quality of corporate risk disclosure (Barako et al., 2006; Zaman et al., 2011). Similarly, audit committees composed of independent directors are in a better position to perform independent oversight functions (Nekhili et al., 2020; Gull et al., 2021).

The mere existence of an audit committee does not guarantee effective monitoring and oversight in ensuring financial reporting quality. The presence of a competent audit committee (e.g., in terms of independence) has been emphasized as vital CG mechanism in ensuring reporting quality and improving corporate disclosures (Hoitash et al., 2009). Persons (2009) suggest that firms with independent audit committees make earlier voluntary ethics disclosures. Regarding risk disclosure, Oliveira et al., (2011) and Salem et al., (2019) report a positive impact of audit committee independence on risk disclosure.

The revised code of corporate governance requires that audit committees should comprise of independent no-executive directors, suggesting that such audit committees would ensure the independence and objectivity in improving financial reporting and disclosure quality. If this regulation does have a positive effect of increasing audit committee effectiveness, then we expect that, there will be a positively significant association between audit committee independence and risk disclosure quality. Therefore, we formulate the following hypotheses:

H5a: Audit committee independence is positively associated with risk disclosure quality.

H5b: CG reforms positively moderate the relationship between audit committee independence and risk disclosure quality.

4. Research Methodology

4.1. Data and sample

Our sample consists of all non-financial companies listed on the Pakistan Stock Exchange 100 index for the years 2009-2015. This time period allows us to examine the impact and implications of the revised CG code on risk disclosure quality in the post financial crisis period. The data are collected from the annual reports available on the websites of sample firms. We exclude financial firms, firms that were delisted or merged during the sample period, and firms

with missing data to reach a final sample of 64 firms and 448 firm-year observations. Table 2 provides more details on sample composition.

[Please insert Table 2 here]

4.2. Risk disclosure quality

Many researchers have tried to define and measure risk disclosure quality. Beattie et al. (2004; p.233) reaffirmed that “researchers investigating the determinants and consequences of disclosure quality could be wasting their efforts if the primary variable of interest is not being measured with a sufficient degree of accuracy”. To determine the quality of risk disclosure, first, it is of paramount importance to determine and define the meaning of risk. The meaning of risk has evolved over time. In the beginning, risk was considered as an act of nature and hence, uncontrollable. With the advent of industrial revolution and development in the field of mathematical methodology and probabilities, the definition of risk has changed. Jones (2006; p.8) has defined risk as “the probable frequency and magnitude of future loss”. The modernist view of risk includes both the positive and negative outcomes. Therefore, it can be defined as “any opportunity or prospect, or of any hazard, danger, harm, threat or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity, prospect, hazard, harm, or threat, or exposure” (Linsley & Shrives, 2006; p.402). King II defined risk as “uncertain future events that could influence the achievement of a company’s objectives” (King Committee, 2002). It is evident from the above discussion that there is no consensus on the definition of risk and construct of what constitutes risk and risk information is an evolving concept. We therefore determine the risk information disclosure in terms of the broad definitions offered by Linsley and Shrives (2006) and King II.

Previous risk disclosure studies have used content analysis method to analyze risk information in complete annual report as compared to specific sections (Beretta & Bozzolan, 2004). There are two methods of content analysis; namely manual content analysis method which is used in previous studies (e.g., Miihkinen, 2012; Ntim et al., 2013; Mokhtar & Mellet, 2013) and automated content analysis method (e.g., Elshandidy & Neri., 2015; Singh & Saggar, 2017). We employ manual content analysis method to codify risk disclosures in the complete annual report, because automated methods do not provide efficiency gain when dealing with smaller data sets (Graff & Vossen, 2013) and “automated methods require a lot of a priori and posteriori interpretation” (Wester, 2006; p. 250). We use the sentence as a unit of analysis. Although, word count is more objective and words can be counted with a higher degree of accuracy. However, “they cannot be coded without reference to the underlying sentence” (Ntim et al., 2013; p.370). We therefore develop risk disclosure index by identifying risk disclosure items based on the prior empirical studies (Van Oorschot, 2010; Ntim et al., 2013; Tauringana & Chithambo, 2016; Agyei-Mensah, 2017). Second, we identified items from the relevant accounting standard (IFRS 7) for financial risk disclosures in five categories i.e., interest rate risk, currency risk, price risk, liquidity risk, and credit risk (Appendix). Third, we read a sample of annual reports to identify risk disclosures that have been made by the firms (these risk disclosures are related to operations risk i.e., internal control and audit, governance/risk management/compliance and business ethics). We combine these items obtained from these three sources to form the detailed risk disclosure index. Our risk disclosure index comprises three major constituents of risk namely, (i) financial risks, (ii) strategic risks, and (iii) operations/business risks, making a total of 70 items. The details of the items and the scoring procedure are provided in the Appendix.

There is a regular criticism on index measurement method for being inherently subjective (Marston & Shrives, 1991). Therefore, to ensure the reliability of the index and reduce subjectivity, we followed these steps. First, three independent researchers coded a sample of ten annual reports individually and their results were compared. There was a high degree of agreement and no major differences surfaced with the coefficient of agreement being 0.84, which is greater than the threshold of 0.70 (Beattie, 2004). Second, the main single coder coded the remaining annual reports. Third, the main coder re-coded a sample of five annual reports, randomly to measure the consistency. Again, no major differences appeared with the coefficient of agreement of 0.93. Finally, Cronbach's alpha was 0.82, which is satisfactorily higher than the threshold of 0.70 (Elamer et al., 2018). For the construction of index, each of the 70 items has a score ranging from 0 to 2 (i.e., 0 if the risk item is not disclosed, 1 if the risk item is disclosed and contains past, future, good, bad and/or qualitative information only, 2 if the risk item is disclosed and contains past, future, good, bad, qualitative and/or quantitative information) resulting in a potential maximum score of 140. These risk disclosure items and scoring procedure are detailed in the Appendix.

4.3. Empirical models

To test our hypotheses, we estimate the following empirical models. Model 1 is estimated to examine the impact of CG reforms and CG practices (i.e., CEO duality, board independence, board gender diversity and audit committee independence) on risk disclosure quality, while Model 2 is estimated to document the moderating effect of CG reforms on the CG practices-risk disclosure nexus.

Where *RDI* refers to the risk disclosure index, *CG* is an indicator variable for corporate governance reforms and takes the value of one for post-reforms period (i.e., 2013-2015) and zero otherwise. *Duality*, *IND*, *BDiversity* and *ACInd* represents CEO duality, board independence, board gender diversity and audit committee independence, respectively. *CG * Duality*, *CG * IND*, *CG * BDiversity* and *CG * ACInd* are interaction terms of CEO duality, board independence, board gender diversity and audit committee independence with post-CG reforms period. *Controls* is a vector of variables which may impact the level of disclosure as suggested by existing studies (e.g., Samaha et al., 2015). These variables include board size (*BSize*), ownership concentration (*OC*), institutional ownership (*INSTOWN*), managerial ownership (*MANOWN*), foreign ownership (*FOROWN*), liquidity (*LIQ*), profitability (*PROFIT*), leverage (*LEV*), firm size (*SIZE*) and ϵ is the error term. All variables are defined in Table 3.

[Please insert Table 3 here]

5. Results

5.1. Univariate results

Table 4a presents the descriptive statistics for all variables. The mean value of risk disclosure (*RDI*) is 62.208 out of the total potential score of 140, with a maximum score of 96. This suggests that PSX listed firms are susceptible to disclose risk information. We note that firms are characterized by moderate level of CEO role duality (*Duality*) with a mean percentage of 28. The proportion of independent directors (*IND*) is relatively high with a mean percentage of 55. The presence of women on the board (*BDiversity*) is satisfactory as evident from the mean of 17%. For the audit committee independence (*ACInd*), we find that the mean value is 18.2%. This might be the effect of revised CG code of 2012 which promotes gender diversity,

requires having at least one independent director on the board, recommends that 75% of the board members should be independent directors and audit committees should be composed of independent directors.

[Please insert Table 4a here]

Table 4b presents the results of the mean differences for the pre- and post-CG reforms period. The results reveal that the mean score of *RDI* significantly increases in the post-CG reforms period from 59.937 to 64.902 and is statistically significant at 1% level. The results suggest that the revised CG code has the intended objective of reducing CEO duality and improving board independence and gender diversity as shown by the mean difference tests.

[Please insert Table 4b here]

Table 5 presents the results of the Pearson pairwise correlation for all the variables. The results of the correlation analysis reveal that corporate governance reforms (*CG*) have a positive correlation with risk disclosure quality (*RDI*) and significant at 1% level. There is low correlation among the independent variables, highlighting the absence of multicollinearity. The un-tabulated results of the variance inflation factor (*VIFs*) also show that *VI* factors are less than 3. So, our sample does not suffer from multicollinearity issues.

[Please insert Table 5 here]

5.2. Multivariate results

Pooled ordinary least squares (*OLS*) regression has been applied to test the hypotheses. However, the *OLS* regression has its limitations. Therefore, to ensure the robustness of our results and to address potential endogeneity concerns, we follow recent literature (Gull et al., 2018; Nekhili et al., 2020; Gull et al., 2021; Abid et al., 2021) in using the two-step system *GMM* approach to examine the relationship between *CG* mechanisms and corporate risk disclosure quality. Because the system *GMM* provide more reliable results after controlling for

simultaneity, unobservable heterogeneity and omitted variable bias (Wintoki et al., 2012; Elamer et al., 2019). This approach aims to eliminate or significantly alleviate endogeneity problems that may create links between our risk disclosure index and many un-observed firm characteristics (Elamer et al., 2019, Ntim et al., 2015). The GMM approach is robust to autocorrelation and heteroscedasticity and uses historical values of the dependent variable as effective instruments to control the existence of potential simultaneous and dynamic endogeneity.

The pooled OLS regression results are presented in Table 6. The results reveal that CG reforms have a positive impact on risk disclosure quality as indicated by the positive and significant coefficient on CG. This leads to the acceptance of H1, implying that the reforms in CG mechanisms achieve the intended objective of improving governance quality. As a result, CG regulations act as institutional regulatory pressure to improve risk disclosure quality in the post-reforms period. This findings is consistent with previous literature which has documented improvement in risk disclosure quality after the release of comprehensive risk disclosure standard (Miihkinen, 2012, 2013). Similarly, Ibrahim et al. (2020) provide evidence that CG reforms could influence managers' choices of income smoothing and earnings management practices and thus the quality of financial reporting. Therefore, it can be inferred that CG reforms and disclosure standard can act as regulatory pressure to improve financial reporting quality.

CEO duality (*Duality*) has a statistically significant and negative relationship with *RDI*. This negative relationship suggests that the CEO duality prevents the effective disclosure of risk information. This result is aligned with theoretical predictions of the agency theory that CEO duality concentrates the decision making that can harm the board's governance role (Li et al., 2008), reduces board's monitoring ability, impede transparency and independence leading to lower risk disclosure quality (Samaha et al., 2015), consistent with findings of previous studies (e.g., Mokhtar & Mellet, 2013; Allegrini and Greco, 2013). This leads to the acceptance of H2a.

With regard to H3a, our results reveal that the board independence (*IND*) has a negative and statistically significant impact on the quality of risk disclosure (*RDI*). This finding neither confirms the premise of agency theory nor resource dependence theory. However, this is consistent with the results reported by Elgammal et al., (2018) and Madhani (2015), that board independence does not necessarily result in better corporate governance and disclosure practices. Therefore, in line with stakeholder theory, we argue that the reason behind this negative effect may be that independent directors are neither efficient monitors nor play a meaningful role in decision making and are present on the board just to provide legitimacy to their firms. The concentrated family ownership in Pakistani firms may negatively influence the performance of the independent directors. Patton and Baker (1987) argue that independent directors are closely aligned with the CEO and have arrangements with the firm's management and thus cannot object to the management's illegal acts (Kesner et al., 1986). Wang et al. (2019) found that board independence does not significantly impact performance of Pakistani listed firms following changes in corporate governance regulations because investors presume that independent directors act in the best interest of block holders and thus are not truly independent.

Concerning H4a and H5a, we find that board gender diversity (*BDiversity*) and audit committee independence (*ACInd*) have a positive but insignificant relationship with *RDI*. Based on these findings, we argue that female and independent directors do not impact the quality of risk disclosure and might be strategically placed on the board of directors and audit committees by the Pakistani firms just to seek legitimacy for their actions from several stakeholder groups. These results are consistent with the findings of Wang et al. (2019) who do not find a significant association between board gender diversity and firm performance of Pakistani listed firms. Similarly, Bianco et al., (2013) questions the ability of female directors to add incremental value

to the board. Collectively, these findings are in agreement with the notion of signaling theory that firms use female and independent directors' representation on the board as a signal to build positive public image (Ridhima & Singh, 2017).

The main objective of this study is to investigate the influence of CG reforms on the relationship between CG mechanisms and risk disclosure quality. To study this effect, we examine the moderating effect of CG reforms on CG mechanisms-risk disclosure association. Model 2 of Table 6 presents the results for the moderating effect of CG reforms on CG mechanisms-risk disclosure association. Consistent with the hypotheses (H2b, H3b, H4b and H5b), the results demonstrate that revised CG code has a moderating effect on the relationship between CG mechanisms and risk disclosure quality. We find that CG reforms positively moderates the negative impact of CEO duality (*Duality*) and board independence (*IND*) on *RDI* as evidenced by the positive and significant coefficients on interaction terms (i.e., *Duality * CG* and *IND * CG*). Similarly, the coefficient on interaction terms i.e., *BDiversity * CG* and *ACInd * CG* are positively and significantly associated with *RDI*, suggesting that CG reforms positively moderates the relation between board gender diversity, audit committee independence and *RDI*. Our results provide evidence that CG reforms have a positive impact on risk disclosure quality.

We note that after the revisions in CG code, the independent directors are able to play their monitoring role. Both the agency and stakeholder theories suggest that the independent directors are an important pillar of governance structure to resolve agency conflict between managers and shareholders (Linsley & Shrives, 2006) and provide supervision required to improve the effectiveness of the board in advising, monitoring, and disciplining the management (Saggar & Singh, 2017). The CG reforms also moderate the negative impact of CEO role duality on risk disclosure quality. This finding is consistent with agency and resource dependency theories that

splitting the roles of CEO and chairperson significantly improves the board's capacity to discipline and monitor the managers (Minsky & Kaufman, 2008). With respect to the gender diversity, the recommendations to include women on the board also have a favorable impact on risk disclosure quality. The results validate that gender-diverse boards improve the risk disclosure quality consistent with literature suggesting that female directors provide a more collaborative approach to leadership, which results in the better communication within the board leading to higher quality of risk disclosure. Similarly, audit committee independence has a positive effect on risk disclosure quality in the post-CG reforms period, as independent audit committees improve the monitoring and supervision of the financial reporting process and disclosure practices.

[Please insert Table 6 here]

We re-estimate equations (1) and (2) using the system GMM regressions to address the issue of endogeneity. The results of this analysis are reported in Table 7. Among our variables of interest, *CG* has a positive relationship with *RDI*. *Duality* and *IND* has a negative association with *RDI*, while *BDiversity* and *ACInd* have a positive but insignificant relationship with *RDI*. The CG reforms moderates the negative impact of *Duality* and *IND*, while strengthening the positive impact of *BDiversity* and *ACInd* on *RDI*. These results are similar to those reported in Table 6, suggesting that our results are not subject to endogeneity.

[Please insert Table 7 here]

5.3. Robustness analysis

In order to ensure the validity of our findings against alternative measure of risk disclosure, we perform additional analysis in Table 8 and 9 by using unweighted risk disclosure index (*UWRDI*) instead of risk disclosure index (*RDI*) as dependent variable and re-estimate equations (1) and

(2). Unweighted risk disclosure index is constructed using the same seventy items as used in the development of risk disclosure index (*RDI*). For unweighted risk disclosure index, each of the 70 items has a score ranging from 0 to 1 (i.e., 0 if risk item is not disclosed; 1 if risk item is disclosed by the firm). This unweighted scoring procedure can result in a total potential score of 70. These risk disclosure items and scoring procedure is explained in the Appendix. The results for the impact of CG mechanisms on unweighted risk disclosure index are presented in Tables 8 and 9, respectively. These results are quite similar to those reported in Table 6 and 7. We find that the CG reforms have a positive impact on risk disclosure quality as evidenced by the positive coefficient of *CG* with unweighted risk disclosure index. Further, CG reforms have a moderating impact on the CG mechanisms-risk disclosure association, confirming the assertion that reforms in the CG code have the desired effect of strengthening the quality of governance mechanisms and improving the level of corporate risk disclosure.

[Please insert Tables 8 & 9 here]

The results of the sub-sample analysis (un-tabulated) further reveal that CG mechanisms have a positive impact on the risk disclosure quality in the post-CG reforms period (i.e., after 2012).³ However, we acknowledge that a sub-sample analysis with a smaller data set has its own limitations.

6. Conclusion

This study investigates the impact of CG reforms on risk disclosure quality by exploiting the revisions in the corporate governance code, in the context of Pakistan. First, we show that the risk disclosure by the PSX listed firms for the period from 2009 to 2015 is weaker and firms

³ The sub-sample analysis is conducted by splitting the whole sample into pre- and post-CG reforms period. The pre-CG reforms period sample includes the observations from the years 2009 to 2012, while post-CG reforms period sample includes the observations from the years 2013 to 2015.

hesitate to provide quantitative information and rely on generic boilerplate risk narratives, as evidenced by the relatively low average score of risk disclosure index. Second, our findings for the impact of CG mechanisms on risk disclosure quality are mixed. Specifically, we find that the risk disclosure quality is negatively associated with the CEO role duality and board independence, while there is an insignificant positive relationship of risk disclosure quality with board gender diversity and audit committee independence. The most important finding of the study is that the CG reforms have a positive impact on risk disclosure quality. The CG reforms also moderate the relationship between governance mechanisms and risk disclosure quality. We observe that the negative relationship of CEO duality and board independence with risk disclosure quality is moderated by the introduction of revised CG code. Similarly, the revised CG code augments the positive impact of board gender diversity and audit committee independence on risk disclosure quality. These findings suggest that the inclusion of more independent directors to the board and splitting the roles of CEO and chairperson have the desired effects of improving the governance quality and facilitating extensive risk disclosure. Similarly, the formation of gender-diverse boards and appointment of independent directors on audit committee has a positive effect on risk disclosure quality in the post-reforms period. Our findings are based on a comprehensive risk disclosure quality index devised from seventy dimensions of financial and non-financial risk disclosures following prior literature. Our findings suggest positive implications of CG reforms on the CG mechanisms-risk disclosure relation. We can conclude that CG reforms have the desired effect of strengthening the independence of audit committee and board as well as improving their monitoring function. These findings are robust to alternative econometric specifications and the use of alternative proxies of risk disclosure.

This is the first empirical study that contributes to the existing body of risk disclosure and CG literature by providing evidence on the impact of CG reforms on risk disclosure quality in the context of Pakistan. The study has implications for policymakers and regulators in other emerging economies where risk disclosure is at the preliminary stage. The findings of the study stress the need to strengthen the CG mechanisms to discipline and monitor the actions of the management. The regulators and policymakers must include those provisions in the CG code which strengthen the independence and objectivity of the board, improve oversight, monitoring capabilities and encourage diversity of opinion and communication in the decision-making process. Further, keeping in view of international practices, Securities & Exchange Commission of Pakistan (SECP) can also encourage firms to provide informative risk disclosures and provide guidance in the divulgence of risk information, so the stakeholders can assess the risk profile of firms before making decisions.

Our study has some limitations that offer avenues for future research. First the sample size is relatively small and examines the firms listed on PSX-100 index; however, this small sample is justified by the fact that these firms represent 85% of the total market capitalization. Secondly, we use the manual content analysis which is subjective and time consuming, and we use only annual reports to assess the risk disclosure quality. Finally, our findings are based on a sample of Pakistani listed firms, so the results might not be generalizable to other countries who have different legal, regulatory, and governance environment from that of Pakistan. Future research may conduct cross-country study in the South Asian context to make a comparison between the risk disclosure regimes in the SAARC region. Further, the examination of multi-layer governance structure including country-level governance structure in the divulgence of risk information and risk disclosure quality is proposed.

References

- Abid, A., Gull, A. A., Hussain, N., & Nguyen, D. K. (2021). Risk governance and bank risk-taking behavior: Evidence from Asian banks. *Journal of International Financial Markets, Institutions and Money*, 75, 101466.
- Abid, A., Shaique, M., & Anwar ul Haq, M. (2018). Do big four auditors always provide higher audit quality? Evidence from Pakistan. *International Journal of Financial Studies*, 6(2), 58.
- Abraham, S., & Cox, P. (2007). Analysing the determinants of narrative risk information in UK FTSE 100 annual reports. *The British Accounting Review*, 39(3), 227-248.
- Abraham, S., Marston, C. and Darby, P. (2012). Risk reporting: clarity, relevance and location. Edinburgh: Institute of Chartered Accountants of Scotland.
- Adams, R. B., Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, 94(2), 291-309.
- Agyei-Mensah, B. K. (2017). Does the corruption perception level of a country affect listed firms' IFRS 7 risk disclosure compliance?. *Corporate Governance: The International Journal of Business in Society*, 17(4), 727-747.
- Allegrini, M., & Greco, G. (2013). Corporate boards, audit committees and voluntary disclosure: Evidence from Italian listed companies. *Journal of Management & Governance*, 17(1), 187-216.
- Al-Maghzom, A., Hussainey, K., Aly, D. A. (2016). Corporate Governance and Risk Disclosure: Evidence from Saudi Arabia. *Corporate Ownership and Control Journal*, 13(2), 145-166
- Al-Shaer, H., Salama, A., & Toms, S. (2017). Audit committees and financial reporting quality: Evidence from UK environmental accounting disclosures. *Journal of Applied Accounting Research*.
- Amran, A., Manaf Rosli Bin, A., & Che Haat Mohd Hassan, B. (2008). Risk reporting: An exploratory study on risk management disclosure in Malaysian annual reports. *Managerial Auditing Journal*, 24(1), 39-57.
- Ball, R., & Shivakumar, L. (2005). Earnings quality in UK private firms: Comparative loss recognition timeliness. *Journal of Accounting and Economics*, 39(1), 83-128.
- Barako, D. G., & Brown, A. M. (2008). Corporate social reporting and board representation: evidence from the Kenyan banking sector. *Journal of Management & Governance*, 12(4), 309-324.
- Barako, D. G., Hancock, P., & Izan, H. (2006). Factors influencing voluntary corporate disclosure by Kenyan companies. *Corporate Governance: An International Review*, 14(2), 107-125.
- Beattie, V., McInnes, B., & Fearnley, S. (2004). A methodology for analysing and evaluating narratives in annual reports: a comprehensive descriptive profile and metrics for disclosure quality attributes. *Accounting Forum*, 28(3), 205-236.
- Beretta, S., & Bozzolan, S. (2004). A framework for the analysis of firm risk communication. *The International Journal of Accounting*, 39(3), 265-288.
- Bianco, M., Ciavarella, A., & Signoretti, R. (2013). Women on corporate boards in Italy. *Bank of Italy Occasional Paper*, (174).
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87, 115-143.

- Cabedo, J. D., & Tirado, J. M. (2004, June). The disclosure of risk in financial statements. *Accounting Forum*, 28(2), 181-200.
- De Graaf, R., & van der Vossen, R. (2013). Bits versus brains in content analysis. Comparing the advantages and disadvantages of manual and automated methods for content analysis. *Communications*, 38(4), 433-443.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 147-160.
- Dobler, M., Lajili, K., & Zéghal, D. (2011). Attributes of corporate risk disclosure: An international investigation in the manufacturing sector. *Journal of International Accounting Research*, 10(2), 1-22.
- Elamer, A. A., & Benyazid, I. (2018). The impact of risk committee on financial performance of UK financial institutions. *International Journal of Accounting and Finance*, 8(2), 161-180.
- Elamer, A. A., Ntim, C. G., Abdou, H. A., Zalata, A. M., & Elmagrhi, M. (2019). The impact of multi-layer governance on bank risk disclosure in emerging markets: The case of Middle East and North Africa. *Accounting Forum*, 43(2) 246-281.
- Elgammal, M. M., Hussainey, K., & Ahmed, F. (2018). Corporate governance and voluntary risk and forward-looking disclosures. *Journal of Applied Accounting Research*.
- Elliot, B. and Elliot, J. (2013), *Financial Accounting and Reporting*, Pearson Higher Education, Harlow.
- Elshandidy, T., & Neri, L. (2015). Corporate governance, risk disclosure practices, and market liquidity: comparative evidence from the UK and Italy. *Corporate Governance: An International Review*, 23(4), 331-356.
- Elshandidy, T., Neri, L., & Guo, Y. (2018). Determinants and impacts of risk disclosure quality: Evidence from China. *Journal of Applied Accounting Research*, 19(4), 518-536.
- Elzahar, H., & Hussainey, K. (2012). Determinants of narrative risk disclosures in UK interim reports. *The Journal of Risk Finance*, 13(2), 133-147.
- Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The Journal of Law and Economics*, 26(2), 301-325.
- Gull, A. A., Abid, A., Latief, R., & Usman, M. (2021). Women on board and auditors' assessment of the risk of material misstatement. *Eurasian Business Review*, 11, 679-708.
- Gull, A. A., Nekhili, M., Nagati, H., & Chtioui, T. (2018). Beyond gender diversity: How specific attributes of female directors affect earnings management. *The British Accounting Review*, 50(3), 255-274.
- Gul, F. A., Srinidhi, B., & Ng, A. C. (2011). Does board gender diversity improve the informativeness of stock prices?. *Journal of Accounting and Economics*, 51(3), 314-338.
- Hassan, N.S.M. (2014), "Investigating the impact of firm characteristics on the risk disclosure quality", *International Journal of Business and Social Science*, Vol. 5 Nos 9/1, pp 109-119.
- Hutchinson, M. R., Percy, M., & Erkurtoğlu, L. (2008). An investigation of the association between corporate governance, earnings management and the effect of governance reforms. *Accounting Research Journal*, 21(3), 239-262.
- Hermalin, B. E., & Weisbach, M. S. (1991). The effects of board composition and direct incentives on firm performance. *Financial Management*, 20(4), 101-112.

- Hoitash, U., Hoitash, R., & Bedard, J. C. (2009). Corporate governance and internal control over financial reporting: A comparison of regulatory regimes. *The Accounting Review*, 84(3), 839-867.
- Ibrahim, A. E. A., Abdelfattah, T., & Hussainey, K. (2020). Artificial and real income smoothing around corporate governance reforms: further evidence from Egypt. *Journal of Applied Accounting Research*, 21(4), 701-720.
- International Federation of Accountants. Financial, & Management Accounting Committee. (1999). *Enhancing Shareholder Wealth by Better Managing Business Risk* (Vol. 9). New York: Intl Federation of Accounts.
- Jones, J. (2006). An introduction to factor analysis of information risk (fair). *Norwich Journal of Information Assurance*, 2(1), 67.
- Kesner, I. F., Victor, B., & Lamont, B. T. (1986). Board composition and the commission of illegal acts: An investigation of Fortune 500 companies. *Academy of Management Journal*, 29(4), 789-799.
- King Committee on Corporate Governance (2002). *Corporate Governance for South Africa*. Parktown: Institute of Directors in Southern Africa.
- Li, J., Pike, R., & Haniffa, R. (2008). Intellectual capital disclosure and corporate governance structure in UK firms. *Accounting and Business Research*, 38(2), 137-159.
- Linsley, P. M., & Shrive, P. J. (2006). Risk reporting: A study of risk disclosures in the annual reports of UK companies. *The British Accounting Review*, 38(4), 387-404.
- Leuz, C. (2003). IAS versus U.S. GAAP: Information asymmetry-based evidence from Germany's new market. *Journal of Accounting Research*, 41(3), 445-472.
- Madhani, P. M. (2015). The impact of board characteristics on corporate governance and disclosure practices of firms listed in Indian Stock Exchange. *The IUP Journal of Corporate Governance*, 14(4), 14-46.
- Makhaiel, N. K. B., Sherer, M. L. J. (2018). The effect of political-economic reform on the quality of financial reporting in Egypt. *Journal of Financial Reporting and Accounting*, 16(1), 245-270.
- Marston, C. L., & Shrive, P. J. (1991). The use of disclosure indices in accounting research: a review article. *The British Accounting Review*, 23(3), 195-210.
- Miihkinen, A. (2012). What drives quality of firm risk disclosure?: the impact of a national disclosure standard and reporting incentives under IFRS. *The International Journal of Accounting*, 47(4), 437-468.
- Miihkinen, A. (2013). The usefulness of firm risk disclosures under different firm riskiness, investor-interest, and market conditions: New evidence from Finland. *Advances in Accounting*, 29(2), 312-331.
- Miller, T., & Triana, C. M. (2009). Demographic diversity in the boardroom: Mediators of the board diversity-firm performance relationship. *Journal of Management Studies*, 46(5), 755-786.
- Minsky, H. P., & Kaufman, H. (2008). *Stabilizing an Unstable Economy* (Vol. 1). New York: McGraw-Hill.
- Nadeem, M., Bahadar, S., Gull, A. A., & Iqbal, U. (2020). Are women eco friendly? Board gender diversity and environmental innovation. *Business Strategy and the Environment*, 29(8), 3146-3161.

- Nekhili, M., Gull, A. A., Chtioui, T., & Radhouane, I. (2020). Gender diverse boards and audit fees: What difference does gender quota legislation make? *Journal of Business Finance & Accounting*, 47(1-2), 52-99.
- Ntim, C. G., Lindop, S., & Thomas, D. A. (2013). Corporate governance and risk reporting in South Africa: A study of corporate risk disclosures in the pre-and post-2007/2008 global financial crisis periods. *International Review of Financial Analysis*, 30, 363-383.
- Ntim, C. G., Opong, K. K., & Danbolt, J. (2015). Board size, corporate regulations and firm valuation in an emerging market: A simultaneous equation approach. *International Review of Applied Economics*, 29(2), 194–220.
- Oliveira, J., Lima Rodrigues, L., & Craig, R. (2011). Risk-related disclosures by non-finance companies: Portuguese practices and disclosure characteristics. *Managerial Auditing Journal*, 26(9), 817-839.
- Patton, A., & Baker, J. C. (1987). Why wont directors rock the boat. *Harvard Business Review*, 65(6), 10.
- Persons, O. S. (2009). Audit committee characteristics and earlier voluntary ethics disclosure among fraud and no-fraud firms. *International Journal of Disclosure and Governance*, 6(4), 284-297.
- Rajab, B., & Handley-Schachler, M. (2009). Corporate risk disclosure by UK firms: trends and determinants. *World Review of Entrepreneurship, Management and Sustainable Development*, 5(3), 224-243.
- Saggar, R., & Singh, B. (2017). Corporate governance and risk reporting: Indian evidence. *Managerial Auditing Journal*, 32(4/5), 378-405.
- Said Mokhtar, E., & Mellett, H. (2013). Competition, corporate governance, ownership structure and risk reporting. *Managerial Auditing Journal*, 28(9), 838-865.
- Salem, I. H., Ayadi, S. D., & Hussainey, K. (2019). Corporate governance and risk disclosure quality: Tunisian evidence. *Journal of Accounting in Emerging Economies*, 9(4), 567-602.
- Samaha, K., Khelif, H., & Hussainey, K. (2015). The impact of board and audit committee characteristics on voluntary disclosure: A meta-analysis. *Journal of International Accounting, Auditing and Taxation*, 24, 13-28.
- Shleifer, A. & Vishny, R.W. (1997). A survey of corporate governance. *Journal of Finance*, 52, 737-84.
- Tauringana, V., & Chithambo, L. (2016). Determinants of risk disclosure compliance in Malawi: a mixed-method approach. *Journal of Accounting in Emerging Economies*, 6(2), 111-137.
- Taylor, G., Tower, G., & Neilson, J. (2010). Corporate communication of financial risk. *Accounting & Finance*, 50(2), 417-446.
- Usman, M., Gull, A. A., Zalata, A., Wang, F., & Yin, J. (2022). Female board directorships and related party transactions. *British Journal of Management*. <https://doi.org/10.1111/1467-8551.12568>
- Van Oorschot, L. (2010). Risk Reporting: An Analysis of the German Banking Industry. Erasmus School of Economics, Erasmus University Rotterdam, pp. 147-165.
- Wang, Y., Abbasi, K., Babajide, B., & Yekini, K. C. (2019). Corporate governance mechanisms and firm performance: evidence from the emerging market following the revised CG code. *Corporate Governance: The International Journal of Business in Society*, 20(1), 158-174
- Wester, F. P. J. (2006). *Inhoudsanalyse: Theorie en Praktijk*. Deventer: olters Kluwer.

- Wintoki, M. B., Linck, J. S., & Netter, J. M. (2012). Endogeneity and the dynamics of internal corporate governance. *Journal of Financial Economics*, 105(3), 581-606.
- Zaman, M., Hudaib, M., & Haniffa, R. (2011). Corporate governance quality, audit fees and non-audit services fees. *Journal of Business Finance & Accounting*, 38(1-2), 165-197.

Table 1: Revisions in CG Code 2012

CG Regulations	Code 2012
Board Evaluation	Annual evaluation of board of directors' performance should be made within 2 years of the implementation of revised CG Code.
Independence of Board	At least one independent director is required and one third of directors are recommended to be independent.
Duality	Chairperson and CEO should be separate person.
Executive Directors	Maximum one-third of the directors on the board can be executive directors.
Gender Diversity	It is recommended to formulate gender diverse boards.
Audit Committee	Audit committee should comprise of non-executive directors.
Risk Disclosure	Firms are recommended to disclose significant risks being faced by the firm. However, no guidance is provided regarding types of risks or specific risk disclosure examples.

Source: Adopted from SECP 2012

Table 2: Industry and Sample

Industry	No. of Firms	Sample Percentage
Oil and Gas	9	14
Chemicals	6	9
Industrial	15	24
Consumer goods	22	34
Utilities	7	11
Other	5	8
Full Sample	64	100

Table 3: Description and Measurement of Variables

Variables	Definitions and Operationalization
RDI	RDI is the score of risk disclosure index, each of the 70 items has a score ranging from 0 to 2 (i.e., 0-risk item not disclosed; 1-risk item disclosed and contains past, future, positive, negative and/or qualitative information; 2-risk item disclosed and contains past, future, positive, negative, qualitative and/or quantitative information). This scoring procedure can result in a total potential score of 140. The risk disclosure items and scoring procedure are detailed in the Appendix.
CG	CG is an indicator variable for corporate governance reforms and takes the value of one for years started from 2012 and zero otherwise.
Duality	A dummy variable equal to 1, if the position of chairperson and CEO are held by the same person and 0, otherwise.
IND	The proportion of independent and non-executive directors to the total number of directors on the board.
BDiversity	A dummy variable equal to 1, if there is a female member included in the board and 0, otherwise.
ACInd	A dummy variable equal to 1, if more than fifty percent of audit committee members are independent non-executive directors and 0, otherwise.
BSize	Total number of directors on the board.
CG	A dummy variable equal to 1 for the post-CG reforms period i.e., year 2013 to onwards and 0 otherwise.
OC	The proportion of shares held by large shareholders in excess of 10% of equity ownership.
INSTOWN	The proportion of institutional shareholding to the total number of outstanding shares.
MANOWN	The proportion of shares owned by executives and managers to the total number of outstanding shares.
FOROWN	The proportion of shares owned by foreigners to the total number of outstanding shares.
LIQ	The ratio of current assets to current liabilities.
PROFIT	The ratio of operating profit to total assets.
LEV	The ratio of total liabilities to total assets.
SIZE	Size of firm measured by the natural logarithm of total assets.

Table 4a: Descriptive Statistics of Variables for 2009-2015

Variable	Obs.	Mean	SD	Min	Max
RDI	448	62.208	11.331	33	96
CG	448	0.571	0.389	0	1
Duality	448	0.284	0.305	0	1
IND	448	0.554	0.189	0.142	1
BDiversity	448	0.172	0.378	0	1
ACInd	448	0.182	0.793	0	1
BSize	448	9.044	2.587	3	21
OC	448	0.533	0.207	0.10	0.93
INSTOWN	448	0.147	0.197	0.001	1.889
MANOWN	448	0.053	0.096	0	0.476
FOROWN	448	0.149	0.246	0	0.846
LIQ	448	0.903	1.611	0.034	13.328
PROFIT	448	0.165	0.125	-0.088	0.633
LEV	448	0.434	0.221	0.004	0.960
SIZE	448	16.960	1.203	13.790	20.132

Note: All variables are as defined in Table 3.

Table 4b: Univariate Comparison of Variables after CG Code Change

Variable	Obs.	Mean Pre-CG Code	Mean Post-CG Code	Two Sample T-Test
RDI	448	59.937	64.902	-2.490***
Duality	448	0.320	0.262	2.830***
IND	448	0.492	0.675	-3.823***
BDiversity	448	0.118	0.223	-2.404***
ACInd	448	0.173	0.192	-1.039
BSize	448	8.750	9.437	-2.438***
OC	448	0.531	0.535	-0.155
INSTOWN	448	0.132	0.167	-1.613
MANOWN	448	0.056	0.049	0.679
FOROWN	448	0.141	0.159	-0.633
LIQ	448	0.892	0.933	0.730
PROFIT	448	0.166	0.164	0.128
LEV	448	0.461	0.397	2.682***
SIZE	448	16.830	17.134	-2.311**

Note: All variables are as defined in Table 3. We also report on the paired sample mean test (t-test). **p < 0.05; ***p < 0.01 (two-tailed test).

Table 5: Correlation matrix

Variables	1	2	3	4	5	6	7	8	9	10
1. <i>RDI</i>	1.000									
2 <i>CG</i>	0.152***	1.000								
3. <i>Duality</i>	-0.025	-0.051	1.000							
4. <i>IND</i>	0.125**	0.113**	-0.167**	1.000						
5. <i>BDiversity</i>	-0.022	0.092	0.205***	-0.374***	1.000					
6. <i>ACInd</i>	0.013	0.042	-0.102*	0.067	0.004	1.000				
7. <i>BSize</i>	0.268***	0.005	-0.137**	0.248***	-0.059	0.159**	1.000			
8. <i>OC</i>	-0.020	-0.032	0.149**	-0.024	-0.054	-0.144**	-0.098*	1.000		
9. <i>INSTOWN</i>	0.056	0.012	0.025	0.103*	0.103*	-0.026	0.058	-0.272***	1.000	
10. <i>MANOWN</i>	-	-0.002								
	0.171***		-0.016	-0.328***	0.389***	-0.093*	-0.119**	-0.200***	-0.102*	1.000
11. <i>FOROWN</i>	-0.040	0.039	0.034	-0.135**	0.152**	0.278***	-0.084	0.279***	-0.233***	-0.048
12. <i>LIQ</i>	0.027	0.011	-0.027	-0.139**	-0.038	-0.103**	0.054	0.121**	-0.016	-0.045
13. <i>PROFIT</i>	-0.044	0.048	-0.081	0.006	0.071	0.290***	0.008	0.289***	-0.270***	0.026
14. <i>LEV</i>	-0.042	-0.032	-0.007	0.029	0.006	-0.091	0.051	0.053	0.187***	0.016
15. <i>SIZE</i>	0.515***	0.062	0.013	0.415***	-0.186**	0.022	0.301***	-0.199***	0.120**	-0.310***

	11	12	13	14	15
11. <i>FOROWN</i>	1.000				
12. <i>LIQ</i>	-0.039	1.000			
13. <i>PROFIT</i>	0.354***	-0.046	1.000		
14. <i>LEV</i>	-0.067	-0.163**	-0.155**	1.000	
15. <i>SIZE</i>	-0.292***	0.044	-0.212***	0.112*	1.000

Note: The table presents pair-wise correlation between all variables used in the regression models. See Table 3 for variable definition. ***p < 0.01, ** p<0.05 and *p< 0.1(two-tailed test).

Table 6: OLS regression results

Variables	Prediction	Model 1		Model 2	
		Coef.	t-stat	Coef.	t-stat
CG	(+)	1.282	3.52***	0.982	2.87***
Duality	(-)	-3.023	-2.67***	-4.572	-2.40**
IND	(+)	-9.156	-2.74***	-15.464	-3.91***
BDiversity	(+)	1.799	1.13	1.287	1.21
ACInd	(+)	0.820	1.10	0.473	0.57
BSize	(?)	0.658	3.05***	0.612	2.85***
OC	(-)	-6.799	-2.19**	-7.218	-2.33**
INSTOWN	(+)	4.898	1.69*	4.192	1.75*
MANOWN	(-)	-0.603	-0.09	-2.871	-0.45
FOROWN	(+)	4.974	2.00**	4.548	1.94*
LIQ	(?)	-0.004	-1.41	-0.004	-1.21
PROFIT	(+)	1.429	0.29	1.892	0.39
LEV	(-)	-7.408	-2.97***	-6.894	-2.73***
SIZE	(+)	5.795	10.76***	5.863	10.84***
Duality*CG	(+)			2.445	3.23***
IND*CG	(+)			14.159	2.97***
BDiversity*CG	(+)			7.496	2.59***
ACInd*CG	(+)			2.627	3.02***
Cons	(?)	-35.388	-3.73***	-36.850	-3.86***
Industry Effects			Yes		Yes
Obs.			448		448
F-Value			14.82***		10.85***
R Square			0.39		0.36

Note: Significance levels are *=10%, **=5% and ***=1%. All variables are as defined in Table 3. Variables are winsorized at 1% and 99% level.

Table 7: The system GMM regression results

Variables	Predictio n	Model 1		Model 2	
		Coef.	t-stat	Coef.	t-stat
WRD _{t-1}	(+)	0.917	37.20***	0.916	51.70***
CG	(+)	0.982	3.13***	0.872	3.06***
Duality	(-)	-2.996	-2.58***	-3.303	-2.72***
IND	(+)	-6.925	-2.84***	-11.549	-3.22***
BDiversity	(+)	1.289	0.93	0.034	0.71
ACInd	(+)	0.920	1.15	1.910	1.28
BSize	(?)	0.548	2.05**	0.414	1.98**
OC	(-)	-1.738	-5.37***	-4.302	-0.73
INSTOWN	(+)	4.898	1.69*	2.606	1.95*
MANOWN	(-)	-0.648	-1.65***	-3.113	-0.77
FOROWN	(+)	0.117	0.33	0.253	0.08
LIQ	(?)	-0.006	-3.19***	-0.001	-1.31
PROFIT	(+)	1.490	3.57***	0.191	0.04
LEV	(-)	-6.690	-3.68***	-3.839	-2.53***
SIZE	(+)	5.155	7.84***	4.063	6.88***
Duality*CG	(+)			1.445	3.10***
IND*CG	(+)			11.353	6.98***
BDiversity*CG	(+)			6.329	3.88***
ACInd*CG	(+)			1.872	6.29***
Cons	(?)	5.105	0.29	6.100	0.57
Industry Effects			Yes		Yes
Obs.			448		448
F(Prob >F)			45.29***		47.19***
Arellano–Bond test AR(1) (z, p–value):			-3.25(p=0.000)		-4.48(p=0.000)
Arellano–Bond test AR(2) (z, p–value):			-1.17(p=0.240)		-0.93(p=0.354)
Sargan test (Chi–square, p–value):			1152.28(p=0.000)		1229.80(p=0.000)
Hansen test (Chi–square, p–value):			28.38(p=0.920)		30.53(p=0.890)

Significance levels are *=10%, **=5% and ***=1%. All variables are as defined in Table 3. Variables are winsorized at 1% and 99% level.

Table 8: OLS regression results using unweighted risk disclosure index

Variables	Prediction	Model 1		Model 2	
		Coef.	t-stat	Coef.	t-stat
CG	(+)	1.321	4.02***	0.987	3.59***
Duality	(-)	-2.192	-2.57***	-3.163	-2.20**
IND	(+)	-10.010	-4.32***	-14.793	-5.38***
BDiversity	(+)	0.201	0.18	1.286	1.01
ACInd	(+)	0.697	1.35	0.256	0.44
BSize	(?)	0.507	3.39***	0.490	3.28***
OC	(-)	-6.835	-3.17***	-7.116	-3.30***
INSTOWN	(+)	5.018	2.50**	4.703	2.34**
MANOWN	(-)	-1.806	-0.40	-3.175	-0.71
FOROWN	(+)	8.979	5.20***	8.807	5.13***
LIQ	(?)	-0.004	-2.05**	-0.004	-1.85*
PROFIT	(+)	0.395	0.12	0.022	0.10
LEV	(-)	-5.900	-3.41***	-5.736	-3.27***
SIZE	(+)	4.520	12.08***	4.601	12.24***
Duality*CG	(+)			1.445	2.33**
IND*CG	(+)			10.283	3.10***
BDiversity*CG	(+)			5.496	2.85***
ACInd*CG	(+)			2.023	3.35***
Cons	(?)	-28.252	-4.29***	-29.649	-4.47***
Industry Effects			Yes		Yes
Obs.			448		448
F-Value			16.53***		13.75***
R Square			0.39		0.42

Significance levels are *=10%, **=5% and ***=1%. All variables are as defined in Table 3. Variables are winsorized at 1% and 99%.

Table 9: The system GMM regression results using unweighted risk disclosure index

Variables	Predictio n	Model 1		Model 2	
		Coef.	t-stat	Coef.	t-stat
UWRDI _{t-1}	(+)	0.979	56.63***	0.981	55.57***
CG	(+)	1.011	3.97***	0.992	3.68***
Duality	(-)	-0.326	-2.78***	-0.274	-2.57***
IND	(?)	-0.574	-1.98**	-0.414	-2.76***
BDiversity	(+)	0.727	0.65	0.160	0.62
ACInd	(+)	0.164	1.47	0.158	1.18
BSize	(?)	0.028	2.70***	0.021	1.96**
OC	(-)	-1.415	-6.43***	-0.737	-3.06***
INSTOWN	(+)	0.275	1.45	0.087	1.32
MANOWN	(-)	-0.438	-1.16	-0.144	-0.82
FOROWN	(+)	0.387	2.46**	0.284	1.66
LIQ	(?)	-0.003	-6.14***	-0.002	-1.78*
PROFIT	(+)	0.854	3.12***	1.536	6.58***
LEV	(-)	-0.393	-3.24***	-0.317	-2.43**
SIZE	(+)	0.248	5.25***	0.242	3.98***
Duality*CG	(+)			0.376	2.80***
IND*CG	(+)			0.237	4.58***
BDiversity*CG	(+)			0.015	1.98**
ACInd*CG	(+)			0.098	3.29***
Cons	(?)	-4.712	-8.59***	-2.873	-3.43***
Industry Effects			Yes		Yes
Obs.			448		448
F(Prob >F)			458.10***		710.69***
Arellano–Bond test AR(1) (z, p–value):			-3.61(p=0.000)		-3.56(p=0.000)
Arellano–Bond test AR(2) (z, p–value):			-1.31(p=0.190)		-1.39(p=0.165)
Sargan test (Chi–square, p–value):			872.28(p=0.000)		580.66(p=0.000)
Hansen test (Chi–square, p–value):			37.80(p=0.950)		27.26(p=0.990)

Significance levels are *=10%, **=5% and ***=1%. All variables are as defined in Table 3. Variables are winsorized at 1% and 99% level.

Appendix: Risk Disclosure Index

Risk type	Risk Disclosure Index (RDI)
Interest Rate Risk	<ol style="list-style-type: none">1.Exposure to risk and how they arise2. Objectives, policies and procedures for managing the risk and the methods used to measure the risk3. Changes in exposure to risk, measurement of risk and objectives, policies and processes to manage the risk from the previous period4.Summary quantitative data about exposure to risk at the reporting date5.Interest rate sensitivity analysis showing how profit or loss and equity would have been affected by changes in the relevant risk variable that were reasonably possible at that date6.Methods and assumptions used in preparing the sensitivity analysis7.Concentration of interest rate risk if not apparent from summary quantitative data and sensitivity analysis
Currency Risk	<ol style="list-style-type: none">8.Exposure to risk and how they arise9.Objectives, policies and processes for managing the risk and the methods used to measure the risk10.Changes in exposure to risk, measurement of risk and objectives policies and processes to manage the risk from the previous period11.Summary quantitative data about exposure to risk at the reporting date12.Currency risk sensitivity analysis showing how profit or loss and equity would have been affected by changes in the relevant risk variable that were reasonably possible at that date13.Methods and assumptions used in preparing the sensitivity analysis14.Concentration of currency risk if not apparent from summary quantitative data and sensitivity analysis
Other Price Risk	<ol style="list-style-type: none">15.Exposure to risk and how they arise16.Objectives, policies and processes for managing the risk and the methods used to measure the risk17.Changes in exposure to risk, measurement of risk and objectives policies and processes to manage the risk from the previous period18.Summary quantitative data about exposure to risk at the reporting date19. Other price risk sensitivity analysis showing how profit or loss and equity would have been affected by changes in the relevant risk variable that were reasonably possible at that date20.Methods and assumptions used in preparing the sensitivity analysis21.Concentration of other price risk if not apparent from summary quantitative data and sensitivity analysis
Liquidity Risk	<ol style="list-style-type: none">22.Exposure to risk and how they arise23.Objectives, policies and processes for managing the risk and the methods used to measure the risk24.Changes in exposure to risk, measurement of risk and objectives policies and processes to manage the risk from the previous period25.Summary quantitative data about exposure to risk at the reporting date26. Maturity analysis for financial liabilities that show the remaining contractual maturities
Credit Risk	<ol style="list-style-type: none">27.Exposure to risk and how they arise28.Objectives, policies and processes for managing the risk and the methods used to measure the risk29.Changes in exposure to risk, measurement of risk and objectives policies and processes to manage the risk from the previous period30.Summary quantitative data about exposure to risk at the reporting date31.Concentrations of credit risk if not apparent from summary quantitative data and sensitivity analysis32.Amount of maximum exposure to credit risk (before deducting value collateral)33.Description of collateral held as security and other credit enhancements security and other

	credit enhancements
	34.Information about credit quality of financial assets with credit risk that are neither past due nor impaired
	35.The carrying amount of financial assets that would otherwise be past due or impaired whose terms have been renegotiated
Strategic	36. Sovereign/Politics
	37.Regulation
	38. Taxation
	39. Changes in macroeconomic trends/events
	40. Natural disaster/terrorism
	41.GDP growth/market or aggregate demand
	42. New alliances, joint ventures and acquisitions
	43.Environmental Scan
	44. Industry/Business Portfolio/ Competitors
	45. Performance Measurement
	46.Planning/Valuation
	47. Oil/Petroleum Prices
	48.Reputation/ Image/Brand name
Operations/Business	49.Customer Satisfaction/Marketing
	50.Sourcing/ Raw Material
	51.Business processes and procedure
	52.Efficiency and Performance
	53.Stock obsolescence and shrinkage
	54.Product/Service Failure
	55.Production/ Product development
	56.Technology/Information Technology
	57.Health and Safety
	58.Environment
	59.Human Resources/Employee/ Labor Turnover
	60.Competition/Proprietary/Copyright
	61. Integrity/Employee Fraud
	62. Internal control and audit
	63. Governance/ Leadership
	64. Business Ethics
	65.Disclosure of risk management policies/ responsibilities
	66. Acquisition/ Joint Ventures
	67. Governance/ risk management/compliance
	68.Reporting on risk governance/compliance and management
	69. Disclosure of risk committee composition
	70. Off balance sheet/contingent assets and liabilities
Total	70 disclosure items

Procedure of scoring for un-weighted index

0: Risk item not disclosed by firm

1: Risk item disclosed by firm

Procedure of scoring for weighted index

0: Risk item not disclosed by firm

1: Risk item disclosed by firm contains past, future, good, bad and/or qualitative information.

2: Risk item disclosed by firm contains past, future, good, bad, qualitative and/or quantitative information.