CORPORATE GOVERNANCE AND RISK BUNDLING: EVIDENCE FROM INDIAN COMPANIES

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ABSTRACT

Corporate Governance has acquired a significant place in the national economies globally. Quality of governance impacts the business confidence index and resource mobilizations in the global marketplace. In various countries there is a conventional dominance of promoters or majority shareholders on the board of companies which implicates various propensities of risks and forms of risk cultures, making the problem of governance typical and critical for the regulators. Our paper examines the risk behaviour of firms in context of CG practices and creates distinct bundles of companies with specific risk cultures. Using a sample of 10 years' panel data of 84 companies listed on the National Stock Exchange in India (NSE) for selected risk and CG variables, we measure the influence of CG measures on the risk propensity and behaviour and based on combinations of selected CG practices formulated the risk bundles. Based on the derived bundles of risk behaviour, regulators and policymakers can make informed decisions.

KEY WORDS

corporate governance (CG), risk propensity, board structure, board process, CG variables

JEL CODES

G18, G34, K2, O16

1   INTRODUCTION

Corporate Governance (CG) is an area of concern for all economics in the current dynamic environment. Corporate Governance (CG) has also become a matter of worldwide political debate. The issue of corporate governance has acquired importance because corporate enterprises issue closely netted in the national economic system and have close interactions with international bodies. Their actions, therefore, carry importance to the strategic positioning of businesses.

Quality of Corporate Governance has direct implications for various stakeholders, policy-makers, government, economy and society at large (Cadbury, 1992). System of CG in developed economies has evolved gradually through centuries but emerging economies like those in BRICS, the CG systems are to develop and they are still inadequately defined compendium of public institutions, laws, regulations, political and ethics codes (Gupta and Singh, 2018). Governance has direct impact on the resource mobilization (Hu, 1995) in domestic or international market and possibly stimulate employment and economic growth (Arestis et al., 2001; CIPE, 2002).

In the current volatile and uncertain environment, we find that evolving a structure of good CG has become difficult by problems like corporate ownership structures that are complicated, indefinite and obscure relationships between the financial sectors and the state, feeble regulatory arrangements, underdeveloped institutions and limited human resource potential. In various national CG codes, the issue of risk governance within the CG framework are mainly dealt by incorporating provisions in the listing agreements like in case of New York Stock Exchange (NYSE) listed company rules, French AFEP-MEDEF and UK codes. Much emphasis has also been laid on risk disclosure and a part of board disclosure on governance.

In a CG framework there are instances of conflict of interest in various groups of stakeholders that need to be addressed in a balance way (Fidrmuc et al., 2006) at the organisation level and policy level. The broader views on CG presented by Cochran (2015) focuses on the impact of decisions of senior management on various stakeholder's groups. The study of corporate governance can involve a wide range of problems ranging from strategic management, behavioural sciences, macroeconomics, competition and international business in the framework of corporate decision making and legal and regulatory environment (Babić, 2010). The recent financial crisis mainly attributes to the risk management failure primarily due to the separation of risk managers from management without due emphasis on its linkage to

the corporate strategy. The study of problems of corporate decision making in context of risk management and governance for non-banking firms is relatively new in developing countries like India.

A nexus between the board remuneration and risk flows has been thoroughly examined by OECD (2011) which illustrates how the integration of risk management and remuneration of senior management should take place which can be achieved by dual memberships in risk committee and audit committees. Active involvement of shareholders can better the monitor the board functioning and its risk taking. There is well established notion that corporate board should set the risk appetite for the firm. We argue that to achieve integration of CG and risk governance, an examination of factors on the CG side can throw a light on the risk propensities which will then be easier to model.

In countries like India, there have been several attempts to imbibe the evolving CG codes with a series of legislative promulgations and constitution of regulatory authorities. However, corporate frauds are growing. Gupta and Gupta (2015) have argued that various KPMG surveys the fraud risk is persisting in the business structures persisting on continuing basis. To quote, frauds connected with Punjab National Bank, Gitanjali Gems, ILFS, IDBI Bank etc. highlight the poor risk governance within the framework of CG in an Indian context. These frauds question the effectiveness of macro-economic policy framework. The risk governance being an integral part of CG, therefore, requires a special consideration.

Recent events like China devaluation of currency, Brexit, US Elections, Demonetization in India have forced the business organizations to think strategically. We observe an altogether transformation of the business models and new value propositions on the risk-return continuum. On various fronts like e-business, the organizations are willing to observe new risks. There are dramatic changes in the business and financial environment like volatile and declining interest rates, global problem of credit defaults and haphazard liquidity which accentuated the

corporate boards to assume higher risks. The questions before the stakeholders particularly shareholders and regulators are whether the risk-taking behaviour is optimal. This raises questions as to whether the propensity to take risk is governed by the various CG parameters especially the board structures, professional capabilities and compensation structures. A host of regulators like SEBI, RBI, IRDA, various ministries are in fix sometimes to the problems that emanate from the corporate actions. It is therefore motivating to conduct a study of the Corporate Governance variables affecting the risk behaviour of Indian companies. Large numbers of studies have been conducted on a global basis to examine the corporate governance levels and their effectiveness. Our study is first of its kind that attempt to find out the risk propensity using the selected corporate governance variables.

2 REVIEW OF LITERATURE

Corporate Governance in the literature has been extensively explored globally in recent times from various perspectives. The studies include the disclosure aspects, valuation, firm performance and rating of firms. Authors have attempted to link the quality of CG with the financial performance and stock market returns (valuation). Studies have established that the market strongly supports good governance practices and the resultant of the strong shareholder rights is higher stock pricing (Toudas, 2008). CG practices and firm's performance are positively related (Kowalewski, 2012) and a progressive association between the market value of the firm and total corporate governance scores exists according to Ficici and Aybar (2012). Bistrova and Lāce (2012) examination of Central and Eastern European companies shows that stock price risk after implementing quality CG practices. The seminal work of Aguilera et al. (2008) focuses on the presence of mechanisms which ensure that executives take due care of the stakeholders' interests and ensure that stakeholders take due responsibility of the firm's wealth generation and distribution.

Haji-Abdullah and Wan-Hussin (2009) study of UK non-financial companies' governance structures reflects the emphasis on CG by the investors when they are building their investment portfolios. The cost of corporate governance mechanism implementation is offset by higher market returns (Ammann et al., 2013). The linkage between executive compensation and governance has been explored by various researchers. One school of thought says that directors may not act independently to be in their positions if the level of compensation is high (Core et al., 1999; Stewart, 2003). Contrarily, some researches show that attractive compensation improves the supervising function of the board like Becher et al. (2005), Adjaoud et al. (2007), etc. Aboudou (2016) work on the listed companies of West African Monetary Union (WAMU) by reveals that size and structure of the board plays a critical role in the performance of a company. Accordingly, a larger board size impacts the firm's performance negatively affected by a lag in decision making affected by the diversified opinions. Kiesewetter and Manthey (2017) find a positive relationship between effective tax rates and value generation that for firms that exhibit low social and environmental characteristics and a stronger corporate governance level in lower tax rates market economies with a liberal posture. Studies have also examined the convergence of CSR and CG. Harjoto and Jo (2011) establish that better CG leads to a sense of CSR thus improving a firm's performance and sustainability. A similar linkage is also proposed by Sharma et al. (2019) in an Indian context.

Whereas a large number of studies emphasise the relationship between CG and financial performance of firms and their stock returns, our focus is on the emanating variability of returns and the risk posture of firms. Typically, authors have defined firm risk in terms of variability of returns and probability of corporate ruin (Bloom and Milkovich, 1998). Core

et al. (1999) have shown a strong negative relationship between firm risk and performance. Some authors like Lazear and Rosen (1981) relate the spreads between the remuneration of executives and non-executive members of the board have consequential impact on the risk behaviour. There is a significant research work in vogue that explore the connection between risk appetite and board compensation.

Balasubramanian et al. (2010) study on CG reforms adopted by India in 2000 and their subsequent effects on the firm's valuation suggest a positive impact on stock prices of large firms compared to small firms. Sarkar et al. (2012) study the impact of Corporate Governance measures on the company's performance by analysing Information regarding the Board of Directors, audit committee, external auditors, and ownership configuration and establish rise in the adoption of corporate governance practices by the large firms listed in India post-2008. The creditworthiness of companies to financial institutions has increased by following effective corporate governance practices (Mishra and Mohanty, 2014). Similarly, Subramaniam et al. (2009) conclude that public and private sector companies follow a comparable outline of disclosure for financial transparency and information disclosure.

Bhasin and Shaikh (2013) work on the various CG practices that highlights that corporations follow less than half of the items exhibited in the CG disclosure index. Also, there is no significant difference among the disclosure scores across the industries and there has been a slight improvement in the CG disclosure though that remains below an acceptable level. Taruna et al. (2015) study of the annual reports of 100 companies for the period 2012–13 and 2013–14 shows that listed companies in India are following governance practices as per guidelines issued by SEBI in clause 49 of the listing agreement, which is intended to reveal mandatory and non-mandatory CG practices.

The size of boards of companies with a combined risk management committee and audit committee is larger than the one with spate departments, thus higher financial reporting risk and lower organisational complexity. We argue that the professional skills of the board may also affect the risk-taking process. The expertise of the board for example in financial decision-making may lead to lesser risk and well-informed decisions. Skill sets of the members of board is linked to corporate risk-taking (Chhaochharia and Grinstein, 2007). The firms where the remuneration of board is linked to the financial performance, there is tendency on part of the board to take excessive risks. Tao and Hutchinson (2013) have examined how the compensation and functioning of risk committees affects the risk behaviour of firms based in Australia during the global financial crisis period (2006–2008). They find strong positive association of risk with composition of the risk and compensation committees. Joint membership of a board member in risk and compensation committee reduces information asymmetry. The importance of independent risk management function along with CG structure has been emphasised by Ellul (2015).

Thrikawala et al. (2017) work on MFIs reveals the need for further studies in emerging economies for understanding the impact on improvement in governance practices on sustainability and outreach. Colares Oliveira et al. (2016) have highlighted the quantum of adoption of 52 CG practices recommended by UNCTAD in 2009 for BRIC countries. The position of India is relatively low. A series of CG reforms have been introduced in India in the recent past. The effective implementation of CG in the present legal and regulatory framework appears to be a challenge in India. Saravanan (2012) has shown that the value of a corporate is enhanced by the adoption of corporate governance reforms. The shareholders with majority stakes exhibit dominance on the political system in India. The returns on investments made in implementing the sound governance systems are invisible though there is an indirect impact on the business activities. Chakrabarti et al. (2008) argue that the recent CG norms, policies and procedures have been established mainly due to the increasing cases of corporate scams and misappropriation of money and management. They highlight the

need for the formation of a different government committee to understand reasons for the failure of CG in listed companies so that a robust mechanism could be developed. The development of a strong CG structure can protect the abuse of Minority shareholder's rights by better implementation and follow-up of the rules and the strategies. India regulatory system is weak with a multiplicity of regulators as indicated by many researches. Recent corporate frauds are sufficient to justify this phenomenon viz. Satyam Computers, PNB and IIL&FS.

The literature review shows that risk governance is an integral part of the Corporate Governance process. There is large evidence from researches on developed countries to establish the fact the risk behaviour is influenced by the corporate governance parameters like board composition, size, remunerations, risk committee, conflicts, and professional skills. In addition, a number of studies have been conducted on financial institutions' risk-taking behaviour before and after the crisis. The studies on CG using varied methodologies that include regressions, scoring methods, neural networks and fuzzy models majorly discuss the

CG parameters that impact a firm's financial performance. But there seems to be missing research on issues of CG and risk behaviour relationships in the case of Indian companies, which are complex and reflect a combination of all the themes listed by Srinivasan and Srinivasan (2011).

We find many unresolved issues in the Indian corporate world like (a) board professional acumen and risk propensity that drives the entrepreneurial intensity, (b) financial risk (including bankruptcy risk) that is a cause of primary concern to the recent governments, (c) problem of corporate frauds and failures shaking the legislators and regulators, (d) event-driven risk behaviour impacting the stock markets requiring reporting, administration and control by market regulators and (e) direct and the indirect response of the corporate world to policy changes. We are motivated to examine the influence of CG measures on risk propensity and behaviour which is a departure from previous studies. The idea is to explore the irrationalities in risk governance. We attempt to create bundles of selected companies on CG parameters and describe their risk cultures.

3   METHODOLOGY AND DATA

A review of the studies shows that the risk behaviour of the corporate sector has a direct influence on economic activity and national interests. During the period before and after the financial crisis and the major socio-economic and political events, the firms have exhibited a tendency to depict risk-taking behaviour that creates implications for regulators and society at large. In this paper, we have analysed the relationship between the CG variables and risk parameters. Using the inferences from McNulty et al. (2012) we define our CG and risk framework as follows (Fig. 1).

In order to examine how CG practices, impact the risk behaviour of sample firms, our study uses variables that have been classified

as risk variables (factors) and variables of board effectiveness which are surrogates for CG practices. Risk variables cover the liquidity, investments and other business risk perspectives. Our endeavour is to evaluate the relationship between the magnitude of risk and board features, its structure and processes. Data on the constructs of board structure has been derived from the published financial and annual reports of selected companies and personal discussions with the practitioners and experts. In addition, informal discussions have also been carried with the executives of sample respondents. The structure of the study relates to the framework of Indian corporate laws particularly, Companies Act, 2013.
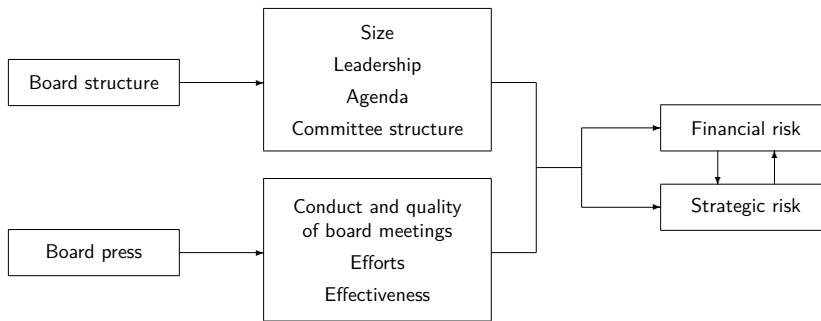
Fig. 1: CG Variables and Risk Dimensions

3.1   Description of Variables

3.1.1   Corporate Governance Variables

Following variables (determinants) of Board Effectiveness have been considered for the analysis:

- *Board size (BS)* is the total number of directors on the board and is associated with firm's performance and risk-taking (Huang and Wang, 2015; Akbar et al., 2017). Large boards are capable of taking more risks compared to small boards (Hermalin and Weisbach, 2003).

- *Board Effort Norms (BE)* is the aggregate measure (scale 0–100) for the conduct of audit committee meetings, investor grievance committee meetings, compliance with ESOP norms and considerations of gender diversity, and environment.

- *Board independence (BI)* has been measured on the basis of the proportion of the total number of independent directors on board as per Section 149 (4) of the Companies Act 2013. The section states that every listed public company is mandatorily required to have at least one-third of the total number of directors as independent directors. BI has an important influence on risk-taking (Minton et al., 2009; Ramasubramanian, 2017)

- *Board expertise and composition (BEXP)* is measured as the ratio of the number of non-executive professional directors to the total number of directors on board for the purpose of the study. The computed variable measures the relative risk-taking capability of non-executive professionals on

the board. The "non-executive professional directors" are expected to contribute to the corporate affairs from their expertise and unbiased decision making (Pass, 2004; Sarkar, 2009).

- *Board power control (BPC)* has been analysed based on the overlapping role of the CEO and CMD (Chairman and/or Managing director) of the company. The presence of duality shows the intensity of power control (Tuggle et al., 2010). The BPC has been measured as a dichotomous variable with 1 denotes the presence of duality and '0' otherwise.

- *Remuneration dynamics (RD)* represents the degree and quality of compliance of members in the remuneration and nomination committee and the frequency of its meetings have been considered. It is a categorical variable and can take value from 0 to 1.

3.1.2   Risk Variables

The risk variable groups have been classified into two groups: (a) Financial Risk Group and (b) Strategic (Business) Risk Group.

Financial Risk Group

- *Liquidity risk 1 (LR1)* indicates the annual relative change in the proportion of cash and cash equivalents to total assets over a period of 12 months from 2010 to 2019.

- *Liquidity risk 2 (LR2)* indicates the percentage change in the difference of cash and short-term liabilities over a period of 12 months from 2010 to 2019. The rationale for taking percentage is to account for the size

of the variables which can vary across the companies of different sector.

- *Financial slack (LR3)* has been estimated as the summation of Cash and bank, 0.7 times accounts receivables + 0.5 times Inventory less Other Liabilities divided by net fixed assets similar to McNulty et al. (2012). The change in financial slack has been calculated over a periodic interval of 12 months from 2010 to 2019.

All the variables of liquidity have been used as inverse proxies of risk.

Strategic Risk Group

- *Business risk (BR)* has been defined as the Change in PPE. The incremental cash investment in property, plant and equipment scaled by total assets during the period 2010 to 2019. The incremental cash investments in new acquisitions are scaled by total assets for the sample period.

3.1.3   Control Variables

- *Risk Concern (RC)* used as dummy variable to represent the presence of risk committee in the company (if yes value is 1 or 0 if the committee does not exist).
- *Firm Size (FS)* has been calculated as natural Log of the total assets at the closing of the financial year (Dalbor et al., 2004).

3.2   Sample and Data

We have used the qualitative and quantitative data for the selected variables from the top 100 companies listed on the National Stock Exchange (NSE) for a period of 10 years from 2010 to 2019. The sample companies represent a diversified group of various industrial and service sectors that constitute more than 76.8% of the free-float market capitalization as of March, 2019. The list of companies is given in Tab. 6. We have conducted interviews with 12 respondents representing as members on the board of the sample companies and 63 company secretaries (head of legal and in charge of corporate law and compliance functions) of the NSE listed companies at their registered or head offices. The data on corporate governance variables have been derived from the published financial statements and websites of the sample companies. The sample period represents a stabilization after the financial crisis in 2007 and includes an important significant event i.e. promulgation of the New Companies Act, 2013. The role of independent directors has changed significantly after the new company legislation (Nishith Desai, 2014). However, considering the risk variables, this event does not affect the results and implications of the study. The data for finance and banking companies have to be excluded considering their nature of business and the sample period, especially after the global financial crisis. Therefore, 84 companies are finally selected for analysis (Tab. 6).

We have used pooled analysis combining time series (2009–19) for several cross-sectional data represented by the companies. Since the number of cross-section units is more than temporal units 'T', the pooled analysis is "cross-sectional dominant" (Stimson, 1985). Pooled ordinary regression is appropriate for the study as the tests a cross-section model of all firms through time (Pennings et al., 1999). The descriptive statistics of the variables are given in Tab. 1.

Sector wise descriptive statistics is given in Tab. 7.

Procedure

In the first instance, correlations and descriptives have been calculated for the corporate governance and risk variables. Then, a panel regression-based analysis has been carried out to examine the relationship between CG variables and risk variables. Finally, we have aggregated the results and formulated five distinct bundles of companies based on risk behaviour derived from the selected risk variables.

Tab. 1: Descriptive Statistics of Variables

					Unit root test	
Variable	Mean	SD	Minimum	Maximum	ADF	Remarks
Dependent						
Liquidity Risk 1 (LR1)	−0.005	0.054	−0.392	0.279	407.46**	I(0)
Liquidity Risk 2 (LR2)	0.088	1.721	−2.738	10.989	413.63**	I(0)
Financial Risk (LR3)	−0.374	7.692	−10.664	6.343	386.60**	I(0)
Business Risk (BR)	−0.001	0.060	−0.720	0.444	356.32**	I(0)
Independent						
Board Size (BS)	0.852	0.198	0.000	1.000	297.68**	I(0)
Board Effort Norms (BE)	0.705	0.158	0.250	1.000	359.45**	I(1)
Board Independence (BI)	0.856	0.253	0.000	1.000	261.31**	I(0)
Board Expertise and Composition (BEXP)	0.768	0.312	0.000	1.000	449.91**	I(2)
Board Power Control (BPC)	0.698	0.459	0.000	1.000	117.98**	I(0)
Remuneration dynamics (RD)	0.926	0.137	0.000	1.000	174.56**	I(1)
Control variables						
Risk Concern (RC)	0.929	0.257	0.000	1.000	164.00**	I(2)
Firm Size (FS)	10.091	1.669	6.289	15.101	235.46*	I(0)

Notes: ***$p < 0.01$, **$p < 0.05$

4   RESULTS

We have first computed the descriptives for the selected variables and constructed a correlation matrix for the panel data to examine the multicollinearity as a necessary step before running the panel regression (Tab. 2). We find a negative relationship for some set of variables. However, the correlation values, in general, do not exceed ±0.5 on either side allowing us to proceed for further analysis.

We find a large variance for Liquidity Risk (LR2), which indicates that in the post-crisis period, the liquidity of sample companies varied significantly, and on further analysis, it is found that the best liquid companies for LR2 were IT companies. The infrastructure companies faced huge risk because of the aggressive investment behaviour of boards. The observed mean value for other corporate liquidity variables LR1 (Δ Cash & Equivalents) and LR3 (Δ NetCash) are –0.0005%, –0.454%, respectively implying cash-burning or exhaustion by corporate boards.

In our sample, the average number of directors (members) on the board is thirteen and the average proportion of non-executive directors on the board is 66.82% in 2010–2019. Additionally, 0.7% of the companies have been identified that do not have an audit committee and/or risk committee on the board. These features indicate that there is a dominance of promoters on the board which may probably imply that risk behaviour of these promoters may define the risk-taking propensity of the board.

Next, we run a panel regression to examine the relationship between board variables and risk variables ('Liquidity Risk 1', 'Liquidity Risk 2', 'Δ Financial Slack') and the Business Risk. Before running the panel regressions, we first evaluated the stationarity of the variables under the study. ADF test has been applied to examine the unit root. Lags have been taken appropriately. We use the following equations for final estimation.

$$\begin{aligned} \text{LR1} \quad = \quad & \alpha_{01} + \delta_{11}\,\text{BS} + \delta_{21}\,\Delta\text{BE} + \\ & + \delta_{31}\,\text{BI} + \delta_{41}\,\Delta^2\text{BEXP} + \\ & + \delta_{51}\,\text{BPC} + \delta_{61}\,\Delta\text{RD} + \\ & + \delta_{71}\,\Delta^2\,\text{RC} + \delta_{81}\,\log(\text{FS}) \end{aligned}$$

Tab. 2: Correlation Matrix

Variable	LR1	LR2	LR3	BR	BS	BE	BI	BEXP	BPC	RD	RC	FS
LR1	1	0.09***	0.11**	−0.24***	0.05*	0.00	−0.00	0.06*	0.03	−0.03	−0.05*	−0.01
LR2		1	−0.15***	0.05*	0.00	−0.00	−0.03	−0.01	−0.00	0.03	−0.01	−0.02
LR3			1	0.12***	0.16***	−0.01	0.06**	0.07**	0.03	−0.01	−0.01	−0.04
BR				1	0.02	−0.00	−0.04	−0.00	−0.02	0.04	0.02	0.01
BS					1	0.07**	0.50***	0.51***	−0.13***	−0.00	−0.03	0.22***
BE						1	0.17***	−0.04	−0.04	0.07**	0.06**	0.27***
BI							1	0.31***	−0.01	0.07**	0.00	0.04
BEXP								1	0.01	0.04	−0.08***	0.01
BPC									1	0.13***	−0.00	−0.12***
RD										1	−0.04	0.00
RC											1	0.19***
FS												1

Notes: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Tab. 3: Panel Regression Results

Variable	Model I	Model II	Model III	Model IV
BS	−0.017	22.645	8.620***	0.023*
	(0.012)	(25.019)	(1.669)	(0.014)
BE	0.005	−2.108	−1.290	0.000
	(0.012)	(24.841)	(1.920)	(0.014)
BI	−0.010	14.637	−0.451	−0.019**
	(0.009)	(17.693)	(1.389)	(0.010)
BEXP	0.007	35.803***	0.884	0.003
	(0.007)	(13.910)	(1.058)	(0.007)
BPC	0.005	−1.257**	0.793	−0.004
	(0.004)	(0.512)	(0.650)	(0.005)
RD	−0.014	−34.459	−0.920	0.025*
	(0.014)	(27.502)	(2.164)	(0.015)
RC	−0.015**	−2.344	0.190	0.006
	(0.007)	(14.900)	(1.164)	(0.008)
FS	−0.001	2.390	−0.368*	0.000
	(0.001)	(2.476)	(0.193)	(0.001)
σ_u	0	8.022	0	0
σ_e	0.056	109.373	8.721	0.062
ρ	0	0.005	0	0

Notes: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

$$
\begin{aligned}
\text{LR2} \;=\; & \alpha_{02} + \delta_{12}\,\text{BS} + \delta_{22}\,\Delta\text{BE} + \\
& + \delta_{32}\,\text{BI} + \delta_{42}\,\Delta^2\text{BEXP} + \\
& + \delta_{52}\,\text{BPC} + \delta_{62}\,\Delta\text{RD} + \\
& + \delta_{72}\,\Delta^2\,\text{RC} + \delta_{82}\,\log(\text{FS})
\end{aligned}
$$

$$
\begin{aligned}
\text{LR3} \;=\; & \alpha_{03} + \delta_{13}\,\text{BS} + \delta_{23}\,\Delta\text{BE} + \\
& + \delta_{33}\,\text{BI} + \delta_{43}\,\Delta^2\text{BEXP} + \\
& + \delta_{53}\,\text{BPC} + \delta_{63}\,\Delta\text{RD} + \\
& + \delta_{73}\,\Delta^2\,\text{RC} + \delta_{83}\,\log(\text{FS})
\end{aligned}
$$

$$
\begin{aligned}
\text{BR} \;=\; & \alpha_{04} + \delta_{14}\,\text{BS} + \delta_{24}\,\Delta\text{BE} + \\
& + \delta_{34}\,\text{BI} + \delta_{44}\,\Delta^2\text{BEXP} + \\
& + \delta_{54}\,\text{BPC} + \delta_{64}\,\Delta\text{RD} + \\
& + \delta_{74}\,\Delta^2\,\text{RC} + \delta_{84}\,\log(\text{FS})
\end{aligned}
$$

The results of the regression are shown in Tab. 3. We derive the following inferences from the results.

Board size (BS) and risk appetite. Board size is strongly associated with the inverse proxies of risk (LR3) i.e. financial slack and business risk (BR). It can be derived that the larger is the board (typically more than 13 members), the higher is the level of financial slack and business risk. These findings are contrary to a study on China where Haider and Fang (2016) established a negative relationship between board size and corporate risk.

Board efforts (BE) and risk-taking. Board efforts have no significant relationship with risk variables. The risk-taking capacity of the company is not affected by the presence of the audit committee, ESOP and the frequency of the meetings. These findings are opposite to the findings of McNulty et al. (2012) who establish a positive significant relationship between the board efforts and measures of liquidity and business risk.

Board independence (BI) and risk apatite. Board independence negatively influences busi-

Tab. 4: Summary of Results of CG Practices on Risk Proxies

Variables	Liquidity Risk (LR1)	Liquidity Risk (LR2)	Financial Slack (LR3)	Business Risk
BS (Board Size)	-	-	Positive	Positive
BE (Board Effort)	-	-	-	-
BI (Board Independence)	-	-	-	Negative
BEXP (Board Expertise)	-	Positive	-	-
BPC (Board Power Control)	-	Negative	-	-
RD (Remuneration Dynamics)	-	-	-	Positive
RC (Risk Concern)	Negative	-	-	-
FS (Firm Size)	-	-	Negative	-

Note: The table shows only significant relationships.

ness risk. Board independence has been found significant at 5% confidence level. This implies that the higher the number of independent directors, the business risk borne by the company will be lower. The presence of independent directors therefore reduces the propensity to take business risk. In a study on banks, Chu et al. (2019) have also established that the benefit of increasing the proportion of independent directors is reduced when we account for business risk.

Board expertise (BEXP) and risk-taking. Board expertise has been defined as the proportion of non-executive directors of the company and the professional attributes of board members. Board expertise is significantly positively related to risk taking (LR2). Harjoto et al. (2018) have established that board experiential diversity promotes better decision making and risk governance. We derive that expertise of the board has a significant contribution to the risk appetite of the company.

Board power control (BPC) and risk-taking. Board power control has been analysed on the basis of role duality of the chairman of the company as the managing director of the company as well. In our sample data, role duality is exhibited in 31.15% of the total cases. We find that BPC is significantly negatively related to short term (LR2) risk taking of

the company. Kim and Buchanan (2011) have established that for US companies the CEO and board chairperson duality significantly reduces the risk propensity.

Remuneration dynamics (RD) and risk-borne. We find a positive relationship between the business risk and existence of the remuneration committee and frequency of the meetings at a confidence level of 10%. Bolton et al. (2015) establish that the excess risk-taking by the board can be addressed by basing remuneration and incentives. However, Swanepoel and Smit (2016) find that remuneration of the board in equity and cash from when increased, it led to lower risk taking. For Indian companies, we derive that remuneration committee ensures remuneration to board members and finally impacts the risk postures.

Risk concern (RC) and risk-bearing capacity. The results indicate that the dummy variable, risk concern and liquidity risk 1 (LR1) exhibit a significant negative relationship (at 5%). We derive that the existence of a risk committee affects the risk bearing capacity of the firm. Also, firm size has a negative significant relationship with financial slack (LR3) which implies that bigger firms take higher risks.

We summarise the results of the regression in Tab. 4.

5   DISCUSSION AND CONCLUSIONS

It can be inferred that board size, board expertise and remuneration dynamics are positively related to the risk, whereas board independence, board power control and risk concerns are negatively related to the risk appetite of the company. Also, board effort in terms of audit committee, frequency of meetings, ESOPs does not influence the risk potential of an organisation.

Yeh (2017) study on banks shows that the board governed by foreign shareholders may propel the boards to take more in pursuit of high returns. This implies that the board that has lesser diversification (internal/external or shareholders' groups) may take a high risk to fulfill; the corporate objectives that may lead to bankruptcies. Similarly, Kagaya and Jinnai (2016) show that firms in Japan that have more outside or non-executive directors promote risk-taking activities more aggressively. Our results are contrary to their findings since we observe that firms with more board independence take a lesser risk (the relationship is negative).

Finally, we aggregate the results of the relationships between the CG and risk variables. On the basis of an exploration of the results, we derive that some of the multinational Pharmaceutical and FMCG companies exhibit high risk-taking behaviour. The companies with a more consistent business model with good steady growth and are in existence for more than 25 years exhibit a moderate to low risk-taking behaviour. The independence of the board and power control in such companies is relatively low. Finally, we classify the companies into risk bundles (Tab. 5).

We derive the following inferences from Tab. 5.

a) The companies with negligible power control have a high appetite for risk implying higher credit risk that may not be supported by an equivalent and responsive business model.

b) Companies with low board expertise may take a lower level of financial and business risk that indicates the sub-optimality of operations. In other words, the propensity to take a structured risk significantly depends upon the level of board expertise. These companies may not remain competitive in long run and face the problem of sustainability.

c) In another bundle, we find that in spite of the fair representation of independent directors on the board, a lower level of board efforts reduces the propensity of companies to take the risk.

d) Companies lacking on the significant number of CG parameters are likely to be risky. This has direct implications for regulators, financiers and investors.

e) Companies with a good level of independence and expertise may take higher risks and can have good business prospects and valuation.

We find that for the five distinct bundles of companies, the corporate strategy may differ. CG practices can therefore predict the risk propensity and corporate practices may be modelled accordingly. Also, for companies with a poor level of CG practices, the regulators and policymakers can keep a check so that defaults and frauds can be minimised.

Interestingly, we find that even the best-performing companies can be far lacking in terms of CG practices. Cases of Companies like Satyam Computers, Punjab National Bank and the recent one of IIL&FS establish our notion. The conventional measures of CG based on scoring models may not be appropriate to evaluate the level of governance. Also, the over governance involving higher costs may not produce the best level of performance. Apart from the governance variables used in the study, there may a host of practices that are not captured in conventional evaluation procedures like regression-based scoring models which are not much of practical use now.

The results of the study also point out the bundles of CG practice that affect the risk propensity of firms imply a different strategy from a (a) corporate perspective and (b) a policy perspective.

Tab. 5: Bundled List of Companies based on Risk Behaviour

Bundle	Attributes	Risk Appetite (Financial Risk)	Risk Appetite (Business Risk)
Bundle 1	Negligible Power Control, Excellent Board Expertise	High	Moderate
Bundle 2	Good Power Control, Average Board Expertise	Low	Low
Bundle 3	Fair Board Independence, Average Board Efforts	Moderate	Low
Bundle 4	Low Board Expertise, Good Level of Independence, Varying Level of Board Efforts	Very High	Moderate
Bundle 5	High Independence, Good Expertise	High	Low

From a policy perspective, inferences can be drawn from the bundle of CG that can through light on the propensity of corporate fraud. The financial risk level emanating for a given CG bundle can help in credit default assessment. The propensity to do business can also be highlighted from the derived bundles. From a corporate perspective, the decision-makers can well define a set to follow on to achieve a defined state of performance. Accordingly, the policymakers and regulators can take appropriate steps that may include the promulgation of appropriate amendments in the legislation and establishment of the surveillance and monitoring mechanisms.

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7 ANNEX

Tab. 6: List of Selected Companies

Name	Industry	Name	Industry
A B B India Ltd.	Engineering	Hindustan Zinc Ltd.	Metals and Minerals
A C C Ltd.	Cement	I T C Ltd.	FMCG
Adani Ports Ltd.	Transport/Logistics	Idea Cellular Ltd.	Telecom
Ambuja Cements Ltd.	Cement	Indian Oil Corpn. Ltd.	Oil Processing
Apollo Hosp. Ent.Ltd.	Healthcare	Infosys Ltd.	IT
Ashok Leyland Ltd.	Automobiles	Interglobe Aviation Ltd.	Aviation
Asian Paints Ltd.	Industrial Chemicals	J S W Steel Ltd.	Steel
Aurobindo Pharma Ltd.	Pharma	Larsen & Toubro Ltd.	Diversified
Axis Bank Ltd.	Banking	Lupin Ltd.	Pharma
Bajaj Auto Ltd.	Automobiles	Mahindra & Mah. Ltd.	Automobiles
Bharat Electronics Ltd.	Electricals & Electronics	Marico Ltd.	Engineering
Bharat Forge Ltd.	Engineering	Maruti Suzuki India Ltd.	Automobiles
Bharat Petrol.Corp. Ltd.	Oil Processing	Motherson Sumi S Ltd.	Energy
Bharti Airtel Ltd.	Telecom	N H P C Ltd.	Energy
Bharti Infratel Ltd.	IT	N M D C Ltd.	Metals and Minerals
BHEL Ltd.	Engineering	N T P C Ltd.	Energy
Bosch Ltd.	Engineering	Oil India Ltd.	Oil Processing
Britannia Ind. Ltd.	FMCG	ONGC Ltd.	Oil Processing
Cadila Healthcare Ltd.	Pharma	P & G H H C Ltd.	FMCG
Castrol India Ltd.	Oil Processing	Pidilite Industries Ltd.	Industrial Chemicals
Cipla Ltd.	Pharma	Piramal Ent. Ltd.	Diversified
Coal India Ltd.	Energy	Power Grid C. of India	Energy
Colgate-Pal. (India) Ltd.	FMCG	Reliance Industries Ltd.	Diversified
Container Corp.of India	Transport/Logistics	Shree Cement Ltd.	Cement
Cummins India Ltd.	Engineering	Shriram Trans. F C Ltd.	Transport/Logistics
D L F Ltd.	Construction	Siemens Ltd.	Engineering
Dabur India Ltd.	Pharma	Steel Auth. of India Ltd.	Steel
Divi'S Laboratories Ltd.	Pharma	Sun Phar. Ltd.	Pharma
Dr. Reddy'S Lab. Ltd.	Pharma	Tata Motors Ltd.	Automobiles
Eicher Motors Ltd.	Automobiles	Tata Power Co. Ltd.	Energy
Emami Ltd.	FMCG	Tata Steel Ltd.	Steel
G A I L (India) Ltd.	Oil Processing	TCS Ltd.	IT
Glaxosmithkline Pha.td.	Pharma	Tech Mahindra Ltd.	Automobiles
GlaxosmithklineC H Ltd.	Pharma	Titan Company Ltd.	FMCG
Glenmark Pha. Ltd.	Pharma	Torrent Pharm. Ltd.	Pharma
Godrej Con.Pro. Ltd.	FMCG	U P L Ltd.	Industrial Chemicals
Grasim Industries Ltd.	Textiles	Ultratech Cement Ltd.	Cement
H C L Technologies Ltd.	IT	United Breweries Ltd.	FMCG
Havells India Ltd.	Electricals & Electronics	United Spirits Ltd.	FMCG
Hero Motocorp Ltd.	Automobiles	Vedanta Ltd.	Metals and Minerals
Hindalco Industries Ltd.	Metals and Minerals	Wipro Ltd.	IT
Hindustan Pet. Cor. Ltd.	Oil Processing	Zee Ent. Enter. Ltd.	Media
Hindustan Unilever Ltd.	FMCG		

Tab. 7: Industry-wise Descriptive Statistics

| Variables | LR1 | | LR2 | | LR3 | | BR | | BS | | BE | |
Industry	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Automobiles	−0.008	0.064	0.236	0.527	−0.064	0.366	−0.006	0.049	0.846	0.260	0.697	0.166
Aviation	−0.006	0.119	0.343	0.431	1.257	3.859	0.014	0.131	0.129	0.279	0.567	0.172
Cement	−0.001	0.039	0.382	1.185	−0.006	0.130	0.010	0.065	0.914	0.099	0.759	0.171
Construction	0.001	0.013	0.064	0.349	0.026	0.218	−0.009	0.169	0.957	0.069	0.963	0.080
Diversified	−0.003	0.040	0.021	1.021	−0.087	0.477	−0.016	0.111	0.974	0.061	0.778	0.154
Electricals/Electro	−0.008	0.103	0.003	1.178	−0.204	1.141	0.008	0.045	0.914	0.091	0.650	0.116
Energy	−0.008	0.033	0.096	1.774	−0.041	0.278	0.004	0.048	0.945	0.096	0.718	0.113
Engineering	0.001	0.041	0.114	0.322	0.078	0.434	0.002	0.041	0.841	0.176	0.689	0.135
FMCG	−0.007	0.076	−0.030	1.198	0.021	0.571	0.004	0.071	0.834	0.216	0.650	0.175
Healthcare	0.001	0.033	0.224	0.401	0.015	0.161	0.017	0.031	0.964	0.069	0.675	0.111
Industrial Chemicals	−0.002	0.057	0.222	1.398	−0.010	0.399	−0.006	0.041	0.950	0.082	0.635	0.174
IT	−0.010	0.067	−0.151	1.289	−0.016	0.360	−0.020	0.049	0.804	0.245	0.785	0.141
Media	0.012	0.069	−0.184	1.832	0.136	1.460	−0.027	0.066	0.671	0.118	0.721	0.155
Metals and Minerals	−0.018	0.087	−0.002	1.527	−0.347	1.549	0.011	0.056	0.836	0.144	0.729	0.142
Oil Processing	−0.009	0.051	0.194	0.539	−0.142	1.146	0.008	0.033	0.871	0.185	0.672	0.118
Pharma	0.001	0.049	0.300	0.857	−0.024	1.114	−0.001	0.046	0.792	0.133	0.714	0.173
Steel	−0.013	0.035	0.057	0.990	−0.037	0.161	0.011	0.054	0.962	0.079	0.712	0.182
Telecom	−0.003	0.033	0.297	0.550	0.000	0.084	0.005	0.089	0.950	0.081	0.877	0.108
Textiles	0.000	0.015	0.469	0.929	−0.085	0.212	−0.028	0.079	0.936	0.079	0.771	0.035
Transport/Logistics	−0.019	0.056	0.198	1.457	−0.941	3.292	−0.004	0.056	0.852	0.148	0.711	0.127

| Variables | BI | | BEXP | | BPC | | RD | | RC | | FS | |
Industry	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Automobiles	0.894	0.155	0.836	0.275	0.875	0.333	0.922	0.152	0.800	0.403	9.928	1.215
Aviation	0.000	0.000	0.150	0.242	1.000	0.000	0.800	0.105	1.000	0.000	8.650	1.118
Cement	0.950	0.165	0.803	0.308	1.000	0.000	0.944	0.133	1.000	0.000	9.494	0.664
Construction	0.983	0.053	0.860	0.117	1.000	0.000	1.000	0.000	1.000	0.000	11.038	0.087
Diversified	0.933	0.173	0.840	0.305	0.600	0.498	1.000	0.000	1.000	0.000	11.520	1.487
Electricals/Electro	0.950	0.095	0.900	0.138	0.050	0.224	0.950	0.103	0.600	0.503	8.787	0.869
Energy	0.906	0.172	0.763	0.357	0.467	0.503	0.908	0.130	1.000	0.000	11.091	0.964
Engineering	0.814	0.274	0.827	0.228	0.486	0.503	0.961	0.092	0.771	0.423	8.975	0.982
FMCG	0.837	0.283	0.768	0.317	0.960	0.197	0.935	0.197	0.920	0.273	8.378	1.134
Healthcare	1.000	0.000	0.850	0.324	1.000	0.000	0.825	0.121	1.000	0.000	8.422	0.449
Industrial Chemicals	0.994	0.030	0.907	0.198	0.667	0.479	0.917	0.120	0.767	0.430	8.738	0.746
IT	0.967	0.075	0.702	0.395	0.800	0.404	0.935	0.111	1.000	0.000	10.532	0.567
Media	0.750	0.196	0.730	0.298	0.900	0.316	0.825	0.121	1.000	0.000	8.719	0.366
Metals and Minerals	0.867	0.174	0.703	0.342	0.750	0.439	0.894	0.137	1.000	0.000	10.777	0.974
Oil Processing	0.736	0.329	0.690	0.323	0.183	0.390	0.792	0.147	0.867	0.343	10.446	1.562
Pharma	0.899	0.137	0.706	0.266	0.667	0.473	0.950	0.100	0.933	0.250	8.860	0.844
Steel	0.967	0.092	0.873	0.263	0.733	0.450	0.950	0.102	1.000	0.000	11.467	0.475
Telecom	0.992	0.037	0.895	0.231	0.800	0.410	0.913	0.122	1.000	0.000	11.257	0.891
Textiles	0.983	0.053	0.850	0.201	1.000	0.000	0.875	0.132	1.000	0.000	10.797	0.608
Transport/Logistics	0.855	0.136	0.767	0.263	0.533	0.507	0.967	0.183	1.000	0.000	9.873	0.908

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