GOVERNANCE AND RISK INTERDEPENDENCIES AMONG FAMILY OWNED FIRMS

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Abstract

The paper examines the role and impact of corporate governance mechanisms upon the operating risks of Indian listed firms. The recent global financial crisis was primarily attributed to excess risk-taking. This turmoil in the financial markets had a widespread effect on all industries and raised pertinent questions on the effectiveness of firm level governance practices. Impact of corporate governance practices, vide a constructed board governance index, has been examined on the risk taking behaviour of firms. Utilising a sample of 377 firms with yearly data for 6 years from 2006 to 2012, 2262 firm year observations have been analysed. Results confirm that firms with good corporate governance practices are effective in constraining excess risk taking. An instrumental variable approach is adopted to control for endogeneity, which also supports and substantiates the results.

Keywords: Corporate Governance, Risk Behaviour, Operating Risks, Financial Crisis
JEL codes: G23, G32, G34

1. INTRODUCTION

Corporate Governance (CG) has metamorphosed from being a buzzword to a global movement. The spotlight on CG increased manifold in the wake of the spectacular financial crisis which was triggered by the fall of behemoths like Lehman Bros, Bear Sterns, and AIG in 2008. The unprecedented global financial crisis was primarily attributed to reckless risk taking which resulted in some of the largest insolvencies in history. The media blitzkrieg and backlash that followed, catapulted CG to the centre stage. This exposed the deficiencies of the sophisticated CG measures initiated by the most developed economies in the world, thereby disproving the theory of 'Too big to fail'. The crisis had a widespread effect on all the industries across the nations. In the aftermath of the crisis, there was renewed interest among researchers, regulators, and the corporates to enhance the role of CG and bring about a paradigm shift in the existing CG mechanisms to avoid adverse effects on the economy. Although weak CG mechanisms did not induce the crisis, it nevertheless made the firms vulnerable to the financial crisis.

Corporate governance is more relevant in determining firm performance during crisis periods, as the expropriation by owners is likely to increase and thus the crisis also exposes the CG quality to more scrutiny. Cornett *et al.*, (2009) stated that firms with better internal CG mechanisms had higher rates of return during the financial crisis. Classens *et al.,* (2012) reported that poor corporate governance increased financial volatility.

Several cross-country governance studies explored the impact of the country's CG regime whereas several single country studies focussed on the impact of firm level CG practices on the firm's performance metrics. John *et al.,* (2008) examined the impact of investor protection on corporate risk-taking in 39 countries and found a positive relationship between them. Nakano & Nguyen (2012) reported a negative but not a very significant relationship between board size and risk taking in Japanese companies.

Using the governance metrics provided by the Institutional Shareholder Services (ISS), Jiraporn *et al.,* (2015) reported that effective governance caused firms to exhibit less risky strategies. An effective CG mechanism is expected to detect and prevent excessive risks. The impact of CG mechanisms such as Board of directors, Ownership structure, Audit committee and the External auditor was examined by Sarkar *et al.,* (2012) vide an index for 500 large Indian listed firms. They found that better corporate governance structures aid firms in earning substantially higher rates of return.

In the recent past, researchers have analysed the role of multiple large shareholders (Mishra, 2011), investor protection (John *et al.,* 2008), executive compensation (Coles *et al.,* 2006) and creditor rights (Acharya *et al.,* 2011) on corporate risk taking.

Risk taking is a critical factor in the process of decision making and has important consequences on firm performance and survival. Previous research has not established the relationship between the collective impact of various corporate governance mechanisms and firms' risk taking, especially in emerging markets. Larger effects in results are anticipated in emerging markets due to variation in the firms' CG practices and also due to the unique phenomenon of family domination.

The primary objective of this study is to explore the effect of key Corporate Governance attributes with special emphasis on board characteristics, on the operating risks of Indian listed firms. The Indian corporate landscape is

primarily dominated by family firms which are perceived to be guarded and reluctant to abide by the CG norms. This scenario, juxtaposed with the emphasis on the evolving mandatory CG requirements in India makes the study relevant and contemporary. Two decades of gradual and progressive corporate governance reforms have resulted in Indian firms reorienting their CG framework. Studies on the impact of distinct CG mechanisms on the risk profile of firms are scant in emerging markets, especially in India. The motivation for this study stems from this gap and this paper thus seeks to examine and address whether good CG norms can constrain the excess risk taking behavior of Indian firms. The paper also examines if the association of good governance and risk taking is different in family controlled firms.

A sample of 377 listed firms comprising of large and small firms representing a diverse range of industries was considered for the study. A broad based index primarily denoting board characteristics was constructed for all the sample companies. The sample period of six years from 2006-12 was crucial as this time frame is close to the onset of the CG era in 2005 when several key changes were brought about in the CG framework and the period also encompasses the crisis phase and its effect. The impact of this Board Governance (BG) index was examined on the operating risks of the firms.

Standard deviation of earnings and cash flows during the turbulent crisis phase reflects the risk profile of the sample firms and helps to assess how the firms navigated the turmoil. Operating risk of the firm was measured by standard deviation of yearly earnings ratio (EBIDTA over lagged assets) and also by volatility of operating cash flow ratio (cash flows over lagged assets) for the entire sample period from 2006 to 2012.The OLS results exhibited statistically significant inverse relationship between BG quality and the level of operating risk of the firms. Governance research is replete with endogeneity concerns which arise due to measurement issues and challenges. The global crisis which originated in the financial industry can be considered to be an exogenous shock to the non-financial firms. Hence, testing the impact of BG mechanisms on the risk taking behavior of firms in the backdrop of this crisis is expected to mitigate the endogeneity concerns to a substantial extent. Nevertheless, the results were further corroborated with the two-stage least squares model (2SLS) which substantiated the inverse relationship between risk and governance quality.

The analysis was further supplemented with an investigation of the impact of family ownership on risk taking behavior. The results revealed a positive relationship between family ownership and firm level operating risks. This suggests that companies with dominant owners, who also exercise management control, are likely to indulge in excess risk taking.

The results of the study demonstrated the impact of firm level governance quality. Given the backdrop of the financial crisis, the results also lead to the inference that BG mechanisms alleviate the volatility in a firm. This study offers new contribution by exploring the impact of key board characteristics on operating risk parameters. It also provides empirical evidence to the regulators about the impact of board attributes and composition that serves as effective risk control mechanism. The results provide valuable insights to academicians and corporates who have been engaged in debates and parleys about the merits of governance in emerging economies.

Rest of the paper is organised as follows: Section 2 develops the hypothesis; Section 3 outlines the corporate governance measurement metrics; Section 4 discusses the methodology of Index construction and variables and Section 5 discusses the sample, data sources and model. Empirical analysis of the Index and its relation to operating risk measures are tabulated in Section 6 and Section 7 concludes the discussion.

2. REVIEW AND HYPOTHESIS DEVELOPMENT

Corporate governance owes its genesis to the misdemeanour of corporates. CG mechanisms have been fiercely debated by academicians, regulators and corporates.

India's tryst with CG began in earnest with the enactment and implementation of Clause 49 of the Listing Agreement in February 2000. Since then, several improvements have been adapted, with 2005 being the watershed year for CG in India. The presence of entrenched owners, lack of proper deterrent mechanisms and the costs involved have been the major challenges in ensuring effective governance quality at the firm level.

One of the major impediments for effective CG has been attributed to the predominance of concentrated ownership in India. The shareholding of promoters in NSE listed companies rose from 47.7 percent in March 2002 to 57.8 percent in March 2010 (source: NSE website). This phenomenon gives rise to possible price manipulation, expropriation of minority shareholders and undesirable related party transactions.

CG mechanisms mandated through Clause 49 of the Listing Agreement in India provides guidelines for board composition and monitoring, shareholders protection, disclosure quality and auditor engagement. The charter provides a comprehensive set of internal and external mechanisms which are directed at controlling and guiding the corporates in making business decisions.

Risk taking is integral to an organization and is the outcome of crucial decisions taken by the management and the Board. Excessive risk taking can be catastrophic as evidenced by the financial crisis. The financial crisis which triggered off in the financial sector had a cascading effect impacting even non-financial firms across all industry verticals.

CG reforms were formulated to ensure that risk levels remained in the optimal range and the propensity to excess risk taking was restrained. Both the probability of risks occurring and the severity of the impact of the risks were expected to be kept to the bare minimum. The general perception that earnings volatility and value creation are trade-offs, channelized the focus of governance literature to deliberate the growth and performance effects. The relative and appropriate risk boundaries at firm level and their linkages with governance are yet to

be investigated in detail. Although the risk-return theory suggests that firms that engage or invest in risky projects are expected to earn better returns, excessive risk taking could prove detrimental to the firm. The crisis portrayed the CG framework as being unable to keep pace with the evolving business dynamics and complexities. Although CG did not precipitate the crisis, the general consensus was that it should have been instrumental in curbing the disastrous ramifications of the crisis.

Though the CG tenets have been legislated, many voluntary practices would ensure credible governance at the firm level. One of the reasons attributed for the perceived inadequate governance quality was that several CG norms were still under the umbrella of voluntary measures. In an emerging economy like India especially, it would be germane to investigate whether the CG norms helped the firms to proactively sail through the crisis period. Moreover, it would be pertinent to investigate whether the influence of CG mechanisms on risk taking were robust enough in family dominated firms.

Board demographics, in terms of size, experience, independence, frequency of meetings, regularity of attendance in Board meetings are perceived to be crucial to the overall quality of corporate governance. Regulators have panned the Boards for not devoting enough time to engage in business and understand the wide spectrum of risks the firms are exposed to. Risk governance has emerged as the key differentiator for investor assessment, especially in the post crisis era.

Burgeoning studies in literature have deliberated on the impact of various individual surrogates of corporate governance. There is widespread debate about the ideal board size and composition, which are undoubtedly key components of corporate governance (Adams & Ferreira, 2007). While it is easier for larger boards to facilitate key board functions (Guest, 2009), beyond a certain threshold they suffer from communication and coordination issues and free rider problems which negatively affects firm performance. Previous literature has proven that larger board size relates to lower performance volatility, irrespective of the size of the firm (Pathan, 2009; Cheng, 2008). This could be attributed to the collective decision making by several members who would reduce the propensity to extreme risk-taking. Nakano & Nguyen (2012) reported that Japanese firms with larger boards exhibited lower performance volatility. The present paper postulates that a larger board size would be effective in lower the operating volatility of the firm.

Another proxy for governance quality that is widely examined is the degree of board independence. Independent directors (IDs) are expected to bridge the information asymmetry between managers and shareholders. Independent directors lend credibility to the organization and send positive signals to the investors. Knyazeva *et al.,* (2013) found that board independence had a positive impact on the firm value for S&P1500 firms. This research study anticipated that the presence of independent directors will provide stability and hence reduce the firm's operating volatility.

Agency theory postulates that the Chief Executive Officer (CEO) or Managing Director (MD) does not always act in the best interests of the shareholders. The Board of Directors is the apex body in a firm and entrusting the CEO /MD with the dual role of the Chairman of the Board represents the ultimate conflict of interest. Governance advocates recommend separation of the monitoring role from management. Prior research has pointed out that a board's vigilance is compromised when duality exists (Hayward & Hambrick 1997, Mizruchi 1983). Duality promotes CEO entrenchment which in turn leads to restricted information flow to the other board members. Li *et al.,* (2010) found empirical evidence of a positive relationship between CEO duality and risk taking in Chinese firms. The governance index in this paper has been built on the premise that duality promotes risk-taking and hence ascribes a positive relationship with risk-taking.

A key component of governance is the board meetings which facilitate deliberations on business decisions and improves the quality of board supervision. The frequency of meetings held is another important measure of the board supervision and monitoring (Brick & Chidambaran, 2010). Adams & Ferreira (2008) remarked that attendance at board meetings is crucial as this is the primary channel through which the directors obtain the necessary firm-specific information and provide the required advice and guidance to the management. The present study conjectures that the frequency of board meetings and higher attendance will have an inverse relationship with risk-taking.

According to the reputation hypothesis, a 'busy' director demonstrates evidence of his abilities and effectiveness through multiple directorships. Fich & Shivdasani (2006) defined an outside director as busy if s/he served on three or more boards. A counter view is expostulated by the busyness hypothesis. Too many board appointments of a director have a negative impact on firm performance. An overcommitted director would be less effective in advising or monitoring as s/he would be distracted.

The meagrely available literature enumerating the impact of governance quality on risk taking behaviour dealt only with the individual traits of governance. The impact of the composite attributes which reflect the quality of firm level governance on risk taking behaviour has not been adequately explored. This paper therefore attempts to explore this complex interface between key board attributes, in the form of a constructed index, and the risk behaviour of Indian firms.

Emerging economies are deemed to have relatively weaker investor protection and weaker deterrent mechanisms which preclude firm-level governance provisions from being fully enforceable. Superior CG practices can curtail the extent to which dominant shareholders indulge in expropriation and hence limit the earnings volatility and cash flow sensitivity.

The above arguments lead to the following hypothesis:

Effective Board governance mechanisms help to reduce the operating risks of the firms and constrain excessive risk taking.

Effective Board governance mechanisms constrain excessive risk taking behaviour in family dominated firms.

3. CORPORATE GOVERNANCE: MEASUREMENT METRICS

Corporate governance quality is generally measured through an index constituted either through secondary or primary data. Particular mention needs to be made of both the indices – the Governance Index developed by Gompers *et al.,* (2003) adopted several governance provisions which proxied for the depth of shareholder rights; and the Entrenchment Index developed by Bebchuk *et al.*, (2009).

The governance standards developed by the Institutional Shareholder Services Inc., (ISS) are frequently employed by US researchers. The ISS governance standards are classified into eight segments explaining different attributes of corporate governance. The standards comprise a total of 51 factors. Their governance segments include internal governance mechanisms such as board, compensation, ownership patterns and external governance attributes such as audit and organizational structure. The ISS governance standards are considered to be the most all-inclusive data on corporate governance.

Credit Lyonnais Securities Asia (CLSA) index developed in 2001 is widely considered to be the only available governance measure in emerging markets. The CLSA surveys include 57 criteria that are grouped into seven major categories which are: transparency, management discipline, independence, accountability, responsibility, fairness and social awareness. The arithmetic mean of these categories is used as the measure of the strength of corporate governance and is denoted as the CG score. Apart from using CLSA, individual researchers have composed their own index based on responses to survey questions or based on secondary data (Black *et al.,* 2006).

Indian researchers constructed an index based on both primary and secondary hand collected data. Balasubramanian *et al.*, (2010) constructed a broad Indian Corporate Governance Index (ICGI) with 49 attributes collated through a survey. They studied the association between ICGI and firm market value.

Sarkar *et al.,* (2012) devised a CG Index based on secondary data by encompassing four important corporate governance mechanisms namely, the Board of directors, Ownership structure, Audit committee, and the External auditor. They considered a total of 22 attributes across these 4 parameters. They examined the relation of their CG index with the market performance of the companies and found a very strong association between the two.

Varshney *et al.,* (2012) constructed a CG Index for 105 Indian listed firms by considering 11 governance mechanisms including Board structure, Ownership structure, Market for corporate control and Product market competition. They studied the impact of their computed CG index score on economic value added and found a positive and statistically significant relationship between the two.

Non-availability of CG ratings and a compiled governance database have constrained the Indian researchers to use individual surrogates for CG. Firm level risk decisions would reflect the comprehensive set of governance variables which cannot be analysed by standalone governance attributes in isolation. Thus, a comprehensive CG index would capture the overall governance quality better than the individual CG surrogates. However, lack of governance data base and lack of consensus on what exactly measures governance quality makes quantification a herculean task.

4. DESCRIPTION OF VARIABLES

4.1 Measuring Firm Level Governance Quality

Internal governance mechanisms reflecting the composition and monitoring of the directors have been captured through a constructed firm level BG Index. Apart from this index, key distinguishing governance variables in the Indian context such as the number of promoter directors on the board have been included as standalone exogenous variables in the analysis.

4.1.a Construction of Board Governance (BG) Index

The constructed BG index comprises of several board characteristics as the board is the single most powerful pillar in the Indian family business environment. Board members themselves would assume key management positions apart from being the dominating owners. Corporate ownership, management and monitoring get coalesced in a typical Indian governance environment. The 14 components included for the construction of BG index are enumerated in Table 1.

The board of a company is considered to be one of the main internal corporate governance mechanisms (Brennan, 2006). It is entrusted with the crucial responsibility of defining appropriate risk thresholds within which the firm is expected to operate.

There have been conflicting views on the impact of board size. The Indian Companies Act 1956, prescribes minimum number of directors as 3 and the maximum as 12. The total board size at the end of each fiscal year is considered as the board size of the respective firm while constructing the BG index. Directors who have resigned are excluded and directors who are appointed any time during the year are included to ensure consistency.

Clause 49 had mandated that one-half of the total board should comprise of IDs, if the Chairman is an executive chairman, else one-third. A prominent airlines company in India made headlines in 2011 for flouting these norms. The firm also faced flak for taking excess leverage and for their inability to service the debt repayments. The evolving regulatory landscape expects that competent IDs will ensure transparency and act ethically in the best interests of the company to safeguard the interests of all stakeholders. Hence, a higher number of IDs in the board of a firm is expected to minimise the excess risks of a firm.

Table 1. Board Governance Index and the scoring pattern

SN	Particulars	Regulatory requirement	Scoring pattern
	Continuous variables Continuous variables are also given a score ranging from 1 to 0, on par with the binary variables to obtain a cumulative BG Index Score	In all the cases, desirable governance practice has been scored as 1 and the score is progressively reduced for other distribution categories	The data distribution of each governance attribute has been grouped into 4 categories representing 25th, 50th, 75th and 95th percentiles.
1	Board Size	Minimum number of directors prescribed is 3 and the maximum is 12	Scoring is as follows: if the board size of the company is: in the 25th percentile, then score = 0, in 50th percentile = 0.25, in 75th percentile = 0.50, in 95th percentile = 0.75, above that = 1.
2	No of Independent Directors in the Board	Clause 49 mandates that 50% of board should be Independent directors when Chairman is executive, and one third should be independent in case of nonexecutive chairman	Scoring is as follows: if the total number of IDs of the company are: in the 25th percentile, then score = 0, in 50th percentile = 0.25, in 75th percentile = 0.50, in 95th percentile = 0.75, above that = 1.
3	Proportion of Executive Directors	Not less than 50% of the Board should comprise of Non-Executive Directors.	Scoring is as follows: If the proportion of executive directors in the board are in: in 25th percentile, then score = 1, in 50th percentile = 0.75, in 75th percentile = 0.50, in 95th percentile = 0.25, above that = 0.
4	No of Board Meetings held in a fiscal year	Clause 49 mandates 4 board meetings in a year	Scoring is as follows: if the total number of board meetings in the company are: in the 25th percentile, then score = 0, in 50th percentile = 0.25, in 75th percentile = 0.50, in 95th percentile = 0.75, above that = 1
5	Attendance percentage of the Independent Directors in Board Meetings	No mandatory percentage of attendance is provided	Scoring is as follows: if the attendance percentage of IDs in the board meetings of the company are: in the 25th percentile, then score = 0, in 50th percentile = 0.25, in 75th percentile = 0.50, in 95th percentile = 0.75, above that = 1.
6	Outside directorships held by Independent Directors	The Companies Act prevents a Director from being a Director, at the same time, in more than fifteen companies, excluding private companies and other companies notified by the Act	Scoring is as follows: If the average outside directorships held by the directors in the board are in: in 25th percentile, then score = 1, in 50th percentile = 0.75, in 75th percentile = 0.50, in 95th percentile = 0.25, above that = 0.
	Binary variables		Desirable governance practice is given a score of 1, else 0.
7	Duality	Desirable practice is to have separate CEO/MD and Chairman positions	If Chairman is also the CEO/MD, then 0, else 1.
8	Presence of a CFO	Although the CEO/CFO certification was mandated from January 2006, the whole-time Finance Director or any other person heading the finance function discharging that function was considered to be the CFO. Companies Act 2013 has required an independent CFO designate.	If CFO is present, then 1, else 0
9	Composition of Non Executive Directors in the Remuneration Committee	Remuneration committee may comprise of at least three directors, all of whom should be non-executive directors, the Chairman of committee being an independent director. This is a non mandatory recommendation.	If comprised entirely of NED, then 1, else 0.
10	Stock options provided to Independent Directors	Remuneration to be paid to Independent Directors to be fixed by	If stock options santioned to IDs, then coded as 0 , else 1.

SN	Particulars	Regulatory requirement	Scoring pattern
		the Board of Directors and approved by shareholders in general meeting. Shareholders' resolution to specify the limits for the maximum number of stock options to be granted to non-executive directors, including independent directors, in any financial year. (Note: granting of stock options is prohibited by the Companies Act, 2013 and the revised Clause 49)	
11	Attendance of Independent Directors at AGM	No specific mandatory requirement. Clause 49 mandates only the disclosure of directors attendance in AGM	If IDs attend AGM, then coded as 1, else 0.
12	Board facilitates hosting of Analysts' reports on the company's website	Desirable practice is to host the analysts' report	If analysts' report is hosted in the company's website, then 1, else 0
13	Number of companies in which the CEO is on the Board	Desirable practice is for the CEO to be on the board of fewer companies	If the CEO serves on the boards of 2 or less companies, it is coded as 1, else 0.
14	CEO not listed as a related party	Desirable practice if CEO is not listed as a related party	If not listed as a related party, then coded as 1, else 0.

Indian boards are generally populated with family members and their friends who join them as executive directors. Clause 49 recommends that not more than 50% of the board should be executive directors. Percentage of executive directors in the board has been taken as a variable for constructing the BG index.

As per Indian regulations, a minimum of four board meetings are required to be held in each accounting year. The number of the board meetings convened in the year has been considered for constructing BG Index. Although there is no mandated percentage of attendance for the board meetings, members' participation is important for effective board monitoring. Hence, percentage of attendance of IDs in the board meetings has been included in the BG index.

Interlocking directorships limit the time board members can allot for company deliberations. In India, a person can hold directorships in a maximum of 15 companies. The number of directorships is included in the BG Index.

Duality refers to a board structure in which the CEO or MD also holds the position of Board Chairman. 53% of the sample firms considered in this study had the CEO/MD serving as the Chairman of the company. Duality has been coded as binary variable while constructing BG index. Although the CEO/CFO certification was mandated from January 2006, the whole-time finance director or any other person heading the finance function and discharging that function was considered to be the CFO in Indian companies. Companies Act 2013 has recognised the CFO as a key management personnel and requires every listed company to appoint a whole time personnel as a CFO. The existence of an independent CFO in the company has been coded as a binary variable.

Clause 49 recommends a remuneration committee with at least three directors, all of whom should be non-executive and that the chairman be an independent director. The existence of the remuneration committee with all non-executive directors has been included as another binary variable in the BG index.

Remuneration to be paid to independent directors is to be fixed by the Board of Directors and approved by shareholders in the general meeting. Shareholders' resolution should specify the limits for the maximum number of stock options to be granted to non-executive directors, including independent directors, in any financial year. Granting of stock options to IDs is prohibited by the Companies Act, 2013 and the same was also subsequently revised by Clause 49. The sample period of this study is up to the fiscal year 2012, during which time the companies were allowed to and also granted stock options to the director. As it is acknowledged as an undesirable governance practice, granting of stock options to IDs is considered as a binary variable.

Additional board attributes which are generally acknowledged as desirable governance practices by regulators have also been included in the construction of the BG index. Presence of IDs at the AGM helps to resolve the queries of the shareholders and reinforces their commitment and involvement in the company. Firms hosting the analysts' reports are considered progressive as this helps investors to gather firm specific information. Although, the law does not expressly prohibit the CEO of a company from serving as a non-executive Director on other boards, his time and contribution as a CEO can be maximised if he serves on fewer boards. Similarly, if a CEO is listed as a related party, it could lead to potential conflict of interest. Hence, it is desirable for a CEO to refrain from related party transactions with the firm. These desirable practices have been coded as binary variables.

A code ranging from 0 to 1 has been assigned to each of the binary attributes, with 1 implying desirable governance practice and 0 implying otherwise. In case of the other continuous attributes also, the scores assigned range from 0 to 1. The data distribution of each of these continuous variables has been grouped into 4 categories representing the 25th, 50th, 75th and 95th percentiles. In all the cases, desirable governance practices have been scored as 1 and the score is progressively reduced for other distribution categories.

Weights have not been assigned to the individual BG traits in the index as this introduces elements of subjectivity and could lead to a bias.

Sarkar *et al.,* (2012) enumerates that equally weighted index eliminates measurement bias.

Thus, the overall BG score is a simple aggregate of the scores of all the attributes and constitutes the unweighted BG index score for a firm. This score was computed for all the 377 firms. The overall BG index score thus ranges from 0 to 14.

4.1.b Other Governance Variables

The impact of the overall BG Index on risk behaviour needs to be supplemented with other individual governance variables.

Equity ownership stake of the founding family has been used as a proxy for family ownership structure (Anderson & Reeb 2003 and Villalonga & Amit 2006) .The percentage of shares held by the promoters and families individually and through corporate bodies, has been considered as a proxy for family shareholding. This measurement did not identify or specify a minimum threshold holding to determine family ownership.

Family owners also join the board as directors and assume key managerial positions as CEO/MD. The number of promoter directors on the board has been included as an independent variable to analyses the impact of family entrenchment. Where the CEO belongs to the founding family, it has been considered as a binary variable to examine the impact of family control. Similarly, the chairman of the board belonging to the family also has been included as a binary variable.

4.2 Measuring Operating Risks

Riskier firms exhibit higher volatility in their operating performance. Both accounting based measure and cash flow based measures were deployed to study the operating risks of the firm.

Earnings volatility is the first proxy considered to measure the operating risk of the firm. Earnings quality is measured from the ratio of EBIDTA upon the lagged assets. This ratio was computed for each accounting year and for each firm. EBIDTA is considered to be a less noisy measure when compared to Return on Assets (ROA) as it is subjected to less income smoothing. Absolute values of EBIDTA were avoided and focus was on the relative performance of the firms. The standard deviation of earnings ratio for six years from 2006 to 2012 was considered as the risk proxy for each of the sample firms. This implies that the measure for earnings volatility for each firm in 2007 is the standard deviation of annual EBIDTA/Lagged Assets over the 6 yearly observations between 2006 and 2012.

Smooth cash flows are an indication of the sound financial health of the firm as it helps to reduce reliance on external finance. The ratio of operating cash flows to lagged assets was computed. The standard deviation of this ratio over the period of six years has been considered as another risk measure.

In addition, excess operating risk has been measured following John *et. al.,* (2008). For each year and for each firm, the excess of firms' earnings ratio over the average industry earnings ratio in that year was computed. The standard deviation of this excess ratio has been taken as the proxy for the excess risk.

All the risk measures reflect the inherent financial strengths of a firm as they are impacted by the risk mitigation policies and managerial decisions. The time-series measures for earnings and cash flow proxies could be biased if they are nonstationary (exhibit persistence or trend). This anomaly was factored in by considering the lagged values of the total assets. Further, by using of lagged value of assets, potential problems that might arise due to the possibility of both the total assets and EBIDTA being jointly determined by other factors was avoided. This is also likely to address issues of reverse causality.

In order to explore the impact of BG index and family ownership on operating risks, in the crisis affected period, the single risk proxy for each firm was computed taking the standard deviation of earnings from 2006-2012 as it reflects both within-firm and across time volatility. This single risk proxy was then regressed on the independent variables which were measured at the 2007 values. This data compilation process resulted in the initial panel of 2262 firm year observations, collapsing into a cross section data of 377 firms.

4.3 Control Variables

It is essential to control the effect of firm size as it impacts firms risk level. Natural logarithm of total assets was used as a proxy for firm size (Jiraporn *et al.,* 2012, Pathan, 2009). Larger firms would be able to manage their risks compared to others. Thus, size is expected to have a negative association with the operating risks of the firm.

Firms generally take higher risks during the growth phase. Tobin's q ratio was used to proxy for growth opportunities (Gupta *et al.,* 2013). Age is defined as the number of years elapsed since the incorporation of the firm. It controls for the life cycle effect since the volatility in older, stabilised and matured firms is likely to be lower.

5. DATA, SAMPLE SIZE, SAMPLE PERIOD AND EMPIRICAL MODEL

The data set comprised of all the firms included in the S&P CNX 500 index of the National Stock Exchange of India (NSE). These companies represent 17 industrial sectors in India and thus broadly represent an array of sectors of corporate India. After excluding banks, financial companies and firms with inadequate data, the final dataset comprised of 377 non-financial firms with 2262 firm year observations. Financial firms were excluded as they are subjected to scrutiny by other regulators.

Clause 49 of the Listing Agreement between stock exchanges and companies was mandated by the Securities and Exchange Board of India (SEBI) in 2000. The implementation of Clause 49 was staggered and by 2005 all the major listed firms were required to comply with the renewed corporate governance requirements. The time window of 2006-2012 is appropriate and suitable as the sample period to investigate the impact of comprehensive CG policies as revised in 2006 as well to examine the crisis effect.

Data for CG attributes was hand collected from the Corporate Governance Reports contained in the Annual Reports of the firms. Financial variables were obtained from CMIE Prowess database. Prowess is a publicly available database provided by the Centre for Monitoring Indian Economy (CMIE). It is the most reliable corporate database in India covering information on more than 20,000 companies.

The empirical model is expressed in terms of the following equation:

$$Risk_c = \alpha_1 + \alpha_2 Board\ Index\ Score_c + \alpha_3 Family\ holding\ \%_c + \alpha_4 X_c + \omega_c$$

Where *RISKc* is a risk proxy, Board Index Score is the aggregate Board Index Score for each company, Family holding% is the aggregate family shareholding in each company, $X_c$is the vector of control variables.

6. EMPIRICAL RESULTS

6.1 Sample Descriptives and Univariate Results

Table 2a presents the descriptive statistics of panel data of 377 companies for six years from 2006-2012 totalling to 2262 firm year observations. The values in the Table represent firm clustered averages. In order to reduce the impact of outliers, all the financial variables have been winsorized at the 1st and 99th percentile (Gupta *et al.,* 2013, Bartram *et al.,* 2008, Mitton 2002).

Table 2a. Panel data descriptive statistics

Particulars	*Mean*	*Median*	*Standard Deviation*	*Maximum*	*Minimum*	*Quartile 1*	*Quartile 3*
Firm level financial variables							
EBIDTA (Rs.Millions)	8605.37	2857.00	18603.73	125300.00	23.50	1283.90	6484.60
Total Assets (Rs.Millions)	58849.36	21212.75	116649.30	777965.10	451.40	9049.10	48263.90
Operating Cashflow	4205.30	1128.70	10009.93	58235.00	-8135.70	222.50	3468.50
Mgr Rem (Rs.Millions)	54.14	26.40	84.68	1223.60	0.30	10.80	63.50
Cash EPS (Rs.)	30.76	17.32	41.74	289.50	-16.45	6.76	39.39
Firm level Ratios							
Leverage	0.2455	0.2440	0.1917	0.7948	0.0000	0.0577	0.3826
R&D/TA	0.0052	0.0000	0.0130	0.1233	0.0000	0.0000	0.0036
CAPEX/TA	0.0954	0.0503	0.8005	31.5590	0.0000	0.0189	0.0982
Assets growth	0.2974	0.1877	0.5423	13.5284	-0.4684	0.0879	0.3359
Sales growth	0.3983	0.1834	3.1224	97.8210	-0.9023	0.0676	0.3204
Tobin's q	1.7365	1.2234	1.5039	8.9794	0.1477	0.7728	2.1240
Firm level governance variables							
BG Index Score	8.82	9.25	2.46	14.00	3.00	7.75	10.50
Board Size	10	9	3	20	3	8	11
Family holding %	38.15	41.58	23.87	89.96	0.00	22.80	54.70
Promoter holding %	12.20	2.36	18.85	89.96	0.00	0.00	17.52
No of IDs	5	5	2	13	1	4	6
% of attendance in BM	76.46	78.50	15.63	100.00	10.00	66.60	88.40
No of PDs	5	4	2	13	1	3	6
Firm Age (Years)	35	27	24	149	6	18	49
Firm Level Operating Risks							
EBIDTA / LA	0.0571	0.0373	0.0775	1.6699	0.0001	0.0206	0.0671
OpgCF/LA	0.0816	0.0568	0.0968	1.2649	0.0005	0.0308	0.0962

The table presents the descriptive statistics of panel data of 377 firms for 6 years from 2006-2012, totalling to 2262 firm year observations. The values represent firm clustered averages. EBITDA is the earnings before interest, taxation, depreciation and amortization. EBIDTA/LA is EBIDTA scaled by lagged assets. Operating cash flow is the net cash flow from operations. Mgr Rem is the total managerial remuneration paid in each fiscal year. Cash EPS is the operating cash flow scaled by the outstanding shares. Leverage is the ratio of total debt to total assets. R&D/TA is the total research and development expenditure scaled by total assets. CAPEX/TA is the capital expenditure scaled by total assets. Assets growth and Sales growth represent the standard deviation of the year on year growth for the period 2006-2012. Tobin's q is the ratio of market value of assets to the book value of assets. BG Index Score is the total score on the 14 board governance attributes. Board size is the number of board members. FAMILYholding % indicates that the percentage shareholding by founders, their family members and related corporates. PROMOTER holding % indicates the percentage shareholding by founders and family members in their individual names. No of IDs represents the number of Independent Directors in each firm. % attendance in BM is the percentage of attendance of the directors in the board meetings held in each fiscal year. No of PDs is the number of promoter directors in each firm. Firm age is proxied by the number of years elapsed since the firm's incorporation. Operating risk proxies EBIDTA/LA and OpgCF/LA are the 3 year rolling standard deviation of EBIDTA and Operating cash flow scaled by lagged assets of the cross section of the firm.

The maximum BG Index score of the sample was 14 with 3 being the minimum score. Time series analysis of constructed BG index during the sample period indicated a general upward trend. The number of companies with low BG index score decreased substantially over the sample period. The average BG score was 8.82 with a median value of 9.25, indicating normally distributed data.

The median board size was 9 and the average was 10 in India. Jensen (1993) asserted that the ideal

board size should not be greater than 8 or 9. The minimum board size of the sample was noted to be 3 which is as per the regulatory norms while the maximum is 20. Although the maximum board size prescribed by the erstwhile Act was 12, it was possible to increase the board size with specific approvals. Nakano & Nguyen (2012) reported that Japanese boards included in their study comprised an average of 10.4 members. The average family holding percentage of 38% signifies the domination of family controlled firms in India.

The average number of Independent Directors and Promoter Directors was similar at 5. The year-wise analysis revealed that while the average board size remained at 9 across the 6 years, the number of independent directors increased from 3 in 2006 to 5 in 2012, implying the growing awareness and emphasis on complying with the regulations.

Operating risk proxies indicated an average of 5% deviation across the earnings and 8% deviation across the operating cash flows of sample firms during the period. However, the min-max range of these ratios exhibited the crisis effect.

The descriptive statistics of Total assets and Tobin's q reveal that the sample is representative of both large and small firms. Despite winsorizing, the data still had a few outliers as revealed by the highest firm value of 8.98 which is quite high compared to both the distribution average of mean as well as positional average of median. Log of total assets (LTA) was used to scale down the firm size.

The sample firms had spent an average of 0.05% of their total assets on Research and development (R&D) expenditure which was substantially low during the period. The comparatively lower leverage at 24% indicates a conservative management practice, which is expected in an Indian scenario where family owned companies dominate the corporate landscape.

Table 2b presents cross sectional data descriptives of 377 companies for the year ending 2007. The Table describes the variables that were used in the ensuing regressions. It contains the value of the explanatory variables at the end of the fiscal year 2007. The dependent variables were measured as the standard deviation over the sample period 2006-2012. The statistics reveal that the average number of promoter directors was marginally higher at 5 than the number of independent directors at 3 in 2007. The family holding percentage discloses an interesting aspect. The average percentage of 36.92% in 2007 was lower when compared to the average of 38.75% across the sample period (2006-2012), implying an increase in the family holding percentage over the years.

Table 2b. Cross sectional descriptive statistics

Particulars	*Mean*	*Median*	*Standard Deviation*	*Maximum*	*Minimum*	*Quartile 1*	*Quartile 3*
Explanatory variables for 2007							
B G Index Score	7.59	8.00	2.83	13.25	3.00	5.00	9.75
Family holding %	36.92	39.11	23.76	89.96	0	21.84	54.13
Promoter holding %	11.90	1.88	18.65	89.06	0	0	17.96
No of IDs	3	3	3	12	2	4	6
% of attendance in BM	76.30	78.00	15.04	100.00	25.00	66.60	87.50
No of PDs	5	5	2	13	1	3	6
Control variables							
LTA	9.46	9.41	1.40	13.98	2.51	8.65	10.23
Age	33	24	24	144	6	16	46
TQ	2.05	1.50	1.70	8.98	0.15	0.89	2.57
Dependent variables							
EBIDTA/ LA	0.0754	0.0533	0.0837	1.0084	0.0002	0.0335	0.0919
OpgCF/LA	0.0945	0.0730	0.0848	0.8768	0.0001	0.0494	0.1028

The table presents the cross sectional descriptive of the governance data for the year ending 2007. BG Index Score is the total score on the 14 board governance attributes. FAMILY holding % indicates that the percentage shareholding by founders, their family members and group companies. PROMOTER holding % indicates the percentage shareholding by founders and family members in their individual names. No of IDs represents the number of Independent Directors in each firm. % attendance in BM is the percentage of attendance of the independent directors in the board meetings held in each accounting year. No of PDs is the number of promoter directors in each firm. LTA is the log of total assets. Age is the number of years elapsed between the end of fiscal year 2007 and firm's year of incorporation. TQ is the market to book value of assets. The risk proxies represented by OpgCF/LA and EBIDTA/LA are computed as the standard deviation of the variable for each firm for the period 2006-2012. All other variables are the respective values at the end of the fiscal year 2007.

The correlation matrix between the variables, where the explanatory variables and control variables were measured as of end of fiscal year 2007 and the risk proxies were measured as the standard deviation of the sample period of 2006-2012 is presented in Table 3. Overall, the degree of correlation between the independent variables was low, indicating lack of multicollinearity between the variables. As predicted, the BG Index had a significant and positive correlation with Tobin's q and a significant and negative correlation with the volatility of cash flows. The inverse relationship was also noted with the other risk proxy of earnings volatility. Family holding % was positively correlated with the risk measures. Firm size which is proxied by LTA and Firm age were negatively correlated with the risk measures. Firm size and Firm age have a negative and significant relationship with Family holding % indicating that firms' family holding % progressively reduces as the firms grow in size and grow older.

Correlation between the BG Index and it components based on the sample period from 2006 to 2012 was positive and significant as expected

(untabulated). The magnitude of the correlation coefficients between the individual components was also relatively high.

Table 3. Correlation Matrix

	TQ	OpgCF/LA	EBIDTA/ LA	Sales growth	Assets growth	EBIDTA /Assets	LTA	Age	CEO Family	Chairman family	Promoter Directors	BG Index Score	Family %	Promoter %
TQ	0.1294 *		0.1546 *	-0.0669	0.1643 *	0.3272 *	-0.0766	-0.0570	-0.1131 *	-0.1457 *	0.0265	0.1687 *	0.1160 *	0.1789 *
OpgCF/LA			0.5269 *	0.2663 *	0.4417 *	0.0621	-0.3903 *	-0.2129 *	-0.0335	0.0790	0.1303 *	-0.1504 *	0.1051 *	0.1171 *
EBIDTA/LA				0.3561 *	0.4233 *	0.3490 *	-0.3329 *	-0.0957	-0.0517	-0.0266	0.0854	-0.0515	0.0797	0.0704
Sales growth					0.5464 *	-0.1706 *	-0.1854 *	-0.1359 *	-0.0369	0.0426	-0.0986	-0.1463 *	-0.0016	-0.0018
Assets growth						-0.0909	-0.2661 *	-0.2306 *	0.0838	0.1291 *	-0.1351 *	-0.0489	0.2126 *	0.2132 *
EBIDTA/Assets							-0.0666	0.0781	-0.1571 *	-0.1193 *	0.0301	-0.0045	-0.0211	-0.0647
LTA								0.1862 *	-0.0029	0.0589	0.1334 *	0.1669 *	-0.1511 *	-0.2230 *
Age									-0.1984 *	-0.0292	0.0300	0.0386	-0.2089 *	-0.2383 *
CEO Family										0.6484 *	-0.1341 *	0.2375 *	0.3426 *	0.2676 *
Chairman family											-0.0809	0.2104 *	0.4038 *	0.1312 *
Promoter Directors												-0.0865	-0.2056 *	-0.1857 *
BG Index Score													0.1068 *	0.0466
Family %														0.4662 *

*The risk proxies represented by OpgCF/LA and EBIDTA/LA are computed as the standard deviation of the variable for each firm for the cumulative period 2006-2012. All other variables are the respective values at the end of the fiscal year 2007. TQ is the market to book value of assets. Assets growth and Sales growth represent the standard deviation of the year on year growth for the period 2006-2012. EBIDTA/Assets is profit scaled by total assets. LTA is the log of total assets. Age is the number of years elapsed between the end of fiscal year 2007 and firm's year of incorporation. CEO and Chairman family refers to the CEO or Chairman belonging to the promoter family. Promoter directors are the number of promoter directors in each firm.BG Index Score is the total score on the 14 board governance attributes. FAMILY% indicates that the percentage shareholding by founders, their family members and related corporates. PROMOTER% indicates the percentage shareholding by founders and family members in their individual names. * indicates significance at 5% level.*

Table 4. Differences in risk taking based on BG Index score and Family holding percentage

	EBIDTA/LA		***OpgCF/LA***		***Sales growth***		***Assets growth***		***Family holding %***	***BG Index Score***	
Effect of BG Index Score											
1. High	0.0713		0.0827		0.2841		0.2863		37.4407	-	
2. Low	0.0801		0.1081		1.2103		0.3220		35.8666	-	
Difference	-0.0088		-0.0254		-0.9262		-0.0357		1.5741	-	
(t - value)	(-1.06)	*	(-3.01)	***	(-2.40)	***	(-0.79)		(0.56)	-	
Effect of Family holding %											
1. High	0.0791		0.0983		0.3545		0.3102		-	8.0562	
2. Low	0.0639		0.0827		0.4074		0.2101		-	7.6006	
Difference	0.0151		0.0156		-0.0529		0.1001		-	0.4556	
(t - value)	(2.03)	**	(1.75)	**	(-0.32)		(2.91)	***	-	(-1.55)	*

*The risk proxies represented by OpgCF/LA and EBIDTA/LA are computed as the standard deviation of the variable for each firm for the period 2006-2012. Sales growth and Assets growth are the standard deviation of the year on year sales and assets growth for the period 2006-2012. BG index score is the aggregate score obtained on the 14 attributes at the end of fiscal year 2007. . FAMILY holding % indicates the percentage shareholding by founders, their family members and related corporates at the end of fiscal year 2007. ***, **, * denote significance at the 1%, 5% and 10% levels.*

Table 4 depicts the results of univariate analysis using the t test for investigating firm level differences. The sample was split into two panels using the median value of the BG index score and family holding percentage.

Firms with a higher BG index score are associated with lower operating risks (EBIDTA/LA and OpgCF/LA), with a statistically significant mean difference between the groups. On the contrary, family dominated firms are associated with higher operating risks with a statistically significant and positive mean difference between the groups. The direction of the results were in tandem with the results obtained from the correlation matrix. The tests revealed that firms with a higher BG index score are a distinct group from the firms with a lower BG index score.

The univariate tests were extended to other growth measures such as Tobin's q, Cash EPS, Sales growth and Assets growth (Appendix I) to understand the firm level differences across two groups. It was noted that firm level differences were not statistically significant. However, 'firms with higher BG index score had higher TQ and higher deviation in Sales growth.

An interesting feature was that firms with higher family holding % were significantly associated with higher deviation in assets growth which provided some justification to the wealth maximization approach that family firms tend to adopt.

Contemporary governance literature has deliberated that Capex as well as R&D expenditure mirror the proactive risk taking attitude of the corporate management. Appendix II reports the

mean differences of other key parameters viz; Capex/Assets, R&D expenditure scaled by assets, Leverage and Managerial remuneration. While Capex/ Assets was low for higher BG index firms, it was high for firms with higher family holding percentage. The results are inverse for R&D / Assets. Family firms are generally expected to be judicious in capex and invest in strong projects. The firms with higher BG index and higher family holding percentage had higher leverage. This was not surprising given that the average age of the sample firms was 35 years. As the firms grow in age, their reliance on external funding increases the firm's leverage. The managerial remuneration was again higher for both the higher BG index firms (statistically significant) and firms with higher family holding percentage. This was due to the fact that family firms generally appoint their own family members in key managerial positions.

6.2 Multivariate Results

6.2.a Impact of BG Quality on Operating Risks

The time series standard deviation of the risk proxies was regressed on the explanatory variables observed as at end of 2007. The results of the cross sectional regressions using within firm operating risk variability is presented in Table 5. BG index score which is a set of 14 attributes was negatively associated with the operating risks. The association was also found to be statistically significant confirming the positive impact of board governance quality. The results infer that superior firm level governance quality reduced the firm's cash flow sensitivity and earnings volatility among Indian firms. A similar observation was made by Francis *et al.,* (2010) while investigating the impact of governance in 14 emerging markets. This validates the hypothesis one that effective governance insulates the firms against external shocks and helps to sustain operational performance. These results also provide evidence to the critics who made a hue and cry that CG mechanisms did not help during the crisis period.

Table 5. Relationship between BG Index score and risk taking using cross sectional data

	EBIDTA/LA				***OpgCF/LA***			
BG Index Score	-0.00286	**	-0.00268	*	-0.00466	***	-0.00415	***
	(-1.95)		(-1.89)		(-3.01)		(-2.74)	
Tobin's q	0.01084	***	0.01122	***	0.00320		0.00162	
	(4.62)		(4.79)		(1.34)		(0.67)	
LTA			-0.00552	*	-0.00892	***		
			(-1.69)		(-2.67)			
Promoter Directors	0.00327	**	0.00276	*	0.00321	*	0.00410	**
	(1.98)		(1.69)		(1.92)		(2.41)	
Chairman is a family man			0.00395		0.01565	*		
			(0.45)		(1.74)			
CEO is a family man	0.00546						0.01389	
	(0.66)						(1.62)	
Age	-0.00025		-0.00019		-0.00056	***	-0.00067	***
	(-1.48)		(-1.14)		(-3.27)		(-3.84)	
F value	6.32	***	5.84	***	6.83	***	6.39	***
R squared	0.1040		0.1145		0.1314		0.1052	

*The risk proxies represented by OpgCF/LA and EBIDTA/LA are computed as the standard deviation of the variable for each firm for the period 2006-2012. All other variables are the respective values at the end of the fiscal year 2007. BG index score is the aggregate score obtained on the 14 attributes Tobin's q is the ratio of market value of assets to the book value of assets. LTA is the natural logarithm of total assets which proxies for firm size. Promoter Directors represent the absolute number of promoter directors. Chairman and CEO are binary variables which are coded as 1 if represented by a family member, else 0.Age is the number of years elapsed between the end of fiscal year 2007 and firm's year of incorporation. Sample comprises of 377 firms listed on the National Stock Exchange of India over the period 2006-2012. T statistics are based on standard errors robust to heteroscedasticity. ***, **, * denote significance at the 1%, 5% and 10% levels.*

Table 6. Relationship between Ownership percentage and risk taking using cross sectional data

	EBIDTA/LA						*OpgCF/LA*					
Family holding %	0.00019						0.00022					
	(1.07)						(1.37)					
Promoter holding %			0.00009						0.000322			
			(0.53)						(1.28)			
Family Dummy 30%					0.00458						0.00117	
					(0.60)						(0.15)	
Tobin's q	0.01265	***	0.01287	**	0.01296		0.00331		0.00229		0.00367	*
	(2.91)		(2.60)		(2.97)		(1.53)		(1.04)		(1.70)	
Promoter Directors	0.00253	**	0.00261	*	0.00253		0.00428	***	0.00393	***	0.00418	***
	(1.95)		(1.92)		(1.89)		(3.23)		(2.82)		(3.10)	
CEO is a family man	0.00579		0.00440		0.00405		0.00819		0.00789		0.00510	
	(0.85)		(0.64)		(0.57)		(1.10)		(1.01)		(0.68)	
Age	0.00006		0.00004		0.00004		-0.00045	***	-0.00038	***	-0.00048	***
	(0.37)		(0.23)		(0.25)		(-3.3)		(-2.84)		(-3.53)	
F value	1.95	*	1.81		1.94	*	6.74	***	5.06	***	5.75	***
R squared	0.1138		0.1036		0.1108		0.0798		0.0731		0.0741	

*The risk proxies represented by OpgCF/LA and EBIDTA/LA are computed as the standard deviation of the variable for each firm for the period 2006-2012. All other variables are the respective values at the end of the fiscal year 2007. Family holding %indicates the percentage shareholding by founders, their family members and related corporates. Promoter holding % indicates the percentage shareholding by the founders and family members in their individual capacity. Family dummy indicates a code of 1 where family percentage shareholding is over 30% and 0 otherwise. Tobin's q is the ratio of market value of assets to the book value of assets. Promoter Directors represent the absolute number of promoters who serve as directors. CEO is a binary variable which is coded as 1 if represented by a family member, else 0. Age is the number of years elapsed between the end of fiscal year 2007 and firm's year of incorporation. Sample comprises of 377 firms listed on the National Stock Exchange of India over the period 2006-2012. T statistics indicated in parenthesis are based on standard errors robust to heteroscedasticity. ***, **, * denote significance at the 1%, 5% and 10% levels.*

Table 7. Relationship between BG index score, Family holding % and risk taking

	EBIDTA/LA				OpgCF/LA			
BG Index Score * Family holding %			-5.06E-06	-9.02E-08			-0.00001	-0.00002
			(-0.06)	(-0.02)			(-0.21)	(-0.41)
BG Index Score	-0.00107	-0.00091	-0.00124	-0.00149	-0.00347 ***	-0.00281 **	-0.00311	-0.00268
	(-0.79)	(-0.66)	(-0.48)	(-0.57)	(-2.62)	(-2.07)	(-1.42)	(-1.24)
Family holding %	0.00005	0.00011	9.72E-06	0.00017	4.71E-07	0.00014	0.00018	0.00043
	(0.24)	(0.59)	(0.03)	(0.30)	(0.02)	(0.82)	(0.34)	(0.92)
Tobin's q	0.01234 ***	0.01166 ***	0.01234 ***	0.01225 ***	0.00387 *	0.00234	0.00351 *	0.00276
	(2.88)	(2.71)	(2.87)	(2.82)	(1.78)	(1.05)	(1.64)	(1.24)
LTA	-0.00782 **	-0.00858 ***	-0.00785 **		-0.00823 ***	-0.00795 ***	-0.00808 **	
	(-2.39)	(-2.73)	(-2.26)		(-2.60)	(-2.57)	(-2.49)	
Chairman is a family n	0.00017		0.00016		0.01515 *		0.01273 *	
	(0.02)		(0.02)		(1.88)		(1.66)	
CEO is a family man		0.00430		0.00484		0.00488		0.00398
		(0.64)		(0.74)		(0.63)		(0.50)
Age	0.00006	0.00008	0.00006	0.00004	-0.00046 ***	-0.00044 ***	-0.00042 ***	-0.00044 ***
	(0.39)	(0.48)	(0.37)	(0.23)	(-3.48)	(-3.33)	(-3.20)	(-3.24)
F value	3,12 ***	3.74 ***	2.74 ***	1.48	5.79 ***	5.73 ***	4.93 ***	4.97 ***
R squared	0.1313	0.1321	0.1313	0.1073	0.1035	0.0912	0.1040	0.0712

*The risk proxies represented by OpgCF/LA and EBIDTA/LA are computed as the standard deviation of the variable for each firm for the period 2006-2012. All other variables are the respective values at the end of the fiscal year 2007. BG index score is the aggregate score obtained on the 14 attributes. Family holding % indicates the percentage shareholding by founders, their family members and related corporates. TQ is the ratio of market value of assets to the book value of assets. LTA is the natural logarithm of total assets which proxies for firm size. Chairman and CEO are binary variables which are coded as 1 if represented by a family member, else 0. Age is the number of years elapsed between the end of fiscal year 2007 and firm's year of incorporation. Sample comprises of377 firms listed on the National Stock Exchange of India over the period 2006-2012. T statistics are based on standard errors robust to heteroscedasticity. ***, **, * denote significance at the 1%, 5% and 10% levels.*

The firm size has a negative and significant impact on the operating risks inferring that large firms exhibit lower risks. The wide ranging diversification opportunities accessible to the larger firms bring down the incidence of risk. Similarly, age also has a negative and significant association with the risk proxies which implies that older firms face lower operating risks. Tobin's q which is a proxy for growth opportunities was positively and significantly related to earnings volatility which was also evidenced from the correlation matrix. This implies that growing firms assume additional risk during their expansion phase.

6.2.b Impact of Family Holding % on Operating Risks

The relationship between family holding % and the risk proxies was further explored and the results are reported in Table 6. Three proxies measuring family ownership were considered for the analysis. The first proxy considered was the total percentage of

shares held by the family members in their individual capacity and through family owned firms. The second proxy denoted ownership concentration and was computed as the total percentage of shares held by the family members in their individual capacity only. The third proxy was a dummy variable which takes the value of 1 if the family holding percentage is above 30% and the value of 0 otherwise. The threshold of 30% was motivated by the fact that the average family shareholding percentage in Indian firms has ranged above 30% throughout the sample period.

The results revealed that family shareholding has a positive relationship with all the risk proxies although not significant. This is consistent with the entrenchment theory which propounds that controlling owners with substantial cash flow rights have the incentive to increase risk-taking. Agency theory also postulates that dominant insiders would take higher risk to maximise wealth and their personal benefits. The empirical findings revealed that when the founding promoters hold board memberships, their association with risk proxies was found to be positive. The positive relationship between risk proxies and the Chairman being a family member also provided a similar implication that controlling insiders would undertake value-enhancing risky projects. Similarly, when the promoter assumes key managerial position as CEO, operating risks of the firm are found higher. These results further strengthen the entrenchment argument among Indian family firms.

6.2.c Impact of governance among the family controlled firms

The joint impact of BG index score and family holding % was further examined on the risk proxies. Results outlined in Table 7 reconfirmed the negative impact of the BG score on the risk proxies and the positive impact of family holding % on the risk proxies. The analysis was further extended by exploring the impact of the interaction effects of BG score and family holding % on the risk proxies. Although the coefficients of the cross-product were not statistically significant, the negative sign subsisted, lending credence to the conjecture that good corporate governance mechanisms play a prominent role in restraining the risk levels, even in family dominated firms. The results thus provided new evidence that when family firms adopt CG systems; the risk level of the firms reduces. The results validated the second hypothesis that governance mechanisms constrain the excess risk taking behaviour among family firms. This observation also addresses the concerns about the cost-benefit trade-off of corporate governance and suggests that the benefits outweigh the costs.

Table 8. Relationship between BG index score and excess risk taking

	EBIDTA/LA		OpgCF/LA	
BG Index Score	-0.00262 *	-0.00235 *	-0.00395 ***	-0.00440 ***
	(-1.90)	(-1.58)	(-2.61)	(-2.84)
Tobin's q	0.00789 *	0.00891 *	0.00113	0.00261
	(1.72)	(1.71)	(0.47)	(1.09)
LTA		-0.00796 **		-0.00901 ***
		(-2.32)		(-2.70)
Promoter Directors	0.00291 **	0.00216 *	0.00403 **	0.00315 *
	(2.14)	(1.66)	(2.37)	(1.88)
Chairman is a family man		-0.00116		0.01423
		(-0.17)		(1.58)
CEO is a family man	0.00932		0.01455 *	
	(1.44)		(1.70)	
Age of Incorporation	-0.00020	-0.00009	-0.00069 ***	-0.00056 ***
	(-1.61)	(-0.77)	(-3.93)	(-3.32)
F value	2.17 *	3.23 **	6.85 ***	5.79 ***
R squared	0.0791	0.1170	0.1043	0.1281

*The risk proxies represented by OpgCF/LA and EBIDTA/LA are computed as the standard deviation of the raw value minus the sample firms' industry average for the respective year, for the sample period 2006-2012. All other variables are the respective values at the end of the fiscal year 2007. BG index score is the aggregate score obtained on the 14 attributes. TQ is the ratio of market value of assets to the book value of assets. LTA is the natural logarithm of total assets which proxies for firm size. Promoter Directors represent the absolute number of promoter directors. Chairman and CEO are binary variables which are coded as 1 if represented by a family member, else 0. Age is the number of years elapsed between the end of fiscal year 2007 and firm's year of incorporation. Sample comprises of 377 firms listed on the National Stock Exchange of India over the period 2006-2012. T statistics are based on standard errors robust to heteroskedasticity. ***, **, * denote significance at the 1%, 5% and 10% levels.*

6.2.d Impact of BG index on Excess Risk Taking

Additional tests were conducted to estimate the impact of the BG index score on the excess risk taking behaviour of firms. The risk proxies were recomputed to reflect excess firm level risk that is measured as the difference between the operating risk of the firm and its industry average for each year. Excess earnings ratio over the industry average was considered to minimize the measurement error which may be caused due to random fluctuations in

the variables. The standard deviation of the excess ratio for six year period (2006-2012) was then computed as revised risk proxy. Results given in Table 8 reconfirm the negative impact of BG Index score on the risk measures and are consistent with the earlier results.

6.3 Robustness Checks for Endogeneity

Literature is replete with the potential endogeneity issues in OLS regressions which could lead to spurious inferences. Endogeneity could arise from simultaneity, reverse causality, omitted variables or measurement errors. In the presence of endogeneity, OLS estimates would overestimate the negative influence of the BG index on the firm's risk taking. The results indicate that firms with higher governance quality exhibit lower operating risks. However it may also be argued that firms with lower risk would adopt robust governance structures.

Endogeneity concerns were minimal in the present research study by design as the financial crisis was an unexpected external event. The sample firms only endured its after effects. Further, the BG score measured all the board attributes at the end of fiscal year 2007 which was prior to the crisis and measured the firm risk behaviour as the volatility in operating risk over the period of 2006-2012. Although, this lowered the endogeneity concerns, this paper nevertheless took into account the possible endogenous nature of the relationship between the BG index and risk behaviour.

Instrumental variables (IV) approach and the two stage least squares (2SLS) model was used to mitigate endogeneity concerns. This approach required valid instruments that are closely related to CG quality but not related to the risk taking measures. Jiraporn *et al.,* (2012) employed industry-median CG score as an instrument.

Asset size represented by the log of total assets was used as the instrument variable to estimate firm level governance in the first stage regressions (Agrawal & Knoeber 1996). This instrument was selected as it was noted from Table 3 that large firms have a significant positive correlation with the BG index. The test for the strength of the instrument (Table 9) revealed that the instrument is relevant, robust and has a notable impact on the BG structure. As firms grow in size and evolve through their lifecycles, their requirement for external funding increases, thereby they enhance their CG mechanisms to indicate positive signals to the market.

Impact of an endogenised BG index score upon earnings volatility and cash flow sensitivity was examined by the 2SLS regression approach. The Hausman test for endogeneity reported in Table 9 confirms the existence of endogeneity. Table 9 provides the results utilising the 2SLS approach. The estimated governance coefficients in the second stage regressions were statistically significant. The impact of BG score on the risk proxies was negative and stronger compared to the OLS results

Table 9. Regression of risk proxies on endogenised BG Index Score

	BG Index Score		***OpgCF/LA***		***EBIDTA/LA***	
	First stage regression		Second stage regression		Second stage regression	
Predicted BG Index Score			-0,02072	***	-0,01465	**
			(-2.64)		(-2.08)	
LTA	0,50985	***				
	(3.88)					
Tobin's q	0,33724	***	0,00718	*	0,01478	***
	(3.66)		(1.87)		(4.27)	
No of Promoter directors	0,12263	*	0,00562	***	0,00435	**
	(1.84)		(2.63)		(2.27)	
CEO is a family man	1,45789	***	0,01163		0,01269	
	(4.52)		(0.75)		(0.91)	
Age	0,00605		-0,00048	**	-0,00012	
	(0.87)		(-2.14)		(-0.57)	
F value / Chi2	10,22	***	24,32	***	27,26	***
Endogeneity test						
Durbin-Wu-Hausman						
Chi2			6,77540	***	3,63789	*
F statistic			6,76979	***	3,59331	*
Strength of Instrument						
Partial R squared			0,0524		0,0524	
Robust F-statistic			18,774	***	18,774	***

*The risk proxies represented OpgCF/LA and EBIDTA/LA is computed as the standard deviation for each firm for the period 2006-2012. TQ is the ratio of market value of assets to the book value of assets. All other variables are the respective values at the end of the fiscal year 2007. BG index score is the aggregate score obtained on the 14 attributes. LTA is the natural logarithm of total assets which proxies for firm size. Promoter Directors represent the absolute number of promoter directors. CEO is a binary variable which is coded as 1 if represented by a family member, else 0. Age is the number of years elapsed between the end of fiscal year 2007 and firm's year of incorporation. Sample comprises of377 firms listed on the National Stock Exchange of India over the period 2006-2012. ***, **, * denote significance at the 1%, 5% and 10% level*

The 2SLS was also extended to examine the impact of family holding considering it to be a possible endogenous regressor. In addition to LTA used as an instrument in the prior regressions, a second instrument which is specific to the endogenous regressor was also used. The average family holding of firms in the same industry was used as the second instrument. Since two exogenous instruments were used in the 2SLS regression for one endogenous regressor, the over identifying

restriction test was carried out by running a Hansen J-test to verify that the null hypothesis is not rejected. Table 10 indicates the results of the 2SLS regressions along with the endogeneity test, strength of instruments and the over identifying restriction test. The results indicated that the impact of family holding is positive and the magnitude of the coefficients is higher than OLS in all the cases.

7. CONCLUDING REMARKS

This study provides new evidence on the association between firm level governance quality and operating risks. The study analysed the impact of board size and composition and family ownership and control as these are considered to be the important pillars in the Corporate Governance lexicon. Firm level governance quality was measured using a broad-based Board Governance index which comprised of both mandatory as well as desirable voluntary practices. Operating risks were measured by earnings volatility and cash flow sensitivity particularly during the period encompassing the financial crisis. The empirical results demonstrated a negative and significant relationship between the governance quality and the operating risks. The results were consistent even after addressing endogeneity concerns. The results of the study help in demonstrating the overall positive impact of governance quality on the risk management at the firm level.

However, the family firms with dominating insiders who exercise management control still exhibited relatively higher operating risks during the crisis phase. Amongst family firms, those companies with relatively higher governance quality had lower operating risks. The findings indicate the positive impact of governance structures in restricting excess risk taking behaviour among family firms.

Table 10. Regression of the risk proxies on endogenised Family holding %

	Family holding %		***OpgCF/LA***		***EBIDTA/LA***	
	First stage regression		Second stage regression		Second stage regression	
Predicted Family holding %			0,00249	***	0,00182	**
			(3.13)		(2.53)	
Avg industry Family holding %	0,77976	***				
	(3.77)					
LTA	-2,51762	**				
	(-2.50)					
Tobin's q	0,99066		-0,00026		0,01008	***
	(1.32)		(-0.08)		(3.68)	
No of Promoters directors	0,73685		0,00554	***	0,00344	**
	(1.56)		(3.16)		(2.17)	
CEO is a family man	13,67840	***	-0,04257	***	-0,03057	**
	(5.45)		(-2.81)		(-2.22)	
Age	-0,13443	**	-0,00014		0,00028	
	(-2.55)		(-0.65)		(1.40)	
F value / Chi2	13,73	***	24,95	***	35,29	***
Endogeneity test						
Durbin-Wu-Hausman						
Chi2			14,3020	***	7,28702	***
F statistic			14,6552	***	7,29393	***
Strength of Instruments						
Partial R squared			0,0667		0,0667	
Robust F-statistic			9,64002	***	9,64002	***
Overidentifed instruments						
Hansen J statistic			0,05485		0,05485	

*The risk proxies represented OpgCF/LA and EBIDTA/LA is computed as the standard deviation for each firm for the period 2006-2012. All other variables are the respective values at the end of the fiscal year 2007. TQ is the ratio of market value of assets to the book value of assets. Family holding %indicates the percentage shareholding by founders, their family members and related corporates. LTA is the natural logarithm of total assets which proxies for firm size. Independent Directors represent the absolute number of independent directors. CEO is a binary variable which is coded as 1 if represented by a family member, else 0. Age is the number of years elapsed between the end of fiscal year 2007 and firm's year of incorporation. Avg industry family holding % represents the average family holding % in the respective industry at the end of the fiscal year 2007. Sample comprises of377 firms listed on the National Stock Exchange of India over the period 2006-2012. ***, **, * denote significance at the 1%, 5% and 10% levels*

This study seeks to fill a gap in the Corporate Governance literature and address the impact of governance quality upon the corporate risk-taking behaviour. The results provide positive evidence to the regulators about the impact of recent governance reforms. The findings also suggest that the policymakers can insist on firms adopting and complying with the non mandatory recommendations of Clause 49 to ensure protection of minority shareholders. Companies Act 2013 has introduced significant changes in this direction with emphasis on the board diversity and processes. The commitment to uphold these tenets of CG will ensure value creation for all the stakeholders.

Several efforts have been made to increase the standards of the CG mechanisms in recent years especially in the backdrop of several corporate scams. In addition to the mandatory requirements, this study also analysed and observed the impact of director's involvement in decision making, based on their attendance in meetings. It was observed that the role of independent directors in deliberating crucial decisions and their true independence and empowerment will be the real game changer to

ensure protection of external shareholders. This is expected to bring about a shift from the era of mandated compliance to voluntary adherence of governance quality.

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Appendix 1. Differences in key variables based on BG Index score and Family holding %

	TQ		*Cash EPS*		*Sales growth*		*Assets growth*	
Effect of BG Index Score								
1. High	1,7716		30,1669		0,5932		0,3010	
2. Low	1,6979		31,5616		0,4022		0,3023	
Difference	0,0737		-1,3947		0,1911		-0,0013	
(t - value)	(0.60)		(-0.76)		(0.85)		(-0.04)	
Effect of Family holding %								
1. High	1,8164		31,0631		0,3248		0,3483	
2. Low	1,6549		30,7957		0,6637		0,2567	
Difference	0,1615		0,2674		-0,3389		0,0917	
(t - value)	(1.28)	*	(0.14)		(-1.57)		(3.04)	***

*Tobin's Q is the ratio of market value of assets to the book value of assets. Cash EPS is the cash earnings per share. Sales growth and Assets growth are the standard deviation of the year on year sales and assets growth for the period 2006-2012. BG index score is the aggregate score obtained on the 14 attributes at the end of fiscal year 2007. . FAMILY holding % indicates the percentage shareholding by founders, their family members and related corporates at the end of fiscal year 2007. ***, **, * denote significance at the 1%, 5% and 10% levels.*

Appendix 2. Differences in key variables based on BG Index score and Family holding %

	CAPEX / Assets		*R&D / Assets*		*Leverage*		*Mgr Rem*	
Effect of BG Index Score								
1. High	0,0699		0,0060		0,2608		60,2430	
2. Low	0,1257		0,0043		0,2279		38,7899	
Difference	-0,0558		0,0017		0,0329		21,4532	
(t - value)	(-1.17)		(1.27)	*	(1.79)	**	(2.93)	***
Effect of Family holding %								
1. High	0,1229		0,0050		0,2673		57,2972	
2. Low	0,0734		0,0053		0,2217		49,6828	
Difference	0,0495		-0,0003		0,0456		7,6144	
(t - value)	(1.04)		(-0.24)		(2.59)	***	(0.87)	

*BG index score is the aggregate score obtained on the 14 attributes at the end of fiscal year 2007. FAMILY holding % indicates the percentage shareholding by founders, their family members and related corporates at the end of fiscal year 2007. R&D/TA is the total research and development expenditure scaled by total assets. CAPEX/TA is the capital expenditure scaled by total assets. Leverage is the ratio of total debt to total assets. Mgr Rem is the total managerial remuneration paid in each fiscal year, ***, **, * denote significance at the 1%, 5% and 10% levels.*