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Does corporate governance influence firm performance? Evidence from India[1]

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Abstract: Corporate Governance (CG) in India has undergone major transformation in the recent past with the enactment of Companies Act, 2013 and revision of SEBI's Listing Agreement. Though some studies were undertaken in the Indian context few conventional aspects of CG have been repetitively addressed with conflicting results. The aim of this study is to examine the impact of some prominent CG attributes such as board size, board independence, role duality, board's gender diversity, ownership concentration and audit committee independence on both market as well as accounting based measures of firm performance (FP). To this end the study uses a sample of top 100 non-financial and non-utility firms listed on the Bombay Stock Exchange (BSE) for the period of 2014-2018 and employs two stage least square with instrumental variables technique of estimation which takes into account potential endogeneity in CG-FP relationship. The findings reveal a significant positive impact of board size, ownership concentration and audit committee independence on market based measure of FP while board independence is found to have a significant negative impact on accounting based measure of FP. Moreover role duality and gender diversity are not associated with FP. The outcome of this study highlights how the relationship between CG and FP works in the unique institutional setting of India and it should be of interest to regulators, practitioners and other market participants.

Keywords: corporate governance attributes, firm performance, endogeneity, India.

JEL codes: G34, K200, O160.

Introduction

In the wake of major corporate collapses such as Enron, Worldcom, Tyco, etc. corporate governance (CG) has emerged as a widely debated topic around the globe (Letza & Sun, 2002). Initially research relating to various aspects of CG

remains confined to developed countries (Gompers, Ishii, & Metrick, 2003). However with the integration of world economies it has also been discussed in the context of some major emerging countries such as India due to a significant inclination among corporate to be listed in the international stock market. Following the landmark amelioration of the Indian economy through measures, such as Liberalization, Globalization and Privatization (LPG), a series of reforms have been initiated in order to raise the benchmark of Indian CG at par with the international standard. These regulatory initiatives have necessitated Indian companies to become more transparent and ethical in their operation so as to increase their likelihood of attracting long-term investment in the international capital market.

According to the dominant theoretical paradigm of CG, e.g., agency theory, a better-governed firm performs better because it calls for intensive monitoring of individualistic behaviour of managers (Jensen & Meckling, 1976). This perspective basically focuses on the conflict of interest that arises due to separation of ownership and management. While this type of agency problem is prevalent in developed countries emerging countries like India, characterised by a closely held family ownership structure experiences a different type of agency problem, e.g., controlling shareholders generally having their representation on board attempt to expropriate the wealth of minority shareholders. This unique agency framework raises a question about the effectiveness of major CG reforms in India as those measures are largely imported from governance codes of developed countries having a different institutional setting. Moreover though the existing CG framework in India is comparable with other developed countries its compliance in a true spirit by companies is doubtful due to dominance of family ownership.

In the light of major CG reforms in India over the past two decades several researchers have endeavoured to examine the effectiveness of these reforms in influencing the performance of firms. However some inadequacies are encountered in existing work such as Black and Khanna (2007) Balasubramanian, Black and Khanna (2010) which provide only cross sectional evidence on the relationship between CG and FP whereas, in case of other studies such as Jackling and Johl (2009); Arora and Sharma (2016), only some conventional facet of CG codes such as board size, board independence, role duality, ownership structure have been repetitively addressed with conflicting results. As pointed out by Arora and Sharma (2016) some qualitative aspects of the board such as inclusion of women directors, formation of an audit committee with independent directors have been largely ignored so far in the existing literature. Another important issue that remained overlooked is whether CG responds to FP (Arora & Bodhanwala, 2018) as Hermalin and Weisbach (1988) find that poor performance leads to improved CG mechanisms (eg: board independence) or firms with better performance may choose to adopt improved CG practices as a control mechanism to limit insiders to refrain from inefficient practices

(Denis & Sarin, 1999). Further, there could be some unobserved factors which may simultaneously determine both CG and FP (Hermalin & Weisbach, 2001). Though panel data regression models such as the fixed or random effect model control for unobserved heterogeneity, they are unable to handle simultaneity or reverse causality issue due to their core assumption of strict exogeneity. Thus considering CG variables as exogenous may show a spurious relationship with FP if the issue of simultaneity is not taken into consideration.

Against this backdrop the present study primarily aims to examine the relationship between CG and FP (both market based and accounting based performance) in the Indian context after taking into account the potential endogeneity in their relationship. Further, this study apart from considering the conventional CG mechanisms such as board size, board independence, role duality, ownership structure, also intends to examine the influence of board gender diversity and audit committee independence on FP.

The remaining part of the study is organized as follows: Section 1 presents an overview of CG in India; Section 2 reviews the theoretical and empirical literature and formulates different hypotheses. The methodology followed in the study including the selection of the sample, data used, measurement of variables employed are presented in Section 3; empirical results are discussed in Section 4; while final section provides the conclusions.

1. Corporate governance in India

Since the study is focussed on examining the impact of CG reforms on FP it is necessary to present an overview of CG in India over the past two and half decades. The first step towards corporate regulatory reform in India was initiated in 1991 with the adoption of LPG policy when it was forced to do so due to huge deficit in foreign exchange reserve. Following this a series of corporate scandals occurred in the early nineties which fuelled the need for good governance (Goswami, 2002). The most noteworthy event in the field of CG in the post-liberalization period was the establishment of Securities Exchange Board of India (SEBI) in 1992 as the regulator of the stock market. Subsequently SEBI set up several committees headed by some prominent industrialists such as Bajaj Committee in 1996, Kumar Mangalam Birla Committee in 1999; and Narayana Murthy Committee in 2003, in order to transform the CG scenario of India. In line with the Sarbanes-Oxley measures in the US the recommendations put forth by these committees specially focussed on independent directors, the audit committee, related party transactions, risk management, financial disclosures, shareholders' rights, etc. which were formally implemented through enactment of Clause 49 in the Listing Agreement. In conjunction with the initiatives of SEBI, the Department of Company Affairs and Ministry of Finance

formed the Naresh Chandra Committee in 2002 and J.J Irani Committee in 2004, with the objective of reviewing the existing Companies Act, 1956 and this led to the introduction of new company bill in 2009. Regardless of these steps, yet again investors' confidence was shaken by the enormous fraud of information technology giant Satyam Computer Services Ltd in 2009, which was instigated by its chairman by presenting flawed books of accounts to its board, regulators and investors. This fraud cast doubt about directors' and auditors' independence as it is not possible to hide such facts without their involvement. Resultantly the Ministry of Corporate Affairs included several changes in the company bill 2009 on the basis of the report submitted by the Parliamentary Standing Committee on finance and overhauled the existing Companies Act 1956 through the enactment of the company bill in 2009 in the form of a new Companies Act, 2013 which received presidential assent on 29 th August, 2013. The Act established responsibility and accountability of independent directors and auditors, mandated the presence of a minimum of one women director on a board and prescribed additional disclosure norms such as a formal performance evaluation of directors, disclosure related to any change in the shareholding positions of promoters to the registrar of companies, etc. Further, to maintain parity with the provisions of the new act SEBI also revised its listing agreement (Clause 49) in 2014. In addition, most recently SEBI has replaced Clause 49 with Listing Obligations and Disclosure Requirements(LODR), Regulations 2015 in line with the OECD principles, which specifies more stringent rules as compared to Clause 49.

From the preceding discussion it is apparent that scope of CG requirements in India has been gradually expanded over the years in line with international practices. However it is often alleged that some prevalent features of Indian companies such as ownership concentration, existence of principal promoters, expropriation of minority shareholders' interests, poor disclosure practices, etc. have made them simply comply with the recurring imposition by different regulatory authorities rather than adopting the codes in real sense. Thus it is a prime need currently to examine the effectiveness of CG reforms in recent years in influencing FP.

2. Theory and hypotheses

Researchers have employed a number of theoretical perspectives in explaining the relationship between CG and FP. Among them agency theory has been most extensively used in governance research, which is premised on the inherent agency conflict between managers and owners, whereby managers with better access to information about firms are in a position to pursue some actions for their own interest at the expense of owners. It suggests the need for

an adequate CG mechanism to protect owners from individualistic behaviour of managers, which in turn also maximizes the wealth of shareholders (Jensen & Meckling, 1976). On the contrary, the stewardship theory considers managers as stewards of firms' resources and they essentially act in the best interest of owners (Donaldson & Davis, 1991). Further, the resource dependency perspective consider managers as a crucial link between the firm and the key external resources required by it so as to have better FP. Based on the diverse theories and relevant literature, this section discusses some prominent CG attributes and their expected relationship with FP.

2.1. Board size

Determining ideal board size has been widely debated in literature which encompasses two aspects such as firstly, the coordination and communication issue created by board size, secondly, the monitoring capacity of the board to control the agency problem. Lipton and Lorsch (1992) opined that when board size increases it becomes difficult for board members to exchange meaningful ideas within the limited time available to them. Thus the cost associated with a large board outweighs its benefit and they suggested that an ideal board should include eight to nine members. Some empirical findings also support the view that large boards deteriorate FP as it becomes difficult to arrive at a consensus in time (Yermack, 1996; Mak & Kusnadi, 2005; Kao, Hodgkinson, & Jaafar, 2019). On the contrary proponents of the resource dependency perspective advocates that directors with a greater exposure to external settings assist firms in getting better access to various key resources, which in turn improves FP (Mizruchi & Stearns, 1988). Accordingly evidence, mostly from developing markets, reports the positive influence of board size on FP (Jackling & Johl, 2009; Sheikh, Wang, & Khan, 2013; Mishra & Kapil, 2018). They have highlighted some unique characteristics of the developing market such as a large proportion of family owned firms coupled with the scarcity of qualified outside directors whereby firms tend to restrict executive positions to family members, which limits the qualified pool of human resources. Thus in the Indian context the Companies Act, 2013, raised the maximum limit of directors to fifteen as compared to a maximum of twelve directors under the Companies Act 1956 and also simplified the procedure for raising the maximum limit, if the need arises and hence the following hypothesis can be framed: H_1: There is a positive association between board size and FP.

2.2. Board independence

Theoretically the agency perspective asserts that directors who work independently without any affiliation to the firm except for their directorship, are in a better position to diffuse the agency conflict that potentially leads to im-

proved FP (Shleifer & Vishny, 1997) whereas the stewardship perspective contends that inside directors with better access to firms' information assist in taking prudent decisions which in turn leads to better FP. Empirical findings on this issue are mixed with studies reporting positive (Jermias, 2007; Jackling & Johl, 2009; Kao et al., 2019), negative (Muth & Donaldson, 1998; Singh & Gaur, 2009) and an insignificant influence of board independence on FP (Chang & Leng, 2004; Zabri, Ahmad, & Wah, 2016). From a practical standpoint, independent directors (IDs) started gaining prominence after the Sarbanes-Oxley Act mandated their presence on a board. Following the Anglo-American CG codes many developing countries including India mandated listed companies to have a minimum proportion of IDs on the board in order to have a better monitoring of corporate affairs. In this regard Singh and Gaur, (2009) contend that the contribution of IDs towards FP depends on the functions they perform in fulfilling their *monitoring* as well as *advisory* roles in a given context. In the case of a developed market such as the US, characterized by separation of ownership and control, the monitoring role of IDs is considered important in mitigating the agency conflict whereas in the context of an emerging market such as India, characterized by a highly concentrated family ownership structure, their monitoring role becomes less important due to owner—manager unification. However their advisory role in an emerging market becomes more important as firms often lack the requisite expertise needed to function (Khanna & Palepu, 1999) and thus their presence on the board can be expected to bring better resource expertise and it can be hypothesized that: H_2: There is a positive association between board independence and FP.

2.3. Role duality

Another important feature of the corporate board widely discussed in literature is its leadership structure. Proponents of the agency perspective suggest the separation of the role of CEO and chairman as this combined authority can lead to opportunistic behaviour which can have an adverse impact on FP (Jensen & Meckling, 1976). Moreover there is less possibility of detecting such behaviour when the same person occupies both the positions. Conversely, the stewardship perspective supports role duality as it offers greater autonomy to managers who act as stewards' in maximizing shareholders wealth (Donaldson & Davis, 1991). Given the diverse theoretical view empirical findings on the issue are mixed with studies reporting positive (Sheikh et al., 2013; Azeez, 2015; Mishra & Kapil, 2018), negative (Jermias, 2007; Kao et al., 2019) and no association (Chang & Leng, 2004; Tachiwou, 2016) between role duality and FP. Nevertheless CG codes around the globe as well as in India have emphasized the separation of the role of CEO and chairman in order to limit the power of board leaders (Cadbury, 1992; SEBI, 2015). Hence it can be anticipated that: H_3: There is a negative association between role duality and FP.

2.4. Gender diversity

The discussion of gender diversity on corporate boards primarily encompasses two significant propositions firstly, 'resource based perception' which contends that a gender diverse board brings diversity of opinions, external networks, set of leadership styles, etc. in managing corporate affairs (Carter, D'Souza, Simkins, & Simpson, 2010); secondly, 'diligence in monitoring' which asserts that female directors exhibit lower tolerance to opportunism than their male counterparts in decision making (Adams & Ferreira, 2009). Empirically studies document positive (Singh, Vinnicombe, & Johnson, 2001; Ntim, 2015), as well as no association (Carter, Simkins, & Simpson, 2003; Sanan, 2016) between board gender diversity and FP. In the Indian context, though, the Companies Act, 2013 mandated the presence of a minimum of one women director on the board. The uniqueness of family owned businesses necessitates the study as to whether such a gender quota actually impacts FP or is simply considered as mere formality. Nevertheless, based on the theoretical view and prevailing regulation, it can be hypothesized that: H_4: There is positive association between a board's gender diversity and FP.

2.5. Ownership concentration

Literature on ownership concentration draws attention toward two types of agency problem: firstly, the vertical agency problem or principal-agent conflict which mainly occurs due to the separation of ownership and control and secondly, the horizontal agency problem or principal-principal conflict, which arises due to a concentration of shareholdings above a certain level by few individuals or groups (Fama & Jensen, 1983). While the former is mostly prevalent in developed countries, emerging countries like India, characterized by a closely held family ownership structure, experiences the later. Though horizontal agency conflict (ownership concentration) is associated with some benefits such as: i) an efficient monitoring of management action as blockholders can influence management's decision by virtue of their position (Shleifer & Vishny, 1997); ii) elimination of the vertical agency problem as blockholders often also work as managers (Carney, 2005), and iii) an active involvement of the blockholders assists in maintaining the market value of the firm as they have a substantial investment at stake, it also creates some problems such as blockholders may pursue certain activities for their individual gain which may exploit the wealth of minority shareholders (e.g. increasing perquisites such as wasteful travel expenses). In the Indian context several CG codes were implemented in the past decades which focus on protecting the rights of minority shareholders. Accordingly, empirical evidence from India as well other emerging countries mostly shows a positive impact of ownership concentration on FP (Chang & Leng, 2004; Mak & Kusnadi, 2005; Singh & Gaur, 2009; Ducassy & Guyot, 2017; Kao et al., 2019) indicating that the benefits of ownership concentration

outweigh its cost. Thus in the Indian context, it can be hypothesized that: H_5: There is a positive association between ownership concentration and FP.

2.6. Audit committee independence

Following the Sarbanes-Oxley Act in the US, the presence of an audit committee is globally recognized to maintain investors' confidence in financial markets. An audit committee is basically formed for the purpose of carrying out the audit process independently as it is entrusted with the responsibility of presenting an authentic picture of firms as revealed by their financial statements to the external auditor. It is unlikely to obtain such information from internal management whose very activities are being audited and thus the independence of the audit committee from internal management is necessary in order to maintain the objectivity and independence of external auditors which in turn also reduces the probability of fraud and encourages better performance (Klein, 2002). Empirically some studies report a positive association between audit committee independence and FP (Klein, 2002; Amar, 2014) whereas some studies reveal an insignificant association between the two (Chang and Leng, 2004; Qaiser & Abdullah, 2016; Berkman & Zuta, 2017). CG regulations in India require listed entities to set up an audit committee with a minimum of two thirds of independent members for the purpose of controlling manipulative reporting practices and to assess performance of companies and thus it can be hypothesized that: H_6: There is a positive association between audit committee independence and FP.

3. Methodology

This section presents selection of sample firms[4], data sources, variables measurement and construction of estimation models for examining the relationship between CG and FP.

3.1. Sample and data

The sample for this study comprises the top 100 non-financial and non-utility companies listed on the BSE based on market capitalization as on 31st March 2014. Financial and utility companies were excluded as additional regulations are applicable to them such as the Banking Regulation Act, 1949, the Electricity Act, 2003. The study covers a period of five years from 2013-14 to 2017-18, as this period is marked by some major CG reforms in India (i.e.: Companies Act, 2013, SEBI's Revised Clause 49, 2014, SEBI, Regulation, 2015). The 100 sam-

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[4] The sample of firms' names can be provided upon request by the author.

ple companies selected in the initial year, e.g. 2013-2014 are studied over the consecutive years of the study. The necessary information regarding CG variables has been collected from annual reports of the respective companies and information relating to control variables and FP variables have been collected from the corporate database 'Capitaline plus'.

3.2. Variable measurement

3.2.1. Dependent variable
The resultant impact of CG on dependent variable e.g., FP is observed on both market based as well as accounting based measures of FP. In empirical models three proxies of FP such as: i) market capitalization (MCAP)—measured as the natural logarithm of market capitalization, ii) return on assets (ROA)—measured as the ratio of profit before interest and tax by total asset and iii) return on equity (ROE)—measured as the ratio of profit before interest and tax by equity share capital. All these variables have been considered as significant indicators of FP in literature (Arora & Sharma, 2016).

3.2.2. Independent variables
The details about measurement of independent variables included in the study such as board size, board independence, role duality, gender diversity, ownership concentration and audit committee independence are presented in Table 1.

Table 1. Measurement of independent variables

Acronym	Variables	Measurement
BS	Board Size	Total number of directors on board
BI	Board Independence	Percentage of Independent Non-Executive Directors(INDs) to total number of directors on board
RD	Role Duality	'1', if CEO is also the chairman of board, otherwise '0'
GD	Gender Diversity	Percentage of female directors to total number of directors on board
OC	Ownership Concentration	Percentage of shareholding by majority shareholders divided by total share capital
ACI	Audit Committee Independence	Percentage of Independent Non-Executive Directors to total number of directors in audit committee

Source: Own work based on literature.

3.2.3. Control variables
It is evident from prior work that FP is influenced by many other firm specific factors and accordingly this study employs some control variables which are

generally considered to influence FP such as: i) firm size (Singh & Gaur, 2009; Sheikh et al., 2013), ii) firm age (Jackling & Johl, 2009; Arora & Sharma, 2016), iii) financial leverage (Sheikh et al., 2013; Arora & Bodhanwala, 2018), iv) Big-4 audit firms (Kao et al., 2019) and v) growth opportunities proxied by the research & development (R&D) ratio and advertisement ratio (Jackling & Johl, 2009). The details about measurement of control variables are presented in Table 2.

Table 2. Measurement of control variables

Acronym	Variables	Measurement
FSIZE	Firm Size	Natural logarithm of total sales
AGE	Firm Age	Natural logarithm of firm age since incorporation
LEV	Financial Leverage	Ratio of total debt by equity share capital and reserves
BIG4	Big4 Audit Firms	'1' for companies audited by BIG4 audit firms otherwise '0'
R&D	R&D ratio	Natural logarithm of R&D expenses by total sales
ADV	Advertisement ratio	Natural logarithm of advertisement expenses by total sales

Source: Own work based on literature.

3.3. Empirical model

A common approach for analyzing the relationship between CG and FP is to estimate the pooled OLS model (Klein, 1998). However in recent times one of the issues widely discussed in literature is the presence of endogeneity in the governance-performance relationship. There are some potential sources of endogeneity such as: unobserved heterogeneity (Hermalin & Weisbach, 2001) and simultaneity (Wintoki, Linck, & Netter, 2010). In presence of endogeneity the pooled OLS model may give biased and inefficient estimates as endogeneity violates its basic assumptions (Jackling & Johl, 2009). Further, some studies employ other panel estimation techniques such as the fixed or random effect models which handle the endogeneity issue in a partial manner as they only account for unobserved heterogeneity. Thus, to overcome this limitation, this study uses the Two Stage Least Squares (2SLS) with Instrumental Variables (IVs) estimation, which is widely considered as robust methodology to address the endogeneity issue. Moreover in this study a formal test of endogeneity such as the Hausmen Specification Test for all the CG variables has been conducted in the case of both market as well as accounting based measures of FP. In first step of the test CG variables have been regressed on all other exogenous variables. Subsequently the residuals for each CG variable is obtained from the first step which is further regressed on the ultimate dependent variable, i.e. MCAP, ROA and ROE whereby the result indicates that in the case of MCAP, co-efficient of

residuals of BS, BI, ACI and OC are highly significant whereas in case of ROA and ROE, co-efficient of residuals of BI and OC are highly significant indicating the presence of endogeneity in respective cases (Gujarati, 2010). Hence the Hausmen test of endogeneity also advocates the application of 2SLS. The following equations have been used for estimation by applying 2SLS with IVs technique in order to examine the influence of different CG attributes on FP after controlling the influence of firm specific characteristics.

$$MCAP_{it} = \beta_o + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 RD_{it} + \beta_4 GD_{it} + \beta_5 OC_{it} + \beta_6 ACI_{it} + \beta_7 FSIZE_{it} + \\ + \beta_8 AGE_{it} + \beta_9 LEV_{it} + \beta_{10} BIG4_{it} + \beta_{11} R\&D_{it} + \beta_{12} ADV_{it} + \varepsilon_{it} \quad (1)$$

$$ROA_{it} = \beta_o + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 RD_{it} + \beta_4 GD_{it} + \beta_5 OC_{it} + \beta_6 ACI_{it} + \beta_7 FSIZE_{it} + \\ + \beta_8 AGE_{it} + \beta_9 LEV_{it} + \beta_{10} BIG_{4it} + \beta_{11} R\&D_{it} + \beta_{12} ADV_{it} + \varepsilon_{it} \quad (2)$$

$$ROE_{it} = \beta_o + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 RD_{it} + \beta_4 GD_{it} + \beta_5 OC_{it} + \beta_6 ACI_{it} + \beta_7 FSIZE_{it} + \\ + \beta_8 AGE_{it} + \beta_9 LEV_{it} + \beta_{10} BIG_{4it} + \beta_{11} R\&D_{it} + \beta_{12} ADV_{it} + \varepsilon_{it} \quad (3)$$

where $\beta_0 \dots \beta_{12}$ are coefficients to be estimated; ε_{it} is a disturbance term; 'i' = 1, …, 100 sample firms; 't' = 2014-2018.

4. Empirical results

This section presents the descriptive statistics, correlation matrix and the regression results on the relationship between CG attributes and different measures of FP using 2SLS. The descriptive statistics of all variables included in this study are summarized in Table 3. Regarding CG attributes BS shows a range of 5 to 20 with a mean of 10.90, which is in conformity with the prevailing regulation except for one company (Larsen and Turbo Ltd.) where the maximum number of directors is twenty during two years of the study period. BI depicts a wide variation as the range is from 0 to 85.71 percent with a mean value of 50.58 percent. Though its average value is consistent with SEBI's listing agreement which requires the board to consist of a minimum 50% INDs when the board's chairman is an executive director, two sample companies (NLC Ltd. and MRPL Ltd.) did not have any INDs during two years of the study period. The mean value of RD indicates that 32 percent of sample firms have one person occupying both positions implying that the majority of sample firms (68 percent) have voluntarily separated the role of CEO and chairman. GD shows a mean of 12.41 percent while it was 5.3 percent in 2009 (Balasubramanian, 2013) indicating an enhanced participation of women on a corporate board. On average 84.51 percent of audit committees are occupied by INDs which is

also consistent with SEBI (LODR) Regulations, 2015. In terms of OC the average percentage of shares owned by a majority shareholders is 91.66 percent indicating that sample firms have a highly concentrated ownership structure. FSIZE indicates less variation with mean and median values of 3.94 and 3.86 respectively while the age of sample firms shows a mean of 1.57 with a range of 0.84 to 2.05. Leverage gives a means of .31 with a range of 0 to 2.74 while the mean value of the Big4 indicates that only 35 percent of the sample firms are audited by Big4 audit firms. Sample firms' growth proxied by the natural logarithm of R&D ratio and advertisement ratio shows mean values of 0.18 and 0.04 respectively. The market based measure of FP, e.g. MCAP indicates mean and median values of 4.50 and 4.47 respectively which are 'reasonably' close indicating lesser variations among sample firms in terms of their market value while the accounting based measure of FP, e.g. ROA and ROE indicates wide variations as evident from their standard deviation values of 21.24 and 18.26 respectively.

Before undertaking the regression analysis multicollinearity among the independent variables is checked by using Pearson's correlation analysis. It is evident from the correlation matrix (Table 4) that multicollinearity is not a cause

Table 3. Descriptive statistics

Variables	Mean	Median	Standard deviation	Minimum	Maximum
BS	10.90	11	2.61	5	20
BI	50.58	50	12.36	0	85.71
RD	0.32	–	0.46	0	1
GD	12.41	10	7.78	0	40
ACI	84.51	83.33	17.07	0	100
OC	91.66	93.13	7.26	66.28	99.78
Ln_FSIZE	3.94	3.86	0.61	2.31	5.68
Ln_AGE	1.57	1.56	0.24	0.84	2.05
LEV	0.31	0.11	0.44	0	2.74
BIG4	0.35	–	0.47	0	1
Ln_R& D	0.18	–	0.44	−0.045	2.11
Ln_ADV	0.04	–	0.56	−2.45	1.28
Ln_MCAP	4.50	4.47	0.49	2.83	5.75
ROA	22.80	17.97	21.24	−23.12	161.17
ROE	19.54	15.55	18.26	−27.68	130

Source: Own calculations using STATA 14.

Table 4. Pearson correlation analysis

Variables	BS	BI	RD	GD	ACI	OC	FSIZE	AGE	LEV	BIG4	R&D	ADV
BS	1											
BI	(498) 0.059	1										
RD	(498) 0.124**	(498) 0.002	1									
GD	(498) -0.188**	(498) 0.102**	(498) -0.099**	1								
ACI	(498) 0.126**	(498) 0.481**	(498) 0.032	(498) -0.099**	1							
OC	(498) 0.036	(498) -0.097**	(498) 0.098**	(498) 0.051	(498) -0.049	1						
FSIZE	(498) 0.219**	(498) -0.004	(498) 0.044	(498) -0.103**	(498) 0.047	(498) -0.030	1					
AGE	(498) 0.088*	(498) -0.009	(498) 0.022	(498) -0.039	(498) -0.082	(498) 0.280**	(498) 0.190**	1				
LEV	(498) 0.087*	(498) -0.039	(498) 0.054	(498) -0.103*	(498) 0.086*	(498) -0.076*	(498) 0.246**	(498) -0.121**	1			
BIG4	(498) -0.030	(498) 0.137**	(498) -0.220**	(498) 0.020	(498) 0.031	(498) -0.122**	(498) 0.213**	(498) 0.110**	(498) 0.02	1		
R&D	(498) -0.151**	(498) 0.135**	(498) 0.070	(498) -0.015	(498) 0.114*	(498) -0.093**	(498) -0.073	(498) 0.220**	(498) -0.109**	(498) -0.010	1	
ADV	(498) -0.003	(498) 0.075	(498) -0.262**	(498) 0.124**	(498) 0.092*	(498) -0.058	(498) -0.150**	(498) 0.074	(498) -0.149**	(498) 0.090*	(498) -0.068	1

Notes: ** significant at 1% level; * significant at 5% level. Figures given within parentheses indicate degrees of freedom.

Source: Own calculations using STATA 14.

of concern in this study as the highest correlation coefficient is 0.481. The highest positive correlation ($r = 0.481$, $p < 0.01$) exists between BI and ACI as the percentage of INDs on the audit committee depends on the percentage of INDs on the board. This is followed by a significant negative correlation between OC and AGE ($r = -0.280$, $p < 0.01$). In addition RD is negatively related with BIG4 and ADV implying that firms having a combined leadership structure are less likely to be audited by Big4 audit firms ($r = -0.220$, $p < 0.01$) and they also have less advertisement intensity ($r = -0.262$, $p < 0.01$). Moreover, FSIZE and LEV are positively related ($r = 0.246$, $p < 0.01$) suggesting that large firms tend to have more debt in their capital structure. A robustness test for multicollenearity was done by calculating the Variance Inflation Factor (VIFs) for all independent variables and the highest VIF value obtained is 1.42 which is much below the threshold limit of 10 (Neter, Wasserman, & Kutner, 1989).

The result of 2SLS estimation is reported in Table 5. The results given in Column 3 are based on the market measure of FP e.g., MCAP whereas results presented in Columns 4 and 5 are based on accounting measures of FP such as ROA and ROE respectively. This section discusses the results pertaining to the impact of each CG attribute and control variables separately on the alternative measures of FP. Consistent with the expectation in H_1 the result reveals that BS is positively associated with MCAP at a one percent significant level though it is not significant in the case of ROA and ROE. This finding is parallel with Jackling & Johl (2009) suggesting that a large board brings a greater pool of expertise which in turn assists in boosting the overall performance of the firm. Contrary to the expectation in H_2, the result shows a negative impact BI on FP in the case of accounting based measures while its impact on market based measures is statistically insignificant. The negative impact of BI on operating performance of a firm is consistent with the findings of Jackling & Johl (2009), Singh & Gaur (2009) and supports the relevance of the stewardship perspective in India implying that as IDs are generally less aware of the internal strengths and weaknesses of the firm and thus their inputs in the decision making process have a negative impact on the accounting based measure of FP. Moreover, the insignificant impact of BI on MCAP highlights the lack of autonomy given to IDs due to the active participation of substantial owners in management whereby IDs are basically appointed to fulfill a statutory requirement while in the real sense they work under the dominance of blockholders. Regarding H_3, though its direction is negative, it is statistically insignificant at a conventional level in all the measures of FP. This insignificant impact of role duality on FP might be due to a limited demarcation among sample firms for this attribute to have statistical significance as 68% of them have voluntarily separated the role of CEO and chairman subsequent to the recommendation given by SEBI as well as various international bodies. The finding also exhibits the insignificant impact of a board's gender diversity on all measures of FP, discarding H_4. Though literature from developed markets establishes a significant positive

Table 5. Results of 2SLS analysis

Variables	Expected sign	MCAP	ROA	ROE
Constant	?	2.93*** (0.003)	4.23*** (0.000)	3.94*** (0.000)
BS	+	2.08*** (0.037)	−0.99 (0.320)	−0.73 (0.465)
BI	+	0.73 (0.468)	−4.09*** (0.000)	−3.92*** (0.000)
RD	−	−1.45 (0.147)	−0.09 (0.998)	1.89 (0.598)
GD	+	1.51 (0.131)	0.78 (0.435)	0.90 (0.368)
ACI	+	1.87* (0.062)	1.54 (0.123)	1.51 (0.132)
OS	+	5.24*** (0.000)	−2.51*** (0.012)	−2.33*** (0.020)
FSIZE	+	19.41*** (0.000)	−0.51 (0.612)	−0.17 (0.861)
AGE	+	−1.87* (0.062)	0.20 (0.844)	−0.45 (0.650)
LEV	+	−9.29*** (0.000)	−8.61*** (0.000)	−7.08*** (0.000)
BIG4	+	4.18*** (0.000)	1.43 (0.154)	1.08 (0.282)
R&D	+	4.63*** (0.000)	2.07*** (0.038)	3.34*** (0.001)
ADV	+	2.09*** (0.037)	7.26*** (0.000)	7.81*** (0.000)
R-Square		0.6039	0.3073	0.2626
Wald-Chi Square		597.60*** (0.000)	188.43*** (0.000)	159.74*** (0.000)
Sargan Chi Square		.014395 (0.904)	1.02072 (0.3123)	2.89584 (0.888)
Basmann Chi Square		.013891 (0.9062)	0.987512 (0.3204)	2.81487 (0.934)
Observations (N)		500	500	500

Notes: *** significant at 1% level; ** significant at 5% level and * significant at 10% level.

Source: Own findings using STATA 14.

association between GD and FP (Singh et al., 2001; Ntim, 2015) this finding highlights the ramification of mandating women directors in the case of Indian companies as the dominance of family ownership leads to the appointment of female members of the promoters' family to executive management positions in order to comply with the existing regulation, even if they are unaware of the technicalities of business. Moreover in some cases where women directors are independent the prevailing scarcity of independent women directors with the right kind of expertise increases their engagement in terms of the number of board on which they serve and that in turn offsets their effectiveness. Further consistent with H_5 the finding indicates the significant positive influence of OC on market based measures of FP. This finding supports the result of Singh & Gaur, (2009) indicating that since blockholders have a substantial amount of investment at stake they undertake every possible action to maintain their investment value intact (Shleifer & Vishny, 1997). Nevertheless the result shows a negative relationship between OC and the accounting based measure of FP. Finally, H_6 can also be accepted as ACI is found to have a positive influence on market based measures of FP. This significance disappears when accounting based measures such as ROA or ROE are used as a dependent variable. Though the level of significance in the case of MCAP is weak such finding is important as it depicts the premium awarded by investors in terms of market value for having an independent audit committee. Regarding control variables FSIZE, BIG4, R&D and ADV are found to have a significant positive impact on FP whereas AGE and LEV have a significant negative impact on FP.

The observed *R*-square values and highly significant Wald-Chi Square values in all three models advocate of goodness of fit of the models. Moreover 2SLS may not bring better estimates than the panel data model if the selected instruments are incorrect. As discussed in earlier works the choice of appropriate instruments is challenging as it is difficult to obtain such instruments which are correlated with the endogenous regressors but not with the error terms (Kao et al., 2019). Following literature this paper uses one year lagged values of some CG variables like BS, BI, RD, ACI, OC as instruments in the case of model (1) and BS, BI and OC in case of model (2) and (3). Subsequently the appropriateness of the chosen instruments is examined based on two conditions. Firstly, relevance condition: the IVs should be correlated with the endogenous regressors which are examined through the test of weak instruments. Secondly, exclusion condition: the IVs should not be correlated with the error terms which are examined by the test of over-identifying restrictions. The result of the test of weak instruments specifies that the instruments are highly correlated with the endogenous regressors such as BS, BI, ACI and OC [Shea's Partial *R*-square = 0.56, 0.50, 0.38, 0.90] respectively in the case of model (1) and endogenous regressors such as BI and OC in the case of model (2) and (3) [Shea's Partial *R*-square = 0.53 and 0.90] respectively and therefore there is no weak instrument problem. Further, Sargan and Basmann statistics were calcu-

lated to test the exclusion condition whereby the insignificant value of Sargan chi-square and Basmann chi-square in all the models [shown in lower part of Table-5] suggests that IVs are not correlated with the error terms, thus implying that the chosen IVs are exogenous and valid.

Conclusions

This study examines the performance consequences of different firm level CG mechanisms in India. In particular the study focuses on the influence of prominent CG mechanisms such as- board size, board independence, role duality, gender diversity, ownership concentration and audit committee independence on different measures of FP for sample companies over a period of five years (2014-2018) using the 2SLS method of estimation. The result reports a significant positive impact of board size on FP whereas board independence is negatively associated with FP. Further the result also shows a significant positive impact of ownership concentration and audit committee independence on FP. Nevertheless role duality and gender diversity does not contribute significantly towards FP.

The results of this study have some important implications. Firstly, the positive association between board size and FP is congruent with the regulatory move of increasing the number of directors of the board and thus extending support for an implementation of the resource dependency theory in the Indian context. Secondly, the negative impact of board independence on FP suggests that the practitioners in the context of an emerging market the appointment of independent directors should not be viewed in terms of performance gains. However their existence can still be considered important in order to encourage ethical behaviour in the business. Thirdly, the positive influence of ownership concentration on FP indicates that blockholders are effective monitors and this is an encouraging sign for policy makers as the reforms initiated in India in the past two decades with a focus on protecting the interests of minority shareholders seem to be effective. Fourthly, the positive influence of audit committee independence on FP though weak, encourages the practitioners to comply with such a regulation as it significantly contributes to the maintenance of the confidence of investors. Finally, the result also suggests that merely having a gender diverse board does not suffice but that adopting them in a true spirit might worth trying.

This study has the potential to add some novelties to the existing literature. Firstly, it addresses the endogeneity issue of the CG-FP relationship in an emerging market by employing the 2SLS technique of estimation and also presents the additional tests for the justification of using the 2SLS technique. Secondly, departing from prior studies that are confined only to the conven-

tional CG mechanisms, this study adds new findings with regard to the two noteworthy but least studied attributes of CG in the Indian context such as the board's gender diversity and audit committee independence. Finally, unlike prior studies where the impact of CG is mostly examined through the market based measure of FP this study shows the impact of different CG attributes on both the market as well as accounting based measures of FP.

This study has some limitations which also pave the way for future research such as: firstly, apart from the audit committee the Companies Act 2013 and SEBI (LODR), Regulation 2015, have also prescribed companies to form some other board committees in order to focus on specific areas and informed decision making which remains unexplored in this study. Future studies can emphasize this area by considering the other committees of a board such as a nomination and remuneration committee, stakeholder relationship committee, corporate social responsibility committee and risk management committee so as to find their possible impact on FP. Secondly, some unique characteristics of family owned business in India such as the number of promoters on the board, family members on the board, etc. could constitute a useful extension of analysis in future studies. Finally, some other qualitative aspects such as the expertise of female directors on the board, the expertise of independent directors included on the audit committee might have a significant contribution towards FP and thus could be usefully considered in future studies.

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