Corporate governance and firm performance in developing countries: evidence from India

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Abstract

Purpose – *This study aims to examine the impact of corporate governance on firm performance for a large representative sample.*

Design/methodology/approach – *This empirical analysis focuses on a large number of companies covering 20 important industries of the Indian manufacturing sector for the period 2001-2010. Several alternative specifications and estimation techniques are used for analysis purposes, including system generalized methods of moments, which effectively overcomes the problem of endogeneity and simultaneity bias.*

Findings – *On one side, the findings indicate that larger boards are associated with a greater depth of intellectual knowledge, which in turn helps in improving decision-making and enhancing the performance. On the other side, the results indicate that return on equity and profitability is not related to corporate governance indicators. The results also suggest that CEO duality is not related to any firm performance measures for the sample firms.*

Practical implications – *The outcomes of the analyses advocated that companies that comply with good corporate governance practices can expect to achieve higher accounting and market performance. It implies that good corporate governance practices lead to reduced agency costs. Hence, it is concluded that firms of the developing world can possibly enhance their performance by implementing good corporate governance practices.*

Originality/value – *Departing from the conventional system of the prior studies and instead of focusing on a single measure framework, a range of measures of corporate governance and firm's performance variables are used. Also, several alternative specifications and estimation techniques are used for analysis purposes. Furthermore, the sample also covers a large sample of manufacturing firms.*

Keywords *Corporate governance, Board of directors, Firm performance*

Paper type *Research paper*

1. Introduction

The relationship between corporate governance and firm performance has been a widely debated and well-researched topic in the developed countries context. However, in the past few years, this issue has also been discussed in the context of emerging countries, such as India, in light of the recent corporate collapses and scams[1]. The corporate collapses resulting from a weak system of corporate governance highlighted the need to improve and reform the governance structure. Firms' governance plays an important role in the probability of accounting frauds and firms which have a weak governance structure being more prone to accounting frauds (Berkman *et al.*, 2009). The failure in preventing these scams has fuelled many debates on the effectiveness of current corporate governance rules, principles, structures and mechanisms (Sun *et al.*, 2011).

The firms with weaker governance structures have to face more agency problems and managers of such firms gain more private benefits (Core *et al.*, 1999). The theory of agency problem suggests that the directors of a firm are not likely to be as careful with other people's money as with their own fund (Letza *et al.*, 2004). The theory further states that the main purpose of corporate governance is to provide assurance to the shareholders that

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managers are working toward achieving outcomes in the shareholders' interests (Shleifer and Vishny, 1997). Other important related theories, for instance, the Stewardship theory, assume a strong relationship between the success of organization and shareholders' satisfaction. A steward protects and maximizes shareholders' wealth through firm performance, because by doing so, the steward's utility functions are maximized. Importantly, the stakeholder theory suggests that a corporate seeks to provide a balance between the interests of its diverse stakeholders (Abrams, 1951). John and Senbet (1998) provided a comprehensive review of the stakeholder theory and pointed out the presence of many parties with competing interests in the operations of the firm. They emphasized the role of non-market mechanisms such as board size and committee structure as relevant factors for firms' performance. The resource dependency theory views agents as resources who provide social and business networks and indicates that directors' presence on the board of other organizations is relevant to establish relationships to have access to resources in the form of information which can be utilized for the firm's benefit. Hence, this theory shows that the strength of a corporate organization lies in the amount of relevant information it has at its disposal. All the theories of corporate governance suggest for an effective governance system which involves the appointment of board which includes both executive as well as non-executive directors.

In the past two decades, there has been an increased intensity of research on the relationship between corporate governance and firm performance. But the issue has mainly been explored in developed economies (Hermalin and Weisbach, 1991; Kang and Shivdasani, 1995; Gompers *et al.*, 2003; Judge *et al.*, 2003; Barnhart *et al.*, 1994; Bauer *et al.*, 2004; Christopher, 2004; Bhagat and Bolton, 2002; Guest, 2008). The empirical work on this issue is still at its infancy in the context of developing countries like India, maybe due to the relatively opaque disclosure practices followed by companies or the data unavailability problem. Moreover, most of the previous studies on India were either based on small samples (Dwivedi and Jain, 2005; Ghosh, 2006; Garg, 2007; Jackling and Johl, 2009) with a limited number of observations or on cross-sectional data that do not allow controlling for unobserved firm effects. For example, to examine the inter-linkage, Ghosh (2006) used data of 127 listed manufacturing firms for the year 2003 and Garg (2007) considered a sample of merely 164 companies. Likewise, Kohli and Saha (2008) analyzed the impact of corporate governance on firm valuation in fast-moving consumer goods and information technology sectors of India for a sample of 30 firms.

Against this backdrop, the objective of this study is to examine the impact of corporate governance on firm's performance for a large representative sample of Indian manufacturing industry[2]. In doing so, we add several novelties to the existing literature. First, to make our data set a representative sample of the Indian industry, our empirical analysis focuses on a large number of companies covering 20 important industries of the manufacturing sector. Second, we depart from the conventional system of the prior studies of related literature and instead of focusing on a single measure framework, we utilize a range of measures of corporate governance including board size, ownership and number of meetings held, and firm's performance indicators cover both market and financial variables. This is important for checking robustness of results to explore the inter-linkage. Third, recently it has been shown by Bhagat and Bolton (2002) that the linkage between corporate governance and performance is of an endogenous nature and the regression results are highly sensitive toward the use of estimation techniques. Bearing this issue in mind, we use several alternative specifications and estimation techniques for analysis purposes, including system generalized methods of moments (system-GMM), which effectively overcomes the problem of endogeneity and simultaneity bias.

The remainder of this paper is organized as follows: Section 2 reviews the literature on the relationship between corporate governance and firm performance; Section 3 discusses the sample selection, its characteristics, data sources, construction of hypotheses and model specification. Section 4 presents the empirical results on the relationship between

corporate governance and firm performance and discussion thereof. The final section concludes the study and provides implication of our findings for developing countries.

2. Review of literature

Much of the standard related literature examines the interrelation between firm performance and some subset of several measurements of corporate governance, such as insider–outsider ownership, board composition, board size, executive compensation and board tasks (Jensen, 1993; Yermack, 1996; Dalton *et al.*, 1999; Coles and Hesterly, 2000; Elsayed, 2007; Bhagat and Bolton, 2002). Some studies instead of focusing on individual measures of corporate governance use a composite measure. For instance, Gompers *et al.* (2003) and Core *et al.* (2006) construct a governance index (G-index). In this section, we review the related literature, and as research on this issue is quite voluminous, we mainly cover issues of measures of corporate governance and their linkage with firm performance. Later, we also provide a review of findings of Indian studies.

Identifying an appropriate and optimal board size of a corporate has been a matter of debate in numerous studies (Lipton and Lorsch, 1992; Jensen, 1993; Yermack, 1996; Dalton *et al.*, 1999; Hermalin and Weisbach, 2003; Neville, 2011). Some researchers supported smaller boards, for instance, Lipton and Lorsch (1992); Jensen (1993) and Yermack (1996), while some others have favored large boards, as it would provide a greater monitoring and effective decision-making (Pfeffer, 1972; Klein, 1998; Adams and Mehran, 2003; Anderson and Reeb, 2003; Coles *et al.*, 2008). Supporting a small board size, Lipton and Lorsch (1992) argued that larger boards might face problems of social loafing and free-riding. As board increases in size, free-riding increases and efficiency of the board is reduced. This was confirmed by Jensen (1993), who favored small boards on the ground that it leads to better decision-making due to greater coordination and lesser communication problems. Studies like those by Yermack (1996) and Eisenberg *et al.* (1998) have also provided evidence that smaller boards are associated with higher firm value. The larger boards have to face problems of communication and cohesiveness, which in turn may result in conflicts (O'Reilly *et al.*, 1989). On the other hand, Klein (1998) argued that the type and magnitude of advice a CEO needs increases with the complexity and size of the organization. For example, the diversified firms operating in multiple segments might require greater advice and discussion (Hermalin and Weisbach, 1988; Yermack, 1996) and, therefore, larger boards are required for such firms.

A significant trend seen in the corporate boards after the series of scandals is the rise of outside directors in the board. Baysinger and Butler (1985) and Rosenstein and Wyatt (1990) have shown that the market rewards firms for appointing outside directors. Brickley *et al.* (1994) tested the relationship between proportion of outside directors and stock-market reactions to poison-pill adoptions and found a positive relationship between the two. However, Yermack (1996) showed that the proportion of outside directors does not significantly affect firm performance. Similarly, Forsberg (1989) also did not find any relationship between the proportion of outside directors and various firm performance measures. Consistent with this notion were Hermalin and Weisbach (1991) and Bhagat and Bolton (2002), who also failed to find any significant relationship between board composition and firm performance. Agrawal and Knoeber (1996) opined that boards expanded for political reasons often result in too many outsiders on the board, which does not help in the improvement of performance.

The board processes also have a huge impact on firm performance, and meetings are necessary for the effectiveness of the board tasks (Zahra and Pearce, 1989). When board of directors meet frequently, they are more likely to discuss the concerned issues and monitor the management more effectively, thereby performing their duties with better coordination and in harmony with shareholders' interests (Lipton and Lorsch, 1992). Consistent with this notion, Conger *et al.* (1998) suggested that board meeting time is an important resource for improving the board effectiveness and, thus, better

decision-making. But, there are also costs attached with board meetings, such as managerial time, travel expense, directors' fees and other resources (Vafeas, 1999). Lipton and Lorsch (1992) and Jensen (1993) pointed out that the limited time available for meetings might not be sufficient for substantial dialogue among directors. Interestingly, Jensen (1993) has argued that boards should be relatively inactive and are required to become active only in the times of trouble.

There is also an ongoing debate on the issue of CEO duality and firm performance, but the empirical studies on this issue reveal a conflicting set of results (Rechner and Dalton, 1991; Boyd, 1995; Balinga *et al.*, 1996; Coles and Hesterly, 2000; Elsayed, 2007; Bhagat and Bolton, 2002). Bhagat and Bolton (2002) have found the CEO–Chair separation to be significantly positively correlated with firm's operating performance. Boyd (1995) also indicated that CEO duality actually improves firm performance. Rechner and Dalton (1991) also supported separation of CEO and chair positions, as the firms opting for independent leadership outperformed the firms relying on CEO duality. Some authors found no significant difference between the firms with CEO duality and those without it (Daily and Dalton, 1997; Dalton *et al.*, 1998). In fact, Daily and Dalton (1997) suggested that separation of CEO and board chair positions results in misdirected effort.

Finally, ownership control and institutional ownership are also important determinants of firm performance. For instance, Agyemang and Castellini (2015) focused on how ownership control and board control systems operate in corporate firms in an emergent economy like Ghana, assuming that these systems are essential for enhancing good corporate governance practices in emerging countries. Kyereboah-Coleman (2007) has found that institutional shareholding enhances market valuation. On the other hand, Mashayekhi and Bazaz (2008) while investigating the role of corporate governance indices on firm performance (earnings per share, return on assets [ROA], return on equity [ROE]) found that the presence of institutional investors is not positively associated with firm performance.

Overall, the empirical findings on corporate governance and firm performance have been very mixed. On the one hand, several studies estimated that better corporate governance significantly enhances firm performance (Brickley and James, 1987; Weisbach, 1988; Rosenstein and Wyatt, 1990; Byrd and Hickman, 1992; Lee *et al.*, 1992; Brickley *et al.*, 1994; Hossain *et al.*, 2000; Chung *et al.*, 2003; Drobetz *et al.*, 2003; Beiner *et al.*, 2004; Brown and Caylor, 2006; Black *et al.*, 2006). On the other hand, some others (Bathala and Rao, 1995; Hutchinson, 2002; Bauer *et al.*, 2004) reported an inverse relationship between corporate governance and firm performance. There are also studies which reported no significant relationship between corporate governance and firm performance (Hermalin and Weisbach, 1991; Park and Shin, 2003; Prevost *et al.*, 2002; Singh and Davidson, 2003; Young, 2003).

There are a few studies that empirically tested the relationship in the Indian case. Consistent with worldwide studies, the findings of the studies on India are very mixed in nature. For instance, findings of Kathuria and Dash (1999) and Jackling and Johl (2009) revealed an improvement in the performance with an increase in the board size. Focusing on board size and firm performance, Dwivedi and Jain (2005) also estimated a positive association between board size and firm value, though the association was weak. On the other hand, there are some prominent studies like that by Ghosh (2006), which finds that board size exerts a negative influence on corporate performance, but number of non-executive directors has a positive effect on firm's performance. More recently, Jackling and Johl (2009) argued that outside directors with multiple appointments appeared to have a negative effect on performance.

The above discussion shows that empirical studies on corporate governance and firm performance reveal a conflicting set of results. The puzzle that how corporate governance relates to firm performance remains unsolved, in spite of the several studies conducted on

this issue. There could be various explanations for the inconsistencies in the results. For instance, the problem lies in the use of different data sources: secondary data or survey data, as these sources have different characteristics. The use of different performance measures and their different measurements may also be the reason for the inconsistency in results (Gani and Jermias, 2006). Finally, the evidence also suggests that the estimates are quite sensitive toward the selection of empirical techniques for analysis.

3. Research design and methodology

This section provides a discussion on data sources, selection of firms and construction of the empirical model for estimating the relationship between corporate governance and firm performance as well as the estimation issues.

3.1 Data

The data for the empirical analysis are extracted from PROWESS[3] database as well as from the annual and corporate governance reports of the companies. The firms in our sample are chosen from 20 important industries of the manufacturing sector, which includes food and beverages, textiles (cotton and synthetic), chemicals (drugs and pharmaceuticals, inorganic and organic chemicals, cosmetics, polymer, petroleum, plastic, rubber, tires and tubes), machinery (electrical, non-electrical and electronics machinery), non-metallic mineral products, metal products, transport, leather and paper sector. The total manufacturing firms listed under Bombay Stock Exchange in these 20 industries are 2,431 firms. The firms with missing data are excluded from the sample and we are left with the final sample size of 1,922 firms. For the analysis, we use ROA, ROE and net profit margin (NPM) as accounting measures, and market performance measures like adjusted Tobin's *q* (TQ) and stock returns (SR). For corporate governance measures, we consider the board characteristics like board size, independence, activity intensity, CEO-duality and institutional ownership. The construction of these variables for the empirical analysis is discussed in Table I. The market firm performance measure, TQ, has been obtained similar to the calculations of Gompers *et al.* (2003).

3.2. Variables construction and empirical hypotheses

This section provides discussion on explanatory variables and their expected relationship with indicators of firm's performance.

3.2.1 Board size (BS). It is widely argued that large boards are less effective and are easier for the CEOs to control on the firms. The cost of coordination and processing problems are also high in large boards, and this makes decision-making difficult (Anderson and Reeb, 2003; Coles *et al.*, 2008). On the other hand, another argument is that smaller boards reduce the possibility of free-riding and, therefore, have the tendency of enhancing firm performance (Lipton and Lorsch, 1992; Yermack, 1996; Eisenberg *et al.*, 1998). With these viewpoints, the study measures board size by the number of directors serving on boards, and it is expected to have a negative relationship with firm performance. We use square of board size to capture the small differences in board size. Therefore, we have the following hypothesis to test:

H1. The board size is positively related to firm performance.

3.2.2 Board independence (PO). The inclusion of independent directors on corporate boards is an effective mechanism to reduce the potential divergence between management and shareholders. John and Senbet (1998) argued that a board is more independent if it has more non-executive directors. Contrary to this, some studies reported a negative relationship between board independence and firm performance (Bhagat and Bolton, 2002). The corporates are adding independent directors to their board with a view to improve their performance; therefore, we expect its positive impact on firm performance. Board independence is measured by the proportion of independent non-executive directors serving in the board of the company. It is computed by dividing the number of

Table I Description of variables used in the study

Sr. no.	Variable(s)	Full form	Definition
Panel A: Firm performance measures			
1.	ROA	Return on assets	PBDIT/total assets
2.	ROE	Return on equity	PBDIT/(Paid–up equity capital + reserves and funds)
3.	TQ	Adjusted Tobin's *q*	(Total assets + market capitalization – book value of equity – deferred tax liability)/total assets *where, book value of equity is paid–up equity capital + reserves and funds*
4.	NPM	Net profit margin	PBDIT/net sales
5.	SR	Stock returns	(Stock price at year t+1 – stock price at year t + dividends)/Stock price at year t+1
Panel B: Corporate governance variables			
6.	BS	Square of board size	Square of number of directors on board
7.	PO	Square of proportion of outside directors	Square of number of non-executive independent directors on board/Total board size
8.	BM	Square of board meetings	Square of frequency of annual meetings
9.	CEO*dual*	Chief executive officer duality	Dummy variable equals 1 when CEO doubles as board chair and 0 otherwise
10.	IO	Institutional ownership	Shares held by (Indian promoter FIs and banks + promoter foreign institutions + non-promoter institutions)/Total shares held by institutions
Panel C: Control variables			
11.	Age	Firm age	Present year – Incorporation year
12.	Lev	Leverage	Borrowings/total assets
13.	Size	Natural log of sales	Sales is deflated using wholesale price index, then natural log is taken
14.	Adv*Int*	Advertising intensity	Natural log of (advertising expenses/sales)
15.	RD*int*	Research and development intensity	Natural log of (research and development expenses/sales)

non-executive independent directors on the board by total board size. For estimation purposes, we use the square of the proportion of outside directors to capture the small differences in the proportion of outside directors. The study tests the following hypothesis:

H2. Board independence has a positive relationship with firm performance.

3.2.3 Board activity intensity (BM). We measure the intensity of board activity by the frequency of meetings annually. We use square of board meeting for estimation purpose to capture the small differences in the board meetings. It is argued that when boards of directors meet frequently, they are likely to enhance firm performance and, thus, perform their duties in accordance with shareholders' interests (Conger *et al.*, 1998). On the contrary, Vafeas (1999) pointed out that board meetings are not necessarily useful, the limited time that the non-executive directors spend together may not be used for meaningful exchange of ideas among themselves or with management. These meetings also involve heavy costs such as managerial time, directors' remuneration, etc. Thus, we seek to investigate the following hypothesis:

H3. The frequency of annual board meetings is negatively related to firm performance.

3.2.4 CEO duality (CEOdual). It is argued that there is a conflict of interest and higher agency costs when the CEO is also the board chairman (Berg and Smith, 1978; Ehikioya, 2009), and it is suggested that the two positions should be occupied by two different persons. There is another argument that when the CEO doubles as board chair, it gives the CEO the opportunity to carry out decisions without any undue influence of bureaucratic structures. For example, Elsayed (2007), based on initial econometric results, found that CEO duality has no impact on corporate performance. However, when an interaction term between industry type and CEO duality is included in the model, the impact of CEO duality on corporate performance is found to vary across industries. Considering these findings, the study takes CEO duality, a dummy variable (equals unity when the CEO doubles as board chair and 0 otherwise), as a parameter of corporate governance variables. We construct the following hypothesis to test:

H4. CEO duality is negatively related to firms' performance.

3.2.5 Institutional ownership. The nature of ownership of a firm is an important dimension of its governance structure and serves as an extra monitoring device on the operations of the firm and, thus, influences performance. It is, therefore, expected that institutional ownership has a positive relationship with firm performance. We measure institutional shareholding by the percentage of shares held by institutions divided by the total number of shares with the company (IO). We test the following hypothesis:

H5. Institutional shareholding is positively related to firms' performance.

3.2.6 Control variables. Our empirical model also includes some important firm-specific characteristics to control the model. These variables include firm size measured using the natural log of sales (*ln*Sales), leverage, ratio of total debt to assets (Lev), firm age from the date of incorporation of the firm (Age), firm growth opportunities, proxied by the natural log of advertising expenditure to total sales (Adv*Int*) and research and development to total sales (RD*int*).

3.3 Empirical model and estimation techniques

To test the effects of corporate governance on firm performance, we choose the following baseline model:

$$Y_{it} = \alpha_0 + \beta_1 X_{it} + \beta_2 C_{it} + \varepsilon_{it} \quad (1)$$

where Y_{it} indicates firm performance indicators, X_{it} is a vector of corporate governance variables and C_{it} is a vector of control variables for firm i at time t. α_0 and β_s are intercept and parameters to be estimated, respectively. ε_{it} is the error term.

As the variables under consideration are of an endogenous nature, the values of the corporate governance variables are widely influenced by the past performance of the company, which is a case of the dynamic endogeneity (Wintoki *et al.*, 2012). The ordinary least squares (OLS) estimators could yield biased and inconsistent results (Maddala and Lahiri, 2009). It is also likely that our model faces the potential problem of omitted variable biasness in parameter estimation. Therefore, we utilize fixed-effects estimator, which can handle the issue of omitted variables. The fixed-effects model also tackles the endogeneity bias to some extent. Another method which could be useful here is system GMM (henceforth Sys-GMM), which overcomes the problem of endogeneity and simultaneity bias. The method is especially appropriate in situations where it is difficult to find instruments to alleviate the problems. This estimator uses appropriate lags of variables in level form as instruments for equations in first difference form and conversely for equations in level form, all of which are combined into a system of equations with options to treat any of the variables in the system as endogenous. Blundell and Bond (1998) proposed the use of extra moment conditions that rely on certain stationarity conditions of the initial observation, as suggested by Arellano and Bover (1995). When these conditions are satisfied, the resulting Sys-GMM estimator has been shown in Monte Carlo studies by Blundell and Bond (1998) and Blundell *et al.* (2000) to have much better finite sample properties in terms of bias and root mean squared error. Considering these advantages, we also use the Sys-GMM estimator to analyze the empirical models. This model has previously been used on the Indian firm-level data studies by Sharma and Mishra (2011) and Sharma (2012). The validity of the use of instruments is checked using Sargan's (1958) test for over-identified restrictions, which tests for the correlation between instruments and model residuals.

4. Empirical results and discussion

In this section, we present the estimation results of the impact of corporate governance variables on firm performance measures. At the first stage, we report results for the impact of each corporate governance variable separately on the indicators of firm performance.

Subsequently, in the second stage, the impact of all corporate governance variables, along with control variables, is tested on different measures of firm performance.

Table II reports results of the analyses using accounting firm performance measures, i.e. ROA, ROE and NPM, as the dependent variables in alternative models. Whereas, board size, proportion of outside directors, board meeting, CEO duality and institutional ownership are used as alternative indicators of corporate governance in the models. The models are estimated using the fixed-effects estimator. Our results suggest that corporate governance variables do not have a significant impact on ROA, as the estimated coefficients are not found to be statistically significant (Columns 1 to 5 of the table). Again, when we repeat this exercise with ROE as the dependent variable, the results do not appear to be sizable and statistically significant (Columns 6 to 10). The same is the case when NPM is used as the firm performance measure (Columns 11 to 15).

Table III reports results of the model that examines the impact of corporate governance variables on the market performance measures (TQ and SR) using panel OLS fixed-effects estimator. It shows that board size has a positive relationship with market firm performance indicator, TQ, although it is statistically insignificant (Columns 1 and 6 of the table). Results also show that board independence is negatively related to TQ and board meetings are positively associated with TQ. These results are consistent with the findings of previous studies on India, i.e. Jackling and Johl (2009) and Dwivedi and Jain (2005). The dummy variable, CEO *dual* is not significant in explaining the variation in the market performance, though the sign is estimated to be positive. The positive association between board meetings and SR implies increasing market returns when a firm conducts more board meetings (Column 8 of the table). The impact of rest of the corporate governance variables on SR could not be established because the results are not significant at any of the conventional levels of significance. These findings are consistent with the work of Ghosh (2006), who tested the relationship between board characteristics and corporate performance for Indian listed firms.

The above analysis shows lack of insignificance in results and thus indicates for incomplete models. Hence, we introduce control variables in the further analysis. We estimate the impact of corporate governance on different firm performance measures using the Sys-GMM method. The underlying model is:

$$Y_{it} = \propto_0 + \beta_0 \mathrm{BS}sqr_{it} + \beta_1 \mathrm{PO}sqr_{it} + \beta_2 \mathrm{BM}sqr_{it} + \beta_3 \mathrm{CEO}dual_{it} + \beta_4 \mathrm{IO}_{it} + \beta_5 * \mathrm{Age}_{it} + \beta_6 \mathrm{Size}_{it} + \beta_7 \mathrm{Lev}_{it} + \beta_8 \mathrm{Adv}Int_{it} + \beta_9 \mathrm{RD}int_{it} + \varepsilon_{it} \quad (2)$$

where, Y_{it} measures firm performance indicators, i.e. ROA, ROE, NPM, TQ and SR. $\mathrm{BS}sqr_{it}\mathrm{PO}sqr_{it}\mathrm{BM}sqr_{it}\mathrm{CEO}dual_{it}$ and IO_{it} are corporate governance variables of firm i at period t. $\mathrm{Age}_{it}\mathrm{Size}_{it}\mathrm{Lev}_{it}\mathrm{Adv}Int_{it}$ and $\mathrm{RD}int_{\mathrm{it}}$ are used as the control variables for firm age, size, leverage, natural log of advertising and research and development expenditure, respectively. The calculations of these variables are shown in Table I.

In Table IV, five different analyses are done using Sys-GMM[4] for five different firm performance measures: ROA, ROE, NPM, TQ and SR in each column, respectively. The lagged values of dependent variables are used as instruments while conducting the analysis. The results show that board size is negatively related to accounting firm performance measure, ROA, but the association is very weak, i.e. 0.0002, implying that when board size changes by 1 per cent, ROA changes by 0.0002 per cent. The relationship of ROA with other corporate governance measures could not be established, as they did not turn out to be statistically significant at any of the conventional levels of significance (see Column 1 of Table IV).

We have hypothesized board size and meetings to have a positive and negative relationship with firm performance, respectively. However, our results show that they are positively associated with TQ, though the association is somewhat weak (see Column 4 of Table IV). The findings of our study support the results of prior studies by Dalton *et al.*

Table II Impact of corporate governance on accounting firm performance using fixed effects

	A. Dependent variable–ROA					*B. Dependent variable–ROE*					*C. Dependent variable–NPM*				
Variables	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*	*(15)*
Constant	0.128***	0.099***	0.091***	0.084***	0.117***	0.572***	0.670*	0.353*	0.401**	0.356***	0.001***	−0.001	0.191	0.185	0.077
	(0.036)	(0.010)	(0.007)	(0.028)	(0.026)	(0.233)	(0.361)	(0.208)	(0.181)	(0.078)	(0.172)	(0.266)	(0.154)	(0.132)	(0.106)
BS	−0.0002					−0.003					0.002				
	(0.001)					(0.004)					(0.003)				
PO		0.013					−0.610					0.355			
		(0.019)					(0.717)					(0.529)			
BM			0.0003					0.001					−0.003		
			(0.0003)					(0.008)					(0.006)		
CEO*dual*				0.114					0.002					−0.151	
				(0.078)					(0.512)					(0.372)	
IO					−0.018					−0.084					0.580
					(0.300)					(0.896)					(1.219)
R^2	0.0001	0.0006	0.0002	0.0002	0.0001	0.0005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Notes: *, ** and *** indicate significance at 10, 5 and 1% levels, respectively; the figure in parentheses indicates standard error

Table III Impact of corporate governance on market firm performance using fixed effects

	D. Dependent variable–TQ					*E. Dependent variable–SR*				
Variables	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*
Constant	0.574 (0.841)	3.012** (1.411)	−0.384 (0.660)	1.133* (0.652)	0.160 (0.580)	0.810*** (0.149)	1.367*** (0.211)	0.678*** (0.127)	0.941*** (0.111)	1.083*** (0.109)
BS	0.007 (0.013)					0.003 (0.002)				
PO		−4.547* (2.828)					−0.355 (0.410)			
BM			0.046* (0.026)					0.011** (0.005)		
CEO*dual*				−0.622 (1.847)					0.270 (0.312)	
IO					5.666 (6.726)					−1.509 (1.244)
R^2	0.0001	0.0002	0.0001	0.0001	0.0001	0.0006	0.0001	0.0009	0.0004	0.0005

Notes: *, ** and *** indicate significance at 10, 5 and 1% levels, respectively; the figure in parentheses indicates standard error.

Table IV Impact of corporate governance on firm performance using Sys-GMM results

Variables	*ROA* 1	*ROE* 2	*NPM* 3	*TQ* 4	*SR* 5
Constant	0.203*** (0.058)	0.532* (1.279)	−13.102*** (1.642)	16.426*** (5.725)	0.849 (1.524)
BS	−0.0002* (0.0001)	−0.002 (0.002)	0.0004 (0.003)	0.022* (0.013)	−0.003 (0.003)
PO	0.025 (0.020)	0.051 (0.404)	−0.236 (0.542)	−5.598*** (1.993)	−0.772 (0.504)
BM	0.00001 (0.0002)	0.002 (0.004)	−0.0008 (0.005)	0.026* (0.020)	0.002 (0.005)
CEO*dual*	−0.002 (0.017)	−0.038 (0.353)	0.340 (0.474)	1.419 (1.730)	−0.606 (0.427)
IO	0.023 (0.071)	0.985 (1.473)	−1.814 (1.970)	19.389*** (7.112)	1.211 (1.747)
Age	0.003* (0.001)	−0.023* (0.035)	0.006 (0.046)	−0.605*** (0.183)	−0.061 (0.042)
Lev	−0.296*** (0.007)	−0.103 (0.164)	−0.543*** (0.214)	−0.168 (0.714)	−0.166 (0.175)
Size	−0.007 (0.006)	0.052 (0.160)	1.965*** (0.192)	−0.064 (0.690)	0.409** (0.189)
Adv*Int*	−0.0003 (0.005)	0.122 (0.100)	−0.107 (0.135)	−0.271 (0.495)	0.117 (0.120)
RD*int*	−0.005 (0.005)	−0.018 (0.110)	−0.125 (0.147)	0.177 (0.546)	0.121 (0.123)
$Perf_{t-1}$	0.084*** (0.005)	0.076*** (0.006)	−0.157*** (0.010)	1.439*** (0.006)	−0.010 (0.010)
P- value	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	10,051	10,048	9,966	10,182	8,048

Notes: *, ** and *** indicate significance at 10, 5 and 1% levels, respectively; the figure in parentheses indicates standard error

(1998) and Pearce and Zahra (1992), which indicated that larger boards are associated with a greater depth of intellectual knowledge, which helps in improving decision-making process, which in turn improves firm performance. These findings support the resource dependency theory in terms that access to various resources has a positive influence on firm performance. The findings of Kathuria and Dash (1999) and Jackling and Johl (2009) for Indian firms also estimate an improvement in performance with an increase in board size. Dwivedi and Jain (2005) had also shown a positive association between board size and firm value. Our findings exhibit a positive relationship between board meeting and firm performance, which is consistent with the viewpoints of Lipton and Lorsch (1992) and Zahra and Pearce (1989).

Furthermore, contrary to the expectations, the board independence is negatively related to TQ, perhaps because of the lack of independence given to outside directors. Often the independent directors of Indian firms are seen working for the management because they are selected by the management itself. Bhagat and Bolton (2002) examined the same for US firms for the period 2000-2004, and they found that board independence is negatively correlated with operating performance, which is consistent with the previous findings on India, i.e. Jackling and Johl (2009) and Dwivedi and Jain (2005). Our results also provide support for the hypothesis that higher degree of institutions' shares in the firms is a positive factor for firm performance (TQ). It may be because institutional shareholding is a key signal to other investors about the potential profitability of the firm. This leads to the demand for such shares and, thus, improves market valuation of such firms, as shown by Kyereboah-Coleman (2007). The dummy variable, CEO*dual*, is positively related to firm's performance measure, TQ, though it fails to pass the statistical test (see Column 4 of Table IV). Some studies like that by Balinga *et al.* (1996) found no statistically significant inter-linkage between these issues. Some authors have shown that there is no significant difference between the firms with CEO duality and those without it (Daily and Dalton, 1997; Dalton *et al.*, 1998). Similarly, our result for Indian firms also indicated that CEO duality and firm performance are insulated to each other.

The age of firm is negatively associated with TQ, implying that the new firms are performing comparatively better. It is also observed from the results of Table IV that corporate governance has a significant and sizable impact on market firm performance measure, TQ, but it is not a crucial determinant. We also attempt to measure the impact of corporate governance on stock returns, and the results indicate that effects of corporate governance variables on stock returns are not significant, which supports the findings of Garg (2007). Our findings related to other control variables indicate that leverage is found to be

negatively related to ROA, implying that firms with low leverage are likely to perform better. Our results also indicate that impact of corporate governance variables on other firm performance measures (ROE, NPM and SR) could not be established for the sample firms, as they are not found to be statistically significant.

5. Conclusion and implications

The present study serves as a pointer to the corporate governance and firm performance relationship for Indian manufacturing industry. Results of the study document that the relationship between corporate governance and performance is not very strong in India. This is maybe because the guidelines and regulations are not followed by companies very strictly in the initial years of the sample period. Our main findings in this study are: first, the results show that board size is negatively related to ROA. Second, the board meetings are found to be positively associated with firm performance, though the association is slightly weak. Third, ROE, profitability and stock returns are not found to be related to corporate governance indicators of firm. Also, CEO duality is not found to be related to any performance measure; thus, it does not seem to be a crucial determinant of firm performance.

Our findings in this study have important implications for putting into practice good corporate governance across developing countries in general and emerging countries in particular. The outcomes of our analyses advocated that companies that comply with good corporate governance practices can expect to achieve higher accounting and market performance. Theoretically, it implies that good corporate governance practices lead to reduced agency costs. Hence, this implies that firms of the developing world can possibly enhance their performance by implementing good corporate governance practices. However, our findings on the association between several governance indicators and company performance indicators suggest that not all corporate governance indicators significantly affect company performance.

The negative relationship between board independence and firm performance can be attributed to the fact that the concept of board independence is a new phenomenon in developing countries, and hence, it might take a few more years to have a momentous impact of this on firm performance. It is also observed in the boards of many companies of developing countries that the same person is working as an independent director on the boards of many firms, maybe because there are limited people suitable for the position of independent directors. In such companies, monitoring and judgments by the independent directors may not be bias-free and will be influenced by what they expect others to do on the board where they are the executive directors. For US corporations, Klein (1998) provided evidence that directors are not the puppets of management but are actually serving the firm. The companies in merging countries need to ensure that the independent directors are not hired for namesake but actually act independently as in the case of developed countries. Therefore, a clear criterion should be put in place for becoming an independent director in a company and the guidelines on corporate governance should take into account this “Cross-board” phenomenon.

Furthermore, an increase in board size leads to better performance only when it adds diversity to the board; therefore, we support the suggestion by Cadbury (2002) that people with different backgrounds and perspectives should be appointed for the posts of independent directors. Also, it is widely seen that a large proportion of family-owned firms in developing countries tends to restrict the executive management positions to family members, which diminishes the role of outside directors in the firm. Therefore, findings of this research can merit the attention of shareholders, companies and policymakers in developing countries to know the risk of engaging family members and non-professional members in the companies’ board.

There are many factors which influence the firm performance and not all of them are used in this study to control the models mainly because of their lack of availability in the database. Nevertheless, it can be hoped that attempts such as this study will generate more debate on the issue and reason for further research in this area, especially in the context of developing countries. Future researchers can work further by using a broader spectrum of variables like directors' remuneration, their shareholding, audit, remuneration or other board committees. It can also be augmented by using qualitative aspects of the board that influence firm performance, such as board decision-making process or director's perception on the role of board, presence of women directors on board, qualification and age of the director, etc. Also, it is not only the board characteristics which influence firm performance but also the other way round. Only a few studies like those by Garg (2007), Valenti *et al.* (2011) and Arora and Sharma (2015) have tested this reverse relationship, i.e. the impact of firm performance on board characteristics. For policy formulation and decision-making, it is relevant to test the reverse causality too. Finally, other relevant future research agendas could be to examine the impact of gender diversity or board diversity on firm performance, which is unfairly ignored in the existing literature.

Notes

1. During 1990s, there have been a series of corporate scams, such as Harshad Mehta Scam, Ketan Parikh Scam, UTI Scam, the Vanishing Company Scam, Bhansali Scam and the most unforgettable Satyam scandal.
2. The Indian manufacturing sector has witnessed tremendous transformation in the new millennium in the era of liberalization, privatization and globalization. It is the backbone of Indian economy, contributing nearly 16 per cent to the GDP of the country.
3. The PROWESS database (Release 4.0) is maintained by CMIE and is broadly similar to the Compustat database of US firms. It is increasingly being used in the literature for firm-level analysis of the Indian industry and contains financial information on around 27,000 companies, either listed on stock exchanges or the major unlisted companies.
4. The same analysis has also been done using the fixed-effects method; results are quite similar to that of Sys-GMM. These results are not reported here to conserve the space. However, they can be made available on request from the corresponding author.

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