

CORPORATE GOVERNANCE IN INDIA

Arunima Haldar*, S.V.D. Nageswara Rao**

Abstract

This paper examines the impact of Corporate Governance (CG) on Financial Performance considering the endogeneity between Corporate Governance and Firm Characteristics using a sample of large listed Indian firms over the period 2008 to 2011. We construct a "CG Index" using six important governance mechanisms covering a total of 44 parameters affecting the state of governance of Indian companies. The analysis of Corporate Governance Index for a period of four years found a rising trend in the level of the corporate governance practices of Indian companies. We then examine the relation of CG Index on firm characteristics using simultaneous equation modeling. Results show that there is a strong association between CG Index and the market performance of companies.

Keywords: Corporate Governance, Financial Performance, Corporate Governance Index, Simultaneous Equation Model and Endogeneity

*School of Business Management, Narsee Monjee Institute of Management Studies, Vile Parle (W), Mumbai-400 056, India
Email: Arunima.Haldar@nmims.edu

**SJMSOM, IIT Bombay

1 Introduction

Corporate Governance has gained impetus in recent times due to financial debacles throughout the world. Large companies like Enron, WorldCom, Tyco, Xerox, Maxwell Publishing, BCCI Bank, Polly Peck, Rolls Royce, HIH Insurance, Parmalat, and Satyam in India, shattered investors' confidence and accumulated huge losses to the shareholders and other stakeholders (Appendix A). These corporate debacles both in developed as well as developing countries forces managers to underplay the importance of financial measures in valuation of a firm. Governance failures have been identified as a major factor for such massive debacles/ financial irregularities to occur globally (Demirag, 1995). Thus, governance as a field of study, has gained importance to develop standards which can detect or prevent corporate failures.

The question of whether governance has a causal relation with performance is unresolved (Klein et al., 2005). Black et al., (2006) report positive relation between firm's governance score and its market value. Weak governance structures encourage agency problems and private benefits to managers (Core et al., 1999). Thus, stakeholders are still skeptical about existence of the linkage between governance and performance. For many practitioners and academicians in the field of governance, this remains a search for the Holy Grail – the search for the link between returns and governance (Bradley, 2004).

The objective of our study is to examine the relationship between corporate governance and firm performance taking into account the endogeneity

between governance and firm characteristics, namely, financial performance, capital structure, and ownership pattern. The study of corporate governance in India is important as there are unique governance issues prevalent in the developing economy which needs empirical research for development of theories embedded in local realities (Srinivasan, 2011).

2 Literature review

Agency models highlight the divergence between managers and shareholders' interests leading to decisions that are detrimental to shareholders. Managerial opportunism, either in the form of expropriation of investors' wealth or of misallocation of company funds, reduces the amount of resources, investors are willing to lend to the firm (Williamson, 1988; Grossman and Hart, 1986). Contracts being incomplete cannot enable shareholders to observe managerial behavior directly, but incentive contracts including share ownership may induce managers to act in the interest of shareholders (Grossman and Hart, 1983).

The second model based on adverse selection is prompted by the hypothesis of differential ability unobservable by shareholders (Myerson, 1987). Here, ownership might be used to reveal manager's private information about cash flow or ability to generate cash flows, which cannot be noticed directly by shareholders. Thus, corporate governance features might be interpreted as characteristics of contracts governing shareholder-manager relationships. Governance is affected by the same unobservable

features of managerial behavior or ability that connects ownership and performance.

The cost of diffused shareholding gained prominence through Berle and Means (1932). Demsetz (1983) suggests that due to success of public companies having diffused shareholding, offsetting benefits like better risk bearing must exist. Also, concepts such as performance based compensation and insider information may help us appreciate firm performance as a determining factor of ownership. For instance, managers' wealth may rise due to superior performance owing to the enhanced value of stock options held by them. Insiders can always adjust their ownership given the expected future performance.

Grossman and Hart (1983) considered the ex-ante efficiency view to make predictions about the firm's financing decisions in an agency set up. The choice of debt varies among shareholders and managers (Novaes and Zingales, 1999). While these studies focused on capital structure and managerial entrenchment, another group of researchers focused on the relationship between capital structure and ownership structure (Grossman and Hart, 1986; Hart and Moore, 1990).

This brief review of the inter-relationships among corporate governance, firm performance, capital structure, and ownership structure suggests the use of simultaneous equations model to study the relationship between corporate governance and firm performance.

3 Variables, data, and the model

3.1 Variables

3.1.1 Corporate governance (CG)

Corporate Governance (CG) has wide range of mechanisms which are classified as internal and external. Boards of directors, the audit committee, other committees of the board like nomination committee, remuneration committee are among the significant internal mechanisms whereas, the market for corporate control and product market competition are the important external mechanisms. These internal and external mechanisms consecutively are shaped by the overall legal and institutional structures of the country. Thus, CG covers a large number of aspects which needs processing of many variables and information to derive at any concrete conclusion about the overall state of CG of a company. This necessitates the need for an overall CG Index which adequately summarizes the different aspects of governance with a few numbers.

We discuss construction of Corporate Governance Index for large listed firms from the Indian corporate sector using information on six important corporate governance mechanisms namely, the Board of Directors, Audit Committee, Shareholder's Grievance Committee, Remuneration Committee, Nomination

Committee and Disclosure Practices. We construct the indices for a four year period of 2008 to 2011. Construction of the CG index for four years allows us to examine the state of CG development in India. The time period chosen is when substantial corporate governance reforms have taken place and are continuing in India. Time series data helps us to study the firm's adjustment with governance structure over time or helps us analyze the causality between governance and firm performance.

The CGI developed by the present study has the following sub indexes:

- (1) Board of Directors
- (2) Audit Committee
- (3) Shareholder's Grievance Committee
- (4) Remuneration Committee
- (5) Nomination Committee
- (6) Disclosure Practices

3.1.1.1 Methodology for CG index construction

Construction or use of CG scores is subject to methodological shortcomings as per literature. Brozec and Brozec (2012) propagate the usage of self constructed indexes with equal weightage owing to the shortcomings of commercial ratings. Commercial ratings might be impacted by analysts' subjective views, leading to biased inferences if not weighed as per financial market participant's assessment of governance quality. Hand- collecting data is an expensive exercise and researchers might prefer usage of commercial ratings instead. Potential bias and subjectivity must be alleviated in case of commercial ratings by converting questions to binary answers. There is no best measure of CG quality. However, a self constructed index based on a binary coding provides a better measure of corporate governance than the existing commercial ratings.

We construct the Corporate Governance Index in two steps. In the first step we construct a sub-index for each of the six corporate governance components namely, the Board of Directors Index, the Audit Committee Index, the Shareholder's Grievance Committee Index, the Remuneration Committee Index, the Nomination Committee Index, the Disclosure Practices Index. In the second step, we average the values of the six sub-indices to arrive at the overall Corporate Governance Index.

To construct the various sub-indices, we take the attribute within a specified governance mechanism and score each attribute using binary coding. We then aggregate the score across all the attributes within that specific governance mechanism, divide it by the maximum possible score and multiply it by 100. Similarly, we get the score for each sub index. Then we take the average of all the sub index score and multiply it by 100 to get our final overall cg score for a company for a time period.

The simple aggregation of scores implies that we construct an unweighted index. The unweighted index

has the advantage of treating all attributes of the specific sub-index symmetrically without having to make arbitrary or data driven judgments of the relative importance of each attribute as is the characteristics of weighted indices and those that are formed through principle component analysis. Unweighted indices are widely used in the literature for index construction. Note that though the maximum value for each sub index is thus set to 100, none of the sample firms may earn the maximum score. In other words, we normalize the maximum score to 100 rather than normalizing the best firm in the sample to 100. This ensures that improvements over time in a particular governance mechanism will be adequately captured by the index.

We use the standards specified in the Clause 49 regulations as well as insights from various academic studies to score each attribute within a particular mechanism. For example, with respect to percentage of independent directors, we penalize companies that do not meet the Clause 49 requirements of having at least one-third of its board members as independent directors (in case the company has non –executive chairman) or 50 percent (in case the company has an executive/ promoter chairman).Likewise, we penalize companies that do not have an audit committee with independent directors and that do not conduct at least four meetings a year as per the Clause 49 regulations. For scoring attributes that do not have specified standards in the clause 49 regulations, we take help of existing academic studies. For example to score the attribute board size we use finding that large boards may not be good for companies (Yermack, 1996).

3.1.2 Financial performance (Q)

Financial performance is measured by Tobin's 'Q'. Estimation of Tobin's 'Q' is difficult as large proportion of corporate debt in India is borrowed from financial institutions and is not traded. Further, most companies report assets at historical cost and not at replacement cost. We propose a proxy for Tobin's 'Q' following Jackling and Johl (2009); Sarkar and Sarkar, (2000); Khanna and Palepu (2000). It is estimated as sum of market capitalization of equity, paid up preference share capital and borrowings, divided by total assets.

Figure 1 depicts the Q values of BSE Listed Companies. BSE Listed Companies have Q of 0.8 approximately, which indicates that market value of firms reflects solely the recorded assets of the company. We further subdivided the BSE Listed Companies as per ownership and found that private foreign players have enhanced their Q from 0.5 to 1.2 in a decade's time, which suggests that the market value reflects some unmeasured or unrecorded assets of the company. This indicates that foreign companies should invest more in capital because they are "worth" more than the price they paid for them. Standalone Indian private firms have lower Q values than their business group's counterpart. Public Sector Undertaking's market value reflected solely the recorded assets of a company as Q value has enhanced over the period of 2001-13.

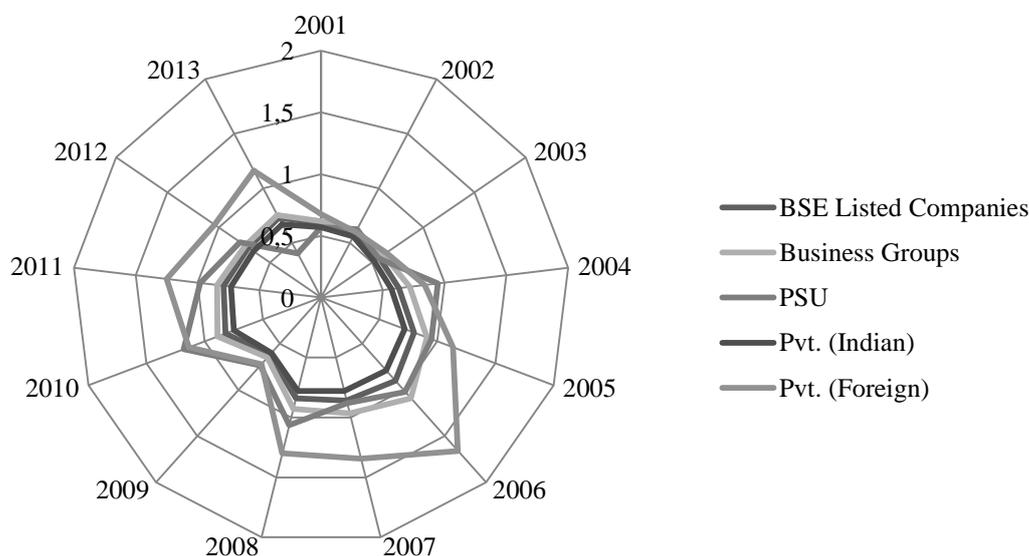


Figure 2. Tobin's Q of BSE Listed Companies (as per Ownership Classification)

3.1.3 Ownership structure (PH)

In India, most firms have promoters (insiders) as dominant shareholders. Figure 2 illustrates the promoter concentration by Indian firms from the years 2001-13. Indian Business Groups and Private Indian

companies have promoter shareholding between 40 to 60%. Whereas Public Sector Undertaking have promoter shareholding close to 70% overlapping with foreign private companies in some years.

Figure 2 illustrates that BSE Listed Companies have promoter shareholding of around 50% which has

increased from 2001-13. This phenomenon of large shareholding by promoters is beneficial due to 'convergence-of-interest' and the 'efficient-monitoring-hypothesis'. These promoters have substantial investments as well as significant voting power to protect those investments and are likely to engage in relational investing and thus remain committed to company in long run.

Thus, still today in majority companies promoter shareholding is close to half and impacts all decisions in the firm. India has a family based governance system resembling the East Asian model (Pattanayak, 2007). We examine the relationship between promoters' equity holding, estimated as percentage of the total equity shareholding.

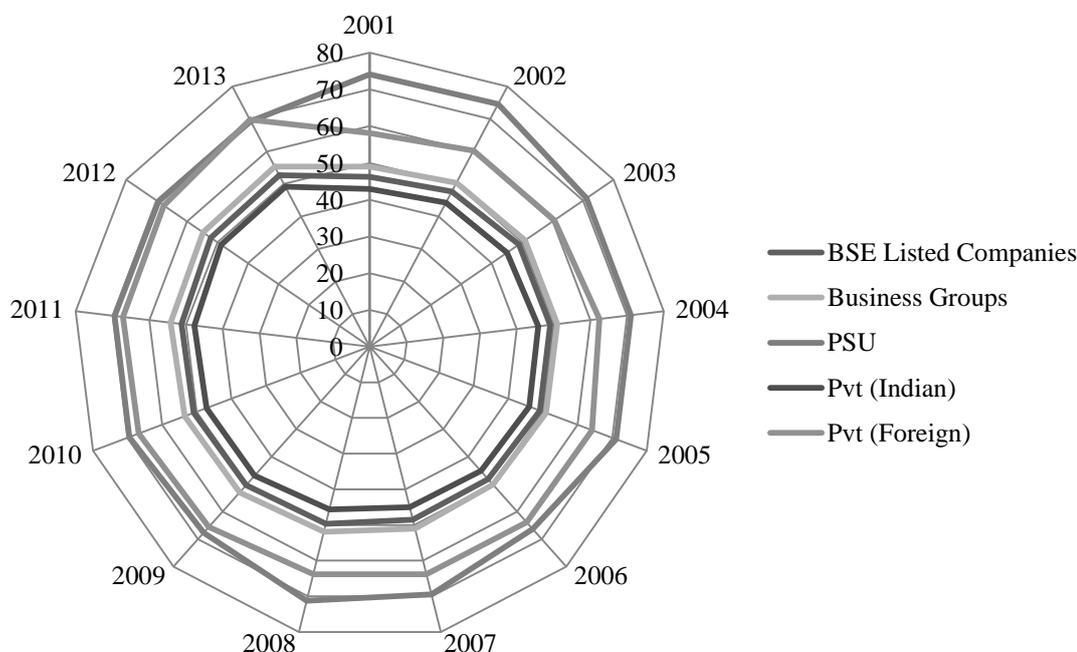


Figure 3. Promoter Shareholding of BSE Listed Companies (as per Ownership Classification)

3.1.4 Capital structure (DE)

Fernando and Ariovaldo (2010) and Brammer and Pavelin (2006) used total liabilities to total assets as a proxy for capital Structure whereas many others like Wang et al., (2008) used total debt to owner's equity as a proxy for leverage of a firm. We proxy capital structure by Debt/ Equity ratio.

Figure 3 depicts that BSE Listed Companies have a balanced debt equity ratio with reducing by .1 from 01-13. Indian Listed companies rely less on debt and more on other sources of finances. Business Group had approximately equal weightage of debt - equity ratio from 01-04; then it reduced to .8 times in 2008; again rose in 2009; then from 2010 it started reducing and reached .6 in 2013. That means that business groups are decreasing their dependence on external sources of finance due to internal group transfers. Whereas, in case of PSU's they have over the decade almost doubled their debt and reached a level of 1.13 times in 2013. Standalone Indian companies also have a ratio around 0.5, whereas private foreign companies have also halved their debt

-equity ratio which was already at low levels as they are mostly financed by their foreign parent companies.

3.2 Control variables

We recognize the difficulty of adequately modeling firm performance and thus control for firm size (measured by industry adjusted sales). Financial performance data is usually related to the size of the company (Fama and French, 1992). Firm size is used as a control variable to capture any confounding effect in the correlation and regression analysis.

Instrumental Variables

The choice of instrumental variables¹ is critical to model estimation and is influenced by the existing literature. Thus, Lag performance, Percentage of directors who are currently active CEOs, Lag Promoter Shareholding and Altman Z score are the unique exogenous variable in equation 1, 2, 3 and 4 respectively

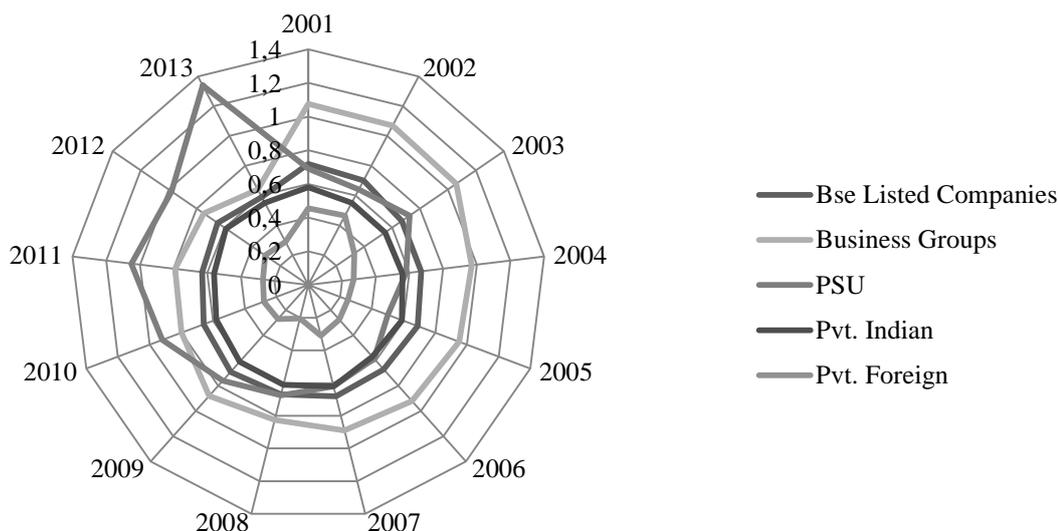


Figure 4. Debt - Equity Ratio in BSE Listed Companies (as per Ownership Classification)

3.3 Data

Data was collected from the Prowess² database of Centre for Monitoring Indian Economy and pertained to BSE 500 listed companies during the financial year 2008 - 2011. This corresponds to nearly 93% of the total market capitalization on BSE and covers 20 major industries of the economy. The sample was further subjected to screening criteria that eliminated Financial Institution's (FIs) and banking companies. CG structures of financial companies are quite different from manufacturing companies because of the inherent nature of risks prevalent in these two types of companies (Sarkar, 2012). Also, FIs have high levels of leverage that makes them outliers. That left us with 374 firms which represented 8% of the total number of listed companies. Then, we excluded firms having missing values for our data. These two screenings finally resulted in a dataset consisting of 323 firms. We further verified our data by referring to Annual reports of companies and by visiting company's website.

3.4 Empirical Model Specification

Panel models provide a number of improvements over the separate analysis of time series by cross-section. First, panel data allow for considerably more flexibility in the modeling of the behavior of cross-sectional units than conventional time series analysis (Greene, 2008). Second, the panel framework allows for the analytical incorporation of significantly more observations (and more degrees of freedom) than would a comparable analysis of individual time series. Finally, and most significantly panel Granger tests are significantly more efficient than conventional Granger tests (Hurlin and Venet 2001). The potential benefits of panel Granger tests are, therefore considerable.

In panel data the same cross-sectional unit (say a family or a firm or a state) is surveyed over time. In

short, panel data have space as well as time dimensions (Gujrati, 2004). We estimated a balanced panel where we have the same number of each cross-section units so that the total number of observation is $n \cdot T$. When $n = 1$ and T is large we have the familiar time-series data case. Likewise when $T = 1$ and n is large we have the cross-section data. Panel data estimation methods refers to data where $n > 1$ and $T > 1$.

Random Effects or Fixed Effects?

In random effects model, the variation across entities is assumed to be random and uncorrelated with the independent variable in the model. Greene (2008) states that the distinction between fixed and random effects is whether the unobserved individual effect embodies elements that are correlated with the regressors in the model, not whether these effects are stochastic or not. In case the differences across entities influence dependent variable, then random effects are preferable. Random effects include time invariant variables like gender, whereas in fixed effect model these variables are absorbed by the intercept.

Gujrati states that in a short panel (N large and T small), the estimates obtained from the two models can differ substantially. In REM $B_{1i} = B_1 + e_i$, where e_i is the cross sectional random component, whereas in FEM B_{1i} is treated as fixed. FEM is preferable when statistical inference is conditional on the observed cross sectional units in the sample and is valid if cross sectional units are not random drawings from population. Otherwise, REM is appropriate as statistical inference is unconditional here. Thus if N is large and T is small, and if the assumptions underlying REM holds, REM estimators are more efficient than FEM.

Thus, we estimate this equation by using panel data analysis. In case of panel data analysis, a key question is whether or not we should use the FE and RE estimator. In general, we assume that the unobserved effect is correlated with the explanatory

variables. However, if the unobserved effect is uncorrelated with the explanatory variables then the RE estimator is more efficient than the FE estimator. We conducted the test proposed by Hausman [39] and rejected the null hypothesis and concluded to conduct random effects (Appendix D). We also verified by conducting Breusch and Pagan Lagrangian multiplier test for random effects (Table 4). Here we reject the

null hypothesis and concluded that random effects is appropriate. Then we computed the Breusch- Pagan (1979) statistic to check for heteroskedasticity and Wooldridge (2002) test for autocorrelation(Appendix D). Here, we fail to reject the null and conclude the data does not have first-order autocorrelation From an econometric viewpoint, the following equation is specified:

$$Q_{it} = \alpha + \beta_1 CG_{it} + \beta_2 DE_{it} + \beta_3 PH_{it} + \beta_4 S_{it} + \beta_5 IV_{it} + \mu_{it}$$

Q_{it} is the firm performance for firm i at time t , CG_{it} is the governance index, PH_{it} is promoter shareholding, DE_{it} is the Debt- Equity Ratio and S_{it} denotes firm size and u_{it} is the error term. The panel least squares might suffer from endogeneity because of the fact that board composition is endogenously determined as pointed out by Bhagat and Bolton (2008). They have estimated governance-performance relationship using OLS, 2SLS and 3 SLS to allow for potential endogeneity. However, before resorting to

SEM, a test for endogeneity was carried out using the Hausman (1978) specification test (Appendix E), and it was observed that there was severe endogeneity bias in the model. Following the approach used in Bhagat and Bolton (2008) and thereafter, Jackling and Johl (2009), a system of simultaneous equations is formulated taking into account the endogenous relationship between governance and performance.

$$\begin{aligned} Q_{it} &= \alpha + \beta_1 CG_{it} + \beta_2 DE_{it} + \beta_3 PH_{it} + \beta_4 S_{it} + \beta_5 IV_{it} + \mu_{it} & \text{EQ(1)} \\ CG_{it} &= \alpha + \beta_1 Q_{it} + \beta_2 DE_{it} + \beta_3 PH_{it} + \beta_4 S_{it} + \beta_5 IV_{it} + \mu_{it} & \text{EQ(2)} \\ DE_{it} &= \alpha + \beta_1 Q_{it} + \beta_2 CG_{it} + \beta_3 PH_{it} + \beta_4 S_{it} + \beta_5 IV_{it} + \mu_{it} & \text{EQ(3)} \\ PH_{it} &= \alpha + \beta_1 CG_{it} + \beta_2 DE_{it} + \beta_3 Q_{it} + \beta_4 S_{it} + \beta_5 IV_{it} + \mu_{it} & \text{EQ(4)} \end{aligned}$$

4 Empirical results

This section presents the descriptive statistics of the variables used in the model and the correlation among the variables (Appendix B and C respectively). In terms of performance, the sample firms appear to be financially stable looking at Tobin's Q (mean 1.88%) with standard deviation of 1.88 respectively (Appendix B). The corporate governance has wide variations in the sample with mean 65.74% and standard deviation of 7.2797 (Appendix B). Appendix C shows that governance and promoters holding have positive association with the market measure of performance. A negative relation between proportion of leverage and financial performance is also observed.

4.1 Panel least square results (with random effects)

The results (Appendix F) suggest interactions between performance and governance score. Governance (5% level) and Promoter shareholding (1%) are found to be positively related with firm performance whereas leverage (1% level) is negatively related with performance. The size and age of the firm is negatively related to performance at 1% level, whereas advertising intensity positively affects performance.

4.2 Simultaneous Equation Results

The study estimates the model using simultaneous equation method to account for the endogeneity between firm performance and governance. The simultaneous equation result (2SLS) is consistent with panel least square results with substantial improvement in t-stat values (Appendix F). Governance and promoter shareholding has a positive relation at (1%) level with performance. The association of leverage with performance is statistically significant at 1%, with the negative sign as expected. The results of simultaneous equation system using two stage least squares are somewhat better than OLS results, as determined by substantial increase in R^2 from 20% to 47% after controlling for endogeneity problem.

We also conduct the Hausman test (Appendix G) for determining whether OLS or 2SLS is preferable. The computed Hausman test statistic rejected our null hypothesis that the OLS estimator is consistent. Thus, we prefer to use 2SLS results instead of OLS. Therefore, the results of simultaneous equation are better than OLS results as it controls for the endogeneity problem taking a systems approach.

5 Conclusions

Corporate Governance is the central and dynamic aspect of business in today's world. It enhances firm's performance as well as competitiveness of the firm. This study empirically examines the impact of

corporate governance on the performance of Indian industries by using market performance measure. Financial Performance proxied by Tobin's Q is important as it represents the economic value that investors place on firm's shares above the total assets of the firm and thus exemplifies investor confidence, which indicates the effectiveness of governance mechanism of the entity. Using simultaneous equations framework, we analyze the endogenous relationship between corporate governance and performance in terms of capital structure and ownership pattern. This results in our primary contribution of studying the relationship between corporate governance and firm performance.

We also construct a Corporate Governance Index for large listed Indian companies using six important governance mechanisms covering a total of 44 factors affecting the governance of Indian companies. This index would be useful to a wide range of capital market participants. It would help regulators to judge the efficacy of the CG reforms. Secondly, the index would be helpful to companies to recognize the gains of adopting good governance practice as the CGI can work as a rating tool. Finally, the index would help investors consider governance issues while taking investment decisions. The extensive database that is created in the process of creating the index will provide valuable information for conducting governance research.

Results indicate that governance and promoter's holding positively affects firm performance whereas leverage negatively affects performance. Thus, our results support the hypothesis that well governed companies have higher equity returns, valued highly, and their financial statements show a better financial performance (Gompers et al., 2003; Klapper and Love, 2004). Promoter's holding positively affects Q because of the alignment of monetary incentives between the manager and other equity owners (Morck et al., 1988). Previous Indian studies of Bombay Stock Exchange listed 500 companies from 2001-08 report similar evidence (Halder and Rao 2011).

Our results for debt equity is in consonance with the existing Indian literature by Ahuja and Majumdar (1998) who documents a negative relationship between the levels of debt in the capital structure and firm performance. Firm Size adversely affects performance. Larger firms can be less efficient than smaller ones because of delegation of authority to subordinates over strategic and operational activities within the firm (Himmelberg et al., 1999; Sarkar and Sarkar, 2000). Lang and Stulz (1994) indicate a decrease in firm value as firm becomes larger and more diversified.

The observed results validate the need to foster good governance practices in the Indian companies to improve performance. Firms practicing good governance by taking long term decisions towards growth and innovation enhance performance. Markets responds positively to better governed firms as the

progress of firm depends on the adoption and implementation of good governance practices. Strong corporate governance is indispensable for the capital markets and is significant for the corporate success as well as for the social welfare.

Reported findings indicate need for further research and have relevance for boards and policy-makers. The boards should make efforts to advance the governance of their firms to enhance performance. The analysis of the Indian industries provides evidence that corporate governance is influential and is a long-lasting concept for the firms aspiring to enhance their performance.

6 Notes

Our analyses for instrumental variables include tests for weak instruments by Stock and Yogo (2004), and Hausman (1978) test for endogeneity. Also, we perform the Hahn and Hausman (2002) weak instrument test, the Hansen-Sargan over identification test, the Cragg-Donald (1993) test for model identification, and the Anderson-Rubin test for the joint significance of the set of endogenous variables in our system of equations.

The Prowess database is maintained by CMIE and is broadly similar to Compustat database of US firms. It is increasingly being employed in the literature for firm-level analysis of Indian industry and contains financial information on 27,290 companies, either listed on stock exchanges or the major unlisted companies.

References

1. Ahuja, G. and Majumdar, S. (1998), "On the Sequencing of Privatization in Transition economies", *Industrial and Corporate Change*, Vol. 7, pp.109-52.
2. Bhagat, S., and Bolton, B. (2008), "Corporate governance and firm performance", *Journal of Corporate Finance*, Vol. 14, pp. 257-273.
3. Balasubramanian, N., Black, B. S. and Khanna, V. (2010), "The relation between firm-level corporate governance and market value: A case study of India", *Emerging Markets Review*, Vol.11, pp. 319-340.
4. Berle, A. A., and Means, G. C. (1932) "The Modern Corporation and Private Property", Newyork: Macmillan.
5. Black, B. S., Jang, H. and Kim, W. (2006), "Does Corporate Governance Predict Firms' Market Values? Evidence from Korea" *Journal of Law, Economics, and Organization*, Vol. 22, pp. 366-413.
6. Bradley, M., Shipani, C. A. and Sundaram, A. K. (1999), "The Purposes and Accountability of the Corporation in Contemporary Society: Corporate Governance at a Crossroad", *Law and Contemporary Problems*, Vol. 62, No. 9.

7. Bozec, R. and Bozec, Y. (2012), "The Use of Governance Indexes in the Governance Performance Relationship Literature: International Evidence", *Canadian Journal of Administrative Sciences*, Vol.29, pp.79-98.
8. Breusch, T. S. and Pagan, A. R. (1979) "A Simple Test for Heteroscedasticity and Random Coefficient Variation", *Econometrica*, Vol. 47, pp. 1287-1294.
9. Cadbury Committee (1992), "The Report of the Cadbury Committee on the Financial Aspects of Corporate Governance: The Code of Best Practice", Accountancy, UK.
10. Core, J., Guay, W., and Rusticus, T., (2006), "Does weak governance cause weak stock returns? An examination of firm operating performance and investors' expectations", *Journal of Finance*, Vol.61, pp. 665-687.
11. Cragg, J.G. and Donald, S. G. (1993), "Testing identifiability and specification in instrumental variable models", *Econometric Theory*, Vol. 9, pp. 222-240.
12. Demirag, I.S. (1995), "Assessing short-term perceptions of group finance directors of UK companies", *The British Accounting Review*, Vol.27, pp. 247-281.
13. Demsetz, H. (1983), "The Structure of Ownership and the Theory of the Firm" *The Journal of Law and Economics*, Vol. XXVI, pp.375-393.
14. Fama, E. and French, K. (1992), "The cross-section of expected stock returns", *The Journal of Finance*, Vol. XLVII, pp. 427-46.
15. Fama, E.F. and Jensen, M.C., (1983b), "Separation of Ownership and Control", *Journal of Law and Economics*, Vol.26, pp. 301-325.
16. Greene, W. (2008), "Econometric Analysis", Pearson Prentice Hall: Upper Saddle River, New York.
17. Gompers, P., Ishii, J. and Metrick, A. (2003), "Corporate Governance and Equity Prices", *Quarterly Journal of Economics*, Vol.118, pp. 107-156.
18. Grossman, S. and Hart, O. D. (1983), "An analysis of the principal-agent problem", *Econometrica*, Vol. 51, pp. 7-45.
19. Grossman, S. and Hart, O. D. (1986), "The cost and benefit of ownership: a theory of vertical and lateral integration", *Journal of Political Economy*, Vol. 44, pp. 691-719.
20. Gujarati, D.N. (2003), *Basic Econometrics, International Edition - 4th edition*, McGraw-Hill Higher Education.
21. Gujarati, D.N. (2011), *Econometrics by Example*. McGraw-Hill Higher Education.
22. Haldar, A. and Rao, N. (2011), "Empirical Study on Ownership Structure and Firm Performance", *Indian Journal of Corporate Governance*, Vol. 4.
23. Hahn, J., and Hausman, J. A., (2002), "A new specification test for the validity of instrument variables", *Econometrica*, Vol.70, pp.163-189.
24. Hart, O. D., and Moore, J., (1990), "Property rights and the theory of the firm", *Journal of Political Economy*, Vol.48, pp. 1119-1158.
25. Hausman, J. A. (1978), "Specification Tests in Econometrics", *Econometrica*, Vol.46, pp. 1251-1271.
26. Himmelberg, C. P., Hubbard, R. G., and Palia, D. (1999), "Understanding the determinants of managerial ownership and the link between ownership and performance", *Journal of Financial Economics*, Vol. 53, pp. 353-384.
27. Hurlin, C. and Venet, B. (2001), "Granger Causality Tests in Panel Data Models with Fixed Coefficients", Mimeo, University Paris IX.
28. Jackling, B. and Johl, S. (2009), "Board Structure and Firm Performance: Evidence from India's Top Companies", *Corporate Governance: An International Review*, Vol. 17, pp. 492-509.
29. Khanna, T., and Palepu, K. (2000) Is Group Affiliation Profitable in Emerging Markets? An Analysis of Diversified Indian Business Groups. *The Journal of Finance*, Vol. 55, pp. 867-891.
30. Klapper, L. F., and Love, I. (2004) Corporate governance, investor protection, and performance in emerging markets. *Journal of Corporate Finance*, Vol. 10, pp. 703-728.
31. Klein, P., Shapiro, D. and Young, J. (2005), "Corporate Governance, Family Ownership and Firm Value: the Canadian evidence", *Corporate Governance: An International Review*, Vol.13, pp. 769-784.
32. Lang, L. H. P. and Stulz, R. M. (1994), "Tobin's q, Corporate Diversification, and Firm Performance", *Journal of Political Economy*, Vol. 102, pp. 1248-1280.
33. Morck, R., Shleifer, A. and Vishny, R.W. (1988), "Management ownership and market valuation: An empirical analysis", *Journal of Financial Economics*, Vol. 20, pp.293-315.
34. Myerson, R. (1987), "Incentive compatibility and the bargaining problem", *Econometrica*, Vol. 47, pp. 61-73.
35. Novaes, W. and Zingales, L. (1999), "Capital structure choice under a takeover threat", *University of Chicago Working Paper*.
36. Pattanayak, M. (2007), "Insider Ownership and Firm Value: Evidence from Indian Corporate Sector", Jawaharlal Nehru University Working Paper
37. Sarkar, J., and Sarkar, S. (2000), "Large Shareholder Activism in Corporate Governance in Developing Countries: Evidence from India", *International Review of Finance*, Vol. 1, pp. 161-194.
38. Sarkar, S. Sarkar, J. and Sen, K. (2012), "A Corporate Governance Index for Large Listed Companies in India", *Indian Accounting Review*, Vol. 16, No. 1.
39. Shleifer, A. and Vishny, R.W. (1996), "A Survey of Corporate Governance", *Journal of Finance*,

- Vol. 52, No. 2, pp. 737-783.
40. Stock, J. H. and Yogo, M. (2004), "Testing for weak instruments in linear IV regression" in *Identification and Inference for Economic Models: Essays in Honor of Thomas J. Rothenberg*, Cambridge University Press, Cambridge.
41. Srinivasan, P. and Srinivasan, V. (2011), "Status of Corporate Governance Research on India: An Exploratory Study", *IIMB Working Paper 334*
42. White, H. (1980), "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity", *Econometrica*, Vol. 48, pp.817-838.
43. Williamson, O. E. (1988), "Corporate Finance and Corporate Governance", *The Journal of Finance*, Vol. 43, pp.567-591.
44. Wooldridge, J. M. (2002), *Econometric Analysis of Cross Section and Panel Data*, Cambridge, MA: MIT Press.

Appendix A. Notable corporate scams

Year	Country	Company	Causes
1990	United Kingdom	Polly Peck	Diversion of funds to personal account
1991	United Kingdom	Bank of Credit and Commerce International	Misappropriation of depositors funds
1991	United Kingdom	Maxwell Communications	Fraud in pension funds
1999	United States	Waste Management, Inc.	Financial misstatements
2000	United States	Xerox	Falsifying financial results
2001	Australia	One. Tel	Misrepresentation of financial position
2001	United States	Enron	Faulty accounting practices and falsifying earnings
2002	United States	Dynegy	Round trip trades
2002	Bermuda	Global Crossing	Network capacity swaps to inflate revenues
2002	United States	Merck and Co.	Recorded co-payments that were not collected
2002	United States	Merrill Lynch	Conflict of Interest
2002	United States	Qwest Communications	Inflated revenues
2002	United States	Reliant Energy	Round trip trades
2002	Bermuda	Tyco International	Improper accounting and misappropriation of corporate funds
2002	United States	WorldCom	Fraudulent accounting and overstated cash flows
2003	Netherlands	Royal Ahold	Inflating promotional allowances
2003	Italy	Parmalat	Falsified accounting documents
2004	United States	AIG	Massive Ponzi scheme
2008	United States	Lehman Brothers	Massive sub-prime mortgage and cosmetic accounting
2009	India	Satyam Computer Services	Falsification of accounts
2011	Japan	Olympus	Hiding losses by acquisition at inflated prices

Appendix B. Descriptive statistics

Variable	Observation	Mean	Std. Dev.	Min	Max
Q	1292	1.880728	1.899977	.21	28.12
CG	1292	65.74726	7.279767	40.90909	95.45454
DE	1292	.8578793	2.034084	0	45.61
PH	1292	52.5655	17.32729	2	93.56
S	1292	3.783404	18.44898	.0000293	395.1776

Appendix C. Correlation matrix

	Q	CG	DE	PH	S
Q	1.0000				
CG	0.0656	1.0000			
DE	-0.1251	0.0166	1.0000		
PH	0.1801	-0.2208	-0.0517	1.0000	
S	-0.0140	0.0675	0.0121	0.0151	1.0000

Appendix D. Diagnostic test

Fixed or Random: Hausman test	chi2(1) = 0.26	Prob>chi2 = 0.6102
Breusch and Pagan Lagrangian multiplier test for random effects	chi2(1) = 397.08	Prob > chi2 = 0.0000
Wooldridge Test for autocorrelation (Lagrange-Multiplier Test)	F(1, 322) = 1.374	Prob > F = 0.2420

Appendix E. Durbin Wu Hausman test

Testing endogeneity of Corporate Governance and Financial Performance (Tobin's Q)		
CGRES	F(1, 1286) = 2066.35	Prob > F = 0.0000
QRES	F(1, 1286) = 64832.02	Prob > F = 0.0000

Appendix F. Empirical results

Dependent Variable: Tobin's Q		
	OLS	2 SLS
Constant	-2.14 (0.032)	-5.24 (0.000)
CG	1.88 (0.060)	5.89 (0.000)
DE	-8.15 (0.000)	-8.75 (0.000)
PH	3.73 (0.000)	4.21 (0.000)
S	-3.08 (0.002)	-4.26 (0.000)
R SQUARE	0.20	0.4716

Appendix G. Hausman test

Hausman Test		
OLS vs. 2 SLS	chi2(1) = 0.82	Prob>chi2 = 0.3666