This paper examines the association between board size and corporate financial performance using data on 504 corporations belonging to 18 industries. The results suggest that the size of the board plays an important role in influencing the financial performance of corporations. The analysis shows that the performance improves if the board size increases, but the contribution of an additional board member decreases as the size of the corporation increases. The results, however, fail to indicate any significant role of directors' equity ownership in influencing the performance.

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The issue of corporate governance has assumed considerable significance in the recent past. In India, the Confederation of Indian Industry's (CII) Committee on Corporate Governance has presented its recommendations for a model code. A new corporate governance code (Companies Bill, 1997) to streamline and modify the earlier Companies Act, 1956 is in the offing. A growing body of empirical research has examined the structure and effectiveness of corporate governance mainly in the western context. An important insight from this literature is that corporate governance is influenced by executive compensation, takeover threats, monitoring by the board of directors, and other control mechanisms. The insight is also that if corporate governance becomes less effective, it has an immediate impact on the corporations' financial performance. The corporate board, with its mix of expertise, independence, and legal power, is a potentially powerful governance mechanism. Being at the apex of the internal control system, it has the final responsibility for the functioning of the corporation. This paper discusses the role of the board and examines the linkage between size of the board and corporate financial performance.

There does not seem to be a consensus among financial economists on the importance of the structure and the size of the board of directors. Fama (1980) and Fama and Jensen (1983), consider the board to be an important element of corporate governance and acknowledge the role of outside directors as monitors of management and providers of relevant complementary knowledge. According to this view, the 'inside directors/ i.e., the top managers of the corporation, provide valuable information about the corporation's activities, while 'outside directors' contribute both expertise and objectivity in evaluating the managers' decisions, thereby protecting the shareholders' wealth. On the other hand, Demsetz (1983) and Hart (1983) are of the opinion that boards are superfluous because markets provide powerful incentives to align the interests of managers and shareholders. They ask whether outside directors add to the economic discipline already imposed on the managers by product and factor markets, the managerial labour market, the
market for corporate control, and the alternative internal governance controls such as auditing, bonding, and ownership structure. Even if boards do not merely duplicate other governance mechanisms, the authors argue that managers inherently dominate the board by choosing the outside directors they want to work with. The argument thus implies that board and its composition does not play a very influential role in corporate governance.

The performance of the company is, to a large extent, affected by the prevalent board culture in the corporation. The emphasis on politeness and courtesy at the expense of truth and frankness, i.e., rewarding consent and discouraging conflicts ultimately leads to reduced CEO's and, hence, the company's performance. However, the effectiveness of the board in monitoring and evaluating the CEO and company's strategy is hindered because of lack of proper communication. For example, in large corporations, the CEO almost always determines the agenda and the information given to the board. Further, many problems arise from the fact that neither the managers nor the non-manager board members own substantial share of their corporations' equity. A large ownership pattern of the board, in fact, signifies that the decisions of the board members have a bearing not only on remote shareholders' wealth but their own wealth as well. However, in large firms, the board members are unlikely to own significant fractions of the equity.²

The size of the board also has a bearing on the performance of the companies. Research in the area suggests that as groups increase in size, they become less effective because of coordination and process problems outweighing the advantages gained from having more people of diverse background (Steiner, 1972; Hackman, 1990; Jensen, 1993). It is generally argued that a board size of beyond seven or eight people is less likely to function effectively and is easier for the CEO to control (Jensen, 1993). Lipton and Lorsch (1992) state that '...the norms of behaviour in most boardrooms are dysfunctional, because directors rarely criticize the policies of top managers or hold candid discussions about corporate performance.' Believing that these problems increase with the number of directors, Lipton and Lorsch (1992) recommend limiting the membership of boards to ten people, with a preferred size of eight or nine. The Cadbury Committee (Cadbury, 1992) has also recommended that the ideal size of the board could be between eight and ten members and that there has to be one executive director for every non-executive director.

Lastly, it is widely seen across the world that the CEO also holds the position of the chairperson of the board. Considering that the chairperson has to organize board meetings and oversee the process of hiring, firing, evaluating, and compensating the CEO, he/she would find it difficult to perform these functions apart from his or her personal interest. Thus, for the board to be effective, it is imperative to separate the CEO and chairperson positions. Since all these problems (of effective control) emanate because ownership is distributed across thousands of individual investors, it is suggested that equity holdings are concentrated in institutional hands. In principle, such institutions can exercise corporate control rights more effectively.

Studies on the Role of Outside Directors

The empirical studies seem to have been able to resolve the debate about the importance of corporate boards, particularly outside directors, in protecting and promoting the shareholders' interest only recently. The studies carried out till mid-80s to test corporations' performance as a function of board composition have yielded mixed results (see for example, Vance, 1983; Baysinger and Butler, 1985). However, recent empirical work indicates that outside directors are important. Brickley and James (1987) find that the presence of outside directors tends to reduce managerial consumption of perquisites. Weisbach (1988) finds that higher the proportion of outside directors on a board, the more likely the board will replace the corporation's CEO after a period of poor corporate performance. Hermalin and Weisbach (1988) also find that outsiders are more likely to be inducted on the board after a corporation performs poorly or leaves an industry. This implies that additional outside guidance is needed when the situation demands a shift in strategy. Rosenstein and Wyatt (1990) find that the appointment of an outside director is accompanied, on an average, by significant positive excess returns, even if the boards are numerically dominated by outsiders before the appointment. Their results imply that the expected benefits of the outside guidance gained from these appointments outweigh the expected costs of the potential managerial-entrenchment and inefficient decision-making. Brickley et al. (1994) provide direct evidence that shareholder wealth is affected by board composition, as they document a positive stock price reaction at the announcement of the appointment of an additional outside director. These outside directors are generally retired decision-makers from other organizations. They find that the relationship between the stock market reaction and board composition is not monotonic, and argue that the estimated empirical relationship is consistent with the view that outside...
directors serve the interest of shareholders. Baysinger and Butler (1985) also find some evidence that companies perform better if boards include more outsiders. On the other hand, Hermelin and Weisbach (1988) find no relation between the corporation's performance and the fraction of outsider directors.

**Studies on Directors' Equity Ownership**

With respect to stock ownership by the members of the board, Morck et al. (1988) find significant, though non-monotonic, association between different level of directors' ownership and Tobin's Q*, suggesting that some level of board stock ownership has significant advantage. McConnel and Servaes (1990) and Hermelin and Weisbach (1991) report similar results, while Bagnani et al. (1994) argue that at some level of concentration of managerial stock ownership, managers have increased incentive to act in the shareholders' best interests and take risks that are potentially harmful to the bondholders' best interest. But, when managers' stakes are large, they may become more risk-averse as they try to protect their private benefits and objectives. In their analysis, they do not find a direct association between bondholders' returns and board stock ownership.

**Studies on the Size of Board**

The empirical research on the importance of board size is thin. Most of the studies have largely overlooked the importance of board size except Lip ton and Lorsch (1992), Jensen (1993), and Yermack (1996). Yermack (1996), arguing for the importance of board size, states that 'many companies have bypassed a simple, inexpensive way of improving corporate performance.'

The advocates of smaller board size like Jensen (1993) contend that board size affects corporate governance independent of other board attributes. According to Jensen, '....as groups increase in size, they become less effective because the coordination and the process problems overwhelm the advantage from having more people to draw on.' Yermack (1996) in his analysis of 452 large US corporations for the period 1984 to 1994 finds that the negative relation between board size and corporation value attenuates as the boards become large. He concludes that the incremental costs rise as boards grow in size from small to medium. The negative relation in his study is fairly robust as he introduces variables to control for corporation size, industry effect, board composition, inside stock ownership, growth opportunities, diversification, company age, and different corporate governance structures. In a different vein, Holthausen and Larcker (1993) consider board size among a range of factors that might influence executive compensation and company performance. However, they fail to find consistent evidence of an association between board size and company's financial performance.

**The Present Study**

In the context of the above, our study attempts to investigate the relationship between the size of the board and financial performance. The financial performance is measured as the return on assets of the corporation.

To account for the possibility that a variety of other factors can affect the profitability and, thus, omission of these may result in spurious correlation between size of the board and financial performance, a number of other factors have been included in the investigation. Figure 1 gives a brief description of all the factors used in the study.

![Figure 1: Description of Influencing Variables](image)

Ownership of equity by the directors protects the shareholders' wealth. To account for this, directors' equity (DE) in the corporation has been taken as a controlling variable. The percentage of equity held by other corporations (CE) has been included to capture the extent of influence of board composition. A foreign-owned corporation or a corporation having ties with a foreign corporation is likely to be more profitable because it has access to advanced technology, better managerial and marketing practices, and other intangible assets of the parent corporation. To control for this corporation-specific effect, foreign-equity (FE) holding in the corporation is included as one of the influencing variables. Similarly, a corporation of bigger size, due to its ability to reap the

Tobin's Q is the ratio of market value of ordinary share to that of its book value.
economies of scale, is likely to be more profitable. To account for this size impact, net fixed assets as a ratio of the largest corporation in the industry (as of 1994-95) (size) has been taken as one of the explanatory variables. Any decision by a corporation to venture into export markets would make sense only if it is profitable for the corporation. This is because of the fact that international trade entails lot of indirect costs in terms of distribution and logistics, adherence to stricter quality standards, uncertainty in currency fluctuation, etc. In order to account for outward orientation, export intensity (EXP) has been taken as a controlling variable. Corporations may appear less efficient and hence, unprofitable, if they are managing plants located in industries other than those of their basic industries. A dummy has been introduced to control for this 'outbound diversification' (OBD) of the corporation.

Industry dummy variables have been used to control for possible spurious correlation between size of the board and profitability operating through industry effects. Thus, the final equation to be estimated is:

$$\text{Profit}_{95} = A_1 + a_2\text{ND} + a_3\text{CE} + a_4\text{DE} + a_5E + a_6\text{Size} + a_7\text{Exp} + A_8\text{OBD} + c_iD_i$$

where $D_i$ is industry dummy for $i$th industry and $i$ varies from 1 to 17.

The model has been estimated using simple ordinary least square (OLS) method.

**Data and Variables**

The study uses the Centre for Monitoring Indian Economy (CMIE) database, CIMM, for the year 1994-95. Initially, 877 corporations belonging to 18 major industry groups were selected for the study. The industries chosen for the analysis were: Automobile Ancillaries, Beer and Alcohol, Cement, Cigarette and Tobacco Products, Commercial Vehicles, Drugs and Pharmaceuticals, Dry Cells and Storage Batteries, Glass Products, Inorganic Chemicals, Organic Chemicals, Paints and Varnishes, Paper and Paper Products, Passenger Cars and Jeeps, Refrigeration and Air Conditioning, Steel Tubes and Pipes, Two and Three Wheelers, Tyres and Tubes, and Wires and Cables. Those corporations for which the database did not report information on any of the variables used in the analysis were excluded. This resulted in a final sample of 504 corporations belonging to 18 industry groups.

For the purpose of analysis, profitability has been calculated as the return on assets, i.e., profit of the corporation as a ratio of its net fixed assets. As explained above, one of the controlling variables being corporate equity, the database does not give the composition of the board, i.e., whether the director is an insider, outsider or a gray director. In the absence of this information, a proxy variable, corporate equity (CE), is required to capture the role played by outside directors.

**Results**

Table 1 gives the mean and the standard deviation of various variables used in the analysis. From the table, it can be inferred that, on an average, there are more than nine directors in a corporation and that the board size is increasing with the size of the corporation. Similarly, corporations of larger size have more CE and foreign equity participation and it decreases as the corporation size decreases. On the other hand, the directors' equity falls as the size of the corporation increases. Figure 2 gives the distribution of corporations in different board size groups. From the figure, one can infer that more than two-third (nearly 67%) of the sample corporations have a board size between 6 and 11.

Table 2 gives the estimation results for the proposed model. Column 1 tabulates the results of the regression for all the corporations together. Row 1 reports the results for the board size. The result as indicated by the positive and highly statistically significant sign of ND variable (row 1, column 1) suggests that as the number of directors in the board increases, the corporation becomes more profitable.

<table>
<thead>
<tr>
<th>Variable</th>
<th>All the Corporations</th>
<th>Corporations Belonging to Size Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>PROF15</td>
<td>0.518 (0.623)</td>
<td>0.572 (1.016)</td>
</tr>
<tr>
<td>ND</td>
<td>9.83 (3.56)</td>
<td>7.95 (2.71)</td>
</tr>
<tr>
<td>CE</td>
<td>25.08 (19.33)</td>
<td>20.71 (17.15)</td>
</tr>
<tr>
<td>DE</td>
<td>12.4 (15.91)</td>
<td>15.42 (15.46)</td>
</tr>
<tr>
<td>FE</td>
<td>10.85 (14.89)</td>
<td>7.35 (12.93)</td>
</tr>
<tr>
<td>SIZE</td>
<td>12.01 (21.16)</td>
<td>0.739 (0.422)</td>
</tr>
<tr>
<td>N</td>
<td>504</td>
<td>125</td>
</tr>
</tbody>
</table>

Source: Own computations.

Note: Figures in parentheses are the standard deviation. The categorization is done on the basis of the size of the corporations.
No. of Directors on the Board

i.e., larger the board size, more profitable the corporation would be. Since the corporate boards have a variety of responsibilities, which require a diverse set of talents to satisfy, any increase in board size may be resulting in availability of broader set of talents at the disposal of the corporation, thereby leading to improved performance. The above conjecture can be verified by looking into the composition of the board. As the data on this factor were not readily available, this could not be verified.

Table 2: Estimated Coefficients

<table>
<thead>
<tr>
<th>Variable</th>
<th>All the Corporations</th>
<th>Corporations Belonging to Size Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>ND</td>
<td>0.0177***</td>
<td>0.1105***</td>
</tr>
<tr>
<td></td>
<td>(2.55)</td>
<td>(2.851)</td>
</tr>
<tr>
<td>CE</td>
<td>0.00215</td>
<td>0.00595</td>
</tr>
<tr>
<td></td>
<td>(1.391)</td>
<td>(0.959)</td>
</tr>
<tr>
<td>DE</td>
<td>0.001441</td>
<td>0.00566</td>
</tr>
<tr>
<td></td>
<td>(0.762)</td>
<td>(0.897)</td>
</tr>
<tr>
<td>FE</td>
<td>0.00559***</td>
<td>0.0073</td>
</tr>
<tr>
<td></td>
<td>(2.749)</td>
<td>(0.93)</td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.00347***</td>
<td>-0.383*</td>
</tr>
<tr>
<td></td>
<td>(-2.49)</td>
<td>(-1.739)</td>
</tr>
<tr>
<td>Industry Dummies</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>N</td>
<td>504</td>
<td>125</td>
</tr>
<tr>
<td>R-square Adjusted</td>
<td>0.147</td>
<td>0.162</td>
</tr>
<tr>
<td>F Value</td>
<td>22.51</td>
<td>4.91</td>
</tr>
</tbody>
</table>

Note: Figures in parentheses are t-statistics and *** means significance at 1%, 5%, and 10% respectively. The two controlling variables, EXP and ODD, do not attain significance in any variant of the model. Hence, they have not been reported.

Among the controlling variables, results suggest that corporate equity (CE) does not have any effect on the performance of the corporation, as the coefficient is not significantly different from zero in statistical terms (row 2, column 1). Row 3 of column 1 gives the coefficient of directors’ equity (DE). This variable is also not significantly different from zero in statistical terms. This implies that the result does not validate either of the hypothesis — management-interest or stockholder-interest.

Among other variables, extent of foreign ownership (FE) has come out to be as expected. Kumar (1994) in his analysis has also found that foreign-controlled corporations in India are more profitable than domestic corporations. Row 4 of column 1 gives the results relating to size. The sign and significance level of this variable suggests that a corporation of larger size would be less profitable. There are a few studies which have found out that in 80s, the large size of the corporation in India was mainly because of the diversification strategy pursued by it or the number of licenses it could obtain to forestall the entry of other corporations (see, for example, Desai, 1988; Pandit and Siddharthan, 1994). In that case, an alternate variable like capacity utilization would shed more light than mere size of the corporation. Though the liberalization process was initiated in 1991, it is likely that even after 3-4 years, corporations might still be saddled with unutilized capacity. However, due to unavailability of data, this aspect has not been explored.

The results, thus, suggest that the size of the board has a significant impact on the corporation's performance. In order to check the robustness of the results, the sample is bifurcated into three groups based on the size of the corporations. The categorization is based on different quartiles of size. Corporations in the first and the fourth quartile are categorized as belonging to small and large size group respectively. The remaining corporations are classified in the medium size group. Columns 2 to 4 of Table 2 give the results for each category of corporations.

Row 1 of Table 2 gives the coefficient of ND for different size category corporations. The coefficient and sign of the variable clearly indicates the positive role played by large board size on the performance of the corporation. However, the contribution of an additional director decreases as the board size increases. From the estimated coefficient, it appears that if an additional member joins the board, then the profitability of the small, medium, and large sized corporations, which have an average board size of 8, 10, and 12 respectively (Table 1), increases only in
decreasing order by 19.3, 4.2, and 3.5 per cent. Thus, the results partially substantiate Jensen's (1993) findings (for US corporations) that when board size increases, the board tends to become relatively less effective as the coordination problem outweights the advantages.

Rows 2 to 10 report the results for various controlling variables. In case of corporate equity (CE), the sign has come out to be positive in all the variants of the model. However, it attains significance only in case of medium and large sized corporations. The outside directors as nominated by other corporates have vested interests in enhancing the performance of the corporation. They can monitor and exercise better control over the board, thereby resulting in improved performance of the corporation. However, the effect of CE is not significant for small corporations.

The insignificant coefficient of directors' equity (DE) in all the variants of the model (row 3) implies that directors' equity is playing no role in explaining the performance of the corporation. The possible explanation can be the sample used in the study. As shown in Table 1, the average director's equity of the sample is 15 per cent for relatively smaller corporations and it falls as the size of the corporation increases. Literature suggests that there is an optimum level of director's equity (for different sizes of the corporation) which enhances the performance of the corporation. If the level of equity holding falls below that level, the directors have no incentive to enhance the remote shareholder's wealth. Alternatively, a high level of directors' equity may force the directors to be risk-averse, thereby affecting the performance.

Among other controlling variables, results suggest that only in case of medium sized corporations (row 4, column 3), foreign equity holding has an impact on the performance of the corporation. Foreign equity participation in a relatively small or large sized corporation does not seem to play any role as the coefficient is not significantly different from zero, though the sign is as expected in both the cases. One possible explanation can be that a corporation of large size may be as efficient as a foreign corporation, thereby discounting the role played by foreign equity participation in enhancing the performance of the corporation. On the other hand, the average FE holding in small corporations is very small (around 7%) so as to have any meaningful impact on the performance of the corporation. The variable, size, has again turned out to be negative for both small and medium sized corporations suggesting that a corporation having larger asset base is less likely to perform better.

Thus, the results suggest that the performance of a corporation depends on its board size. However, the results can be criticized on the ground that the dependent variable used in the analysis, i.e., the return on assets for the year 1994-95 would not be the same as the shareholder value, if measured in just one year. It is the sustained profitability that has an impact on the market value and hence on shareholders' wealth. In order to partially offset this criticism, the model has been re-run with the dependent variable defined as average return of three years on assets. The results, however, remain the same in terms of the direction and significance of various variables like board size, directors' equity, and corporate equity, thus indicating the robustness of the results.

**Concluding Remarks**

From the above results, which are exploratory in nature, it can be inferred that the size of the board plays an important role in enhancing the performance (profitability) of the company. The analysis in this study also suggests that a corporation's performance improves by increasing the board size and contribution of an additional board member decreases as the size of the corporation increases. In other words, large corporations, which already have a high average board size, do not gain much if an additional board member joins.

The analysis could have shed more light on the role played by the type of directors had the composition been known. The proxy used for composition of board, i.e., corporate equity, gives some tentative direction of influence/role played by outside directors in enhancing the performance of the corporation. Though the literature also suggests that an optimum level of directors' equity can influence the corporation's performance drastically, the insignificant statistical results (based on the study's sample) act as a constraint for drawing any conclusions. There is a need to investigate the issue using data over a longer period. There is also a need to look at the experiences of board members in enhancing the performance of their corporations.

**Notes**

1. A working group was set up by the finance ministry in August 1996 to suggest modifications to the existing Companies Act, 1956. The guidelines for the new corporate governance code are to impart flexibility, while retaining emphasis on self-regulation, subject to better disclosures, a more efficient environment and tougher penalties.
2. Murphy (1992) in his analysis of 1,000 largest firms in the US has found out that the average CEO in US holds 2.7 per cent of his or her firm's equity.

3. However, it needs to be mentioned here that many studies have found that the Indian companies have adopted corporate equity as the means for cross-holding purpose in the same industrial conglomerate (see, for example, Rao, 1997). If that is also the case in our sample, then any result obtained with respect to corporate equity needs to be viewed with caution.

4. Gray directors are those who have substantial business relationships with the company, either personal or through their main employers or are relatives of corporate officers.

5. Business Today's (1997) survey has also found that the corporations of larger size have bigger size boards.

6. The decrease in DE with increase in size also implies that the two variables may be highly negatively correlated. However, the conjecture is not validated as the correlation coefficient between the two variables for different size groups is -0.063, -0.19, and -0.087 respectively.

References


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