CHAPTER 7

ESTABLISHING THE RELATIONSHIP AMONG MANAGEMENT, CORPORATE GOVERNANCE MECHANISMS, DEPLOYMENT OF RESOURCES AND COMPETITIVE ADVANTAGE

Resource based theory has over the years emphasized upon the role of management and governance in efficient resource investment decisions. Penrose (1959) highlights that Resource Based Theory suggests managers have an important role to play in resource allocation decisions. Further, if resource decisions are not effectively governed, it can jeopardize the efficiency of resource investment decisions (Penrose, 1995). In conformity with Penrose’s view, Kor and Mahoney (2005), advocate that the researchers attempting to establish reasons for firm’s superior performance must examine both how much firms invest in strategic investments and how these strategic investments are governed and managed. The present chapter aims to explore this issue of governance and management of resource investments and firm performance. The chapter making such attempt makes two important research contributions.

First, the present chapter contributes towards revitalizing the Resource Based Theory by delving into the issue of processes of resource acquisition and development, by exploring the role played by elements of corporate governance of a firm together with its management. Barney et al. (2011), comparing the evolution of Resource Based Theory to product life cycle, argue that the theory has undergone the stages of introduction and growth and has now reached the stage of maturity. This present stage, like that of product life cycle can be followed by either of the two stages: revitalization or decline. They offer researchers to explore certain alternatives so as to direct the theory on to the stage of revitalization. Amongst the alternatives, which include, to explore the inter-linkages of the theory with other perspectives, the micro-foundations of Resource Based Theory, Resource Based Theory and sustainability, and method and measurement issues, is the alternative to explore the processes of resource acquisition and development. In this theme, which forms the basis of the present study, they highlight the need for researchers to delve into the processes underlying resource acquisition. The chapter, in this light, explores the complimentary role that strong
governance mechanisms may play, to that of the role of managers and entrepreneurs in the organizational decision making.

Second, it contributes to the research in corporate governance, as it probes the relationship between corporate governance mechanisms and firm performance through resource investments of a firm. Researchers in the field of corporate governance have time and again emphasized that corporate governance measures are more likely to affect the firm performance through other firm elements rather than having a direct impact. The present research, through path modeling builds and tests the theory, establishing relationship between corporate governance elements of a firm and its resource investments and further the resource investments and firm performance.

The present chapter is organized as, in the section that follows the theory and hypotheses are built, followed by the section on data analysis.

THEORY AND HYPOTHESES

Board of directors and resource investment

In organizations, where there is a separation of control and management, the board exists to safeguard the interests of the shareholders. The board, with its primary responsibility towards the shareholders of the company, exercises control over the management and guides the strategic direction of the firm (Judge and Zeithaml, 1992). This exercising of control by the board is influenced by its composition (Baysinger and Butler, 1985; Hambrick and Finkelstein, 1987; Westphal, 1998), its size (Forbes and Milliken, 1999; Mak and Roush, 2000; De Andres et al., 2005) and frequency of its meetings (Vafeas, 1999). There is a debate whether these board features do actually matter or these are just a statistic that account for nothing. To this effect, Pfeffer (1973) argues that these board features should not be considered as random variables, but as a means with the organization to deal with the environment and to ensure its successful operation. We endorse Pfeffer’s view and test board’s role in guiding a firm’s direction. The strategic thinkers have since long held that a firm’s strategic direction is determined by the kind of resources it invests in. While researchers in the past have studied the board’s impact on resource investment, their focus remains on board composition and investment in research and development (R&D). We, in the section that follows,
propose the relationship of the board features of composition, size and meetings with a range of resource investment decisions of a firm.

**Board composition and resource investment**

Board composition, the percentage of outsiders comprising the board is considered an important feature. The outsiders are considered better representatives of the shareholders interests as they lack personal interests in a company. Governance theorists have, since long, advocated the presence of outsiders on board of companies seeking alignment among management and shareholders’ interests. The outsiders can better safeguard the shareholders’ long term interests in an organization and thus influence investment of resources in an organization, as it is a decision having long term significance.

Testing the relationship between board composition and investments in R&D of a firm, has remained the focus of studies. They have found that board composition has a positive impact on investment in R&D of a firm (Hoskisson et al., 1994; Fried et al., 1998). It seems probable that having outsiders on board will influence the other resource investment decisions. Moreover, as found by the researchers previously in the case of R&D, a positive relationship can be anticipated. It is thus, proposed:

H1a: Board composition positively influences R&D investment
H1b: Board composition positively influences marketing investment
H1c: Board composition positively influences human capital investment
H1d: Board composition positively influences financial and physical capital investment

**Board meetings and resource investment**

A board meeting signifies board activity, it is an avenue for the board members to give advice and discuss firm issues. Some researchers, in the past, have held that board meetings are simply a means to discuss day-to-day affairs of an organization and do not add any value (Jensen, 1993). But, it also cannot be ruled out, that a board needs to meet frequently, for a board to exert influence on management. Meetings are required for the board to ponder, discuss and deliberate upon issues that affect strategic direction of a firm, thereby, having an impact on share holder interests (Vafeas, 1999). Thus, it
seems imperative to understand the relationship between the number of meetings and resource investment. It seems more logical to anticipate a positive relationship between increased board activity and resource investment. Thus, it is proposed as:

H2a: Increasing board meetings positively influences R&D investment
H2b: Increasing board meetings positively influences marketing investment
H2c: Increasing board meetings positively influences human capital investment
H2d: Increasing board meetings positively influences financial and physical capital investment

**Board size and resource investment**

Board size that is the number of people on board signifies the mix of skill and experience on board. An increasing board size thus would mean increase in the diversity of expertise; this would then help as Boyd (1994) advocates, to secure alignment of the firm with its environment. To secure the environment alignment an organization requires resources that help an organization exploit the opportunities and ward-off the threats. The pool of expertise and skill on board guides and advises an organization to invest in resources that help align a firm with its environment. Thus we propose:

H3a: Increasing board size positively influences R&D investment
H3b: Increasing board size positively influences marketing investment
H3c: Increasing board size positively influences human capital investment
H3d: Increasing board size positively influences financial and physical capital investment

**CEO and resource investment**

CEO, or top management team, is at the epicenter of strategy formulation and implementation (Sirmon and Hitt, 1999). The role of top managers is important enough to determine a firm’s strategic content and process (Child 1972; Hambrick and Mason; 1984; Miller and Toulouse, 1986). Hambrick and Mason (1984) argue that the strategy of an organization can be viewed as reflection of the values and cognitive bases of its top managers. Using their "upper-echelons" perspective the study examines how
resource investment is affected by visible characteristics of the CEO. Researchers have found the demographic characteristics of the management of the firm related to the various firm outcomes (Wiersema and Bantel, 1992; Papadakis and Bourantas, 1998).

We assume that a CEO’s preferences for various levels of resource investment are associated with visible characteristics of the CEO, such as, age, tenure, education and career experience. While there are studies looking into relationship between CEO characteristics and firm R&D spending, there are no studies analyzing the same for other resource spending. Chaganti and Sambharya (1987); Thomas et al. (1991) and Barker and Mueller (2002) find CEO characteristics as having a significant impact on firm innovative behavior. While firm R&D spending is not a guarantee of innovation, it is an important input to the innovation process (Barker and Mueller, 2002).

It does not seem to be inappropriate to assume that the resource investment decisions of a firm are affected by the management of the firm. The ‘upper echelons’ theory holds that the demographic characteristics of a firm’s management are strong determinants in effecting a firm’s strategic decisions and thereby determining its strategic direction. Thus, it seems appropriate to propose:

H4a: CEO characteristics positively influences R&D investment
H4b: CEO characteristics positively influences marketing investment
H4c: CEO characteristics positively influences human capital investment
H4d: CEO characteristics positively influences financial and physical capital investment

**Blockholders and resource investment**

The blockholders are owners of substantial chunks of shares in a firm. These substantial holdings make the blockholders rather immobile and their personal interests are increasingly tied to those of the firm, at large. Berrone et al. (2005), in the Spanish context, find number of blockholders having a positive relationship with the R&D investment in a firm. Thus, the block holders have both the power, as well as, a desire to participate in strategic decision-making of the firm. To safeguard their high stakes in the firm, it seems logical to assume that they would try and ensure that the strategic
decisions, such as, the resource investment decisions are made in conformity with the larger interests of the firm. The present study however proposes a positive relation as:

H5a: Increasing number of blockholders positively influences R&D investment
H5b: Increasing number of blockholders positively influences marketing investment
H5c: Increasing number of blockholders positively influences human capital investment
H5d: Increasing number of blockholders positively influences financial and physical capital investment

**Institutional investors and resource investment**

Institutional investors seek regular present returns, further, they expect a firm to make long-term investments, so as to ensure future profitability (David et al., 2001). To this tune, Baysinger et al. (1991) and Berrone et al. (2005) find institutional investor ownership to influence firms to invest in R&D. Institutional investors with access to professional expertise and power, due to their substantial holdings in the firm, advice and even exert pressure on the management to safeguard their interests in the firm. It can, thus, be reasonably expected of the institutional investors to play an important role in guiding and monitoring the resource investment decisions. Thus, it seems appropriate to propose:

H6a: Institutional investor ownership positively influences R&D investment
H6b: Institutional investor ownership positively influences marketing investment
H6c: Institutional investor ownership positively influences human capital investment
H6d: Institutional investor ownership positively influences financial and physical capital investment

**Investment in research and development and firm performance**

Investments in R&D constitute tangible efforts to build and maintain innovative capabilities, and firms often differ significantly in the intensity of such tangible efforts (Hill and Snell, 1988; Mosakowski, 1993). Firms, investing heavily in R&D, are more likely trying to compete on the basis of innovativeness and technology breakthrough (Lin et al., 2006). High levels of innovativeness help a firm in exploiting new
possibilities (Cho and Pucik, 2005), in creating barriers to entry and entering new product lines (Jose et al., 1986). While carrying out research in multiple industries, Villalonga (2004) ascertains R&D to be a valuable intangible asset in mining and construction, food, textiles and chemicals, manufacturing, transportation and services. Thus it is proposed:

H7: Investment in R&D has a positive influence on firm performance

**Investment in marketing and firm performance**

Marketing expenditure has been found to contribute differentially towards performance in a number of industries. An overall marketing capability involves knowledge of and care for current and future needs and wants of customers, informative and differentiating advertising, and commitment to customer service (Mosakowski, 1993), which typically requires persistent and timely investments in marketing. DeCarolis (2003), in bio-technology industry, Morgan et al. (2009), Vorhies et al. (2009) in the US motor industry, Kor and Mahoney (2005) in medical, surgical and dental instrument industry, Song et al. (2005) in U.S. joint ventures, Yeoh and Roth (1999) in Pharmaceutical industry, have found marketing as significantly contributing towards the performance of the organizations. Thus, marketing expenditure seems to have a significant role to play in a firm’s differential performance, which forms the next hypothesis:

H8: marketing expenditure has a positive relationship with firm performance.

**Investment in human capital and firm performance**

Hatch and Dyer (2004) find investments in human capital as a resource significantly contributing towards sustainable competitive advantage. The knowledge and skills embedded in the individual employee, and thereby in the groups, yield rents for the firm (Acquaah and Chi, 2007). Physical resources cannot yield anything on their own, unless, there is a mind guiding where the resources should be deployed and how much is to be deployed (Holcomb, 2009). The knowledge, thus stored with the human resources about the company, is a resource as it cannot be copied it being tacit in nature, that is, which cannot be codified (Berman et al., 2002). The Chief Mentor of Infosys, Narayanmurthy’s words that “Our assets walk out of the door each evening. We have to
make sure they come back the next morning”, speaks volumes of the importance of human resources and how important it is for the firms to get them, retain them and develop them. The human capital expenditure, on training, development and upkeep of the employee becomes an important asset, thus contributing towards the competitive advantage. This brings us to our next hypothesis

H9: Investments in human capital has a positive effect on firm performance.

**Investment in physical capital and firm performance**

Organizations have been found to be heavily dependent on physical capital (i.e. buildings, equipment, information technology, etc.) *(cited in Simon and Hitt, 2009)*. Investment in physical capital is a critical asset, since the industry is dependent on equipments and information technology, which are prone to obsolescence in a short span of time. So, to stay ahead of competition, it requires the industry players to invest in building physical assets. The organizations which have higher investments will have advantage over those who cannot invest, as, they will be able to cater to the needs of the customers better because older equipments and technology limit the range of services that a firm can offer its customers *(Sirmon and Hitt, 2009)*. This forms our next hypothesis:

H10: Investments in physical capital has a positive influence on firm performance.

**ANALYSIS OF GOVERNANCE AND MANAGEMENT OF RESOURCE INVESTMENTS AND FIRM PERFORMANCE**

**Measures**

*Performance:* A firm’s performance is defined with three variables: ROA (Return on Assets), Relative ROA and Tobin’s q. ROA. ROA is measured as net income divided by the total assets. Relative ROA is the industry adjusted ROA, calculated by subtracting the industry average ROA from the firm’s ROA. Tobin’s q is measured as

\[
\frac{(\text{Market value of equity} + \text{preference share capital} + \text{book value of long term liabilities} + \text{net short term liabilities})}{\text{book value of assets}}.
\]

*Board of directors:* The board features are measured by three single indicator constructs: board composition, board meetings and board size. Board composition is
measured as the percentage of independent directors to the total number of directors. Board meetings are measured as the total number of board meetings reported in the annual report of the company. Board size is the total number of members on board at the end of the financial year as reported in the annual report.

*Management:* The management of the firm comprises of the indicators related to the CEO of the firm. The construct of CEO characteristics is defined using five indicators: CEO tenure, CEO experience, CEO education, CEO multiple directorships, and CEO age. CEO tenure is the number of years he/she has been the CEO in the present firm. CEO experience is measured as the total number of years he/she has been working professionally. CEO education is measured using Guthrie *et al.* (1991)’s methodology, where doctoral degree means 21 years, masters means 18 years, other graduate means 18 years, bachelors mean 16 years, some college means 14 years, high school diploma 12 years. CEO multiple directorships is the number of boards of which he is a member excluding the firm in question. CEO age is his age measured in years.

*Ownership structure:* The ownership structure has two constructs: blockholding and percentage institutional investors. The blockholding construct is measured as the number of blockholders holding greater than 5 percent shareholding.

Percentage of institutional investors is a single indicator construct measured as the percentage shareholding of institutional investors in the company.

*Resources:* The resources of a firm comprises of four constructs: research and development (R&D), marketing, human capital and financial resources.

R&D is measured using two variables: R&D intensity and R&D by total assets. R&D intensity is the total R&D expenditure divided by the sales of the firm. R&D by total assets as the name suggests is the R&D expenditure divided by the total assets of the firm.

Marketing is defined by two indicators: marketing intensity and advertising intensity. Marketing intensity is the marketing expenses divided by total sales and advertising intensity is the advertising expenses divided by total sales of the company.
Human capital is measured by again using two variables: employee value added and human capital expenditure. Employee value added is measured using the methodology of Acquaah and Chi (2007). The employee value added is calculated by dividing the sum of depreciation, amortization, fixed charges, interest expense, labor and related expenses, pension and retirement expenses, net income before taxes, and rental expenses by the number of employees of the firm. The variable of human capital expenses is calculated as the sum of salaries and expenses on employee welfare and training divided by the number of employees.

Financial resource of a company is defined by two variables: the physical capital of the firm and by the financial slack. Physical capital means the assets such as buildings, equipment and computer systems while financial slack is calculated by dividing the firm’s equity by debt.

The proposed model is tested using structural equation modeling, utilizing the LISREL 8.7 software package. Structural equation modeling is a hybrid of factor and path analysis (Hoskisson et al., 1994). In SEM, after representing the causal processes by means of structural equations, to aid clearer conceptualization of the theory, these structural equations are then pictorially modeled. Then, to determine the extent to which the hypothesized model is consistent with the data, the model is statistically tested by a simultaneous analysis of the entire system of variables (Byrne, 2007).

The hypothesized model is represented through Figure 7.1. Consistent with Bollen (1989) we report multiple criteria to evaluate overall fit of the LISREL model. The definition of the variables as regards the corporate governance and management remain the same as given in Table 6.1 on page 142 and the definitions of the resource variables remains the same as provided in Table 5.1 on page 122. The fit statistics reported are: chi square, chi square divided by the degrees of freedom, goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), comparative fit index (CFI), root mean square error of approximation and normed fit index (NFI). The significance of the hypothesized paths was assessed using the t-ratios of the respective gamma coefficients.
Figure 7.1: Proposed theoretical model

Establishing the Relationship among Management, Corporate Governance Mechanisms, Deployment of Resources and Competitive Advantage
Results

Table 7.1 provides the summary fit indices. As suggested by Bentler and Bonett (1980) we compare the proposed theoretical model against a null model. As can be seen the proposed model is a significant improvement over the null model. There is a significant reduction in the chi-square value from the null to the theoretical model. The goodness-of-fit indices indicate a satisfactory fit of the model to the data.

<table>
<thead>
<tr>
<th>Model Description</th>
<th>$\chi^2$</th>
<th>Df</th>
<th>$\chi^2$/df</th>
<th>GFI</th>
<th>GFIa</th>
<th>CFI</th>
<th>NFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Null model</td>
<td>1421</td>
<td>254</td>
<td>4.28</td>
<td>.61</td>
<td>.55</td>
<td>.50</td>
<td>.45</td>
<td>.09</td>
</tr>
<tr>
<td>Final model</td>
<td>415.7</td>
<td>222</td>
<td>1.36</td>
<td>.92</td>
<td>.90</td>
<td>.94</td>
<td>.90</td>
<td>.05</td>
</tr>
</tbody>
</table>

The $\chi^2$ (chi-square) is the likelihood ratio, the chi-square-to-degrees-of-freedom index is a standardized measure. Smaller values of $\chi^2$ and $\chi^2$/df represents a better fit. GFI is the goodness-of-fit index, GFIa is the adjusted-goodness-of-fit index, which is the GFI adjusted for the number of degrees of freedom, CFI is comparative fit index and NFI is the Normed fit index. These fit measures can each range between 0 and 1. The values of GFI, GFIa, CFI and NFI approaching 1 represent better fit. The root mean square error of approximation represents good fit as it approaches 0. These measures do not have a significance level.

Tests of hypotheses: The results of hypotheses tested are reported in Table 7.2. Hypotheses 1a, 1b, 1c and 1d propose a positive relationship between board composition and research and development, marketing, human capital and physical and financial capital, respectively. None of the proposed relationships are found to be significant.

Hypotheses 2a, 2b, 2c and 2d propose a positive relationship between board meetings and research and development, marketing, human capital and physical and financial capital, respectively. We find statistically significant relationship between board meetings and human capital and physical and financial capital. Thus we accept hypotheses 2c and 2d.

Through hypotheses 3a, 3b, 3c and 3d, we propose a positive relationship between board size and research and development, marketing, human capital and physical and financial capital, respectively. The data analysis provides support for 3a, 3b and 3c whereas hypothesis 3d fails to find any support.
### Table 7.2: Lisrel Results of Proposed Hypotheses

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path</th>
<th>Predicted sign</th>
<th>Path coefficient</th>
<th>t-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Board composition → R&amp;D</td>
<td>+</td>
<td>-.03</td>
<td>-0.02</td>
</tr>
<tr>
<td>2a</td>
<td>Board meetings → R&amp;D</td>
<td>+</td>
<td>.04</td>
<td>.38</td>
</tr>
<tr>
<td>3a</td>
<td>Board size → R&amp;D</td>
<td>+</td>
<td>.01</td>
<td>2.16*</td>
</tr>
<tr>
<td>1b</td>
<td>Board composition → Marketing</td>
<td>+</td>
<td>.14</td>
<td>.52</td>
</tr>
<tr>
<td>2b</td>
<td>Board meetings → Marketing</td>
<td>+</td>
<td>.06</td>
<td>.93</td>
</tr>
<tr>
<td>3b</td>
<td>Board size → Marketing</td>
<td>+</td>
<td>.10</td>
<td>2.43*</td>
</tr>
<tr>
<td>1c</td>
<td>Board composition → Human Capital</td>
<td>+</td>
<td>.07</td>
<td>.79</td>
</tr>
<tr>
<td>2c</td>
<td>Board meetings → Human Capital</td>
<td>+</td>
<td>.12</td>
<td>2.18*</td>
</tr>
<tr>
<td>3c</td>
<td>Board size → Human Capital</td>
<td>+</td>
<td>.23</td>
<td>3.09**</td>
</tr>
<tr>
<td>1d</td>
<td>Board composition → Financial and Physical capital</td>
<td>+</td>
<td>.21</td>
<td>1.53</td>
</tr>
<tr>
<td>2d</td>
<td>Board meetings → Financial and Physical capital</td>
<td>+</td>
<td>.18</td>
<td>2.62*</td>
</tr>
<tr>
<td>3d</td>
<td>Board size → Financial and Physical capital</td>
<td>+</td>
<td>.42</td>
<td>1.86</td>
</tr>
<tr>
<td>4a</td>
<td>CEO → R&amp;D</td>
<td>+</td>
<td>.15</td>
<td>2.00*</td>
</tr>
<tr>
<td>4b</td>
<td>CEO → Marketing</td>
<td>+</td>
<td>.29</td>
<td>3.03**</td>
</tr>
<tr>
<td>4c</td>
<td>CEO → Human Capital</td>
<td>+</td>
<td>.01</td>
<td>.27</td>
</tr>
<tr>
<td>4d</td>
<td>CEO → Financial and Physical capital</td>
<td>+</td>
<td>-.09</td>
<td>-2.23*</td>
</tr>
<tr>
<td>5a</td>
<td>Blockholding → R&amp;D</td>
<td>+</td>
<td>.32</td>
<td>2.14*</td>
</tr>
<tr>
<td>5b</td>
<td>Blockholding → Marketing</td>
<td>+</td>
<td>.05</td>
<td>.84</td>
</tr>
<tr>
<td>5c</td>
<td>Blockholding → Human Capital</td>
<td>+</td>
<td>.10</td>
<td>1.48</td>
</tr>
<tr>
<td>5d</td>
<td>Blockholding → Financial and Physical capital</td>
<td>+</td>
<td>.06</td>
<td>.82</td>
</tr>
<tr>
<td>6a</td>
<td>Institutional investors → R&amp;D</td>
<td>+</td>
<td>.04</td>
<td>.91</td>
</tr>
<tr>
<td>6b</td>
<td>Institutional investors → Marketing</td>
<td>+</td>
<td>.12</td>
<td>1.30</td>
</tr>
<tr>
<td>6c</td>
<td>Institutional investors → Human Capital</td>
<td>+</td>
<td>-.03</td>
<td>-.35</td>
</tr>
<tr>
<td>6d</td>
<td>Institutional investors → Financial and Physical capital</td>
<td>+</td>
<td>.13</td>
<td>2.28*</td>
</tr>
<tr>
<td>7</td>
<td>R&amp;D → Performance</td>
<td>+</td>
<td>.06</td>
<td>2.79**</td>
</tr>
<tr>
<td>8</td>
<td>Marketing → Performance</td>
<td>+</td>
<td>.12</td>
<td>4.04***</td>
</tr>
<tr>
<td>9</td>
<td>Human Capital → Performance</td>
<td>+</td>
<td>.02</td>
<td>.42</td>
</tr>
<tr>
<td>10</td>
<td>Financial and Physical capital → Performance</td>
<td>+</td>
<td>-.09</td>
<td>-2.93**</td>
</tr>
<tr>
<td></td>
<td>Company Age → Performance</td>
<td></td>
<td>.18</td>
<td>3.02**</td>
</tr>
<tr>
<td></td>
<td>Company size → Performance</td>
<td></td>
<td>-.12</td>
<td>-1.29</td>
</tr>
<tr>
<td></td>
<td>Industry concentration → Performance</td>
<td>+</td>
<td>.04</td>
<td>.57</td>
</tr>
<tr>
<td></td>
<td>Industry size → Performance</td>
<td></td>
<td>.03</td>
<td>.28</td>
</tr>
</tbody>
</table>

The thresholds used to determine the significance levels of parameters are: \( t \geq 2.0, p<.05 \); \( t \geq 2.7, p<.01 \); \( t \geq 3.5, p<.001 \)**

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Hypotheses 4a, 4b, 4c and 4d predict a positive relationship among CEO characteristics and research and development, marketing, human capital and physical and financial capital, respectively. We find support for hypotheses 4a and 4b while for hypothesis 4d CEO characteristics were seen to significantly impact physical and financial capital but the direction of relationship is found to be opposite to the one that was proposed. The hypothesis 4c is not supported.

In hypotheses 5a, 5b, 5c and 5d we propose a positive relationship between number of blockholdings and research and development, marketing, human capital and physical and financial capital, respectively. Hypothesis 5a is supported while others do not find any support.

Hypotheses 6a, 6b, 6c and 6d propose a positive relationship between institutional investors and research and development, marketing, human capital and physical and financial capital, respectively. We find support for hypothesis 6d while the results are found to be not significant for other hypotheses, that is, 6a, 6b and 6c.

Through hypothesis 7 a positive relation is proposed between research and development and firm performance. The relationship is found to be statistically significant at 0.01 level of significance.

Hypothesis 8, which proposes a positive relation between marketing and firm performance is also found to be statistically significant at 0.001 level of significance. The results related to hypotheses 9 and 10 are however not found to be significant.

**Control variables**

Four control variables company age, company size, industry concentration and industry size are introduced in the model. While company age is found to have a significant relationship with firm performance, the other control variables fail to portray any significant relationship with firm performance.

The chapter thus, finds that the governance mechanisms, management and resource investments are important antecedents to a firm’s competitive advantage. The network analysis helps to establish that one of the ways the corporate governance mechanisms and management of a firm help a firm attain competitive advantage is through efficient deployment of its resource investments.