

Corporate Governance and Cost of Equity Capital using DCAPM

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Abstract

The study analyzes the impact of corporate governance attributes on cost of equity capital. For the purpose of analysis, a sample of 230 non-financial firms listed on Pakistan Stock Exchange is analyzed from 2003-14. Corporate governance is measured by ten proxies such as board size, board independence, board meetings, CEO duality, concentrated ownership, institutional ownership, managerial ownership, Big-5 ownership, audit quality and audit committee composition whereas the cost of equity capital is estimated using two approaches suggested by Estrada (2002) i.e., Downside Capital Asset Pricing Model (DCAPM) and Capital Asset Pricing Model (CAPM). The individual firm and industry level analysis is conducted using panel data. The results showed that board independence, CEO duality, institutional ownership and audit quality have statistically significant impact on cost of equity capital. Further, the research suggests that DCAPM is more suitable measure of cost of equity for the Pakistani listed firms than CAPM. In addition to it, the industry analysis confirmed that the impact of corporate governance mechanism is not homogenous across different industries.

Keywords: Corporate Governance, Cost of Equity Capital, DCAPM

The agency theory suggests that shareholders delegate power to managers when ownership is widely dispersed, creating the agency problem between principal and agent (Jensen & Meckling, 1976). Since the managers have control over decision making they tend to engage in the activities that increase the conflict of interest and destroy shareholder's wealth (Williamson, 1985). The separation of ownership and control makes it difficult for the shareholders to monitor the activities of managers giving rise to governance problems (Cohen, 2010). Further, when ownership is separate from control the problem of information asymmetry takes place. The existence of information asymmetry results in adverse selection and moral hazard problems leading to stakeholders' agency cost problems.

The effective corporate governance mechanism helps organizations to reduce the agency costs (Haque et al., 2011). The current research defines corporate governance as "the ways through which suppliers of capital to corporations assure themselves of getting return on their investment" (Shleifer & Vishny, 1997). Thus, the effective corporate governance increases shareholder's wealth by restricting the misuse of managerial power. Moreover, better corporate governance mechanism helps to promote goal analogy among various stakeholders, which in turn decrease agency problems by reducing the

intensity of conflict of interest (Canyon & Schwabach, 2000; Gursoy & Aydogan, 2002).

Likewise, the presence of healthier governance practices enhances the investor confidence and encourages them to make huge investments. The willingness of investors to augment the investment elevates the demand for the shares resulting in their increased market price and decrease in the firms' cost of equity (Diamond & Verrechia, 1991). Further, the cost of equity can be reduced in firms where the shareholders can monitor their ability to control the opportunistic behaviour of managers and restrict information asymmetry by accepting a lower risk premium.

Similarly, the financing of a business organization depends upon their ability to convince the investors about the quality of governance practices. The improved governance mechanism and stronger shareholder rights reduce the conflict of interest (Gompers et al., 2003). The shareholder's right protection increases the investors' confidence and maximizes the chances of a firm to raise equity financing. Most of the previous research studies have focused on investigating the association of corporate governance on cost of capital or debt financing. However, the studies on the association between corporate governance and cost of equity capital are rare (Khan, 2016; Haque et al., 2011; Drobetz et al., 2004).

The current research has made following contributions to the existing literature on the association of corporate governance and cost of equity. Unlike the current research, previous research studies have mostly focused on the relationship of corporate governance and firm performance. Morey et al. (2009) observed positive association between effective corporate governance and firm value. However, analyzing the impact of corporate governance on cost of equity instead of firm performance is more advantageous. For instance, cost of equity capital measured as the investors expected rate of return depends upon the business risk of firms (Drobetz et al., 2004; Botosan & Plumlee, 2002). Moreover, the exogenous variables affect the firm profitability more than cost of equity resulting in its better relationship with governance mechanism (Hail & Leuz, 2006). Consequently, the selection of cost of equity capital instead of firm performance or profitability is considered to be more suitable since it is not prejudiced by the change in expansion prospects (Botosan 1997; Healy et al., 1999; Botosan & Plumlee, 2002).

Secondly, Shah and Butt (2009) analyzed the association of corporate governance and cost of equity using four proxies of corporate governance such as board size, board independence, managerial ownership and concentrated ownership using data of non-financial firms from 2003 to 2007. This research considered ten corporate governance proxies related to board composition, ownership structure and audit quality. These proxies consist of board size, board independence, board meetings, CEO duality, concentrated ownership, institutional ownership,

managerial ownership, big 5 ownership, audit quality and audit committee composition. Moreover, the current research examined the association of corporate governance and cost of equity among different industries. In this regard, the non-financial firms were segregated into thirteen industries.

Thirdly, the previous research studies have shown mixed evidences regarding the appropriate measure to estimate cost of equity. For instance, William Sharpe (1964) argued that CAPM is more suitable measure to estimate the shareholders' required rate of return. However, Hogan and Warren (1974), Bawa and Lindenberg (1977), Harlow and Rao (1989), Estarada (2002) claimed that investors are more concerned about downside systematic risk and recommended DCAPM for estimation of cost of equity capital. Therefore, the current research uses DCAPM along with CAPM to find the better measure of cost of equity capital for Pakistan Stock Exchange listed firms.

The key objectives of this research as follows:

- To analyze the association between corporate governance mechanism and cost of equity.
- To investigate whether DCAPM is a better measure of cost of equity than CAPM or not?
- To identify whether corporate governance behavior is persistent among various industries or not?

Literature Review

Corporate Governance and Cost of Capital

The aim of this research is to analyze the effectiveness of corporate governance in reducing cost of equity capital. The argument is based on the famous agency theory, which specifies that the separation of ownership from control instigates the conflict of interest between agent and principal. The agency problem is based on the assumption that objectives of owners and managers are contradictory. The shareholders can reduce the agency problem by offering employee stock options, increasing compensation and restricting managerial opportunism (Hill & Jones, 1992). Further, shareholders may strengthen the controlling mechanism to minimize divergent behavior of managers. However, the above-mentioned techniques are useful in reduction of agency problem to a certain extent because it cannot be entirely eliminated.

According to Jensen and Meckling (1976), agency issues in firms are of two types i.e. conflict between owners & lenders and owners and managers. Additionally, Shleifer and Vishny (1997) argued that agency problem also exists between large shareholders and small shareholders. Cespedeset al. (2010) suggested the existence of agency problem among majority shareholders and other stakeholders (such as minority shareholders and lenders). This eventually results in poor governance quality of a firm.

The effectiveness of corporate governance mechanism combined with shareholders' rights protection enables the firm to reduce agency problem which in turn increases their profitability and ultimately decreases the cost of equity capital (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000). Similarly, when rights of shareholder are protected by strong governance mechanism, the investors would be willing to accept the lower rate of return resulting in the decrease of agency problem (Garay & González, 2008). However, the universal good governance practices doesn't exist, rather they vary from country to country (Black, De Carvalho, & Gorga, 2012).

Gugler et al. (2003) and Gilson (2000) argued the positive association between good governance practices and the cost of equity investment irrespective of the nation's financial institution. Shleifer and Vishny (1997) suggested that the financing ability of a firm is not only dependent upon the liquidity/efficiency of equity markets and optimistic behaviour of investors but also on the legal protection guaranteed by the governance mechanism. The shareholders are expected to make higher investment if they are confident to be compensated with a reasonable rate of return through better governance mechanism.

Chen et al. (2009) and Ashbaugh et al. (2009) examined the association of effective governance practices on cost of equity capital of firms operating in emerging markets. The results indicated that disclosure and non-disclosure mechanism of governance (such as independent directors and shareholder's right protection) is significantly negatively associated with cost of capital. Likewise, Ashbaugh et al. (2009) observed the US firms from 1996-2002 and found inverse relationship between the corporate governance characteristics and cost of equity. Similarly, Boraj and Sengupta (2003) found the congruent results by suggesting that the cost of equity capital is negatively affected by the firm-level governance attributes. The current research analyzes this concern for Pakistani firms by analyzing the impact of corporate governance mechanism on cost of equity capital.

Board Composition and Cost of Capital

The empirical evidence suggests that board composition is considered to be an effective mechanism of corporate governance in reducing agency problems (Jensen and Meckling, 1976; Jensen, 1993). The large board size increases the cost of doing operations which adversely affect firm performance and raises cost of equity financing (Yawson, 2006). Moreover, larger board can attract more qualified and experienced directors for better decision making. In the same vein, large board can ensure the representation of stakeholders other than shareholders (Ntim and Soobaroyen, 2013). Therefore, greater board size helps in the reduction of cost of equity by decreasing the information asymmetry amongst the various stakeholders. According to Goodstein *et al.* (1994) board independence decreases the expropriation of majority

shareholders which reduces the risk and cost of financing (Ntim and Soobaroyen, 2013). Likewise, Khan (2016) analyzed the association between corporate governance and frequency of board meetings and found negative association between the said variables.

Hypothesis: Board Independence has a significant impact on cost of equity.

Hypothesis: Board Size has a significant impact on cost of equity.

Hypothesis: Board Meetings have a significant impact on cost of equity.

Ownership Structure and Cost of Capital

Higher managerial ownership decreases conflict of interest between managers and shareholders that not only minimizes the information asymmetry but also reduces the cost of financing. Bebchuk and Weisbach (2010) argued that boards of directors are more informed about the business operations as compared to the outsiders. Hence, their presence improves the investors' confidence and reduces the cost of equity. However, some theorist suggests increase in conflict of interest due to the increase in managerial ownership (Konijin et al., 2011). Likewise, the institutional investors play an important role in monitoring the board of directors. Piot and Piera (2009) examined the association between institutional ownership and cost of equity capital. The results suggested a significant decrease in the cost of equity in the presence of institutional ownership. Moreover, the minority shareholders accept greater risk when they are compensated with higher rate of return (Bozec & Dia, 2015). However, this increased compensation raises the cost of equity financing. Likewise, block holder ownership reduces the cost of financing by mitigating the risk and increasing the investors' confidence (Hail and Leuz, 2006).

Hypothesis: Managerial Ownership has a significant impact on cost of equity.

Hypothesis: Institutional ownership has a significant impact on cost of equity.

Hypothesis: Concentrated Ownership has a significant impact on cost of equity.

Hypothesis: Blockholder Ownership has a significant impact on cost of equity.

Audit Quality and Cost of Capital

The previous literature suggest that the big 4 audit firms increases the audit quality because of their better expertise, huge resources and experience (Uang, Citron, Sudarsanam, & Taffler, 2006). These firms can enforce the corporations for greater disclosure of financial information which reduces the asymmetric information which decreases the cost of financing. Guedhami, Pittman, and Saffar (2014) argued that big 4 audit firms reduce monitoring cost by enhancing the credibility of financial information disclosed by corporations. Likewise,

better audit committee composition i.e. have a substantial representation of independent members quality helps the corporations to decrease the cost of equity financing by increasing the investor confidence.

Hypothesis: Audit Quality has a significant impact on cost of equity.

Hypothesis: Audit Committee composition has a significant impact on cost of equity.

Research Methodology

The research study examined the impact of corporate governance on cost of equity by considering 231 non-financial firms from 2003-2014 listed on Pakistan Stock Exchange. The corporate governance is measured through board size, board independence, board meetings, CEO duality, concentrated ownership, institutional ownership, managerial ownership, Big 5 ownership, audit quality and audit committee composition along with control variables firm size, financial leverage (D/A ratio) and profitability. These corporate governance proxies cater the key fundamental areas of corporate governance such as board composition, ownership structure and audit quality.

Further, William Sharpe (1964) argued that CAPM is more suitable measure to estimate the shareholders' required rate of return. However, Hogan and Warren (1974), Bawa and Lindenberg (1977), Harlow and Rao (1989), Estrada (2002) claimed that investors are more concerned about downside systematic risk and have recommended DCAPM for estimation of the cost of equity capital. Therefore, the current research uses DCAPM along with CAPM to measure the cost of equity capital.

The Measurement of Cost of Capital through CAPM & DCAPM:

The research study estimated cost of capital using CAPM and DCAPM. In equation 01, beta value is calculated using CAPM proposed by Sharp (1964). While in equation 02, the beta value is calculated through the DCAPM (as suggested by Estrada 2002).

$$R_e = R_f + \beta_{it}^E * (R_m - R_f) \dots (1)$$

Cost of Equity Capital using CAPM :

$$\beta_{it}^E = \frac{Cov\left[(R_{it} - R_f) \cdot (R_M - R_f)\right]}{Var(R_M - R_f)}$$

Cost of Equity Capital using DCAPM :

$$R_e = R_f + \beta_{it} * (R_m - R_f) \dots (2)$$

$$\beta_{it} = \frac{Cov\left[\min(R_{it} - \mu_i, 0) \cdot \min(R_M - \mu_M, 0)\right]}{Var\left[\min(R_M - \mu_M, 0)\right]}$$

The Measurement of Corporate Governance:

Table 1. *Measurement of Variables*

| Variable | Symbol | Measurement |
|-----------------------------|--------|---|
| Board Size | BSIZE | Number of board members (Christy, Matolcsy, Wright, & Wyatt, 2013) |
| Board Independence | BIND | The number of independent directors divided by the total directors (Kamran & Shah, 2014) |
| Board Meeting | BMEET | Dummy = 1, If four meetings held in a year (Zhang, Zhou, & Zhou, 2007) |
| CEO Duality | CD | Dummy = 1, If CEO is also Board Chairman (Roodposhti & Chashmi, 2011) |
| Concentrated Ownership | CONC | Percentage of shares held by majority shareholders (Christy et al.,2013) |
| Institutional Ownership | INST | Percentage of shares held by Institutional Investors (Roodposhti & Chashmi, 2011) |
| Managerial Ownership | MANG | Percentage of shares held by management (Saleh, Iskandar, & Rahmat, 2005) |
| Big 5 Ownership | BIG5 | Percentage of shares held by five biggest shareholders (Masood & Shah, 2014) |
| Audit Quality | AUQ | Dummy = 1 If firm is audited by the big four auditors (Siregar & Utama, 2008) |
| Audit Committee Composition | ACC | Non-Executive members of audit committee divided by total members of audit committee (Christy et al., 2013) |

Econometric Models

Further, the study used static models for regression analysis using Panel data, and particularly Random effect model. Since, the research captures the cross section effect in residual, therefore, random effect is more appropriate with fixed yearly effects (Raunig, 2015).

$$R_{eit} = \beta_o + \beta_{it}BSIZE_{it} + \beta_{it}BIND_{it} + \beta_{it}BMEET_{it} + \beta_{it}CD_{it} + \beta_{it}CONC_{it} + \beta_{it}INST_{it} + \beta_{it}MANG_{it} + \beta_{it}BIG5_{it} + \beta_{it}AUQ_{it} + \beta_{it}ACC_{it} + \beta_{it}SIZE_{it} + \beta_{it}D/A_{it} + \epsilon_{it} \dots(3)$$

Reit is the cost of equity using downside capital asset pricing model. Further BINDit is board independence, BMEETit is board meeting, BSIZEit is board size, CDit is CEO duality, CONCit is concentrated ownership, INSTit is percentage of shares held by institutional investor, MANGit is managerial ownership, BIG5it is big five ownership, AUQit is audit quality, ACCit is audit committee composition, SIZEit is firm size, D/Ait is debt to equity ratio, εit is error term.

Sample Size

The study considered listed non-financial firms of Pakistan Stock Exchange. Nevertheless, the study excluded the financial firms due to different regulatory framework.

Table 2. Industry Wise Firm Distribution in PSX

| S.No | Industry Name | Firms |
|-------|---|-------|
| 1 | Textile industry | 67 |
| 2 | Miscellaneous | 15 |
| 3 | Oil and Gas | 20 |
| 4 | Transport, Technology and Communication | 8 |
| 5 | Engineering and allied industries | 12 |
| 6 | Fertilizer | 6 |
| 7 | Glass & Ceramics | 6 |
| 8 | Paper & Board | 6 |
| 9 | Automobile Parts & Accessories | 16 |
| 10 | Pharmaceuticals | 7 |
| 11 | Food & Personal Care Products | 29 |
| 12 | Cement | 18 |
| 13 | Chemical | 21 |
| Total | | 231 |

Discussion

The current research investigates the impact of corporate governance on cost of equity capital on the listed non-financial firms of Pakistan Stock Exchange. For this purpose, board size, board independence, board meetings, CEO duality, concentrated ownership, institutional ownership, managerial ownership, big 5 ownership, audit quality and audit committee composition are used as measures of corporate governance. In addition, the cost of equity capital is estimated using DCAPM and CAPM. The estimation power of each model is analyzed using panel regression by taking into account firm size and financial leverage as control variables.

Table 3. Corporate Governance and Cost of Equity Capital using DCAPM & CAPM approach

| Variable | Ke_DCAPM | Ke_CAPM |
|---------------------|-----------|---------|
| BSIZE _{it} | -0.0051 | 0.0183 |
| | -0.0598 | -0.0022 |
| BIND _{it} | -0.7394** | 0.0086 |
| | -0.3571 | -0.0131 |
| BMEET _{it} | 0.0484 | 7.8E-05 |
| | -0.0374 | -0.0013 |
| CD _{it} | -0.4263* | -0.0085 |
| | -0.2229 | -0.0084 |
| CONC _{it} | 0.0198 | -0.0030 |
| | -0.1047 | -0.0039 |

| | | |
|--------------------------|-----------|------------|
| INST _{it} | -1.4236** | -0.0890*** |
| | -0.6429 | -0.0239 |
| MANG _{it} | -0.2357 | -0.0083 |
| | -0.3198 | -0.0146 |
| BIG5 _{it} | 0.1062 | -0.0039 |
| | -0.4435 | -0.0164 |
| AUQ _{it} | -0.3717* | 0.0043 |
| | -0.2016 | -0.0073 |
| ACC _{it} | -0.0575 | -0.0134 |
| | -0.4194 | -0.0154 |
| Debt_asset _{it} | 0.3521* | -0.0049 |
| | -0.1962 | -0.0072 |
| Size _{it} | -0.0974 | 0.0017 |
| | -0.0816 | -0.0031 |
| Constant | 2.0605* | 0.1134*** |
| | -1.1327 | -0.0416 |
| R-Square | 0.2563 | 0.0155 |
| Observations | 1,187 | 1,187 |
| Number of id | 231 | 231 |
| R-square | 0.256 | 0.0155 |

B_{SIZE}_{it} is board size, B_{MEET}_{it} is board meeting, B_{IND}_{it} is board independence, C_D_{it} is CEO duality, C_{ONC}_{it} is log of shareholder , I_{NST}_{it} is share owned by institutional shareholder , M_{ANG}_{it} is managerial ownership, B_{IG5}_{it} is big five ownership, A_{UQ}_{it} is audit quality, A_{CC}_{it} is audit committee composition, S_{IZE}_{it} is firm size, D/A_{it} is debt to equity ratio.

Table 4. Industry Wise Analysis-Corporate Governance and Cost of Equity Capital (Ke DCAPM)

| Variable | Industry 1 | Industry 2 | Industry 3 | Industry 4 | Industry 5 | Industry 6 | Industry 7 | Industry 8 | Industry 9 | Industry 10 | Industry 11 | Industry 12 | Industry 13 |
|---------------------|-------------------|--------------------|---------------------|---------------------------|---------------------------|----------------------------|----------------------------|-------------------|-----------------------------|-------------------|--------------------|---------------------|-----------------------------|
| BSize _{it} | 0.0177 (0.283) | 0.0980 (0.342) | -0.0154 (0.0298) | 0.0148 (0.124) | -0.0666 (0.101) | -0.0864 (0.110) | -0.858 (0.550) | 0.749 (0.660) | 0.154 (0.252) | -0.172 (0.335) | -0.136 (0.359) | -0.0759 (0.158) | 0.0480 (0.0976) |
| BIND _{it} | -0.720 (1.183) | -0.202 (2.003) | 0.259 (0.286) | 0.782 (0.802) | -0.348 (0.490) | -0.542 (0.875) | -5.800 (3.789) | -2.893 (3.177) | -4.166** (1.918) | 0.0443 (1.213) | -2.010 (1.249) | -0.616 (0.674) | -0.309 (0.475) |
| BMEET _{it} | 0.117 (0.0885) | -0.143 (0.526) | 0.0440 (0.0311) | 0.210** (0.104) | 0.0877 (0.0825) | 0.195* (0.105) | -0.324 (0.394) | 0.488 (0.889) | -0.619 (0.586) | 0.0425 (0.247) | -0.187 (0.271) | -0.0402 (0.0530) | -0.107 (0.112) |
| CD _{it} | -0.769 (0.571) | -0.268 (1.571) | -0.258 (0.201) | -0.337 (0.525) | -0.171 (0.459) | -1.944** (0.945) | 2.255 (1.957) | 2.022 (2.432) | -4.971*** (1.536) | -0.564 (0.578) | 0.242 (0.895) | -0.0988 (0.522) | -2.553*** (0.534) |
| CONC _{it} | 0.217 (0.294) | -0.0798 (0.805) | 0.0559 (0.102) | -0.253 (0.176) | 0.217 (0.255) | -0.00402 (0.418) | -0.618 (1.472) | 4.835 (3.749) | 2.253** (1.059) | -0.536 (0.725) | 0.683 (0.691) | -0.217 (0.306) | -0.112 (0.150) |
| INST _{it} | -3.036 (2.349) | -5.957 (5.917) | -0.448 (0.597) | -0.833 (0.909) | -0.679 (1.035) | 1.104 (0.772) | -10.79** (4.968) | 5.958 (6.269) | -13.59*** (2.935) | -2.303 (3.126) | -0.918 (2.671) | -0.936 (1.362) | -2.610 (1.717) |
| MANG _{it} | -1.167 (1.128) | -2.591 (2.706) | 0.428 (0.849) | 0.113 (0.871) | 1.656** (0.781) | -0.816 (2.213) | 3.525 (3.762) | 2.371 (7.330) | -3.111 (1.914) | 0.594 (4.771) | 0.317 (2.034) | -0.504 (0.788) | -0.293 (0.714) |
| BIG5 _{it} | 1.801 (1.261) | -0.233 (2.157) | -0.242 (0.380) | -0.708 (0.934) | 0.860 (0.783) | 0.622 (1.228) | 4.909 (6.176) | 7.339 (13.63) | 2.228 (3.004) | -3.530 (2.627) | -0.565 (2.008) | -0.725 (1.135) | -3.525*** (1.030) |
| AUQ _{it} | -0.612 (0.590) | -0.117 (1.576) | 0.233 (0.238) | 0.689 (0.590) | 0.767** (0.364) | -0.3047 (.607) | -1.727 (2.121) | -2.283 (3.216) | 3.245*** (1.027) | -1.339 (1.769) | -0.594 (0.868) | 0.0433 (0.440) | -0.268 (0.408) |
| ACC _{it} | 0.476 (1.118) | -2.463 (2.753) | -0.0356 (0.413) | 0.0187 (0.825) | -1.410* (0.756) | -1.115 (1.200) | -0.322 (3.233) | -0.426 (5.273) | -5.978*** (2.229) | 0.135 (1.080) | 1.660 (1.568) | 0.798 (0.952) | -0.727 (0.739) |
| Debt_asset | 1.519 (1.153) | 0.282 (1.031) | 0.483* (0.248) | -0.203 (0.771) | -0.423 (0.996) | 1.113 (2.257) | -3.491 (4.705) | 5.688 (4.218) | 3.122*** (1.109) | -2.350 (4.020) | 0.00563 (0.447) | 1.888** (0.855) | 1.316** (0.516) |
| Size | -0.357 (0.251) | -0.220 (0.599) | -0.144 (0.0929) | 0.158 (0.218) | 0.0871 (0.139) | 0.297 (0.395) | 0.607 (1.339) | -1.581 (1.306) | -1.329** (0.551) | 1.000 (0.757) | 0.0715 (0.447) | 0.00551 (0.230) | 0.0178 (0.115) |

| | | | | | | | | | | | | | |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Constant | 2.948 | 7.315 | 1.856 | -1.415 | -2.118 | -5.381 | 6.504 | -25.60 | 8.343 | -4.731 | -3.692 | 2.002 | 4.127** |
| | (4.223) | (10.90) | (1.155) | (2.778) | (2.286) | (7.283) | (14.77) | (19.38) | (8.551) | (9.072) | (7.476) | (3.702) | (1.748) |
| No of Firms | 67 | 15 | 20 | 8 | 12 | 6 | 6 | 6 | 16 | 7 | 29 | 18 | 21 |
| Standard errors in parentheses(*** p<0.01, ** p<0.05, * p<0),SIZE _{it} is board size, BMEET _{it} is board meeting, BIND _{it} is board independence, CD _{it} is CEO duality, CONC _{it} is log of shareholder , INST _{it} is shares owned by institutional shareholder, MANG _{it} is managerial ownership, BIG5 _{it} is big five ownership, AUQ _{it} is audit quality, ACC _{it} is audit committee composition, SIZE _{it} is firm size, D/A _{it} is debt to equity ratio and Size is Ln of Total Assets. | | | | | | | | | | | | | |

Regression Analysis

Table 2 represents the results of corporate governance association with cost of equity capital using Downside Capital Asset Pricing Model (DCAPM). The board independence has significant coefficient value of -0.739 that depicts one unit change leads to -0.739 units change in Ke_DCAPM. In other words, the strong board independence would minimize the firms' cost equity capital. Likewise, CEO duality having statistical significant coefficient value of -0.426 indicates that an inverse relationship Ke_DCAPM. The negative coefficient suggests that CEO duality reduces the cost of equity capital. Institutional ownership has statistically significant coefficient value of -1.436 at P value equal to or less than 0.05. The coefficient value depicts that increase in institutional ownership leads to decrease in the cost of equity capital. Moreover, the audit quality has significant coefficient value of -0.371 at P value equal to or less 0.10 which indicates that one unit increase in audit quality would decrease the endogenous variable by 0.371 units. Thus, the study infers that board independence, CEO duality, institutional ownership and audit quality have statistically significant influence on the cost of capital. The research results are in accordance with the studies of Teti et al. (2016) and Shah and Butt (2009). However, board size, board meeting, concentrated ownership, managerial ownership, Big-5 shareholder, audit committee composition have statistically insignificant coefficient values. As far as the control variables are concerned, debt to asset ratio has statistically significant influence on Ke_DCAPM. The value of R-Square is 0.256 that shows that 25.6% of change in the Ke_DCAPM is explained by corporate governance parameters.

The second regression estimation analyzed the effect of corporate governance on the cost of equity using CAPM. Ironically, only institutional ownership has statistically significant coefficient value -0.0890 which depicts that one unit change in institutional ownership leads to -0.0890 change in Ke_CAPM. The corporate governance measures explained only 1.55% of the variation in cost of equity capital. Thus, the study suggests that corporate governance has greater impact on the cost of equity using DCAPM than cost of equity capital using CAPM. In other words, Ke_DCAPM has more absorption power than Ke_CAPM in terms of corporate governance proxies for the listed non-financial firms of Pakistan Stock Exchange.

Industry-Wise Regression Analysis

In second phase, the study analyzed the impact of corporate governance attributes on Ke_DCAPM industry wise to explore whether these proxies have persistent behaviour across industries or not? The study allocated 230 cross sections to 13 industries. The study used thirteen industries to analyze the impact of corporate governance on cost of equity (using Ke_DCAPM) in table 03. The results indicate an

insignificant impact of corporate governance on Ke_DCAPM in the Textile and Miscellaneous industries. Likewise, the results in Oil & Gas, Paper & Board, Pharmaceutical, Food & Personal Care products, Cement industries also suggest that there exist no statistically significant impact of corporate governance on firms' Ke_DCAPM. However, in case of Transportation, Technology and Communication industry represented by the fourth regression, the study observed a significant influence of board meeting with a coefficient value of 0.210. Moreover, in Engineering and Allied industry managerial ownership, audit quality and audit committee have statistically significant influence on Ke_DCAPM as represented by their coefficient values of 1.656, 0.767 and -1.41 respectively. Similarly, the fertilizer industry has two significant variables i.e. board meetings and CEO duality. Their statistically significant coefficient values are 0.195 and -1.944 respectively. Moreover, in Glass and Ceramics industry, only institutional investor has significant contribution to reduce cost of equity capital with coefficient value of -10.79.

Surprisingly, Automobile industry has maximum number of significant corporate governance proxies. These Proxies include board independence, CEO duality, concentrated ownership, institutional ownership, audit committee composition and audit quality. The board independence has significant influence on Ke_DCAPM as per its coefficient value of -4.166. The negative association suggests that board independence reduces cost of equity capital. Likewise, the CEO duality has negative significant coefficient value of -4.971 at P value less than or equal to 0.01. The study suggests that CEO duality plays a considerable role in the reduction of firms' cost of equity capital. Moreover, concentrated ownership and institutional ownership also have significant effect on Ke_DCAPM as represented by their coefficient value of 2.253 and -13.59 respectively. Audit committee composition has statistically significant coefficient value of -5.978. However, the audit quality has statistically significant positive effect on Ke_DCAPM. The coefficient value of 3.245 depicts that firms audited by Big-4 audit firms increase the firm cost of equity capital. Further, debt to asset ratio has a significant positive association whereas the size has negative relationship with cost of equity having the coefficient values of 3.122 and -1.329 respectively. In Chemical industry, CEO duality and big five shareholders have negative relationship with firm cost of equity as represented by their coefficient value of -2.553 and -1.316 respectively. The results suggest that presence of CEO duality and big-5 shareholders has considerable contribution towards minimizing cost of equity.

Conclusion

The current research investigates the impact of corporate governance and cost of equity capital on the listed non-financial firms of Pakistan Stock Exchange. The research study used 10 corporate governance proxies and two models for the measurement of cost of

capital. Initially, the firm level association is analyzed. The industry wise analysis for the aforementioned relationship is carried out to have in-depth understanding of the results represented by the initial firm level analysis. In first phase, the research compared absorption power of Ke_DCAPM & Ke-CAPM with respect to the individual corporate governance proxies. Four corporate governance variables like board independence, CEO duality, institutional ownership and audit quality have significant impact on the cost of equity capital using DCAPM. However, in case of CAPM the study found only institutional ownership to be significant. Therefore, it is concluded that Ke_DCAPM has more estimation power than Ke-CAPM. Keeping in view the volatility of PSX, the investors are more concerned towards the downside risk. Hence, cost of equity measured by the DCAPM is statistically more significant. In second phase, the study used 13 industries to examine the relationship between corporate governance and cost of equity using DCAPM. The results suggested that corporate governance variables such board independence, CEO duality, concentrated ownership, audit committee composition and audit quality have significant association in automobile industry. Further, the current research observed a non-persistent behaviour of corporate governance variables across various Industries. In Nutshell, the corporate governance has significant impact on cost of equity measured by DCAPM which is not homogeneous across different industries of Pakistan. A significant implication current research is that listed non-financial firms of Pakistan Stock Exchange should pay considerable attention to the corporate governance issues. Infact, better corporate governance mechanism not only reduces the risk but also improves the investor confidence. Hence, the firms are able to access low cost financing by reducing the cost of equity capital. Based on our analysis, it is recommended that the future researchers should conduct research on the emerging economies having weak governance system to make the results more generalizable. Moreover, the current research used CAPM and DCAPM to measure the cost of equity. In future, various other measures such as dividend discounted models and price earnings multiple can be used to estimate the cost of equity.

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