An Empirical Nexus between Corporate Governance Practices and Cost of Equity: Evidence from PSX-Listed Firms

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ABSTRACT: The current study scrutinizes the relationship between the cost of equity and corporate governance practices within companies listed on the Pakistan Stock Exchange (PSX).The Capital Asset Pricing Model (CAPM) is applied to determine the cost of equity. A Sys-GMM model was applied to a sample of 170 businesses listed on the Pakistan Stock Exchange (PSX) from 2014 to 2019 to establish a connection between the variables. Sys-GMM is effective in addressing endogeneity issues related to corporate governance variables. In addition, the Sys-GMM results were compared with pooled OLS and fixed effects. It was discovered that the subsequent approaches failed to address the endogeneity issue, consequently yielding biased results. The findings unveiled a negative nexus amid cost of equity and block ownership. The output indicated that board size plays a key role in reducing the cost of equity. Interestingly, audit quality is directly related to equity cost, however, female directors and leverage were not linked with the cost of equity. The findings will direct policymakers in expanding or adapting the scope and depth of corporate governance practices, which will certainly facilitate the production of the right corporate climate in the country.

Keywords: Corporate Governance, Cost of equity, Stock Exchange Pakistan

1. Introduction

The interplay between corporate governance (CG) structures and the cost of capital for firms constitutes a significant area of inquiry within financial research. Therefore, it is pivotal to determine the relationship between CG features and equity costs in companies listed on the PSX. Corporate governance tends to increase the integrity and accountability of a company, which in turn improves a company's financial results and equity costs. The board composition and ownership structure of the organization can predict corporate management. The board structure represents C.E.O duality, board independence, non-executive directorship, independence committee, board diversity, board tenure, board education, etc. Whereas ownership structure reflects institutional and managerial ownership. Both these structures have a significant effect on the smooth functioning, transparency, and profitability of the firm. Everybody knows the importance of CG and its fame has risen sharply just after the bankruptcy and liquidation of Enron, WorldCom, Tyco, Adelphia, etc. The demand for effective corporate governance increased because of the split amid ownership and management in corporate entities, leading to the continued use of agency theories.

There is a famous proverb that a child must cry for his mother's care, the firms have at all times wished for good governance but this was possible at the time when small investors began to cry out (after losing seriously in corporate scandals). Then regulators and professional organizations begin to properly consider emerging and recording more detailed mechanisms of CG.

The main aim of CG is that it will give protection to the interests of all stakeholders of a firm. In response, it decreases the notion of risk and eventually reduces the cost of equity. Many researches by regulators, states, and academic entities have shown this in developed markets. Studies from the Cadbury Committee (1997) and Turnbull Committee (2003) made the subject of modern international corporate governance. On account of these reports, numerous corporate governance codes and approvals have appeared and are exercised in diverse areas of the globe. Even for emerging markets, CG is very relevant, and Pakistan is no exception. SECP propagated the primary Corporate Governance Code in March 2002, the corporate sector's top regulator. In emerging and developed economies, the nexus between corporate governance and equity costs was widely discussed. Nonetheless, there is a discrepancy as no complete or noteworthy research has been performed in this case in Pakistan.

The work is intended to fill the gap, to explain the relationship between various yet important variables, and to make judicious and prudent financial decisions easier for financial managers and policymakers. In addition, SEC from different countries investigated this problem and emphasized that some serious cases contribute to financial statements fraud, including Enron, Merck, and WorldCom (Cornett et al. 2007). While clear guidelines and steps have been taken to reduce equity costs, accounting scandals have remained a major problem in accounting practices in the last two decades (Mllik, etc., 2013; Norwani, Nm et al., 2011). From the perspective of Pakistan, the research is significant because there is domination of family-owned businesses in the Pakistani corporate sector which is prevailing traditionally, and nonprofessional boards of directors are carefully chosen due to their relations with concentrated ownership. In these circumstances, decisions are made in favor of the interest of a single party and to get it will be a bit difficult and endure the confidence of other investors. A family-owned business with

insufficient access to funds and a small professional base, the board-level decision-making process is reasonable to stagnate.

This research delves into the correlation between corporate governance (CG) and a company's equity cost. CG encompasses a collection of procedures, norms, rules, regulations, and laws designed to overcome the concerns of all stakeholders, both as a group and as individuals. Equity cost is the "expected rate of return by shareholders." Cost of equity pertains to the ownership of equity in the company. This work aims to analyze the effects on equity costs (helping a corporation expand and diversify) of corporate governance characteristics (coordinating a market profit and maintaining the confidence of the public investor). This study's findings may give policymakers guidance to extend or adjust the degree and scope of corporate governance practices, which will undoubtedly guide the development of the country's right corporate environment. CG is known as a program that guides and controls companies (O'Sullivan, 2001). Agency theory posits that the CG system is crucial for efficiently overseeing and advancing an organization (Jan et al., 2023; Danial et al., 2023; Shah et al., 2022a).

Given the current level of knowledge, this work enriches existing research in various ways. Given that, a correlation between CG and equity cost was extensively studied in emerging markets. Worldwide, the misuse of company financial reports and corporate governance procedures is a prevalent issue. In emerging economies such as Pakistan, the increasing occurrence of corporate scandals and failures has raised concerns about the cost of equity (Jamaludin et al., 2015). Equity issue expenses have been a persistent concern for businesses but received heightened attention following the bankruptcies of large firms in the US, the UK, and Australia. Asian countries, particularly Pakistan, are impacted by the cost of equity and corporate governance challenges while being emerging states.

All the measures to minimize equity costs and boost the quality of financial reporting have not yet arrived at their goals (Haniffa et al., 2006). There is a void, however, as no complete or important research has been undertaken in the case of Pakistan. Present work fills the gap, offering an understanding of the association between different yet related factors and encouraging financial managers and policymakers to make wise and sound financial decisions. Second, our study intends to investigate the nexus amid CG attributes (That manages and retains the trust of the investing public) and cost of equity (that helps to broaden and diversify a business). Comprehensive research is going to inspect the nexus betwixt CG procedures and equity cos vis-à-vis variations in CG practices among these organizations. This study enhances the methodology literature by doing a panel-data analysis utilizing various estimate methods such as the fixed-effect method and the System GMM model. This approach ensures the data analysis's validity and leads to more robust conclusions in this type of study.

2. Literature Review

2.1. CG and Cost of Equity

Corporate governance involves systems that guarantee owners and lenders obtain earnings on their financings (Shahzad et al., 2023; Shah et al., 2022b). CG systems focus on addressing agency issues between investors and management while aiming to safeguard the interests of minority shareholders in numerous developing economies. Assured investors, who feel secure, are more proactive in contributing to capital markets and can provide additional funding for the firm. Consequently, it boosts the worth and lowers the financing costs of the firm. Many scholars and

researchers have done empirical investigations to regulate how CG affects equity cost. Ramly (2012) researched the impact of corporate governance quality on equity costs in Malaysia. He analyzed the relationship between 2003 and 2007 using panel data regression. He discovered that CG indirectly influences equity cost. He established that companies with strong CG, including effective board oversight, robust financial reporting procedures, and empowered shareholders, experience reduced equity costs. CG is strongly and inversely linked to the cost of equity. The analysis also discovered that the business size is strongly and adversely associated to equity costs. In addition, the GDP rate is strongly and adversely linked to equity costs. Research on the obscure disbursement of equity capital and CG was utilized by Byun et al. (2008). The study sampling period was from 2001 to 2004. Employing OLS regression to evaluate the correlation between corporate governance (CG) and cost of equity.

The results showed that the average CG score significantly influenced four models of estimated equity capital costs. Businesses that implement corporate governance principles usually experience a reduced implicit cost of equity capital, as indicated by the findings. Pham et al. (2012) researched the correlation betwixt CG and the cost of capital in Australia. Estimation was performed on a dataset from 1994 to 2003 utilizing a fixed-effect regression model. Insider ownership exhibited a significant but inverse nexus with capital cost. Additionally, a significant inverse correlation was observed between CG attribute (namely board size) and cost of capital.

The study recommends that where the small and focused board exists having allied monitoring incentives can expressively boost a firm's valuation. The results showed a notable inverse relationship between Leverage and cost of capital, suggesting that companies that can take on greater debt might use the debt tax shield to reduce their cost of capital. Shah and Butt (2009) researched CG and equity costs in Pakistan. The study analyzed 114 listed firms to explore the connection amid variables of interest. The study utilized panel data from 2003 to 2007 to analyze the impact of CG on equity cost and unfolded the outcome that managerial ownership, firm size, return on equity, and board size hurt the equity cost.

A surprising observation was derived from this study. Hail and Leuz (2006) conducted a study that examined how a country's legal institutions and securities regulations affect the cost of equity. They used data from 35,118 firm-year data points. The study gathered data from 40 countries between 1992 and 2001. The equity cost is calculated by the residual income valuation approach. Hail and Leuz (2006) investigated the influence of legal institutions and securities regulations on a company's cost of equity. Their study analyzed data from 35,118 firm-year observations across 40 countries spanning the period 1992 to 2001. To determine the cost of equity, they employed the residual income valuation method. Demsetz and Villalonga (1983) conducted a study that found that managerial ownership negatively impacts organizations' financial performance. Chen et al. (2003) performed research on Asian economies, focusing on emerging markets. The study included enterprises from nine developing Asian countries and concluded that board independence and minority shareholder protection significantly increase the cost of equity capital. In a related study, Bozec and Bozec (2010) examined the connection between the cost of capital and CG. The CG is determined by utilizing the ROB governance index. Enhancing corporate governance standards led to a decrease in the cost of capital.

2.2. Data and Methodology

This work seeks to identify the nexus among block ownership, audit quality, board size, female director, duality, and cost of equity. The sample available for any field of study or investigation is the total number of data points available. The study will employ random sampling approaches in the analysis. The cost of equity is a variable calculated through the CAPM model. Explanatory variables like block ownership are determined by the proportion of shares held by the top 5 shareholders, whereas audit quality is measured as a binary variable. The company's board size is calculated by the total number of board members. The presence of female directors is evaluated based on the percentage of female directors on the board. CEO duality occurs when the CEO also holds the position of chairman of the board. 170 companies were delisted from the Pakistan Stock Exchange (PSE) index. Data for empirical analysis are taken from different sources like the Pakistan Stock Exchange (PSX), Pakistan State Bank, annual audit reports, and, in certain cases, direct client meetings. Initially, we will explore the data by computing their mean, standard deviation, and other statistics. Subsequently, we will examine the multicollinearity issue through two distinct methods: the variance inflation factor (VIF) and the correlation matrix. Finally, we will discover the nexus between the response variable and covariates. To achieve this purpose, the pooled OLS, fixed effect model, and system GMM will be used.

3. Methodology

The study examines the correlation amongst corporate governance (CG) and the cost of equity in companies traded on Pakistan's stock exchange.

The period from 2014 to 2019 is immediately following the application of Pakistan's CG Code. This paper must conduct a quantitative research approach appropriate for such types of studies since it focuses primarily on quantitative data collection and analysis (Bryman, 2001). To do this, this research will use methods of quantitative data analysis. (Flick, 2014). Muhammad et al. (2014) argued that secondary data is historically past data and that access to subjects or respondents is not needed because the data has already been compiled. For data collection, a random sample of 170 listed companies is chosen. We use a correlation matrix to check multicollinearity between variables. Pooled OLS, fixed effect, and Sys-GMM are the econometric models that are performed in this study. Empirical studies based on OLS estimates may generate partial and unpredictable estimates because the unexpected heterogeneity is not recognized (e.g., Maddala 1992). The econometric model is therefore predicted to experience bias due to the variables omitted. We use fixed-effect estimates to solve this issue. The problem is that our analysis uses variables of CG which are endogenous because the variables of CG are primarily determined by their previous results. Dynamic endogeneity is present in this scenario, as stated by Wintoki, Linck, and Netter (2012). The fixed effect technique can mitigate endogeneity issues, but its success relies on the limited influence of prior research on present corporate governance (Shah et al., 2022c; Wintoki, Link, & Netter, 2012).To address serial correlation problems, heteroscedasticity, simultaneity, and dynamic endogeneity we utilize the sys-GMM model, primarily the Sys-GMM estimations, closely followed by Wintoki (2007). The GMM model was introduced in the papers of Arellano & Bover (1995), Blundell & Bond (1998), Holtz-Eakin et al. (1988), and Arellano & Bond (1991). Based on their distinctions, GMM and Sys-GMM are the two main categories of GMM estimates. We utilize the Sys-GMM estimator in this research, also referred

to as the Blundell & Bond (1998) estimator because GMM's difference does not work well in the presence of a severe persistence among CG variables. The Sys-GMM estimator uses lagged-in-level variables to act as instruments in the model.

Cost of Equity= f (Corporate Governance, control variables)

The econometric model can be written as:

$Y\_it = \beta\_0 + 〖\beta\_1 \text{ BOWN}〗\_it + \beta\_2 〖AUQ〗\_it + \beta\_3 〖BDS〗\_it + \beta\_4 〖FMD〗\_it + \beta\_5 〖Duality〗\_it + \beta\_5 〖LEV〗\_it + \mu\_it$

Where β_0 indicates intercept β_1, $\beta\_2…\beta\_6$ all indicate coefficients and μ_it is the residual. Y represents the cost of equity, BOWN means block ownership, AUQ represents audit quality, BDS shows board size, FMD shows female director, Duality is CEO duality and LEV means leverage.

3.1. Dependent and Predictor Variables

The Predictor variables in corporate governance are Block ownership, Board size, Female director, CEO Duality, and AUQ, while Leverage is the control variable. The response variable is the Cost of Equity.

3.2. Dependent variable

The cost of equity is a response variable and will be measured as follows,

The cost of equity will be computed by performing the CAPM (Fama and French, 1992; 1997). The CAPM model is used to get the cost of equity. The equation in the calculation used is illustrated as:

$R\_i = R\_f + \beta(R\_m - R\_f)$

Where R_i indicates the cost of equity, R_f shows the risk-free rate, R_m indicates the market rate, β = beta, and Systematic or non-diversifiable uncertainty or risk associated with the stock.

To measure the beta, the study will use the following formula and ten years of stock return data before the sample period,

β = cov(Security and Market)/var (Market)

The same measure has been used by Shah and Butt (2009).

3.3 Predictor Variables

Corporate Governance is an independent variable that is measured through Block Ownership, Board size, Audit Quality, CEO Duality, and Female Director.

Table 1: The measurement of variables in the study are given below

Variable		Type	Measurement Technique
Cost of equity		Dependent variable	"CAPM"
BOWN	Block ownership	Independent variable	"The proportion of shares owned by the top 5 shareholders."
AUG	Audit Quality	Independent variable	"Dummy = 1 If the big four auditors audit the company"
BDS	Board size	Independent variable	"Total number of board members"
FMD	Female director	Independent variable	"The proportion of female directors on the board"
CEO DUALITY	Duality	Independent variable	"The CEO and chairman of the board are one person"
LEV	Leverage	Control variable	"Leverage = Long-term liabilities plus short-term liabilities divided by total assets."

4. Results and Discussion

This section contains the results and remarks. The section also includes the correlation matrix.

4.1. Correlation Analysis

Table 2: Correlation Analysis

	BOWN	AUQ	BDS	FMD	CEO DUALITY	LEV
BOWN	1					
AUQ	.326	1				
BDS	.127	.211	1			
FMD	.214	.137	.348	1		
CEO DUALITY	.251	.143	.008	.033	1	
LEV	.124	.059	.058	.004	-.120	1

Table 2 depicts the correlation among covariates. The findings show that BOWN is positively and

weakly associated with the remaining variables. Similarly, AUQ has a positive correlation with all variables except LEV. BDS is directly related to FMD while adversely correlated with CEO Duality and LEV. FMD is adversely associated with CEO Duality and LEV. CEO Duality and LEV have a negative correlation.

Table 3 Variance inflation factors

Independent variables	VIF	1/VIF
BOWN	1.580	0.632
AUQ	1.400	0.714
BDS	2.310	0.432
FMD	1.400	0.714
CEO DUALITY	1.140	0.877
LEV	1.27	0.787
Mean VIF	1.5	

The findings above demonstrate that in our study we have a bivariate relationship. For the test of multicollinearity between variables, we use VIF and the dependent Cost of Equity variable. The VIF results displayed in Table 3 indicate that the VIF values for independent variables are below 10, confirming the absence of multicollinearity (Hair et al., 1995).

4.2. Hausman Test

The Hausman test findings in Table 4 suggest that the fixed effect technique is the most appropriate for evaluating the model. When the p-value is below 5%, the fixed effect model provides more dependable outcomes compared to the random effect model (Brooks, 2008 p.509). Hence, the fixed effect model must be utilized (Ali et al., 2024; Shah et al., 2018; Tahir et al., 2018).

Table 3 Housman specification test

Chi^2	41.76
P-value	0.0000

Table 5 shows the analysis conducted for the estimation of a pooled ordinary least square, fixed effect, and Sys-GMM. The results shown in Table 5 confirmed that board size (BDS) is related to equity costs significantly and inversely. Similarly, the relations of FMD, BOWN, with the Pakistani firms' COE are important and constructive. Equation (1) does not regulate endogeneity under pooled OLS estimation as it is faced with the issue of omitted variables.

We use Equation (1) under fixed-effect estimates to address this issue. Results show that the AUQ is associated significantly and directly with Equity Cost, while no other independent variables reach importance. The findings of the model of fixed effects do not follow the goals of this analysis as a model for fixed effects suggests that variables of corporate governance have no influence (dynamical endogeneity), but this is not valid for these variables (Shah et al., 2021; Wintoki et al. 2012).

is not affected by autocorrelation.

5. Conclusion

The prime goal of the study is to assess the nexus between the CG and equity costs for 2014-2019 PSX-listed companies. We carried out CAPM to

Table 4: OLS, Fixed effect, and System-GMM estimation results

Variables	1) Pooled OLS		2) Fixed effect		3) Sys-GMM	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
BOWN	0.002	0.003	-8.660	0.934	-0.105	0.031
AUQ	0.012	0.782	0.024	0.004	0.011	0.021
BDS	-0.144	0.000	0.001	0.331	-0.005	0.015
CEO DUALITY	-0.014	0.326	0.003	0.402	-0.007	0.074
FMD	0.127	0.000	-0.014	0.142	0.013	0.065
LEV	0.008	0.635	0.001	0.732	0.004	0.081
C	-0.115	0.225	0.041	0.217	-0.186	0.000
R-squared	0.161	0.858				
Prob> F	0.000		0.000		0.000	
Hansen J-test						0.170
AR (2)						0.119

To solve the dynamic endogeneity problem, we use Sys-GMM, which fixes OLS and fixed effect model issues (Wintoki, 2007). BOWN is strongly and negatively linked to equity expense in the Sys-GMM calculations. Board size contributes significantly and adversely to the decline in equity costs. With equity costs, CEO DUALITY is not significant. AUQ's coefficient value represents an improvement in business equity expense audited by Big-4 auditing companies. FMD has no partnership with Pakistani firms' equity costs. We found that LEV is significant at 10 percent, so contributes to the equity expense relationship.

The p-value for the Hansen test is greater than 5%, indicating that the instruments in the sys-GMM are legitimate. The p-value for the AR(2) coefficient is more than 5%, indicating that the estimated model

Measure Pakistani companies' equity costs. Many approaches are available to measure the equity cost. Easton (2004) and Gebhardt et al. (2001) employed several methods in their research, while CAPM remains commonly used for calculating the cost of equity. The reason for using CAPM in Pakistani-listed companies is the presence of data. This analysis examines how CG qualities impact the equity costs of companies listed on the PSX. Our results indicate that board size and BOWN are important and linked negatively to equity costs. This means that larger boards and control of Block have adverse impacts on equity costs. The majority of Pakistani businesses are family-owned and have large boards. The two indicators are seen as a good sign of reducing equity costs in PSX-listed companies. In addition,

audit quality and Leverage are related positively to equity companies' costs. Such findings suggest that because of overcontrol, hiring a high-quality auditor raises the equity costs of PSX-listed companies. Since agency and resources dependency theory argues that larger organizations have more challenges facing agency costs, their scale has a positive connection to equity costs. Businesses are anticipated to provide additional details in financial statements to address this problem and ensure they have the required resources (Pfeffer & Salancik, 2015; Bebchuk & Weisbach, 2010). This study enhances the existing governance framework to advance agency theory to promote economic development and financial outcomes. Our analysis aims, using a sound approach, to resolve the shortcomings of previous studies. There are the following constraints in the current report. The first is the sample size of just 170 PSX-listed firms over six years. All companies listed in the PSX may not be subject to such results. Secondly, the cost of equities for Pakistani companies using CAPM, which many researchers contend is a biasing proxied for COE can lead to bias in the estimates (Botosan, 1997). Third, this study tests CAPM, but because of the question of data available, the approach remains widely applied and it is difficult to use models based on projected earnings per share. In addition, the results may not apply to developed or emerging economies.

This paper offers valuable insights, given these limitations. Potential studies on the determinants of the equity costs of annual reports may be done by a broader sample panel data analysis. Another way for further research may be by using a different methodology for measuring equity costs such as Fama and French three-factor and Carhart four-factor models.

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