

Corporate Governance and Cost of Equity: Evidence from Asian Countries

Zeshan Anwar, Dr. Muhammad Jam e Kausar Ali Asghar, Dr. Muhammad Khalid Khan and Dr. Rizwan Qaiser Danish

Abstract

This paper investigates the extent to which governance affect firms' cost of equity capital in Asian countries by employing a regression model on panel data of the 24 Asian countries over the period of 2006 to 2015. The results depict that Quality of Corporate Governance (QCG) index has significant relationship in reducing cost of equity for firms in Asian countries. The results also indicate that explicit corporate governance variables like; board independence, audit committee independence, ownership concentration and CEO duality have also significant association with firm's cost of equity in Asian countries which is in accordance with the agency theory.

Keywords: Corporate governance, cost of equity, implied cost of equity, Asian countries. JEL, G32, G34, M41, O16

Introduction

The high profile corporate failures and scandals, for example, Enron (US); WorldCom (US); Tyco (US); British and Commonwealth (UK); OneTel (Australia); Maxwell (UK); Parmalat (Italy) etc. occurred internationally stimulated the interest of academicians and practitioners for managing the situation through concentrating on corporate governance systems all around the globe. The need for more transparency and accountability in managing and controlling the organizations play an important role in firm performance. Therefore, several rules, regulations and laws were approved in different countries for controlling the corporate governance practices. There are several corporate governance theories and their link with wealth of shareholders is a general topic. For example, the Stewardship theory recommends that corporate governance is about maximization of shareholders wealth. This view might be very narrow but nonetheless, it stresses that corporate governance and wealth of shareholders are linked with each other. The cost of capital is a fundamental factor of wealth creation and debates regarding optimum capital structure relate capital structure with capital cost and wealth of shareholders. Up till now the relationship of corporate governance practices with cost of capital has not been sufficiently investigated.

Current study investigated the relationship of Corporate Governance (CG) with cost of equity by incorporating a sample of large multinationals in Asian countries. There are several theories which point out association of corporate governance with wealth of shareholders; whereas cost of equity is a fundamental factor of wealth creation (Rad,

* Authors are PhD Scholar, University of Lahore, Assistant Professor, University of South Asia, Lahore, Registrar, University of the Punjab, Lahore, Faculty Member, Hailey College of Commerce, University of the Punjab, Lahore and Assistant Professor, University of South Asia, Lahore, Pakistan.

2014). However, the relationship of governance practices with cost of equity has not sufficiently investigated for Asian countries; therefore, there is need for such kind of research.

This research empirically examines this issue by utilizing data from top multinational firms in Asian countries (e.g. PetroChina, Toyota Motor, Gazprom, Samsung Electronics, China Mobile etc.). This research builds on former research in many ways:

Firstly, majority of studies based on corporate governance focused on large and developed economies like UK, US and European economies. The emerging economies like Asian countries with substantial agricultural based industries may vary from developed economies. This investigation on Asian countries may enhance generalizability and understandability of the corporate governance relationship with cost of equity.

Secondly, this research provides several experiences related to governance activities and cost of equity as Asian countries are extremely different with respect to corporate legislations, capital structures and cost of equity.

The governance practices concentrates on characteristics of boards in organizations and as described by Castellano, (2000); the board directors has critical role in controlling and monitoring performance of managers as highlighted in several empirical studies (Teti et al. 2016; Bradley and Chen, 2014 and Hajiha et al. 2013). The matter of policy making relating to cost of equity for Asian companies has not been highlighted in previous discussions.

The better corporate governance mechanisms will assist in several ways: firstly, it will improve the confidence of local investors; secondly, reduces cost of equity; thirdly, reinforcing the better performance of financial markets and eventually encouraging more stable financing sources (The OECD, 2009). The businesses which depend on international financing have accessibility to a larger group of investors. So, if they desire to take benefits of bigger capital markets and want to decrease cost of equity, their governance mechanisms should be reliable, well understood globally and have worldwide agreed principles (Stulz, 2007).

Examining governance practices for decreasing the cost of equity has a significant importance. Various features of corporate governance are studied in different studies (Teti et al. 2016; Bradley and Chen, 2014 and Hajiha et al. 2013). In addition, there are also many theories which assist academicians and practitioners in understanding the CG practices and their relationship with organization's cost of capital. The similarities and variations in these theories make the analyses more attractive and all of these theories emphasize the significance of firm's cost of capital and stockholders' wealth. The stakeholder theory, Agency theory, managerial hegemony theory, resource dependency theory and stewardship theory have emphasized significance of

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firm's cost of capital and stockholders' wealth. The agency theory recommends that stockholders' wealth should be secured though the interests of the managers and shareholders might be different. The firms' performance, cost of capital and wealth of Shareholders are key concerns in stewardship theory because these implied that same interests of shareholders and managers will result in lesser capital cost and better company value. The Stakeholder theory argues that the board directors will concentrate on enhancing shareholder's wealth rather than the wealth of the company; hence, based on this theory, the board directors need a greater level of control. The managerial hegemony theory and Resource dependence theory suggest that board directors need higher control for better performance, profitability, lesser cost of capital and protecting wealth of shareholders. This research attempts to cover problems highlighted by these theories through utilizing different variables associated with governance practices and measure their impact on firm's equity cost.

The literature has used an extensive range of variables associated with governance practices. Mostly selection of variables appears to be made by data accessibility instead of association with underlying theory. Subsequently, a gap emerges between normative and positivists research in area of governance practices. The agency theory has obvious finance implications and presents an effective umbrella for filtering and understanding of variables. The board's size, independence of board and diversity, managerial and block ownership, CEO tenure and duality are some extremely significant factors studied in agency theory. Within this framework, shareholders and managers characteristics should support wealth of shareholders.

The past literature specifies that better corporate governance system improves the financial performance and cost of capital for businesses (MacAvoy & Millstein, 2003; Klapper & Love, 2004; Chahine, 2004; Brown, 2006a; Brown, 2006b). Sound corporate governance practices assist shareholders and managers to anticipate their firm's future in two ways; firstly, improved governance mechanisms result in more cash flows for stockholders instead of expropriation of stockholders' wealth by managers of the organization (Jensen, 1986). Secondly, upgraded governance system decreases auditing and monitoring cost and facilitates organizations to effectively decrease costs (Beiner et. al., 2004). Burton (2000) considers that monitoring the behavior of managers for limiting managerial discretion will result in decreasing the agency costs.

The countries implemented new regulations and rules for improving the corporate governance mechanisms. The US implemented new rules and regulations in the Sarbanes Oxley Act (2002) concerning special characteristics of corporate governance activities. Other economies like UK, New Zealand, Australia, Canada and Asian countries also utilized same rules and regulations related to corporate governance (Rad, 2014). These countries expect that firms which employ these rules and regulations have a certain governance mechanism which assists them in enhancing efficiency. Currently, the corporate governance practices and codes which highlight

conformity and accountability have expanded all over the world (Edwards & Clough, 2005).

Various organizations and institutions have published several principles and codes related to governance practices. These organizations attempt to direct the firms regarding implementation of most up to dated corporate governance principles and codes for improving firm's cost of capital and performance (Edwards & Clough, 2005). These principles and codes are very comparable in few areas and general emphases of these principles and codes are CEO and chairman separation, independent board directors and independent sub-committees for example audit, nomination and remuneration committees.

The weaker governance systems and bad performance of businesses made domestic and foreign investors believe that lack of better corporate governance practices led firms to face recent financial crisis. The other studies also have the similar opinion about function of governance activities. Johnson et al. (2000) has indicated that behavior of businesses in emerging economies in the period of 1997-98 financial crises is more reasonable when factors of corporate governance practices are used in place of macroeconomic factors and the behavior of organizations can be anticipated through the assessment of corporate governance factors.

The financial crisis in Asian countries and failure of larger firms acted as a signal for Asian economies to support the market efficiency through employing better corporate governance systems. The matter of Corporate Governance received significant attention internationally specifically by institutions like OECD established in 1999, which published Corporate Governance principles in 1999, afterwards revised in year 2004. The **OECD-Asian Roundtable on Corporate Governance** operates as a regional forum regarding exchange of experiences, developing corporate governance reforms while promoting awareness level and use of Governance principles. This forum invites experts, practitioners and policy makers on corporate governance from Asian countries, OECD member countries and related international organizations. During 2003, the participants of Roundtable approved a proposal for improvement of governance systems in Asian regions which is called the White Paper on Corporate Governance in Asian countries. After that, the White Paper has continuously encouraged a series of initiatives which include revision of current legislation, adopting international accounting standards, establishing institutes of directors, introducing best practices codes and development of investors associations.

The governance mechanisms in China has developed and emerged as it moved to market economy from planned economy. The development of Chinese capital markets and shift of firms from governmental affiliates to modern businesses have made it indispensable to develop a different framework of governance mechanisms. In 2001, China entered in WTO and started to implement OECD Governance principles and develop governance practices of Chinese businesses (OECD, 2011). The governance

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mechanism of Japanese firms is based on a Commercial Code Law which controls relationship of shareholders and management. This law has been amended numerous times with the purpose of supporting the governance mechanism. In the year of 1993, the law initiated which was identified as kansayaku system, which demanded that a firm should establish a board which would have atleast three statutory auditors (called as kansayaku), comprising of one outsider auditor. During 2002, the Japanese government proposed a new corporate governance mechanism which allowed Japanese firms to choose the kansayaku system or a newly proposed committees system. Under this committees' mechanism, three committees of the directors are established namely auditing committee, compensation committee and appointment committee. Each committee must have outside directors which should be greater than half of the total directors, even though complete board may include majority of insider directors (Mizuno and Tabner, 2009).

The past studies examined association of governance procedures with firms' cost of equity and majority of these studies depicted negative and significant association of better governance practices with cost of equity. However, a gap exists in empirical literature for effect of governance systems on cost of equity. Certainly, there are various studies which analyzed effect of governance practices on cost of capital, but most of the prior studies have used just few characteristics of governance practices and only few significant studies have used corporate governance score. Moreover, most of the researchers concentrated on developed economies and the analysis of Asian economies with a significant data set have been ignored. Therefore, there is no significant study which has determined relationship of governance mechanisms with firm's cost of equity for Asian multinational firms in general since there are structural difference exist as compared to western multinational firms. These gaps in existing literature offer strong motivations to conduct analyses as this study has bridge these gaps in empirical literature by utilizing a sample of top multinational firms in 24 Asian countries over the period of 2006 to 2015.

The governance practices are very important for all firms as it strengthens trust of investors, creditors and all stakeholders regarding organizational activities. These practices are even more important for larger and multinational firms as large number of stakeholders have stake in these organizations. Thus, it is crucial to determine relationship of corporate governance with cost of equity for Asian multinational firms. This study aimed to determine whether better corporate governance results in decreasing firm's cost of equity measured through CAPM and Ohlson & Juettner - Nauroth (2005) implied cost of equity. The findings of this research are significant for policy makers and decision makers due to bigger size, larger capitalization and more resources of the sample multinational firms.

The remaining research has been organized as follows: the literature review has been presented in section 2; research methods: research framework has been provided in

section 3. The section 4 presents results for cost of equity and governance practices, whereas, the section 5 provides conclusion and directions regarding future research.

Literature Review

Many researchers have analyzed the relationship of corporate governance activities and cost of equity e.g. Ashbaugh et al. (2004) stated that as the purpose of corporate governance is decreasing agency costs, they may have a significant impact on firm's equity cost; the researchers also described that better quality of company's financial information have negative correlation with firm's equity cost.

Chen et al. (2007) determined the effect of governance on liquidity of equity and described that the organizations with weaker disclosure practices and information transparency have to bear a more cost for liquidity of equity. Kubo & Saito (2008) concluded that Japanese governance system is not becoming similar to US governance system which is against the common belief of researchers. Shah & Butt (2009) analyzed the influence of board size, independence of audit committee, managerial ownership, corporate governance score and board independence on cost of equity in Pakistan by utilizing data of 2003 to 2007 for 114 companies listed at KSE. The authors used correlation matrix, OLS and fixed effects regression models for testing relationship. The results have shown that board size and managerial ownership significantly and negatively affect cost of equity, whereas, audit committee independence, board independence and corporate governance score positively and significantly affect cost of equity in Pakistan.

Bozec & Bozec (2010) studied Canadian economy for period of 2002 to 2005 and tested corporate governance levels with corresponding WACC and discovered a strong association among the variables. They measured governance by report on business (ROB) index and suggested that improved governance practices results in decreasing WACC for Canadian businesses. The ROB index comprises large number of governance factors which are considered to be extremely important for the effectiveness of governance practices. It includes board composition, board independence assessment, and also three committees namely nomination, audit and remuneration.

Gupta et al. (2011) observed interactive influence of financial and legal developments at country level, and governance attributes at organizational level on equity cost by utilizing a broad sample from 22 advanced economies for the period of 2003 to 2007. The authors demonstrated that governance attributes at firm level have an influence on equity cost just in Common Law nations with higher degree of financial developments. Guangming et al. (2011) studied the Chinese economy and analyzed the association between governance indices and information disclosure. They also found the same results that equity cost declines as a result of better quality and transparent disclosures.

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Keshtavar et al. (2013) determined influence of governance practices on equity cost and financial decisions for companies listed on Tehran Stock Market during period of 2007-11. The results depicted that variables of governance systems significantly and positively affect cost of equity, debt and WACC. Noda (2013) analyzed association of governance system with adjustment behavior of employment for Japanese companies and found that governance practices have caused small but non-negligible amendments in employment practices of Japanese firms.

Singhal (2014) examined influence of governance practices on company valuation and performance in India by utilizing sample of larger companies for 10 years. This study showed that more insider ownership, independent board directors and existence of institutional blockholders reduced the company's perceived risk, thus directing the investors to require lesser return on invested capital. This study highlighted vital role of governance system in producing value for stockholders by diminishing external financing cost. Nikkar & Azar (2015) examined relationship of governance index, cost of debt and equity for 110 firms listed on Tehran stock market for 2009-2013 through multivariate regression technique. The researchers have shown that negative correlation exists between governance index, cost of equity and debt. Teti et al. (2016) investigated the degree to which corporate governance (CG) mechanisms implemented by listed companies in Latin America influenced their cost of equity. The governance index was formed by considering the characteristics of every country and the suggestions provided by the corresponding corporate governance institutions. Specifically to measure the level of corporate governance quality, three sub-indexes were classified namely: "Disclosure", "Shareholder Rights" and "Board Directors", "Ownership" and "Control Structure". The findings of research indicated a significant and negative association of governance quality and equity cost. Particularly, the "Disclosure" variable was most influential in influencing equity cost.

It can be concluded from the above mentioned literature that very limited research has been performed regarding relationship of governance practices with cost of equity for Asian firms in general and Asian multinational firms in particular. To the best of author's knowledge, there are very few studies in Asia which determined the association of governance practices with cost of equity, whereas, there is no study which examined affiliation of governance practices with cost of equity for Asian multinationals.

This research anticipates a negative relation of changes in governance practices with cost of equity for Asian multinational firms.

It is observed from literature review that few studies depicted a negative association of governance practices with firm cost of equity, whereas, some other studies depicted a positive and insignificant relationship of corporate governance practices with equity cost. Therefore, major purpose of this research is to bridge this research gap by investigating this relationship on a large sample of Asian multinational firms over the period of 2006 to 2015 as regulatory authorities are trying to encourage better

governance practices in organizations. This study anticipates a negative correlation of changes in corporate governance practices with firm cost of equity measured through CAPM and Ohlson & Juettner - Nauroth (2005) implied cost of equity.

Research Methodology and Data

The variables for corporate governance practices which past studies and regulators in Asian countries specified as significant principles are; Quality of Corporate Governance (QCG), Board Independence (BI), Ownership Concentration (OWN), Audit Committee Independence (AI) and CEO Duality (DUAL) and the controlled variables are: Firm Leverage (LEV), Firm Size (SIZE) and Firm's volatility (VOLA).

Data and Selection of Sample:

This research study used quantitative research technique; the sample is selected from World's largest public companies by "Forbes Global 2000" over the period of 2006 to 2015. This study doesn't consider financial firms since they are highly monitored. There are 762 Asian multinational firms listed in "Forbes Global 2000", out of which 486 firms are non-financial and 276 firms are financial firms. The required data is collected from annual reports of firms, stock exchanges of concerned countries and organization's web sites. The final sample excludes 123 non-financial multinational firms due to unavailability of complete data over the study period. The remaining 363 non-financial multinational firms (75 % of the sample) are included in the panel dataset of this study as the representatives of largest multinational firms in Asian countries.

The information regarding the total number of multinational firms for Asian countries reported in World's Largest Public Companies by "Forbes Global 2000" has been provided in Appendix I. The Appendix I also provide the information regarding the number of multinational firms included in final sample.

Variables:

This study has employed the Capital Asset Pricing Model (CAPM) for estimating cost of equity and abnormal earnings growth valuation model of Ohlson & Juettner - Nauroth (2005) for calculation of implied cost of equity.

Calculating cost of equity or required return by the investors can be carried out in many ways but there are most accepted methods which include CAPM (Treyner, 1962; Sharpe, 1964; Lintner, 1965); Fama and French (1993) Three Factors Model and DDM (Soh, 2011). Even though it is yet indefinite about which technique is most effective to use (Soh, 2011), the common method which was utilized in past studies is the CAPM (e.g. Bozec and Bozec, 2010). The model for CAPM can be described as follows:

$$R_e = R_f + \beta (R_m - R_f) \quad (1)$$

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Where R_f represents risk free rate, β represents beta, the variability of organization with respect to the overall market, and R_m represents market return. $(R_m - R_f)$ represents market risk premium. The risk free rate has been calculated based on 10 year Government Treasury bond which is supported by Sörensson (2011). The coefficient of beta has been calculated manually based on stock price returns as follows:

$$\text{Beta} = \frac{\text{COV}(R_m ; R_e)}{\text{Var}(R_m)} \quad (2)$$

As a substitute of CAPM model, equity cost implied by discounted cash flows methods is obtaining popularity in empirical research as several analyses have utilized numerous alterations of Edwards & Bell, (1961); Ohlson, (1995); Feltham & Ohlson, (1995); generally identified as Edward – Bell - Ohlson residual income valuation technique, and abnormal earnings growth techniques, e.g., Ohlson and Juettner-Nauroth (2005), in producing estimates of implied equity cost. There are several studies which used implied cost of equity model for measurement of equity cost; however, these analyses share two points of consensus; Firstly, the analysts' forecasts are noisy and sluggish; therefore, implied equity cost models should be used with maximum precaution. Secondly, all models provide almost same values for estimates of equity cost (e.g. Gode and Mohanram, 2003; Easton & Monahan, 2005; Botosan and Plumlee, 2005). Therefore, this research also employed Ohlson & Juettner-Nauroth (2005) abnormal earning growth model for estimation of implied equity cost as an alternative to CAPM. The detailed implementation of this model has been provided in Appendix II.

The corporate governance variables used in current study are by following past studies which includes; Quality of Corporate Governance, Board Independence, Audit Committee Independence, Ownership Concentration and CEO Duality (Pham et al. 2012; Bozec and Bozec, 2010; Blom & Schauten, 2008; Ashbaugh et al. 2004; Bradley & Chen, 2014).

This research has developed an index for determining quality of corporate governance practices by Asian multinational firms by following the work of Klapper & Love (2004); Shah & Butt (2009). This variable is named as Quality of Corporate Governance (QCG) and calculated through following equation:

$$\text{QCG} = f(\text{BI}, \text{AI}, \text{OWN}, \text{DUAL}) \quad (3)$$

Where BI = board independence, OWN = ownership concentration, AI = audit committee independence and DUAL = CEO Duality.

The above equation shows the theoretical framework for measurement of quality of corporate governance variable (For details on its calculation, please see Appendix III). These factors have been used collectively for calculating corporate governance scores

and forming governance index (QCG) for each organization and also independently to check robustness of results.

Board Independence (BI) is measured as outside board directors to total number of board directors (Singhal, 2014; Shah and Butt, 2009). An outsider director is a board member who is not included in team of executive managers. These directors are not employees of the business and they don't have any other affiliation with the firm. Ownership concentration (OWN) is estimated as shares owned by top five shareholders to total outstanding shares in a firm (Singhal, 2014; Shah and Butt, 2009). Large stockholders hold monitoring role of management and can reduce agency issues.

An independent audit committee is also a significant variable for better governance practices as it is crucial for ensuring correctness and quality of audit activities. The variable of Audit Committee Independent (AI) calculated as independent directors to total Audit Committee directors (Shah and Butt, 2009).

Separation of board chairman and CEO of company is also critical component of governance practices in firm and it has major influence on business performance (Singhal, 2014). This research represents separation of CEO and board chairman as CEO Duality (DUAL) and it takes value of one if chairman and CEO is same person and value of zero if CEO and chairman are different persons.

The control variables which are having predictive power regarding an organization's cost of capital as shown by the empirical literature are also included in the regression models for controlling their predictive influences. These variables include Firm Size (SIZE), Volatility (VOLA) and Leverage (LEV) by following Bradley and Chen (2014). The explanation and measurement of all variables are provided in table 1.

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Table 1

Explanation of Variables

Variables	Measurement Technique
Dependent Variables	
Cost of Equity	COE
	ICOE
	Cost of equity estimated through CAMP
	Implied cost of equity estimated through abnormal earning growth model of Ohlson & Juettner - Nauroth (2005)
Independent Variables	
QCG	Quality of Corporate Governance calculated as: $QCG = f(BI, OWN, AI \text{ and } DUAL)$
BI	Ratio of independent directors to total number of board directors
OWN	Ratio of Shares held by five largest shareholders to total outstanding shares
AI	Ratio of independent directors to total directors in Audit committee
DUAL	The firm where one person hold both positions of CEO and Board Chairman are equal to one; and zero otherwise
Control Variables	
SIZE	Natural logarithm of firm's total assets
VOLA	One year volatility of firm's share prices
LEV	Ratio of total debt to firm's total assets

Panel data regression is estimated. First of all, these regression equations have been estimated with Pooled OLS Regression Model. Secondly, the regression diagnostics has been estimated for checking the problems of Auto Correlation / Serial Correlation and Heteroskedsticity. Thirdly, as the problems of serial correlation or heteroskedasticity are detected from the regression diagnostics which implies that the Fixed Effect or Random Effects Regression Models provide spurious regression results.

The empirical literature depicts that Panel dataset may include complicated error structures. The existence of non-spherical errors, if not appropriately tackled, can cause inefficiency in assessment of coefficient and bias in SEs' estimation. The existence of serial correlation has been considered a prospective drawback in panel dataset. The existence of cross sectional dependence has now restored attention (Driscoll & Kraay, 1998; De Hoyos & Sarafidis, 2006). There are chances that both may exist in several studies (Jönsson, 2005). It presents a problematic situation as common techniques of panel analysis are incapable of handling both cross sectional dependence and serial correlation simultaneously.

Parks' Feasible Generalized Least Squares (FGLS) technique can handle both problems simultaneously (Parks, 1967). But this model can be employed only when time periods (T) is equal or greater than cross sections (N). Another problem of this model is that it severely underestimates SEs if the sample is finite. Beck & Katz (1995) reported that 'Panel Corrected Standard Error' (PCSE) model provides

considerably better results as compared to FGLS model in several situations. Therefore, to overcome this problem, the Panels Corrected Standard Errors (PCSE) Regression Model has been employed to estimate the regression equations.

Fourthly, the Two Stage Least Squares (2SLS) Regression Model has been employed to check endogeneity problem of the independent variables which are different variables related to governance practices and the control variables discussed in previous sections.

The base regression models for testing relationship of corporate governance practices with cost of equity for firm estimated through CAPM measure of cost of equity (COE) and Ohlson & Juettner - Nauroth (2005) model for measurement of implied cost of equity (ICOE) are stated below:

$$COE_{i,t} = \beta_0 + \beta_1 QCG_{it} + \beta_2 LEV_{it} + \beta_3 SIZE_{it} + \beta_4 VOL_{it} + U_{it} \dots\dots\dots(4)$$

$$ICOE_{i,t} = \beta_0 + \beta_1 QCG_{it} + \beta_2 LEV_{it} + \beta_3 SIZE_{it} + \beta_4 VOL_{it} + U_{it} \dots\dots\dots(5)$$

Empirical Results

The summary of results related to descriptive statistics for panel data of world's largest multinational firms of Asian countries is presented in Table 2.

Table 2

Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.
COE	8.15	7.53	57.07	0.01	4.89
ICOE	6.82	3.02	50.68	0.00	10.04
QCG	0.45	0.43	0.97	0.04	0.65
BI	0.35	0.33	0.90	0.00	0.18
OWN	0.59	0.63	0.99	0.02	0.29
AI	0.71	0.67	1.00	0.00	0.27
DUAL	0.22	0.00	1.00	0.00	0.41
LEV	0.53	0.54	0.95	0.00	0.24
SIZE	12.83	13.18	23.98	3.26	2.58
VOLA	0.85	0.83	7.60	-4.56	0.81

The table 2 depicts that dependent variables COE and ICOE have mean values of 8.15 and 6.82 respectively, whereas, the minimum and maximum values for these variables are 0.01 and 57.07; 0.00 and 50.68 respectively. The values of standard deviation for COE and ICOE are 4.89 and 10.04 respectively. The variables of corporate governance QCG, BI, OWN, AI and DUAL have mean values of 0.45, 0.35, 0.59, 0.71 and 0.22 respectively, whereas, the minimum and maximum values for these

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variables are 0.04 and 0.97; 0.00 and 0.90; 0.02 and 0.99; 0.00 and 1; 0.00 and 1 respectively. The values of standard deviation for QCG, BI, OWN, AI and DUAL are 0.65, 0.18, 0.29, 0.27 and 0.41 respectively

The table 3 presents the correlation matrix for variables which depicts that no higher correlation exists between variables. As the highest value is 0.59, a low likelihood of multicollinearity is being anticipated in regression models.

Table 3

Pairwise Pearson Correlation Matrix

	COE	ICOE	QCG	OWN	AI	BI	DUAL	LEV	SIZE	VOL
COE	1									
Sign										
ICOE	.088**	1								
Sign	.000									
QCG	.102**	.224**	1							
Sign	.000	.000								
OWN	.139**	.206**	.214**	1						
Sign	.000	.000	.000							
AI	.128**	.173**	.313**	.204**	1					
Sign	.000	.000	.000	.000						
BI	.062**	.130**	.159**	.091**	.161**	1				
Sign	.000	.000	.000	.000	.000					
DUAL	.004	-.05**	-.12**	.044**	-.03*	.097**	1			
Sign	.395	.001	.000	.004	.012	.000				
LEV	-.11**	.058**	.020	-.03*	.002	.016	-.019	1		
Sign	.000	.000	.113	.018	.443	.164	.122			
SIZE	-.11**	-.008	-.002	-.23**	-.10**	-.08**	.003	.022	1	
Sign	.000	.322	.463	.000	.000	.000	.431	.090		
VOL	.041**	.595**	.145**	.110**	.146**	.138**	.022	.094**	.031*	1
Sign	.007	.000	.000	.000	.000	.000	.090	.000	.032	

The summary of Unit Root tests for all the dependent and independent variables has been presented in table 4 which depicts that all variables are stationary at level which means that problem of non-stationarity does not exist in dataset.

Table 4

Summary of Unit Root Tests and Stationarity Results for Variables

Variable	Levin, Lin & Chu t*	Im, Pesaran and Shin W- stat	ADF - Fisher Chi- square	PP - Fisher Chi-square	Decision about Stationarity
COE	0.000	0.000	0.000	0.000	Level
ICOE	0.000	0.000	0.000	0.000	Level
QCG	0.000	0.000	0.000	0.000	Level
BI	0.000	0.000	0.091	0.000	Level
OWN	0.000	0.000	0.000	0.000	Level
AI	0.000	0.000	0.000	0.000	Level
Dual	0.000	0.000	0.000	0.000	Level
LEV	0.000	0.000	0.000	0.000	Level
SIZE	0.000	0.000	0.000	0.000	Level
VOLA	0.000	0.000	0.000	0.000	Level

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Panel regression is estimated on model 4 and 5. The Wooldridge test of autocorrelation in panel data has been employed for checking the presence of autocorrelation / serial correlation in data of this study. The results of Wooldridge test describes that the probability value of F statistics is less than 0.01 for all models, so this study rejects null hypothesis and accept alternative hypothesis of presence of first order autocorrelation in dataset. So, it is concluded that the dataset of this study incorporates problem of autocorrelation / serial correlation. In order to verify heteroskedasticity issue, the Modified Wald Test for groupwise heteroskedasticity in fixed effects regression models has been utilized. The results demonstrate that probability value of Chi2 is less than 0.01 for all models, so this study rejects null hypothesis that panel data does not have the problem of heteroskedasticity against the alternative hypothesis that the panel data does have the problem of heteroskedasticity. So, it is being concluded that the dataset of this study suffers with the problem of heteroskedasticity. Therefore, The PCSE regression model has been employed on model 4 and 5 to investigate the association of QCG with firm's cost of equity and the results have been described in table 5.

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Table 5

Panels Corrected Standard Errors (PCSE) Regression Model

	Cost of Equity (COE)		Implied Cost of Equity (ICOE)	
	Coef.	Std. Err.	Coef.	Std. Err.
QCG	-0.559***	0.138	-0.328*	0.409
LEV	0.453**	0.263	0.748***	1.252
SIZE	0.182	0.254	-0.471***	0.165
VOLA	4.302***	0.262	0.321**	0.259
_cons	3.796	1.249	7.781	2.469

*****Significant at p-value <1%, **Significant at p-value <5%, *Significant at p-value <10%**

The table 5 reveals that QCG has significant negative effect on cost of equity (COE) and implied cost of equity (ICOE) which means that improvement in corporate governance practices results in lesser cost of equity for Asian multinational firms. So, it suggests that better governance practices results in reducing equity cost for Asian multinational firms. Therefore, it is extremely beneficial for Asian firms to improve their overall governance systems because it results in lesser external financing cost for these firms. This finding is similar to conclusions of Nikkar & Azar, (2015); Ramly, (2012); Gupta et al. (2011); Zhu, (2014); Pham et al. (2012). The control variables of leverage and volatility have significant positive influence on COE and ICOE. These outcomes are similar to results of Nikkar & Azar, (2015); Singhal, (2014) and Guedhami & Mishra, (2006).

The relationship of individual corporate governance variables namely BI, AI, OWN and DUAL with both cost of equity measures namely COE and ICOE has been also examined and results have been presented in table 6 which demonstrate that variables of BI and OWN have significant negative influence on both COE and ICOE which means that more independent board directors and higher ownership concentration result in decreasing firm's equity cost. These outcomes are consistent with results of Bozec and Bozec, (2010); Pham et al. (2012) and Teti et al. (2016). The variable of AI has significant positive relationship with both COE and ICOE which means that firms with independent audit committees have higher cost of equity in Asian countries which are similar to results of Shah & Butt (2009). The variable of DUAL also has significant positive impact on COE which means that firm with CEO duality face higher equity cost in Asian countries. This outcome is similar to results of Shah & Butt (2009).

Table 6

Panels Corrected Standard Errors (PCSE) Regression Model

	Cost of Equity (COE)		Implied Cost of Equity (ICOE)	
	Coef.	Std. Err.	Coef.	Std. Err.
BI	-2.73***	0.715	-3.798**	1.430
OWN	-2.271***	0.705	-1.066***	0.791
AI	1.332***	0.392	2.048***	1.165
DUAL	0.107***	0.222	-0.005	0.480
LEV	0.563**	0.173	0.858***	1.262
SIZE	0.082	0.164	0.481***	0.275
VOLA	5.402***	0.372	0.431**	0.169
_cons	4.094	1.194	8.585	3.247

***Significant at p-value <1%, **Significant at p-value <5%, *Significant at p-value <10%

Endogeneity Problem

For checking the problem of endogeneity of board independence variable, the 2SLS regression model has been applied. Based on the literature (Firth and Rui, 2012); the variable of board independence has been considered as endogenous variable and board size is considered as instrumental variable for applying the 2SLS regression model. The instrumental variable of Board Size (BSIZE) is calculated as total directors of firm's board. The results of 2SLS regression model have been presented in table 7, where quality of corporate governance (QCG) index along-with control variables have been taken as independent variables and both cost of equity measures COE and ICOE have been taken as dependent variables in two different regression models.

The results depict that QCG variable has significant negative relationship with COE and ICOE which means that better governance practices results in lesser cost of equity for Asian multinational firms. So based on the findings of 2SLS regression model also, this study describes that if Asian firms improve their corporate governance practices, it results in lesser equity cost for these firms. These findings are similar to findings of Mazzotta and Veltri (2014); Bozec and Bozec (2010); Gupta et al. (2011); Reverte (2009) who found that better governance practices results in lesser cost of equity for firms in European countries. Moreover, these findings are also similar to results of Teti et al. (2016); Ashbaugh et al. (2004) which found that US firms with improved governance mechanisms have advantage of lesser cost of equity. Furthermore, these results are also consistent with findings of Pham et al. (2012) who concluded that firms with stronger governance systems enjoy lesser cost of equity in Australia. The results of this study are very important as it indicates that Asian

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countries also have same pattern for relationship of corporate governance practices with cost of equity as it was found by researchers in developed countries of Europe, US and Australia.

Table 7:

The Two Stage Least Squares (2SLS) Regression Model

Instrumental variables (2SLS) regression

Number of obs = 3618

	Cost of Equity (COE)		Implied Cost of Equity (ICOE)	
	Coef.	Std. Err.	Coef.	Std. Err.
QCG	-0.176**	0.170	-0.530**	0.260
LEV	-0.243*	0.206	-0.408***	0.479
SIZE	-0.021	0.110	-0.067***	0.160
VOLA	4.305***	0.171	0.488**	0.263
_cons	4.384	4.199	3.159	3.734
Instrumented			QCG	
Instruments			LEV SIZE VOLA BSIZE	

*****Significant at p-value <1%, **Significant at p-value <5%, *Significant at p-value <10%**

The control variable of leverage has significant negative association with both COE and ICOE which means that firms with higher leverage have lesser cost of equity, whereas, variable of volatility has significant positive impact on both COE and ICOE which means that firms having more volatility face higher equity cost. The variable of firm size also has significant negative impact on ICOE which means that larger Asian multinational firms have lesser cost of equity.

The relationship of individual corporate governance variables namely BI, AI, OWN and DUAL with both measures of cost of equity namely COE and ICOE has been also examined and results have been reported in table 8. The findings depict that variables of BI and AI have significant negative relationship with both COE and ICOE which means that firms having more independent boards and audit committees have lesser cost of equity in Asian countries.

Table 8

The Two Stage Least Squares (2SLS) Regression Model

Instrumental variables (2SLS) regression

Number of obs = 3618

	Cost of Equity (COE)		Implied Cost of Equity (ICOE)	
	Coef.	Std. Err.	Coef.	Std. Err.
BI	-7.917***	0.870	-5.518**	3.143
OWN	1.070***	0.104	2.482***	0.581
AI	-0.785***	0.152	-0.984***	0.744
DUAL	0.550***	0.106	0.002	0.569
LEV	-0.353*	0.106	-0.418***	0.789
SIZE	-0.032	0.220	-0.087***	0.170
VOLA	5.405***	0.281	3.698**	0.373
_cons	1.061	0.458	4.321	1.298
Instrumented			BI	
Instruments			OWN AI DUAL LEV SIZE VOLA BSIZE	

*****Significant at p-value <1%, **Significant at p-value <5%, *Significant at p-value <10%**

These findings are similar to conclusions of Bozec and Bozec, (2010); Khemakhem and Naciri (2015) who found that firms which have independent boards and audit committees have lesser cost of equity for firms in European countries. Moreover, these findings are also similar to results of Ashbaugh et al. (2004) and Dao et al. (2013) who stated that US firms with more independent boards and audit committees have benefits of lesser cost of equity. Furthermore, these results are also consistent with findings of Pham et al. (2012) who concluded that firms with greater independence of boards and audit committees enjoy lesser cost of equity in Australia. The variable of OWN has significant positive association with COE and ICOE which means that firms having higher ownership concentration also have higher cost of equity in Asian countries. These findings are similar to conclusions of Elston and Rondi (2006) who found that firms which have higher ownership concentration also suffer with increased cost of equity for firms in European countries. The results also depict that the variable of DUAL significantly and positively affects COE which means that firms having CEO duality suffer with higher equity cost in Asian countries. This result is consistent with findings of Khemakhem and Naciri (2015) who concluded that firms with CEO duality also have higher cost of equity in Canada.

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The p-values for Durbin and Wu-Hausman test statistics are less than 0.05 for all models, so this study rejects null hypothesis that variables are exogenous and accept the alternate hypothesis that variables are not exogenous. This research concludes that the problem of endogeneity does exist in regression model 4 and board independence is the endogenous variable in this model, therefore, 2SLS regression model is best for estimation. After verifying the endogeneity of the variables, the test for the First Stage Regression Summary Statistics has been employed to determine whether the instrumental variable is weak or not and the results indicate that the Minimum eigenvalue statistic is 187.211 for all models; this value needs to be compared with critical values at 10%, 15%, 20% and 25%. The minimum eigenvalue is greater than all the critical values, so this research rejects null hypothesis that instrumental variable is weak and accept alternative hypothesis that instrumental variable is not weak. After determining endogeneity of board independence and determining that the instrumental variable of board size is not a weaker instrument, the test of Overidentifying restrictions has been used and the results provides p-value statistics for the Sargan Test and Basman Test which are greater than 0.10 for all regression models, so this research cannot reject null hypothesis that instrument set is valid and model is correctly specified. So, it is being concluded that the instrumental variable included in this model namely board size is a valid instrument and 2SLS regression model which has been employed for the analysis in this study is correctly specified.

These results indicate that improvement in corporate governance practices is extremely beneficial for Asian firms as it results in lesser COE and ICOE which ultimately decreases firm's cost of capital. These findings are also extremely significant for policy makers of Asian firms as empirical evidence has been provided that better governance practices results in lesser cost of capital, while investors and creditors around the world would be more willing to invest in these firms due to lesser cost of capital. Therefore, it is very crucial for Asian firms to strengthen their governance structure because it results in obtaining lesser cost of capital.

Conclusion

The corporate governance practices are very important for all firms as it strengthens trust of investors, creditors and all stakeholders regarding organizational activities. These practices are even more important for larger and multinational firms as large number of shareholders and stakeholders have involvement in these organizations. The findings of this study suggested that better governance practices results in lesser cost of capital for Asian multinational firms. These results justify most of the past research and corporate governance theories in general and agency cost theory in particular regarding role of corporate governance activities in lowering agency cost and cost of capital. These findings are significant as sample considered in this study comprises of top multinational firms in Asian countries; therefore it is extremely important for policy makers of these firms to further improve and develop their corporate governance activities as they would gain the benefits of decreased cost of

equity. It would result in further development and growth of these firms as investors and creditors are more interested to invest in those firms where corporate governance structures are better. Moreover, the size and share capital of these firms is very large; therefore, the results of this study are also very important for investors and creditors around the world as they can forecast the performance of these firms based on their governance systems.

The findings of this research are very important as it reveals that Asian economies also have the same pattern for association of governance practices with cost of capital as it was found by researchers in developed countries of Europe, US and Australia.

The recommendations of this study have implications for managers, policy makers, investors, regulators and researchers in Asian regions. The comprehensive evidences of this research regarding effect of corporate governance activities on firm's cost of capital should facilitate regulators and policy makers of Asian countries for making relevant policies and assessing usefulness of these policies. Hence, they can set competitive regulatory and legal infrastructures to attract foreign capital in an efficient and effective manner. Furthermore, these results also have implications for managers of Asian multinationals regarding significance of corporate governance as they are striving for lesser cost of capital and performance of firms. Therefore, board directors and managers of multinational firms should implement higher levels of corporate governance. It is very important for investors also to learn how firms' cost of capital is being affected by corporate governance which denotes firm's specific risk so they would take better investment decisions. As this research recommends that firms with better corporate governance have lesser cost of capital, therefore focusing on governance practices and avoiding investment in businesses with weaker corporate governance could assist investors in improving their portfolio performance.

The future research could concentrate on extending this study in various directions. Some of these directions are identified as follow:

Firstly, the analyses for relationship of corporate governance practices with firm's cost of equity in Asian countries should be compared with analyses of this relationship in countries outside of Asian regions. Secondly, the comparison of country specific analyses among different Asian regions should be conducted. Thirdly, the financial multinational firms have been excluded from the analysis; the future studies can also include financial firms in their analyses.

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