Capital Markets Review Vol. 31, No. 2, pp. 69-87 (2023)

Financial Performance as a Determinant of The Cost of Capital: An Empirical Study on Listed Companies in India

Naseem Ahamed[1*] & Nitya Nand Tripathi[1]
[1]Faculty of Finance and Accounting, ICFAI Business School, Hyderabad, ICFAI Foundation for Higher Education University, India.

Abstract: Research Question: The purpose of this study is to examine the relationship between financial performance and the cost of capital of firms. **Motivation:** Access to inexpensive capital is a great enabler for firms especially during periods of uncertainty. The cost of capital reflects the investor's attitude towards risk. The McKinsey Quarterly (in the December 2008) edition, found that the long-term price of risk has increased over time. This motivated us to examine the impact of firms performance on its cost of capital. **Idea:** The premise forming the bedrock of this study is that access to inexpensive capital would help a firm undertake multiple projects that would otherwise have not been financially feasible. **Data:** This study takes all non-financial companies listed on the National Stock Exchange (NSE hereafter) of India from 2004 to 2020 from the Prowess database containing more than 12,369 firm-year data points. **Method/Tools:** Multivariate panel regression model is used for analysis using firm and year fixed effects. We used financial data, board profile and dummies for sector and affiliation of firms. **Findings:** We found an inverse relationship between asset and cost of capital. This implies the corporate landscape of India is dominated by business groups and they are better placed to raise inexpensive capital than their standalone counterparts. Firms with a high dividend pay-out ratio also enjoy a lower cost of capital. Better corporate governance mechanisms such as board independence help lower the cost of capital. The results are particularly important for policymakers of emerging economies like India. Making policy decisions that would encourage wider retail investors' participation in markets would go a long way in expanding the available capital pool for commercial enterprises. **Contributions:** One of the primary contributions of this study is the examination of the relationship between firm performance and cost of capital in the context of an emerging economy that is characterized by the predominance of business groups, concentrated ownership and institutional voids.

Keywords: Cost of capital, firm performance, emerging economy.
JEL Classification: G32, O16, L25

* Corresponding author: Naseem Ahamed. Tel.: +91-8247619024.
Email: naseemahamed@ibsindia.org

Received 1 Nov 2022; Final revised 5 May 2023; Accepted 15 Sep 2023; Available online 30 Sep 2023.
To link to this article: https://www.mfa.com.my/cmr/v31_i2_a4/
© Malaysian Finance Association, 2023. This work is licensed under the terms of the Creative Commons Attribution (CC BY) (http://creativecommons.org/licenses/by/4.0/).

1. Introduction

The cost of capital of firms warrants special attention by the top management owing to the significance it holds in corporate finance. Extant studies on the cost of capital are sparse, especially with respect to emerging economies (Barry *et al.*, 1998; Omran and Pointon, 2004). Few studies related to the cost of capital conducted on emerging economies (Exley and Smith, 2006; Ibrahim and Ibrahim, 2015; Pouraghajan *et al.*, 2012; Hussain *et al.*, 2019) report conflicting results. On one hand, Pouraghajan *et al.*, 2012 assert the existence of a positive and significant relationship between the cost of capital and financial performance. Ibrahim and Ibrahim, 2015, on the other hand, report that there is no association between the cost of capital and financial performance. Others have reported an inverse relationship between the cost of capital and a company's reputation and corporate reputation is correlated with financial performance (Cao *et al.*, 2015).

Emerging economies are characterised by distinct features in their corporate landscape such as a less vibrant capital market, corporate control through duality/family holdings, concentrated ownership, a predominance of business groups and institutional voids (Khanna and Palepu, 1997; Harrison *et al.*, 2018) to name a few, setting them apart from their counterparts in developed economies. The outcome of these structural differences manifests itself in the form of information asymmetry between stakeholders. This asymmetry leads to an increase in the cost of equity for firms raising capital in developing economies (Lambert and Verrecchia, 2010; Barth *et al.*, 2013). Firms tend to pay dividends to their shareholders to reduce this informational asymmetry (Lin *et al.*, 2017).

This study examines the impact of financial performance on the overall cost of capital of listed companies on NSE. Along with that, this study also examines the impact of universally accepted best practices of corporate governance, corporate control and the sector to which a firm belongs on the cost of capital.

The remainder of this article is organized as follows. Section 2 contains the background and premise of this study; Section 3 contains the review of relevant literature; Section 4 contains data, variables, and the research method used in this study; Section 5 contains the hypotheses; Section 6 contains the results; Section 9 contains the conclusion and implications of this study.

2. Background and Premise

The emergence of publicly traded companies on stock exchanges paved way for the creation of companies of unprecedented size. The opportunity for investors to invest in companies of their choice is better than ever. In a well-functioning financial system, intermediaries (stock exchanges) help mobilize the surplus funds in the economy towards its most efficient usage. Shareholders can indicate their happiness/disappointment through their buy/sell actions respectively. With the advent of internet-based trading platforms, the process of investing in companies has become simple and fast.

Companies require funds all the time for all sorts of activities such as financing their working capital; capital budgeting expenditure; expansion of business; modernization of plants and factories etc. These funds are broadly arranged from two sources namely debt-based sources of funds such as term loans and debentures/bonds and equity-based sources of funds such as equity shares and preference shares.

The expectation of the creditors and shareholders against their investments are technically known as the cost of debt and cost of equity respectively. Combining these two costs with their proportion in the total capital structure is called the cost of capital. The performance of businesses is intricately linked with their cost of capital (see Artha and Mulyana, 2018; Schwarz, 2018). It can be observed that the cost of financing increases with the increase in asymmetric information. Hence, the equity holders should be compensated commensurate to

the risk undertaken. The cost of equity is higher than the cost of debt for various reasons. First, debt is considered a cheaper source of capital because creditors are concerned with their interest amount and have no share in the profit. Also, a debt obligation is for a limited period. In the normal course of business, creditors don't have voting rights. On the other hand equity capital is expensive because equity is a lifelong obligation (unless the firm goes for a buy-back). Also, equity holders enjoy voting rights granting them higher control over the management compared to creditors. Also, ordinary shareholders, by virtue of being the claimants of residual income undertake the maximum amount of risk.

Donaldson (1961), came up with the pecking order theory which was later ameliorated by Myers and Majluf (1984). The pecking order theory ranks the mode of financing requirements of companies in order of their preference. According to the pecking order theory, a company would first utilize its retained earnings; then issue debt; then issue equity as a last resort to gather funds.

Figure 1 exhibits the increase in the cost of various sources of capital. This figure exhibits the increase in the cost of various sources of capital. Debt capital is cheaper compared to equity capital. The overall cost of capital is the weighted average cost of individual components of capital. Firms with high creditworthiness and reputation would be able to raise debt and equity capital at a relatively lower cost, thus helping them reduce the overall cost of capital.

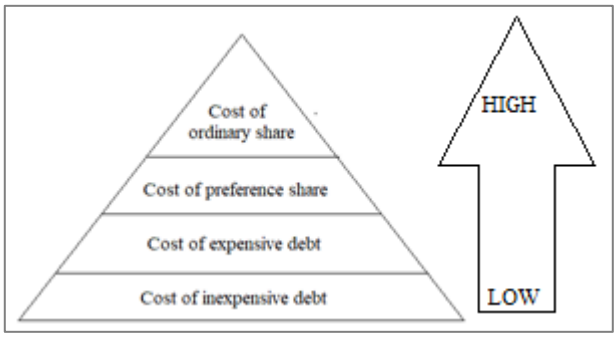

Figure 1: The increase in the cost of various sources of capital

It is observed that the cost of financing increases with the increase in asymmetric information. Reputed companies pay a lower cost for raising capital (see Cao *et al.*, 2015). Investors also comprehend the action of companies as a signal of the firms' financial capacity. Issuing equity by a firm to raise funds would be perceived by the potential shareholders as a lack of the firm's ability to pay interest for debt capital, so the expected return (cost of equity) would increase accordingly. For the existing shareholders, the issuance of new equity would dilute their ownership and make their claim over residual income even riskier.

When a company assumes debt or issues debt-based financial instruments such as debentures, then investors ascribe that action to the company's ability to pay off the interest in future.

The degree of information asymmetry between management and investors is less in the case of debt issuance. Whereas, when it issues equity shares towards raising additional funds, then it is construed by the investors that the firm couldn't get debt and is issuing equity shares as a last resort. The investors perceive that the management knows something which they don't and hence require higher cost for equity commensurate to the information asymmetry.

Figure 2 exhibits the formula used for arriving at the overall cost of capital (also known as the weighted average cost of capital or the hurdle rate). The cost of equity plays an important role in the overall cost of capital as a lower cost of equity would pull the overall

cost of capital down. The overall cost of capital is the weighted average of the cost of debt and the cost of equity

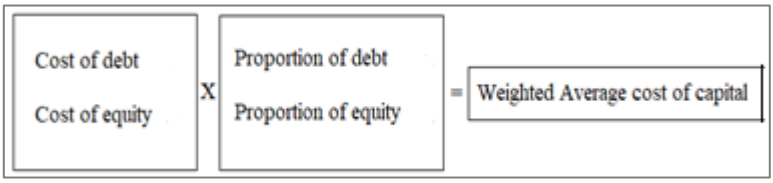

Figure 2: The weighted average cost of capital (WACC) and its determinants

Firms would like to source capital from these sources at the least cost possible because inexpensive capital motivates entrepreneurial spirit. Low cost of capital gives the companies some degree of flexibility to choose projects with low yield and still be profitable. When companies finance their funds at a higher cost, then they limit themselves to choosing only those projects which would yield returns higher than the cost of capital.

The cost of capital, also known as the hurdle-rate determines the criteria for acceptance or rejection of projects. Having a lower cost of capital would allow firms to take up projects with lower yields and still be profitable. In Table 1 there is a tabular representation of how different firms with different costs of capital would not be able to take up different projects with expected yields. As the cost of equity is a component of the overall cost of capital, raising funds at a lower cost of equity would reduce the overall cost of capital.

Table 1 Project options and hurdle rates

Firms	Kcap (%)	Projects in the market	Firms that can accept the projects
A	7	Project 1 yields a return of 7.2 %	Firm A
B	8	Project 2 yields a return of 7.25%	Firm A
C	9	Project 3 yields a return of 7.5%	Firm A
D	10	Project 4 yields a return of 8.4%	Firm A; Firm B
E	12	Project 5 yields a return of 9.2 %	Firm A; Firm B; Firm C
		Project 6 yields a return of 10.15%	Firm A; Firm B; Firm C; Firm D
		Project 7 yields a return of 11%	Firm A; Firm B; Firm C; Firm D

Notes: Table 1 exhibits the project options available for companies and the benefit of having a lower hurdle rate. (kcap stands for overall cost of capital). There are five firms namely Firm A; Firm B; Firm C; Firm D and Firm E with the hurdle rate of 7 percent; 8 percent; 9 percent; 10 percent and 12 percent respectively. Considering that a total of seven projects namely Project 1; Project 2; Project 3; Project 4; Project 5; Project 6 and Project 7 with a yield of 7.2 percent; 7.25 percent; 7.5 percent; 8.4 percent; 9.2 percent; 10.15 percent and 11 percent respectively are available in the market, Firm A would be able to undertake all the projects because its hurdle rate is lower than the yield of all the projects. In fact, only Firm A would be able to accept the first three projects; Firm B can accept only the last four projects as the first three projects are out of its reach due to the high hurdle rate. Firm C can accept the last three projects; Firm D can accept the last two projects. Firm E wouldn't be able to accept any project as none of the project's yield is surpassing its cost of capital.

3. Literature Review

The extant literature on the cost of capital examines it from multiple aspects by studying its relationship with various variables. One such study is conducted by Bhattacharya and Daouk (2002), where they study the influence of laws pertaining to insider trading and enforcement thereof on the cost of equity across 103 countries using four approaches. They found that strong enforcement of such laws reduces the cost of equity. Ashbaugh *et al.* (2004) studied the effect of good governance practices on the cost of equity in U.S. firms to find an inverse relationship between the variables of interest. Another study with similar results as that of Ashbaugh *et al.* (2004) is conducted by Easton (2004) where governance mechanisms are

quantified based on parameters such as shareholder's rights, ownership structure etc. in order to assess overall firm risk.

The impact of the cost of capital on the financing decisions of firms and thus on their capital structures for Brazilian companies is discussed by Albanez (2015). She presents evidence that Brazilian firms follow the pecking order hierarchy to obtain financing when the cost of equity is high. The decision, however, is not based on just the pecking order hierarchy, rather it is based on the cost of alternative sources of finance due to the information asymmetry between market agents.

One of the seminal papers in the area of corporate governance is by Gompers *et al.*, (2003) where they create a corporate governance index (GIM index) using a comprehensive list of parameters. Some of those parameters include tactics adopted for delaying hostile takeover, voting rights, protection measures accorded to the director/officer, other takeover defences and state laws. Each provision of the GIM index imposing restrictions on shareholder rights and increasing managerial power is accorded a point. A high GIM score alludes to a weaker level of shareholder rights and *vice-versa*. It is found that firms with high GIM scores have a higher level of the cost of equity, leading to a higher cost of capital and *vice-versa*. The GIM index study strengthens the theory that strong rights accorded to shareholder helps in reducing the cost of equity. Using the corporate governance index created by Gompers *et al.* (2003) and Cheng *et al.* (2006) examines the impact of shareholder rights on the cost of equity in the context of U.S firms and corroborated the results found by Gompers *et al.* (2003) and early literature. Firms with better quality governance mechanisms are associated with lower risk and cost of equity. Hence, firms with good quality governance mechanisms also enjoy an overall lower cost of capital.

Another angle from which the cost of equity has been studied is the impact of legal institutions and securities regulations in the country. Legal jurisprudence of the region where securities are issued has a profound effect on the investors' willingness to finance the firms (see La Porta *et al.*, 1998). Countries that accord strong legal protection (both through strong laws and enforcement) have funds available to firms at an inexpensive rate compared to countries that have weak investor protection. It is found that common law countries provide a higher degree of protection compared to countries following other legal traditions, especially French civil law. Hail and Leuz (2006), study the relationship between legal jurisprudence/securities regulation and the cost of equity using data points across forty countries. They found that their results are in conciliation with Cheng *et al.* (2006), as they discovered that countries with effective legal systems coupled with strong securities law help reduce the cost of equity. Chen *et al.* (2009) examine the impact of corporate governance and investor protection on the firms' cost of equity in seventeen emerging markets from 2001 to 2002. The results strengthen the previous findings of La Porta et al. (1998) by establishing an inverse relationship between the country-level strength of legal provisions and the cost of equity.

Gupta *et al.* (2010) did a similar study but utilized firm-level CG data instead of country-level CG data on a sample size of 7,380 firms across 22 developed economies over a 5-year period. They assert that there is an inverse association between corporate governance index score and the cost of equity in line with extant literature especially for firms in Common Law countries and financially developed economies. This finding implies that the legal origin of a firm complements the financial development effect. A similar study was conducted by Byun *et al.* (2008), where they investigated the effect of corporate governance measures on the cost of equity in the context of Korean companies. Using a sample set of more than 1600 companies, they created a governance index using eighty-six items across five categories. Unlike the GIM index, the index created by Byun *et al.* (2008) indicates strong corporate

governance practices for a higher score. Using OLS regression, they found that quality corporate governance leads to a reduced cost of equity.

Sarkar and Sarkar (2008) in an important study pertaining to the significance of debt in corporate governance assert that the role of debt as a disciplining tool for top executives has increased with time. As the institutions become more market-oriented, the creditors used debt as a disciplining instrument for both standalone and group-affiliated firms. The cost of debt would have the risk of misappropriation embedded into it.

There are other studies that study the link between financial disclosure and the cost of equity (see Richardson and Welker, 2001) where they find a positive and statistically significant relationship between the degree of social disclosure and the cost of equity. Firms attempt to mitigate this by higher financial performance. Poshakwale and Courtis (2005) studied the impact of voluntary disclosures on the cost of equity in the banking industry across three continents. They discovered that more disclosures lead to a reduction in the cost of equity especially disclosure about risk management practices. In a study conducted by Déjean and Martinez (2009) on French-listed companies investigating the impact of voluntary corporate environmental disclosures on the cost of equity, they found no conclusive evidence that firms disclosing environmental information necessarily lower the cost of equity. Raimo *et al.* (2020) investigated the impact of environmental, social and governance disclosure on the cost of equity in the food and beverage industry and found an inverse relationship between disclosure and cost of equity. A higher degree of disclosure leads to improved access to financial resources for firms. Similarly, Anthony and Rezaee (2015) find that economic sustainability disclosures have an inverse relationship with the cost of equity.

Pahi and Yadav (2019) found that firms with more robust governance practices have a higher dividend payout ratio. Extant studies with respect to the cost of equity have chartered multiple streams e.g. some of them have investigated the association between board attributes and the cost of equity (Bozec and Bozec, 2011; Mazzotta and Veltri, 2014; Zhu, 2014; Teti *et al.*, 2016). Others have inspected the relationship between disclosures (financial information and otherwise) and the cost of equity (Richardson and Welker, 2001; Poshakwale and Courtis, 2005; Déjean and Martinez, 2009; Anthony and Rezaee, 2015; Raimo *et al.*, 2020).

The literature review manifests that there are significant studies in allied areas but there is almost no literature on the relationship between the cost of capital and firm performance. Our study is based on the premise that firms with superior performance would be perceived favourably by the market, enabling them to raise funds at an inexpensive rate. A lower, overall cost of capital would lead to firms accepting projects of lower yield as well, thus enhancing its value.

4. Data and Methodology

The data used for this study is secondary in nature and has been extracted from the "Prowess" database, which is managed by the Centre for Monitoring Indian Economy (CMIE)[1]. The risk-free rate is taken from the Reserve Bank of India[2] website. The data is collected for all non-financial companies listed on the National Stock Exchange (NSE) of India from 2004 to 2020. The raw data and its symbol are tabulated in Table 2. Using these data we then construct the required variables for this study, as tabulated in Table 3.

[1] CMIE gathers comprehensive data about economic indicators of India. It also collects information about financial indicators of listed companies in India.

[2] The proxy for the risk free rate is the 10 year rate of return on the Government of India bond.

Table 2: The financial and ownership data into symbol

Financial data	Symbol
Cash outflow for interest payment	I
Liability	L
Owners' equity	OE
Debt to equity ratio	D_E
Beta of the stock	B
Return generated by market	R_m
Return generated by stock	R_e
Total borrowings	Debt
Tax rate	t
Total asset	TA
Market capitalization	Cap
Profit after tax	PAT
Cash outflow for dividend payment	Div

Table 3: The variables and formula

Variables	Notation	Formulae
Cost of debt	k_d	$\left(\frac{I}{Debt}\right) * (1 - t)$
Cost of equity	k_e	$R_f + \{\beta * (R_m - R_f)\}$
Debt in the capital structure	w_d	$\frac{L}{L + E}$
Equity in the capital structure	w_e	$\frac{E}{L + E}$
Cost of capital	k_c	$(k_d * w_d) + (k_e * w_e)$
Leverage	Lev	$\frac{Debt}{TA}$
Dividend rate	Div_rate	$\frac{Div}{TA}$
Return on asset	ROA	$\frac{PAT}{TA}$
Return on equity	ROE	$\frac{PAT}{OE}$
Board size	B_size	No. of board members
Board independence	B_ind	$\frac{Independent\ members}{B\_size}$
Board meetings	meet	No. of board meetings
CEO duality	dual	1 if CEO and chairman are same person, 0 otherwise
Dual and promoter	Dual_prom	1 if dual CEO is also the promoter, 0 otherwise
Risk free rate	r_f	The 10 year Govt. of India bond rate
Research & development expense	RnD	Total expense incurred towards research and development
GDP growth rate	GDP_growth	The growth rate of GDP
Manufacturing/Services	Man_Ser	1 if the firm belong to manufacturing sector, 0 otherwise
Group/Standalone	Group_dummy	1 if the firm belong to a business group, 0 otherwise
Natural logarithm of total asset	lnTA	Natural logarithm of total assets

Notes: The table above exhibits the variables used for this study. The variables are categorized into three categories namely financial data; ownership data and corporate governance data.

The Capital asset pricing model (CAPM) is used to determine the cost of equity.

$$k_e = r_f + \{\beta * (r_m - r_f)\} \quad (1)$$

The symbol k_e denotes the cost of equity; r_f denotes the existing risk-free rate of return; β denotes the beta i.e. the sensitivity of the stock with respect to the market; r_m denotes the return generated from the market portfolio.

Then, using the cost of debt and cost of equity, the overall cost of capital is created which is the dependent variable for our study. The values of these variables are then winsorized at 1% and 99% in order to remove outliers.

The research method used in this study is a multivariate regression analysis of dynamic panel data estimation using fixed/random effects model. The dependent variable is the cost of capital and the constituents thereof. The main independent variables are the performance indicators (Return on Assets/ Return on Equity. As far as the issue of endogeneity is concerned, we have considered the lagged value of the main regressor. Any significant change in the dependent variable because of any latent unobservable factor gets captured through the coefficient of the lagged regressor. The panel dataset used in this study helps because the values and years act as a control group for themselves. Equation 2 exhibit the model that is used in this study to determine the impact of financial performance on the overall cost of capital.

$$\begin{aligned} \mathrm{k_c} &= \alpha + (\beta_1 * \mathrm{Performance_{t-1}}) + (\beta_2 * \mathrm{Lev_{t-1}}) + (\beta_3 * \mathrm{lnTA_{t-1}}) \\ &+ (\beta_4 * \mathrm{Div_{rate_{t-1}}}) + (\beta_5 * \mathrm{RnD_{t-1}}) + (\beta_6 * \mathrm{B_{Ind_t}}) + (\beta_7 * \mathrm{Meet_t}) \\ &+ (\beta_8 * \mathrm{Dual_t}) + (\beta_9 * \mathrm{Dual_{prom_t}}) + (\beta_{10} * \mathrm{10Ybond_t}) \\ &+ + (\beta_{11} * \mathrm{GDP_{growth_t}}) + (\beta_{12} * \mathrm{Man_{Ser_t}}) + (\beta_{13} * \mathrm{Group_{dummy}}) + \varepsilon_t \end{aligned} \quad (2)$$

The independence of the board; frequency of board meetings are the variables that fall under the umbrella of corporate governance variables. All the corporate governance variables used as independent variables are taken at level i.e. year 0. All the control variables are lagged by one year. Control variables are lagged by a period because of the nature of the persistence effect of these variables. In order to probe the intensity of the relationship between firm performance and cost of capital in a business group affiliated forms and standalone firms, we introduce a dummy variable "Group" that takes a value of 1 for group-affiliated firms and 0 otherwise. Other important independent variables are board independence, dividend pay-out ratio and a dummy variable "Man_Ser" that takes a value of 1 for manufacturing firms and 0 otherwise.

The premise on which the first hypothesis is based is that firms with superior financial performance would be perceived favourably by the market. Hence, it would be able to raise debt at a cheaper rate. The ability to be able to raise inexpensive debt makes the firm less risky for equity holders as well and they would discount the future cash flows of such firms at a lower rate of discount (Akhtar *et al.*, 2012; David and Olorunfemi, 2010; Enekwe *et al.*, 2014). Based on the arguments presented above regarding the relationship between firm performance and cost of capital, we postulate the following hypotheses:

H_1: All else being equal, firms with better financial performance have a lower cost of capital compared to firms with worse financial performance.

The premise on which the second hypothesis is based is that firms affiliated with business groups develop an internal capital market for themselves (see Khanna and Palepu, 2000) and

have less dependency on the external capital market. The predominance of companies affiliated with business groups is a characteristic of the South-East Asian corporate landscape. Such structures help mitigate financial constraints and exercise greater control at the firm level. So, group-affiliated firms can raise funds at a lower rate (Masulis *et al.*, 2011).

H_2: All else being equal, group-affiliated firms have a lower cost of capital compared to standalone firms.

The fundamental premise on which the third hypothesis is based is that firms having an independent board would monitor the policy and decisions of top executives more objectively, limiting the scope for mismanagement. Hence, creditors would attribute less riskiness to such firms' demand for a lower cost of capital. Similar assertions are found in the extant literature in their studies conducted across multiple economies (Zhu, 2014; Wu *et al.*, 2014; Tran, 2014). Other studies echoing similar findings are Am-ugsorn *et al.* (2022) and Pham *et al.* (2012). So, firms having a higher proportion of independent directors on the board can raise funds at a lower rate.

H_3: All else being equal, firms with higher board independence have a lower cost of debt/equity/capital compared to firms with lower board independence.

The premise on which the fourth hypothesis is based is that firms with a higher dividend payout ratio would have less reserve, thus making them less vulnerable to misappropriation by the management. It certainly limits the growth prospects of the firm on the other hand. However, it limits the scope of exploitation of the investors at the hand of executives by reducing the degree of information asymmetry (Manos, 2003, Zhao and Qi, 2009). On the other hand, dividend payout would reduce available funds for the firm forcing it to raise capital from external sources. Hence, we postulate no resultant effect of dividend payout on the cost of capital of firms.

H_4: All else being equal, firms with higher dividend payout ratios have a lower cost of debt/equity/capital compared to firms with lower dividend payout ratios.

The premise for the fifth hypothesis is that manufacturing firms have more tangible fixed assets that can serve as collateral towards debt compared to service firms. Manufacturing firms thus not only should be valued for their earning potential but also should be valued for their fixed asset base. A few extant studies assert that the cost of capital differs on the basis of different sectors. Hence, manufacturing firms can raise funds at a lower rate.

H_5: All else being equal, manufacturing firms have a lower cost of capital compared to service firms.

5. Results

5.1 Descriptive Statistics

The descriptive statistics of the variables used in this study are exhibited below. It displays that the mean value of the cost of debt is 10.5%, and the cost of equity is almost double that of the cost of debt at 19.1%. On average, the cost of overall capital is 15.1% for the listed firms. The mean and standard deviation values for other variables are shown in Table 4.

Table 4: Descriptive statistics

Variable	N	Mean (μ)	StdDev (σ)	Minimum	Maximum
Cost of capital	12639	0.151	0.05	0.04	0.365
Cost of equity	12639	0.191	0.053	0.05	0.3
Cost of debt	12666	0.105	0.074	0.03	0.4
lnTA	12666	8.859	1.546	5.263	15.865
Lev	12666	1.116	2.157	0.002	83.122
ROA	12666	0.049	0.550	-25.27	4.334
ROE	12666	0.053	0.656	-30.52	5.461
Div_rat	12666	0.132	0.206	0	1
RnD	12666	0.405	0.491	0	1
B_size	12224	9.202	3.015	1	25
B_ind	12224	0.733	0.139	0.333	1
Meet	11642	4.887	2.259	1	32.8
Dual	12224	0.341	0.484	0	3
Dual_prom	12224	0.238	0.428	0	2
10Y_Bond	12639	0.075	0.007	0.059	0.086
GDP_growth	12639	0.046	0.036	-0.089	0.071

Notes: This table exhibits the sample size, mean, standard deviation and minimum and maximum values of the variables used in the study. The variable lnTA is natural logarithms of total size; Leverage is calculated as total debt divided by total assets; ROE is calculated as the ratio of profit after tax to shareholders equity; Div_rat is the dividend payout ratio; RnD is the research and development expense adjusted with total assets; B_size is the number of members in the board; B_ind stands for board independence and is calculated as the ratio of independent members to total board size; B_meet shows the number of board meetings conducted each year; Dual is a dummy variable that takes a value 1 when the chairman and the managing director of the board are the same individuals and 0 otherwise; Dual_prom is dummy variable that takes a value 1 when the dual executive is also a promoter of the company and 0 otherwise; 10Y_Bondis the yield from government 10 years bonds and is used as a proxy for the risk-free rate of return; GDP_growth represent the growth in GDP from last year.

The mean value of the natural logarithm of total assets held by each firm is 8.859. Taking the antilog of 8.859 gives the mean value of total assets as Rs 6975 million. On average, the proportion of debt with respect to total assets is 1.116% indicating that firms are mostly funded by equity holders. The mean value for return on assets and return on equity are 4.9% and 5.3% respectively. The dividend payout ratio of the firms in the sample is 13.2% on average. On the data from the corporate governance front, we find that the average size of the board is just above nine members, and the proportion of independent members on the board is close to 75 percent. On average, around 5 (4.88 meetings to be precise) board meetings are conducted on an annual basis. Around one-third, (34.1%) of the CEOs occupy the office of chairman simultaneously. The implementation of the Companies Act, 2013, prohibits executives from occupying dual positions unless there is a provision for it in the articles of association of the company or unless the company carries multiple businesses. Around a quarter (23.8%) of the dual CEOs i.e. the same person occupying the offices of CEO and chairman simultaneously, is also one of the promoters of the company. The mean value of the 10-year Government of India bond which serves as the proxy for the risk-free rate is 7.5 percent. Hence the risk premium for debt comes out to be 3 percent (Cost of debt is 10.5 percent – Risk free rate is 7.5 percent); and the risk premium for equity funds are 11.6 percent (Cost of equity is 19.1 percent – Risk free rate is 7.5 percent). The average difference in risk premium demanded by equity holders is 8.6 percent higher than that of the creditor.

Next, we exhibit the Pearson correlation coefficient values in Table 5. The sign and magnitude of correlation coefficients don't establish causality but serve as an initial starting point by demonstrating a positive/inverse relationship between two variables.

Table 5: This table exhibits the Pearson Correlation Coefficients between variables used in this study

	Ko	Ke	Kd	LnTA	Lev	ROE	ROA	Div	RnD	BSize	Bindp	Meet	Dual	Dualprom	10Ybond	GDPgrowth
Ko	1															
Ke	0.63	1														
Kd	0.56	0.02	1													
LnTA	0.04	0.04	0.00	1												
Lev	0.26	0.03	0.10	0.04	1											
ROE	-0.03	-0.02	-0.09	-0.06	-0.66	1										
ROA	-0.03	-0.02	-0.08	-0.06	-0.65	0.66	1									
Div	-0.03	-0.04	-0.06	0.05	-0.08	0.11	0.10	1								
RnD	0.00	0.02	-0.08	0.17	-0.04	0.05	0.04	0.12	1							
Bsize	-0.02	0.03	-0.07	0.47	0.02	-0.01	-0.00	0.09	0.21	1						
Bindp	-0.05	0.02	-0.11	0.03	0.02	-0.02	-0.02	0.03	0.07	0.08	1					
Meet	-0.06	-0.03	-0.02	-0.06	0.00	0.02	0.01	-0.07	-0.10	-0.16	-0.16	1				
Dual	0.00	-0.01	0.02	-0.02	0.00	0.00	0.00	-0.01	0.03	-0.03	-0.23	0.05	1			
Dualprom	0.00	0.00	0.01	-0.05	0.00	0.01	0.01	-0.02	0.01	-0.05	-0.17	0.02	0.77	1		
10Ybond	-0.02	-0.09	0.08	0.02	-0.02	0.03	0.02	0.05	-0.01	-0.02	-0.04	0.03	0.02	0.01	1	
GDPgrowth	-0.01	0.11	-0.06	-0.10	0.05	0.04	0.03	-0.06	0.00	-0.04	0.03	0.03	-0.01	0.00	0.37	1

The correlation coefficient between components of cost of capital is positive in line with our expectation. The cost of capital is the weighted average of the cost of debt and the cost of equity. So, an increase in either one of them would increase the overall cost of capital proportional to its weight. The negative relationship between firm size and cost of capital is surprising as we expected the existence of a size effect. Firms with a large asset base should be able to raise inexpensive capital but in our case, it is the opposite. One plausibility for such a relationship could be the quantum of funds raised by large firms. Large firms would raise a bigger amount compared to smaller firms. So, the weighted marginal cost of capital increases for every extra dollar raised. There is a positive relationship between cost and capital and leverage in line with our expectations. Highly levered firms are riskier, so the capital providers demand more risk premiums. There is an expected inverse relationship between financial performance indicators (ROA and ROE) and cost of capital. Firms with better financial performance are less risky and hence funds are available to them at a cheaper rate compared to financially stressed firms. Firms with a higher dividend payout ratio exhibit an inverse relationship with the cost of capital. Higher payout of dividends leaves less money under the custody of the management reducing chances of misappropriation, and unfair advantages due to information asymmetry. Payment of dividends also means that all the obligations (payment to employees, suppliers, creditors, government) of the firm have already been met. Such firms that fulfil all of their financial obligations and still maintain a higher dividend payout ratio are favoured by investors. The correlation coefficient between research and development expenses and the cost of capital is intriguing. It is because the coefficient between research and development expenses and the cost of debt and the coefficient between research and development expenses and the cost of equity exhibit opposite signs. While the cost of debt would be higher with an increased expenditure towards research and development, the cost of equity declines. This could be because of the fact that research and development expenses don't necessarily yield results in the short run driving creditors to account for the additional risk. The correlation coefficient of the cost of capital and its constituent components with board characteristics reveal that firms with boards having higher independent members and higher frequency of meetings lead to a reduction in the cost of capital. There is no discernible relationship between CEO duality with the cost of capital and dual promotors with the cost of capital.

5.2 Inferential Statistics

In order to deduce the causality between the regressor and regressand variables, we employed a multivariate panel regression on the dataset. Pooled OLS regression on the dataset also exhibits similar results so they are not demonstrated here in the interest of parsimony. The results of the panel regression for Eq (1) are provided in Table 6. Panel A, B and C of Table 6 exhibit the regression results of financial performance measured by return on assets (ROA) on the cost of debt, cost of equity and cost of capital respectively.

Panel A of Table 6 exhibits the impact of the performance variable (ROA) on the cost of debt along with other control variables. The model is good as evident from the significance of the F value. We test all the hypotheses in light of the coefficients of Table 6 and Table 7. There is a negative and statistically significant relationship between return on asset (ROA) and cost of debt, unable to reject the first hypothesis (H_1). Next, the coefficient for the group dummy implies that the cost of debt is lower for group-affiliated firms compared to standalone firms, unable to reject the second hypothesis (H_2). The coefficient for board independence implies that the cost of debt is lower for firms that have a higher proportion of independent directors on the board, unable to reject the third hypothesis (H_3). There is an inverse and statistically significant relationship between the dividend payout ratio and cost of capital, unable to reject the fourth hypothesis (H_4). Finally, the coefficient for the

manufacturing/services dummy implies that the cost of debt is lower for manufacturing firms compared to services firms, unable to reject the fifth hypothesis (H_5). Hence, we assert that on the basis of the results, we are not in a position to reject any of the hypotheses.

Table 6: The result of fixed effects regression analysis with ROA as financial performance

	Dependent Variables					
	Cost of Debt Panel A		Cost of Equity Panel B		Cost of Capital Panel C	
	Coeff	VIF	Coeff	VIF	Coeff	VIF
Intercept	0.077*** (7.54)	0	0.263*** (33.60)	0	0.198*** (28.41)	0
ROA	-0.148*** (-16.22)	1.124	-0.016*** (-2.39)	1.124	-0.018*** (-2.93)	1.124
LnTA	0.002*** (4.16)	1.394	0.001*** (3.84)	1.394	0.002*** (6.93)	1.394
Leverage	-0.004*** (-13.86)	1.084	0.000 (0.66)	1.084	-0.006*** (-26.73)	1.084
Div_rat	-0.013*** (-3.98)	1.072	-0.009*** (-3.67)	1.072	-0.010*** (-4.60)	1.072
RnD	-0.007*** (-4.94)	1.212	0.000 (0.80)	1.212	0.000 (0.73)	1.212
B_size	-0.001*** (-4.31)	1.301	0.000 (0.07)	1.301	-0.000*** (-4.52)	1.301
B_ind	-0.037*** (-6.54)	1.213	-0.007* (-1.79)	1.213	-0.019*** (-5.04)	1.213
B_meet	-0.001*** (-4.95)	1.075	-0.000*** (-3.09)	1.075	-0.001*** (-7.74)	1.075
Dual	0.007*** (3.03)	2.913	-0.000 (-0.22)	2.913	0.001 (0.87)	2.913
Dual_prom	-0.009*** (-3.44)	2.854	0.000 (0.12)	2.854	-0.004** (-2.24)	2.854
10Y_bond	0.966*** (9.20)	1.212	-1.159*** (-14.58)	1.212	-0.353*** (-4.97)	1.212
GDP_growth	-0.164*** (-7.91)	1.232	0.255*** (16.17)	1.232	0.048*** (3.40)	1.232
Man_Ser	0.016*** (7.86)	1.131	-0.001 (-0.75)	1.131	-0.001 (-1.28)	1.131
Group	-0.015*** (-9.20)	1.346	0.001 (1.25)	1.346	-0.007*** (-6.52)	1.346
F-value	66.52		29.30		67.76	
Adj-R^2	0.0838		0.0374		0.085	
Firms-year	10,196		10,196		10,196	
Firm & Year fixed effects	Yes		Yes		Yes	

Notes: This table exhibits empirical findings where three dependent variables are the cost of debt; the cost of equity and the cost of capital. This study use variable lnTA as natural logarithms of total size; Leverage is calculated total debt divided by total assets; ROA is calculated as the ratio of profit after tax to total asset; Div_rat is the dividend pay-out ratio; RnD is the research and development expense adjusted with total assets; B_size is the number of members in the board; B_ind stands for board independence and is calculated as the ratio of independent members to total board size; B_meet shows number of board meetings conducted each year; Dual is a dummy variable that takes a value 1 when the chairman and the managing director of the board are the same individual and 0 otherwise; Dual_prom is dummy variable that takes a value 1 when the dual executive is also a promoter of the company and 0 otherwise; 10Y_Bond B10Y the yields from government 10 years bonds and is used as a proxy for the risk free rate of return; GDP_growth represent the growth in GDP from last year; Man_Ser is a dummy variable that takes a value 1 for manufacturing firms and 0 otherwise; Group is a dummy variable that a value 1 for business group affiliated forms and 0 otherwise. We have provided t-values in parentheses. Superscripts ***, ** and * represent significance levels at 1%, 5% and 10% level.

Panel B of Table 6 exhibits the impact of performance variables along with other control variables on the cost of equity. There is a negative and statistically significant relationship between return on asset (ROA) and cost of equity, unable to reject the first hypothesis (H_1). The coefficient for board independence implies that the cost of equity is lower for firms that have a higher proportion of independent directors on the board, unable to reject the third hypothesis (H_3). There is an inverse and statistically significant relationship between the dividend payout ratio and cost of capital, unable to reject the fourth hypothesis (H_4). The coefficient for the group dummy and manufacturing/services dummy is not statistically significant so we reject hypotheses H_2 and H_5. This implies that equity holders don't differentiate between group-affiliated and standalone firms.

Panel C of Table 6 exhibits the impact of the performance variable along with other control variables on the cost of capital. The model is good as evident from the significance of the F value. There is a negative and statistically significant relationship between return on asset (ROA) and cost of capital. The coefficient for the group dummy implies that the cost of capital is lower for group-affiliated firms compared to standalone firms. The coefficient for board independence implies that the cost of capital is lower for firms that have a higher proportion of independent directors on the board. There is an inverse and statistically significant relationship between the dividend payout ratio and the cost of capital. We also found a positive relationship between the general state of the economy (GDP growth) and the cost of capital alluding that during strong economic growth, funds are expensive. All the panels of Table 6 exhibit an inverse relationship of financial performance with the cost of components of capital. So, all the panels of Table 6 allude to the existence of an inverse relationship between firm performance and cost of capital. Corporate Governance board-related variables also exhibit an inverse relationship with the cost of capital. So, hypotheses 1, 3 and 4 can't be rejected based on these results. Hypotheses 2 and 5 don't have a unanimous sign across panels of Table 6.

In order to check the robustness of the results found in Table 6, we replace the performance variable ROA with ROE and run the regression in Table 7. Panels A, B and C of Table 7 exhibit the regression result of financial performance measured by return on equity (ROE) on the cost of debt, cost of equity and cost of capital respectively. Panel A of Table 7 exhibits the impact of the performance variable (ROE) on the cost of debt along with other control variables. There is a negative and statistically significant relationship between return on equity (ROE) and cost of debt. So, we are unable to reject Hypothesis 1. Next, the coefficient for the group dummy implies that the cost of debt is lower for group-affiliated firms compared to standalone firms. So, we are unable to reject Hypothesis 2. The coefficient for board independence implies that the cost of debt is lower for firms that have a higher proportion of independent directors on the board. So, we are unable to reject Hypothesis 3. There is an inverse and statistically significant relationship between the dividend payout ratio and the cost of capital. So, we are unable to reject Hypothesis 4. Based on the coefficients of regression, we can't reject hypotheses 1, 2, 3 and 4

Panel B of Table 7 exhibits the impact of ROE on the cost of equity. There is a negative and statistically significant relationship between return on equity (ROE) and cost of equity. So, we are unable to reject Hypothesis 1. The coefficient for board independence implies that the cost of debt is lower for firms that have a higher proportion of independent directors on the board. So, we are unable to reject Hypothesis 3. There is an inverse and statistically significant relationship between the dividend payout ratio and the cost of capital. So, we are unable to reject Hypothesis 4. Other coefficients are either not significant statistically or have a sign contrary to our expectation.

Table 7: The result of fixed effects regression analysis with ROE as financial performance

	Dependent Variables					
	Cost of Debt Panel A		Cost of Equity Panel B		Cost of Capital Panel C	
	Coeff	VIF	Coeff	VIF	Coeff	VIF
Intercept	0.076*** (7.48)	0	0.262*** (33.55)	0	0.201*** (29.78)	0
ROE	-0.028*** (-20.15)	1.861	-0.030*** (-0.66)	1.861	-0.025*** (-27.32)	1.861
LnTA	0.002*** (3.84)	1.395	0.001*** (3.87)	1.395	0.002*** (6.23)	1.395
Leverage	-0.009*** (-21.12)	1.855	0.000 (0.51)	1.855	-0.011*** (-38.94)	1.855
Div_rat	-0.018*** (-5.38)	1.047	-0.010*** (-4.08)	1.047	-0.007*** (-3.37)	1.047
RnD	-0.009*** (-6.52)	1.201	0.000 (0.58)	1.201	0.000 (0.50)	1.201
B_size	-0.001*** (-4.44)	1.299	-0.000 (-0.03)	1.299	-0.000*** (-3.75)	1.299
B_ind	-0.037*** (-6.60)	1.213	-0.007* (-1.79)	1.213	-0.019*** (-5.21)	1.213
B_meet	-0.001*** (-4.61)	1.076	-0.000*** (-3.13)	1.076	-0.001*** (-6.94)	1.076
Dual	0.008*** (3.22)	2.912	-0.000 (-0.19)	2.912	0.001 (0.82)	2.912
Dual_prom	-0.009*** (-3.51)	2.853	0.000 (0.09)	2.853	-0.003** (-2.07)	2.853
10Y_bond	0.954*** (9.14)	1.212	-1.159*** (-14.58)	1.212	-0.366*** (-5.33)	1.212
GDP_growth	-0.140*** (-6.75)	1.241	0.254*** (16.08)	1.241	0.079*** (5.84)	1.241
Man_Ser	0.019*** (9.37)	1.138	-0.001 (-0.70)	1.138	0.000 (0.73)	1.138
Group	-0.013*** (-8.16)	1.347	0.001 (1.33)	1.347	-0.006*** (-5.69)	1.347
F-value	66.52		28.91		125.32	
Adj-R^2	0.0838		0.0382		0.1470	
Firms-year	10,196		10,196		10,196	
Firm & Year fixed effects	Yes		Yes		Yes	

Notes: This table exhibits empirical findings where three dependent variables are the cost of debt; the cost of equity and the cost of capital. This study use variable lnTA as natural logarithms of total size; Leverage is calculated total debt divided by total assets; ROE is calculated as the ratio of profit after tax to shareholder's equity; Div_rat is the dividend pay-out ratio; RnD is the research and development expense adjusted with total assets; B_size is the number of members in the board; B_ind stands for board independence and is calculated as the ratio of independent members to total board size; B_meet shows number of board meetings conducted each year; Dual is a dummy variable that takes a value 1 when the chairman and the managing director of the board are the same individual and 0 otherwise; Dual_prom is dummy variable that takes a value 1 when the dual executive is also a promoter of the company and 0 otherwise; 10Y_Bond B10Y the yields from government 10 years bonds and is used as a proxy for the risk free rate of return; GDP_growth represent the growth in GDP from last year; Man_Ser is a dummy variable that takes a value 1 for manufacturing firms and 0 otherwise; Group is a dummy variable that a value 1 for business group affiliated forms and 0 otherwise. We have provided t-values in parentheses. Superscripts ***, ** and * represent significance levels at 1%, 5% and 10% level.

Panel C of Table 7 exhibits the impact of ROE on the cost of capital along with other control variables. There is a negative and statistically significant relationship between return on equity (ROE) and cost of capital. So, we are unable to reject Hypothesis 1. The coefficient for the group dummy implies that the cost of capital is lower for group-affiliated firms compared to standalone firms. So, we are unable to reject Hypothesis 2. The coefficient for board independence implies that the cost of capital is lower for firms that have a higher proportion of independent directors on the board. So, we are unable to reject Hypothesis 3. There is an inverse and statistically significant relationship between the dividend payout ratio and the cost of capital. So, we are unable to reject Hypothesis 4. All the panels of Table 7 exhibit an inverse relationship of financial performance with the cost of components of capital. The results of both Table 6 and Table 7 allude to the existence of an inverse relationship between various components of cost of capital and financial performance variables.

As far as the relationship between financial performance and cost of capital is concerned, the findings of this study are consistent with earlier studies like Cao *et al.* (2015), Artha and Mulayana (2018) and Schwarz (2018). With respect to the relationship between affiliation to a business group and the cost of capital is concerned, the findings of this study are consistent with earlier studies like Masulis *et al.* (2011). With respect to the relationship between board independence and cost of capital, the findings of this study are consistent with earlier studies like Zhu (2014) and Wu *et al.* (2014). Similarly, our study corroborates the findings of Zhao and Qi (2009) regarding the relationship between the dividend payout ratio and the cost of capital. We, however, do not find statistical significance through all the components of the cost of capital and industry dummy.

6. Conclusion and Implications

This study concludes that all else being equal, firms with superior performance are able to raise capital at a lower rate of interest. This would be advantageous for the firm as it can undertake projects with a low yield that it might have avoided if the cost of capital were higher. Corporate governance best practices variables such as board independence, and the number of board meetings help firms raise capital at a lower cost. Firms where the dual CEO is also the promoter of the firm also exhibit an assuaging effect of cost of capital. This finding alludes that the investors have faith in the board composition and allied governance variables when entrusting their funds to the firm. Firms should work towards reinforcing this confidence of investors towards their board. The results attest that firm performance and the cost of capital have an inverse relationship. Improved financial performance help firms access capital at a lower cost. It enables them to take up projects that would otherwise have been financially unviable because the hurdle rate is low. Finance managers would strive to improve and sustain the performance of the firm in order to avail capital from the market at an inexpensive rate.

The results hold immense significance for policymakers, especially for emerging economies characterised by rapid growth, industrialization and technology adoption. In order to fuel the growth of the economy on multiple fronts, governments invite investments from foreign and domestic investors/entrepreneurs. In a bid to facilitate the process, the government would build a conducive investment environment such as lower tax rates, special subsidies etc. Making policy decisions that encourage wider retail investors' participation in markets would go a long way in expanding the available capital pool for commercial enterprises. Retail investor participation in the equity markets of India is dismally low owing to the volatile nature of the markets and lack/erosion of trust due to corporate governance scams. Conducting awareness programs, educating the masses, introducing financial/market literacy, and sensitizing about the advantages of participating in the market are some of the ways to

lure more investors towards the equity market. Higher participation would lead to the channelization of more surplus funds towards production units. Firms can use those funds for capital expenditure, manufacturing new/more/innovative products/services; creating more employment opportunities; more disposable income spurring spending in the economy; generating higher tax revenues for the government that can be used for investment in infrastructure/healthcare/education etc. The availability of inexpensive funds for commercial enterprises plays an instrumental role in project approval, job creation, and the overall well-being of the economy. This study can be extended by studying the relationship between firm performance and firm value by using the cost of capital as a moderator variable. Conducting this study across sectors on cross-country data can provide us with new insights.

References

Akhtar, S., Maryam, J. B., & Sadia, H. (2012). Relationship between financial leverage and financial performance: Evidence from fuel and energy sector of Pakistan. *European Journal of Business and Management*, *4*(11), 1-12.

Albanez, T. (2015). Impact of the cost of capital on the financing decision of the Brazilian companies. *International Journal of Managerial Finance*, *11*(3), 285-307.

Am-ugsorn, S., Dampitakse, K., & Ngudgratoke, S. (2022). Mediating effects of accounting conservatism on the relationship between corporate governance and cost of capital. *Central European Management Journal*, *30*(3), 271-283.

Anthony, N. G., & Rezaee, Z. (2015). Business sustainability performance and cost of equity capital. *Journal of Corporate Finance*, *34*, 128-149.

Artha, I. W. B., & Mulyana, B. (2018). The effect of internal and external factors of companies on profitability and its implications on stock price index of state-owned banks. *The Economics and Finance Letters*, *5*(2), 58-71.

Ashbaugh, H., Collins, D. W., & LaFond, R. (2004). Corporate governance and the cost of equity capital. *Emory, University of Iowa. Retrieved on January*, *26*(2006), 329-340.

Barry, C. B., Peavy III J. W. and M. Rodriguez. (1998). Performance characteristics of emerging capital markets. *Financial Analysts Journal*, *1*(1), 72-80.

Barth, M. E., Konchitchki, Y., & Landsman, W. R. (2013). Cost of capital and earnings transparency. *Journal of Accounting and Economics*, *55*, 206–224.

Bhattacharya, U., & Daouk, H. (2002). The world price of insider trading. *The Journal of Finance*, *57*(1), 75-108.

Bozec, Y., & Bozec, R. (2011). Corporate governance quality and the cost of capital. *International Journal of Corporate Governance*, *2*(3-4), 217-236.

Byun, H. Y., Kwak, S. K., & Hwang, L. S. (2008). The implied cost of equity capital and corporate governance practices. *한국증권학회지*, *37*(1), 139-184.

Cao, Y., Myers, J. N., Myers, L. A., & Omer, T. C. (2015). Company reputation and the cost of equity capital. *Review of Accounting Studies*, *20*, 42-81.

Cheng, C. A., Collins, D., & Huang, H. H. (2006). Shareholder rights, financial disclosure and the cost of equity capital. *Review of Quantitative Finance and Accounting*, *27*, 175-204.

David, F. D., & Olorunfemi, S. (2010). Capital structure and corporate performance in Nigerian Petroleum industry: Panel data analysis. *Journal of Mathematics and Statistics*, *6*(2), 168- 173.

Déjean, F., & Martinez, I. (2009). Environmental disclosure and the cost of equity: the French case. *Accounting in Europe*, *6*(1), 57-80.

Donaldson, G. (1961). *Corporate Debt Capacity: A Study of Corporate Debt Policy and Determination of Corporate Debt Capacity*, Beard Books. Washington DC.

Easton, P. D. (2004). PE ratios, PEG ratios, and estimating the implied expected rate of return on equity capital. *The Accounting Review*, *79*(1), 73-95.

Enekwe, C. I., Agu, C. I., & Eziedo, K. N. (2014). The effect of financial leverage on financial performance: Evidence of quoted pharmaceutical companies in Nigeria. *IOSR Journal of Economics and Finance*, *5*(3), 17-25.

Exley, C. & Smith, A. (2006). The cost of capital for financial firms. *British Actuarial Journal*, *12*(1), 229-283.

Gompers, P., Ishii, J., & Metrick, A. (2003). Corporate governance and equity prices. *The Quarterly Journal of Economics*, *118*(1), 107-156.

Gupta, K., Krishnamurti, C., & Tourani-Rad, A. (2010). *Corporate governance and cost of equity: Do financial development and legal origin matter?* (Doctoral dissertation, Financial Management Association).

Hail, L., & Leuz, C. (2006). International differences in the cost of equity capital: Do legal institutions and securities regulation matter?. *Journal of Accounting Research*, *44*(3), 485-531.

Harrison, R., Scheela, W., Lai, P. C., & Vivekarajah, S. (2018). Beyond institutional voids and the middle-income trap: The emerging business angel market in Malaysia. *Asia Pacific Journal of Management*, *35*, 965-991.

Hussain, H. I., Ghani, E. K., & Razimi, M. S. A. (2019). Systematic risk and determinants of cost of capital: An empirical analysis of selected case studies. *Journal of Security & Sustainability Issues*, *9*(1), 295-307.

Ibrahim. M, & Ibrahim A. (2015). The effect of SMEs' cost of capital on their financial performance in Nigeria. *Journal of Finance and Accounting*, *3*(1), 8-11.

Khanna, T. and Palepu, K. (2000). Is group affiliation profitable in emerging markets? An analysis of diversified Indian business groups. *The Journal of Finance*, *55*, 867-891.

Khanna, T., & Palepu, K. (1997). Why focused strategies. *Harvard business review*, *75*(4), 41-51.

Lambert, R. A., Leuz, C., & Verrecchia, R. E. (2007). Accounting information, disclosure, and the cost of capital. *Journal of Accounting Research*, *45*, 385–420.

Lin, T. J., Chen, Y. P., & Tsai, H. F. (2017). The relationship among information asymmetry, dividend policy and ownership structure. *Finance Research Letters*, *20*, 1-12.

Manos, R. (2003). Dividend policy and agency theory: Evidence from Indian firms. *South Asia Economic Journal*, *4*(2), 275–300.

Masulis, R. W., Pham, P. K., & Zein, J. (2011). Family business groups around the world: Costs and benefits of pyramids. *Review of Financial Studies*, *24*(11), 3556-3600.

Mazzotta, R., & Veltri, S. (2014). The relationship between corporate governance and the cost of equity capital. Evidence from the Italian stock exchange. *Journal of Management & Governance*, *18*(2), 419-448.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*, 187-221.

Omran, M., & Pointon, J. (2004). The determinants of the cost of capital by industry within an emerging economy: Evidence from Egypt. *International Journal of Business*, *9*(3), 237-258.

Pham, P. K., Suchard, J.-A., & Zein, J. (2012). Corporate governance and the cost of capital: Evidence from Australian companies. *Journal of Applied Corporate Finance*, *24*(3), 84-93.

Porta, R. L., Lopez-de-Silanes, F., Shleifer, A., &Vishny, R. W. (1998). Law and finance. *Journal of Political Economy*, *106*(6), 1113-1155.

Poshakwale, S., & Courtis, J. K. (2005). Disclosure level and cost of equity capital: Evidence from the banking industry. *Managerial and Decision Economics*, *26*(7), 431-444.

Pouraghajan, A., Tabari, N. A. Y., Ramezani, A., Mansourinia, E., Emamgholipour, M., & Majd, P. (2012). Relationship between cost of capital and accounting criteria of corporate performance evaluation: Evidence from Tehran Stock Exchange. *World Applied Sciences Journal*, *20*(5), 666-673.

Raimo, N., Vitolla, F., Marrone, A., & Rubino, M. (2020). The role of ownership structure in integrated reporting policies. *Business Strategy and the Environment*, 29(6), 2238-2250.

Richardson, A. J., & Welker, M. (2001). Social disclosure, financial disclosure and the cost of equity capital. *Accounting, Organizations and Society*, *26*(7-8), 597-616.

Sarkar, J., & Sarkar, S. (2008). Debt and corporate governance in emerging economies: Evidence from India. *Economics of Transition and Institutional Change*, *16*(2), 293-334

Schwarz, D. (2018). The ability of listed companies to optimize their capital structure, shape their distribution policy and fight hostile takeovers by repurchasing their own shares. *Entrepreneurship and Sustainability Issues*, *6*(2), 636-648.

Teti, E., Dell'Acqua, A., Etro, L., & Resmini, F. (2016). Corporate governance and cost of equity: empirical evidence from Latin American companies. *Corporate Governance: The International Journal of Business in Society*, *16*(5), 831-848.

Tran, D. H. (2014). Multiple corporate governance attributes and the cost of capital: Evidence from Germany. *The British Accounting Review*, *46*(2), 179-197.

Wu, S. W., Lin, F., & Wu, C. M. (2014). Corporate social responsibility and cost of capital: An empirical study of the Taiwan stock market. *Emerging Markets Finance and Trade*, *50*(sup1), 107-120.

Zhao, J. J., & Qi, J. (2009, September). The empirical analysis of dividend distribution of listed companies based agency theory. In *2009 International Conference on Management and Service Science* (pp. 1-4). IEEE.

Zhu, F. (2014). Corporate governance and the cost of capital: An international study. *International Review of Finance*, *14*(3), 393-429.