The Impact of Financial Development on the Cost of Capital: Evidence from Pakistan

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Abstract

This study adds to the body of knowledge by empirically examining how financial development affects the level of cost of capital of the firms listed on the Pakistan Stock Exchange. This paper applies pooled regression model to the panel data of 150 non-financial firms listed on the Pakistan stock exchange from 2005 to 2017. The aggregate index of financial development and the two sub-indices namely financial market development and financial institutional development are used as measures of financial development; however, the weighted average cost of capital (WACC) is used as a measure of the cost of capital. We found that the cost of capital is likewise inversely correlated with financial development. Our study confirmed that financial market and institutional development are also very negatively correlated with the weighted average cost of capital. These results imply that the level of financial development in the country lowers the average cost of financing as financial development improves governance mechanism, reduces information asymmetry, and risk diversification, mitigates economic uncertainty, and promotes liquidity provisions through stock market development. The empirical evidence of this research is potentially helpful to corporate managers, financial analysts, investors, and policymakers

Keywords: *Cost of Capital, Financial Development, Financial Markets Development, and Financial Institutions Development.*

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1. INTRODUCTION

The cost of capital of a firm is the weighted average of the anticipated market rate of the revenue on the equity financing of a firm and the rate of the market's interest on its debt; however, the weights are provided by the market value of the stocks and bonds of the firm (Ben-Shahar, 1968). In many studies, it is now seen to be convenient to calculate the cost of financing as the weighted average of the costs of several sources of capital. Though the concept of calculating the cost of financing as a weighted average of the costs has been interrogated. Reilly and Wecker (1975) stated that the situation below which Solomon first developed conventionally the weighted average perspective to the cost of capital is confining. Some others proclaimed that the constraints to the cash flow patterns are not essential, and the approach is valid for computation of cost of capital being weighted average if the firm's leverage position is maintained (Linke et al., 1975).

Financial development refers to the growth of financial institutions, markets as well as instruments of the markets (Javaid et al., 2021). Financial development is an important component for controlling management activities regarding financial decisions in developed as well as developing countries (Enomoto et al., 2018). For instance, the relationship between financial development and the cost of capital has been studied by Kim et al. (2015). Their major conclusion is that the growth of the stock market lowers the cost of equity capital. Additionally, the growth of the banking system considerably decreases the cost of equity financing; however, the impact is robust in non-state-owned enterprises. The finding that financial development influences economic boom shows that the development of stocks and bond markets anticipate economic upswings well (Levine and Zervos, 1998)

Fundamentally, for a company, the cost of capital is the investor's required return (Kien et al., 2004). He stated that market risk disclosure increases when the administration does not choose for value-maximization approach thus arises the systematic risk and eventually increasing the cost of financing. The cost of capital is the main subject while determining the firm's capital structure managers. Albanez (2015) has investigated the association of the cost of financing on the financial decisions and the financing structure of the firm. His studies are compatible with the pecking order theory when the cost of equity financing is expensive in the capital market, then debt financing is preferable; however, it relies on the cost of supplemental sources of capital. The expected rate of return (COC) is an analytical variable deciding whether to exchange, keep or finance the assets.

Consistent with past studies, the previous findings have explored the association between financial exposure and the cost of financing (Alan J. Richardson and Michael Welker, 2001). The findings confirmed that disclosure as being the component for measuring financial development can regulate the cost of financing because knowledge disclosures reduce estimating inaccuracy and asymmetry. For businesses with few financial analysts, a significant inverse relationship between equity capital costs and financial disclosure was verified.

Likewise, we assume that the aggregate financial development negatively influences the cost of financing (capital) because the financial development promotes enforcement of laws and regulations, improves accounting performance, corporate governance, and transparency in disclosure practices, and auditing measures (Kim et al., 2015; Javiad et al., 2021). Likewise, as the stock market awareness increases in the country, fundamentally increase investment in the stock market directly reducing the cost of financing (capital), which is in support of the argument that stock market development generates more gradual benefits for investors thus, lower cost of capital is demanded by investors. In addition, the stock market development provides liquidity; therefore, it negatively influences the cost of capital. However, the cost of equity decreases whenever the development of financial institutes increases (Kim et al., 2015).

1.2 Significance of the Study:

The extent of literature is evident with the association between financial development and cost of capital in developed and developing economies of the world, but the association is not yet examined in Pakistan. Hence, our research adds to the body of knowledge by demonstrating how the level of financial development affects the cost of capital for non-financial companies listed on the Pakistan Stock Exchange. First, and foremost, this research broadens the body of knowledge. by examining the relationship between the cost of financing and overall financial development. Secondly, the important implication of this study is to find the effect of the financial development components, namely, financial market development and financial institution development on the cost of capital of firms listed on the Pakistan Stock Exchange. Further, this research is different from previous studies in a manner that previous studies have examined the effect of financial development on the cost of equity, however, the present study intends to analyze the impact of financial development on the weighted average cost of capital (WACC), which includes the average cost of financing including the cost of debt as well as the cost of equity. So, our study has the following objectives:

1.3 Research Objectives:

- To investigate the effect of aggregate financial development on the level of cost of capital.
- To examine the effect of the financial development of markets on the cost of capital.
- To examine the effect of the financial development of institutions on the cost of capital.

2. LITERATURE REVIEW

The financial development rule is affecting the (COC) which is the subject of interest for researchers around the globe, the (COC) means the required rate of return that must be a project to receive its investment to continue its market value. The (COC) saves on the following factors, financial risks, and business. In the long run to get a good relationship in a weighted average (COC) needs to identify the

future's average cost of investment (Gitman et al., 2015). The (COC) can also be defined that literature as a real return that a firm should receive to fully satisfy the demand of shareholders and if the firm does not get the required rate of return from that project it should be considered a waste of resources (Poterba 1991) diamond and Verrecchia (1991) reveal that information asymmetry available to the public can reduce firms (COC) as investors will be attracted due to increased liquidity and securities.

Furthermore, Correia and Cramer (2008) studied the (COC) as a whole and the cost of debt, and the cost of equity capital individually too. They collected samples from South Africa, to find out the association between corporate finance techniques firms use for identifying the COC. After studying thoroughly to know firms almost always use net present value to evaluate projects along with CAPM to find out the cost of equity and firms take strict targets that equity ratio. Furthermore, this study identified that most South African firms are linked to US firms reflecting a comparatively good state of the developing economy.

The COC for a company is essential to numerous corporate decisions. The cost of capital affects the business operations and eventual profitability by defining the hurdle rate for investment projects and affecting the capital structure's composition. Reg FD's detractors, however, asserted that it might limit corporate transparency, which would raise the cost of capital for businesses (AIMR, 2001). According to Hughes et al. (2007), knowledge asymmetries raise risk factor premiums, which raise the cost of capital. According to Wang (1993), the economy's cost of capital decreases as the proportion of informed investors increases.

In literature, corporate finance is played as a game changer for financial development in firms, firm-level corporate governance is positively linked with financial development and stability and governance failures are often linked with financial market failures (Lupu, 2015; Mehran and Molineaux, 2012). (Gupta et al., 2010) explicitly studied and determine the effect of country-level financial development on COC. From 22 countries, a sample of 7380 was collected. The study indicates that a firm's corporate governance quality affects the cost of quality in countries with an increased level of financial development. They have jointly analyzed the impact of firm-level corporate development on the cost of equity capital.

Moreover, Wati et al. (2019) collected data from Indonesia and focused on the internet, and financial learning as game changers for financial development. The purpose of the research was to find out the effect of financial reports available online and opportunities available for investment at the cost of equity capital.

A large body of literature compares financial development with two measures-GDP and its ratio to private credit and stock market capitalization. Svirydzenka (2016) discusses the financial development pyramid, which includes financial market development and financial institute development, with the financial market focusing on the stock market and debt market development.

Using industry-level data, Rajan and Zingales (1998) demonstrate that in more established capital markets, industries that demand more external financing grow more quickly. Thus, they assert that by lowering the differential cost of external financing, financial development has an impact on growth. Even while their work is incredibly creative and produces several intriguing findings, it is predicated on several strong assumptions. Their assessments make several significant implicit assumptions, one of which is that there is a comparable growth potential for a certain industry across all nations. In other words, if an industry is not expanding as quickly as it does in other nations, the financial markets have failed. Increasing the industry-level sensitivity of investment growth to value-added growth, as discovered by Wurgler in 2000, improves capital allocation.

In recent years, there has been a lot of research on how financial development affects economic growth. The general agreement now is that there is a strong positive relationship between financial development and economic growth (Levine (1997) and Levine (2003)). The literature is generally in agreement that financial development raises the level and effectiveness of capital and investments (Levine (2003) which encourages economic growth. By focusing on the connections between financial development and the drivers of productivity growth, this study aims to identify the pathways by which financial development may affect how well nations do economically. Isolating the fundamental causes of productivity, it is contended that one significant way financial development could affect growth is by promoting technological advancements and low-cost manufacturing techniques that could increase productivity. According to the cross-country examination, financial development generally has a favorable impact on realized productivity and technical advancement. Realized technical change is considerably positively correlated with the level of capital mobilization and risk sharing as assessed by the sizes of the stock market and the banking industry.

One of the two components of financial development is financial market development, and it has a major effect on the capital-related decisions of the firm and the economic growth of the country. The economic growth of developed countries like China, the USA, the UK, Japan, and Hong Kong is positively related to the development of stock markets (Wong and Zhou 2011). Moreover, they identified that capital flows are also positively related to the development of the stock market. Dailami and Atkin (1990) identified that the stock market is playing several important roles in the long-term perspective one of the important factors is that the growth of the stock market spreads the risks of long-term investment and decreases the cost of equity capital.

Wu et al., (2010) studied financial institute development as the second component of financial development. They investigate the active causes of financial institutes' development on the growth of the economy by collecting data from 13 countries of the European Union (EU) from 1976-2005. One of the important findings was a long-term positive relationship between banking development and economic growth. Wynne (2002) and Dell Ariccia and Marquez (2004, 2006) also support this relationship.

Kim et al. (2015) studied the relationship between financial development and the cost of equity capital in China. They focused on financial development at the provisional level and the (COC) in China. For this study, they focused on two factors of financial development (Stock market development and financial institutes development) and along with some control factors including (leverage ratio, return on assets, and size of the firm) was also studied that affect the (COC), for this study data was collected from Chinese stock markets. The findings of the study are that financial market development decreases the cost of equity and reported that financial institute development (development of banks) also decreases the (COC). Some researchers (Kim et al. 2015; Svirydzenka 2016) have studied the factors of (COC) and FD and the effect of financial development on (COC) in developed economies like China. However, this association has not been discovered in developing countries. Therefore, our study proposes the following hypothesis.

H1: Financial development (FD) significantly affects the non-financial firm's cost of capital (COC).
H2: Financial market development FD (mark) significantly affects the non-financial firm's cost of capital (COC).
H3: Financial institute development FD (ins) significantly affects the non-financial firm's cost of capital (COC).

METHODOLOGY

3.1 Population, Sample, and Data

The population for this study includes the non-financial firms listed on Pakistan Stock Exchange (PSX). Our initial sample consists of 206 non-financial firms. However, after applying various filtering techniques and missing value analysis, our final sample consists of 150 non-financial firms with the complete data during our study period from 2005-2017. The data for this study is obtained from the Pakistan Stock Exchange (PSX) and each company's official website as well as daily PSX quotes. After an initial screening of data concerning autocorrelation and heteroskedasticity, we found no evidence of the above-stated econometric problems. Hence, we used pooled regression analysis technique on panel data consisting of 1950 firm-year observations with 13 years and 150 firms.

3.2 Description of Variables

Financial development is an independent variable, consisting of two variables: financial market development and financial institutional development. "The development of financial institutions, markets, and market instruments is known as financial development" (Javaid et al., 2021). While following Javaid et al. (2021) Index of financial development available on the IMF website is used as a measure of financial development. According to Kim et al. (2015), the financial development increased along with the economic development of the country. Adnan et al. (2011) describe the institutions, procedures, and policies that result in effective financial markets and efficient intermediation as financial development, risk diversification, and effective allocation of capital also lead to a strong financial system.

COC is our dependent variable, measured through the weighted average cost of capital (WACC) model1. It is used by many financial managers for capital budgeting and company valuation calculations (Berry et al., 2014) which is the reason we used WACC. The financial costs incurred by a company and the minimal projected return it anticipates from an investment project to increase its value are referred to as the (COC). Moreover, Gitman (2003) stated that the measurement tool for determining the additional dollar amount needed for financing any project or opportunity is WACC.

$$WACC = We.Ke + Wd.Kd\,(1-T)$$

Where:
We = Weight of Equity in Capital
Ke = Equity cost
Wd = Weight of Debt in Capital
Kd (i-T)= Debt cost
Formula provided by Rehman and Raoof. (2010)

3.3 The Econometric Model

For our studies, we are using panel data and pooled regression for analyzing data following (Javaid et al., 2021). In his research, finding the impact of the aggregate financial development index and its sub-indices on the (COC) for businesses is our primary concern. Our model consists of some other determinants of the (COC) mentioned in (Kim et al., 2015) which are used as control variables in our research. The LEV is the measurement of the leverage ratio of the firms such as debt to equity; ROA is the measure of profitability, which is computed using the division of the firm's net income by its total assets and the size of the firm is measured as the overall market valuation of firm's shares denoted by SIZE. For this purpose, we developed the following models.

$$COC = \beta_1 + \beta_2\,FD + \beta_3\,LEV + \beta_4\,ROA + \beta_5\,SIZE + \varepsilon \ldots\ldots(1)$$

$$COC = \alpha_1 + \alpha_2\,FD(ins) + \alpha_3\,FD(mark) + \alpha_4\,LEV + \alpha_5\,ROA + \alpha_6\,SIZE + \varepsilon \ldots..(2)$$

Where:
COC = Cost of Capital
FD (ins) = Financial development of institutes.
FD (mark) = Financial development of markets.
LEV = Debt to assets ratio.
ROA = Return on assets ratio.
SIZE = Size of the firm.
ε = Error term

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Table 4.1 presents a summary of descriptive statistics for all explanatory outcomes and control variables. The results of table 4.1 showed that the average/mean of the variable (WACC) is 0.387 with a median and standard deviation of 0.063, 4.515. However minimum value is 4.129 and the maximum is 85.364. Moreover, the mean aggregate level of financial development is 0.266, and the median is 0.252 with a standard deviation of 0.078.

Table 4.1. Descriptive statistics

Variables	Mean	Median	Std. Deviation	Minimum	Maximum
WACC	0.387	0.063	4.515	4.129	85.364
Debt to Asset ratio	1.040	0.121	13.663	0.000	310.267
Return on assets	1.007	0.067	13.525	-0.365	243.884
Size of the firm	6.937	6.884	0.768	4.843	9.964
FD	0.266	0.252	0.078	0.163	0.378
FD (Ins)	0.277	0.277	0.010	0.263	0.298
FD (mark)	0.245	0.197	0.156	0.035	0.463

4.2 Empirical analysis

The models presented in Section 3.3 are used for empirical analysis, we used pooled regression method while assuming that all the firms are similar. In our study, we used a sample size of 150 PSX-listed non-financial companies from various industries.

Table 4.2 presents the finding of pooled regression investigating what is the effect of the financial sector's development on the COC. The overall aggregate financial development is significant ($p < 0.05$) with both the indices including financial institution development ($p < 0.05$) and financial market development ($p < 0.10$) used in our study as measures of financial development are significant too. However, among control variables: Debt to asset ratio ($p < 0.01$) and Return on assets ($p < 0.01$) are statically significant.

Moreover, table 4.2 shows that the overall aggregate financial development is statically negatively related to the COC. The results imply that whenever the

financial development increases the COC decreases, meeting our expectations and supporting the argument of (Kim et al., 2015; Javiad et al., 2021) that overall financial development of the country promotes corporate governance, enforcement of laws, improves accounting performance, political stability, transparency in disclosure practices, auditing measures, accounting quality and improve universal economic factors like; inflation rate eventually reduces the cost of financing.

Conclusively, table 4.2 shows that overall financial development decreases the (COC) while controlling the leverage, ROA, and Size of the firm. These findings indicate that investors often charge lower risk premiums on companies operating in emerging countries with established financial systems. (Kim et al., 2015).

Table 4.2. Relationship between the (COC) and financial development.

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.188	.765		.246	.806
FD	-.201***	.931	.003	.216	.02
Debt to Asset ratio	.197***	.007	.595	26.447	<.001
Return on assets	.122***	.008	W.364	16.190	<.001
Size of the firm	-.026	.095	-.004	-.275	.783

*, **, *** indicates the significance level at 10%, 5%, and 1%, respectively.

Table 4.3 presents the findings of pooled regression examining whether components of financial development affect the (COC) or not. Table 4.3 shows the result that some control variables including LEV and ROA statically have a positive association with the (COC). The results signify that increase in LEV and ROA will lead to an increase in (COC). As the results indicate financial market development FD (mark), and financial institutional development FD (ins) are statically negatively related to (COC). While SIZE does not have any significant correlation with (COC).

Kim et al. (2015) also identified a negative relationship between aggregate financial development and (COC) which is consistent with De Roon and De Jong (2005) suggested that the cost of equity is reduced through global stock market integration, and risk sharing is also improved in developing markets. Ang et al. (2006) argue that an investor's base is developed from the expansion of the financial market and

market liquidity is also increased, this encourages risk diversification, lowering the cost of equity. According to Veldkamp (2006), financial institution growth enhances economies of scale and decreases production costs since production has high fixed costs. Although these findings are inconsistent with the findings of Kirch and Terra (2012) arguing that financial development and cost of capital are significantly positively associated.

Table 4.3. Relationship between (COC) and financial development components (institute and market) along with control variables.

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.251	2.128		1.057	.291
FD (Ins)	-7.565***	7.399	-0.017	-1.022	0.04
FD (Mark)	-0.021**	0.481	0.001	0.044	0.06
Debt to Asset ratio	0.196***	0.007	0.594	26.432	0.000
Return on assets	0.122***	0.008	0.366	16.224	0.000
Size of the firm	-0.014	0.096	-0.002	-0.147	0.883

*, **, *** indicates the significance level at 10%, 5%, and 1%, respectively.

In addition, the results imply that the LEV is positively correlated with the COC. This is consistent with Zhou et al., (2016). Although these findings are opposite to the findings of Salehi et al. (2020) arguing that financial leverage has a negative and significant impact on capital cost. This positive relationship is inconsistent with Javaid et al. (2021) arguing that the LEV has a negative association with WACC.

Moreover, the findings in table 4.3 show that ROA is significantly positively correlated with (COC) which is relevant to Hardlock and James (2002) and Frank et al. (2006). Although these results are opposing the findings of (Salim and Yadav, 2012; Abor, 2005), they stated that (ROA) which is used as a measurement tool to identify firm performance has a strong negative correlation to capital structure. While Purba et al. (2020) stated that ROA has no significant impact on the COC of industrial firms listed on the Indonesian stock market.

However, our findings suggest that there is no association between the COC and the firm's size (SIZE). This is consistent with Barus and Siregar (2015) who claim the

cost of equity is not significantly associated with firm size due to the characteristics of the investors assess risk and return on investment while focusing more on the level of profitability and other financial information. Although, the results of Salehi et al. (2020) and Ali Shah and Butt (2009) also support these findings.

5. CONCLUSION

The research examined the association between financial development and the cost of financing. Our study analyzed the aggregate impact of financial development, the financial development of markets, and institutions on the cost of financing by applying the pooled regression using panel data of 150 non-financial firms listed on PSX. Our research findings confirmed the negative impact of financial development on the level of cost of financing of the firms. The past research is regulated only in a developed country like China about the influence of financial development on the cost of equity, but our results rea evident with the influence of financial development on the average cost of financing (Debt & Equity) in the developing country; therefore, we conducted the research in Pakistan.

This study importantly contributes to the literature on corporate finance by providing evidence that financial development (institution and market) and the cost of capital are inversely related to one another, supporting the argument that overall financial development of the country promotes corporate governance, enforcement of laws, improves accounting performance, political stability, transparency in disclosure practices, auditing measures, accounting quality and improve universal economic factors like; inflation rate, which, eventually reduces the cost of financing.

Lastly, our study provides potential implications for regulators, stakeholders, and more essential for the policymakers. Policymakers of Pakistan shall specifically accent on FD that promotes enforcement of law and regulations. Our results evident beneficial implications for government and regulatory authorities regarding financial development in Pakistan and other developing economies.

DECLARATION OF INTEREST

It is declared that authors of this research work have no competing interest.

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