



2528-9705



## INVESTIGATING THE EFFECT OF FINANCIAL AND ECONOMIC DEVELOPMENT ON COST OF EQUITY CAPITAL

Mohammad VAHDANI<sup>1\*</sup>, Zahra FARHADI<sup>1</sup>, Javad MOHAMMADI MEHR<sup>2</sup>

<sup>1</sup> PhD in Accounting, Faculty Member of University of Bojnord, Bojnord, Iran.

<sup>2</sup> MSc in Accounting, University of Bojnord, Bojnord, Iran.

**\*Corresponding Author:**

**Email:** Mohamadvahdani99 @ gmail.com

### ABSTRACT

One of the most important components of any economic activity is the provision of financial resources. The required financial resources can be provided from equity or debt. The basic question is “which of these resources should be used over the lifetime of an economic firm?” In the financing, the composition of debt and equity represents the structure of capital. The policy of capital structure creates a balance between risk and returns. Using more debt will increase the risk of the company's profitability while, lead to higher expected returns. The risk of using more debt reduces stock prices, while, its expected higher returns will increase stock prices. The purpose of the present study was investigating the effect of financial development on cost of equity capital in firms listed on the Tehran Stock Exchange. The statistical population consisted of all firms listed on the TSE, and the statistical sample was chosen by applying the Systematic Removal Method including 127 firms over the period from 2009 to 2016. Therefore, theoretical foundations were collected, and the research hypotheses were compiled, after that the necessary information from the set of studied companies was gathered and prepared. In order to examine the hypotheses, the correlation coefficient and multiple regression were used. Research findings indicated that stock market development and banking development had a positive and significant effect on the cost of equity capital. Also, the coefficients and the significance level of the t-statistic of the control variables indicated that the beta, firm size and profitability of the firm were effective on the cost of equity.

**Keywords:** Financial Development, Economic Development, Cost of Equity Capital.

### INTRODUCTION

The cost of capital is based on the assumption that the purpose of firms is to maximize shareholders' wealth (Jahankhani and Parsaeian, 2006). The cost of capital is the minimum rate of return that, with its acquisition, the firm value remains constant. The cost of capital is important in two points. The first is that all valuation models of securities are capital-based. The second is that fund investments with the firm, determining investment priorities, determining the optimal capital structure and evaluating the optimal performance of the units without identifying the cost of capital will not be practical (Poorzamani and Mansoori, 2014). The cost of capital is very important for corporate executives, because it is one of the key elements in making investment decisions, and the firm's economic value added increases as the cost of capital goes down. The cost of capital is the basis of comparison in the evaluation of investment opportunities, so companies are required to maintain their capital cost at a

reasonable level. In case of high capital cost, the firm has to drop many of its potential investment projects (Pourheidari and Arababadi, 2014).

The cost of capital is the cost of a firm's long-term financing. Companies provide their finances through the loan and equity, and use it in assets. The costs imposed on the Company by the way, are called the costs of capital. In other words, the cost of capital is the minimum rate of return that a company must get from its investments to maintain the market value of the company (its stock price) constant (Azarberahman, 2010). The capital market and the active presence of investors in such markets are one of the undeniable needs of national economic growth.

Financial systems reduce the cost of trading and improve resource allocation and, ultimately, economic growth by utilizing information functions about investment opportunities, monitoring investments, distributing risks, pooling savings, and facilitating the exchange of goods and services. At first, the overall dimensions determinant of financial development are mentioned, and then in order to illustrate the state of the country's financial development in recent volumes, the various dimensions of the financial development index are measured by the components representing each dimension in volumes of the third development plan, and in 2005, the share of grants to the private sector, the concept and purpose of financial development, and the prevalent criteria of financial development, including the financial depth, do not fully reflect its function. According to the studies, financial development is a multi-faceted concept; in addition to the monetary and banking aspects, it also includes other components such as financial liberalization, regulatory quality and regulatory supervision of this sector, technological advances, competitive rates and institutional capacities. The financial structure of a country is formed from various financial markets and products, and few limited criteria cannot cover all aspects of financial development (Mehrazin and Abbas Nejad, 2013).

One of the most important components of any economic activity is the provision of financial resources. The required financial resources can be provided from equity or debt. The basic question is "which of these resources should be used over the lifetime of an economic firm?" In the financing, the composition of debt and equity represents the structure of capital. The policy of capital structure creates a balance between risk and returns. Using more debt will increase the risk of the company's profitability and, on the other hand, lead to higher expected returns. The risk of using more debt reduces stock prices, and on the other hand, its expected higher returns will increase stock prices. Therefore, the optimal capital structure creates a right balance between risk and return and consequently, leads to increasing stock prices. Theories of capital structure have stated companies with proper growth opportunities should choose less financial leverage. If they increase their foreign debt, they will not be able to use the benefits of their investment opportunities, and as a result, a negative relationship is created between future growth and financial leverage (Nikoomaram et al., 2011).

## LITERATURE REVIEW

Qamruzzaman and Wei (2019) investigated the significance of financial inclusion and stock market development regarding capital. They found that there were positive relations between shock in financial inclusion and stock market development. Also, this linkage has linked with cross-broader capital flows positively. In addition, they found that foreign capital flows in the



form of FDI were affected by development in financial inclusion. Moreover, if the financial market is well-developed and efficient (especially the stock market), it will have a positive effect on the portfolio of foreign investors. Their study showed that past performance of foreign capital flows could play a role in predicting the future of foreign flows in recipient countries.

Mokhova et al. (2018) investigated internal factors that impact on the cost of equity capital. They discussed the implications of corporate governance and social factors. By examining the comprehensive literature on available studies, it could be seen that the formula is a strategy to reduce capital costs by adjusting internal factors. They thought that paying more attention to this issue would be useful for academics and professionals who would be able to provide an independent view of how certain factors affect the cost of capital.

Calomiris et al. (2018) studied how equity capital inflows that enter emerging market economies affect equity issuance and corporate investment. They believed that foreign inflows are connected with country-level issuance strongly. The relation specifically expresses the behavior of large firms, known as those with a large market value of equity. They found that inflows imply more than a transfer of equity ownership from domestic to foreign investors. Foreign purchases of equity have financial and real consequences for firms.

Chandra et al. (2018) investigated the impact of international financial reporting standard on the relationship between corporate governance and cost of equity. They believed that in the current era, differentiator for companies is the aspect of funding not intercompany production efficiency. So, the cost of capital has a more prominent role. Despite numerous factors affecting the cost of capital, their research focuses on the corporate governance aspects (CG). As a result of their research, they found that the corporate governance affected the cost of equity (CoE) companies negatively.

Hosseinpour (2017) explored the relationship between competitive structures of products and capital cost in firms listed on TSE. He found a negative and significant relationship between industry concentration ratio (Herfindahl-Hirschman index) and capital cost, and no significant relationship was found between the other independent variables.

Hinson (2016) investigated the impact of profit management opportunities on increasing or decreasing capital costs among firms listed on the Athens Stock Exchange. The sample number was about 75493 companies during the period from 2004 to 2015. After performing statistical tests and interpreting their results, the researcher concluded that there was a significant relationship between earnings management policies and capital costs, and there was a negative and significant relationship between managerial opportunistic behavior and capital cost.

Bertomue and Cheynel (2016) investigated the effect of disclosure levels on the capital cost of corporations listed on the New York Stock Exchange. The research method was a multivariate regression model, and there was a data panel. In this research, they examined the effect of information on capital costs after performing statistical tests. They concluded that there was a significant relationship between disclosure and capital cost.

Amirhosseini (2015), in a research entitled “The Study of the Economic Leverage for testing Beta Sensitivity Compared to the Capital Asset Pricing Model and the Pricing model for decreasing capital assets in the Iranian Automotive Industry”, reported that the revised model was more appropriate compared to the other asset pricing models.



Albanez (2015), in a study entitled "Impact of the capital cost on financial decisions in Brazilian companies" investigated the relationship between the cost of capital (debt and equity) and corporate leverages during the period from 2000 to 2011. They used the combined data method. The results showed that Brazilian companies were looking for proper opportunities to finance their projects, and when equity costs were high, they were looking for other options, such as debt, and decisions were made based on existing conditions and the cost of the suggested resources.

Dhaliwal, et al. (2014) investigated the relationship between corporate social responsibility and capital cost of equity. The results showed that there was a negative and significant relationship between disclosure of corporate social responsibility and cost of equity capital. In addition, they stated that the disclosure of corporate social responsibility and disclosure of financial resources could act as an alternative to reduce the cost of equity capital.

Gracia and Mira (2014) stated that companies with financial limitations are more adhered to the hierarchy theory to finance resources rather than companies without financial limitation. They believed that firms with a financial limitation are dependent on cash generated internally, and their investments are an internal event. At first, they tend to invest their cash to finance profitable projects, then in fixed assets or working capital. They invest their cash in a way that can be a guarantee for a new loan. Finally, there is a negative relationship between external financing and cash flow for these companies. Conversely, firms without financial limitation have little reliance on cash that is earned by themselves. These companies can easily provide cash when they need.

Banos, Caballero, et al. (2014) examined the management of working capital, corporate performance, and corporate finance limitations. The results indicated a reverse relationship between investment in working capital and company performance. The results indicated a reverse relationship between investment in working capital and company performance which suggested an optimal level of investment in working capital that would lead to a balance between costs and benefits, and maximize the value of the company. Also, the results showed that the optimal level was lower for the firms that faced with financing limitation.

Setayesh et al. (2011) investigated the relationship between the quality of financial information and the financing limitation of listed companies in Tehran Stock Exchange. They studied the data of 67 companies during the period from 2003 to 2010, and the results showed that there was a negative and significant relationship between the quality of accruals and growth in accrual-quality with limitation in financing, but there was no significant relationship between the disclosure and growth of disclosure quality.

## **THE MAIN HYPOTHESIS**

In this section, to achieve the research goals, and based on theoretical foundations and research background, the research hypotheses were designed and developed as follows:

- Financial development has an impact on the cost of equity capital.
- Economic development has an impact on the cost of equity capital.

## **RESEARCH METHODOLOGY**



This research was a descriptive research with emphasis on correlations, because on the one hand, it examined the current status, and on the other hand, it used regression analysis to determine the relationship between different variables. In addition, this study was retrospective (using passed information), and was based on actual data on the firm's financial statements. The studied period was a twenty-year period based on the financial statements over the years 2009 to 2016. The statistical population of this study consisted of all companies listed on the TSE. In this study, statistical sampling was not used, but the following conditions were chosen for sample selection:

1. The fiscal year ended with the end of March each year.
2. The company did not change the fiscal year from 2009 to 2016.
3. Financial information in order to extract the required data was available.
4. The firm must not be a part of the banks and financial institutions (investment companies, financial intermediaries, holding companies and leasing companies) because for these companies, disclosure of financial information and corporate governance structures were different.
5. The firm must be admitted to TSE by the end of fiscal year 2009.

Finally, 127 companies were selected as samples. Also, in this study, a library research method was adopted for the study of subject literature and literature review. Information about the variables of the research was collected through Rahavard Novin databases and through the website of the Stock Exchange.

In this research, multiple linear regression model using ordinary least squares (OLS) was used in order for examination of statistical hypotheses and data analysis. Entering the data input was done by Excel 2010 software, and statistical analysis of the data was done using E-views software version 10.



## EXPRESSION OF MODELS & OPERATIONAL DEFINITION OF RESEARCH VARIABLES

To examine the hypotheses, the following models were used:

### Model No.1

$$CC_{it} = \alpha_0 + \alpha_1 FIN_{it} + \alpha_2 MKTLIQ_{it} + \alpha_3 FIN_{it} * MKTLIQ_{it} + \alpha_4 SIZE + \alpha_5 BETA_{it} + \alpha_6 ROA_{it} + \varepsilon_{it}$$

### Model No.2

$$CC_{it} = \alpha_0 + \alpha_1 MKTCAP_{it} + \alpha_2 SIZE + \alpha_3 BETA_{it} + \alpha_4 ROA_{it} + \varepsilon_{it}$$

**Table 1. Measuring Method of Research Variables**

Variable Type	Variable Name	Variable Symbol	Calculation Method
Dependent variable	The cost of equity (the expected rate of return on common shareholders)	CC	The Calculation method of the cost of equity using the Gordon Growth Model (Damodaran, 2002): In this model, assuming that k represents the cost of equity capital (the expected rate of return on common shareholders), the k can be obtained from the following

			<p>equation:</p> $\text{Cost of equity} = \frac{D_1}{P_0} + g$ <p>where:</p> <p>D1 refers to the paid dividend in Cash at the end of the first year,  P<sub>0</sub> refers to the price of each share at the beginning of the year,  g refers to dividend growth rate which is calculated as follow:</p> $g = \left[ \frac{EPS_t}{EPS_0} \right]^{(t)} - 1$
Independent variable	Financial development	FIN	The Ratio of stock market value to gross domestic product (GDP) or Stock market index or Trading Volume of the Stock Exchange is one of the major criteria introduced by the World Bank to measure the development of the stock market of each country and it's the total of shares issued in the stock market of a country in a defined year. This index is expressed relative to gross domestic product and represents the size of a country's stock market against the entire economy.
Independent variable	Economic development	MKTLCAP	It is the size of tradable shares of the capital divided by the total gross domestic product (GDP) at the end of the year.
Control variable	Beta	BETA	$\beta = \text{Cov}(R_i, R_m) / \sigma^2 R_m$ <p>where:</p> <p>COV refers to Covariance,  R<sub>i</sub> refers to Company Returns,  R<sub>m</sub> refers to Market Returns,  σ<sup>2</sup> refers to Variance.</p>
Control variable	Company size	SIZE	(COMPANY SIZE) = Log (Total Asset)
Control variable	Profitability	ROA	$ROA = \frac{NI}{TA}$ <p>where:</p> <p>ROA refers to asset returns,  NI refers to net profit,  TA (A) refers to total assets.</p>





			This variable has been used as a Profitability criterion in the research of Setayesh <i>et al.</i> (2011),
--	--	--	--

## RESEARCH FINDINGS

### *Descriptive Statistics*

A summary of the descriptive statistics of the research variables has been presented in Table (2) to provide an overview of the data and their central and dispersion indices.

**Table 2. Descriptive Statistics of the Research Variables**

Variable	Symbol	Number of observations (8×127)	Average	Median	Maximum	Minimum	Standard deviation
The cost of equity	CC <sub>it</sub>	1016	0.151903	0.105957	5.200701	0.050102	0.217225
Stock market development	FIN <sub>it</sub>	1016	25.02595	17.883712	27.02112	14.87200	131.6858
Stock market ratio	MKTLCAP <sub>it</sub>	1016	0.024660	0.017017	0.308485	0.000133	0.028065
Degree of integration	MKTLIQ <sub>it</sub>	1016	8,022594	7.883712	15,87012	5,487211	2,725800
Company size	SIZE <sub>it</sub>	1016	13.70047	13.61534	18.58975	9.880833	1.380529
Profitability	ROA <sub>it</sub>	1016	0.114418	0.105766	0.616136	-0.339995	0.124049
Beta	BETA <sub>it</sub>	1016	0.020676	0.014849	0.247578	0.010200	0.023210



### *Variable Stationary*

The variables' stationary of the study should have been investigated before estimating the model in studies that were related to panel data (cross-sectional data and time series data), as in the case of variables that were not stationary, false regressions would occur.

In order to study the stationary of model variables, the unit root tests in panel data were used. The unit root test results were examined. In this study, the Levin, Lin and Chu test were used to test the stationary of variables. Since the obtained significance level for the Levin, Lin and Chu test have been less than the error level of 0.05 for all variables, it could be concluded that the research variables were stable in the first order difference. Therefore, due to the variables' stationary in the regression analysis, false regression was not created.

**Table 3: The Levin, Lin and Chu Stationary Test**

Variable		The Levin, Lin and Chu test	
		Statistic value	Significant level
The cost of equity	CC <sub>it</sub>	-27.84361	0.0000
Stock market development	FIN <sub>it</sub>	-16.36911	0.0000
Stock market ratio	MKTLCAP <sub>it</sub>	-24.14995	0.0008
Degree of integration	MKTLIQ <sub>it</sub>	-16.36911	0.0000
~	FIN <sub>it</sub> × MKTLIQ <sub>it</sub>	-28.67172	0.0000

Company size	SIZE <sub>it</sub>	-6.526621	0.0000
Profitability	ROA <sub>it</sub>	-11.83757	0.0000
Beta	BETA <sub>it</sub>	-23.97977	0.0072

### Classical assumptions tests

#### 1 .Normality Test

One of the most important assumptions of using the linear regression model is a normal distribution for the model remainders and the dependent variable of the research. In estimation models, it has been assumed that the remainders and the dependent variable were random variables. Therefore, the distribution of the dependent variable followed the distribution of the remainders.

In this study, normalization through the Jarque-Bera statistic was investigated. The null hypothesis and alternative hypothesis in this test were as follows:

H<sub>0</sub>: Normal distribution

H<sub>1</sub>: non-Normal distribution

Since in Table (3), the significance level of the Jarque-Bera statistic for the error component was less than 0.05, the null hypothesis that the error component is normal was rejected. When the sample size was large enough, deviation from normality assumption and its consequences were usually negligible. In these conditions, according to the central limit theorem could be found that even if the residuals were not normal, the test stats asymptotically followed the normal, unbiased, and efficient distribution. Therefore, the normality assumption of the error component could be ignored. The histogram of regression residuals in the research models has been shown in Figures 1 and 2.

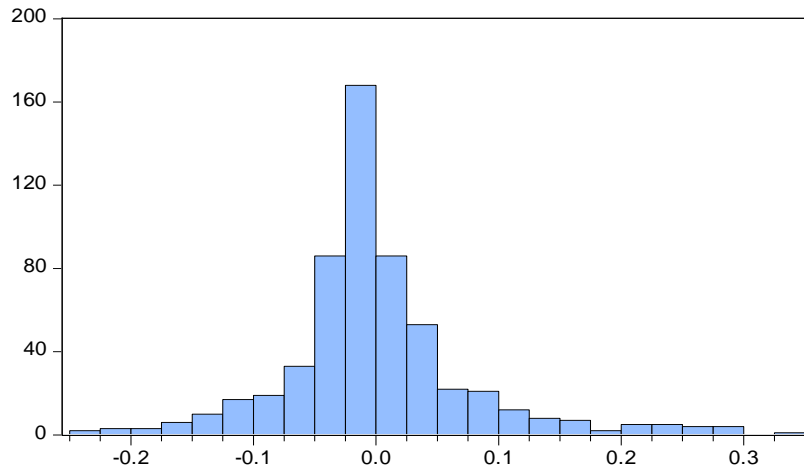


Figure 1. The Histogram of Error Component for Model No.1



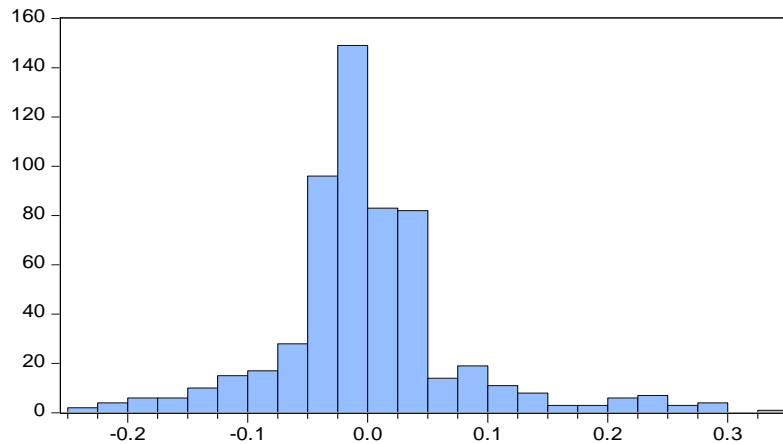


Figure 2. The Histogram of Error Component for Model No.2

## 2. Homoskedasticity Test

Homoskedasticity of the error terms in different periods is one of the linear regression assumptions. Breaking this assumption creates a problem called the variance of heterogeneity. The Homoskedasticity is a direct result of the assumption of the normal distribution of the dependent variable. Heteroskedasticity means to change the amount of variance of random part of the model in the studied sample.

The statistical assumptions of the Homoskedasticity test were as follows:

H<sub>0</sub>: Homoskedasticity

H<sub>1</sub>: Heteroskedasticity

There are several tests to detect Heteroskedasticity. In this study, the Breusch-Pagan-Godfrey test was used to test the Heteroskedasticity. The null hypothesis of these tests implied the Heteroskedasticity. Given that the significance level of these tests in Table (4) was less than 0.05, the null hypothesis of these tests was not acceptable. In other words, there was Heteroskedasticity problem in models, and to solve this problem, the generalized least squares (GLS) was used.

Table 4: Classical Assumptions of Regression

The Tests		Model No.1	Model No.2
	The F-statistic value	4.32	7.64
	Significance level	0.0000	0.0000
<b>Jarque-Bera Test</b>			
	The F-statistic value		Significance level
Residual of Model No.1	290.87		0.0000
Residual of Model No.2	309.24		0.0000

## RESEARCH HYPOTHESES

The following models were used to examine the research sub-hypotheses:



$$(1) \quad CC_{it} = \alpha_0 + \alpha_1 FIN_{it} + \alpha_2 MKTLIQ_{it} + \alpha_3 FIN_{it} * MKTLIQ_{it} + \alpha_4 SIZE + \alpha_5 BETA_{it} + \alpha_6 ROA_{it} + \varepsilon_{it}$$

$$(2) \quad CC_{it} = \alpha_0 + \alpha_1 MKTCAP_{it} + \alpha_2 SIZE + \alpha_3 BETA_{it} + \alpha_4 ROA_{it} + \varepsilon_{it}$$

In above regression models, if the independent variable coefficient was significant, the corresponding sub-hypotheses were verified.

In panel studies, it was first necessary to check whether there were cross sectional heterogeneity or individual differences. Using the F-Limer test, cross-sectional Heterogeneity could be identified. The statistical hypotheses of the F-Limer test were as follows:

Null hypothesis: The cross sections are homogeneous, and the pooled data are appropriate for estimating.

Alternative hypothesis: The cross sections are Heterogeneous and the panel data are appropriate for estimating.

If the null hypothesis on the homogeneity of the sections (the suitability of the pooled data) was approved, all the data must be combined, and the parameters were estimated by a classic regression. The test results have been shown in Table (5). Since the significance level for the F-Limer test in the research models was less than 0.05, so the panel method was appropriate for estimating research models.

Once it became clear that there was heterogeneity in the cross sections, and individual differences could be considered, and the panel data method was appropriate for the estimation, it must be determined that the estimation error was due to a change in the cross sections or that it occurred over time. Considering such errors, the researchers faced with two fixed and random effects. The Hausman test was used to determine the fixed and random effects. In the Hausman test, the null hypothesis was based on the randomness of the estimation errors (the suitability of the random effects model for estimating regression models of panel data) that the results of which have been reflected in Table (5). Considering that the significance level of the Hausman test in the first model of research was less than 0.05, the null hypothesis that was based on the appropriateness of the random effects was rejected, and to estimate the first regression model, a panel data method with fixed effects was used. In the second model of the study, the significance level was greater than 0.05, so the null hypothesis that was based on the appropriateness of the random effects was not rejected, and to estimate the second regression model, a panel data method with random effects was used.

**Table 5: F-Limer and Hausman Tests**

Test	Model	Statistic value	Significance level
	Model No.1	274.54	0.0000
	Model No.2	21.25	0.0000
	Model No.1	392.34	0.0000
	Model No.2	11.78	0.0027

***First sub-hypothesis: Stock market development has an impact on the cost of equity capital***

As mentioned before, the regression model 1 was used to test the first hypothesis. By applying the regression assumptions and choosing the appropriate method of estimation, the model

estimation results have been shown in Table (6). Regression assumptions should be investigated so that the model estimation results can be reliable. The main assumption of multivariable regression analysis was the significance of the whole regression. F-statistics and its significant level in Table (6) investigated whether there was a linear relationship between the independent and dependent variables (the significance test of the whole regression). Since the significance level of this test for the corresponding model was less than 0.05, it could be said that in the given model, there was a linear relationship between independent variables and the dependent variable. So, it followed that the model was significant. Another assumption in the regression was the independence of the errors (difference between predicted values by regression equation and actual values) from one another. If the independence assumption of errors was rejected, and the errors were correlated with each other, using regression was impossible. Therefore, Durbin-Watson test was used to verify the independence of the errors, and if the Durbin-Watson statistic was about 2 (1.5 to 2.5), it showed that there was no correlation among the errors. According to Table (6), the value of the Durbin-Watson statistic for the corresponding model was 1.92.

To investigate the above hypothesis using data of Table (6), it could be said that: The coefficient of integration degree, one of the indexes of stock market development (MKTLIQ<sub>it</sub>) was -0.03169. The obtained significance level for this coefficient was equal to 0.0005, and since its significance level was less than the 0.05 error level, it was concluded that the degree of integration had a negative and significant effect on the cost of equity capital of the companies listed on the TSE. Therefore, the above hypothesis was approved.

Based on the control variables, it could be said that the size of the company and its profitability had a direct and significant effect on the capital cost of equity of the companies. The results also showed that the cost of equity capital of companies was directly related to the interruption.

The results of the model estimation showed that stock market development (FIN<sub>it</sub>) had a negative and significant effect on the capital cost of equity of companies.



**Table 6: Estimation of the Model No.1 of Research**

$CC_{it} = \alpha_0 + \alpha_1 FIN_{it} + \alpha_2 MKTLIQ_{it} + \alpha_3 FIN_{it} * MKTLIQ_{it} + \alpha_4 SIZE + \alpha_5 BETA_{it} + \alpha_6 ROA_{it} + \varepsilon_{it}$				
Method		Panel Data Regression with Fixed Effects		
The Dependent variable		CC <sub>it</sub>		
Independent variables		Coefficient	T-statistic	Significance level
Stock market development	FIN <sub>it</sub>	-0.00316	-3.20086	0.0015
Degree of integration	MKTLIQ <sub>it</sub>	-0.03169	-3.51958	0.0005
~	FIN <sub>it</sub> × MKTLIQ <sub>it</sub>	0.001137	2.51263	0.0123
Company size	SIZE	0.027406	3.724571	0.0002
Beta	BETA <sub>it</sub>	0.001732	1.154348	0.2489
Profitability	ROA <sub>it</sub>	0.181089	4.807482	0.0000
Constant value	c	-0.29204	-3.10339	0.002

F-statistic	224.74
Significance level	0.0000
Durbin-Watson statistic	1.92
Coefficient of determination	0.78

### ***Second Sub-hypothesis: Banking development has an impact on the cost of equity capital***

The regression model 2 was used to test the second hypothesis. By applying the regression assumptions and choosing the appropriate method of estimation, the model estimation results have been shown in Table (6). Regression assumptions should be investigated, so that the model estimation results could be reliable. The main assumption of multivariable regression analysis was the significance of the whole regression. F-statistic and its significant level in Table (6) investigated whether there was a linear relationship between the independent and dependent variables (the significance test of the regression). Since the significance level of this test for the corresponding model was less than 0.05, it could be said that in the given model, there was a linear relationship between independent variables and the dependent variable. So, it showed that the model was significant. Another assumption in the regression was the independence of the errors (difference between predicted values by regression equation and actual values) from one another. If the independence assumption of errors was rejected, and the errors were correlated with each other, using regression was not possible. Therefore, Durbin-Watson test was used to verify the independence of the errors, and if the Durbin-Watson statistic was about 2, it showed that there was no correlation among the errors. According to Table (6) after applying self-correlation correction, the value of the Durbin-Watson statistic for the corresponding model was 1.87 which resulted in an approximately appropriate value.

To investigate the above hypothesis using data of the Table (7), it could be said that: The coefficient of stock market ratio (MKTCAP<sub>it</sub>) was -0.03079. The obtained significance level for this coefficient was equal to 0.0498, and since its significance level was less than the 0.05 error level, it was concluded that the coefficient of stock market ratio had a reverse and significant effect on the cost of equity capital of the companies listed on the TSE. Therefore, the above hypothesis was approved.

**Table 7: Estimation of the Model No.2 of Research**

$CC_{it} = \alpha_0 + \alpha_1 MKTCAP_{it} + \alpha_2 SIZE + \alpha_3 BETA_{it} + \alpha_4 ROA_{it} + \varepsilon_{it}$				
Method		Panel Data Regression with Fixed Effects		
The dependent variable		CC <sub>it</sub>		
Independent variables		Coefficient	T-statistic	Significance level
Stock market ratio	MKTCAP <sub>it</sub>	-0.03079	-1.96634	0.0498
Company size	SIZE	0.019326	1.066128	0.2868
Beta	BETA <sub>it</sub>	0.001998	0.783187	0.4339
Profitability	ROA <sub>it</sub>	0.169963	3.057807	0.0023
Constant value	c	-0.24022	-1.05542	0.2917
F-statistic		187.57		

Significance level	0.0000
Durbin-Watson statistic	1.87
Coefficient of determination	0.79

***Main hypothesis: financial development has an impact on the cost of equity capital***

To test the above hypothesis, since the sub-hypothesis has been approved, the main hypothesis was also verified.

## CONCLUSION

Because of the confirmation of the first sub-hypothesis and the confirmation of the reverse and significant effect of stock market development on the cost of equity capital, it has been suggested that supervisory authorities and legislators provided the bases of financial development to reduce the cost of equity. Macroeconomic policies should be chosen carefully in order to increase the development of the financial sector. These policies included targeting budget deficits and low inflation and structural reforms that reduced the government intervention in allocating funds, and strengthening the quality of institutions. Using these criteria would lead to financial development and encouragement of investment and economic growth. Also, financial institutions could increase the efficiency of financial development by reducing bank fees and increasing the volume of stock exchanges in the financial markets.

According to the second sub-hypothesis confirmation and the reverse and significant impact of banking development on the cost of equity capital, it has been suggested that supervisory authorities and legislators provided the basis for banking development to reduce the cost of corporate equity, and it provided the conditions for more investing in the Stock Exchange. Although financial development is usually associated with the development of the stock market against banking system, due to the weaknesses of the stock market and extensive banking system in developing countries, it has been suggested that banks' efficiency can be increased by directing bank facilities to entrepreneurship and knowledge-based projects, and according to the high return on investment in this field, economic growth would increase, and the basis for the formation and growth of the stock market would be provided.

Privatization of the banking system has been one of the factors that would cause the financial development, and increasing investment in the manufacturing sector. Banking, based on the ownership and public administration like other government economic activities, has less efficiency and productivity; therefore, it is suggested to contrive the state banks' privatization.

Independence of the central bank, allowing foreign companies to enter Iran's securities market for trading, adapting legal and political strategies for economic development or creating the necessary institutional framework have been other measures that could increase the efficiency of financial development instruments in Iran.

It has also been suggested to investors to pay special attention to the results of the present study in order to optimize the use of their capital in choosing companies to invest.

## RECOMMENDATION

In economic literature, capital has been regarded as the basis of an economic system, and on its formation as the most important determinant of economic growth, economic development has



been emphasized. The purpose of this study was to investigate the effect of financial development on capital cost of equity in companies listed on the Tehran Stock Exchange.

The development of the financial market plays an important role in productivity. If the financial system is developed, at least it will be determined that the firm can provide how much of its capital is from banks or the stock market. In the financial markets, the financial system transfers funds from savers to borrowers, and directs resources to productive and profitable investment projects. Financial market development can be effective in establishing a link between a producer and labor activation for the entrepreneurship. In fact, the efficiency of financial market development makes it possible to use better investment opportunities. Hence, increasing financial development leads to increasing investment in manufacturing companies. In other words, achieving a sustainable economic growth and development are basic goals of the countries. In the economic literature, capital has been regarded as the basis of an economic system and its emphasis on forming investment as the most important determinant of economic growth and development. The source of capital accumulation is an investment, so for investment, a number of savings in the financial system which are usually provided through grants to the private sector is needed. The results showed that most firms use bank facilities to finance their projects and investments therefore giving credits to the private sector by banks, and invest in the stock market would be raised, and the investment in production would be increased, too. Financial development is one of the keys to achieving long-term economic growth. Financial development could lead to economic growth if it can provide the right environment for optimal allocation of resources, and increase the capital efficiency. Long-term non-inflationary economic growth, increasing production and employment require the provision of financial resources and their optimal allocation in the national economy, and this will be possible with the help of well-organized and efficient financial markets that have a variety of financial instruments, the creation of a competitive environment and transparency of information. Because the efficiency of the financial market requires the smooth transactions out, increasing the liquidity, and providing the risk management conditions. And this should be considered by policymakers in the macroeconomic policies that target financial development, so that companies could confidently invest in productive sectors. When the financial market grows, the investors also invest their capital in the stock exchange, and as the corporate competition increases to attract investors, the cost of equity decreases.

## References

- Albanez, T. (2015) "Impact of the cost of capital on the financing decisions of Brazilian companies", *International Journal of Managerial Finance*, Vol. 11 Issue: 3, pp.285-307, <https://doi.org/10.1108/IJMF-02-2014-0026>
- Amirhosseini, Z., (2015), Application of Economic Leverage to Measure of the Effect of Macroeconomic Variables on Corporate Performance, *Journal of Financial Studies*, No. 7, 48-75
- Azarberahman, A. (2010), *Financial Management*, Tehran, Nama Publication.



- Banos-Caballero,S, García-Teruel. P., Martínez, P. (2014). Working capital management, corporate performance, and financial constraints. *Journal of Business Research*, Volume 67, Issue 3, Pages 332-338. <https://doi.org/10.1016/j.jbusres.2013.01.016>
- Bertomue, J. Cheynel. Edwige, (2016), Disclosure and the Cost of capital. *ABACUSE*, Volume52, Issue2, Pages 221-258, <https://doi.org/10.1111/abac.12076>.
- Calomiris, Charles W.; Larrain, Mauricio; Schmukler, Sergio L. (2018). Capital inflows, equity issuance activity, and corporate investment (English). Retrieved from; <http://documents.worldbank.org/curated/en/470511523557571868/Capital-inflows-equity-issuance-activity-and-corporate-investment>
- Chandra, Situmeang and Erlina, Erlina and Maksum, Azhar and Supriana, Tavi (2018). Effect of corporate governance on cost of equity before and after international financial reporting standard implementation. , *Junior Scientific Researcher*, Vol. 4, No. 1: pp. 1-13. <https://doi.org/10.1080/00014788.2006.9730040.3>.
- Damodaran, A. (2002). *Investment valuation: Tools and techniques for determining the value of any asset*. New York, NY: John Wiley & Sons.
- Dhaliwal, D. S., Li, O. Z., Tsang, A., & Yang, Y. G. (2014). Corporate social responsibility disclosure and the cost of equity capital: The roles of stakeholder orientation and financial transparency. *Journal of Accounting and Public Policy*, 33 (4), 328-355. <https://doi.org/10.1016/j.jaccpubpol.2014.04.006>
- Gracia Jose´ Lopez ´ and Mira Sogorb Francisco, (2014), Sensitivity of external resources to cash flow under financial constraints. *International Business Review*. Volume 23, Issue 5, Pages 920-930, <https://doi.org/10.1016/j.ibusrev.2014.02.004>
- Hinson, Lisa, (2016), Management earnings forecast Policies and the Cost of Equity capital. Retrieved from <http://hdl.handle.net/10724/36168>
- Hosseinpour, A,(2017), Investigating the Relationship between Competitive Structures and Capital Cost of Companies Accepted in Tehran Stock Exchange, Shiraz, Retrieved from [https://www.civilica.com/Paper-MAVC05-MAVC05\\_015.html](https://www.civilica.com/Paper-MAVC05-MAVC05_015.html)
- Jahankhani, A; Parsayian, A, (2006), *Financial Management*,Tehran, Samt Publications.
- Mehrazin, A, Abbas Nejad, F, (2013), the Effect of Conservatism and Disclosure on the Cost of Capital, the Empirical Researches of Financial Accounting, No.3 (9): pp. 93-110.



Mokhova. N, Zinecker, M., Meluzín. T. (2018). Internal Factors Influencing the Cost of Equity Capital, *The International Journal*, Volume 5 Number 4, <http://doi.org/10.9770/jesi.2018.5.4> (9), pp: 827- 845.

Nikoomaram, H. Rahnamay Roodposhti, F. Hibati, Farshad, (2011), *Fundamentals of Financial Management*, Tehran, Terme Publication.

Poorzamani, Z; Mansoori, F, (2014), Effect of Disclosure Quality, Conservatism and Their Interrelation on the Cost of Capital Stock, *Researches in financial accounting and auditing*, Seventh Year, 7 (25), pp. 79-96.

Fourheidari, Omid. Arababadi, Rahim. (2014). the Impact of Stock Price Changes on Voluntary Disclosure in Firms Listed in Tehran Stock Exchange (TSE). *Journal of Accounting and Auditing Review*. Volume 21, Issue 1, Page 39-56

Qamruzzaman,M & Wei.J.(2019). Do financial inclusion, stock market development attract foreign capital flows in developing economy: a panel data investigation. *Quantitative Finance and Economics*, 3(1), 88-108, doi: 10.3934/QFE.2019.1.88.

Setayesh, H. Kazemnejad, M .Zolfaghari, M. (2011). Investigating the Effects of Disclosure Quality on Stock Liquidity and Cost of Capital of the Companies Listed in Tehran Stock Exchange. *Journal of Financial Accounting Research*, Volume 3, Issue 3, Page 55-74.

