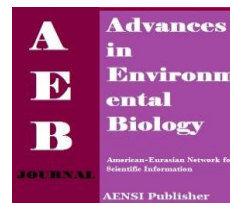




AENSI Journals

Advances in Environmental Biology

ISSN-1995-0756 EISSN-1998-1066

Journal home page: <http://www.aensiweb.com/aeb.html>

Check of the Relationship between Financing Methods and the Changes in Investment in Listed Companies in Tehran Stock Exchanges

¹Fazel Tamoradi and ²Jaber Moohamadmosaee

¹Department of Accounting, Ramhormoz Branch, Islamic Azad University, Ramhormoz, Iran.

²Ph.D. Student in Accounting, Department of Accounting, ramhormoz branch, islamic azad university, ramhormoz, Iran.

ARTICLE INFO

Article history:

Received 25 April 2014

Received in revised form

8 May 2014

Accepted 20 May 2014

Available online 16 August 2014

Key words:

finance - weighted average cost of capital - correlation coefficient - financial markets - Tehran Stock Exchanges

ABSTRACT

In this paper, various methods of financing and percentage changes in the cost of capital of listed companies on the Stock Exchanges, and the relationship between them are examined. In order to achieve this objective the definition of capital expenditures, weighted average cost of capital, the items constituting the weighted average cost of capital, the test statistic t, the test statistic f and correlation coefficient paid and consequently, it is explained how to calculate each. The research sample which consisted of 128 firms is in the time domain of 2009 to 2012 that are from firms in Tehran Stock Exchange. These results indicate that there is a significant relationship between the method of financing and capital cost rates however, varies the significance of this relationship depending on the method of financing and year of maturity. Also location of long-term debt financing leads to lower cost of capital and consequently increases shareholders wealth. Therefore, administrators, particularly with regards to the inflation conditions of country should try to be financed from the source location.

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To Cite This Article: Fazel Tamoradi and Jaber Moohamadmosaee., Check of the Relationship between Financing Methods and the Changes in Investment in Listed Companies in Tehran Stock Exchanges. *Adv. Environ. Biol.*, 8(11), 261-265, 2014

INTRODUCTION

One of the important aspects of financial management measurement and application is the company's cost of capital, typically in investment decisions and also different ways of financing is considered as an important principle. To calculate the company's capital should first know the different ways of acquiring financial barrier. One of the decisions that business managers can adopt in order to maximize shareholders wealth is financing decisions. These types of decisions related to capital structure and also to determine and select the best method of financing and its combination. The financial resources of each economic unit composed of internal and external resources. Internal resources are including cash flows from operations, proceeds from the sale of assets and external resources are including borrowing from financial markets and equity. Financing can be in various forms which include borrowings, the issuance of stock and retained corporate profits. The best financing should be made with consideration to finance spending and it should be remembered as the cost of capital in the financial literature. Funds that would be obtained by the company to a potential investment generate an adequate return on these funds. Expected returns sponsors are not the same. Where the company's creditors are looking to a secure and fixed interest rate, shareholders who have accepted the returns they receive from company are depending on the mode of company's action are different. Also the expectations of investors depending on the political, economic, current market returns, market risk, quality and motion management and number of other factors will change. Expectations and tastes of different suppliers Cash must be identified by company to manage their cost of capital in a good way. The cost of capital is the minimum rate of return that the economic units must be achieved to provide the expected return of investors. If the rate of return on investment in a company is greater than its cost of capital and this increase has taken place without a high degree of risk the result will be that the shareholder wealth will increase. In other words, if a company does not meet the investor's cost of capital or required rate, securities prices will decrease, and if the company has led to changes, how the linear relationship and the contribution of each of these methods in relation to cost of capital is.

Background research:

Corresponding Author: Fazel Tamoradi, Department of Accounting, Ramhormoz Branch, Islamic Azad University, Ramhormoz, Iran.

Abor reviewed the impact of capital structure on profitability of the 22 companies listed in Ghana Stock Exchange during 1998 to 2002. Results showed that there is a significant positive relationship between capital structure (total debt to total assets ratio) and return on equity (ROE). Also he indicates that profitable companies have more dependence to financing through liability and high percent (%85) of liabilities of these companies are short term liabilities.

Modylgany and Miller under certain assumption, how to finance and consequently company's capital structure, that has no effect on firm value. According to them, due to FRYND ARBITRAGE, value of the firm has no connection on how the finance and capital of the company's structure are.

Sunder and Myers examined the effect of four factors: assets tangibility, growth opportunities, company's tax status and profitability on the capital structure (debt ratio) of 157 American companies in the period of 1979 to 1981. Research results indicate a significantly positive relationship between assets tangibility with debt ratio and a significantly negative relationship between debt ratios with firm profitability. Moreover, there is no significant relationship between two variables, growth opportunities and the tax status with the debt ratio.

Research hypotheses:

The main hypotheses of the research as follows are stated:

H1- There is a significant relationship between the percentage changes in the method of financing and percentage changes in the company's capital expenditure.

The secondary hypotheses that pursue the goal of main hypotheses are as follow:

H2- There is a significant inverse relationship between the percentage changes in long-term debt and the percentage changes in capital cost.

H3- There is a significant relationship between the percentage changes in capital and the percentage changes in capital cost.

H4- There is a significant relationship between the percentage changes in the total retained earnings and reserves with the percentage changes in capital cost.

Research variables:

Specific cost of debt: Financed through debt provides thereby increasing the financial leverage, follows cost that the most obvious of it, is the benefit that is paid to suppliers. Interest expense and the cost of long-term debt contracts with interest including reasonable expenses of tax and this topic has increases the attractiveness of such debt.

Specific cost of corporate debt is calculated according to the following formula:

KD: After-tax cost of debt $KD = K_m (1 - T)$

WD: percent of debt in the capital structure of the company $K_m = I (D (1 - f))$

T: corporate tax rate

KM: Effective pre-tax cost of debt based on an annual rate

D: value of debt

F: rate the cost of creating and selling debt

I: benefit rate on debt owned

Special Cost of Preferred Stock:

The capital cost of providing the location of the preferred stock is a function of the profit that is determined according to the contract. Expected rate of return to shareholders is basically, more than the expected rate of long-term debt providers because the risk that is accepted by them is greater.

Obviously, it does not create a tax shield of preferred stock and in this regard is less attractive than the debt with interest.

Specific cost of preferred stock is calculated by the following formula:

KP: Special cost rate of each sheet of preferred stock $KP = D/PN$

WP: The percentage of outstanding shares in the company's capital structure

D: Paid annual profits of per share

PN: Money that received from the sale of each share

Special Cost of Common Stock:

One of the main sources of financing economic units is ordinary shares and the rights belong to them. Owners of common stock compared to other economic unit sponsors, face the greatest risk. Therefore, it is natural that their expected rate of return be the most expected rate of return.

Special cost of common stock is calculated by the following formula:

KE: Special cost rate of common stock $KE = EPS/P_0$

P0: Value of agora common stock

EPS: Earnings of each share

Special Cost of Retained Earnings:

When a company accumulates profits, is in order for investing this benefit in the company for shareholders. Expected return of shareholders is equal to the number of shares of the company in compare with the accumulated funds, that if the retained earnings was paid to them as dividends, they could have the funds to buy that number of shares which is called special cost of retained earnings. In the usual manner procedures financing from retained earnings are similar to the method of cost calculation of ordinary shares with a difference that in its calculating, the cost of equity is not considered.

KS: Cost of financing of accumulated profit place

WS: the percent of retained earnings in the whole company's capital structure

In regard to the specific investment cost for each resource, capital cost of each source of capital must be multiplied by its corresponding weight, and then we collect the values obtained, the result is called the weighted average cost of capital:

$$WACC = WD * KD (1-t) + WP * KP + WE * KE + WS * KS$$

Fisher distribution:

Distribution of F can represent probability distributions for the ratio of two sample variances that in the manner of independent are chosen of a population with a normal distribution. In this society for different degrees of freedom for each sample, there is a different F distribution. For each sample degrees of freedom can be expressed as n-1, means that the number of members of sample minus one. The statistics used to test the null hypothesis that there is no difference between the variances, can be expressed as follows: (in this formula, S indicate the sample standard deviations, and DF, indicates degrees of freedom).

$$F_{df1, df2} = (S1^2) / (S2^2)$$

The correlation coefficient:

After the existence of the linear relationship between variables was assessed by using distribution of F, to investigate the relationship between the intensity and the correlation between them, the correlation coefficient can be calculated using the following formula:

$$r = \frac{COV(X, Y)}{SXS_Y}$$

R is calculated as the following analysis:

Perfect and direct correlation	$r=+1$	Lack of correlation	$r=0$
Perfect and inverse correlation	$r=-1$	Imperfect correlation	$-1 < r < +1$

Research methods:

This research is field and applied. Statistical community survey includes 128 firms among accepted firms, Tehran stock exchange that has been reviewed for a four-year period from 2008 to 2012. The selection of these companies is done randomly from among firms in the mentioned period have been working on the stock exchange. The data used for doing this study include the amount of short-term and long-term debt, ordinary shares, preferred stock, and Retained earnings for the companies in the statistical population. Next, the effects of financing methods to the capital costs of these companies are examined. To evaluate this impact, first cost calculation and yields of liabilities, stock and retained earnings should be dealt, and then by using the hypothesis H0, and the calculation of PEARSON correlation whether or not a significant correlation, and consequently the presence or the absence of meaningful communication between hypothesis variables is measured. The following steps were performed to test the hypothesis of research:

1- Calculate the test statistic of F (fisher distribution) and the use of standard table F at the confidence level %95.

2- The percent of change of three methods of financing (liabilities, capital, and retained earnings) is considered as independent variables X1, X2, and X3, and percentage of changes of rate cost of capital as the dependent variable Y.

(The test of subsidiary hypotheses is done by using PEARSON correlation coefficient)

HO: Between X1, X2, X3 and Y, there is no liner relationship

H1: Between X1, X2, X3 and Y, there is a liner relationship

3- Calculation of correlation coefficient

4- Testing the significance of correlation coefficients by using the standard t table with a confidence level of 95%

Test of hypotheses:

F test statistic for the years 2009 to 2012 was compared in a separation, and in the total calculation with fisher's distribution table in the confidence level of %95.

"Table 1:

Description	Year 2009	Year 2010	Year 2011	Year 2012
Statistics				
F-test calculated	1/5662	4/4523	11/5065	6/7565
F table at confidence level %95	2/2530	2/2530	2/2530	2/2530
The type of liner relationship	does not exist	Exists	Exists	Exists

T-test statistic for the years 1388 to 1399 in compare to a separation of independent variables X1, X2, X3 was calculated, and it was compared with distribution table T in the confidence level %95. The correlation coefficient was calculated for each of these variables for the years 1388 to 1391, and based on it the presence or absence of a significant relationship with the dependent variables will be explained.

Table 2:

Description	Year 2009			Year 2010			Year 2011			Year 2012		
	X1	X2	X3	X1	X2	X3	X1	X2	X3	X1	X2	X3
correlation coefficient	-0/11	0/18	0/20	-0/42	0/06	0/10	-0/53	0/30	0/25	-0/60	0/12	0/30
Calculated T-test statistic	0/18	0/12	0/15	0/004	0/41	0/32	0/01	0/02	0/15	0/00	0/21	0/03
Confidence level %95	0/05	0/05	0/05	0/05	0/05	0/05	0/05	0/05	0/05	0/05	0/05	0/05
Significant correlation of coefficient	There is no relation between variables			There is	There Is not.	There Is Not.	There Is.	There Is.	There Is not.	There Is.	There Is not.	There Is.

Hypothesis testing in 2009:

In the confidence level %95, there is not liner relationship between the percentage of methods of financing variables (Debts, capital, and retained earnings) and growth rate of capital cost. (Chart number 1).

The correlation between the percentage changes in the methods of financing and growth of capital cost (chart number 2), respectively is %11 for liabilities, %18 for capital, and %20 for the accumulated benefit, that it was determined in the confidence level of %95, that there is no significant relationship between these variables and dependent variable.

Given that both the linearity tests and correlation coefficient are rejected in the mentioned year, the poor financial practices were identified.

Hypothesis testing in 2010:

Linear relationship between the method of financing and growth rate of capital cost, in the confidence level of %95 was confirmed. (Chart number 2).

The correlation coefficient between the percentages of variables of red financing methods and capital expenditure growth respectively are %42 for debts, %6 for investment, and %10 for accumulated benefit, and it was found in the confidence level of %95 that there is a significant relationship just between percent of debts variables and capital cost.

Hypothesis testing in 2011:

It was confirmed that there is a linear relationship between methods of financing and growth rate of capital cost at the confidence level of %95. (Chart number 2).

The correlation between the percentage of changes in the financing and growth of capital cost, respectively are %53 for liabilities, %30 for investment, and %25 for retained earnings, that it was found that there is a significant relationship between the percentage of liabilities' variability and capital with cost of capital rate, and there is not any significant relationship in retained earnings.

Hypothesis testing in 2012:

It was determined that there is a linear relationship between methods of financing and growth rate of capital cost at the confidence level of %95. (Chart number 2).

The correlation coefficient between the percentages of variables of financing methods and growth rate of capital cost, respectively are %60 for debts, %12 for investment, and %30 for retained earnings, that it was

found that there is a significant relationship between the percentage of debts variables and investment with rate of capital cost at the confidence level of %95, and there is not any significant relationship in retained earnings.

Summary of Survey Results:

The results of research indicate that there is a significant relationship between methods of financing and rate of capital cost of firms. For this reason, managers need to select the best structure of investment and the most appropriate combination of financing methods for reducing the firm's cost of investment. In other words, if the managers want to get correct decisions by using capital budgeting, they should be able to calculate the cost of capital. The results show that financing from the place of long-term debts reduce the capital costs and causes the shareholders' wealth to be increased; thus, managers should have an effort for financing from the place of source which was mentioned, by paying attention to the situation of inflationary in the country. The role of retained earnings has increased for financing in the year 2012. This is because in this year there was not any possibility of financing as it was desired from the place of long-term debts. In fact accumulating the benefit is because of the lack of emissions cost, which is one of the significant sources of financing. Of course managers should not forget that the non-payment of benefit cost for reserving profit does not mean that this source does not have any advantage or lack of financing cost. Potential investors should note that the increase in companies' capital at stock exchange in TEHRAN may initially lead to an increase in stock price, but if the firms cannot create more efficiency than specific cost of this source of financing, it is predicted that this will reduce the stock prices of these companies.

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