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The impact of credit ranking on the corporate cost of equity

Zahra Poorzamani [1, *], Hamideh Hatefi Ardakani [2]

[1]*Master of Accounting, Central Tehran branch, Islamic Azad University, Tehran, Iran*
[2]*Department of Accounting, Assistant Professor, Central Tehran branch, Islamic Azad University, Tehran, Iran*

Abstract: One of the most important tools to determine strengths and weaknesses and identify the opportunities and external threats of the organizations is ranking. The purpose of this study was to evaluate the effect of credit ranking on the corporate cost of equity listed in Tehran Stock Exchange during 2008 to 2011 respectively. This study is a literature study based on panel data analysis (panel data). Eviews7 software is used to analyze the results. Results indicate that the credit ranking influences on the corporate cost of equity.

Key words: Credit ranking; Return on assets; Cost of equity

1. Introduction

Nowadays, ranking of the companies depends largely on their capital structure and In fact, the production and services is related to the provision and use of funds. Environment in which companies operate are highly competitive and growing. Companies are forced to compete with various agents nationally and internationally to survive and expand its operations through new investments. Companies need financial resources to invest, Companies can finance its requirements from the inside (for example from retained earnings) or outside (through equity or debt creation).But financial resources and their use should be determined as well as the company could take the path of progress and profitability. This task is done by financial manager who identify sources of funding and how to use them. Income of a business or an investment project must be able to pay the amount of return that expected by firm's suppliers. Thus, we can say that a firm's cost of capital is minimum required rate of return for the project should be to encourage investors to provide funds to the economic entity. Credit ranking in the capital market plays an essential role and leads to reducing information asymmetry between investors and issuers and transparency of information for publishers to provide their credit authority to declare investors. This work is done by analyzing information from various sources about the publisher, the publisher of the work market, the overall economic situation and the nature of the securities takes place (Menon, 2004). Given the above, this study seeks to answer the question of whether credit ranking influences on the company's cost of equity.

2. Theoretical foundations and background

Investment in firms, instruments and securities has the lowest cost and information with low risk. Confidence to participate to the international markets in the capital markets is the most important functions of credit ranking. Nowadays, given the competitive environment and changing business conditions, the most important issue for companies is credibility and acceptability. One of the most important tools to illustrate this issue is ranking companies. In fact, ranking is the symbol of prestige and power of companies. Due to this issue, most countries have attempted to rank your company in the stock exchange. In Iran the stock market tried to rank companies based disclosing information timely. According to the Stock Exchange, the main task of the credit ranking agency is opining about qualified of predicting of credit ranking and determining financial liabilities. Ranking is a process in which the ranking agency with the ability and willingness to undertake systematic and detailed review and assign ranking of predefined, about the possibility of taking legal or personal obligations on time sheets securities or other specific financial obligation provides an independent view.

Evaluate the performance of companies and their ranking is therefore important that investors and traders on the stock to hold sell and or purchase shares of various companies to take timely decisions. It is natural that investors look for stocks that performed better than other companies in the market. Since users without the benefit of information, opportunities and risks of the investment is not suiTable, provide a ranked list of companies in the Tehran Stock Exchange to a variety of market efficiency and adequacy of information. Indeed, credit ranking will lead to transparency and information asymmetry. Transparency earnings

* Corresponding Author.

report estimating the expected return on equity is effective. Francis et al. (2005) have stated, the lack of transparency in reported earnings caused the financial risk, as a result, investors demand a higher risk premium and consequently will increase the company's cost of equity and conversely and more transparent reports and without ambiguity, increased shareholder confidence and consequently reduce the company's cost of equity, these results can be assessed on company size and annual credit ranking, which is considered to be effective.

Cameron Truong (2014) examines the relationship between return and earnings per share using the criteria of size, cost and trading P / E ratio. The results indicate that these measures are effective on corporate performance. Hou et al. (2013), in a study entitled "Cash flow forecasting, cost and expected return on investment" studied the relationship between the three variables. According to projections based on corporate profits and indicators related to cash flow forecast and the estimated firm's cost of equity emphasis on large sample of firms between 1968 and 2008. They found that predictions are based on profit forecasts in relation to forecast cash flows and from the coefficients on earnings forecasts. Also in relation to the cost of capital and its relationship to the expected return on equity, concluded that the indices related to the expected return is the same as expected stock return. They also confirmed evidence of a significant relationship between the properties of expected returns and cash flow forecasts achieved and it is based on their adjusted cost base. Francis et al. (2008) examined the relationship between voluntary disclosure to the three categories of quality costs and benefits, including the quality of accruals, earnings volatility and absolute amount of accruals. The results show that companies with high earnings quality than firms with low earnings quality, more voluntary disclosure, the company has a voluntary disclosure further lower the cost of capital. Nikolaos et al. (2007) examined the impact of firm characteristics (size, interest coverage ratio, quick ratio and growth) on the capital structure of listed companies on the Stock Exchange of Greece and concluded that the capital structure with an interest coverage ratio, quick ratio of negative growth, but there was a significant positive correlation with the size of the company.

Ghayouri Moghaddam and Mahmoodabadi (2011) stated the credit ranking of financial ability to pay the principal and interest of debt, using data envelopment analysis method: The results include the determination of the credit ranking companies in each ranking from AAA to D. This ranking reflects the company's relative financial ability to pay its debts on time is much closer to D grade companies, financial strength decreases and the closer to AAA, increases. The results were confirmed by the traditional analysis. Asghari Zadeh and Haj Zawar (2011) analyze the optimality of the ranking factors influencing investment decisions in companies. They, in this paper, first identify the factors influencing the decision-making techniques using TOPSIS, listed companies were ranked based on the criteria above, then by providing a way to identify the critical parameters and sensitivity ranking are based on the most sensitive indicators of changes. The results show that five of margin on sales, earnings per share, compared with a profit distribution, increase the number and coverage of financial costs and are sensitive indicators. Among these indicators EPS to cause minimal changes knew the most sensitive indicators. Rajabi (2006), in a study entitled The effect of corporate governance on corporate capital spending, showed that the quality of corporate governance, financial information, ownership structure and board structure has no significant relationship with the company's cost of capital.

3. Hypothesis and model research

By delving into the world of research conducted to answer questions and to achieve the goal of the research, the following hypotheses were formulated:

Credit ranking influences on the firm's cost of equity

Regression model used to test the hypothesis as follows**:**

$$COE_{i,t} = \alpha_0 + \beta_1 RankAEM_{i,t} + \beta_2 size_{i,t} + \beta_3 \mathrm{Lev}_{i,t} + \beta_4 ROA_{i,t} + \beta_5 SG_{i,t} + \varepsilon_{\mathrm{i,t}}$$

4. Research methodology

The study is applicative in term of objective of the research. The purpose of applicative research is developing practical knowledge in a particular field. The study aimed to determine the relationship between variable. For this purpose, according to the scale of measurement variables provided the appropriate indicators (Sarmad, 2002). Study is inductive in which Theoretical Foundations and research background of the library and Internet research is collected and a posteriori and denies or confirms the research hypotheses using appropriate statistical methods, inductive reasoning is used to generalize the results. The nature and content of the study is a correlational study and the final analysis of the collected data and software Eviews7 done.

5. Variables and how to measure them

5.1. Dependent variable

Cost of Equity **(** $COE_{i,t}$ **):** According to Kang et al study (2010), the cost of equity is calculated as follows:

$$COE_{i,t} = [(1-S)V]/[E-(1-p)-(1-S)V]$$

Where $COE_{i,t}$ = is equivalent to the cost of capital. S= Amount of shares sold. V = Value of

convertible shares. E = Expected value of the stock. p = Current stock price.

5.2. Independent variable

Credit ranking **(** $RankAEM_{i,t}$ **):** The company has to calculate the credit ranking companies, we collect data about the points of adjustment; Then formula to calculate the coefficient is calculated for each company, then by sort it according to the highest level, and ranks first rank is calculated next. Class companies that rank below the industry average index is reviewed, as companies have financial constraints were classified (Nice et al., 2011). How to calculate the total score adjustment is now as follows:

Total company score = ((EPS growth rate × EPS growth factor) + (total revenue growth of aggregate earnings growth factor ×) + (× percent growth projected profit margin profit margin growth factor)) / ((EPS growth rate of total revenue growth + profit margin growth factor coefficient)) × 100

Standard deviance EPS + coefficient EPS × percent of EPS +1) + (1 × Total rank) = total modified rank of company×100

5.3. Control variable

1-size of the company ($Size_{i,t}$): is the natural logarithm of the book value of total assets of the company (Sommers, G and Easton, P, 2007).

2. Financial Leverage **(** $\mathrm{Lev}_{i,t}$ **):** According to a study Pontiff, J (2006), changing the company's financial leverage is calculated by the formula:

$$\text{Lev}_{it} = \frac{\text{value of book leverage + value of long − term leverage}}{book value of total asset}$$

3-Return on Asset ($ROA_{i,t}$): To calculate This variable of research Eriotis Nikolaos et al (2007) followed and measured as follows:

$$\text{ROA}_{it} = \frac{\text{current earning profit}}{\text{book value of total asset}}$$

4. The sales growth rate **(** $SG_{i,t}$ **):** growth performance is also a decisive factor. The findings Derof (2005), sales growth are used as an indicator of the value of growth opportunities. Sales growth, calculated using the following formula:

$$SG_{i,t} = \frac{S_{i,t} - S_{i,t-1}}{S_{i,t-1}}$$

$SG_{i,t}$ = Sales growth of firm i in year t. $S_{i,t}$ = Net sales of firm i in year t. $S_{i,t-1}$ = Net sales of firm i in year t-1.

6. Research findings

6.1. Normality test data

The first step is to begin the process of hypothesis testing, data normalization. To check data normality assumptions were formulated as follows:

Data distribution is normal **:** H_0

Data distribution is not normal**:** H_1

To test the above hypothesis test (Jarque- Bera) use the results in Table 1 and 2 are presented.

Table 1: Jarque-Bera-test results for the dependent variable

Dependent variable	Jarque-Bera	Importance level
Cost of equity	5.63891	0.0912

Table 2: Jarque-Bera-test results for residuals

Residuals	Jarque-Bera	Importance level
1st hypothesis	4.413273	0.110073

Due to the level of the test statistic (Jarque-Bera) for the dependent variable is the cost of capital and the remainder is greater than 0.05, this indicates that the distribution of cost of equity and the remainder will follow a normal distribution.

7. The results of hypothesis tests

According to this hypothesis, we expect credit ranking influences on the firm's cost of capital.

According to the results of hypothesis tests in Table (4), the level of statistical significance F-limer (0000/0) below the acceptable level of error (5%) and Therefore the panel (Panel data) to the data fusion method (Pooled model) preferred model for panel data regression method is applied. Also, due to the significant level statistic H-hausman (0000/0) was less than acceptable level of error (5%) and regression with fixed effects regression with random effects is preferred. T-test for the possibility of constant and variable rate Credit ranking, company size, financial leverage and asset returns in cost of equity is less than 0.05, therefore, the estimated coefficient is statistically significant variables of t-test for differential growth rates and the possibility of selling the company's cost of capital is greater than 0.05, Therefore, the relationship is not statistically significant. Durbin- Watsonis among1.5 to 2.5, and then we can conclude that there is no correlation between the variables in the problem. Determining factor model indicates that 18 percent of the cost of capital is identified by the variables in the model. Since the probability statistic F (0.000) is smaller than 0.05, CI 0.95 significance of the explanatory power off regression model is confirmed.

Table 3: The results of the first hypothesis

$COE_{i,t} = \beta_0 + \beta_1 RANKAEM_{i,t} + \beta_2 SIZE + \beta_3 LEV + \beta_4 ROA + \beta_5 SG_{i,t} + \varepsilon_{i,t}$					
Variables		Standard error	Estimated coefficient	T probable test	T statistic
Intercept	β_0	0.000104	-0.999168	0.0000	-9626.143
Credit rank	RANKAEM	2.23E-05	6.31E-05	0.0048	2.832768
Size of company	SIZE	7.59E-06	2.21E-05	0.0038	2.908143
Financial leverage	LEV	6.64E-05	-0.000202	0.0025	-3.038287
Return On Asset	ROA	8.52E-05	-0.000844	0.0000	-9.900433
Sale growth	SG	6.18E-12	9.66E-12	0.1182	1.564448
Statistic F-limmer	Probability		20.038095		0.000
H-hausman statistic	Probability		55.394801		0.000
Statistic F	Probability		9.237849		0.000
Coefficient determination	R Squar		0.181766		
Modified coefficient determination	Adjusted R Square		0.175393		
Durbin-Watson			1.548336		

8. Conclusion

Validation and credit ranking agencies have a vital role in the development of their financing. Because of these agencies equitable distribution of resources at the community level, the speed and efficiency in the allocation of funds to enhance transparency and public confidence raises, and the tastes of the allocation of funds human error eliminates reduce corruption and rent seeking information, financial markets develop, expand and enrich gives credit culture, Finally, the reduction of financial crime and improve the economic system to improve security and general welfare of society. In this study, w also seeks to influence the credit ranking of the companies listed on the cost of equity. The results of the analysis indicate that the first hypothesis is that the credit ranking has a direct impact on firms' cost of capital. According to the credit ranking of the investment can be aware of the risk of spreading the cost of capital increases with the increase of Credit ranking. These results are consistent with findings brave Moghaddam and Mahmoodabadi (2011), Asghari Zadeh, and Haj Zawar (2011), Rajabi (2006), Hou et al. (2011) Cameron Truong (2011) and Francis et al. (2008), but the findings, Nikolaos et al (2007) is not aligned.

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