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Studying the relationship between information risk and capital cost by stock returns at listed companies in Tehran's stock exchange

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Abstract

This research aims to study the relationship between the quality of accruals as the information risk index by capital cost and stock returns. The population of the research is, according to the subject and its application, all the active companies of Tehran's stock exchange market.
In this research, the number of selected samples was 90 companies. The data of this research is collected as one year by using the information of listed companies in Tehran's stock exchange market since the beginning of 2007 until the end of 1393 and the results of hypothesis testing are presented. In this research, for testing the hypothesis of the research, the multiple regression analysis by pooled data method has been used with fixed effects. The results showed that there is significant reverse relationship between qualities of accruals by stock returns. Also, the relationship of equity of stockholders and the cost of debt with stock returns is direct.

Keywords: the quality of accruals, information risk, capital cost, stock returns

Introduction

According to theoretical foundations of financial reporting, the primary purpose of financial reporting is to help investors in financial decision making. Financial decisions are about optimal allocation of resources, and one of the most important financial decisions is the decision regarding investing in a stock market which by its own is a function of presented information by investment companies. The capital market is one of the fundamental pillars of growth and economic development in any country. In this market, the more the quality of accounting information, the better the investment decision making. In logical decisions, the more accurate information is more important and investment decision makings are dependent on accounting information. The direction of determining proper financial resources, should specify the cost of financing and determine the effects of financing on risk and efficiency. Investors base their decisions on the balance between risk and efficiency. They are interested in estimating the expected future return of their own investment by means of reported information by company and other evidence.

The more the quality of presented information, the less the ambiguity in expected return and the risk of information will decrease. It is expected that the information with higher quality has desired effect on investors' expectation from the expected return (capital cost). Meanwhile, investors in comparison with other functional indexes (such as dividends, cash flows, and interest changes) are more dependent on the information about the profit (Bidel et al, 1995).

Capital cost is, in fact, the investors' expected rate, and this rate of expected return is determined by considering the risk of the company. Some of the recent studies show that different features of profit can help evaluating company's risk. Specifically, when the profits be smoothed using profit component factor becomes more important; because separating the profit into two parts pecuniary and commitment has more explanatory power than the number of overall profit. Franciss et al (2005) used the information of the United States in which accruals with low quality as the representative of information risk had high capital cost and the accruals quality factor is a priced risk factor. Kim and Kiu (2010) introduced the quality of accruals as the priced risk.

Musili et al (2013) showed that higher information risk which is due to lower quality of accruals and or lower quality of disclosure results in higher stock return. They also by studying the relationship between quality of accruals and disclosure quality showed that there is a positive relationship between the quality of accruals and disclosure quality and these two factors show the changes in the similar set of portfolios; so they contain similar information are considered to be superseded of each other (hypothesis 2).

Rezaei and Veysi Hesar (2012) investigated the effect of information risk on the cost of gross debt and the cost of ordinary adjusted share, the results have shown that there is a significant relationship between the quality of accruals and capital cost. In other words; capital cost of companies with low-quality accruals is more than companies with high accruals. Also, there is a significant relationship between accruals quality components and capital cost but it can't be said that the effect of an inherent component of accruals on capital cost is more than its optional component.

Musawi et.al (2013) in is a research with the aim of studying the relationship between accounting information quality, delay of stock price and future returns of the stock. While the reaction of the market to information is slow, it is said that there is a kind of between presenting information and reflecting them on the stock price of the companies. In order to study the mentioned relationship, two hypotheses are developed. Testing of the first hypothesis has been carried out using combined data method and the second hypotheses using panel data with fixed effects. The method of implementing this research is quasi-empirical, the statistical population of this research is listed companies of Tehran's stock exchange market, and statistical sample includes 78 companies. In order to estimate research models, the information of years 2004 to 2010 of sample companies have been used. The results of the hypotheses testing showed that by raising accounting information quality, the delay of companies' stock price has decreased and also by increasing stock price delay, the future stock return of the companies will decrease.

According to the importance of mentioned cases in this research, the relationship between information risk, capital cost and stock return in listed companies in Tehran's stock exchange market have been dealt with.

Research hypotheses

The hypotheses of this research have been developed according to the study of Safdar and Yan (2016):

1) There is a negative relationship between accruals quality and stock return.
2) There is a positive relationship between capital cost and stock return.

Methodology

This study is applied in terms of research, as the results of it can be used in decisions of managers, investors and analysts. Also, from the view of how to infer research hypotheses, it is placed in the group of descriptive-correlation research. For discovering the relationships between the variables of the research, regression technique has been used as a deductive argument. This study has been varied out according to the information of the listed companies of Tehran's stock exchange market. In current research, the information of years 2007 to 1393 have been used. The statistical population of this study is all the listed companies in Tehran's stock exchange market which their number is 449.

Variables of the research

Dependent variables

Stock's annual return:

Stock's annual return is a set of incomes which during a financial course is accrued to the stockholder as follows:

1) Price change: the changes of the price of a stock during a course, is as one of the key factors of the return which is called as the profit or loss of the capital.
2) Dividend per share: which is given to the shareholders after taxing and is called the dividend.
3) The advantages of priority of buying stocks: shareholders of the LLP companies have priority over others in buying new shares which are issued after a capital increase by the company, and can within deadline use their priority right. This right has exchange value.

The meaning of stock's annual return is the changes of the price of the first period and last period of the stock plus other incomes resulted from buying share such as advantages of priority right, dividend and profit share, divided by the price of the stock in the first period (Rasa'ian and Asghari, 2007).

Total efficiency to the last (first) price of the stock=$\frac{dvantages\ of\ priority\ right+gross\ dividend\ of\ each\ sh\ \ re+the\ price\ difference\ of\ the\ sh\ \ re}{4}$

If in the denominator the price of the beginning of the fiscal year is entered, the total efficiency of this year is obtained. But if the price of the end of the period is entered it is assumed that also in the coming year these benefits are expected for this share and in fact is a kind of prediction of the future efficiency of the above shares. In this study, efficiency is extracted from the " Rahavarde Novin" software.

Capital cost:

Capital costs are the minimum rate which the company must obtain in order to the expected efficiency of the investors be provided in the company (Peyno, 2002). The components if the capital costs are as follows:

a) $CostDebt_{i,t}$: cost debt, is a cost that the company undertake for providing money through getting loan and or issuing long- term bond, in this study the cost debt results from the ratio of the company's interest cost in year t divided by the average of interest-bearing debts of the year t and t-1 .
b) CostEquity: cost equity includes the cost of ordinary shares, outstanding shares and accumulated share and is normally a return rate which investors want from the company that in this study is calculated according to the ratio of earning to price (E/P).

Independent variable

The quality of Accruals: quality of accruals is used as the representative of information risk. The argument of Francis et al (2005) is such that the part of income (profit) of accruals is the main source of cash flow uncertainty and compared to the other traits is an available criterion for information risk. For calculating the quality of accruals Daicho and Dichov method (200) which was modified by Francis et al (2005) are used which the remaining of this model ($\epsilon_{i,t}$) are considered as the quality of accruals (AQ).

$$TCA_{i,t}=\alpha_0+\alpha_1 CFO_{i,t-1}+\alpha_2 CFO_{i,t}+\alpha_3 CFO_{i,t+1}+\alpha_4 \Delta Revi,t+\alpha_5 PPE_{i,t}+\varepsilon_{i,t}$$

In this model:

$TCA_{I,t}$: is the current accruals of company i in year t which net profit plus depreciation minus cash flow is used.

$$TCA_{i,t}=NetIncom_{i,t}-CFO_{i,t}+Depricition_{i,t}$$

$CFO_{i,t}$: is the operational cash flows of company j in year t, indexes t-1 and t+1 indicate the year before and the year after respectively.

$\Delta Rev_{I,t}$: the net selling changes of company j between year t and t-1

$PPE_{i,t}$: the value of property and the machinery and supplies of company j in year t

For testing hypothesis 1 and 2 namely the relationship between capital cost (the cost of equity and cost of debt) the quality of accruals, as the representative of information risk with considering control variables Balachandran and Mehanram model (2011) is used.

$$Sre_{i,t}=\alpha_0+\beta_1 AQ_{i,t}+\beta_2 CostDebt_{i,t}+\beta_3 CostEquity_{i,t}+\beta_4 Leverage_{it}+\beta_5 Size_{i,t}+\beta_6 Growth_{i,t}+\varepsilon_{i,t}$$

That in which:

$Sre_{i,t}$= annual efficiency of the stock

$CostDebt_{i,t}$: cost of debt

$CostEquity_{i,t}$: cost equity of shareholders

$Leverage_{i,t}$: Financial Leverage

$Size_{i,t}$: size of the company

$Growth_{i,t}$: opportunities of the company growth

Findings of the study

Testing research hypotheses

In combined regression models, at first for determining the method of applying combined data and specifying those being homogeneous or heterogeneous Chow test and F-Limer statistics are used. The hypotheses of these are as follows:

$$H_0=Pooled\ Data$$

$$H_1=Panel\ Data$$

Hypothesis H0 is on the basis of the lack of individual effects imperceptible and hypothesis H1 is based on the basis of the existence of imperceptible individual effects. If hypothesis H0 is accepted, it means that the model lacks imperceptible individual effects, so it can be estimated using compilation model, but if hypothesis H1 is listed it means that in the model of individual effects there are imperceptible individual effects. While the results of this test are based on the application of the data as the panel data, it is required that for estimating research model one of the fixed effects models (FEM) or random effects (REM) be used. For selecting one of these two models Haussmann Test must be carried out.

H0=Random Effect

H1=Fixed Effect

Hasnan's zero hypothesis is based on the appropriateness of random effects model for estimating panel data regression model.

Test of first and second hypothesis

First hypothesis: there is significant relationship between accrual quality as information risk index with stock efficiency in listed companies in Tehran's stock exchange market.
Second hypothesis: there is significant relationship between capital cost with stock efficiency in listed companies in Tehran's stock exchange market.
At first for determining combined data method and specifying them being homogeneous or heterogeneous Chow test and F Limer statistic is used. The results of this test are brought in Table 1.

Table 1: the results of Chow test of the first and second hypothesis

Hypothesis zero	Statistic F	Sig. level	The result of Chow test
Hypothesis zero is failed	0.04	1.315	Using compilation data model

Table 2: the results of Haussmann test of hypothesis second and third

Zero hypothesis	Significance level	Chi-Square statistics	Test result
Using random effects model	0.24	7.852	Hypothesis zero is not failed

According to tables 1 and 2 and the results of Chow test in research model, with regard to this that the quantity of test F statistics is more a critical quantity (also the quantity of possibility value is less than 0.05), the zero hypothesis of this test according to similarity of intercept in all periods in favor of opposed hypothesis according to this that using FE is proper, has failed. Also, according to Haussmann test results, it is noticed that zero hypothesis doesn't fail in favor of opposed hypothesis. So a method which is selected for estimating our desired function is random effects method.
The model of the first and second hypothesis is as follows:

$$Sre_{i,t} = \alpha_0 + \beta_1 AQ_{i,t} + \beta_2 \mathbf{CostDebt}_{i,t} + \beta_3 \mathbf{CostEquity}_{i,t} + \beta_4 Leverage_{it} + \beta_5 Size_{i,t} + \beta_6 Growth_{i,t} + \varepsilon_i$$

As it is seen in table 3, the quantity of significace level for quality of accruals is an indicator of significance of this variable in the model. So the first hypothesis based on this " there is a significant relationship between accruals quality as information risk index and with stock efficiency in listed companies in Tehran's stock exchange market" is confirmed. The relationship of accruals quality with stock efficiency is negative and reverse. Namely, for one unit increase in accruals quality provided that other variables are controlled, the dependent variable respectively is reduced by E-5 2.85 unit. Also, the quantity of significance level for the equity of shareholders and debt cost suggest their significance in the model. So the second hypothesis based on this that says "there is a significant relationship between capital cost with stock efficiency in listed companies in Tehran's stock exchange market" is confirmed. The relationship of shareholders equity and debt cost with stock efficiency is direct. The value of determination factor is 0.82 namely 82 percent of dependent variable changes by independent variables is controlled and stated. This index shows the value of relationship intensity between variables. The values of Watson-Durbin statistics is not so much different with value 2. The values close to 2 suggest no self-correlation of the remaining that shows one of the other regression hypothesis.

variable	Coefficients	Standard deviation	T-statistics	Sig. level
Fixed value	23/96	18/95	1/264	0/206
Quality of accruals	5E--2/85	6E-6/62	-4/3	0/000
Shareholders' equity	3/533	3/31	4/027	0/000
Debt cost	1/99	0/623	3/194	0/001
Fiscal leverage	5/344	4/529	1/179	0/238
Company size	-1/843	1/386	-1/329	0/184

Company's growth opportunity	11E--4/7	10E-2/17	-0/216	0/828
F Statistics	39/82			
Possibility of F-statistics	0/000			
Determination coefficient	0/821			
Adjusted Determination coefficient	0/818			
Watson-Durbin statistics	1/87			

Results and conclusion

According to the results of t-statistics and significance level, there is significant relationship between accruals quality as information risk index with stock's efficiency in listed companies in Tehran's stock exchange market. In this way, this first hypothesis of the study is confirmed. On this basis, if relevant information about reported previous profits (profits with quality) has revealed precise information about company's future cash flow, the reaction of the market to the change of the dividend of the companies that have high-profit quality, will be less. So, the relationship between profit quality and the reaction of the market to increase (decrease) of the dividend, is predicted to be negative (positive) and the efficiency of the companies can be affected by the quality of accruals as an information risk index (Dasgir and Rastgar, 2011).

According to the results t-statistics, and significance level, there is significant relationship between cost equity and debt cost in stocks if the listed companies in Tehran's stock exchange market. In this way, the second hypothesis of the study is confirmed. Companies often consider the capital cost for their own internal decision makings, with this argument that counting capital cost is taken into account as a normal affair. Because if they don't act such, the management of the company would not be able to have an effective planning and also would lose his own control. The concept of capital cost is, in fact, the minimum return rate that company obtains in order to provide the expected efficiency of the investors and retain the value of the stock market. Since the financial structure of the companies usually includes different resources, in calculating the well-proportioned average of capital cost, all the resources are considered. According to this that different resources of company financial provision have different risks for investors, so each of this groups, want an amount of return rate which is befitting the relevant risk (Karbalaei, 2011).

As mentioned earlier, the results of the study hypothesis showed that information risk has an effect on the company's stock efficiency. In this way, it is suggested to major shareholders of listed companies in Tehran's stock exchange market that by means of better monitoring tools that have compared to other investors, apply better monitoring on the information of the companies owned by their own. This work can be done by means of professionals in different fields.

According to the relationship between interests cost as the debt cost measuring index and stock efficiency, it is suggested that investors in their own decisions for investing use the information of interest rate and interest coverage ratio.

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