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STUDY OF RELATION BETWEEN CAPITAL EARNINGS, STOCK ILLIQUIDITY, AND ABNORMAL STOCK RETURN IN IRAN'S CAPITAL MARKET

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ABSTRACT

Stock liquidity is one of the factors for determination of expected returns of investors. A factor that helps determination of liquidity leads to suitable decisions of investors. The goal of this research is studying the relation between capital earnings, stock illiquidity, and abnormal stock return in Iran's capital market. 126 companies were selected by Systematic Deletion Method. Totally 630 observations from 2009 to 2013 were used. The statistical method of combined linear regression was used and data was analyzed by EVIEWS7 software. The results show that there is a relation between capital earnings and abnormal stock return and between stock illiquidity due to capital earnings and abnormal stock return; but there is no significant relation between stock illiquidity and abnormal stock return.

Keywords: Capital earnings, stock illiquidity, abnormal stock return, growth opportunity.

INTRODUCTION

Taking logical decisions related with performance evaluation of an economic agency directly, and performance evaluation requires recognition of measures and indices classified in two financial and non-financial indices collections. Financial criteria, such as financial leverage ratio, predominate for their features including quantitiveness, objectiveness, practicality, and tangibility (Bell & Tabor, 2013). Funding and investment decisions of companies are taken with foresight. For funding decisions, companies use present funds to be able to fulfill their obligations against financiers (Cameron, 2011). Therefore, this problem is suggested that how companies do proceed to financing to affect earnings, investment efficiency, stockholders' returns, and capital earnings.

There are different factors affecting funding and capital structure of companies including activity, assets, and industry type. For instance, a company's activity nature may provide input cash flows easily; in this case, using debts instead of stocks is cheaper and increases company earnings.

Information asymmetry in capital market leads to non-transparency and occurrence of transactions for obtaining earnings or preventing losses for special persons, increment of transaction costs, weak market, low liquidity, and generally decrement of transactions and optimum performance in society. Today, abnormal stock returns so that increase companies values are from ambiguities against managers of commercial agencies. The results of this research may help managers of selected companies for selection of stock liquidity methods and their effects on capital earnings increment. Investors try to obtain more earnings and to decrease their investment risks. Therefore, they proceed to form portfolios to decrease their risks by investment diversity or to obtain most return for a certain risk level (Wang & Xiou, 2004). Thus, stock liquidity risk is removed by investment portfolio (Lesmond, 2005). Selection of an optimum portfolio requires estimation of two factors of risk and security return, which are affected from stock liquidity factor. There are many models for risk evaluation and portfolio return measurement.

Test results indicate that the factors suggested by these models cannot describe relation between risk and abnormal portfolio return. Therefore, the idea of combining these factors was suggested. The most complete model in this regard is tri-factor Fama and French Model (Goyenko et al., 2009).

HISTORY OF RESEARCH

Omaima et al. (2014) to study the value and credit of compulsory and voluntary disclose in capital market concluded that after controlling variables such as company size and profitability, compulsory disclose had a negative and significant relation with value. Further, although voluntary disclose had a positive relation with value, but it was not significant.

Bell & Tabor (2013) studied the ability of financial variables of liquidity ratio and three factors of size, growth, and return to anticipate audit reports conditions. Their results showed that financial ratios had more ability for anticipation of conditional audit reports. Riddick & Whited (2013) studied sensitivity of cash flows of companies towards liquidity. Their findings indicated negative sensitivity of cash flow towards liquidity. However, there was an empty space for control variables such as company size, capital expenditures, non-cash circulating fund, and short-term debt. Chang (2012) studied the effects of major variables system on stock return. He found that interest rate and profit return played important roles in anticipation of conditional variance, and out-of-sample function was considerably decreased when we ignore the effects of these two variables on variability. In addition, these three variables played no role in anticipation of temporary probabilities.

Chen et al. (2011) studied relation between earning management and investment opportunities. They examined the role of motivation and disowning of controlling stockholders as mechanism of corporate leadership system. Their findings showed a positive and significant relation between earning management and investment opportunity. Also, cash flow rights of controlling stockholders had negative relations with abnormal net accruals. By their views, in companies with many investment opportunities and excess deviation between cash flow right and control right, earning management is stronger.

Cameron (2011) studied relation between abnormal return and income of each share by company size, transactions costs, and P/E ratio. The results showed that these criteria affected companies' performances.

Chang (2010) studied corporate sovereignty and liquidity experimentally. He showed that there was a positive correlation between corporate sovereignty and share liquidity all the times.

Zayene&Jilani (2010) studied the effects of investment opportunities on earning management through short-term and long-term accruals. Their results showed that earning management increased through short-term accruals in higher levels of investment opportunities, and investment opportunities level increasingly affected short-term discretionary accruals.

Ken et al. (2010) studied relation between accruals and future market return. Their results showed that discretionary accruals had positive relations with future market return. However, anticipating power of accruals had strong relations with factors such as selection of time period, return criteria, estimation methods, commercial situation, risk indices, and used models. Izadinia&Nazarzadeh (2013) provided suitable criteria for measurement of earning quality and studies its relation with stock return. They considered 10 criteria for earning quality and divided quality of companies' earnings into three categories of high, average, and low. Their results showed that there were relations between real stock return and earning quality in high, average, and low levels.

Karimi et al. (2013) studied the effect of financial leverage and growth opportunities of companies on investors' decisions. Their findings showed that there was a negative and significant relation between leverage and investment decisions. In other words, companies with higher debt had little investment. Also, their results indicated lack of a significant relation between growth opportunities and investment decisions. Esma'ilzadehMaghari& Ahmad Sherbafi (2012) studied relation between discretionary disclose level and stock return rates of investment companies. They found that although the relation between these two variables were positive for many years, there was not a significant relation between disclose level for providing financial statements and stock return in investment companies.

Panahian&Sadeghi (2011) studied the effect of inference of transparency of financial statements on clarification of investors' behaviors in Tehran Stock Exchange and Taiwan Stock Exchange. Their results showed that improvement of transparency of financial statements in Tehran Stock Exchange increased public trust and investors' activities.

Kelich (2011) studied the effect of trade groups in investment and financing limitations in Stock Exchange. His results showed that membership in trade groups affected investment behaviors of companies and removal of financing limitations.

ASSUMPTIONS

The assumptions of this research are:

Main assumption: There is a significant relation between capital earnings, stock illiquidity, and abnormal stock return in Iran's capital market.

Sub-assumption 1: There is a significant relation between capital earnings and abnormal stock return in the covered companies.

Sub-assumption 2: There is a significant relation between stock illiquidity and abnormal stock return in the covered companies.

Sub-assumption 3: There is a significant relation between stock illiquidity due to capital earnings and abnormal stock return in the covered companies.

METHODOLOGY

This is an applied research by goal and a correlational one by method and nature. Data was gathered from library, references, journals, internal and external books, and internet. The statistical society includes all listed companies in Tehran Stock Exchange. 126 companies were selected from 2009 to 2013. Data was analyzed by EVIEWS7 software and the assumptions were evaluated by t test and probability. The variables of the present research are:

a) Abnormal stock returns (dependent variable) (AR_{it}):

This is the difference of company return rate and market return. The following model is used to determine this variable:

$$AR_{it} = R_{it} - R_{mt} \quad (1)$$

In which, R_{it} is stock return rate, which is calculated for the covered companies as follows:

$$R_{it} = \frac{(P_{it} - P_{it-1}) + DPS + (P_{it} - 1000)A + P_{it}B}{P_{it-1}} \times 100 \quad (2)$$

In which,

P_{it} : Stock price at the end of year t

P_{it-1} : Stock price at the end of year t-1

DPS: Cash stock earning by number of stocks at period start

A: Capital increment percent from cash product

B: Capital increment percent from accumulated profit

R_{mt} : Return rate of market portfolio

In this research, R_{mt} is calculated by stock index of listed companies in Tehran Stock Exchange by equation (3):

$$R_{mt} = \frac{TEPIX_t - TEPIX_{t-1}}{TEPIX_{t-1}} \times 100 \quad (3)$$

In which,

R_{mt} : Return rate of market portfolio

$TEPIX_t$: Bourse index (cash price and return) at the of year t

$TEPIX_{t-1}$: Bourse index (cash price and return) at the of year t-1

b) Capital earnings (independent variable) (Gd_{it}):

This is obtained by equation (4):

$$Gd_{it} = \frac{\text{Earning ratio}}{\text{Book values of total assets}} \quad (4)$$

ROA_{it}: This variable calculated earning for each invested dollar and shows company manager's efficiency ratio by application of all existing resources:

$$ROA_{it} = \frac{\text{Profit \& loss before tax}}{\text{Book value of total assets}} \quad (5)$$

Stock illiquidity ($ILIQM_{it}$): According to Amihud (2002), stock liquidity is calculated by equation (6):

$$\text{Stock liquidity} = \text{average of (ROS / transaction volume)} \times 1,000,000 \quad (6)$$

A factor is calculated after calculating the above formula for each company. Then ranks are found by sorting the factors. The higher liquidity factor is a ratio that shows liquidity factor than other companies. Stock liquidity is calculated by equation (7) (Amihud, 2002):

Liquidity rank

$$= \frac{1}{\frac{1}{\text{No. of buyers}} + \frac{1}{\text{No. of tr.}} + \frac{1}{\text{No. of tr. d.}}} + \frac{1}{\frac{1}{\text{No. of tr. s.}} + \frac{1}{\text{Tr. volume}} + \frac{1}{\text{Day value av}}} \quad (7)$$

In which,

tr.: transaction

tr.d. transaction days

tr.s. transaction stocks

Stock illiquidity is calculated by equation (8):

$$SILL = 1 - SL \quad (8)$$

In which,

SILL: Stock illiquidity

SL: Stock liquidity

Illiquidity due to capital earnings (Y_{it}): By Ben-David and Hirshleifer (2012), Y_{it} is calculated by comparing SILL and capital earnings:

$$y_{i,t} = ILIQM_{i,t} * Gd_{i,t} \quad (9)$$

c) Control variables

- 1. Company size ($INSIZE_{it}$):** It is equal to natural logarithm of book value of total assets (Chen et al.).
- 2. Growth opportunity (HML_{it}):** It is equal to market value of equity to stock book value.

ANALYSIS OF ASSUMPTIONS

F Limer Test

The null assumption of F Limer Test states that intercepts of all sections are the same, which is shown in table 1. According to Table 1, probabilities for F Limer tests for all assumptions are less than 5%, so tablet method is used. Hassman Test was used to select between Fixed Effects model and Random Effects. Since probabilities for assumptions 1 and 3 are less than 0.05, and for assumption 2 is more than 5%, then Fixed Effects is used for assumption 1 and 3, and Random Effects is accepted for assumption 2.

Table: 1. Results of F Limer Test for auxiliary models

Model	Test	Statistic	p-value	Result
Model 1	F Limer	5.772298	0.0000	Tablet method
	Hassman	1.465980	0.0261	Fixed effects
Model 2	F Limer	4.644816	0.0000	Tablet method
	Hassman	1.851084	0.1427	Random effects
Model 3	F Limer	3.562482	0.0000	Tablet method
	Hassman	7.362403	0.0067	Fixed effects

Summary of analysis

Sub-assumption 1

There is a significant relation between capital earnings and abnormal stock return in the covered companies.

According to Table 2, probabilities of t test for fixed factor and variable factor of capital earnings are less than 5%, thus the estimated factor is significant statistically. Therefore, sub-assumption 1 is accepted

by confidence of 95%. Determination factor shows describing power of independent variables, which can describe 16% of changes of dependent variable. F statistical probability indicates that total model is significant and there is a significant relation between capital earnings and abnormal stock return. The regression model is:

$$AR_{it} = -1.186908 + 0.000157 Gd_{it} + \varepsilon_0 \quad (10)$$

Table: 2. Results of sub-assumption 1

Variable	Estimated factor	Standard error	t test statistic	t test probability
α_0	-1.186908	0.397942	-2.982616	0.0030
Gd_{it}	0.000157	0.000604	2.593773	0.0098
Determination factor	Adjusted det. Factor	F statistic	F probability	Durbin-Watson
0.161624	0.149499	13.32955	0.000000	1.563128

Sub-assumption 2

There is a significant relation between stock illiquidity and abnormal stock return in the covered companies. According to Table 3, probabilities of t test for fixed factor and variable factor of stock illiquidity are less than 5%, thus the estimated factor is not significant statistically. Therefore, sub-assumption 2 is not accepted by confidence of 95%. Determination factor shows describing power of independent variables, which can describe 9% of changes of dependent variable. F statistical probability indicates that total model is not significant and there is not a significant relation between stock illiquidity and abnormal stock return.

Sub-assumption 3

There is a significant relation between stock illiquidity due to capital earnings and abnormal stock return in the covered companies. According to Table 4, probabilities of t test for fixed factor and variable factor of stock illiquidity are less than 5%, thus the estimated factor is significant statistically. Therefore, sub-assumption 2 is not accepted by confidence of 95%. Determination factor shows describing power of independent variables, which can describe 14% of changes of dependent variable. F statistical probability indicates that total model is significant and there is a significant relation between stock illiquidity and abnormal stock return. The regression model is:

$$AR_{it} = -1.040508 - 0.083025 ILIQM_{it} + \varepsilon_0 \quad (11)$$

Table: 3. Results of sub-assumption 2

Variable	Estimated factor	Standard error	t test statistic	t test probability
α_0	0.8623	0.34826	2.5632	0.0126
ILIQM _{it}	0.000352	0.007263	2.36982	0.0611
Determination factor	Adjusted det. Factor	F statistic	F probability	Durbin-Watson
0.09238	0.07145	10.23458	0.0526	1.8236

Table: 4. Results of sub-assumption 3

Variable	Estimated factor	Standard error	t test statistic	t test probability
α_0	-1.040508	0.397796	-2.615681	0.0092
ILIQM _{it}	-0.083025	0.040328	-2.058762	0.0400
Determination factor	Adjusted det. Factor	F statistic	F probability	Durbin-Watson
0.142339	0.135309	20.24739	0.000000	1.644814

CONCLUSION

The goal of this research is studying the relation between capital earnings, stock illiquidity, and abnormal stock return in Iran's capital market. The results show that there is a relation between capital earnings and abnormal stock return, and between stock illiquidity due to capital earnings and abnormal stock return; but there is no significant relation between stock illiquidity and abnormal stock return. Regarding to the assumptions, it is proposed to notice to company size and growth opportunity variables in logical decisions and other economic evaluations. Also, investors can find a capital earnings and abnormal stock return criterion for each company by referring to the financial statements of that company. Future researchers can study stock illiquidity of holding and investment companies and their subordinate companies, especially bourse companies.

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