

## **THE ROLE OF DEBT MATURITIES ON RELATIONSHIP BETWEEN FINANCIAL REPORTING QUALITY AND INVESTMENT EFFICIENCY**

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### **ABSTRACT**

The purpose of this study is to examine the role of debt maturities on relationship between financial reporting quality and investment efficiency at listed companies in Tehran stock exchange. In this regard, the numbers of 106 companies were selected with deletion method as sample of research. This study is applied and its research method is correlation and post facto. We use Dechow and Dichev (2002), Kothari *et al.*, (2005) and McNichols and Stubben (2008) for measuring the financial reporting quality and also, we used to Biddle *et al.*, (2009) model for measuring the investment efficiency. In this study, financial leverage, firm size, tangible assets, growth opportunities and dividend selected as control variables. Data analysis and hypothesis testing perform with using SPSS and Eviews software. The results that show the financial reporting quality and short – term debt maturities have any effect on investment efficiency. Also, short – term debt maturity does not affect the relationship between financial reporting quality and investment efficiency.

**Keywords:** *Financial Reporting Quality, Debt Maturity, Investment Efficiency, Information Asymmetry*

### **INTRODUCTION**

Considering the evolutions that have occurred in the world today, especially in developing countries that are faced with numerous threats, these countries to solve their economic problems require strategies for better use of their natural resources and wealth. In this regard, one of the most important strategies is investment development. Due to resource constraints, in addition to the issue of investment development investment efficiency increasing is very important issues. On the one hand investment efficiency requires that to be prevented from the resources use on activities that are more favorable than it is (Avoid over investment) and on the other hand, resources are directed to activities that need more investment (Avoid low investment) (Biddle *et al.*, 2009). The value of information in economic development and investment is unanimity of economic scientists. Financial reports are one of the sources of information that is expected to play an effective role in the investment development and increase its efficiency. In this regard, teachers and professionals seeking to improve the quality of accounting reporting as a tool to meet the needs of quality of their community have a responsibility to pay. For example, according to the theoretical concepts of financial reporting objective of financial statements is to provide summarized and classified information about the financial position, financial performance and financial flexibility of the business. For a wide range of financial statements users in making economic decisions would be helpful. Achieving this goal requires that the information the first place, to be relevant and reliable, and the second place, to be understandable and comparable (Modares and Hesarzadeh, 2008).

Theoretical models (Myers, 1977; Child *et al.*, 2005) predict that plasticity in debt short – term maturities is useful for improving inefficient of investment. Accordingly, the main objective of the present study is the combination of these two mechanisms, and analyzes the relation- ship between financial reporting quality and debt maturities with investment efficiency of the listed companies in the Tehran stock Exchange. Therefore this research will expand the studies conducted in Iran by examining the role of debt studies conducted in Iran by examining the role of debt maturity in the relationship between financial reporting quality with investment efficiency and it answer to this question: How is the role of short - term debt maturing in the relationship between financial reporting quality and investment efficiency?

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### **Theoretical Bases and Research Background**

One of the objectives of financial reporting is to facilitate the efficient allocation of investment. One important aspect of this role is to improve the investment decisions. Past researches show that improving financial transparency decrease the investment potential problems that are more than or less than enough (Biddle and Hilary, 2006; Hope and Thomas, 2008). Similarly, Stein (2003) states that most companies face with inappropriate investment or over investment risk it effect on the performance of investment companies potentially. The most common affective, the most common affective factors on investment performance factors on investment performance may be caused by information asymmetry and agency problems. Past literature suggests that financial reporting and disclosure issues reduce problems of over investment and less investment and lead to rise investment efficiency. There are several mechanisms that shows the quality of financial reporting can play such a role first high quality of accounting information can reduce information asymmetry between investors and improve liquidity in the capital markets. Thus, the quality of financial reporting can reduce financing costs which are caused by inconsistent choice and facilitate financing of long – term projects with high returns and in this way it helps the investment recovery of company. second, according to the findings of Biddle *et al.*, (2009) quality of financial reporting plays a vital role in reducing agency problems. Therefore, if high quality of financial reporting reduces agency problems, could help improving of investment efficiency with increasing the ability of shareholders control to managers. Since increasing the ability of shareholders control to managers, improve the project selection and reduce the financial provision costs- (Chen *et al.*, 2011). Gomariz and Ballesta (2013) examined the relationship between the quality of financial reporting, debt maturity and investment efficiency between the years (1998-2008) in Spanish companies. The results show that the quality of financial reporting reduces the over investment problems. Similarly, short –term debt maturities could improve the investment efficiency and could reduce the over investment and less than enough investment problem. In addition, their results showed that the quality of financial reporting and debt maturities are mechanisms that play a role in improving the degree of investment efficiency. Therefore, companies that use less short –term debts, financial reporting quality improves investment efficiency. Saghafi *et al.*, (2012) investigated quality of accounting information, over investment and free cash flow in Tehran's stock Exchange between 2001-2010. The results show that as much the accounting information quality of companies to the higher, over investment appears less. And this relationship of companies with higher free cash flows occurs more. And impact of reducing of over – investment is higher through accounting information quality in these companies.

### **The Research Hypothesis**

In this study, there are 7 hypotheses. To measure the quality of financial reporting, was used from 3 models: Dechow show and Dichev (2002), Kothari (2005) and McNichols and Stubben (2008). Thus, the research hypothesis is tested in each of the models separately.

The first main hypothesis: financial reporting quality affects.

The first sub – hypothesis: Quality of financial reporting (based on Kothari *et al.*,) affects on investment efficiency.

The second sub – hypothesis: the quality of financial reporting (based on Dechow and Dichev) affects on investment efficiency.

The third sub – hypothesis: the quality of financial reporting (based on mac nickels) affects on investment efficiency.

Second main hypothesis: debt maturity affects on investment efficiency.

The fourth sub – hypothesis: the short – term maturities affect on investment efficiency.

The third main hypothesis: debt maturity affects on relationship between financial reporting quality and investment efficiency.

The fifth sub – hypothesis: debt maturity affects on relationship between financial reporting quality and investment efficiency (based on Kothari *et al.*, model).

The sixth sub – hypothesis: debt maturity affects on relationship between financial reporting quality (based on Dechow and Dichev) and investment efficiency.

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The seventh sub – hypothesis: debt maturity affects on relationship between fanatical reporting quality (based on MCNichols and stubben) and investment efficiency.

## MATERIALS AND METHODS

This study investigates the role of debt maturity on relationship between financial reporting quality and investment efficiency of listed companies in Tehran's stock exchange. Therefore, this study because of results that can be used to formulate the rules and regulations of the stock exchange is a type of applied research. Applied research is research which theories, laws, principles and techniques take for solving real and executive problems between several variables. This study is correlation and its methodology is exposit facto, which means that doing this research is on the basis of past data.

### Population and Sample of Statistic

Statistical population consists of listed companies in Tehran's stock exchange. Due to the extensive size of statistical population and its unique challenges and because of some dissonance between community members in relation to the data research. Following criteria is selected for statistical sample. And statistical sample of research is systematic deleted method. Statistical populations of this research are all companies that are listed in the stock exchange at the beginning of 2006 until the end of 2011. And they have four characteristics simultaneously:

A) Because of different nature and classification of items in the financial statements of investment companies and financial intermediaries compared with manufacturing firms, investment companies, insurance companies, banks and financial provision institutions don't examine.

B) Because of necessity of calculating the variables of research and testing hypothesis about the company, the required information in relation to companies to be available.

C) For compliance of comparability, their financial period end to the end of the march.

D) During each year of the study's period the transactions don't interrupt, more than three month.

Due to these restrictions, the number of remaining companies increased to 106 companies.

Therefore, to test hypotheses, all remaining companies were selected as the study population (available population).

### Variables of Research

Depended variables: investment performance

In this study, according to research by Li and Wang (2010); Chen *et al.*, (2011) and Comariz and Ballesta (2013) use from Biddle *et al.*, model (2009) to measure investment efficiency.

According to this approach, the total investment is a function of growth opportunities as measure by sale.

How to measure investment efficiency: Residuals is calculated by substituting the calculated number for total investment in equation of regression.

Positive residuals (positive deviations from expected investment) will represents the choice of projects with negative present value or over investment and negative residuals (negative deviation from the expected investment will represents a transition from investment opportunity with positive pure present value or less than enough investment.

$$\text{Investment} = B_0 + B_1 \text{ sales Growth}_{i,t-1} + \epsilon_{i,t}$$

The total investment = Investment

Change percent in sales = sales growth  $_{i-1}$

Form gear t-2 tot -1

To obtain the Investment efficiency, first residuals of model is calculated and absolute value is taken. Sums of absolute value are representative of investment inefficiency.

Then these values are multiplied by negative one for achieving investment inefficiency. In fact, higher sums represent higher investment efficiency.

### The Independent Variables

#### Quality of Financial Reporting

In this research, according to Biddle *et al.*, (2009) and Chen *et al.*, (2011), Garcia and Ballesta (2013), Garcia and Ballesta (2013) three criteria's are used for measuring the quality of financial reporting.

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Firs criterion: The first criterion to be measure of adjusted discretionary accruals at performance – based that are represent from of industry year.

$$TAccr_{i,t} = \alpha_0 + \alpha_1 (1/Assets_{i,t-1}) + \alpha_3 + PPE_{i,t} + \alpha_4 ROA_{i,t} + \epsilon_{i,t}$$

TAccr<sub>i,t</sub> : Total promissory accruals are as the change : it in non –cash current assets minus the change in current debts lack of interest expense , minus the depreciation expense of tangible and in tangible assets for participation in the gear , divided by total assets at the beginning of the period .

Δ Rev<sub>i,t</sub> : Equal to the annual change in operating income divided by total assets at the beginning of the period

PPE<sub>i,t</sub> : poverty , plant and equipment for

RoA<sub>i,t</sub> Return on assets for participation in year t divided by assets of beginning of year.

Regression residual is representation of discretionary promissory items.

In this study, the absolute value of discretionary promissory items, are multiplied by negative one.

Thus, higher values indicate a higher quality of financial reporting (FRQ –TACCR<sub>i,t</sub> = -1E<sub>i,t</sub>1 ).

The second criterion: calculating of promissory items based on Dichev and Dechow model (2002). The measurements of this model are as follows:

$$WCA = \alpha_0 + \alpha_1 OCF_{i,t-1} - \alpha_2 OCF_{i,t} + \epsilon_{i,t}$$

Where in WCA<sub>i,t</sub> Investment promissory items are current that are equal with non – cash current assets minus the change in banking short – term debt divided by total assets of beginning of the period.

OCF<sub>i,t</sub> : Operating cash flow divided by total assets at the beginning of the period. Operating cash flow is equal citation expense and the change in current assets.

Based on the work of Chen *et al.*, (2011), from the absolute value is used as representative of the quality of financial reporting.

Absolute value of Dichev and Dechow (2002) multiplied by negative one.

And therefore, higher value. DD indicates higher quality of reporting.

$$(FRQ - DD_{i,t} = - E_{i,t})$$

The third criterion: Discretionary incomes to be residual paradigm.

In this study, the absolute values of discretionary incomes are multiplied lay negative one. Thus, higher values indicate higher quality of reporting.

$$(FRQ - Dis Rev_{i,t} = E_{i,t}).$$

Maturities of Debt: Debt maturities refer to short – tern debts and long – term debts. The debts that their maturing are less than one year are called short – term debt and debts with maturities that are more than one year are called long – term debt and debts with maturities that are more than one year are called long – term debt.

In this study, of measure the maturity of debt and according to Gomariz and Ballesta survey (2013), procedure is as follows:

Short – term debt divided by total debt.

### Control Variables

According to research by Biddle *et al.*, (2009), Li and Wang (2010), Chen *et al.*, (2011) and Gomariz and Ballesta (2013) a number of control variables are selected for isolation the relationship between financial reporting quality and investment efficiency under the terms of the debt maturity.

Size: logarithm of the book value of total assets.

Lev: (Financial leverage): total divided by total assets.

MTB: (Investment opportunity): Market value of equity divided by the book value.

(TANG) Tangible assets: sum of property, plant and equipment divided by total assets.

DIV (Dividends): Dividends paid per share divided by earnings per share.

### Models to Test the Hypothesis of Research

#### The First Sub-hypothesis Test Model

$$IE = \alpha + \beta_1 FRQKH + \beta_2 MTB + \beta_3 SIZE + \beta_4 LEV + \beta_5 TANG + \beta_6 DIV + \epsilon$$

InvEff<sub>i,t</sub>: Investment efficiency

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ERQ: Quality of financial reporting.

SIZE: Size of company.

LEV: Financial Leverage.

MTB: Growth opportunities.

TANG: Tangible Assets.

DIV: Dividend.

The second sub – hypothesis test model:

$$IE = \alpha + \beta_1 \text{FRQ} - \text{DD} + \beta_2 \text{MTB} + \beta_3 \text{SIZE} + \beta_4 \text{LEV} + \beta_5 \text{TANG} + \beta_6 \text{DIV} + \square$$

The third – sub– hypothesis test model:

$$IE = \alpha + \beta_1 \text{FRQ} - \text{DD} + \beta_2 \text{MTB} + \beta_3 \text{SIZE} + \beta_4 \text{LEV} + \beta_5 \text{TANG} + \beta_6 \text{DIV} + \square$$

STDEBT indicates short – term debts.

The fifth sub – hypothesis test model:

$$IE = \alpha + \beta_1 \text{STDEBT} + \beta_2 \text{MTB} + \beta_3 \text{SIZE} + \beta_4 \text{LEV} + \beta_5 \text{TANG} + \beta_6 \text{DIV} + \square$$

STDEBT indicates short – term debts.

The fifth sub – hypothesis test model:

$$IE = \alpha + \beta_1 \text{STDEBT} + \beta_2 \text{FRQ} - \text{K} + \beta_3 \text{STDEBTFRQ} - \text{K} + \beta_4 \text{MTB} + \beta_5 \text{SIZE} + \beta_6 \text{LEV} + \beta_7 \text{TANG} + \beta_8 \text{DIV} + \square$$

The sixth sub – hypothesis test model:

$$IE = \alpha + \beta_1 \text{STDEBT} + \beta_2 \text{FRQ} - \text{DD} + \beta_3 \text{STDEBTFRQ} - \text{DD} + \beta_4 \text{MTB} + \beta_5 \text{SIZE} + \beta_6 \text{LEV} + \beta_7 \text{TANG} + \beta_8 \text{DIV} + \square$$

Seventh sub – hypothesis test model:

$$IE = \alpha + \beta_1 \text{STDEBT} + \beta_2 \text{FRQ} \text{MS} + \beta_3 \text{STDEBTFRQ} - \text{MS} + \beta_4 \text{MTR} + \beta_5 \text{SIZE} + \beta_6 \text{LEV} + \beta_7 \text{TANG} + \beta_8 \text{DIV} + \text{E}$$

**RESULTS AND DISCUSSION**

**Results**

Kolmogorov – Smirnov test for determination the normality of the variables:

Kolmogorov – Smirnov test are used for verifying the normality of variables that results are presented in Table 1.

**Table 1: Test results of normalized variables**

Variables	Kolmogorov –smirnov statistic(z)	p-value
FRQ –K	1.346	0.053
ERQ –D	2.738	0.000
FRQ – M	6.174	0.000
IE	1.341	0.055
MTB	1.010	0.259
SIZE	2.787	0.000
LEV	1.812	0.003
TANO	1.215	0.105
DIV	10.217	0.000
STDEBT	4.702	0.000

As the preliminary data of this study didn't follow a normal distribution, so, in transformed is used to normalize the data distribution. As can be seen in the table above, there is a significant level of investment efficiency variable as the dependent variable is equal to (0.055). That its figure is more than 5 %, with 95 % of confidence, this variable is normal distributed.

**Research Hypothesis Test**

**The Main Hypothesis Test of the Study**

The main hypothesis of the research: Financial reporting quality affect on investment efficiency.

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Note that in this study, three models were used to assess the quality of financial reporting, Therefore, The sub – hypothesis derived from the study, main hypothesis can be proposed as follows:

The first sub – hypothesis: the quality of financial reporting based on Kothari and colleagues affect on investment efficiency.

Note that in this study, three models were used to assess the quality of financial reporting, Therefore, The sub – hypothesis derived from the study’s main hypothesis can be proposed as Follow:

The first sub – hypothesis: the quality of financial reporting based on Kothari and colleagues affects on investment efficiency.

The second sub – hypothesis: the quality of financial reporting based on Dichev and Dechow affects on investment efficiency.

The third sub – hypothesis: the quality of financial reporting based on McNichols and Stubben affects on investment efficiency.

Note that hypothesis are done for each sub – hypothesis separately.

1-1 The first sub – hypothesis test of the research:

The first sub – hypothesis states that the quality of financial reporting based on Kothari and colleagues affects on investment efficiency.

One of the hypothesis is discussed in the OLS, the result indicate that the estimated reseeded residuals are normally distributed.

This research, for all hypothesis tests are used from the histogram test of residual sentences and jerk statistic to check for normality, plus a series of simple descriptive statistics of residual sentences.

And states that all the hypothesizes of residuals have normal distribution and Jark statistics confirm this issue.

The used model for first sub – hypothesis of research is:

$$IE = \alpha + \beta_1 \text{FRQ} - K + \beta_2 \text{MTB} + \beta_3 \text{SIZE} + \beta_4 \text{LEV} + \beta_5 \text{TANG} + \beta_6 \text{DIV} + \epsilon_i$$

For investigation the effect of financial reporting quality on investment efficiency model based on Kothari *et al.*, multiple linear regression tests were performed.

In investigation of all following hypothesizes, this test have been used.

The results have been provided in table (2).

**Table 2: Summary of results of the first sub – hypothesis test**

Diagnosis	T-statistics	$\beta$ coefficient		Variables
	Prop .t	T		
-	0.0001	3.862325	0.307277	A
Rejection	0.6082	0.512910	0.014692	FRQ-K
Rejection	0.9591	0.051297	0.003966	MTB
Rejection	0.3033	-1.030483	-0.011943	SIZE
Rejection	0.9288	0.089394	0.003419	LEV
Rejection	0.0267	-2.222152	-0.089554	TANG
Rejection	0.4246	-0.799181	-0.005404	DIV
Prob .F	F. statistic	Adjusted Determination coefficient	Determination coefficient	Durbin-watson
0.000000	10.53718	0.640572	0.707738	1.739098

In table (2), one of the conditions of using the regression is residuals independent. Since the Durbin – Watson statistic is (1.739098) between 1.5 and 2.5, therefore, assume no correlation between the errors will be accepted. The coefficient of determination of the model indicates that approximately 71 percent of changes of independent variables are justifiable by the independent and control variables.

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F statistic, since the amount of prob model is less than 5 % therefore the overall Regression model is significant. And this third case is the same in all tables of hypothesis test.

**Results table (2) shows that**

Quality of financial reporting based on Kothari *et al.*, (FRQ –K) doesn't affect on investment efficiency (IE). Considering the quality of financial reporting based on Kothari *et al.*, (FRQ-K) with a significant level (0.6082). and the B coefficient (0.014692) is more than 5% , so it doesn't affect on investment efficiency (IE) significantly.

About effectiveness of the control variables on the dependent variable can be expressed, growth opportunities (MTB), firm size (SIZE), financial leverage (IEV) and dividends divided (DIV) don't affect on investment efficiency significantly.

And tangible assets (TANG ) has negative and significant effect on the investment efficiency.

**The Second Sub-hypothesis Test of Research**

Second sub – hypothesis states that financial reporting quality based on Dichev and Dechow affect on the investment efficiency.

The used model for the second sub- hypothesis of research is:

$$IE = \beta_1 \text{FRQ} - D + \beta_2 \text{MTB} + \beta_3 \text{SIZE} + \beta_4 \text{LEV} + \beta_5 \text{TANG} + \beta_6 \text{DIV} + \epsilon_i$$

Investigation results of this effect based on multiple linear regression model is as follows :

**Table 3: Summary of results of second sub – hypothesis test**

Diagnosis	T-statistics		$\beta$ coefficient	Variables
	Prop .t	T		
-	0.0000	4.213340	0.322763	A
Rejection	0.5132	-0.654374	-0.100037	FRQ –D
Rejection	0.9941	-0.007351	-0.000568	MTB
Rejection	0.2042	-1.271465	-0.014432	SIZE
Rejection	0.9350	-0.081596	-0.003092	LEV
Rejection	0.0397	-2.062153	-0.082961	TANG
Rejection	0.3806	0.877609	-0.005898	DIV
Prob .F	F. statistic	Adjusted determination coefficient	The coefficient of determination	Durbin-Watson
0.000000	10.64638	0.639349	0.705627	1.720352

Results table (3) shows that Quality of financial reporting based on Dichev and Dechow (FRQ –D) doesn't affect on investment. Considering quality of financial reporting based on Dichev and Dechow model (FRQ –D) with significant level (0.5132) and  $\beta$  coefficient (0.100037), is more than 5% , so , It doesn't have significant effect on investment efficiency.

About effectiveness of the control variables on the dependent variables the result is exactly the same as the first sub - hypothesis.

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**The Third Sub-hypothesis Test of Research**

The third sub – hypothesis states that quality of financial reporting based on MC Nickels model has effect on invest efficiency. Used model for test is this hypothesis:

$$IE = \alpha + \beta_1 \text{FRQ} - D + \beta_2 \text{MTB} + \beta_3 \text{SIZE} + \beta_4 \text{LEV} + \beta_5 \text{TANG} + \beta_6 \text{DIV} + \epsilon_1$$

Multiple linear regression tests were used to examine this impact. Result of test is as follows:

**Table 4: Summary results for the third sub – hypothesis test of research**

Diagnosis	T-statistics		$\beta$ coefficient	Variables
	Prop .t	T		
-	0.0000	4.230816	0.323122	A
Rejection	0.2673	-1.110545	-0.107061	FRQ –M
Rejection	0.9445	0.069058	0.005356	MTB
Rejection	0.1775	-1350405	-5.015373	SIZE
Rejection	0.9609	0.049038	0.001864	LEV
Rejection	0.0368	-2.093860	-0.083833	TANG
Rejection	0.3984	-0.845178	-0.005611	DIV
Prob .F	F. statistic	Adjusted determination coefficient	Determination coefficient	Durbin-Watson
0.000000	10.67100	0.639936	0.706107	1.721322

**Results Table 4 shows that**

Quality of financial reporting based on MC Nichols and Stubben (FRQ –M) doesn't have effect on investment efficiency. Considering quality of financial reporting based on MC Nickels and Stubben (FRQ –M ) with significant level (0.2073) and  $\beta$  coefficient (0.107061) is more than 5% , so It doesn't have significant effect on investment efficiency about effectiveness of control variables on dependent variable. the result will be exactly like the first and second sub – hypothesis. Results of multivariate linear regression test for the third hypothesis indicate that: Quality of financial reporting based on Kothari *et al.*, and Dichev and Dechow and MC Nickels and Stubben doesn't have effect on investment efficiency. It's necessary to say, for confirmation of the main hypothesis of this study, It is assumed for confirmation of two essential hypothesis, otherwise, it will assume for rejection of main hypothesis. So, the main first hypothesis is not confirmed.

**The Second Major Hypothesis Test of the Research**

The second main hypothesis of the research: debt maturity affects on investment efficiency. The sub – hypothesis derived from the second main hypothesis of the research stated: Fourth sub – hypothesis: short – term debt maturity affects on investment efficiency.

**The Fourth Sub–hypothesis Test of the Research**

The fourth sub –hypothesis states. Short – term debt maturity affects on the investment efficiency. The used model for fourth sub –hypothesis of the research:

$$IE = \alpha + \beta_1 \text{STDEBT} + \beta_2 \text{MTB} + \beta_3 \text{SIZE} + \beta_4 \text{LEV} + \beta_5 \text{TNG} + \beta_6 \text{DIV} + \epsilon_i$$

For investigation of the effectiveness, the multiple linear regressions were done that the results are presented in the following table.

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**Table 5: Summary results of the fourth sub – hypothesis test of the research .**

Diagnosis	T statistic		$\beta$ coefficient	Variables
	Prob.t	T		
-	0.0006	3.455342	0.321935	A
Rejection	0.9012	0.124237	0.006766	STDEBT
Rejection	0.9074	0.116392	0.009025	MTB
Rejection	0.2111	-1.252255	-0.014386	SIZE
Rejection	0.9345	-0.082202	-0.003174	LEV
Negative confirmation	0.0464	-1.997044	-0.086253	TANG
Rejection	0.3940	-0.853195	-0.005758	DIV
Prob.F	F statistic	Adjusted determination coefficient	Coefficient determination	of Durbin-Watson
00.000000	10.46479	0.636880	0.104169	1.727217

**Results of table (5) show that**

Short – term debt maturity (STDEBT) doesn't affect on investment efficiency. Considering short – term debt maturity (STDEBT) with significant level (0.9012) and  $\beta$  coefficient (0.006766), to be more than 5%, so, it doesn't affect on investment efficiency significantly. About effectiveness of control variables on dependent variable, the result is exactly the same as the previous hypothesis. As the fourth sub – hypothesis of the research which is derived from the main hypothesis of the research, the results of multiple linear regression tests for this hypothesis show that: fourth sub –hypothesis: short – term debt maturity doesn't affect on investment efficiency. So, with these qualities, it can be stated that the second main hypothesis is not confirmed.

**The Third Main Hypothesis of the Research**

The third main hypothesis of the research: debt maturity affect on the quality of financial reporting and investment efficiency. The sub – hypothesis derived from the third main hypothesis of the research is stated in this way:

**The Fifth Sub–hypothesis**

Debt maturity affects on the relationship between financial reporting based on Kithara and colleagues and investment efficiency. The sixth sub – hypothesis: debt maturity affects on relationship between quality of financial reporting based on Dichev and Dechow model and investment efficiency.

**Seventh Sub-hypothesis**

Debt maturity affects on relationship between quality of financial reporting based on MC Nickels and stab on and investment efficiency.

**The Fifth Sub–hypothesis Test of the Research**

The fifth sub – hypothesis of the research states that debt maturity affects on relationship between quality of financial reporting based on Kothari and colleagues and investment efficiency used model for fifth sub – hypothesis of the research are:

$$IE = \alpha + \beta_1 STDEBT + \beta_2 FRQ -K + \beta_3 STDEBT FRQ -K + \beta_4 MTB + \beta_5 SIZE + \beta_6 LEV + \beta_7 TANG + \beta_8 DIV + \epsilon_i$$

For investigation of this effectiveness the multiple linear Regressions is used that its result is as following table.

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**Table 6: The fifth sub – hypothesis test results summary of the research**

Diagnosis	T statistic Prob .t	T	$\beta$ coefficient	Variables
-	0.0001	3.851104	0.341398	A
Rejection	0.7011	0.384038	0.019025	STDEBT
Rejection	0.3083	1.19805	0.029489	FRQ-K
Rejection	0.0648	1.850902	0.121635	STDEBT
Rejection	0.7766	-0.283889	-0.020129	FRQ-K
Rejection	0.2466	-1.160007	-0.012846	MTB
Rejection	0.0006	-0.442740	-0.015670	SIZE
Negative confirmation	0.3323	-3.451662	-0.136952	LEV
Rejection		-0.970396	-0.005959	TANG DIV
Prob.F	F statistic	Adjusted determination coefficient	Determination coefficient	Durbin- Watson
0.000000	12-21945	0.683892	0.744848	1.545832

**Table results (6) show that**

Short – term debt maturity doesn't affect on relationship between financial reporting based on Kothari and colleges (STDEBT FRQ-K) and investment efficiency (IE) considering short – term debt maturity (STDEBT), relationship between quality of financial reporting based on Kothari and colleagues (STDEBT FRQ-K) with significant level (0.0648) and  $\beta$  coefficient (0.121635) is more than 5%, so, it doesn't affect on investment efficiency significantly. About effectiveness of control variable on dependent variable, the result is the same as the results of previous hypothesis.

**The Sixth Sub–hypothesis Test of the Research**

The sixth – hypothesis of the research state that debt maturity affects on quality of financial reporting based on Dichev and Dechow model. Used model for sixth sub – hypothesis is:

$$IE = \alpha + \beta_1 \text{STDEBT} + \beta_2 \text{FRQ -K} + \beta_3 \text{STDEBT FRQ -K} + \beta_4 \text{MTB} + \beta_5 \text{SIZE} + \beta_6 \text{LEV} + \beta_7 \text{TANG} + \beta_8 \text{DIV} + \epsilon_i$$

For investigation of this effectiveness, multiple linear Regression test was done that the results state in following table:

**Table 7: The results summary of the sixth sub –hypothesis test of the research**

Diagnosis	T statistic Prob.t	T	$\beta$ coefficient	Variables
-	0.0001	4.033082	0.413597	A
Rejection	0.2503	-1.136504	-0.089094	STDEBT
Rejection	0.1002	1.646910	1.450291	FRQ-D
Rejection	0.9267	-0.092006	-0.006497	MTB
Rejection	0.2210	-1.225454	-0.012790	SIZE
Rejection	0.5440	-0.006259	-0.021193	LEV
Negative confirmation	0.0056	-2785178	-0.109707	TANG
Rejection	0.3455	-0944216	-0.005730	DIV
Prob.F	F statistic	Adjusted determination coefficient	Coefficient determination	Durbin-Watson
0.000000	12.10272	0.678677	0.739804	1.5586

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**Result table (7) shows that**

Short – term debt maturity (STDEBT) doesn't affect on relationship between quality of financial reporting based on Dechow and Dichev (STDEBT FRQ-D) and investment efficiency (IE) considering short – term debt maturity (STDEBT) between quality of financial reporting based on Dichev and Dechow model (STDEBT \*FRQ-D) with significant level (0.0711) and  $\beta$  coefficient (-1.798539) significantly.

About effectiveness of control variables on dependent variable, the result is exactly like the previous hypothesis test results. 3-3 seventh sub – hypothesis of the research states that the debt maturity affects on relationship between qualities of financial reporting based on MC Nichols and Stubben and investment efficiency. It should be noted that the used model for seventh sub – hypothesis of the study is:

$$IE = \alpha + \beta_1 \text{STDEBT} + \beta_2 \text{FRQ} - K + \beta_3 \text{STDEBT FRQ} - K + \beta_4 \text{MTB} + \beta_5 \text{SIZE} + \beta_6 \text{LEV} + \beta_7 \text{TANG} + \beta_8 \text{DIV} + \epsilon_i$$

For investigation of this effectiveness, the multiple linear Regressions have been done that the results have been stated in following table.

**Table 8: The results summary of the sub – seventh hypothesis test of the research**

Diagnosis	T statistic Prob.t	T	$\beta$ coefficient	Variables
-	0.0003	3.652573	0.309540	A
Rejection	0.866	0.403717	0.020009	STDEBT
Rejection	0.6866	0.403717	0.020009	STDEBT
Rejection	0.3052	-1.026354	-0.090627	FRQ-M
Rejection	0.6436	-0.462961	-0.033048	STDEBT*FRQ-M
Rejection	0.7029	-0.381624	-0.027135	MTB
Rejection	0.3666	-0.903631	-0.009531	SIZE
Negative confirmation	0.0020	-3.111534	-0.123169	LEV
Rejection	0.3267	-0.981789	-0.006022	DIV
Prob.F	F statistic	Adjusted determination coefficient	Determinatio n coefficient	Durbin-Watson
0.000000	12.21521	0.680141	0740785	1.534375

**Table results (8) shows that**

Short – term debt maturity (SRDEBT) doesn't affect on relationship between quality of financial reporting based on MC Nichols and Stubben (STDEBT \*FRQ-M) and investment efficiency (IE). Since short – term debt (STDEBT) on relationship between quality of financial reporting based on MC Nichols and Stubben (STDEBT \*FRQ-M) with significant level (0.6436) and  $\beta$  coefficient (-1.033048), is more than 5%. So, it doesn't affect on investment efficiency.

About effectiveness of control variables on dependent variable, the result is exactly the same as the results of previous hypothesis test. Since the fifth sixth and seventh sub – hypothesis of the research that are derived from the third main hypothesis, results that are derived the multiple linear regression for stated hypothesis show that: Debt maturity doesn't affect on relationship between quality of financial reporting (based on Kothari and colleagues and Dichev and Dechow and MC Nickels and Stubben model) and investment efficiency (IE).

Its necessary to state for confirmation of main hypothesis of the research is assumed minimal conformation of two essential hypotheses, and otherwise, rejection of the main hypothesis of the research will assume, so, third main hypothesis of the research doesn't confirm.

**Conclusion**

In this study, the role of short – term debt maturity over the relationship between financial reporting quality and investment efficiency of listed companies have been investigated in Tehran stock exchange.

### **Research Article**

The study statistical sample of research consists of 106 listed companies in Tehran stock exchange in the period 2006 to 2011. However, for measurement of some research variables, financial information of years from 2005 to 2012 has been used.

The quality of financial reporting has been assisted with usage of three models: model of Kothari and colleagues (2005), Dichev and Dechow (2002) and MC Nickels and Stubben (2008) data and hypothesis analysis test of the research has been with usage of SPSS and EVLEWS Software.

Results of the research show that the quality of the financial reporting and short –term debt maturity doesn't affects on investment efficiency and also short –term debt maturity doesn't affect on quality financial reporting and investment efficiency.

With regard to theoretical research, the importance of financial reporting quality is imaginable in more efficient of investment, and it can be as stimulus to investment efficiency.

But, the results of the research with results of the theoretical of the research and also with external aren't compatible. According to the results, the quality of the financial reporting may not be effective on the investment efficiency in the investment market of the IRAN and the role of the quality of the financial reporting isn't important in assessing the investment efficiency in the stock market of IRAN. On the other hand, quality of financial reporting doesn't have any role in relationship with investment efficiency in the market of IRAN and it can be considered as an ineffective mechanism, for this issue you cannot ignore Iran's investment market conditions.

### **Limitation of the Study**

Failure to control some of the factors that influence the results, including the impact of variables such as economic factors, political conditions, life companies, and industry laws and regulations isn't available for investigator, may affect on the investigation of the relationship considering the sample of the research has been selected from between listed companies in Tehran stock exchange.

And sample companies in terms of size industry, owner ship structure, type of goods, are not necessarily representative of all economic units in the country so, the generalizability of findings should be done with caution. Considering the condition of the research variables, doing research an all the companies wasn't possible, so it tends to reduce the number of the study samples.

In this research, in order to detain better results, the effect of five variables (firm size financial leverage, growth opportunities the ratio of tangible assets to total assets, ratio of the dividends payable) is controlled. Several variable including controllable and uncontrollable variables in this study may affect on relationship between variables of this study that haven't been considered. Since to calculate the variables of the research have been used from prepared financial information based on his historical cost .It the above information are adjusted, about possible inflation different deductive will derive from the present results. The lack of an efficient capital market in Iran is an important factor.

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