

## **Impact of Financial Reporting Quality on Investment Inefficiency**

**Zahra Poorzamani\*, Mokhtar Keivanfar**

Central Tehran Branch, Islamic Azad University, Tehran, Iran

\*E-mail: zahra.poorzamani@chmail.ir

### **Abstract**

Accounting system today plays significant role in activity flow of the organizations and has important task in the economic environment of the countries. Financial reporting is one of the main products of accounting system, goals of which include providing information necessary for economic decision making by the users regarding evaluation of the performance and profitability capacity of the economic institution. Prerequisite to achieve this goal is measurement and provision of information in such a way that allows evaluation of the past performance and helps measurement of the profitability capacity and prediction of future activities of economic institution. Current research study was conducted aiming at investigating relationship between financial reporting quality and investment inefficiency. Research statistical population includes all companies listed in Tehran Stock Exchange during 2007 to 2012. Given specified criteria, 112 companies were selected as statistical sample. Multi-variate regression, fixed effects model and generalized least squares estimation method were used for data analysis using Eviews software. Several control variables including growth, return on assets, cash balance, and assets tangibility were used in this regression model. In order to calculate and measure financial reporting quality and investment inefficient, models proposed by McNichols and Stubben (2008) and Biddle et al. (2009) were used respectively. Analysis results indicate inverse significant relationship between financial reporting quality and investment inefficient.

**Keywords:** Stock Exchange, financial reporting quality, investment inefficiency

### **Introduction**

Valuable place of information in economic and investment development is evident for all scholars of economic sciences (Heidari Kord Zanganeh and Alipour, 2007). Financial reports are one of the information sources available for capital markets and it is expected they play effective role in investment development and its efficiency improvement. To this end, professors, authors, and practitioners of accounting field seek for increasing financial reporting quality as a tool for committing accountability responsibility toward the community needs. For example, according to theoretical concepts of financial reporting, aim of financial statements is providing extracted and classified information about financial status, financial performance, and financial flexibility of the economic institution, which is useful for a wide spectrum of users of financial statements in adopting economic decisions. Achieving this goal requires that information to be primarily relevant and reliable and secondarily to be comprehensible and comparable.

One of the aims of financial reporting is facilitating optimal capital allocation in the economy, and one of the main aspects of this role is improvement of investment decisions. Thus, it can be concluded that increasing financial transparency is a potential capability for reducing investment inefficiency. The more financial reporting quality increases and valid standards and regulations are more used in preparing and auditing the reports, trust of information users will be increased and information risk will be decreased.

Importance of financial information quality at the time of occurrence of some financial and non-financial events is well evident when participants in the events need access to transparent and high quality information concerning financial performance and status of the company, and information asymmetry should be minimized. Therefore, the main purpose of the current study is exploring relationship between financial reporting quality and investment inefficiency. Achievement of this goal helps eliminating information needs of the investors to adopt more optimal and useful decisions.

### **Review of Literature**

Financial reporting quality is defined as ability of financial statements in transferring information of the company's operation and specifically as prediction of expected cash flows to the investors (Modares and Hesarzadeh, 2008). Linsmeier et al. (1998) state high quality accounting standard improves financial reporting through promoting ability of users in investment and credit decision making. According to Thornton (2002), accounting information and financial reporting quality is the common product of at least four main factors: creativity and attitudes of management, auditing quality, experience of auditing committee, and high quality accounting standards. Weakness in each of these factors may disturb the whole chain.

On the other hand, investment is one of the main economic variables which draw considerable debates. Mandal considers investment as a process in which the investor examined various ways following asset acquisition (such as money, land, machineries) which are mainly developed through saving or lower income consumption, and then he will choose the option that its return is proportionate to the expected risk. This option can be a real asset such as building, machinery or financial asset such as shares, securities or future contract. In the other definition, investment can be regarded as a source which is used in order to acquire financial returns. In other words, investment can be defined as consuming current resources to achieve future resources which are not obvious and are probable (Pakdelan, 2012).

Saghafi and Arab Mazar Yazdi (2010) studied relationship between financial reporting quality and investment inefficiency in companies listed in Tehran Stock Exchange. Using adjusted model of Verdi (2006), they experimentally tested relationship between investment inefficiency and financial reporting quality. Results indicated practically there is no significant correlation between respective variables in Tehran Stock Exchange, which is inconsistent with findings by Biddle et al. (2009) and Verdi (2006).

Kashanipour et al. (2010) selected a sample including 96 companies listed in Tehran Stock Exchange during 1999 to 2002 and showed that companies with financial limitation have higher investment sensitivity to cash flows and emphasize highly on internal cash flows in investment decisions compared to companies without financial limitation.

Modares and Hesarzadeh (2008) studied relationship between financial reporting quality and investment efficiency based a model adopted from Verdi's work (2006). They examined 120 companies listed in Tehran Stock Exchange during 2000 to 2006 and indicated that financial reporting quality has positive significant relationship with investment efficiency level and financial reporting quality leads to investment efficiency improvement. Results of this work suggest that financial reporting quality can lead to investment efficiency promotion through overinvestment.

Mahmoudabadi and Mahtari (2011) studied relationship between accounting conservatism and investment efficiency in companies in Tehran Stock Exchange. Their findings indicate significant relationship between accounting conservatism and future investment at company level and level of seven groups of industries.

Chen et al. (2011) studied effect of financial reporting quality on excessive and inadequate investment using data from companies in emerging markets, and found higher financial reporting quality helps companies with inadequate investment problem to have investment and helps companies with excessive investment problem to reduce their investment level.

Gomariz and Ballesta (2013) in a work entitled Financial Reporting Quality, Debt Maturity and Investment Efficiency used Spanish companies' data during 1998 to 2008 and examined role of financial reporting quality and in investment efficiency. Their findings indicate that financial reporting quality can alleviate excessive investment problem. Also, debt maturity can improve investment efficiency through excessive and inadequate investment reduction. They also found companies that use short term debt more (less) have lower (higher) financial reporting quality.

Biddle et al. (2009) studied relationship between financial reporting quality and investment efficiency. They described that higher financial reporting quality increases efficiency of investment in capital goods as a result of lower information asymmetry and such factors as improper selection or moral hazard, and leads to higher or lower investment. Their findings showed that financial reporting quality is related to high or low investment.

### **Research Hypothesis**

Since higher financial reporting quality makes managers more accountable through providing better supervision and reduces information asymmetry and subsequently adverse selection and moral hazard, it will alleviate excessive or inadequate investment problems. On the other hand, financial reporting quality can improve investment efficiency through better identification of the projects and providing more honest accounting figures to internal decision makers (Bushman and Smith, 2001; McNichols and Stubben, 2008).

Thus, the main research question is as follows: does financial reporting quality lead to increased investment efficiency in companies listed in Tehran Stock Exchange?

In order to achieve the answer for the research question, the main research hypothesis is described as follows based on theoretical foundations:

Main Hypothesis: Financial reporting quality influences investment inefficiency.

### **Methodology**

Current work is an applied research in terms of purpose of study. Applied research work aims at developing applied knowledge in a specific field. It is a descriptive- correlation research in terms of method and nature. Regression and correlation analysis was used for data analysis. Collected data were entered in Excel software, preliminary calculations related to the variables were performed in this software and E Views software was then used for final analysis.

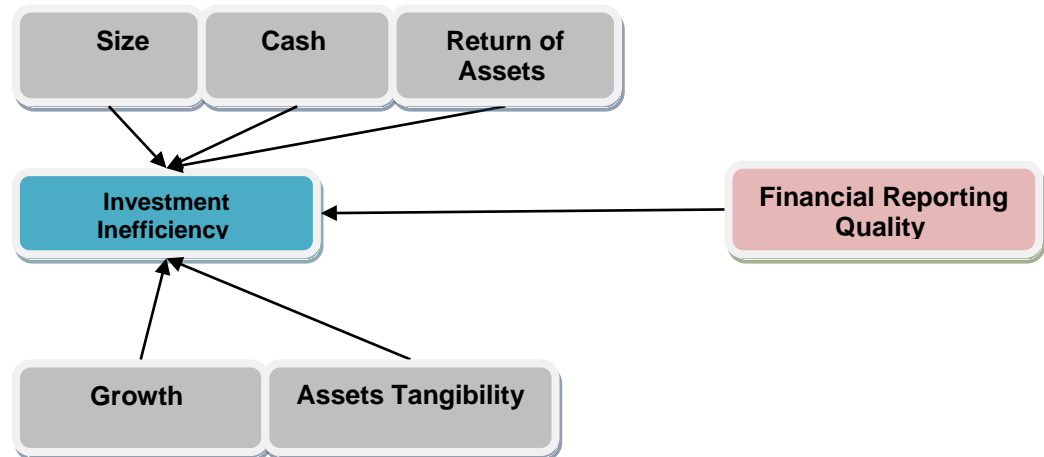
#### ***Statistical Population and Sample***

Research statistical population included companies listed in Tehran Stock Exchange during 2007 to 2012. The sample was selected using systematic elimination method resulting in selection of 112 companies as research statistical sample.

#### ***Research Variables and Variable Measurement***

Main research model is explained as follows to answer the research question:

$$\text{InIneff}_{it} = \beta_0 + \beta_1 \text{FRQ}_{it} + \beta_2 \text{Growth}_{it} + \beta_3 \text{Size}_{it} + \beta_4 \text{ROA}_{it} + \beta_5 \text{Cash}_{it} + \beta_6 \text{Tang}_{it} + \epsilon_{it}$$



### ***Definition of Variables***

#### ***Dependent Variable***

In this work, investment inefficiency is dependent variable which is calculated using the model proposed by Biddle et al. (2009):

$$\text{Investment}_{i,t} = \beta_0 + \beta_1 \text{SalesGrowth}_{i,t-1} + \epsilon_{i,t}$$

Where:

Investment<sub>i,t</sub>: total investment of company *i* in year *t*, which equals to net increase in tangible and intangible assets divided by total assets of the previous year, according to definition by Gomariz and Ballesta (2013).

SalesGrowth<sub>i,t-1</sub>: represents sales growth, which equals to sales growth rate of company *i* in year *t* – 1 versus year *t* – 2.

If next year's investment is more than sales growth, above model's residue is positive; that is, there is excessive investment, and if the next year's investment is less than sales growth, above model's residue is negative; that is, there is inadequate investment. Thus, its absolute value is used for calculation of investment inefficiency. Therefore, the larger is the results, the investment inefficiency is more.

#### ***Independent Variable***

Financial reporting quality is independent variable in this work. Profit management calculation model proposed by McNichols and Stubben (2008) is used for calculating financial reporting quality as follows:

$$\Delta \text{AR}_{i,t} = \beta_0 + \beta_1 \Delta \text{Sales}_{i,t} + \epsilon_{i,t}$$

Where:

ΔAR: annual change in company's accounts receivable

ΔSales: annual change in sales revenue.

All variables are divided by total assets of the beginning of year. The residual of this equation represents change in accounts receivable, which cannot be described by change in sale. Thus, in order to calculate financial reporting quality, absolute value of this figure multiplied by -1 is used. Hence, the larger is this value, financial reporting quality would be higher.

#### ***Control Variables***

Control variables used in the research model are as follows:

Growth: company's growth, which is calculated as follows:

Previous year's sales / (previous year's sales – current year's sales)

Size: company size, which is calculated using assets logarithm.

ROA: return of assets, which calculated using ratio of net profit to total assets.

Cash: Level of cash holdings (cash ratio to total assets).

Tang = tangibility of assets which is calculated as the ratio of fixed assets to total assets.

### Research Findings

Multi-varite regression was used in order to explore relationship between dependent and independent variables. Presupposition tests of regression were also used for ensuring reliability of the results.

Prior to analysis of research data, reliability of variables should be examined. Reliability of research variables means that mean and variance of the variables should be fixed over time and covariance of the variables should be constant over different years. Thus, using these variables in the model does not lead to false regression. To this end, Im, Pesaran and Shin test was used, results of which are given in Table 1.

**Table 1: Im, Pesaran and Shin test**

Research Variables	t statistics	Significance
Investment	-18.688	0.000
Sales growth	-23.479	0.000
Changes in accounts receivable	-26.877	0.000
Change Sales	-19.574	0.000
Size of Company	-4.451	0.000
Return on Assets	-10.438	0.000
Assets Tangibility	-4.502	0.000
Level of cash holdings	-10.844	0.000

Considering Table 1, sig level of all research variables is smaller than 5 percent, and thus all variables are reliable in the period under study. Then, appropriate method for data analysis is investigated.

In order to determine the method to apply panel data and recognize homogeneity or heterogeneity of data, Chow test and F-Limer Statistics were used. If the probability obtained is smaller than 0.05, null hypothesis is rejected, thus fixed effects model is used, otherwise, random effects model is better model for estimation of parameters.

### *Calculating Financial Reporting Quality and Investment Inefficiency*

Prior to testing research question, variables of financial reporting quality and investment inefficiency should be calculated.

In the first step, financial reporting quality model is estimated. According to the model proposed by McNichols and Stubben (2008), following model's coefficients are estimated in Eviews software:

$$\Delta AR_{i,t} = \beta_0 + \beta_1 \Delta Sales_{i,t} + \epsilon_{i,t}$$

First, in order to determine the method to apply panel data and recognize homogeneity or heterogeneity of data, Chow test and F-Limer Statistics are used, results of which are given in Table 2.

**Table 2: Results of Chow test for homogeneity or heterogeneity of sections**

Null Hypothesis	F	Prob. F	Result of Chow test
Cross-sectional and time effects are not significant.	0.566	0.999	H0 is not rejected.

As observed in Table 2, result of Chow test indicate probability obtained for F statistics is larger than 5, thus panel data is used for testing this model. Result of testing this model using panel data and estimation generalized least squares (EGLS) method is given in Table 3.

**Table 3: Results for estimation of model coefficients for financial reporting quality calculation**

Variable	Coefficients	Standard Error	T statistics	Sig. Level
Constant	0.01	0.002	4.633	0.000
Sales Changes	0.098	0.009	10.686	0.000
F Statistics	114.19	Coefficient of Determination		0.156
F Statistics Probability	0.000	Adjusted Coefficient of Determination		0.154
		Durbin – Watson Statistics		2.037

Following estimation of financial reporting quality model, coefficients of investment efficiency calculation model are estimated using the model proposed by Biddle et al. (2009). Coefficients of the following model are estimated in Eviews software:

$$\text{Investment}_{i,t} = \beta_0 + \beta_1 \text{SalesGrowth}_{i,t-1} + \epsilon_{i,t}$$

First, in order to determine the method to apply panel data and recognize homogeneity or heterogeneity of data, Chow test and F-Limer Statistics are used, results of which are given in Table 4.

**Table 4: Results of Chow test**

Null Hypothesis	F	Prob. F	Result of Chow test
Cross-sectional and time effects are not significant.	1.294	0.035	H0 is rejected.

As observed in Table 4, result of Chow test indicates probability obtained for F statistics is smaller than 5 percent, thus panel data is used for testing this model. Necessity to use fixed or random effects method is investigated using Hausman test.

**Table 5: Results of Hausman test**

Null Hypothesis	Chi Square Statistics	P-Value for Hausman Test	Result
Use of random effects model	4.652	0.031	H0 is rejected.

Sig level of Hausman test is smaller than 0.05, thus, fixed effects model should be used for estimating coefficients of this model. Results of testing this model using fixed effects model and EGLS method are given in Table 6.

**Table 6: Results for estimation of model coefficients for investment efficiency calculation**

Variable	Coefficients	Standard Error	T statistics	Sig. Level
Constant	0.026	0.0007	149.893	0.000
Sales Growth	0.007	0.0007	9.216	0.000
F Statistics	19.152	Coefficient of Determination		0.809
F Statistics Probability	0.000	Adjusted Coefficient of Determination		0.767
		Durbin – Watson Statistics		2.101

In order to provide information on calculated values related to investment inefficiency and financial reporting quality, their descriptive statistics are given in Table 7.

**Table 7: Descriptive indexes of research variables**

Variable	No.	Mean	Median	SD	Max.	Min.
Financial Reporting Quality	620	-0.083	-0.052	0.091	-0.0005	-0.684
Investment Inefficiency	608	0.058	0.034	0.092	1.203	4.53*10 <sup>-5</sup>



Finally, in order to examine research question, that is, influence of financial reporting quality on investment inefficiency, Chow test and F-Limer Statistics are used in order to determine the method to apply panel data and recognize homogeneity or heterogeneity of data, , results of which are given in Table 8.

**Table 8: Results of Chow test**

Null Hypothesis	F	Prob. F	Result of Chow test
Cross-sectional and time effects are not significant.	2.571	0.000	H0 is rejected.

As observed in Table 8, result of Chow test indicates probability obtained for F statistics is smaller than 5 percent, thus panel data is used for testing this model. Necessity to use fixed or random effects method is investigated using Hausman test, results of which are given in Table 9.

**Table 9: Results of Hausman test**

Null Hypothesis	Chi Square Statistics	P-Value for Hausman Test	Result
Use of random effects model	87.779	0.000	H0 is rejected.

Sig level of Hausman test is smaller than 0.05, thus, fixed effects model should be used for testing research question. Results of testing research question using fixed effects model and EGLS method are given in Table 10.

**Table 10: Results for testing H1**

Variable	Coefficients	Standard Error	T statistics	Sig. Level
Constant	-0.027	0.008	-3.209	0.001
Financial Reporting Quality	-0.049	0.013	-3.746	0.000
Growth	0.008	0.002	3.475	0.000
Size	0.005	0.001	4.526	0.000
Return on Assets	-0.01	0.005	-1.827	0.068
Cash Holdings	-0.101	0.022	-4.543	0.000
Assets Tangibility	0.188	0.007	24.636	0.000
F Statistics	106.582	Coefficient of Determination		0.542
F Statistics Probability	0.000	Adjusted Coefficient of Determination		0.537
		Durbin – Watson Statistics		1.823

Since sig level of financial reporting quality variable is smaller than 0.05 and its t statistics (-3.746) is larger than  $\pm 1.96$ , its effect on investment inefficiency is inverse and significant. Thus, increased financial reporting quality leads to increased investment efficiency.

### Conclusion

Current work aims at investigating relationship between financial reporting quality and investment inefficiency. Multi-variate regression model, fixed effects model and EGLS method were used to explore these relationships. Several control variables including growth, return on assets, cash balance, and assets tangibility were used in this regression model. Investigations indicate there is inverse significant relationship between financial reporting quality and investment inefficiency. In order to calculate and measure financial reporting quality and investment inefficient, models proposed by McNichols and Stubben (2008) and Biddle et al. (2009) were used respectively. In order to describe direct relationship between financial reporting quality and investment efficiency, Verdi's argument (2009) can be used. According to Verdi, financial reporting quality can increase investment efficiency through two ways: Reducing information asymmetry between the company and investors, and thus reducing the costs of financing, and through reducing information

asymmetry between investors and managers, and thus reducing the costs of monitoring and improving project selection.

Findings from current research study are consistent with findings by Biddle and Hilary (2006), Biddle et al. (2009), Chen et al. (2011), Gomariz and Ballesta (2013), and Modares and Hesarzadeh (2008).

### **Recommendations**

Research findings suggest direct significant relationship between financial reporting quality and investment efficiency. Thus, investors and financial analysts are recommended to take it serious and estimate investment efficiency of companies through which, which can be crucial for evaluating future outlook of the company.

Incremental effect of financial reporting on investment efficiency suggests importance of the financial reporting quality subject and its major outcomes for management decisions. Thus, Stock Exchange Organization is suggested to provide necessary grounds for increasing monitoring over financial reporting quality of the companies listed in stock exchange by adopting suitable mechanisms, and inform investors about high importance of financial reporting quality of companies by following educational courses.

Overall, findings from the current work indicate importance of accounting information prepared by the companies. Thus, the investors can be recommended to not ignore significance and useful nature of these information. In addition, information providers can help improvement of future outlooks of their company by increasing accounting information quality.

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