



The Effect of Financial Reporting Quality on Investment Efficiency

Hossein Nabiei Boroujeni

Department of Accounting, Boroujen Branch, Islamic Azad University, Boroujen, Iran.

E-Mail: hossein_nabiei@yahoo.com

Tel: 00989132849384 - 00989374469165

Mohammad Noroozi

Department of Accounting, shahrekord Branch, Islamic Azad University, shahrekord, Iran.

Arezoo Aghaei Chadegani

Department of Accounting, Najafabad Branch, Islamic Azad University, Najafabad, Iran.

E-Mail: arezooaghaei@phu.iaun.ac.ir

Abstract: The quality of financial reporting is an important issue which affect the whole accounting practices. The main objective of this research is to investigate the effect of financial reporting quality on investment efficiency among 120 companies listed on Tehran Stock Exchange. Research data are collected over a 10 years period from 2005 to 2014. The results show that there is an inverse significant relationship between overinvestment and financial reporting quality and also underinvestment. In other words, the financial reporting quality improves the efficiency of investment through reducing overinvestment and underinvestment. The results also indicate that there are three effective factors that influence the relationship between financial reporting quality and investment efficiency such as limitation in financing, the level of accumulated cash and free cash flow. But, the limitation in financing has no meaningful effect on the relationship between financial reporting quality and underinvestment.

Keywords: Financial Reporting Quality, Investment Efficiency, Financing, Tehran Stock Exchange.

Introduction

The quality of financial reporting is investigated as a measure of reducing information asymmetry in most of the experimental studies. Some of these studies show that financial reporting quality influences the cost of capital (Bhattacharya et al. 2003; Francis et al. 2005), maturity period of the debt and choosing deceleration of interest (Bhattacharya et al. 2007) and also the level of accumulated cash (Teruel and Solano, 2009). There are different measurements for financial reporting quality such as: accounting transparency (Bhattacharya et al. 2003), the informational value of profit (Barth et al. 2006), qualitative characteristics of profit (Biddle and Hilary, 2006) and accruals quality (Verdi, 2006; Beatty, 2007; Biddle et al. 2008; Teruel and Solano, 2009).

Emphasizing on accrual quality by prior studies is due to the results showing that accruals increase the predicting ability of future cash flow (Dechow, 1994; Subramanyan, 1996; Bhattacharya, 2007). On the other hand, economics believe that financial frictions influence investment and economic improvement. Some of the researchers try to determine the optimal level of investment which represents the most efficient amount of investment. The investment efficiency requires preventing from using resources for activities that invest on more than desirable level (overinvestment) and the resources will be directed to the activities that need more investment (preventing from underinvestment). Prior studies show that financial reporting with high quality have significant economic consequences such as investment efficiency (Healy and Palepu, 2001; Bushman and Smith, 2001; Lambert et al. 2005). Although, the theory supports this relationship, but there is a few empirical evidences about this claim especially in Iran. Therefore, based on above discussion, this research attempts to answer questions such as: is there any relationship between financial reporting quality and investment efficiency? How the high level of quality of financial reporting can improve the investment efficiency?

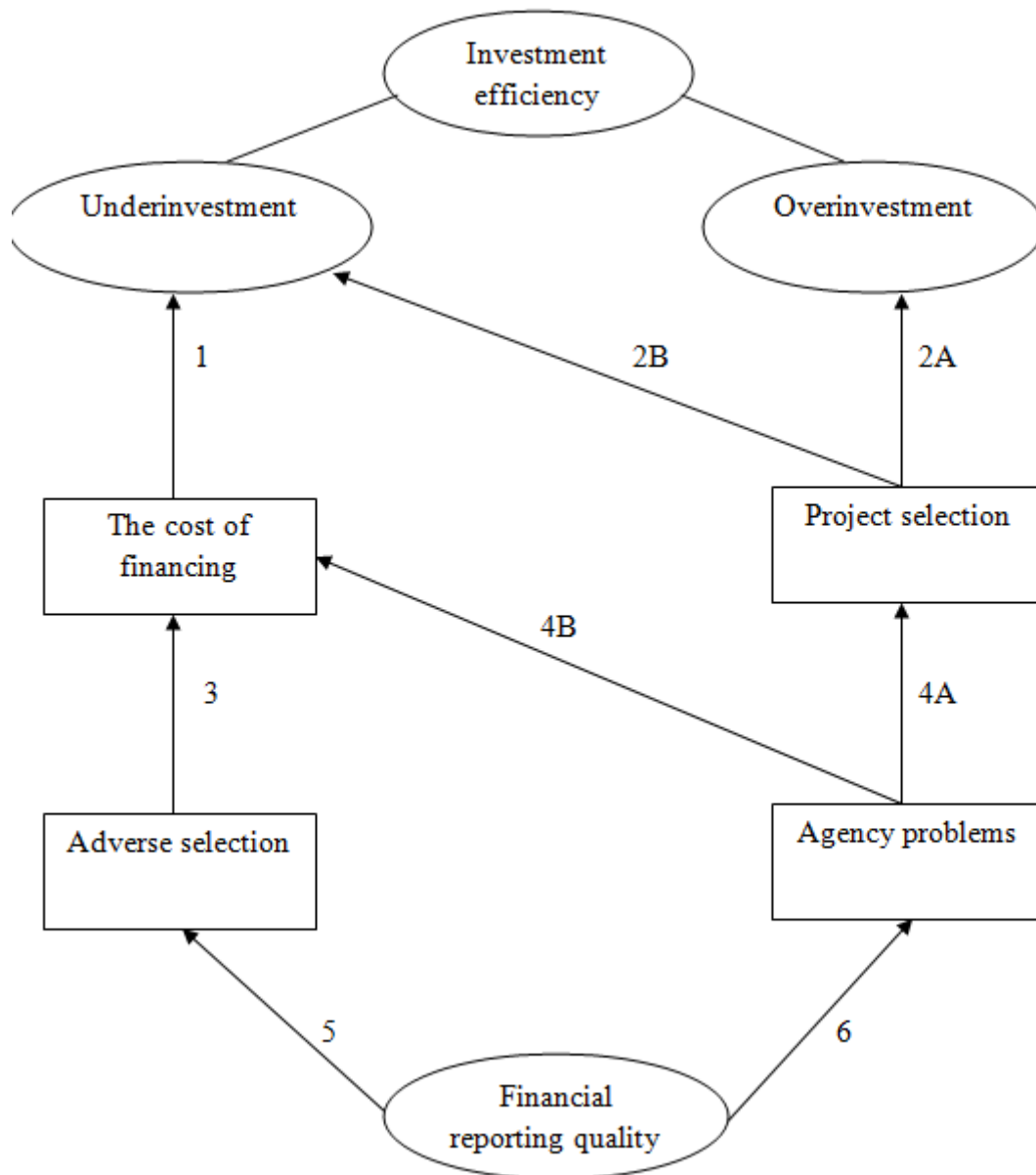
The remainder of this paper is organized as follows. In next section (2) the conceptual framework is explained, in section (3) the relevant literature to develop research hypotheses is discussed, in section (4) the sample selection, research hypotheses and research methodology are explained, in section (5) the research results are analyzed and in section (6) the conclusions of study and suggestions for future researches are discussed.

2. Conceptual Framework

High quality of financial reporting improves investment efficiency by two ways (Verdi, 2006). First, by reducing the information asymmetry between firms and investors and consequently, reducing the cost of financing, and second by reducing the information asymmetry between investors and managers through reducing the costs of monitoring and improving project selection.

At least, there are two measurements for analyzing the investment efficiency. First, every business entity for taking advantage of investment opportunities needs to gain resources. One of the cases that reasonably inferred is that companies with financing limitations may refuse accepting the projects with positive net present value due to the high cost of financing which leads to underinvestment (vector 1 in figure 1). Second, if an entity decides to do financing, there is no guarantee that the funds will be invested in the right places. For example, managers may make inefficient investment by choosing inappropriate projects for their interests, or misuse the existing resources. Most papers in this area claim that selecting poor projects leads to overinvestment (Stein, 2003), and some of these researches show that selecting poor projects leads to underinvestment (Bertrand et al. 2003). These relationships are represented by vectors 2A and 2B in figure 1. The information asymmetry affect the cost of financing and project selection. For example, information asymmetry between firms and investors which is often called unfavourable selection problem is the main stimulus for increasing the financing costs of firms that are seeking funds for their investment opportunities (vector 3 in figure 1). Myers and Majluf (1984) developed a model which indicates that information asymmetry between company and investors leads to underinvestment. The important point is that agency problems affect the investment efficiency by exacerbating selection of poor project (vector 4A in figure 1). Moreover, if investors predict that managers can misuse the resources, agency problems will increase the cost of financing (vector 4B in figure 1) (Lambert et al. 2003). In fact, based on above discussion, it is suggested that the information asymmetry between firms and investors, and the owner could represent an obstacle to efficient investment.

Figure 1: Theoretical relationship between financial reporting quality and investment efficiency



2.1. Literature Review and Prior Studies

Bushman et al. (2001) mentioned that financial reports affect capital market in three ways. First, financial reports with high quality help to recognize the good and bad investment which decreases the risk of estimation and the cost of capital. Second, the high quality financial reports assist investors in distinguishing between good and bad managers and reduce the agency costs and therefore, the cost of capital. Third, ambiguous accounting reports are reducing the relationship between accounting numbers and economic realities and increase information asymmetry. In such situations, the resource providers protect their interests by increasing the sale prices and reducing the purchase prices (Bhattacharya et al. 2003). Bushman et al. (2001) used timeliness of earnings as a measurement for ambiguity in financial reporting. Biddle and Hilary (2006) also investigated the relationship between the financial reporting quality and companies' investment. The results reveal that the high quality of accounting information

increases the investment efficiency by reducing the information asymmetry between managers and external providers of capital. They also suggested that in countries that financing is performed through general trading conditions (capital market), compare to countries that financing is performed through creditors (governmental banks), the relationship between financial reporting quality and investment efficiency is more significant. In this research, the quality of financial reporting is measured by the combination of the four criteria including earnings conservatism, avoid of loss, not smoothing of earnings and timeliness of earnings.

Beatty (2007) also concluded that accessibility to confidential information and monitoring reduces the sensitivity to cash flow investment and reduce the effect of accounting quality on investment efficiency. They used the quality of accruals as a measurement for financial reporting quality. Moreover, Verdi (2006) suggested that the high quality of financial reporting has a negative relationship with overinvestment and underinvestment. The results of this research revealed that the relationship between financial reporting quality and underinvestment is stronger for companies with financing limitations. Also, the relationship between financial reporting quality and overinvestment is stronger for companies with large amount of cash. They used the quality of accruals as a measurement for financial reporting quality and the growth opportunities model is used for measuring investment efficiency. Moreover, Teruel and Solano (2009) indicated that the accounting quality reduce the investment in unproductive assets such as cash with reducing the adverse effects of information asymmetry. They also measured the quality of financial reporting by the quality of accruals. Biddle et al. (2008) suggested that the financial reporting quality has a negative (positive) relationship with investment in companies with overinvestment (underinvestment). They use the same measurements for financial reporting quality and investment efficiency like Verdi (2006).

Recently, He (2015) investigated the effect of CEO inside debt holdings on financial reporting quality. He found that higher CEO inside debt holding is associated with lower abnormal accruals, higher accruals quality, a lower likelihood of an earning misstatement and a lower incidence of earning benchmark beating, suggesting that CEO inside debt promotes high financial reporting quality.

3. Developing Research Hypotheses

Based on the theoretical framework presented in the second part, the quality of financial reporting may affect agency costs and it is expected that financial reporting quality has a direct relationship with investment efficiency. Moreover, due to this fact that investment efficiency means optimal investment but not overinvestment and underinvestment, the relationships between research variables are hypothesized as follows:

H1: There is an inverse relationship between financial reporting quality and underinvestment.

H2: There is an inverse relationship between financial reporting quality and overinvestment.

As mentioned above and based on classic literature of finance, in an efficient market, all projects with a clear and positive vision are financed by the market regardless of the entity's financial position. But, most of the researches show that in practice, it is not true. Companies with financing limitations may ignore to accept and perform good projects due to the high cost of financing which lead to underinvestment. Therefore, in these companies, the role of financial reporting quality is more important in reflecting

limitations and also not reducing the information asymmetry problems, financial costs and underinvestment problems. Therefore, it is hypothesized that:

H3: The relationship between financial reporting quality and underinvestment is stronger for companies that have financial constraints.

Moreover, prior studies show that managers of companies with high levels of holding cash flow and with large amounts of free cash flow have more opportunities for engaging in undesirable activities such as overinvestment. Therefore, it is expected that the quality of financial reporting in the aforementioned companies play a more important role in reducing agency problems. Therefore, the forth hypothesis is:

H4: The relationship between financial reporting quality and overinvestment is stronger for companies with higher level of accumulation of cash and free cash flow.

4. Research Methodology

4.1. Research Population and Research Sample

The research population includes all companies listed on Tehran Stock Exchange. The data are collected over a 10 years period from 2005 to 2014. The purposeful sampling method is used to select the sample and all firms in the population with following conditions are selected as a research sample:

- The company's shares are traded from 2005 to 2014 in Tehran Stock Exchange and financial information of companies is available for the mentioned period.
- Selected sample of firms are not financial intermediation, financial and credit institutions and investment companies.
- Company's financial year ended to March and has not changed during the research period.
- In order to preserve the internal validity of the study, stopping trade of the company in a one-year is not more than 3 months.

Considering the mentioned conditions, total numbers of 120 companies are selected from all various industries as a research sample.

4.2. Research Variables and Research Models

4.2.1. Financial Reporting Quality

In this research, following Francis et al. (2005), Verdi (2006), Biddle and Hilary (2006), Bhattacharya et al. (2007), Beatty (2007), Biddle et al. (2008) and Teruel and Solano (2009), financial reporting quality is measured by the quality of accrual items. The emphasis on the quality of accruals in prior studies is because of the empirical evidence that demonstrates accrual items increase the ability of predicting future cash flows. Cash flow is a key element in the capital budgeting and especially in the present study, it is so important to investigate the financial reporting applications for company's investment. Dechow and Dichev (2002) state that accrual accounting and accrual items make financial reporting such as

accounting profit appropriate for measuring performance. But, it is possible that the accounting assumptions and estimates cause an error in accrual items. Morgado and Pindado (2000) argue that these errors reduce the quality of accounting information because these errors cause disruption in accruals. Based on above discussion, two main research models are as follows:

$$ACC_{it} = \alpha_0 + \beta_1 \cdot CFO_{it-1} + \beta_2 \cdot CFO_{it} + \beta_3 \cdot CF_{it+1} + \beta_4 \cdot \Delta S_{it} + \beta_5 \cdot FA_{it} + \varepsilon_{ACC} \quad \text{Model (1)}$$

Where:

ACC_{it} : Working capital accrual which is calculated by model 2.

CFO : Net cash flows from operating activities.

ΔS_{it} : Changes in sales revenue from the beginning to the end of period.

FA_{it} : Company's fixed assets.

$$ACC_{it} = \alpha(\Delta CA - \Delta C) - (\Delta CL - \Delta STD) - DEP \quad \text{Model (2)}$$

Where:

ACC_{it} : The accrual items of working capital

CA : Total current assets

C : Company's cash

CL : Total current debts

CTD : Total short-term financial receivable

CL : Depreciation cost

Dechow and Dichev (2002) believe that working capital accrual items in model 2 should be explained by the previous, current and next cash flow. Therefore, errors of the regression of working capital accruals on cash flows represent the absence of relationship between accrual to the cash flows. Therefore, by calculating the errors in the model number (1) the standard error can be used as a measurement for the quality of financial reporting or accruals quality.

4.2.2. Investment Efficiency

To investigate the relationship between financial reporting quality and investment efficiency, a model should be developed which can determine the optimal level of investment. Reviewing the literature shows that researchers have used the company's growth opportunities model for determining the optimal level of investment (Fazzari et al. 1998 and Biddel et al. 2008).

According to the theoretical bases of this model, company's growth opportunities should justify the firm's investments. In other words, it is expected that the regression between these two variables explains the growth opportunity and investment. Otherwise, the error shows the investment inefficiency. In this research, investment efficiency is measured through model 3 and model 4 which indicates the growth opportunities.

$$I_{FAit} = \beta_0 + \beta_1 \cdot CFO / FA_{it-1} + GO_{it} + \varepsilon_I \quad \text{Model 3}$$

$$GO = MTB, SR_{t-1} \quad \text{Model 4}$$

Where:

I_{FAit} : The ratio of investment to total fixed assets

CFO : Net cash flows from operating activities.

FA : Total fixed assets

GO : Growth Opportunities

MTB : The ratio of market value of firm's assets to book value of firm's assets

SR : The growth in firm's sale

In model 3, ε_I represents the amount of funds that cannot be explained by growth opportunities. The prediction error values may be positive or negative. Positive error represents overinvestment and negative error represents underinvestment. Obviously, these symmetrical values are indexed for measuring investment efficiency. Thus, the larger (smaller) the symmetrical values, the more (less) efficient the investment will be.

4.2.3. Financing Limitations

To separate the companies with financing limitations from other companies and in order to test one of the research hypotheses, financing limitation index is used which is developed by Kaplan and Zingale (1997). This model is as follows:

$$KZ_{IR} = 14.330 - 37.486C - 15.216iv + 3.394Lev - 1.402 \quad \text{Model 5}$$

For using this index, first of all, the real amounts are put in the model and KZ is calculated. With sorting values from the smallest (first quintile) to largest (bottom quintile), firms which are categorized in the fourth and fifth quintiles will be known as companies with financing Limitations.

4.2.4. The Level of Accumulated Cash and Free Cash Flow

According to Ozkan and Ozkan (2004) and Teruel and Solano (2009), the level of accumulated cash is the ratio of sum of the cash and short-term investment to total book value of assets. After calculating the above ratios, the two values variable, the level of accumulated cash is obtained. If the level of accumulated cash is higher than median, the variable takes 1 and if the level of accumulated cash is less than median, the variable takes 0. Based on Morgado and Pindado (2000), free cash flows are cash flows over the expected investments. In this research, following Verdi (2006), the following model is used for calculating the free cash flow.

$$FCF = CFO - I^* \quad \text{Model 6}$$

FCF is the operating cash flow and I^* is expected investment which is calculated in model 3. The calculated cash flows in model 6 could be positive, zero or negative. To generate the two values cash flow variable, if the value is positive, the variable takes 1 and 0 otherwise.

4.2.5. Other Research Models for Sensitivity Analysis

The main research models are introduced in previous sections. These models are used for measuring the research variables. For more analyses and for having more reliable results, some other models are used in this research. They will be explained in following sections.

4.2.6. Earnings Conservatism

In this research, following Bhattacharya et al. (2004), earning conservatism in different companies is measured through rating the accrual items. Because, it is expected that the use of conservative accounting procedures to calculate earnings will lead to negative accruals due to use more economic losses compare to economic benefits. Therefore, smaller amounts of accruals reflect a more conservatism. Based on literature in this research, McNichols (2002)'s model is used for calculating accruals items.

4.2.7. Income Non-Smoothing

Following Leuz et al. (2002), for measuring income non-smoothing correlation analysis between changes in accruals and changes in cash flow for every year is used. Because, some parts of the income smoothing are a result of accrual accounting. Generally, it is expected that this value will be negative. The more the correlation is negative, the more the image will be probably corrupt volatility and economic performance of firms and reporting quality. Therefore, the more amounts of β_1 shows higher quality of financial reporting. Accrual items are calculated by model 2. The following model is used to measure the income non-smoothing in this research.

$$\Delta ACC = \beta_0 + \beta_1 \Delta CFO + \varepsilon \quad \text{Model 7}$$

Where:

ACC : Accruals, model 2

CFO : Operating cash flow

β_1 : Index of income non-smoothing

4.2.8. Predictability of Earnings

Researchers believe that predictability of earnings means the ability of prior earnings to predict future earnings. Therefore, the error standard deviation of the difference between actual earnings and expected earnings in each period model (8) is used as an index for measuring the predictability of accounting earnings.

$$OI_{t+1} = \beta_0 + \beta_1 OI + \varepsilon_p \quad \text{Model 8}$$

Where:

OI_{t+1} : Operating income in period t+1

OI : Operating income in period t

ε_p : Predictability of earning measurement

In this study, the data of four years are used to calculate the standard deviation.

4.2.9. Composite index of financial reporting quality

After calculating financial reporting quality indexes including earning conservatism, income non-smoothing, predictability of earnings and the quality of accruals, based on theory, these aspects are combined and provide the composite index. The combining process starts with dividing the value of earning clarity into 5 groups and these groups are coded from 1 to 5. The sum of codes allocated to each company will show the quality of its financial reporting. The largest sum of the maximum can be 20 (4 * 5) and the lowest can be five (5 * 1). In other words, the number 20 represents the highest quality and the number 5 shows the lowest quality of financial reporting for each company.

4.2.10. Whited and Wu (2006) Index

Whited and Wu (2006) introduce an index for measuring financing limitations. In this research, for more analysis, beside the Kaplan and Zingale (1997) model, this model is also used for measuring financing limitations.

$$WW_{IR} = 80/04 - 5/182CFO - 0/106DIV + 5/112IEV - 0/662 \log TA \quad \text{Model 9}$$

Where:

WW_{IR} : The amount of financing limitations

CFO : Operating cash flows

DIV : Dividends

IEV : Liability to equity ratio

$\log TA$: Firm size

5. Research Results

5.1. Testing the Research Hypotheses

Based on first hypothesis, the financial reporting quality has an inverse relationship with underinvestment. In this research, the financial reporting quality is calculated by symmetric measure error values (ε_{ACC}). Underinvestment is a negative amount of errors in model 3. Based on results in table 1, the coefficient of financial reporting quality is negative (-0.369) and it is significant in 5% error level, the first hypothesis is accepted. Therefore, the results of testing first hypothesis show that there is an inverse relationship between the quality of financial reporting and underinvestment.

Table 1: The results of testing the first hypothesis

Independent variables	Coefficient	t-value	Sig
<i>α</i>	0.405	1.808	0.072
<i>FQ</i>	-0.369	-3.523	0.001
<i>LogTA</i>	-0.023	-1.143	0.254
<i>MTB</i>	-0.005	-0.568	0.570
<i>CFO/TA</i>	-0.000	-0.307	0.759
<i>ROAt-1</i>	-0.180	1.641	0.102
<i>ROAt</i>	-0.206	-2.303	0.022

Source: Compiled by author

$$Under = \alpha + \beta_1 FQ + \beta_2 LogTA + \beta_3 MTB + \beta_4 CFO/TA + \beta_5 ROAt-1 + \beta_6 ROAt$$

FQ: Financial reporting quality

Under: Underinvestment

LogTA: Firm size

MTB: Market value of firm assets to book value

CFO: Operating cash flows

ROA: Return on assets

Based on the second hypothesis, there is an inverse relationship between the financial reporting quality and overinvestment. Based on results in table 2, the coefficient of financial reporting quality is negative (-0.968) and it is significant in 5% error level, the second hypothesis is accepted. Therefore, it is concluded that the financial reporting quality has an inverse relationship with overinvestment.

Table 2: The results of testing the second hypothesis

Independent variables	Coefficient	t-value	Sig
<i>α</i>	0.61	1.078	0.284
<i>FQ</i>	-0.968	-7.465	0.000
<i>LogTA</i>	-0.026	-0.887	0.377
<i>MTB</i>	-0.37	1.958	0.53
<i>CFO/TA</i>	-0.088	-0.730	0.467
<i>ROAt-1</i>	-1.111	-9.997	0.000
<i>ROAt</i>	0.430	2.981	0.004

Source: Compiled by author

$$\text{Over} = \alpha + \beta_1 \text{FQ}_{t-1} + \beta_2 \text{LogTA} + \beta_3 \text{MTB} + \beta_4 \text{CFO/TA} + \beta_5 \text{ROA}_{t-1} + \beta_6 \text{ROA}_t$$

FQ: Financial reporting quality

Over : Overinvestment

LogTA: Firm size

MTB: Market value of firm assets to book value

CFO: Operating cash flows

ROA: Return on assets

The third hypothesis is about the relationship between financial reporting quality and underinvestment for companies with financing limitations. For testing the third hypothesis, the following model is used.

$$\text{Under} = \alpha + \beta_1 \cdot \text{FQ} - \beta_2 \cdot \text{KZ} + \beta_3 \cdot \text{FQ} \cdot \text{KZ} + \beta_4 \cdot \text{Controls} \quad \text{Model 10}$$

This model will be changed for companies with financing limitations as follows:

$$\text{Under} = (\alpha + \beta_2) + (\beta_1 + \beta_3) \text{FQ} + \beta_4 \cdot \text{Controls} \quad \text{Model 11}$$

And for companies without financing limitation, the model is as follows:

$$\text{Under} = \alpha + \beta_1 \cdot \text{FQ} + \beta_4 \cdot \text{Controls} \quad \text{Model 12}$$

If the relationship between the financial reporting quality and underinvestment is more significant for companies with financing limitations, then $(\beta_1 + \beta_3)$ is more than β_1 . Therefore, the third hypothesis will be accepted if $(0 < \beta_3)$. Due to this fact that in table 3, the coefficient of financial reporting quality is positive and it is not significant in 5% error level (0.243), the third hypothesis is not accepted. Therefore, it is concluded that the relationship between the financial reporting quality and underinvestment is not stronger for firms with financing limitations. The table 3 represents that there is not any significant relationship between limitations in financing and underinvestment.

Table 3: The results of testing the third hypothesis

Independent variables	Coefficient	t-value	Sig
α	0.565	2.592	0.010
FQ	-0.285	-2.576	0.011
KZ	-0.052	-1.248	0.213
$FQ.KZ$	0.243	1.107	0.270
$Log TA$	-0.036	-1.924	0.056
MTB	0.028	3.075	0.002
CFO/TA	0.006	0.375	0.708
ROA_{t-1}	-0.034	-1.542	0.148
ROA_t	-0.265	-3.599	0.000

Source: Compiled by author

$$Under = \alpha + \beta_1 FQ + \beta_2 KZ + \beta_3 FQ.KZ + \beta_4 Controles$$

Based on forth hypothesis, the relationship between financial reporting quality and overinvestment is stronger for companies with higher levels of holding cash flow and free cash flows. As table 4 represents, the relationship between overinvestment and financial reporting quality of companies with higher level of holding cash flow or free cash flow is faced with not significance of negative coefficient of financial reporting quality of companies with high free cash flows in table 4 and 5 (1.110, 1.261). Therefore, it is concluded that the relationship between financial reporting quality and overinvestment is stronger for companies with higher levels of free cash flows.

Table 4: The results of testing the forth hypothesis (high level of cash)

Independent variables	Coefficient	t-value	Sig
α	0.166	1.715	0.607
FQ	-1.351	-0.819	0.000
$CASHbig$	0.146	0.140	0.000
$FQ.CASHbig$	1.261	0.176	0.000
$Log TA$	-0.020	-1.740	0.473
MTB	0.071	5.926	0.001
CFO/TA	-0.025	-4.209	0.531
ROA_{t-1}	0.013	0.294	0.244
ROA_t	-0.635	-2.312	0.000

Source: Compiled by author

$$Over = \alpha + \beta_1 FQ_{t-1} + \beta_2 (CASH_{big})_{t-1} + \beta_3 (FQ, CASH_{big})_{t-1} + \beta_4 Controls$$

Table 5: The results of testing the forth hypothesis (free cash flows)

Independent variables	Coefficient	t-value	Sig
α	0.057	0.166	0.868
FQ	-1.241	-6.249	0.000
KZ	0.157	3.545	0.001
$FQ.KZ$	1.110	3.847	0.000
$Log TA$	-0.013	-0.431	0.667
MB	0.062	2.970	0.004
CFO/TA	-0.0137	-3.390	0.001
ROA_{t-1}	0.004	0.312	0.756
ROA_t	-0.408	-2.839	0.005

Source: Compiled by author

$$Over = \alpha + \beta_1 FQ + \beta_2 (CASH free)_{t-1} + \beta_3 (FQ, CASH free)_{t-1} + \beta_4 Controls$$

5.2. The results of sensitivity analysis

In addition to the findings presented in the previous sections, the results of sensitivity analysis are discussed in this section.

5.2.1. Financial reporting quality

Due to this fact that the accounting literature does not specify which aspects of the quality of financial reporting has a more important role (Bhattacharya et al. 2004), for measuring the quality of financial reporting besides the quality of accruals, other indicators such as earnings conservatism, income non-smoothing, predictability of earnings and composite index of financial reporting quality are also studied and contemplated. Table 6 represents the spearman correlation analysis results of different aspects of the quality of financial reporting. These cases have some inverse relationships with each other. For example, firms with higher levels of conservatism have lower quality accruals.

Table 6: The relationship between different aspects of financial reporting quality

H_0 $\rho = 0$	Earning conservatism	Income non-smoothing	Predictability of earnings	The quality of accruals
Earning conservatism	1 ^b 0 ^b	0.085 0.192	-0.139 0.032	-0.193 0.003
Income non-smoothing		1 0	-0.291 0.000	-0.252 0.000
Predictability of earnings			1 0	0.614 0.000
The quality of accruals				1 0

Source: Compiled by author

Table 7 shows the Pearson and Spearman correlation coefficients for the composite index of the quality of accruals. The significant correlations indicate that the composite index explains approximately 10% changes in other composite Index. As mentioned before, the composite index is the sum of the four codes of the quality of financial reporting. Sensitivity analysis results of testing first and second hypotheses show that the relationship between composite index and overinvestment and underinvestment is the same like prior results in previous sections. Table 7 shows that the regression coefficient of underinvestment and overinvestment on composite index which is significant in 5% and 10% level.

Table 7: The relationship between under (over) investment with composite index of financial reporting quality

Dependent variable: underinvestment			
Independent variable	Coefficient	Sig	t-value
Composite index	-0.012	0.004	-3.002
Dependent variable: overinvestment			
Independent variable	Coefficient	Sig	t-value

variable			
Composite index	-0.010	0.074	-1.838

Source: Compiled by author

5.2.2. The relationship between indicators of financing limitations (KZ, WW)

The Spearman correlation coefficients for KZ and WW in table 8 show that unlike the results of Whited and Wu (2006) for both models a correlation of 36% and 13% are explained by this model. In Whited and Wu (2006) model, the sale growth and sale growth of industry are not existed. This is the reason that the results are not the same as Whited and Wu results. Also, the economic situations of two populations are another reason. Using Whited and Wu (2006) index for retesting the third hypothesis provides the same results of Kaplan and Zingale (1997). In other words, the third hypothesis is not accepted even in retesting by changing the financing constraints index.

Table 8: The results of testing research hypotheses

Research Results	
First Hypothesis	The financial reporting quality has an inverse relationship with underinvestment (accepted)
Second Hypothesis	The financial reporting quality has an inverse relationship with overinvestment (accepted)
Third Hypothesis	The relationship between the financial reporting quality and underinvestment is stronger for companies with financing limitations (not accepted)
Fourth Hypothesis	The relationship between the financial reporting quality and overinvestment is stronger for companies with higher levels of holding cash flow and free cash flows (not accepted)

Source: Compiled by author

6. Conclusion

The main purpose of this research is to investigate the relationship between financial reporting quality and investment efficiency. The results reveal that there is a meaningful inverse relationship between financial reporting quality and underinvestment and also between financial reporting quality and overinvestment. Moreover, in this research the effects of three influential factors on the relationship between financial reporting quality and investment efficiency such as financing limitations, the level of holding cash flow and free cash flows are investigated.

The results of testing hypotheses show that the relationship between financial reporting quality and overinvestment is stronger and more significant for companies with high levels of holding cash flow and free cash flows. However, the impact of financing constraints on the relationship between financial reporting quality and investment efficiency is not confirmed statistically. The results of testing first and

second hypotheses are the same as Verdi (2006) and Biddel et al. (2008, 2009). The results also show that the relationship between the financial reporting quality and over (under) investment is not stronger for companies with financing limitations and companies with higher levels of holding cash flow and free cash flow. One reason for this result is that in Iran financial providers especially governmental banks do not pay attention to the financial situation of companies and banks are forced to give loans because of protective policies of government. Using Whited and Wu (2006) index for retesting the third hypothesis provides the same results of Kaplan and Zingale (1997). The results of testing forth hypothesis is also consistent with Verdi (2006) results.

Regarding the acceptance of first and second research hypotheses, it is suggested that investors and capital market operators should pay more attention to the quality of financial reporting. As a result, investors could be able to better monitor their investment and the problems of adverse selection and moral hazard which leads to undesirable investment such as overinvestment and underinvestment will be deleted. Moreover, it is suggested that investors and operators should pay more attention to the holding cash flow and also free cash flows. According to the results of testing the fourth hypothesis, aforementioned factors are the aggravating factors of inefficient investment. Therefore, increasing the power of supervision and internal controls and continuous follow-up of audit committee and boards of directors can be helpful. Moreover, it is suggested that financial analysts pay more attention to financial reporting quality as an influencing factor on investment decisions and use these information for their final decisions.

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