Journal of Engineering and Applied Sciences 14 (16): 5869-5874, 2019
ISSN: 1816-949X

Information Asymmetric, Financial Reporting Quality and Investment's Efficiency: Evidence from Iraq

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Abstract: This study investigate the impact of information asymmetry based on the quality of financial reporting on the investment efficiency in the Iraq Stock Exchange using a sample of 178 observations in the time period 2015-2017. Our findings lead to a significant negative relationship between financial reporting quality and the underinvestment and overinvestment which lead to a significant positive relationship between financial reporting quality on Iraq Stock Exchange. This means that higher financial reporting quality increase the ability of investors to monitor the management which lead them to invest on the projects which have the positive net present value.

Key words: Information asymmetric, financial reporting quality, accounting quality, accruals quality, investment efficiency, exchange

INTRODUCTION

The information has a great importance within the relationship between parents and subsidiaries because the parent company needs to monitor its subsidiaries for allocating its resources across its subsidiaries. So, the increased level of information protects the parent company form resource allocation risks. La Porta *et al.* (2000), Hope and Thomas (2008), Biddle *et al.* (2009) and Graham *et al.* (2015). This point of view interested in exchanging information on the internal level between the parent and its subsidiaries but on the external level to outsiders the problem may be more important to solve.

In this regard, corporate insiders possess a great level of information related to the value of their firm's shares which they can trade on it. On the same time, outsiders don't posses this information which leads to information gap between outsiders and insiders, this information gap called by Information asymmetric. This information asymmetric gives the ability to insiders to earn abnormal profits (O'Neill and Swisher, 2003; Wittenberg-Moerman, 2008; Pedchenko *et al.*, 2018; Lin *et al.*, 2018).

In another vein, outsiders depend on the financial statements as a basic source for information and the information asymmetric phenomenon reflect on the financial reporting quality, so, outsiders give a great importance for financial reporting quality as a proxy for the information asymmetric phenomenon (Aulia and Siregar, 2018; Linhares *et al.*, 2018).

Consequently for the information asymmetric phenomenon is the basic determinant of the relationship between financial reporting quality and investment efficiency, i.e., lower degree of information asymmetric means higher degree of financial reporting quality which attracts the investors to the firm because the company has the efficiency usage of its resources and has the ability to use more resources in an efficient way in a positive NPV investments, this means a negative relationship between financial reporting quality and underinvestment. On the other side, higher degree of financial reporting quality will decrease the management ability to overinvest in negative NPV investments, so, there is a negative association between the quality of financial reporting and overinvestment. In other words, the quality of financial reporting can achieve contractual efficiency by preventing inefficient investments (Biddle *et al.*, 2009; Aulia and Siregar, 2018).

By this way, higher degree of financial reporting quality maximizes the ability of outsiders to monitor the management performance, therefore, minimizing the degree of information asymmetry and solving the problem

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of overinvestment and underinvestment and achieving the investment efficiency (Bushman and Smith, 2001; Healy and Palepu, 2001; Nichols and Stubben, 2008).

In this regard, accruals quality is the best measure of financial reporting quality by measuring the time series volatility in abnormal accounting accruals reported by firms (Bushman and Smith, 2001; Healy and Palepu, 2001; Lambert *et al*., 2007; Al-Taie *et al*., 2017).

Although, prior studies agreed that higher financial reporting quality lead to lower investment's efficiency, but in Iraq environment inflation create great information asymmetric in addition the presence of random investment decisions in securities and there are a lot of recommendations to the listed companies from Iraq stock market about the retention of financial reporting quality, so, the association between the quality of financial reporting and investment's efficiency is an empirical question need to be answered.

Literature review: The best way for eliminating the information asymmetry phenomenon is improving the financial reporting quality because it enables the outsiders to enhance their monitoring of management, thus, control their investment decisions. Therefore, analyzing the relationship between the quality of financial reporting and investment's efficiency has attracted the attention of many researchers.

In this regard Bushman and Smith (2001), Healy and Palepu (2001), Biddle and Hilary (2006), Lambert *et al*. (2007) agreed to exist negative relationship between financial reporting quality and information asymmetry problem which means higher ability for investors to take the right investment decisions. And this result become clearer in the economies which investors more dominance than creditors.

On the other side, Nichols and Stubben (2008) confirm this result in addition they found that financial reporting quality not only affect on the external investment decisions but also affect on the internal investment decisions. On another vein, Chen *et al*. (2011) don't try to be sure from this result but deal with it as a postulate and based on prior research that shown lower financial reporting quality in the emerging countries which suffer from low investor protection and stronger conformity between tax and financial reporting rules, they found that the low level of financial reporting quality in this private firms cause increasing level on the overinvestment and underinvestment, i.e., positive relationship between the quality of financial reporting and investment's efficiency.

The modern bulk of literature related to our research tried to add more variables in analyzing the relationship between financial reporting quality and investment efficiency where Ramalingegowda *et al*. (2013) tried to enter the financial reporting quality as a moderator variable to the relation between dividend policy and investment decisions and they found that higher quality of financial reporting can undermine the negative effect of dividends on investments, especially on R&D investments. Aulia and Siregar (2018) tried to enter more independent variables besides financial reporting quality such as debt maturity and CEO concerns and examine its impact on investment efficiency. They found that the quality of financial reporting does not has any effecton investment's efficiency because of the high level of agency problems. In this regard, we observe results confusion between Chen *et al*. (2011), Aulia and Siregar (2018), Talab *et al*. (2018a, b), although, the both deal with the emerging markets.

Extension to these literatures we try to analyze the relationship between information asymmetric based on financial reporting quality on the investment efficiency on the Iraqi information environment. By this way, we try to cover research gap and contributing to the international accounting literature in two ways. The first one, to our best knowledge, it is the first study examining the impact of the quality of financial reporting quality on investment's efficiency on Iraq. Second one, Iraq Stock Exchange is one of the emerging markets that low investor protection and higher degree of conformity between tax rules and financial reporting standards which addressed by Chen *et al*. (2011), Aulia and Siregar (2018) and our results in this research will be so important to support or refutes their results.

Hypothesis development: Majority of literature (Bushman and Smith, 2001; Healy and Palepu, 2001; Biddle and Hilary, 2006; Lambert *et al*., 2007) found a negative relationship between information asymmetry and financial reporting quality which means a positive impactof the quality of financial reporting on investment's efficiency.

Aulia and Siregar (2018) refute this result in the emerging markets on contrary to Chen *et al*. (2011) who deal with the same informational environment (i.e., emerging markets) and our research try to deal with the same informational environment on Iraq.

Consequently, we follow the majority of literatures, although, the controversy between Chen *et al*. (2011), Aulia and Siregar (2018) which deal with the emerging markets. So, we suppose that higher financial

reporting quality lead to lower overinvestment and underinvestment, i.e., positive relationship between financial reporting quality and investment efficiency. This lead to our main hypothesis as follow:

- H_1: higher quality of financial reporting lead to higher level of investment's efficiency

This main hypothesis can be divided into two hypothesis as follow:

- H_{1a}: higher quality of financial reporting lead to lower level of overinvestment
- H_{1b}: higher quality of financial reporting lead to lower level of underinvestment

MATERIALS AND METHODS

In this study, we show how to measure variables and how to analyze the relationship between them using empirical models for testing hypothesis as follow.

The independent variable; information asymmetry based on financial reporting quality: There is no acceptance among researchers about universal measure for the information asymmetry or even financial reporting quality, but in this regard we follow the majority of literature by using accruals as a measure for the financial reporting quality. Consequently, we use Jones model for accruals as a measure for financial reporting quality (Jones, 1991):

$$TACC/LagTA = \alpha_0+\alpha_1(1/LagTA)i,t+ \alpha_2(\Delta REV-\Delta REC)/LagTA\,i,t+\alpha_3(LagROA)i,t+ \alpha_4(PPE/LagTA)i,t+\varepsilon \quad (1)$$

Where:

TACC = Total Accruals which equal the difference between net income from the cash flow statement and free cash flow from operations
ΔREV = Change on sales revenue
ΔREC = Change on accounts receivables
LagROA = Return on Assets last year which equals net income for t-1 from the cash flow statement divided by total assets for t-1
PPE = Total assets before depreciation
LagTA = Total Assets for t-1
i, t = Time by year and company, respectively

We run this model cross-sectionally with a minimum eight observations for each industry every year and thenwe use the residuals of this model as a proxy for the quality of Financial Reporting (FRQ).

The dependent variable: investment efficiency: Investment efficiency is realized only if all the projects implemented by the firm have a positive net present value. So, we follow Biddle *et al*. (2009) and Chen *et al*. (2011) by using the deviation from expected investment. Where underinvestment represented in the negative values of residuals which express the decline of investments compared to expected investments and overinvestment represented in the negative values of residuals which reflects high investments compared to expected investments. Consequently, we use (Chen *et al*., 2011) regression model for estimating the investment efficiency as follow:

$$Investi,t = \beta_0+\beta_1 NEG,t\text{-}1+\beta_2\%RevGrowthi,t\text{-}1+ \beta_3 NEG*\%RevGrowthi,t\text{-}1+\varepsilon \quad (2)$$

Where:

Invest = (The new investment on fixed assets plus the increase in research and development expenses minus sold fixed assets)/lagged total assets for firm i in year t
NEG = Indicator which is take 1 for when decreasing revenue growth and 0 otherwise
RevGrowth% = $(Revenue_{i,t-1}\text{-}revenue_{i,t-2})/revenue_{i,t-2}$ which is called the revenue growth rate

This model depend on revenue growth as a function for estimating the expected investment where the relationship between investment and revenue growth differ by the difference of decreasing or increasing revenue (Eberly, 1997; Hubbard, 1998; Nichols and Stubben, 2008). Thus, we run this model cross-sectionally with a minimum ten observations for each industry every year and then we use the residuals of this model as a proxy for investment efficiency where negative residuals used as a proxy for underinvestment and positive residuals as a proxy for overinvestment.

Empirical model for testing hypothesis: This study seeks to analyze the impact of the quality of financial reporting on the investment's efficiency. So, we can use this regression model for testing the main hypothesis of this study as follow:

$$Inv\_Eff = \beta_0+\beta_1 FRQ+\beta n\,control\,variables+ \sum Firm\,fixed\,effects+\varepsilon \quad (3)$$

where, Inv_Eff = The residuals extracted from running Eq. 2 related to measuring dependent variable where negative values of residuals refer to underinvestment and positive value refer to overinvestment. FRQ = The residuals extracted from running (Eq. 1) as a proxy for financial reporting quality.

Following prior literature Bushman and Smith (2001), Healy and Palepu (2001), Biddle and Hilary (2006), Lambert *et al.* (2007), Biddle *et al.* (2009) and Chen *et al.* (2011) we use the following control variables:

RESULTS AND DISCUSSION

Data collection and results: Our primary data source is the Iraq Stock Market, so, our sample period will cover 2015-2017 with 178 firm-year observations and we choose 2015 as a starting point for the sample because of the published laws on the Iraq Stock Market. Overall, we can show our results through three main points consist of descriptive statistics, pearson correlation matrix and the results of regression analysis as follow.

First descriptive statistics: As shown in Table 1 and 2, that we can identify the different characteristics of our variables represented on the empirical model related to testing hypothesis and we can identify how it distributed in addition identifying the extensibility of comparability the results of this study with other results. Therefore, we conclude some results from descriptive statistics can be showed.

First, the mean of FRQ equal 0.014 which approximately equal to its counterpart published by studies Biddle *et al.* (2009), Aulia and Siregar (2018) which equal 0.01, 0.017, respectively. Second, the mean of Under_Inv almost equal the mean of Over_Inv which equal -0.03476, 0.0310749, respectively. This means that the number of companies which suffer from underinvestment approximately equal to the number of companies which suffer from overinvestment on the sample which is clear on the number of observation where equal 94, 84, respectively. Third, the mean of Z-score which equal -1.74 approximately equal to its counterpart published by studies of Biddle *et al.* (2009), Aulia and Siregar (2018) which equal 1.28, 1.82, respectively.

Based on the results related to descriptive statistics we conclude that our results in this article can be compared with the other results related to prior literature (Bushman and Smith, 2001; Healy and Palepu, 2001; Nichols and Stubben, 2008; Biddle *et al.*, 2009; Aulia and Siregar, 2018).

Second Pearson correlation matrix: This matrix show the degree of correlation among the variables of this article whether dependent or independent for the purpose of configure initial view about the multicolinearity problem and verification of the validity of hypothesis. Finally, we can show the degree of correlation among variables through the pearson correlation matrix on the Table 3.

Initially as shown in the Table 3, there is no significant relationship among independent and dependent variables which refer to the validity of the main hypothesis of this study even running the empirical model related to testing hypothesis and concluding the final results.

As regards the relationship among other variables there is a significant relationship between LEV and Z-score which equals 0.96. This means it is important to exclude one of them, so, we exclude the Lev from the final model for testing hypothesis.

On the other side, there is aninverserelation between ROA and Z-score in the rate of 43.98% which refer to higher ROA lead to higher Z-score and this result, confirm the negative relationship between liquidity and profitability. On another vein, there is a positive relationship between size and Big 4 in the rate of 54.07%, which means that large companies trend to assignment Big 4 auditors.

Table 1: Control variables

Variables	Explanation
Size	Natural log of the total assets
Age	Age firm by years
ROA	Return on assets equals net income divided by total assets
LEV	Financial leverage equals total liabilities divided by owner's equity
Z-score	Z-score = -4.336-[4.513×(Net income/Total assets)]+[5.679×(Total debt/Total assets)]+[0.004×(Current assets/Current liabilities)]
Big 4 audit	Dummy variable which is take 1 if the auditor is one of the big 4 audit and 0 otherwise
Assets rate	Total fixed assets divided by total assets

Table 2: Descriptive statistics

Variable	Obs.	Mean	SD	Minimum	Maximum
FRQ	178	0.0146914	0.1165643	-0.5267196	0.5247331
Under_Inv	94	-0.0347600	0.0115161	-0.0413595	-0.0140341
Over_Inv	84	0.0310749	0.0131248	0.0071297	0.0413946
Size	178	20.3625400	2.2652110	13.2564500	25.0153600
Age	178	3.2915660	0.5409460	1.9459100	4.4998100
ROA	178	0.0529154	0.1054189	-0.6897519	0.3987328
LEV	178	0.4956951	0.2505965	0.0128140	1.5657120
Z-score	178	-1.7477640	1.5996370	-5.1532980	6.0833460
Big 4 audit	178	0.4722222	0.5006203	0	1
Assets rat	178	0.4538033	0.2583271	0.0045427	0.9799242

Table 3: Pearson correlation matrix

Variables	Under_Inv	FRQ	Over_Inv	Size	Age	ROA	LEV	Z-score	Big 4	Assts rate
Under_Inv	1.0000									
FRQ	-0.4599	1.0000								
Over_Inv	0.7813	-0.0914	1.0000							
Size	-0.0707	-0.1715	-0.1606	1.0000						
Age	-0.0052	0.0877	0.0751	-0.1597	1.0000					
ROA	0.1309	-0.2487	0.0042	0.1551	-0.3110	1.0000				
LEV	-0.0791	-0.0800	-0.0673	0.3604	-0.0559	-0.1809	1.0000			
Z-score	-0.1077	-0.0045	-0.0619	0.2878	0.0340	**-0.4398**	**0.9628**	1.0000		
Big 4	-0.1804	-0.1430	-0.1125	**0.5407**	-0.0503	-0.0418	0.4864	0.4564	1.0000	
Asstsrate	0.1544	-0.0311	0.0201	-0.3932	0.2880	-0.1515	-0.3978	-0.3236	-0.3910	1.0000

Bold values are significant values

Table 4: Results of regression analysis (H_{1a})

	Dependent variable:Underinvestment			
Variable s	Coef.	t-stat	p-values	VIF
Constant	0.0033	0.1500	0.8800	
FRQ	-0.0735	-4.7500	0.0000	1.3300
Size	-0.0007	-0.8500	0.3970	1.9300
Age	-0.0044	-1.8400	0.0710	1.3900
ROA	-0.0077	-0.5100	0.6120	1.4300
Z-score	-0.0006	-0.6100	0.5450	1.6200
Big 4	-0.0072	-2.3200	0.0240	1.7800
Asstes rate	0.0019	0.3000	0.7690	1.6100

Industry dummies, Included; Year dummies, IncludedL; N, 94; Adj. R^2, 39.37%

Table 5: Results of regression analysis (H_{1b})

	Dependent variable: overinvestment			
Variables	Coef.	t-stat	p-values	VIF
Constant	0.0130	0.7600	0.4520	
FRQ	-0.0667	-3.8900	0.0000	1.2200
Size	0.0006	0.8200	0.4170	1.8200
Age	-0.0001	-0.0400	0.9650	1.2800
ROA	0.0451	2.1300	0.0390	1.6800
Z-score	0.0014	1.0400	0.3050	1.8300
Big 4	0.0042	1.1800	0.2420	1.7000
Assets rate	0.0035	0.5700	0.5720	1.5900

Industry dummies, Included; Year dummies, Included; N, 84; Adj. R^2, 39.93%

Third results of regression analysis: The main hypothesis of this article aim to examine the impact of financial reporting quality as an independent variable on the investment's efficiency as a dependent variable, so we run the Model No. 3 for testing the main hypothesis, after excluding Lev (i.e., the variable related to financial leverage).

As shown in Table 4, that explanatory power equal to 39.37% which is better than its counterpart disclosed by studies (Biddle *et al*., 2009; Aulia and Siregar, 2018) where it is equal 23.79%, 16.8, respectively.

In addition, there is a significant inverse relationship between financial reporting quality and underinvestment. This means higher financial reporting quality decreasing the level of underinvestment on the firm and this result agree with the results of many prior literature (Bushman and Smith, 2001; Healy and Palepu, 2001; Nichols and Stubben, 2008; Biddle *et al*., 2009; Aulia and Siregar, 2018).

Moreover, there is a significant negative relationship between the control variable Big 4 and the underinvestment which means the existence of the Big 4 auditors mitigate the level of underinvestment in the Iraq firms. As shown in Table 5, that explanatory power equal to 39.93% which is better than its counterpart disclosed by studies (Biddle *et al*., 2009; Aulia and Siregar, 2018) where it is equal 19.40%, 19.32, respectively.

Moreover, there is a significant negative relationship between financial reporting quality and overinvestment. This means higher financial reporting quality decreasing the level of overinvestment on the firm, i.e., higher quality of financial reporting increase the ability of investors to monitor the management which lead them to invest on the projects which have the positive net present value and this result agree with the results of many prior literature (Bushman and Smith, 2001; Healy and Palepu, 2001; Nichols and Stubben, 2008; Biddle *et al*., 2009; Aulia and Siregar, 2018). Furthermore, there is a significant positive relation between the control variable Roa and the overinvestment which means increasing the return on assets lead to overinvestment even if these projects have a negative net present value on Iraqi environment.

Based on the results of Table 4 and 5, we conclude accepting the main alternative hypothesis of this study and refusing the null hypothesis, i.e., there is a significant positive relationship between financial reporting quality as an independent variable and investment efficiency as a dependent variable.

CONCLUSION

This study aims to analyze the effect of information asymmetry based on financial reporting quality on the investment's efficiency in the Iraq Stock Exchange using a sample of 178 observations in the time period 2015-2017.

The study results revealed that our empirical model for analyzing the impact of financial reporting quality on the investment's efficiency on Iraq Stock Exchange has an explanatory power larger than its counterpart in the emerging markets. In addition, the study revealed a negative relationship between financial reporting quality and the underinvestment and overinvestment. This means higher quality of financial reporting lead to lower level of

underinvestment or overinvestment on the firms listed on Iraq stock exchange which means that higher quality of financial reporting increase the ability of investors to monitor the management which lead them to invest on the projects which have the positive net present value.

Furthermore, this study found a significant negative relationship between the Big 4 and the underinvestment, which means the existence of the Big 4 auditors mitigate the level of underinvestment in the Iraq firms. Also, this study found a significant positive relationship between ROA and the overinvestment which means increasing the return on assets lead to overinvestment even if these projects have a negative net present value on Iraqi environment. Overall, this results lead to accepting the main alternative hypothesis of this study and refusing the null hypothesis, i.e., there is a significant positive relationship between financial reporting quality as an independent variable and investment efficiency as a dependent variable.

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