The Relationship between Financial Reporting Quality and Corporate Performance: Evidence from Iran

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ABSTRACT

The relationship between financial reporting quality and corporate performance in the imperfect Iranian market is very important for investors, such that one of the main concerns of shareholders is to be informed about corporate performance. On the other hand, information is provided to stakeholders through financial reports and facilitates investment decisions. The aim of this study is to evaluate the effects of financial reporting quality on corporate performance in Iran where this relationship between financial reporting quality criteria and corporate performance has not been investigated yet. In order to test these relationships, 80 listed companies on the Tehran Stock Exchange during the period 2006 - 2014 were studied and analyzed. In this study, three separate methods (contingent income, accrual items, and accruals quality of working capital) and a composite method used to evaluate the quality of financial reporting and in order to calculate the corporate performance, we used the economic and market value added. The results show that the improvement of reporting quality increases the economic value added according to Dechow and Dichev (2002) models. No relationship found between different criteria of financial reporting quality and the market value added.The aim of this study is to evaluate the effects of financial reporting quality oncorporate performance in Iran.To test hypotheses, data of all listed companies on theTehran Stock Exchange were analyzed during a period from 2008-2016. In this study, three separate methods (contingent income, accrual items, accruals quality of working capital) used to evaluate the quality of financial reporting and in order to calculate corporate performance, we used the economic and market value added.

The results show that the improvement of reporting quality increases theeconomic value added according to Dechow and Dichev (2002) models. No relationship found between different criteria of financial reporting quality and the market value added.

Each company's performance is affected by various factors. The studyintends to mention that the performance of listed companies in the stock market depends heavily on its financial reports.

Keywords: Financial reporting quality, corporate performance, Tehran Stock Exchange.

1. Introduction

One of the important elements of each country's capital market is its stock exchange that is one of the most influential institutions in the economy of any country. For that, researchers and experts have considered its status as a measure of the economic health of a given society (Shariat and Ketabi, 2016). A stock exchange is developed based on a correct policy; it will lead to the development of the national economy (Ghazinoory et al., 2016).Although Tehran Stock Exchange as one of the major institutions in the capital market of Iran has nearly a four-decade record of activity, it still has not managed to get its place in the national economy (Shariat and Ketabi, 2016). One of the fundamental problems the stock market is faced with is the weak performance of companies in this market. Hence, these companies face common obstacles that weaken both their performance and survival rate. Financial researchers, investors, creditors, managers, and governments are constantly searching for suitable criteria to measure the performance of economic enterprises (Aghorlikhani, 2005). In practice, there are different criteria to evaluate the performance. Some of these criteria are traditional, public, and based on accounting models and the other group is based on economic models or value. To select the appropriate criteria, it is necessary that we take the strategic goals into account (Jahankhani and Zareeffard, 1995). Criteria based on accounting models include stock prices, profits, equity return, investment return, the ratio of market value to book value, price to earnings ratio, and total returns to shareholders. Criteria based on economic models include market, economic, and modified economic value added (Simon, 1999). Nowadays, it is recognized that profit cannot be a relevant criterion for assessing the value and performance of these units. Accounting profit can be modified using different accounting methods, and capital expenditures are not included when calculating earnings. The advocates of economic value added argue that this indicator is the best criterion for performance evaluation. Because it takes the cost of capital and the time value of money into account and eliminate distortions resulting from the application of accounting principles (AndreasandVebin Berger,2003).

Diamond and Verrecchia(1991) and Nouravesh et al. (2004),believe that improvement of financial reporting quality and, consequently, the reduction of agency costs will increase the liquidity in company stocks, reduce capital costs, and increase the company's value and performance.

Financial reports are one of the most important resources of information in Iran that is expected to play an important role in investment development and to increase the investment efficiency. The success of the capital market is influenced by the quality of disclosure and financial reporting. The higher the quality of financial reporting and disclosure of the company's information, the greater is the confidence of investors and other market participants about their liability of financial information (Ardestani, 2007).On the other hand, due to the markets and business globalization, geographical expansion, and the greater demand for information and transparency among investors, stakeholders, and society, market agents find their toehold in the quality of their financial reporting (Martinez-Ferrero, 2014).Financial reporting is one of the most important products of an accounting system and one of its main goals is to provide the required information for economic decision-makings of the users regarding the assessment of performance and profitability capability of the economic entity. The required condition to achieve such a goal is to measure and report the information in a way that it makes past performance assessment possible and it can be effective in measuring profitability capability and predicting future

activities of an economic entity (Tariverdi and Keivanfar, 2017).

In this article, we focus on criteria based on economic models or value-based ones (economic and market value added) and we evaluate the effect of financial reporting quality as a factor that reduces agency costs between the company and suppliers of resources and increases the value of the company on these criteria despite the presence of control variables such as: size, the proportion of tangible fixed assets, logarithm of sales fluctuation, logarithm of standard deviation of operational cash criterion, the ratio of operational cash flow to the average total assets and loss. At first, in this article, we describe theoretical concepts, including the quality of financial reporting, economic and market value added, and research history; then, in order to answer research questions, we test the formulated hypotheses. In the final section, the summary of the research results, hypotheses test, and recommendations are presented.

2. Theoretical principles and hypotheses development

Market value added is an accumulated value criterion created by managers compared to the surplus of used capital. Thus, it is considered an external criterion to evaluate management performance. From the perspective of modern financial theories, market value added is almost the present value of the firm. If we assume firm as a set of investment projects, market value added is the market estimation of their present value (Shiely and Stern, 2001).

Although the ultimate goal of each firm is to maximize the market value added, it cannot be used as a guide for current or long-term investment decision-making; because market value is only used when an entity is structured as a public company; its stocks are traded and priced on the market; although for the public company, market value added is calculated on the total level and cannot be determined for one part, subordinate unit, or a production line. Thus, the market value is not usable in evaluating the performance of many business enterprises and departments. As a result, managers have to use internal criterion to evaluate the performance which has a close connection with the external criterion of market value added. This criterion is called economic value added (Stewart, 1991).

The main feature of the economic value added is its emphasis on capital expenditure. Based on this indicator, financial resources of owners who are regarded as key financial suppliers of an enterprise are not considered as a free source of financing, whereas in other accounting criteria, the interests of stockholders and opportunity cost are neglected. Considering the cost of capital employed (both the cost of debt and equity), the criterion of economic value added provides a condition, in which accounting profit changes into economic one and then evaluate the actual performance of the firm(Yahyazadefar et al.,2009).

The quality of financial reporting is the ability of financial statements to transfer information about the firm's operations and in particular, it is the prediction of cash flows expected by investors (Biddle et al., 2009). Enhancing the quality of financial reporting is a key factor to reduce agency costs and the cost of capital. Agencies costs have an opposite effect on the value and performance of the firm (Nouravesh et al., 2004). In fact, firms that have experienced more agency problems should show a greater willingness to use the performance evaluation system. The relationship between financial reporting quality and company performance is adjusted by the level of perceptions of diversion in the country of origin, the adoption of IFRS, the accounting system used in the country, and the influence of the business cycle (Martinez-Ferrero, 2014). Small companies are usually sensitive to changing

economicconditions, so they are more volatile at times of changing business cycles. Therefore, they have more risks and there is a negative relationship between firm size and return. On the other hand, companies with higher returns will have better performance than companies with lower returns. Therefore, it can be concluded that there is a negative relationship between firm size and firm performance (Foroughi,2014). Results from researches on cash flow show that effective management of cash flow improves liquidity, which is related to improving company financial performance (Gitman et al., 1979).On the other hand, the ratio of fixed assets to total asset scan increase the company's investment by increasing the ability of company in external financing, as creditors expect that if the company did not fulfill its obligations, they could use fixed assets of the company for their demand and increase the value and performance of the company (Almeida and Campello, 2007).

The discretion of managers regarding the application of realization and matching principles estimation and prediction are among the factors that influence the quality of financial reporting, in general, and the quality of profit, in particular. On the one hand, due to the greater awareness of the managers about the corporate affairs, it is expected to provide information in a way which best reflects the corporate status. On the other hand, management may intentionally or unintentionally make the company's financial situation look desirable through the process of earning management due to reasons such as corporate retention, remuneration, and other factors. Therefore, the quality of financial reporting of companies influenced by the actions and discretion of management will change and decrease to better reflect the financial situation (Khajavi and Nazemi, 2005). Throughout the world, wide-ranging researches have been carried out on internal and external factors affecting the quality of financial reporting. But according to the literature review, it seems that studies on the relationship between financial reporting quality and corporate performance are scarce. In summary, there are three different views about corporate features and the quality of financial reporting which compete globally (Jaggi and Leung, 2007). First, some argue that corporate structural features play an important role in preventing managers from manipulating accounting figures in comparison to other criteria such as monitoring or performance variables. Second, others believe that regulatory mechanisms can better control the opportunistic behavior of management in the preparation of financial statements. The latter view belongs to those who believe performance variables can defeat unethical accounting activities by managers which reduce the quality of financial reporting better than other two views i.e., structural and regulatory elements. Therefore, the differences between these three different perspectives have not been resolved yet, although limited studies have been conducted on the relationship between financial reporting quality and corporate performance in the world.

2. Literature review

In Iran, no research has been done which simultaneously studies the link between financial reporting quality and modern financial performance metrics, including EVA and MVA. Given the fact that Iran's economic structure is different from all the countries that have carried out studies in this regard so far, it is useful to examine this issue.

So in this section, some related records within and outside the country have been mentioned.

Olanisebe et al. (2018) investigate the effect of independent auditor modeling on the financial reporting quality of related banks in Nigeria. Hypotheses have been tested

using multiple regression techniques. At the end of the study, there was a positive significant impact on the audit cost and financial reporting quality at a significant level of 5%.This means that an increase of 0.43 of the auditor's costs is associated with an increase in the financial reporting quality. However, the rotation and tenure period of auditors in relevant banks are negatively related to financial reporting. It is recommended that the managers of relevant banks follow the law set forth in the audit and that the audit period should be one to three years, so that the auditor can prevent fraud and improve the quality of financial reporting. Finally, the rotation of the audit should be within the range set by the supervisory organizations.

Garven et al. (2017) investigated the effects of audit-related factors on the financial reporting quality of a nonprofit organization. In non-profit accounting researches, the choice of financial reporting quality criteria is of high importance. The results indicate that clear methods of nonprofit organization management ratio before the Sarbanes-Oxley Act have been chosen less than after it. Finally, the studies do not show that great auditors are consistently offering the highest quality which is a different result obtained from the studies of profitable companies.

According to Poornimaet al. (2015), the concept of Economic Value Added is a new principle. This concept is used in firms to evaluate the performance and indicates the role of stockholders in creating value. Poornimaet al. (2015)using 50 samples of Indian firms during 2009-10 to 2013-14, compared the relationship of economic value added with traditional metrics (earnings per share, investment, and equity return). Their results showed that there is a significant relationship between EVA and stock returns. Their results showed that there is a significant relationship between EVA and stock returns.

Jain and Mareno (2015) investigate the impact of organizational learning (OL) on the firm's performance and knowledge management (KM) practices in a heavy engineering organization in India. Results were analyzed using the exploratory factor analysis and multiple regression analysis techniques. The findings showed that all the factors of OL, i.e. collaboration and team working, performance management, autonomy and freedom, reward and recognition, and achievement orientation were found to be the positive predictors of different dimensions of firm's performance and KM practices.

Xia and Walker (2014) estimate how much ownership contributes to firm performance, compared to other factors, including industry, region, firm size, year, and the firm itself. The data are on manufacturing firms in mainland China from 1998 to 2007. They find that the effect of owner type is significant and pervasive across regions and interacts with both geography and time, reflecting China's decentralized system and the strong trend in privatization.

The quality of financial reporting can increase the efficiency of investment by providing conditions that managers can better identify projects, accounting numbers are more reliable and as a result, they make better decisions (Bushman and Smith, 2001; McNichols and Stubben, 2008).

Hemati et al. (2013)in a sample of 150 firms declare that accounting profit has more informative content in explaining the behavior of stock returns than its economic value added and operational cash flow.

Kordestani and Bagheri (2009) studied the relationship of economic and cash value added with earning forecast error. The results of the study show that economic and cash value added at earning forecast error based on integrated data have a relative informative content and are useful for prediction. As a result, economic value added is a better indicator than operational earning, cash value added and operational cash to forecast earning error.

Yahyazadefar et al. (2009)analyze the relationship between economic value added and profitability ratios with the market value of stock in the automobile industry and parts manufacturing firms in Iran. The results show that EVA, ratio of equity return, profitability, and earnings per share have a significant relationship with the value of firms' stocks. However, the ratio of asset return has no significant relationship with the market value of stocks in these firms.

Hejazi and Hosseini (2006)state that economic value added criteria is more relevant to market value in comparison with other criteria in firms listed on The Stock Exchange. Economic value added criteria is suggested in this study due to a strong relationship with the market value added.

Based on the theoretical foundation and research background, the main and secondary hypotheses are as follows:

H_1: *There is a significant relationship between the quality of financial reporting and corporate performance.*

Market value added and economic value added have been used to measure the corporate performance. For this reason, the following sub-hypotheses have been developed.

H_{1-1}: *There is a significant relationship between financial reporting quality and market value added.*

H_{1-2}: *There is a significant relationship between the quality of financial reporting and economic value added.*

3. Research Method

The type of the study in research classification based on the objective is an applied one and this is a descriptive study according to the method of classification, and among descriptive researches it is correlational. Thus, the multivariable regression method is used. The population consists of 80 firms listed on the Tehran Stock Exchange during 2008-2016.

The following model is used to test the effect of financial reporting quality on market value added:

$$MVA_{i,t}=a+\beta_1 FRQ_{i,t}+\beta_2 LnSales_{i,t}+\beta_3 Tang_{i,t}+\beta_4 LnStdCFO_{i,t}+\beta_5 LnStdSales_{i,t}+\beta_6 Loss_{i,t}+\beta_7 CFO\text{-}ATA_{i,t}+B_j Industrydummies+ e_{i;t}(1)$$

Where:

MVA: market value added, FRQ: financial reporting quality and the rest of the variables are controlled ones.

The following model is used to test the effect of financial reporting quality on economic value added.

$$EVA_{i,t}=a+\beta_1 FRQ_{i,t}+\beta_2 LnSales_{i,t}+\beta_3 Tang_{i,t}+\beta_4 LnStdCFO_{i,t}+\beta_5 LnStdSales_{i,t}+\beta_6 Loss_{i,t}+\beta_7 CFO\text{-}ATA_{i,t}+B_j Industrydummies+ e_{i;t} \qquad (2)$$

Where:

EVA: economic value added, FRQ: financial reporting quality and other variables are controlled ones.

Study information is obtained by the use of RahavardNovin Software and financial statements of firms listed on the Codal Website. RahavardNovin Software provided information related to the market price of per share. Finally, information was classified using Excel Software and variables were calculated and analyzed using the Eviews Software.

The study population includes all firms listed on theTehran Stock Exchange with the following features: companies' information should be available from 2006 to

2014, and during the research period, they did not change the activity or change the financial year. Banks and financial institutions and financial intermediaries (investment companies, holding, and leasing companies) are excluded, since the relationship between financial reporting quality and the corporate performance may vary from one institution to another, it cannot be generalized. Companies should be public corporations and their stocks should be priced and traded in the market. They should not have more than 3 months of trading halt during the research period.

• Firms information must be available from2006 to 2014,
• Firms which have not changed their activity or fiscal year during the study period,
•They should not be affiliated with banks, financial institutions and financialintermediary institutions (investment companies, holding and leasing),
•They should be public firms and their stocks must be traded and priced in themarket, and;
• They should not have a trading interval of more than 3 months in the period ofinvestigation.

Regarding the above limitations, 80 qualified firms remained.

3.1. Research variables

3.2. Economic value added

Stewart (1999)defines economic value added as a major criterion or the final representative of the market value added. One of the methods proposed by Stewart for calculating EVA is as follows:

EVA=(R-WACC) * capital   (3)

R is the rate of assets return obtains by dividing the net operational profit after taxes in tototal non-current assets. WACC is the rate of weighted average cost of capital. Capital is the amount of capital employed in financing. Each component of EAV formula is calculated as follows:

In the present article, ROA is calculated by the following equation (Hejazi and Hosseini, 2006):

ROA= (Net operational profit after tax/ Total non-current assets)   (4)
Rate of financing cost

Cost of capital rate is the average rate of profit that the firm have to pay to financiers (such as creditors and stockholders) (Worthington and West, 2004).

Cost of capital rate was calculated by the following equation (Hejazi and Hosseini, 2006):

WACC=$\sum W_i * K_i$ i=1,….n   (5)
Where:

WACC: weighted average of cost of capital, Ki: effective cost rate of each source of financing, W_i: weight of each source.

According to the above equation, the average cost of capital is formed by two main components (ki) and (Wi). By examining the financial statements of firms in the Tehran Stock Exchange and resource weight, we found out that these firms used debt, common stock, retained earnings and reserves to finance. Therefore, total resources entered in the calculations. The method to calculate the cost rate of each resource is as follows (Hejazi and Hosseini, 2006):

(The cost of debt)K_d=Facility Received/ Cost of financing)   (6)

(The cost of equity)$K_s = \dfrac{D_1}{P_0} + \smile$ **'0**   (7)

Where:

D_1 is the payable profit per share in each fiscal period,P_0 is the market value of stock at the end of each fiscal period, g is sales growth rate of firms in the fiscal period. It is noteworthy that the cost of debt (K_d) is multiplied by(1- tax rate) to make the effective rate of expense. To calculate the weight of each resource, the following procedure is used for each fiscal period.

(Weight of interest-bearing debt (long-term facilities))$W_{d=}$(Total financial resources/ Total Facility Received) (8)

(Weight of stockholders equity) W_s= (Total resources/total stockholder's equity) (9)

3.3. Market value added

Stewart defines market value added as the surplus of the market value of capital (debt and equity) over its book value. The more market value is positive, the more wealth is created by the firm for its stockholders (Stewart, 1991).

3.4. Financial reporting quality

There is no universal agreement on the criteria of financial reporting quality (Dechow et al., 2009). In this study, four criteria are used for measuring the quality of financial reporting. The four criteria are as follows: MacNichols and Stubben discretionary income (FRQ_MNST), Kasznik optional accruals (FRQ_KASZ), Dechow and Dichev quality of working capital accruals (FRQ_DD), and their combination will be used.

We will use three different indicators and their averages for the quality of reporting. The first indicator of the following model is provided by McNichols and Stubben (2008). He considered discretionary income as earnings management indicator.

$$\Delta AR_{i,t} = a + b_1 \Delta Sales_{i,t} + e_{i,t} \qquad (10)$$

Where:

$\Delta AR_{i,t}$ shows annual changes in accounts receivable of the firm i in the year t.

$\Delta Sales_{i,t}$ Shows annual changes in sales revenue of the firm i in the year t.

All of these variables will be divided into the total beginning assets. Discretionary income remains the error of this equation and represents that part of the change in accounts receivable that sales growth is not able to explain. The first indicator of the financial reporting quality is the absolute value of the above model remains multiplied by-1.Therefore, the higher of the amount, the higher is the quality of financial reporting (FRQ-MNSTi,t=-|ei;t|).

The second indicator of financial reporting quality is taken from Kasznik optional accruals model (1999) which is based on the Jones model (1991):

$$TA_{i,t} = a + b_1 \Delta Sales_{i,t} + b_2 PPE_{i,t} + b_3 \Delta CFO_{i,t} + e_{i,t} \quad (11)$$

Where:

$TA_{i,t}$ is total accruals which is calculated through changes in non-cash current assets minus current liabilities Changes plus changes in short-term bank debt minus depreciation.

$\Delta Sales_{i,t}$ shows changes in income minus the changes in receivables.

$PPE_{i,t}$ is the property, plant ,and equipment.

$\Delta CFO_{i,t}$ is Change in current operational cash flow.

All of these variables are divided in to total beginning assets. The second indicator for financial reporting quality is absolute value of above model remains multiplied by-1.Therefore, the higher this amount, the higher is the financial reporting quality (FRQ –KASZi,t =-|ei,t|).

The third indicator is based on Dechow and Dichev (2002) accruals quality model.

In this model, working capital accruals have been regressioned according to cash flow obtained from last, present, and next year operations.

$$WCA_{i,t} = a + b_1 CFO_{i,t\_1} + b_2 CFO_{i,t} + b_3 CFO_{i,t+1} + e_{i,t} \quad (12)$$

Where:

WCA is current accruals which is calculated through changes of current non-cash assets minus changes of current debt plus the change in short-term bank debt.

CFO_{i,t_1} is the operational cash flow of the current year of t-1

$CFO_{i,t}$ operational cash flow of the current year t

$CFO_{i,t+1}$ Operational cash flow of the current year t + 1

Current operational cash flow is obtained from the difference between operational profit and accruals. All variables are divided in to the average total assets; the third indicator of financial reporting quality is the absolute value of the remains multiplied by -1; higher values indicate a higher quality of financial reporting ($FRQ\text{-}DD_{i,t} = -|e_{i,t}|$).

The fourth indicator of financial reporting quality is Aggregit, which is the average standard values for three indicators. Higher values mean higher quality of financial reporting.

Control variables
LnSales: Size-natural logarithm of sale
Tang: Visibility-the ratio of tangible fixed assets to total assets
LnStdCFO: The logarithm of standard deviation of operational cash since year t to t-2.
LnStdSales: Logarithm of sales fluctuations in each period
Loss: Control variable is 1 if net profit is negative before unusual items, otherwise, 0.
CFO-ATA: The ratio of operational cash flow to the average total assets to examine the impact of cash on investment efficiency.
Industry dummies: Dummy variable of industry type

Industry type	Number of companies	Number of samples	Sample selection percentage
Sugar - Foodstuffs	50	7	0/14
Automobile-Machinery-Home Appliances-Computers	125	26	0/21
Pharmaceutical ingredients	30	15	0/2
Cement-tile-Mass House Building	30	6	0/2
Technical Engineering - Industrial Contracting - Basic Metals - Metal Products	125	11	0/09
Chemical-Rubber-Petroleum products-Textiles	50	11	0/22
Metallic and non-metallic ores- Other mines - Coal	20	9	0/45

Table 1. Separation of industries and number of sample companies

4. The results

The study sample related to the data of 80 firms, during 2006-2014 extracted from existing data banks and transferred to Excel software. After performing the necessary calculations for independent and dependent variables, information required for the statistical test was stored in appropriate files and processed in the Eviews Software.

According to Table 2, the criterion which looks at average, the size of (LnSales) has the highest value (13.46) and economic value added (EVA) has the lowest (-191.65).In median criterion, the size of (LnSales) has the highest value (13.35) and economic value added (EVA) has the lowest(-1.33). As for the standard deviation criterion, economic value added (EVA) has the most value (3556.27) and the third criterion, the quality of financial reporting (FRQ_DD) has the lowest (0.065).Amongthe three quantitative model of financial reporting quality, it can be concluded that the Dichev and Dechow's model has the lowest standard deviation compared to the other two models.

Variable	Variable symbol	average	Median	Maximum	Minimum	Standard deviation
Market value added	MVA	6.34	0.1	517.25	-6.93	40.76
Economic value added	EVA	-192.65	-1.33	59.19	-70433.4	3556.27
First criterion of financial reporting quality	FRQ_MNST	-0.085	-0.057	-.00001	-0.87	0.093
Second criterion of financial reporting quality	FRQ_KASZ	-0.087	-0.068	-0.00005	-0.55	0.08
Third criterion of financial reporting quality	FRQ_DD	-0.069	-0.05	-0.00009	-0.6	0.065
composite criterion of financial reporting quality	Aggreg	0.00002	0.14	0.94	-3.07	0.59
size	LnSales	13.46	13.35	18.94	7.1	1.64
The ratio of tangible fixed asset	Tang	1.88	0.17	198.23	0.0000	12.28
Logarithm of standard deviation of operational cash criterion	Lnstdcfo	11.14	11.07	16.17	5.76	1.64
Logarithm of sales fluctuation	Lnstdsales	11.7	11.6	17.7	6.7	1.79
The ratio of operational cash flow to the average of total assets	CFO-ATA	0.09	0.1	1.35	-1.31	0.19

Table 2. Descriptive statistics

Before data analysis, the validity of the variables must be examined. The validity of variables means that the average and variance of variables were constant over time and the covariance of variables did not change through out different years. As a result, the use of these variables in the model does not lead to a false regression (Mashayekhi and Mohammadpour,2014). For this purpose, we used Levin, Lin and Chow, Shane and boys, and Dickey-Fuller tests. The results of all these tests were favorable. The p-value is less than 0.05 for all variables. Thus, all variables are valid in the study period. The heterogeneity of variance is the next assumption that we check. In this study, Eviews Software version 9 is used. This version is able to activate generalized least squares method (GLS) and white covariance matrix weighing cross-section when running the regression tests. Hence, after running the test, there will be no variance heterogeneity problem.

Durbin-Watson test is used to investigate the autocorrelation of the regression model (Hashemi et al., 2014).

The correlation coefficient between the variables in the research in Table 4 is less than 0/7.Therefore, there is no collinearity among the independent variables.

	FRQ1	FRQ2	FRQ3	Aggreg	Lnsales	Tang	Lnstdcfo	LnstdSales	Loss	Jaryan
FRQ1	1									
FRQ2	0/036	1								
FRQ3	-0/0004	0/02	1							
Aggreg	0/56	0/6	0/58	1						
Lnsales	-0/054	-0/01	-0/08	-0/08	1					
Tang	-0/027	0/042	0/037	0/029	-0/01	1				
Lnstdcfo	0/044	-0/01	-0/22	-0/15	0/09	-0/12	1			
LnstdSales	-0/073	-0/044	-0/193	-0/17	0/09	-0/13	0/04	1		
Loss	0/058	0/003	-0/264	-0/11	-0/04	0/002	0/006	-0/02	1	
Jaryan	-0/045	0/07	-0/02	0/002	0/004	-0/01	-0/05	0/007	-0/11	1

The Chow and Breusch-Pagan are used to estimate the four models and the results are presented in Table 4. As observed, Since the p-value is less than 0.05 (0.000), the homogeneous assumption of sections and widths of the same origin is rejected, therefore, the effects of the group are accepted and should be taken into account the width of the different sources in the estimation. As a result, a panel method can be used for the estimation.

To estimate the four models, the Chow and Breusch-Pagan tests are used, the results of which are presented in Table 4.

Breusch-Pagan test		Chow test	
Optional model	p-amount	Optional model	P-amount
Panel data	0.0000	Panel data	0.0000

Table 4.
Chow and Breusch-Pagan tests to determine the panel or cumulative model

Hausman Test is used to determine the appropriate model for analyzed panel data. Since the analyzed data is of panel data type, the Hausman Test was used to determine the model of the fixed or random effects panel, the results of which are summarized in Table 5.

Test result	Hausman Test p-amount	Null hypothesis
Using a random effects model	More than 0.05	Using a random effects model

Table 5.
Hausman Test to determine fixed or random effects model

Further, the research hypotheses are tested using the data panel method and generalized least squares estimation method. According to Table 6, the coefficients of three criteria of financial reporting quality (MacNichols and Stubben, Kasznyk, composite criterion) are positive but they are not statistically insignificant. Dechow and Dichev financial reporting quality coefficient is negative and it is not statistically significant.

As for the control variables in every four models, sales fluctuation (LnStdSales) and standard deviation of operational cash flow (LnStdCFO) are negative and they are not significant at 5% error level. Similarly, the ratio of tangible fixed assets (Tang) and the ratio of operational cash flow to the average of total assets (CFO-ATA), size (LnSales) and loss (Loss) are positively related to the investment efficiency.

According to Table 7, the least squares method is used to test hypothesis 2. According to Table 8, the quality of financial reporting coefficients of three criteria (Kasznik, Dechow and Dichev and composite criterion) are positive and only Dechow and Dichev model is statistically significant among these three criteria. MacNichols and Stubben financial reporting quality coefficient is negative and it is not statistically significant.

About control variables in all four models, sales fluctuation (LnStdSales) and standard deviation of operational cash criteria (LnStdCFO) are negative and the ratio of tangible fixed assets (Tang) is not significant at 5% error level and the ratio of operational cash flow to the average of total assets (CFO-ATA), size (LnSales) and loss (Loss) have a positive relationship with investment efficiency.

signs	Quality criteria			
	Mac Nichols	kasznik	Dechow and Dichev	Aggregit
FRQ-MNST	7.28* (0.353)**			
FRQ-KASZ		9.31 (0.32)		
FRQ-DD			-1.0.09 (0.44)	
Aggreg				0.95 (0.47)
LnSales	5.66 (0.000)	5.54 (0.000)	5.71 (0.000)	5.56 (0.000)
Tang	0.037 (0.632)	0.031 (0.69)	0.031 (0.68)	0.034 (0.66)
LnStdCFO	-0.036 (0.969)	-0.006 (0.99)	-0.096 (0.92)	-0.000 (0.99)
LnStdSales	-0.533 (0.607)	-0.61 (0.55)	-0.78 (0.45)	-0.51 (0.62)
Loss	1.625 (0.642)	1.69 (0.63)	0.93 (0.8)	2.07 (0.56)
CFO-ATA	3.46 (0.391)	3.05 (0.45)	3.11 (0.44)	3.26 (0.42)
Industry1	5.1 (0.72)	4.75 (0.73)	4.66 (0.74)	5.1 (0.72)
R2	0.058	0.059	0.058	0.058
Adjust R2	0.041	0.042	0.041	0.04
F	3.36	3.44	3.36	3.33
p>F	0.0000	0.0000	0.0000	0.0000
DW	1.75	1.74	1.75	1.75

*Value of each variables coefficient
** Significant level related to each variable

Table 6.
The relationship between the quality of financial reporting, the market value added, and control variables.

Table 7.
Chow and Breusch–Pagan Tests for panel determination

Breusch–Pagan Test		Chow Test	
Optional model	P-amount	Optional model	P-amount
Consolidated data	0.0000	Consolidated data	0.0000

According to Table 8, F significance level for all patterns equals 0.0000 which is less than 0.05; so, all fitted patterns are significant at confidence level of 95% and the coefficient of determination model is between 0.098 and0.11% for all four criteria. The figures represent the percentage of dependent variable changes which is explained by the independent variables. The Durbin-Watson Statistic is close to 2 in all patterns, so there is no autocorrelation among pattern errors.

signs	Quality criteria			
	Mac Nichols	kasznik	Dechow and Dichv	Aggregit
FRQ-MNST	-1092.3 (0.458)			
FRQ-KASZ		435.13 (0.8)		
FRQ-DD			7234.51 (0.002)	
Aggreg				314.68 (0.192)
LnSales	175.12 (0.363)	165.62 (0.39)	61.6 (0.75)	128.93 (0.51)
Tang	-6.57 (0.54)	-6.46 (0.54)	-5.55 (0.6)	-6.27 (0.55)
LnStdCFO	-224.17 (0.096)	-229.45 (0.089)	-194.79 (0.15)	-223.61 (0.096)
LnStdSales	-280.14 (0.123)	-263.64 (0.14)	-152.91 (0.15)	220.04 (0.23)
Loss	578.39 (0.33)	561.02 (0.35)	1164.47 (0.06)	677.95 (0.26)
CFO-ATA	4571.1 (0.000)	4578363 (0.000)	4684.2 (0.000)	4596.88 (0.000)
Industry1	-555.41 (0.28)	-584.72 (0.26)	341.61 (0.51)	-576.72 (0.26)
R2	0.098	0.098	0.11	0.099
Adjust R2	0.081	0.08	0.09	0.083
F	5.81	5.77	6.56	5.9
p>F	0.0000	0.0000	0.0000	0.0000
DW	2.12	2.12	2.09	2.13

Table 8. The relationship between the quality of financial reporting and economic value added and control variables.

5. Conclusion

The improvement of financial reporting quality plays an important role to convey users' information and reduce the informative asymmetry between investors and managers and increases firm value.

The aim of this study is to evaluate the effect of financial reporting quality on economic and market value added. According to theoretical foundations, by increasing the financial reporting quality, information asymmetry between investors and managers decreases.

By reducing the information asymmetry between investors and managers and agencies cost, company's value, and consequently the company's performance will rise. In order to achieve an acceptable sample, 80 firms listed on the Tehran Stock Exchange were accepted as the qualified samples. Related information was collected during a nine-year period from2008 to 2016. The raw data needed to calculate variables and test hypotheses were extracted from financial statements of firms listed on the Tehran Stock Exchange as well as software. Collected data were analyzed using the Eviews Software.

Research findings indicate that four criteria of financial reporting quality have been used in order to test hypotheses and to investigate the relationship between financial reporting quality and market value added. The results show that the improvement of financial reporting quality in accordance with four criteria does not affect the increase or decrease of market value added. For explaining the rejected hypothesis, factors that modify and determine that value added of the market are more important and effective for the financial reporting quality.

Furthermore, the results show a relationship exists between the four criteria of financial reporting quality and economic value added dependent variable. The results show that according to DechowDichev model, the growth of the quality of financial reporting will increase the economic added value. The result is in accordance with Nouravesh et al. (2004) and Diamond and Verrecchia (1991). In their research, agency costs have an inverse relationship with the firm value.

In Iran, the rate of market value is low. As findings showed, MVA is 6.34. So, these results may be of interest to managers enabling them to assess the impact their quality of information has on the outcome and practices that improve market value. Moreover, investors have a greater volume of information at their disposal and thereby, a decreasing amount of information asymmetry. Given that, investors and stakeholders value these companies in the market in a positive way.

According to research results, it is recommended to investors and activists of the stock market pay more attention to the quality of financial reporting when making decisions about investing to keep more control over firm activities and managers, consequently, agency problem and investment will reduce and corporate value will increase. In this regard, it is suggested that the compilers of Iranian accounting standards consider this issue and take into account the accounting standards of financial reporting quality.

It is recommended to researchers examine the effect of financial reporting quality on performance evaluation criteria with other criteria of financial reporting quality. Different industry should be separated, so that different characteristics of industries and legal requirements governing each specific type of industry should be considered to obtain more accurate results. The effect of other mechanisms such as the role of auditors, institutional investors, or corporate governance on firm value was also examined. The effect of financial reporting quality on firm value is examined by controlling the variables, such as the quality of audits and adjustment of financial statement items by a general price indicator.

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