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The Relationship between Financial Crisis Index and Financial Reporting Quality and Accrual Items in Stock Exchange Companies

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ABSTRACT

This research is conducted in order to study the relationship between the financial crisis and the quality of accounting processes in listed companies of Tehran Stock Exchanges; this research is descriptive in terms of purpose, operational in terms of its nature and quantitative in terms of the type of data. The studied society includes all of the listed companies in Tehran Stock Exchanges in this research which were activated in the intended time period, and the studied time period was 2011 to 2017. One hundred eighteen companies of statical samples were chosen by systematic deletion method. Data collection tools were Rahavardnovin and Tadbirpardaz software and the financial statements of the studied companies. The statical analysis of data was conducted by static and econometrics software named E-Views version 9. Two regression models by Kaplan et al. (2016) were used in order to test hypotheses. The results of testing the first hypothesis show that the variable coefficient of the financial crisis is 2.263. Therefore, the positive coefficient of financial crisis states that the increase of financial crisis results in an increase in earnings management. The findings of the second hypothesis indicate that the variable coefficient of financial crisis equals 2.934. So, the positive coefficient of financial crisis states that an increase in financial crisis causes the increasement in accrual items, and this issue shows that financial crisis affects accrual items positively.

Keywords: *quality of accounting processes, financial crisis, accrual items, listed companies in Tehran Stock Exchanges.*

INTRODUCTION

Previous researches in different countries show that there is a meaningful and straight relationship between the financial crisis and the quality of accounting processes. Also, the going loss in listed companies of Stock Exchanges is increasing in Iran. So that more than 30 companies have quit Tehran Stock Exchange due to losses and bankruptcy in 2017. Some accounting studies have shown that the managers of companies have a tendency to transfer information and good news to the capital market during the financial crisis in order to prevent a decrease in the value of their company.

Smoothing of earnings, the value relevance of earnings and conservatism, which are important features of earnings quality, affect financial reporting quality directly. The existence of a financial crisis may cause changes in each of mentioned indexes which leads to a decrease in the financial reporting quality, and it results in misleading users of financial statements and increasing the risk of investment due to the optimal misallocation of resources and ultimately leads to the reduction of shareholders wealth. The motivation to manage earnings increases in order to hide the weak performance of the company in the years that the financial position of the company is undesirable and the manager sees signs of moving towards a financial crisis. Because of this, the earnings value is doubted and distorts its credibility as one of the most

important purposes of performance reporting and determining the value of the company, which is, in fact, the most important purpose of reporting.

The importance of an income statement is that it makes predicting cash flow in the future as well as evaluating the management's performance possible. On the other hand, it should be mentioned that earnings as the most important source of information may not reflect the actual performance of companies and their management because of the inherent flexibility of accounting standards; the interpretation and utilization of accounting methods in many cases follow the judgment and managers' opinions. For this reason, in addition to the number of earnings, they should also pay attention to its quality. If the earnings do not have the required quality, investors (both shareholders and creditors) will face uncertainty in predicting and estimating future cash flows, which are considered the basis of investors' evaluation of company's securities and providing credit to the company. The tendency of investors (both shareholders and creditors) can decrease to invest in the company by increasing uncertainty about the future, or in other words, increasing the risk of investing in the company. The continuation of this situation can cause financial problems for the company in the long term, and the existence of financial problems in any company, if it continues, can lead to an increase in the risk to the company and increasing problems to finance in order to repay the debts and the interest of debts of the company and put the company on the way of the financial crisis and finally bankruptcy.

At first, the financial crisis is to find overproduction, which means that market is glutted with goods that customers cannot pay for them. The production of goods is naturally reduced and stopped when there are no customers in the market and goods are not sold, and this issue results in the closing of factories and unemployment of millions of workers, which consequently makes selling goods even more difficult and worsens the crisis. The capitalist credit system will stop working; debtors cannot pay their debts on time. The stock market value of companies decreases and capitalist institutions become bankrupt one by one (Akbari, 2015). The phenomenon of the financial crisis is not new in the world. The structure of an economy or a series of economies may face a financial crisis. In fact, what creates a revolutionary situation from this crisis is a change in the form, dimensions, causes and roots of the financial crisis. It is obvious to everyone that today's economy is global. The fields of utilizing exogenous development or, in better words using facilities and possibilities of international financial and monetary institutions are in line with the growth of the phenomenon of economy globalization.

By developing financial markets and subsequently dominating the domination of competitive situations, many companies go bankrupt and leave the competition. This makes capital owners and other stakeholders worried. A financial crisis and eventual bankruptcy can result in huge losses for shareholders, potential investors, creditors, managers, employees, raw materials suppliers and customers. The lack of control by different claimants is one of the main factors of the national crisis and, ultimately, the bankruptcy of companies. Increasing competition of economic enterprises has made getting earnings easier and increased the probability of bankruptcy. Thus, financial decisions have become more strategic. One way to help investors is by providing prediction models about the company's prospects (Ebrahimi Kordloo, 2018). According to mentioned discussions, the purpose of this research is to study the relationship



between the financial crisis index and financial reporting quality and accrual items in stock exchange companies.

Theoretical Foundations of Research

Financial Crisis

A financial crisis refers to a time period in that many financial institutions or assets suddenly lose a large amount of their value. The criterion of the financial crisis in a company includes three items, first, three consecutive years of loss (operating losses, net losses or accumulated losses); second, sharing profits has decreased more than 40% compared to the previous year; and third, it is subject to Article 141 of Commercial Code (at least 50% of the company's capital is gone due to losses incurred). If a company has one of these three conditions, it is considered to be in crisis.

"Strategic complementarities" or "reaction characteristics" in traders can be considered as one of the main reasons for the crisis in financial markets. The performance of financial markets shows that every trader aims to, in adopting his/her trading strategy, the first estimate other traders and then form his/her own strategy based on it. George Soros calls this psychological need of traders to estimate the intentions of other traders a "reaction characteristic."

Any investment in financial and real markets is subject to risk. "Leverage risks" are one of the causes of the crisis in financial markets. By studying the mechanism of financial crises, it can be concluded that before the beginning of credit and financial crises, leverage risks can usually be observed in financial markets. For example, debt for financing investments in the stock market, called "shore buy," was normal and growing before the Great Wall Street Crash in 1929. Such a situation has also been observed in the recent crisis of mortgage debts in the American housing market (Derakhshan, 2007).

If the risks related to the assets of a company are not in balance with the risks related to the debts, it means that there is a risk of asset-debt incoherence. If this risk takes place in many companies, the financial markets will be subject to a crisis. For example, consider a commercial bank that finances long-term loans from savings accounts. A savings account owner can withdraw from his account whenever he wants, but a bank that has assigned long-term loans is not able to receive paid loans in the short term and be responsible for savings account owners, so it is highly subject to the risk of an asset and debt incoherence. In fact, the incoherence between a bank's short-term loans, which are the savings accounts, and the bank's long-term assets, which are assigned loans, is one of the main reasons for a bank's run when worries arise among the owners of the savings accounts.

The weakness of governments in regulating financial markets is one of the most important reasons for financial crises in a capitalist economy. If financial crises lead to economic recession, they have usually considered a very serious danger for governments. Therefore, governments have always tried to prevent financial crises or to reduce the impact of these crises as minimum as possible.

Earnings management

Earnings management is an optional and deliberate affair that takes place in order to make earnings changeable by using certain accounting tools, which is done by management. According to Hep Worth point of view, earnings management is a logical and completely



meaningful action during which the manager tries to achieve it by using special tools in accounting. Jones (1991) determined the difference between profit and cash flow achieved from operations as accrual items. Sloan (1996) defined accrual items as a change in non-cash working capital minus depreciation expenses. Sloan's definition originated from Heli's (1985) definition, which exactly matches the definition of operating accrual items used in Financial Statement Standards No. 95 (FASB, Cash Flows Statement). It is stated that if accrual accounting is not used (using cash accounting) in order to achieve a comprehensive measurement for accrual items, only cash accounts are stated in the balance sheet, so the report of other asset accounts and debt in the balance sheet is because of using accrual accounting. Therefore, accrual items represent changes in all non-cash assets minus changes in all non-cash debts.

In this research, financial reporting quality is defined as the ability of financial statements to transfer information about a company's operations and, in particular, to predict the expected cash flows of investors, following previous studies (Francis et al., 2005, Verdi, 2006, Kerr et al., 2008). This research focuses on the quality of accrual items as an index that determines financial reporting quality. This criterion has been used in many researches.

Since companies work with multiple stakeholders, they have different motivations for each of these stakeholders. On the other hand, the motivation for earnings management is different in different countries. For example, in a country like Canada, the motivation for earnings management is to sell more shares in the stock market.

The main role of accounting information is to provide required fields for the optimal assignment of resources in financial markets. According to recent financial scandals, the trust of stakeholders in the financial reporting system has been reduced, and earnings quality is appeared as an important factor in determining the value and reliability of numbers. Therefore, the determination of accounting information quality and result derived from it is interesting for investors, managers, legislators and standards formulators. Financial analysts, managers and investors have paid a lot of attention to the earnings reports of companies in recent years (Talebna, 2014). Managers are interested in preserving earnings growth because their compensation depends on the earnings of the company. Accounting income and its components are information that is considered by people while making the decision. According to many users of financial statement information, accounting income based on accrual numbers is considered a tool for measuring the performance of companies. Evaluating companies' performance means assessing the overall financial situation and operation results for rational decision-making.

Accrual Items

Accrual items show the difference between accounting income and cash flow obtained from operations. This means that large accrual items indicate increasing in reported earnings compared to cash flow earned by a company. This is due to accounting restrictions that determine when income and expenses should be identified (revenue realization principle and matching principle). Accrual items can be divided into discretionary and non-discretionary components. Discretionary components of accruals are items that can be controlled by management. Non-discretionary components of accruals are accruals that management cannot control.



Francis, Lafand, Olsen and Skipper (2004 & 2005) stated that accruals position affects capital cost, but Kerr, Guy and Verdi (2008) showed that the factor of accruals position designed by Francis et al. could not explain stock returns fluctuations. Therefore, the quality of accrual items, as one of the accounting information characteristics, cannot predict future stock returns. Genoa (2012) stated that Kerr et al. (2008) failed to understand the relationship between accruals quality and realized returns because their measurement of accruals quality has a negative relationship with future cash flow shock. This means that companies with low (high) quality accruals will experience a negative (positive) cash flow shock in the future. Thus, high (low) expected returns are balanced by negative (positive) cash flow shocks.

In general, discretionary accrual items are an indicator for estimating the quality of accruals. Because discretionary accrual items cannot be directly identified by financial reports, a model should be estimated for them. These models define an expected level for non-discretionary accrual items and assume the actual deviation of accrual items by a level determined for discretionary accrual items. As mentioned before, discretionary accrual items are used as an indicator for earnings management.

Research background

Talebnia et al. (2009) predicted a financial crisis based on providing a model including macroeconomic and financial variables. In this research, four financial crisis prediction models were developed with a time interval of one and two years. The results of their research show that the Spring Gate and Wallace models developed by cash flow ratios and macroeconomic variables have effective variables for predicting the financial crisis.

Anderson et al. (2017) tested the income behaviors of managers during the bankruptcy time period by means of abnormal accrual items in the years before bankruptcy in research using a sample of 859 members of bankrupt American companies from 1986 to 2004. The results showed that managers of companies with a high probability of bankruptcy move their downward incomes during bankruptcy.

Lee et al. (2016) examined the relationship between accounting conservatism and financial crises and stock price crash risk in their research. The results of their research showed that using conservatism reduces financial crisis and stock price crash risk; also, financial crises will increase stock price crash risk.

Silovari (2015) analyzed the effect of conservatism on the stock prices of automobile companies during the financial crisis in his research. The results of his analysis of hypotheses showed that accounting conservatism has a positive and meaningful relationship with the stock price index in such a way that accounting conservatism leads to reduce in leverage ratios and, therefore, the risk of the company and will ultimately lead to increase in stock prices.

Yang Peng (2011), in his research, showed that the quality of accrual items affects fluctuation (earnings) as one of the performance criteria in two different ways. First: the high quality of accrual items reduces profit fluctuation (by the better explanation of current earnings to future cash), and second: the high quality of accrual items increases earnings fluctuation (by increasing the reaction of earnings to uncontrollable economic shocks).

Research methodology



This research is descriptive in terms of its purpose and operational in terms of its nature because it is going to solve a problem and issue in an organization, and quantitative in terms of the type of data. The statistical population of this research includes companies listed on the Tehran Stock Exchange, which have been active in the Tehran Stock Exchange for the time period of 7 years (2011-2017). The statistical sample of this research is those companies listed on Tehran Stock Exchange.

Table 1: Selected sample

327	The total number of listed companies during the studying time period is deducted:
42	The number of companies whose financial year does not finish at the end of the year or have changed their financial year during the research period.
69	The number of companies which were among holding, investment or financial intermediation companies.
98	The number of companies whose information is not available
118	The number of sample companies



Collecting information in this research is conducted by Rahvardnovin and Tadbirpardaz software and the financial statements of studied companies. The statistical analysis of data was conducted with the assistance of econometric and statistical software E-Views version 9. Two regression models of Kaplan et al. (2016) are used to test the hypotheses in this research as follows:

For hypothesis 1:

(1)

In which:

For hypothesis 2:

(2)

In which:

TCAit: accrual items

Other variables are explained in the previous model.

Research Variables

Earnings management (AR): earnings management index is used to calculate financial reporting quality. The earnings management calculation model of McNichols and Stoben (2008) is used, which is as follows:

In which:

ΔAR - annual variations in accounts receivable.

$\Delta Sales$ - annual variations in sale revenue.

All these variables are divided into all assets at the beginning of the year. The remainder or, in other words, the residual of this equation indicates changes in accounts receivable that cannot

be explained by changes in sales. Therefore, the target variable is the absolute value of this measure multiplied by a negative one. Thus, the higher the value, the higher the financial reporting quality.

Accrual items (TCA): In this research, discretionary accrual items are measured by using the cross-sectional version of the Jones model (1994). The above model is used because it has the best estimation of discretionary accrual items according to the results of previous research.

In this model, non-discretionary accrual items are deducted from the total accrual items to calculate discretionary accrual items. According to the following model:

In which:

TACC- total accrual items,

ΔREV - revenues in year t minus revenues in year $t-1$,

PPE-tangible fixed assets

A-total assets

ε - Remainder

And the remainder ε represents DA for the company i in year t .

The financial crisis (CRISIS): The criterion of the financial crisis in a company includes the following three items:

1. Obtaining three consecutive years of loss (operating loss, net loss or accumulated loss) (Jantadej, 2006)
2. The dividend has decreased more than 40% every year compared to the previous year (Jantadej, 2006).
3. Subject to Article 141 of the Commercial Code (at least 50% of the company's capital has been gone due to losses).

If a company has one of these three conditions, it is considered to be in crisis. The companies with a financial crisis are given a score of 1, and the rest of the companies are given a score of 0.

Company size (SIZE): the natural logarithm of total assets

Financial leverage LEV: In this research, the ratio of debts to assets is used to calculate it.

Sale growth (SALE): It is obtained based on the sales changes of the current year compared to the previous year.

Operating cash (CFO): dividing operating cash by total assets.

Findings

Table (2) presents the descriptive quantities of research variables.

Table 2: Descriptive statistics of research variables

Variable name	symbol	Number of observations	Average	middle	Maximum	Minimum	standard deviation
earnings management							
Accrual items							
Financial crisis							



financial leverage							
Company size							
sale							

In Table (2), the standard deviation of data is small in all cases, and this issue also indicates the proper distribution of the data. The stationarity (data distribution remains stable over time) of studied variables should be assessed before estimating models related to the Panel data model (periodic and time series).

Table 3: Stationarity of research variables

variable		Levin, Lin & Chui test	
		The meaningful level	statistical value
Operating cash			

Table 4: Assumptions of classic regression

Tests			Model1	Model2	Model3
homoscedasticity	Breusch-Pagan	Statistical value F			
		Level of meaningfulness			
Jarque-Bera Test					
		Statistical value	Level of meaningfulness		
Model1					
Model2					

Since the level of meaningfulness of the Jarek-Bera statistic in Table (4) is higher at the level of meaningfulness of 0.05 for the error component variable, thus, the null hypothesis regarding normality of the error component is not rejected. Therefore, it can be stated that the rest of models have a normal distribution and the assumption of normality is maintained.

Table 5: Results of Durbin-Watson test

	Statistics of Durbin-Watson	Acceptable level	Results
Model1		Distance 1.5 to 2.5	It shows that the regression is not auto correlated
Model2		Distance 1.5 to 2.5	

The statistic of this test is in the range of 0 and +4. If this statistic is in the range of 1.5 to 2.5, the lack of correlation between errors is accepted and regression can be used. If the above hypothesis is rejected, there is a correlation between the errors and regression cannot be used.

Table 6: Results of Limer- F test of research models

	Limer- F test		
	statistic	possibility	result
regression model (1)			board
regression model (2)			board



As indicated in table (6), the level of meaningfulness of Chaw's test in studied model is less than $\alpha = 0.05$, so it is confirmed with 95% confidence that the model can be estimated using panel method.

Table 7: Regression model fit results (1)

Independent variables	symbol	Estimated coefficient	Standard error	T test statistics	possibility
Constant of equation					
Financial crisis					
Financial leverage					
Company size					
sale					
Operating cash					
Statistics F					
Durbin-Watson					
Adjusted coefficient of determination					
Possibility F					

According to the results of table (7), t-statistic coefficient of financial crisis is 2.263, and its possibility is equal to 0.024, which is at the level of 5% error, and is straight according to the positivity of the t-statistic of the relationship between the research variables, which means as the financial crisis increases, earnings management increases. Therefore, financial reporting quality decreases.

Table 8: Regression model fit results (2)

According to the results of table (8), t-statistic coefficient of financial crisis is 2.934, and its possibility is equal to 0.003, which is at the level of 5% error, and is straight according to the positivity of the t-statistic of the relationship between the research variables.

Conclusion

Paying attention to this issue in evaluating companies' shares and considering the low quality of accrual items as a tool to determine the financial crisis of companies is suggested to Tehran Stock Exchange Organization and also financial analysts in this market. Managers of stock companies should increase financial reports quality as much as they can and use valid standards and criteria to prepare and audit reports, this will increase the trust of information users and reduce information risk and will affect positively on stock prices.

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