# The Effect of Economic System Financial Shock on the Financing Policies of Listed Companies in Tehran Stock Exchange

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**Abstract:** *One of the most important economic issues of today's world is the global economic crisis and its impacts on the economies of different countries. Sanctions imposed on Iran's economy since 2011 have caused economic shock. The macroeconomic policies during an economic shock are considered as one of the macroeconomic factors of companies. This study was conducted with the aim of evaluating the effect of financial shocks on financing policies of listed companies in Tehran Stock Exchange. For this purpose, a sample of 128 listed companies in Tehran Stock Exchange during a 6-year period (2008 to 2013) was selected and examined using systematic knockout method. ANOVA and correlation coefficient were used for analyzing the data and all stages were performed using EVIEWS statistical software. The results revealed that financial shocks reduced investors' confidence in the capital market and, accordingly, companies suffered from the problems of long-term financing of the company and could not finance capital through the sale of shares in the capital market. Thus, the financial shock of the economic system had a significant effect on long-term, short-term, and total financing of listed companies in Stock Exchange.*

**Keywords:** *Economic crisis, Financial shock, Stock exchange.*

## INTRODUCTION

In order to increase the working capital, repay the debts, purchase fixed assets and invest in profitable plans, economic institutions always need to gain appropriate and low-cost financial resources or seek innovation in different types of diverse and flexible financial instruments. The objective evidence of this claim is developed countries so that hundreds types of financial assets are traded in their financial markets (Yamani & Swanson, 2014). The problem of some companies is financing due to working capital and especially the purchase of raw materials. To solve this problem, instead of purchasing a six-month or one-year raw material, orders have been split into smaller orders to purchase raw materials when consumed. Given the importance of this issue, some methods have been developed to increase the efficiency and effectiveness of companies, which maintain the inventory of raw materials for just a few hours of consumption. It is also possible to avoid unnecessary accumulation of cash in corporate accounts and to use them for short-term investments (Zhou, Faff, & Alpert, 2014). In addition, financial shocks can cause instability and severe fluctuations in supply and

demand, as well as change in monetary and financial policies. As these economic fluctuations are more severe, instability in the economy will be more and the economic agents, including households and enterprises wouldn`t be able to provide a clear picture of the future.

Thus, economists have been trying to discover the structure of fluctuations and develop executive plans to reduce it. When a financial shock occurs in a country, it mostly influences its companies (Saeed et al., 2013, p. 23). Iran is undoubtedly being affected by its surrounding world for having the business transactions. Tools that can indirectly transmit the fluctuations and impulses of the world's markets to the Iranian economy indirectly include the psychological effect, the monetary instrument of exchange (currency), and exchange income tool (the value of national wealth or the export of goods of the country). Accordingly, if there is no balance in its needed materials (including food and raw materials or intermediaries for the industries) and income gained from exporting its domestic products, Iran would experience asymmetry and shortage of income sources for exchange with foreign countries. In other words, the inflation of imported products would simply be transmitted to the country (Horta, Lagoa, & Martins, 2014). Considering the mentioned theoretical foundations, macroeconomic policies during an economic shock are considered as one of the environmental factors of companies. The economic sanction status in Iran since 2011 has played the role of economic shock. Thus, the question of this study entailed whether the financial shock caused by Iran's economic sanctions affected the financing policies of listed companied in Tehran Stock Exchange.

## Theoretical foundations of research

### Financial shock to the economic system

#### 1. Crisis in USA financial markets

The crisis in the USA financial markets has been evident since 2001-2008 due to a sharp decline in dollar value. An increase in the price of oil and many other precious metals, along with common specs in markets, would be justifiable. Due to possible recession caused by USA economic crisis, a reduction in oil prices can be predicted. In fact, as crude oil is considered as a primary material in many industries, the fear of recession reduces the desire to demand it in the future, so it inevitably reduces its demand price in oil stocks (Kowalski & Shachmurove, 2014). In the last months of 2001 and 2002, the stock value has dropped sharply. However, the scope of these drops has been limited and the market have been improved. However, the market has been falling since the end of 2007 and the fear of its collapse has caused a concern for many people USA and the world (Bicaba, Kapp, & Molteni, 2014). The highest issuance in mortgage-backed securities in USA was seen in 2003. After 2003, their issuance decreased. Comparing the months of 2008 with similar months in 2007, suggested that the direct issuance of this financial instrument has fallen by 93%, which has led to a 32% decline in the total rate of issued securities compared to the same period of 2007 (Thao, Daly, & Ellis, 2014).

#### 2. Subprime mortgage crisis

In practice, in order to pay the loan to the borrower, one must be evaluated in terms of his ability to pay market interest. For this purpose, factors for identifying the risk of default, including income level, prepayment size for a loan, individual or company credit history and employment status have been considered. As the mentioned components make many dangers for the person, his interest rate would be higher due to the default risk created for the bank. Moreover, the ceiling for receiving his credit would be more limited. According to predictions, the rate of loan for low-credit individuals in USA by March 2007 amounted to $ 1,300 billion. These loans led to the creation of 7.5 million unpaid mortgage loans up to that date (2014, Syriopoulos). However, most of loans granted to low-credit people are subjected to Adjustable Rate Mortgages (ARM). With the growth of interest rate, this rate also grows. For example, the 90-day Adjustable Rate Mortgages in 2005 was about one-third of same time in 2007 (Kim, Oh, & Kim, 2014). Undoubtedly, there is a strong dependency between the developments in the USA housing market and the world's financial markets due to MBS transactions in these markets. When the owners of houses fail to pay their loans, cash

flows for the MBS drop and their future becomes uncertain. Investors and companies with these securities are significantly affected by this issue. This effect is doubled when the level (amount) of debt of people and companies (financial leverage) become high. It means that the market has grown in the form of credit (2014, Shabbir).

### 3. Economic crisis expected from USA credits crisis

1) Due to fall in housing prices in the USA, the wealth of owners of houses has fallen to the extent that it has led to a sharp decline in consumption in the USA economy with its impact on consumption. It has caused an inappropriate atmosphere in the stock market, since it is expected that it faces with recession and reduced profitability with reduced consumption in USA industries.

2) The problem of losing jobs and increasing legal crimes have become one of the social and economic problems of the USA due to inability to pay mortgage loans and the loss of housing.

3) The frequent collapse of industry as a result of the loss of purchasing power of people.

4) Creating a financial crisis (due to low tax revenue) for the USA government and the emergence of areas for exacerbating the government budget deficit. Moreover, the nationalized financial institutions of USA need to rebuild the capital and spend more on behalf of the government (Yamani & Swanson, 2014).

### Financing policies

In order to increase the working capital, economic institutions require repaying debts, purchasing fixed assets and investing in profitable plans that always seek to obtain appropriate and low-cost financial resources or innovative, various and flexible financial tools. Major financing methods have been divided into three classes of internal resources and external resources and non-cost resources (Yamani & Swanson, 2014).

### 1. Internal resources

The enterprises put aside some of the profits of each period under the title of savings, depreciation, accumulated profits, and so on, to consume them when needed in order to achieve its goals and execute its considered plans in the long terms in each financial period. This class of financial resources has been called "internal financial resources".

The following items are among the internal financial resources:

Reducing current assets: The main problem for some of the financing companies is the working capital, especially the purchase of raw materials. To solve this problem, instead of purchasing a six-month or one-year raw material, orders are split into smaller orders to purchase raw materials when consumed. Given the importance of this issue, some methods have been developed to increase the efficiency and effectiveness of companies, which maintain the inventory of raw materials for just a few hours of consumption. It is also possible to avoid unnecessary accumulation of cash in corporate accounts and to use them for short-term investments (Zhou, Faff, & Alpert, 2014). The sale of fixed assets: unused assets and unused machinery and structures can be a good source of financing, so that if these assets are sold and if the rent is profitable, the rent can be used as an alternative to purchase fixed assets. It requires feasibility studies and economic justification.

Depreciation reserves: Companies put some amounts aside for the depreciation of fixed assets each year to replace fixed assets at the end of their lives with new assets. The capacity of existing facilities can be increased through repairing instead of considering depreciation reserves to purchase new machines.

Accumulated profit: Stock companies hold some amounts of profits in the company each year for various purposes instead of paying them shareholders. The sum of these profits, held over the year, is called accumulated profit (Jahan Khani, 1994).

### 2. Non-cost resources

The use of the resources that impose no cost for the company is for the interest of the company, because non-cost resources reduce the cost of capital and increase the profit of shareholder and stock values. These resources include:

## Business creditors

It is caused by the credit purchase of goods from the suppliers of raw materials and equipment and machinery. However, the extent to which these resources can be used depends on the competitive conditions governing the market needed for the company. Accordingly, the company enjoys the seemingly non-cost financial resource (Syriopoulos, 2014).

## Advance receiving from customers

The success of this method depends on the position of the company's products and its superiority in the market. It is obvious that as the company's exclusive power is more in the market, this financing method becomes more possible (Lim, Durand & Yang, 2014).

## Payment costs

In this method, companies postpone their realized costs for future (Jahan Khani, 1994).

### 3. Foreign resources

These financial resources are out of company. They include receiving loans from financial institutions or issuing bonds and selling them to the public, issuing preferred shares and, finally, issuing common shares.

#### 1) Common share

Common share is a permanent (fixed) financing source for a company that does not have a due date, and the profit belonging to it is not fixed, and the dividend rate depends on the divisions of the ordinary general assembly and the board. Hence, the common share is considered as a sheet of securities with variable income and its holders incur the risk of company ownership (Honkapohja, 2014). As issuing new share does not require paying a fixed profit, issuing common share wouldn`t increase the risk of bankruptcy and financial risk. Listed companies in stock exchange can easily increase the capital (by providing a priority certificate, any stockholder who is not willing to increase capital can resell his priority). As the distance between the price of the new share subscription and stock price becomes higher, shareholders show higher tendency toward increasing their capital (Shabbir, 2014). If the company cannot gain profit from the funds resulting from increased capital in new investments, the profit of each share would decrease and it would have negative effects on the price of stock (Honkapah, 2014).

#### 2) Long term loans

The capital debt of a company may include bonds issued to the public for subscription or the loans directly received from banks and financial companies. Long-term loans are long-term financing resources received for the development of companies, modernization of machinery and various other projects. For this reason, they are sometimes referred as project financing methods (Jahan Khani, 2006, 239). Asset-related limitations for the borrower company include determining the minimum rate of assets, determining the minimum working capital, determining the rate of current assets, and non-sale of fixed assets without the permission of the lender (Horta, Lagoa, & Martin, 2014). In addition, when the issue calculation of income taxes is considered in all companies, the cost of interest is deducted from the profit, leading to reduced borrowing costs, since the tax rates of the companies are above 30% (Yamani & Swanson, 2014). The goal of taking loan is the financial need that is either seasonal, short-term or long-term. Each loan is repaid as soon as it is no longer required, and thereafter there is no need to pay extra interest. The time schedule of repayment or depreciation of a loan is a specific schedule for paying interest and its principal. Since interest is a legal requirement and the cost of interest is an acceptable tax cost from the view point of the borrowing company and the interest rate of these loans is about 20%. These loans are repaid in two ways (Yamani & Swanson, 2014). In the first method, the loan principal is repaid in several equal installments on an annual basis and the interest is paid only on the remaining amounts. Thus, the interest rate would decrease at the end of each year, so the installments in each period would not be equal. In the second method, the company pays the principal and the interest at equal installments. In this method, using the concept of current value, the rate of installments is obtained (Syriopoulos, 2014).

### 3) Bonds

Bonds have due data and their owner is a creditor , having no ownership relationship with the company. Bonds have less risk for their owners compared to preferred shares and common shares. Bonds may have name or have no name (Honkapohka, 2014). Re-purchasable bonds can be re-purchased in a situation in which the interest rate is reduced and replaced by bonds with lower interest rates. The issuance of the bonds creates a financial leverage, when its issuance is favorable, the return on investment of the company becomes higher than the interest rate on the bonds. The owners of bonds do not have a ownership relationship with the company and thus have no right to vote in the general assemblies and do not affect the company's control (Kim, Oh, & Kim, 2014). In addition, with the issuance of bonds, as the debt ratio increases, the company's borrowing capacity decreases. Having increased the debt ratio, interest rate on new bonds would also increase (Filip & Raffournier, 2014).

### 4) Preferred share

Preferred share is a type of share that its owner has the right or a certain and limited claim to company's income and assets. Preferred share is less used as a financial source for companies. In cases where the two companies merge through the exchange of securities, preferred shares play a very important role as a financing tool. A company that purchases preferred shares of another company receives a special tax deduction for dividend received. Thus, regarding companies that intend to increase their common shareholders' return through increased financial leverage, preferred stock can be a good tool that cannot or do not want to take more loan. Under inflation conditions, the issuance of preferred shares is for the benefit of company, because its profit is a fixed sum that can be easily paid through its future profits (Kim, Oh & Kim, 2014). In situations in which the company faces liquidity problems, it can delay paying the profit of these shares without having a problem (Ozer-Imer & Ozkan, 2014). The cost of capital belonging to preferred shares is higher than the cost of bond capital, since the risk imposed to the owners of preferred holders is greater than the risk imposed to owners of bonds. In addition, preferred dividend is not considered an acceptable tax cost (Honkapohja, 2014). If the conditions governing the market conditions are such that investors know the preferred shares as a good alternative for the bonds, the company can issue these types of shares to finance itself. The situation might be such that the company is forced to supply some amount of needed money through accumulated profit or issuing common shares, and then, issue bonds or preferred shares (Jahanhahani, 2006).

## Literature Review

In their research entitled "investigating the relationship between financing activities, analysts' predictions and future stock returns over a 30-year period", Bardsha, Richardson and Sloan (2006) concluded that there was a reverse relationship between net cash related to each categories of financing activities (stock issuance and borrowing) and future stock returns as well as the profitability of the company. Sloan and Richardson (2003) concluded that there was a negative relationship between net change in external financing and future stock returns. Titan et al (2004) concluded that an increase in operational assets would reduce future stock returns. Cooper et al. (2005) concluded that the growth rate of a company's total assets could explain future stock returns well and it could be considered as the most important predictor of future stock returns. Najafi Omran (2008) showed that the net change in total financing and its components did not have a significant negative effect on the abnormal future stock returns. Investigating and comparing the effects of different methods of increasing capital on stock returns of listed companies in the Tehran Stock Exchange, Gazaran (2005) concluded that increased capital led to significant additional returns, especially on the announcement day and announcement week of an increase in capital.

## Methodology

The present study was an ex post facto study in terms of time and it was applied in terms of its objective and correlational in terms of data collection method.

The first hypothesis of the present study suggested that the financial shock of economic system had an effect on long-term financing of the listed companies in the stock exchange. The following model was used to test the above-mentioned hypothesis:

Model (1)

$$LD = B0 + \beta 1 ROA + \beta 2 GT + \beta 3 CR + \beta 4 GT.CR + \beta 5 ROA.CR + \mu it$$

The second hypothesis of the research suggested that financial shock to the economic system had an effect on short-term financing of stock-exchange listed companies in stock exchange. The following regression model was used to test the above-mentioned hypothesis.

Model (2)

$$SD = B0 + \beta 1 ROA + \beta 2 GT + \beta 3 CR + \beta 4 GT.CR + \beta 5 ROA.CR + \mu it$$

The third hypothesis of the research suggested that the financial shock of the economic system had an effect on the total financing of listed companies in the stock exchange. The following model was used to test the above-mentioned hypothesis:

Model (3)

$$TD = B0 + \beta 1 ROA + \beta 2 GT + \beta 3 CR + \beta 4 GT.CR + \beta 5 ROA.CR + \mu it$$

Where:
LD=long term debts (dependent)
SD=short term debts (dependent)
TD= total debts (dependent)
ROA=return on assets (control)
GT = sales growth (control)

CR=dummy variable for showing the crisis period (independent)

GT * $CR_{it}$= interactive
ROA * $CR_{it}$ = interactive
In the above model, the independent variables were ROA, GT, CR, and the dependent variable was debt.
To calculate the economic shock, financial crisis index of Altman's z was used as follows:
Altman's z-score was for the risk of bankruptcy, calculated from the following equation:

$$score\ z = \ 1.2\left(\frac{\text{working capital}}{\text{total assets}}\right) + \ 1.4\left(\frac{\text{accumulated profit}}{\text{total assets}}\right) - 1 + \ 3.3\left(\frac{\text{profit before interest and tax}}{\text{total assets}}\right)$$
$$+ \ 0.6\left(\frac{\text{the value of legal market of\ equity}}{\text{total debt}}\right) + \ 0.99\left(\frac{\text{sales}}{\text{total assets}}\right)$$

In this research, the financial crisis was measured with dummy variable of a one and zero. If the Altman's z prediction index was smaller than the 2.99, it means if the company was in crisis, the value was then measured with a dummy variable. Moreover, if it was more than 2.99, the company was not in crisis, so the value was considered to be zero. The research population included all of the listed companies in the Tehran Stock Exchange, which were active in the stock market between the years 2008 and 2013. A sample of 128

companies was selected from the research population using systematic knockout method. The information on the variables of these companies was available. Research data were extracted from the www.codal.ir website and in accordance with the information of audited financial statements. In order to determine the capital structure and profitability of this research, Multiple Linear Regression, ANOVA and correlation coefficient were used. All steps were analyzed with EVIEWS9 statistical software.

## Results

**Table 1:** Collinearity test results of explanatory variables of the first, second and third models

| Variable | Symbol | VIF | | |
|---|---|---|---|---|
| | | Model 1 | Model 2 | Model 3 |
| Financial crisis | CR | 1.524 | 1.524 | 1.524 |
| Return on assets | ROA | 1.642 | 1.642 | 1.642 |
| Sales growth | GT | 1.143 | 1.143 | 1.143 |

The results of the first, second, and third models in Table 1 showed a lack of collinearity between the independent and the control variables of the main model, because the VIF statistic for all variables was less than 10 and varied between 1 and 2, indicating the lack of collinearity between the variables.

**Table 2:** Testing the normality of errors

| model | Variable type | Test type | Statistic | p-value | Test result |
|---|---|---|---|---|---|
| 1 | Error term | Jarque–Bera test | 3.663 | 0.051 | Normality of errors |
| 2 | Error term | Jarque–Bera test | 7.681 | 0.051 | Normality of errors |
| 3د | Error term | Jarque–Bera test | 4.626 | 0.0506 | Normality of errors |

As seen in Table (2), the significance level of the error term of the first, second and third models was greater than 0.05, indicating the normality of errors.

**Table 3:** Testing the homogeneity of variance of errors

| Model | Test value | Test probability | Test result |
|---|---|---|---|
| 1 | 327.711 | 000.0 | homogeneity of variance of errors |
| 2 | 882.203 | 000.0 | homogeneity of variance of errors |
| 3 | 187.230 | 000.0 | homogeneity of variance of errors |

Based the results of Table (3), which indicated that the probability value (0.000) was smaller than 0.05 for the first, second and third models, it can be said that the variance of the errors of the above models was heterogeneous. In order to eliminate this heterogeneity, estimate of generalized least squares (EGLS) was used to estimate models.

**Table 4:** Hausman test result

| | Statistic | value | Probability | Test result |
|---|---|---|---|---|
| Model 1 | | 8.882 | 0.113 | Random effects |
| Model 2 | Cross-section random | 16.790 | 0.004 | Fixed effects |
| Model 3 | | 31.704 | 0.000 | Fixed effects |

As the probability (p-value) obtained from the Hausman test was 0.113 and greater than 0.05, in order to test the first hypothesis, the random effects method was used. In order to test the second and third hypotheses, as the probability (p-value) obtained from the Hausman test was less than 0.05, the fixed effects method was used.

**Table 5:** Results of estimating the first model

| variable | Estimated coefficient | Standard error | Statistic f | P-value |
|---|---|---|---|---|
| Intercept | 0.069 | 0.008 | 8.412 | 0.000 |
| Financial crisis | 0.018 | 0.009 | 1.929 | 0.054 |
| Return on assets | -0.038 | 0.016 | -2.282 | 0.022 |
| Interactive variable of financial crisis in return on assets | -0.047 | 0.050 | -0.925 | 0.354 |
| Interactive variable of financial crisis in sales growth | 0.030 | 0.014 | 2.149 | 0.032 |
| Coefficient of determination= 0.136 | Adjusted coefficient of determination=0.129 | | | |
| Durbin-Watson statistic= 1.582 | F statistic test= 5.281 | | F test probability 0.000 | |

The results of Table (5) showed that the probability of F test (0.000) was less than 0.05, and as F statistic represented the total validity of the model, it can be concluded that the first model was significant with probability of 95% and had high validity. According to the results, the calculated P-value for the independent variable of financial crisis (0.054) was greater than 0.05 and estimated coefficient of this variable (0.018) was positive. Thus, as significant level obtained for the financial crisis variable was larger than 0.05, it can be stated that the financial crisis had a positive and direct effect on long-term debt, although this effect was not significant. Accordingly, it can be stated that the first hypothesis of the study suggested that financial crisis affected the long-term financing , which was not accepted at the 95% confidence level. Additionally, as shown in Table 11-4, the calculated P-value for the control variable of return on assets (0.022) was smaller than 0.05, and the estimated coefficient of this variable (-0.388) was negative. Thus, there was a reverse and significant relationship between the return on assets and long-term financing .Moreover, the calculated P-value for the interactive variable of the financial crisis in the return on assets (0.335) was greater than 0.05 and the estimated coefficient of that variable was negative (-0.047).Thus, it can be said that there was reverse but non-significant relationship between the interactive variable of the financial crisis in the return on assets and long-term financing. Moreover, the calculated P-value for the interactive variable of financial crisis in sales growth (0.032) was less than 0.05 and the estimated coefficient of that variable was positive (0.030). Thus, it can be concluded that there was a direct and significant relationship between the interactive variable of the financial crisis in sales growth and long-term financing. In addition, the results showed that adjusted coefficient of determination of the first model was 0.129. This figure showed that approximately 30% of the variations in dependent variable could be explained by the explanatory variables of the first model.

**Table 6:** Results of estimating the second model

| Variable | Estimated coefficient | Standard error | Statistic f | P-value |
|---|---|---|---|---|
| Intercept | 0.480 | 0.017 | 28.129 | 0.000 |
| Financial crisis | 0.086 | 0.016 | 5.290 | 0.000 |
| Return on assets | -0.281 | 0.043 | -6.422 | 0.000 |
| Sales growth | 0.037 | 0.016 | 2.276 | 0.023 |
| Interactive variable of financial crisis in return on assets | -0.060 | 0.071 | -0.850 | 0.395 |
| Interactive variable of financial crisis in sales growth | -0.011 | 0.022 | -0.496 | 0.619 |
| Coefficient of determination= 0.234 | Adjusted coefficient of determination=0.222 | | | |
| Durbin-Watson statistic= 1.930 | F statistic test= 18.724 | | F test probability 0.000 | |

The results of Table (6) showed that the probability of F test (0.000) was less than 0.05, and as F statistic represented the total validity of the model, it can be concluded that the first model was significant with probability of 95% and had high validity. According to the results, the calculated P-value for the independent variable of financial crisis (0.000) was smaller than 0.05 and estimated coefficient of this variable (0.086) was positive. Thus, as significant level obtained for the financial crisis variable was less than 0.05, it can be stated

that the financial crisis had a positive and significant effect on long-term debts. Accordingly, it can be stated that the second hypothesis of the study suggested that financial crisis affected the short-term financing, which was accepted at the 95% confidence level. Additionally, as results showed, the calculated P-value for the control variable of return on assets (0.000) was smaller than 0.05, and the estimated coefficient of this variable (-0.281) was negative. Thus, it can be stated that there was a direct and significant relationship between the control variable of sales growth and short-term financing. Moreover, the calculated P-value for the interactive variable of the financial crisis in the return on assets (0.395) was greater than 0.05 and the estimated coefficient of that variable was negative (-0.060).

Thus, it can be said that there was reverse but non-significant relationship between the interactive variable of the financial crisis in the return on assets and short-term financing. Moreover, the calculated P-value for the interactive variable of financial crisis in sales growth (0.619) was less than 0.05 and the estimated coefficient of that variable was negative (-0.011). Thus, it can be stated that there was a reverse relationship between the interactive variable of the financial crisis in sales growth and short term financing, although this relationship was not significant. In addition, the results showed that adjusted coefficient of determination of the second model was 0.222. This figure showed that 22% of the variations in dependent variable could be explained by the explanatory variables of the second model.

**Table 7-** Results of the estimating the third model

| Variable | Estimated coefficient | Standard error | Statistic f | P-value |
|---|---|---|---|---|
| intercept | 0.546 | 0.016 | 33.552 | 0.000 |
| Financial crisis | 0.111 | 0.015 | 7.388 | 0.000 |
| Return on assets | -0.311 | 0.040 | -7.689 | 0.000 |
| Sales growth | 0.033 | 0.015 | 2.189 | 0.029 |
| Interactive variable of financial crisis in return on assets | -0.134 | 0.066 | -2.033 | 0.042 |
| Interactive variable of financial crisis in sales growth | 0.012 | 0.020 | 0.603 | 0.546 |
| Coefficient of determination= 0.333 | Adjusted coefficient of determination=0.323 | | | |
| Durbin-Watson statistic= 1.805 | F test statistic= 30.637 | | F test probability= 0.000 | |

The results of Table (7) showed that the probability of F test (0.000) was less than 0.05, and as F statistic represented the total validity of the model, it could be concluded that the third model was significant with probability of 95% and had high validity. According to the results, the calculated P-value for the independent variable of financial crisis (0.000) was smaller than 0.05 and estimated coefficient of this variable (0.111) was positive. Thus, as significant level obtained for the financial crisis variable was less than 0.05, it could be stated that the financial crisis had a positive and significant effect on total debts. Accordingly, it can be stated that the third hypothesis of the study suggested that financial crisis affected the total financing, which was accepted at the 95% confidence level. Additionally, as results showed, the calculated P-value for the control variable of return on assets (0.000) was smaller than 0.05, and the estimated coefficient of this variable (-0.311) was negative. Thus, it can be stated that there was a direct and significant relationship between the control variable of return on assets and total financing. Moreover, the calculated P-value for the control variable of the sales growth (0.029) was smaller than 0.05 and the estimated coefficient of that variable was positive (0.033). Thus, it can be said that there was reverse and significant relationship between the control variable of the sales growth and total financing. Moreover, the calculated P-value for the interactive variable of financial crisis in return on assets (0.042) was less than 0.05 and the estimated coefficient of that variable was negative (-0.134). Thus, it can be stated that there was a reverse and significant relationship between the interactive variable of the financial crisis in return on assets and total financing. Moreover, the calculated P-value for the interactive variable of financial crisis in sales growth (0.546) was larger than 0.05 and the estimated coefficient of that variable was positive (0.012). Thus, it can be

stated that there was a direct and non-significant relationship between the interactive variable of the financial crisis in sales growth and total financing. In addition, the results showed that adjusted coefficient of determination of the third model was 0.323. This figure showed that 32% of the variations in dependent variable could be explained by the explanatory variables of the third model.

## Conclusion

According to the results, the first model test indicated that the probability of F test (0.000) was less than 0.05, and as F statistic showed the total validity of the model, it could be said that the first model was significant with probability of 95% and had a high validity. The independent variable of financial crisis (0.054) was greater than 0.05 and estimated coefficient of that variable (0.018) was positive. Hence, as the significance value obtained for the financial crisis variable was greater than 0.05, it can be stated the financial crisis had a positive and direct effect on long-term debt, although this effect was not significant. Accordingly, it can be stated that the first hypothesis of the study suggested that financial crisis affected long-term financing, which was not accepted at the 95% confidence level. The adjusted coefficient of the determination of the first model was equal to 0.99. This figure showed that approximately 30% of the variations in the dependent variable could be explained by the explanatory variables of the first model.

According to the results, the second model test indicated that the probability of F test (0.000) was less than 0.05, and as F statistic showed the total validity of the model, it can be said that the second model was significant with probability of 95% and had a high validity. The independent variable of financial crisis (0.000) was greater than 0.05 and estimated coefficient of that variable (0.086) was positive. Hence, as the significance value obtained for the financial crisis variable was smaller than 0.05, it can be stated the financial crisis had a positive and direct effect on short term debts. Accordingly, it can be stated that the second hypothesis of the study suggested that financial crisis affected short-term financing, which was accepted at the 95% confidence level. The adjusted coefficient of the determination of the second model was equal to 0.222. This figure showed that approximately 22% of the variations in the dependent variable could be explained by the explanatory variables of the second model.

The third model test indicated that the probability of F test (0.000) was less than 0.05, and as F statistic showed the total validity of the model, it could be said that the third model was significant with the probability of 95% and had a high validity. The independent variable of financial crisis (0.000) was smaller than 0.05 and estimated coefficient of that variable (0.111) was positive. Hence, as the significance value obtained for the financial crisis variable was smaller than 0.05, it can be stated the financial crisis had a positive and significant effect on total debts. Accordingly, it can be stated that the third hypothesis of the study suggested that financial crisis affected total financing , which was accepted at the 95% confidence level. The adjusted coefficient of the determination of the second model was equal to 0.323. This figure showed that approximately 32% of the variations in the dependent variable could be explained by the explanatory variables of the third model.

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