Economic Variables and Financial Performance of the Company

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Abstract: Macro-economic factors including exchange rate, inflation and interest factors directly or indirectly affect companies and manufacturing firms that exchange rate volatility is an important one and has a significant impact on business performance. Considering the sharp exchange rate fluctuations in the course of the years 2009-2014 we decided to study the effect of macroeconomic factors on firm performance with regard to the particular nature of some industries in Iran, the present study assesses the automotive, pharmaceutical industries and oil products and the company's financial performance was evaluated by the ratio of return on assets. The required data were collected, sorted and refined through the database of the exchange and the central collecting bank and were used to run statistical tests. The results indicate that in the oil products and pharmaceutical products industry, fluctuations in exchange rates had consistent (direct) relation and inflation rate had non-consistent relation (reverse) with financial performance but in the automotive industry, exchange rate fluctuations is non-aligned (reverse) and inflation is consistent (direct) with financial performance. The difference in these industries is a result of cases such as percentage of needing currency industry, percentage of exports of goods, raw materials; exchange ratio of imports to exports. Because interest rates are just ordered in Iran and determined by the council of money and credit, fluctuations in the period examined in this study were not large and had no impact on financial performance.

Key words: Exchange rate fluctuations, inflation, interest rates, performance of firms, credit

INTRODUCTION

Many theoretical studies are done on the effect of exchange rate fluctuations on the economy and businesses. Exchange rate fluctuations disrupt the mechanism of price and supply and demand. This leads to uncertainty about the future prices. In such circumstances, the decision of the problems ahead for firms is far more difficult and more important because economical businesses may be faced with inefficiency and risk of bankruptcy (De Grauwe and Schnabel, 2005).

If exchange rate fluctuations have not control by the central bank leads to speculation in the foreign exchange market and led to its collapse. In such a case, the economy will plunge into recession because the firm in order to reduce the risk of exchange rate began to decline in production and sales of their products which in turn has reduced the level of sales, profits, stock prices, the level of employment and income, etc., at the end corporate performance will get a serious impact from this process. The exchange rate is a key variable in the economy and

affects the economy in different ways. Exchange rate fluctuations disrupt the business plan because they cannot predict the future exchange rate and product pricing are confused. When Currency is converted to an asset, all economic actors try to save their wealth as foreign exchange holdings. In this case, firms face a shortage of capital, i.e., the part of the savings instead of being placed in the hands of banks and firms turns directly into the exchange. So in these circumstances, firms will face a shortage of working capital. Exchange rate fluctuations lead to changes in cash available to corporations and their value and the effect on the production and their sale, stock price and corporate value will change. From the point of view of macroeconomic fluctuations in the exchange rate is a factor which creates uncertainty in the economy and fluctuations in the company would be expected.

Significance of the study: Much of the economic transactions are in kind. If the exchange rate is fluctuating, since prices are unknown even in the future, all transactions move towards cash; in addition, because

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exchange rate fluctuations shorten the investment horizon, in this case, speculative activities turn into productive activities. The fundamental aim of this study was to investigate the effects of macro-economic factors, including currency fluctuations, inflation; interest rate on financial performance of companies listed in Tehran Stock Exchange in the three industries is to identify the effect and apply the results to the formulation of policies and guidelines for more efficient management of the risk of exchange rate fluctuations and avoid the emergence of crises. The applicable purpose is legislation, policies and new recipes and modifies the former guidelines to better manage exchange rate fluctuations providing the necessary training using the results of research.

Due to the expansion of trade between countries, international financial market is expanding and some merchants or manufacturers or exporters and importers will have to keep their currencies. In this case, if the Company bought many items of its assets more expensive in foreign currency, every moment will be faced with the risk that this rate is reduced. In such event, the company incurred huge losses.

Theoretical framework: The exchange rate is one of the issues that directly affect the situation and profitability of companies. For example, suppose a company who purchased shares, bought most of the raw materials needed for production from abroad. When the exchange rate increases, the company must pay higher cost for imported raw materials and naturally with increasing costs, profitability for the company and its stock price decline. Therefore, exchange fluctuations as one of the investment risks; attract the attention of investors. More or less, inflation exists in most countries but the rate of which varies in different societies and times.

This phenomenon has been less problematic in developed countries in recent times because these countries are plagued by hyperinflation and chronic but developing countries face high inflation that has many negative effects such as increasing inequality in income distribution, consumption, reduction in saving and investment, diversion of resources to produce unnecessary goods and services, slowing growth and spread of corruption, administrative turf. There are several ways to assess the financial performance but most important of which are divided into 4 ctegories:

- The ways in which accounting information is used to evaluate performance

- The method as a combination of accounting and market information used to evaluate the performance such as ratio of price to earnings, price to book value ratio and Tobin's Q ratio
- The proportion of financial management that uses data, such as return and excess return per share
- Ratios thatare economic indicators despite of the use of accounting information such as economic value added of EVA and Market Value Added (MVA) (Mehrani, 2009)

In this study, the 1st method is used to calculate the performance evaluation. Return on assets: the ratio is of valid criteria for evaluating the performance of management. And reflects the use of assets to create profit. This ratio is obtained by dividing net income by total assets (Azarbayejani, 2011).

Foreign literature: Frah (2014) in a study entitled "The Effect of exchange rate fluctuations on the financial performance of oil companies in Kenya" and with a choice of Kenya's population of 55 oil companies and using the panel regression analysis found no significant relationship between the variables of exchange rate fluctuations, interest rate and inflation in oil companies.

Sensoy and Sobaci (2014) conducted a study entitled "shocking effects caused by exchange rate fluctuations and the relationship between exchange rates, interest rates and stock market" for the period 2013-2002 and the method of nonlinear symbolic liner encoding found that in short-term exchange rate volatility affect rates interest and the stock market. According to Abouwafia and Chambers (2015) in a study entitled "monetary policy, exchange rates and stock prices in the Middle East" studies the issue in Kuwait, Oman, Saudi Arabia, Egypt and Jordan, respectively. Evidence suggests a relationship between monetary policy and exchange rate fluctuations and stock prices in the countries.

Li *et al.* (2015) conducted a study entitled 'the effect of exchange rate fluctuations on China's exports: a case study of firms' found that there is a relationship between exchange rate volatility and export prices but this would not affect the amount of exported goods.

Domestic literature: Hassan (2012) conducted a study entitled "Fluctuations in Exchange Rates and Stock Returns in Iran" with the data from years 200-2010 and by using multiple regression found that disadvantageous exchange rate fluctuations have a negative effect on stock returns. Asthma (2013) in a study titled "Impact of

Exchange Rate Uncertainty on Iran's Non-oil Exports Expanded by Using Conditional Hetero Variance Auto-regression Method and Data from Years 1980-2010 Found That Exchange Rate Uncertainty Has a Negative Effect on Non-oil Exports and Reduceimports." The results showed exchange rate uncertainty in the short term by a factor of 1.06 and in the long term with a coefficient of 7.29 has a significant negative effect on non-oil exports.

Alireza (2012) during a study entitled "Asymmetric Effects of the Real Exchange Rate Fluctuations on Economic Growth in Iran" by using regression and time series data using non-linear Markov-Switching from 2008-1972 found that positive shocks of exchange rate increase GDP growth and negative shock reduced GDP growth Hassan (2011) in a study entitled "The Relationship Between the Exchange Rate and Interest Rate" based on Fisher's theory studied the relationship between interest rates and exchange. Due to the two-tiered exchange rate in the period both official and unofficial exchange rates was used and bank deposit interest rate for 1-3 and 5 years were used for interest rates. They use simple linear regression model. Evidence suggests a significant relationship between exchange rates and interest rates Saeed (2012) in a study entitled" Asymmetric Effect of Exchange Rate Fluctuations on Non-oil Exports of Iran" using data from the period 1989-2007 and GARCH Model found that there is a exponential negative relationship between exchange rate fluctuations and non-oil exports.

Research hypothesis:
- H_1: Currency fluctuations have a significant effect on the performance (ROA ratio) of the companies
- H_2: Inflation has a significant effect on the performance (ROA ratio) of the companies
- H_3: the interest rate has a significant effect on performance (ROA ratio) of the companies

MATERIALS AND METHODS

The method is deductive inductive and from the viewpoint of relationship between the variables it is correlation.

The population, sample and sampling: The population included stock companies active in the automotive, oil and pharmaceutical products industries and in the b years 2009-2014.

Research tools: In b the present study aimed to estimate a function like Eq. 1:

$$ROA = \alpha\ EX_i + \alpha\ INF_i + \alpha\ INT_i + \varepsilon$$

The variable are shown in Table 1.

Data analysis method: At the beginning Kolmogorov Smirnov (K-S) is used for the normal distribution of data, then in order to test that the number of samples (observations) are independent, random sampling of Durbin Watson used. In this study, to test overall statistical significance of the regression, Fisher (F) was used at 95% confidence level and to test the hypothesis in this study, multivariate regression was used as statistical method.

In regression analysis, the main purpose is to investigate whether there is a relationship between the dependent variables and the independent variables or not. Data analysis of descriptive statistics starts with central index, including mean, median and standard deviation, skewness and kurtosis skewness index distribution.

To test hypotheses panel data were used and to choose between Panel-pooling methods F Limer was used. And with the panel method, Hausman test methods were run to choose from fixed effects and random effects. The data was analyzed using (Excel) Software after the reform and classification on the basis of variables enter into Eviews and SPSS Software and final analyzes were performed and eventually by means of results of the software, we approve or reject the hypotheses.

RESULTS AND DISCUSSION

Before interpreting the findings in Fig. 1, exchange rate fluctuations have shown during the 72 months

Table 1: Variables

Calculation method	Abbreviation	Type of variable	Variables
By dividing the net profit to total assets	ROA	Dependant	Performance of companies
The exchange rate will be calculated as the relative price of foreign currency to domestic currency through the moving average	EX	Independent	Exchange rate
The general level of production money, money incomes or prices will be announced by Central Bank	INF	Independent	Inflation rate
The interest rate of bonds guaranteed and announced by the central bank	INT	Independent	Interest rate of bonds

(6 years) study. According to the results presented in Table 2. Since, the probability p value for the variable exchange rate <0/05% thus a significant positive relationship is approve between this variable and return on assets at the level of 0/05 alpha. The relationship between the inflation rate and return on assets is negative and significant, also adjusted R^2 = 0/34; the R^2 level suggests that 34% of updates to return on assets is explained by variables in the model while the prediction level due to the function F (3.51) is 0/05 at the alpha level and the Durbin-Watson statistic equals to 95/1 which indicates the absence of autocorrelation in the model.

According to the results presented in Table 3 since, the probability p-value for the variable exchange rate <0/05% thus a significant positive relationship is approve
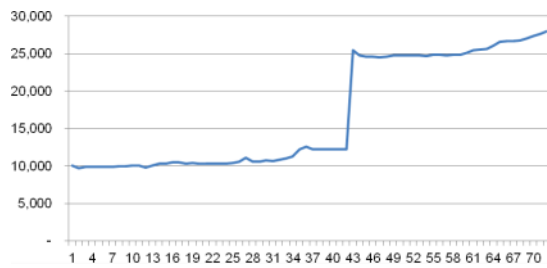

Fig. 1: Exchange rate fluctuations have shown during the 72 months (6 years) study

between this variable and return on assets at the level of 0/05α. There is also no relationship between dependant variables and other variables also adjusted R^2 = 0/61; the R^2 level suggests that 61% of updates to return on assets is explained by variables in the model while the prediction level due to the function F (11.83) is 0/05 at the alpha level and the Durbin-Watson statistic equals to 72/1 which indicates the absence of autocorrelation in the model.

According to the results presented in Table 4 since, the probability p-value for the variable exchange rate <0/05% thus a significant positive relationship is approve b between this variable and return on assets at the level of 0/05α. There is also a ppositive significant relationship between dependant variables and inflation variables, also adjusted R^2 = 0/52; the R^2 level suggests that 52% of updates to return on assets is explained by variables in the model while the prediction level due to the function F (7.13) is 0/05 at the alpha level and the Durbin-Watson statistic equals to 1/67 which indicates the absence of autocorrelation in the model. First Table 5 summarizes the results of assumptions; based on the results of the first hypothesis it seems that among the three industries studied there is a significant positive correlation between exchange rate volatility and return on assets especially in the oil industry as well as pharmaceutical products. In the interpretation of this phenomenon it can be seen that due to the high percentage of exports of goods with an increase in the exchange rate increases profitability. According to the foreign exchange earnings in oil

Table 2: Running tests related to the oil products industry

Variables	Relationship	p-values	t-statistic	SE	Coefficient
Intercept	Not significant	0.0718	-1.8421	3.0091	-5.5431
EX-exchange rate	Positive significant relationship	0.0131	2.5783	0.3420	0.8818
Inflation	Negative significant relationship	0.0093	-2.7121	0.2617	-0.7098
BOND	Not significant	0.8263	-0.2207	1.3663	-0.3015

Adjusted coefficient of determination:0.34; the coefficient of determination: 0.47; F statistic for overall significance of regression: 3.5; Number of observation for the year of 2009-14 = 60

Table 3: Results of tests for automotive products industry and parts

Variables	Relationship	p-values	t-statistic	SE	Coefficient
Intercept	Not significant	0	5.8413	13.7163	80.1214
EX-exchange rate	Negative significant relationship	0.0003	-3.6641	1.5590	-5.7126
Inflation	Not significant	0.3769	-0.8862	1.1930	-1.0573
BOND	Not significant	0.3023	-1.0349	6.2280	-6.4456

Adjusted coefficient of determination: 0.61; the coefficient of determination: 0.68; F statistic for overall significance of regression: 9.79; Number of observation for the year of 2009-14 = 186

Table 4: Results of the tests for pharmaceutical industry

Variables	Relationship	p-values	t-statistic	SE	Coefficient
Intercept	Not significant	0.0792	-1.7684	1.813	-3.2061
EX-exchange rate	Positive significant relationship	0.0424	2.0484	0.2061	-
0.4221Inflation	Negative significant relationship	0.0041	-2.9206	0.1577	-0.4605
BOND	Not significant	0.8383	0.2045	0.8232	0.1683

Adjusted coefficient of determination: 0.52; the coefficient of determination: 7.13; F statistic for overall significance of regression: 7.13; Number of observation for the year of 2009-14 = 186; Durbin-Watson test result for the correlation between errors: 1.67; Jarkko-test results for the normality of errors: 0.77

Table 5: Summary of assumptions results

Industry	H₁ (the exchange rate and return on assets)	H₁ (inflation and return on assets)	H₁ (interest rate of bonds and return on assets)
Oil products	Significant positive relationship	Significant negative relationship	Not significant
automotive products	Significant negative relationship	Not significant	Not significant
pharmaceutical products	Significant positive relationship	Significant negative relationship	Not significant

products and major suppliers of inputs such as raw materials and labor in the country there is no need to import this alignment occurred. This increases the cost of the products. These industries is far less than other industries but on the other hand occurred due to speculation, in some markets the cost of sales increased due to the increased demand from buyers who fear the rising prices in the future and is fully consistent with economic theory.

In the case of medicinal products it must be said that this industry had witnessed severe economic sanctions during the period under review, it was were never boycottedby Western governments but because of the inelastic products and the use of assistance of manufacturerspublic sector despite the import of raw materials with the cheaper exchange rate (government assistance to the sector) exchange rate fluctuations had a positive effect on return on assets of the sector.

In the automotive industry there is a negative relationship between the exchange rate and return on assets. In interpreting the results it should be said that this industry is a relatively "sophisticated one in the country. Despite the constant use of government support in recent years it does not have appropriate profitability. It faces successive losses today; most analysts are aware of the existence of infrastructure problems in the industry. The inconsistency of the industry with other industries can be traced to problems of the industry rather than exchange rate fluctuations. And sometimes "it can be interpreted as supplying parts from other countries. The exchange rate increases the cost of the raw materials and given that the car is commodity, increases in price, buyers are not willing to pay more for the car and this causes losses in the automotive industry.

Based on the results of the second hypothesis it seems that among the three favorite industries in the paper, the oil industry and pharmaceutical products showed a negative relationship between inflation and return on assets which is in contradiction with the exchange rate and its effects. In the interpretation of this we can refer to calculation of the rate of inflation and government interference.

CONCULSION

Inflation is one economic factors that has caused price increases and the consequent is drop in the real value of money. Following the drop in the real value non-monetary assets have increased (Like product to fixed assets) and since this study was to evaluate the financial performance with ROA ratio, inflation and consequently non-monetary assets ROA ratio is reduced and the relationship between these two variables is negative.

Based on the results of the third hypothesis it seems that interest rates is not specified in the intersection of the supply and demand of funds but ordered by the Council of Money and Credit in various sectors and economic situation. It imparts a slight swing of the variables examined in the study, despite fluctuations in the exchange rate. In the three industries studied in this paper, the relationship between this variable is not significant.

RECOMMENDATIONS

Due to the effect of exchange rate on oil products and medical products industry, it can be said that the government is able to control the exchange rate and have a significant impact on this industry and due to the effects of this industry on the welfare of society, the welfare of society should be taken in line with the efficiency of these industries. On the other hand while companies and industries face exchange rate fluctuations in the future, they could interpret government policy on this question, take actions to exploit the conditions ahead and formulate policies and programs necessary to meet the challenges and opportunities so that, current research with industry and government support for some rate systems and on the other increasing demand of society for fear of further increases, it was observed that the above mentioned industries have more efficie.

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