

Exchange Rate and Financial Performance of Listed Companies on Tehran Stock Exchange

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ABSTRACT: Nowadays, the increasing importance of capital and efficient markets is absolutely undeniable in the allocation of resources and encouraging investors in productive sections of economy. Empirical studies indicate that rate fluctuations level can significantly affect a firm's financial variables. Due to the importance of exchange rate, the present study aims to assess the effect of exchange rate fluctuations on the variables of sale, product cost, and gross profit of listed companies on Iran Stock Exchange. Needed data has been seasonally collected from financial statements over a period from 2010 to 2013. Descriptive and inferential statistics such as correlation analysis have been applied to analyze collected data. The achieved findings demonstrate that the percentage of changes in exchange rate (dollar and euro) brings about more changes in sale and gross profit, while makes no changes in product cost of the sold products. Results of testing first and second hypotheses show a direct positive relationship between exchange rate fluctuations (dollar and euro) and sales changes. Thus, first and second hypotheses are confirmed. Moreover, the achieved findings indicate that exchange rate fluctuations do not affect product costs; therefore, third and fourth hypotheses are rejected. Testing fifth and sixth hypotheses also demonstrates that exchange rate fluctuations and gross profit changes are directly and positively associated. As a result, these two hypotheses are accepted.

Key words: Foreign Currency, Exchange Rate, Leverages, Product Cost, Gross Profit

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INTRODUCTION

Nowadays, domestic production and import are closely associated not only in developing countries, but also in developed countries, since most of the developed industrial countries supply their industries with fuel and raw materials of other countries, especially developing countries. Mention must be made though that developing countries encounter problems of association between domestic production and import different from developed countries. Developed countries are mostly dependent upon developing countries to be able to prepare their needed raw materials, while developing countries are dependent on developed countries to supply their needed consuming, intermediate, investing and industrial goods. Thus, developing countries' economic growth relies heavily on exchange rate and products' prices in global market. Our country, Iran, is also one of the less-developed countries whose main source of foreign currency income is oil exports, and the obtained exchange is consumed for needed imports; therefore, national economic growth is heavily dependent upon the exchange rate and its allocation. Furthermore, economic units are associated with the received exchange rate in participating domestic production, meeting the needs of the society, and providing products with lower prices. Exchange rate fluctuations badly affect production capacity and competition among firms. Thus, predicting the effects of exchange rate productions is of great importance

for the firms whose activities are influenced by exchange rate to be able to get advantage of these fluctuations. Securities market and the foreign exchange market have always been critical parts of the financial market. These two markets quickly reflect economic changes and are influenced by economic fluctuations and business cycles. However, disturbances in one or both markets will cause concern among policy makers. Assessing the relationship between exchange rate and firms' performance is given special attention to inform policy makers about applicable plans. The current study mainly aims to investigate the association between exchange rate fluctuations and financial performance of listed companies on Iran Stock Exchange.

Theoretical background and review of literature

Exchange: Each country's currency is called exchange for other countries, and can be used for foreign payments consisting paper money, pseudo-money and national and commercial documents which are internationally applied and accepted. Thus, exchange stands for the official currency of all foreign countries on the basis of checks of foreign deposits (Montazer Zohour, 1997).

Exchange rate: Exchange rate is the price of one country against another country's currency. Exchange rate affects the county's economy and people's daily lives, since if the currency of a country values more or

less than other countries, costs of foreign goods and travels will increase or decrease (Mishkin, 2011).

Effective factors in exchange rate: Mishkin (2011) found that the relative level of prices, tariffs and customs, prioritizing domestic goods to foreign ones and production rate could significantly affect exchange rate. Nakhjavani (1993) mentioned various factors effective in exchange rate such as increase of domestic products' prices in proportion to foreign ones, changes in revenues, changes in interest rates, changes in the views of other countries to invest in our country, changes in international business patterns in the long term, and changes in the foreign exchange costs, travel, education, and health.

Review of literature

Studies conducted within Iran: Rasekhi et al. (2012) investigated the asymmetric effects of exchange rate and its fluctuations on non-oil exports of Iran. Findings of this study indicate that real exchange rate coefficient is positive and significant, so that increasing real exchange rate can enhance non-oil export level.

Rostami and Ahmadlou (2010) examined the effect of real exchange rate shocks on export and import rates in Iran over a period from 1961 to 2008. Their findings demonstrate the asymmetric effects of exchange rate shocks on export and import levels. This conclusion can be drawn from this study that predicted and unpredicted exchange rate shocks differently affect exporting.

Tavakoli and Sayah (2010) assessed the effect of exchange rate fluctuation on real production and value of the items forming total demand of the country from 1960 to 2007. They concluded that unpredictable exchange rate fluctuations did not influence real production growth, and expansionary monetary policies differently affect economic activities.

Farzinvash and Asgharpour (2007) investigated the asymmetric effects of exchange rate fluctuations on production and prices in Iran. They found that exchange rate fluctuations asymmetrically influence real production and prices levels. Moreover, decreases in the value of national currency can significantly enhance prices, while do not affect production level.

Studies conducted outside of Iran: Byrne et al. (2010) investigated the size and nature of exchange rate pass through to import prices for a panel of 14 emerging economies including Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, India, Indonesia, Malaysia, Mexico, Pakistan, Philippines, Thailand and Venezuela. They firstly set out a stylized model in which import prices were dependent upon the exchange rate, marginal cost and the mark up. They

employed Pooled Mean Group Estimation (PMGE) model and Autoregressive Distributive Lag (ARDL) structure to distinguish between long and short run pass through effects and allow for asymmetries. Their results show that import prices respond on average positively, but incompletely, to the exchange rate. However, there are important differences between Latin American and Asia once they have taken account of asymmetry.

Vin and Fojita (2007) applied vector autoregression (VAR) approach to assess the effect of real exchange rate on production and prices in Vietnam, and found that any decreases in real exchange rate in the short term accompanied by money supply increase and trade balance improvement could enhance production rate and prices, while no significant effect was observed in the long term.

Kandil (2008) examined the asymmetric effects of exchange rate fluctuations on real output and price in developing countries. He concluded that exchange rate fluctuations asymmetrically affect real output and price, since shocks are the result of unexpected movement in the exchange rate (under a flexible exchange rate system) or a deviation in agents' forecasts from the observed exchange rate (under a fixed exchange rate system), and positive shocks to the exchange rate indicate an unanticipated increase in the domestic currency price of foreign currency, i.e. unanticipated currency depreciation (devaluation). Thus, a negative shock to the exchange rate represents an unanticipated currency appreciation.

Peri and Steiner (1989) examined the effect of exchange rate fluctuations on the exports of the United States, England and Japan, big countries with the floating exchange rate, and Germany and Belgium, members of the union of Europe, over a period from 1960 to 1985.

Cashman (1978) investigated real exchange rate risk and its effect on the volume and price of exporting goods in 14 industrialized countries. This study differs from other studies in this field, since Cashman concludes that real exchange rate fluctuations are of considerable importance and exchange rate changes affect producers and exporters' behaviour. He finds that any increase in the expected real exchange rate enhances business volume in the long term, while more uncertainties about real exchange rate decreases export level.

METHODOLOGY

The present study is an applied research which aims to improve the applied knowledge in a specific field. It is also a correlation study which determines

the relationship between variables. To achieve this aim, appropriate indexes have been selected to measure research variables.

Research variables

Independent variable of this study is exchange rate which falls into exchange rate of dollar and euro. Dependent variables which are influenced by independent variable can be also named as follows: sale, product cost, and gross profit.

Exchange: Each country's currency is called exchange for other countries, and can be used for foreign payments consisting paper money, pseudo-money and national and commercial documents which are internationally applied and accepted. Thus, exchange stands for the official currency of all foreign countries on the basis of checks of foreign deposits (Montazer Zohour, 1997).

Exchange rate: Exchange rate is the price of one country against another country's currency. Exchange rate affects the country's economy and people's daily lives, since if the currency of a country values more or less than other countries, costs of foreign goods and travels will increase or decrease (Mishkin, 2011).

Product cost: Product cost is the cost of direct labour, direct materials, consumable production supplies, and manufacturing overhead that are used to create a product. Product cost can be considered as the company's property and inventory stock until they are sold, but as soon as it is sold, it is regarded as an expense. In fact, product cost is the most important cost a company pays to receive its income during a specific financial period (Arab Mazar Yazdi, 1995).

Gross profit: Gross profit is the difference between revenue and the cost of making a product or providing a service, before deducting overhead, payroll, taxation, and interest payments.

Research hypotheses

Research hypotheses examine the effect of exchange rate fluctuations on listed companies on Tehran Stock Exchange, and can be written in the following manner:

First hypothesis: Exchange rate fluctuations of dollar make more changes in firms' sales.

Second hypothesis: Exchange rate fluctuations of euro make more changes in firms' sales.

Third hypothesis: Exchange rate fluctuations of dollar make more changes in product costs.

Fourth hypothesis: Exchange rate fluctuations of euro make more changes in product costs.

Fifth hypothesis: Exchange rate fluctuations of dollar make more changes in gross profit.

Sixth hypothesis: Exchange rate fluctuations of euro make more changes in gross profit.

7. Target population and research sample

Target population of the present study includes all listed companies on Tehran Stock Exchange. Considering the following terms, criteria-filtering technique is applied for sampling:

1. Firms which have been actively involved in stock exchange from 2010 to 2013.

2. Firms whose fiscal year leads to March 20, since they are similar in calculating returns. Also, due to the fact that Iranian salaries and other expenses increase in the New Year, this criterion could homogenize all companies.

3. Firm which have had no change in their fiscal year from 2010 to 2013.

4. Firms whose data has been accessible.

5. Banks, monetary institutions and Holding investment companies have been omitted from the research sample.

Regarding the abovementioned terms, 143 companies have been selected as the research sample.

Data collection

Theoretical section of the research and the associated literature have been assessed through desk methods and resources such as books, magazines, monthly and quarterly journals, studies conducted by research centers, educational and administrative institutions, theses and dissertations in the related field, and databases like internet.

Needed data has been collected using the firms' initial data, applying Rahavard Novin software, referring to Tehran Stock Exchange, and investigating financial statements (www.Codal.ir (Comprehensive DataBase Of All Listed Companies)) of listed companies on Iran Stock Exchange. Needed data has been collected in Excel software and analyzed by Eviews software.

RESULTS

Descriptive statistics

Descriptive statistics are presented in table 1 under two titles: central parameters (mean, median, maximum and minimum) and distribution parameters (variance, standard deviation, kurtosis and skewness).

Table 1. Descriptive indexes of studied variables

| Statistics indexes | Changes percentage | | | | |
|------------------------|--------------------|-----------|--------------|--------------|-----------|
| | Dollar | Euro | Product cost | Gross profit | Sale |
| Mean | -0.026025 | -0.025262 | -6.509593 | -33.41046 | -11.60428 |
| Median | 0.000000 | 0.000000 | 0.019449 | 0.188239 | 0.113124 |
| Maximum | 0.643424 | 1.000000 | 1.000000 | 46.57415 | 1.000000 |
| Minimum | -1.148940 | -1.148940 | -875.3750 | -14192.80 | -1444.052 |
| Standard deviation | 0.244752 | 0.246775 | 47.56152 | 605.3904 | 98.65046 |
| Skewness | -1.927634 | -1.798459 | -13.31970 | -23.05697 | -12.64231 |
| Kurtosis | 10.13379 | 10.25175 | 216.7496 | 539.2359 | 173.8603 |
| Total | -14.88644 | -14.44966 | -3619.334 | -18609.62 | -6463.585 |
| Number of observations | 2288 | 2288 | 2288 | 2288 | 2288 |

As it can be observed in table 1, central and distribution parameters are calculated for all variables. For instance, minimum, maximum and mean of the variable of dollar with 2288 observations during four years have been respectively calculated as follows: -1.148940, 0.643424, and -0.026025. Distribution variations range from 0 to 0.44, thus no dramatic difference has been observed in the range of variations. Considering the negative coefficient of skewness (-1.927634), the distribution is left-skewed and this relationship (mode>median>mean) exists. Kurtosis coefficient for this variable equals 10.13379 which indicates that this variable's distributed kurtosis is longer than normal distribution. If kurtosis is more than 3, it is longer, while if it less than 3, it is shorter. By and large, the more a variable's kurtosis is, the more density exists. Thus, wider distribution brings about wider range. Owing to the fact that kurtosis

statistic equals 10.13379, it greatly differs from normal distribution.

All studied variables are left-skewed, thus this relationship (mode>median>mean) dominates. Similarly, all variables' kurtosis has been obtained more than normal distribution.

Assessing regression model's hypotheses

Non-existence of autocorrelation: In order to assess the non-existence of autocorrelation between explanatory variables in this study, Durbin-Watson statistic has been applied. If this statistic ranges from 1.5 to 2.5, non-existence of autocorrelation between errors is confirmed. The calculated Durbin-Watson statistic for all regression models indicates that this statistic is between 1.5 and 2.5, and no autocorrelation exists in the regression models. The following table shows the stationarity of research variables at the critical level of %5.

Table 2. Dickey-Fuller statistics to test variables' stationarity

| Variables | C | T | ADF | Critical level | MCV | UR |
|---------------------------------|---|---|-----------|----------------|--------|-----|
| Product cost changes percentage | + | - | -30.10335 | 0.05 | -2.866 | (-) |
| Gross profit changes percentage | + | - | -23.54691 | 0.05 | -2.866 | (-) |
| Sale changes percentage | + | - | -18.54406 | 0.05 | -2.866 | (-) |
| Dollar changes percentage | + | - | -29.48949 | 0.05 | -2.866 | (-) |
| Euro changes percentage | + | - | -28.12562 | 0.05 | -2.866 | (-) |

In table 2, positive sign of constant value (C), time trend (T), unit root (UR), the augmented Dickey-Fuller test (ADF) and MacKinnon critical values (MCV) proves the existence of intercept in the models, while the negative sign proves the non-existence of unit root. As it can be observed, ADF is more than MCV, thus the null hypothesis, which has been designed based on

the existence of unit root, is rejected; and time series are stationary (Gajrani, 2007).

Research hypotheses testing

Simple regression, which is written in the following manner, is utilized to test research hypothesis.

$$Y_i = a_0 + B_1X_1 + \varepsilon$$

Y_i : dependent variable

X_1 : independent variable

First hypothesis testing

First hypothesis: Exchange rate fluctuations of dollar make more changes in firms' sales.

In order to test research hypotheses, Pearson correlation coefficient has been applied. As it can be observed in table 3, correlation coefficient (r) for the relationship between fluctuations of dollar and sales changes equals 0.364 which demonstrates a direct positive relationship between these two variables at the confidence level of %99 (sig= 0.004). Due to the fact that significance level is less than %1, this conclusion can be drawn that the increase of

exchange rate fluctuations of dollar makes more changes in sales.

As it can be seen in tables 4 and 5, significance level and t-statistic associated with dollar changes percentage is significant at the confidence level of %95 (significance level is less than %5, and absolute value of t is more than 2). β coefficient indicates a positive relationship between dollar changes percentage and sales changes percentage.

On the other hand, the calculated Durbin-Watson statistic is between 1.5 and 2.5 which proves the non-existence of auto-correlation between the abovementioned regression model's components. White test has been utilized in all hypotheses to remove variance anisotropy. Considering significance level in all hypotheses, variance homogeneity is confirmed.

Table 3. Pearson correlation between fluctuations of dollar and sales changes

| Dependent variable | Statistical index Independent variable | Correlation coefficient (r) | Significance level (sig) |
|--------------------------|--|-----------------------------|--------------------------|
| Sales changes percentage | Exchange rate fluctuations of dollar | 0.364 | 0.004 |

Table 4. The least squares regression of the dependent variable of sales changes

| Model's components | β (coefficients) | Standard error (Std, Error) | t-statistic | Significance level (Sig.) |
|---------------------------|------------------------|-----------------------------|-------------|---------------------------|
| Intercept | -0.026669 | 0.007174 | -3.717340 | 0.0002 |
| Dollar changes percentage | 8.105005 | 9.315005 | 2.870139 | 0.0046 |
| Ar(1) | -0.395937 | 0.039890 | -9.925767 | 0.0000 |

Table 5. Testing total model's significance

| Coefficient of determination | Adjusted coefficient of determination | F-statistic | Significance level (sig) | White test | Durbin-Watson statistic |
|------------------------------|---------------------------------------|-------------|--------------------------|------------|-------------------------|
| 0.154004 | 0.141251 | 49.24138 | 0.000000 | 0.25897 | 2.170066 |

Second hypothesis testing

Second hypothesis: Exchange rate fluctuations of euro make more changes in firms' sales. As it can be observed in table 6, correlation coefficient (r) for the relationship between fluctuations of euro and sales changes equals 0.130 which demonstrates a direct positive relationship between these two variables at the confidence level of %99 (sig= 0.006). Thus, it can be concluded that the increase of exchange rate fluctuations of euro makes more changes in sales.

As it can be seen, significance level and t-statistic associated with euro changes percentage is significant at the confidence level of %95 (significance level is less than %5, and absolute value of t is more than 2). β -coefficient indicates a positive relationship between euro changes percentage and sales changes percentage. On the other hand, the calculated Durbin-Watson statistic is between 1.5 and 2.5 which proves the non-existence of auto-correlation between the abovementioned regression model's components.

Table 6. Pearson correlation between fluctuations of euro and sales changes

| Dependent variable | Statistical index Independent variable | Correlation coefficient (r) | Significance level (sig) |
|--------------------------|--|-----------------------------|--------------------------|
| Sales changes percentage | Exchange rate fluctuations of euro | 0.130 | 0.006 |

Table 7. The least squares regression of the dependent variable of sales changes

| Model's components | (β) coefficients | Standard error (Std, Error) | t-statistic | Significance level (Sig) |
|---------------------------|------------------------|-----------------------------|-------------|--------------------------|
| Intercept | -0.026034 | 0.007220 | -3.605971 | 0.0003 |
| Dollar changes percentage | 8.275505 | 9.385505 | 3.882507 | 0.0079 |
| Ar(1) | -0.398980 | 0.040250 | -9.912618 | 0.0000 |

Table 8. Testing total model's significance

| Coefficient of determination | Adjusted coefficient of determination | F-statistic | Significance level (sig) | White test | Durbin-Watson statistic |
|------------------------------|---------------------------------------|-------------|--------------------------|------------|-------------------------|
| 0.163649 | 0.150520 | 49.31740 | 0.000000 | 0.4156 | 2.155481 |

Third hypothesis testing

Third hypothesis: Exchange rate fluctuations of dollar make more changes in product costs.

As it can be observed in table 9, correlation coefficient (r) for the relationship between fluctuations of dollar and product costs changes equals 0.026. Due to the fact that significance level is more than %5 (sig=0.880), the relationship between these two variables cannot be significant at the confidence level of %99. Thus, third hypothesis is rejected. In other words, increase of exchange rate fluctuations of dollar does not make more changes in product costs.

As it can be seen, significance level and t-statistic associated with dollar changes percentage is not significant at the confidence level of %95 (significance level is more than %5, and absolute value of t is less than 2), thus this hypothesis is rejected. In other words, increase of exchange rate fluctuations of dollar does not make more changes in product costs.

On the other hand, the calculated Durbin-Watson statistic is between 1.5 and 2.5 which proves the non-existence of auto-correlation between the abovementioned regression model's components.

Table 9. Pearson correlation between fluctuations of dollar and product costs changes

| Dependent variable | Statistical index Independent variable | Correlation coefficient (r) | Significance level (sig) |
|----------------------------------|--|-----------------------------|--------------------------|
| Product costs changes percentage | Exchange rate fluctuations of dollar | 0.026 | 0.880 |

Table 10. The least squares regression of the dependent variable of product costs changes

| Model's components | (β) coefficients | Standard error (Std, Error) | t-statistic | Significance level (Sig) |
|---------------------------|------------------------|-----------------------------|-------------|--------------------------|
| Intercept | -0.027375 | 0.007247 | -3.777517 | 0.0002 |
| Dollar changes percentage | 5.65275 | 0.000194 | 0.291813 | 0.7705 |
| Ar(1) | -0.393629 | 0.039895 | -9.866758 | 0.0000 |

Table 11. testing total model's significance

| Coefficient of determination | Adjusted coefficient of determination | F-statistic | Significance level (sig) | White test | Durbin-Watson statistic |
|------------------------------|---------------------------------------|-------------|--------------------------|------------|-------------------------|
| 0.153045 | 0.149902 | 48.69866 | 0.000000 | 0.32154 | 2.172830 |

Fourth hypothesis testing

Fourth hypothesis: Exchange rate fluctuations of euro make more changes in product costs.

As it can be observed in the above table, correlation coefficient (r) for the relationship between fluctuations of euro and product costs changes equals 0.0360. Since significance level is more than %5 (sig=0.580), the relationship between these two

variables is not significant at the confidence level of %99 and fourth hypothesis is rejected. Thus, it can be concluded that the increase of exchange rate fluctuations of euro makes no more changes in product costs percentage.

As it can be seen in table 13 and 14, significance level and t-statistic associated with euro changes percentage is not significant at the confidence level of

%95 (significance level is more than %5, and absolute value of t is less than 2). Therefore, fourth hypothesis is rejected. In other words, the increase of exchange rate fluctuations of euro makes no more changes in product costs percentage.

On the other hand, the calculated Durbin-Watson statistic is between 1.5 and 2.5 which proves the non-existence of auto-correlation between the abovementioned regression model's components.

Table 12. Pearson correlation between fluctuations of euro and product costs changes

| Dependent variable | Statistical index Independent variable | Correlation coefficient (r) | Significance level (sig) |
|----------------------------------|---|-----------------------------|--------------------------|
| Product costs changes percentage | Exchange rate fluctuations of euro | 0.036 | 0.580 |

Table 13. The least squares regression of the dependent variable of product costs changes

| Model's components | (β) coefficients | Standard error (Std, Error) | t-statistic | Significance level (Sig) |
|---------------------------|--------------------------|-----------------------------|-------------|--------------------------|
| Intercept | -0.026735 | 0.007293 | -3.665721 | 0.0003 |
| Dollar changes percentage | 5.994605 | 0.000195 | 0.307099 | 0.7589 |
| Ar(1) | -0.396619 | 0.040257 | -9.852286 | 0.0000 |

Table 14. testing total model's significance

| Coefficient of determination | Adjusted coefficient of determination | F-statistic | Significance level (sig) | White test | Durbin-Watson statistic |
|------------------------------|---------------------------------------|-------------|--------------------------|------------|-------------------------|
| 0.182541 | 0.117521 | 46.25457 | 0.000000 | 0.12457 | 2.21421 |

Fifth hypothesis testing

Fifth hypothesis: Exchange rate fluctuations of dollar make more changes in gross profit.

As it can be observed in table 15, correlation coefficient (r) for the relationship between fluctuations of dollar and gross profit changes equals 0.264 which demonstrates a direct positive relationship between these two variables at the confidence level of %99 (sig= 0.003). Thus, it can be concluded that the increase of exchange rate fluctuations of dollar makes more changes in gross profit.

As it can be seen, significance level and t-statistic associated with dollar changes percentage is significant at the confidence level of %95 (significance level is less than %5, and absolute value of t is more than 2). β -coefficient indicates a positive relationship between dollar changes percentage and gross profit changes percentage.

On the other hand, the calculated Durbin-Watson statistic is between 1.5 and 2.5 which proves the non-existence of auto-correlation between the abovementioned regression model's components.

Table 15. Pearson correlation between fluctuations of dollar and gross profit changes

| Dependent variable | Statistical index Independent variable | Correlation coefficient (r) | Significance level (sig) |
|---------------------------------|---|-----------------------------|--------------------------|
| Gross profit changes percentage | Exchange rate fluctuations of dollar | 0.264 | 0.003 |

Table 16. The least squares regression of the dependent variable of gross profit changes

| Model's components | (β) coefficients | Standard error (Std, Error) | t-statistic | Significance level (Sig) |
|---------------------------|--------------------------|-----------------------------|-------------|--------------------------|
| Intercept | -0.027664 | 0.007126 | -3.882222 | 0.0001 |
| Dollar changes percentage | 1.013806 | 1.513805 | 2.067226 | 0.0064 |
| Ar(1) | -0.393336 | 0.039817 | -9.878548 | 0.0080 |

Table 17. testing total model's significance

| Coefficient of determination | Adjusted coefficient of determination | F-statistic | Significance level (Sig) | White test | Durbin-Watson statistic |
|------------------------------|---------------------------------------|-------------|--------------------------|------------|-------------------------|
| 0.172826 | 0.149694 | 48.79696 | 0.0001 | 0.25468 | 2.168508 |

Sixth hypothesis testing

Sixth hypothesis: Exchange rate fluctuations of euro make more changes in gross profit. Pearson correlation coefficient has been applied to test the above hypothesis. As it can be observed in table 18, correlation coefficient (r) for the relationship between fluctuations of euro and gross profit changes equals 0.330 which demonstrates a direct positive relationship between these two variables at the confidence level of %95 ($\text{sig}= 0.017$). Thus, it can be concluded that the increase of exchange rate fluctuations of euro makes more changes in gross profit.

As it can be seen, significance level and t-statistic associated with euro changes percentage is significant at the confidence level of %95 (significance level is less than %5, and absolute value of t is more than 2). β -coefficient indicates a positive relationship between euro changes percentage and gross profit changes percentage.

On the other hand, the calculated Durbin-Watson statistic is between 1.5 and 2.5 which proves the non-existence of auto-correlation between the abovementioned regression model's components.

Table 18. Pearson correlation between fluctuations of euro and gross profit changes

| Dependent variable | Statistical index Independent variable | Correlation coefficient (r) | Significance level (sig) |
|---------------------------------|---|------------------------------------|-------------------------------------|
| Gross profit changes percentage | Exchange rate fluctuations of euro | 0.330 | 0.017 |

Table 19. The least squares regression of the dependent variable of gross profit changes

| Model's components | (β) coefficients | Standard error (Std, Error) | t-statistic | Significance level (Sig) |
|---------------------------|------------------------|--------------------------------|-------------|--------------------------|
| Intercept | -0.027046 | 0.007171 | -3.771310 | 0.0002 |
| Dollar changes percentage | 9.177007 | 1.527005 | 4.060380 | 0.0019 |
| Ar(1) | -0.396313 | 0.040179 | -9.863688 | 0.0053 |

Table 20. testing total model's significance

| Coefficient of determination | Adjusted coefficient of determination | F-statistic | Significance level (sig) | White test | Durbin-Watson statistic |
|---------------------------------|--|-------------|-----------------------------|------------|-------------------------|
| 0.182436 | 0.179303 | 48.64989 | 0.000000 | 0.32145 | 2.153809 |

CONCLUSION

The present study has aimed to assess the relationship between exchange rate fluctuations and performance of listed companies on Iran Stock Exchange. The applied method has been correlation approach. Needed data has been collected through Rahavard Novin software and analyzed through the application of Excel and Eviews software. Companies which have active in different industries from 2010 to 2013 have been selected in this study.

Results of testing first and second hypotheses show a direct positive relationship between exchange rate fluctuations (dollar and euro) and sales changes. Thus, first and second hypotheses are confirmed. Moreover, the achieved findings indicate that exchange rate fluctuations do not affect product costs; therefore, third and fourth hypotheses are rejected. Testing fifth and sixth hypotheses also demonstrates that exchange rate fluctuations and gross profit changes are directly and positively associated. As a result, these two hypotheses are accepted.

Suggestions

1. Considering the obtained findings of this study, it is suggested that investors invest in financial projects when there is no stationarity in exchange rate, since more risks bring more returns on properties.

2. Regarding the importance of exchange rate in less-developed countries, it is suggested to apply Panel data techniques to investigate the effect of exchange rate on financial markets in these countries.

Suggestions for future studies

The following titles are suggested for future studies:

1. Exchange rate fluctuations and circulating capital of the firms
2. Assessing the effect of exchange rate fluctuations on financial variables
3. Assessing the effect of inflation on the performance of listed companies on Iran Stock Exchange

4. Assessing the effect of exchange rate fluctuations on different ways of financing
5. Assessing the effect of exchange rate fluctuations on external investing
6. Conducting the present study with regards to various industries is also suggested.

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