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Comparative investigation of the effects of macro-level economic variables on the capital depreciation in export and non-export companies present in Tehran's securities exchange market during 2007-2012

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ABSTRACT
The present study tries investigating the relationship between macro-level economic variables and capital variations for the companies accepted to Tehran's securities exchange market during 2007-2012. The study's required data have been collected through Tadbir Pardaz Company's software. The instruments used for information gathering were Eviews7 Software and Excel. The study results indicated that numerous factors influence capital depreciation and their control is of a great importance.
Keywords: capital depreciation, interest rate, company size, foreign currency exchange rate, stock output, inflation rate

Introduction

Considering the evolutions that have occurred in the today's world, especially in the developing countries that are faced with numerous threats, these countries need proper solutions for overcoming their economic problems so as to be able to better use their God-gifted facilities and riches and wealth. In line with this, one of the important solutions is the expansion and development of investment.

Investment development causes absorbance of the inefficient capitals and their navigation towards the generative economic sectors, on the one hand, and the investment will be guided according to the investors' orientations (based on risk and output) towards industries providing more profit and running lower risk, on the other hand, and this enables optimal resource allocation [1].

Many of the economists have introduced foreign trade surplus as the driver of the countries' economic growth because it is in case of the foreign trade booming and acquisition of the trade surplus that the ground is set in the domestic market for efficiency enhancement, goods' quality elevation and, eventually production growth.

One of the main reasons for the capital flight and agreed by many is the possibility of change (increase) in the foreign currency exchange rate. Assuming the constancy of the other factors, the expected reductions in the value of the domestic currency (for a reason or another) makes the residents turn their domestic assets

to foreign assets. The foreign currency exchange rate is directly associated with a business entity's profitability hence the stock return of the economic entities under the imperfect competition conditions.

As a scale indicating the value of a country's money when traded for the foreign currencies, currency exchange rate reflects a country's economic status in contrast to the conditions of the other countries [2]. The more the exports of a business entity, the higher its profit will be increased with the increase in the foreign currency exchange rate. Using the information of forty four companies accepted to Tehran's securities exchange market, it is observed that the changes in the foreign currency exchange rate are directly associated with the company's stock return in Iran but with a time lag (six months). A stronger relationship between the currency exchange rate and the stock return is observed for the export companies in contrast to the nonexpert firms [3].

On the other hand, inflation, as well, is amongst the most important macro-level economic variables with its quantity having always been high for a 4-decade period and the inflation continuation along with the limited growth of the GDP being indicative of the governance of the ominous phenomenon of inflation depression in the country's economy. The inflation nature, as well, is inappropriate and exerts a considerable adverse distributive and allocational effect meaning that it changes both the income distribution and the resource allocation in favor of the nongenerative factors and to the disbenefit of the generative factors.

Under the acute inflation circumstances, accounting offers misleading information to the users. The present study divides the companies into export and non-export firms so as to investigate the different effects the macro-level economic variables like inflation, stock return, currency exchange rate, company size and interest rate in these two groups of firms may exert on the firms' profits and, eventually, on the capital depreciation. Changes in the macro-level economic variables cause the decisions made solely based on the financial statements' analysis (historical events) to be misleading and result in no effective decision by the decision-makers under the unstable macro-level economic variables' conditions. Financial statements do not reflect the financial status and economic companies and institutions' performance meaning that the evaluation becomes impossible and can cause increase in the investment risk of these companies in certain occasions [2].

Usually, the most important scale of institutions' performance evaluation is presently stock return rate. This scale alone has information content for investors and it is used for the performance evaluation. This scale rings a danger bell for the companies and does not properly display the company's performance when reduced.

In the course of the past studies about the present study's subject, the effect of inflation on capital depreciation has been more investigated and no precise and sure reference has been made therein to the export and non-export companies accepted to Tehran's securities exchange market as well as to the effect of the macro-level economic variables on the company's capitals and the results that would be obtained in these researches for the capital resources' decision makers and, on the other hand, the present study pertains to a time span from 2007 to 2012. Considering the abovementioned materials, the present study seeks finding an answer to the question that whether the effect of the macro-level economic variables on the capital depreciation is more in the export companies or non-export firms?

Study Method

The present study is an applied research and the study population included all the companies accepted to Tehran's securities exchange market. The study sample volume has been selected based on the samples' systematic elimination method. In summary, companies possessing the following conditions were selected as the study sample volume:

- Companies should not be financial institutions.
- They should have been continuously present in Tehran's securities exchange market during 2007 2012 and their information should be complete and available.
- The fiscal year of the companies should end on 29th of March.
- The companies should have not sustained losses during the foresaid period.

The present study is a descriptive research based on regression analysis which is drawn on combined data analysis.

In this study, five independent variables were taken into account as listed beneath:

1) Company size: it is obtained from the natural logarithm of the company assets' sum.

2) Foreign currency exchange rate: use has been made of the formal statistics published by the central bank.

3) Stock return: it is obtained from the following formula: $R_t = \frac{(1+a)P_{t-1}+DPS_t-P_t-C}{P_t}$

Where, Rt denotes stock return; P(t-1) is the price in the beginning of the period; Pt is the price in the end of the period; DPS is the cash profit when capital is increased; α is the capital increase percentage; and, C is the cash input when capital is increased.

4) Interest rate: use has been made of the formal statistics published by the central bank.

5) Inflation rate: use has been made of the formal statistics published by the central bank.

Study's Conceptual Model

The study model can be expressed in the following form considering Iran's economic conditions.

$$Fs=\beta_0+ \beta_1(P) +\beta_2(i)+ \beta_3 (size)+\beta_4(E)+ \beta_5(r_t)+u \quad (1)$$

Where, FS is the capital depreciation; i designates the interest rate; Size is the company's size; E is the foreign currency exchange rate and rt is the stock return rate and P is the inflation rate that has not been inserted in the explanations.

Information Gathering Method

The data required for the testing the hypothesis have been collected through referring to the audited financial statements of the companies accepted to Tehran's securities exchange market and also Tadbir Pardaz Company's software. The instruments used for information gathering are observation, statistical tests, information banks, Eviews7 Software and Excel Software.

Data Analysis Method

In this research, use has been made of statistical tests for analyzing the regression pattern obtained from the process for confirming or rejecting the hypotheses.

Results

The collinearity test between the variables and data normality

Table 1: correlation coefficient for testing the collinearity of the export and non-export companies' data

Inflation rate	Stock return	Interest rate	Currency exchange rate	Company size	Capital depreciation	
Inflation rate	1.00					
Stock return	-0.081 0.057	1.00				
Interest rate	0.356 0.000	-0.006 0.883	1.00			
Currency exchange rate	0.017 0.696	0.013 0.759	0.116 0.006	1.00		
Company size	0.077 0.873	-0.007 0.877	0.129 0.002	0.493 0.000	1.00	
Capital depreciation	0.021 0.606	0.010 0.203	0.017 0.696	0.013 0.759	0.311 0.0000	1
Non-export firms						
Inflation rate	1.00					
Stock return	-0.071 0.051	1.00				
Interest rate	0.301 0.000	-0.0005 0.063	1.00			
Currency exchange rate	0.011 0.606	0.010 0.259	0.1316 0.003	1.00		
Company size	0.027 0.273	-0.0002 0.377	0.111 0.002	0.312 0.000	1.00	
Capital depreciation	0.011 0.52	0.356 0.021	-0.016 0.883	0.003 0.719	0.113 0.006	1

As it is observed in table (1), data normality is accepted considering the large number of data and existence of the imperfect correlation.

Regression Analysis

In order to test the hypotheses, use has been made of regression method drawn on pooled data.

Table 2: results of the export firms' combined regression

Independent variable	Coefficient	Standard error	t-statistic	P-value	Relation type	Significance level
y-intercept	-8.37	0.936169	-8.944124	0.0000	-	95%
Company size	0.604	0.06567	9.196	0.0000	Positive and significant	95%
Currency exchange rate	0.0000416	0.0000169	2.463	0.0412	Positive and significant	95%
Interest rate	0.349	0.0335	10.4121	0.0000	Positive and significant	95%
Stock return	-0.00094	0.00019	-4.934	0.0000	Negative and significant	95%
Inflation rate in the previous period	1.232	0.61006	2.02	0.0449	Positive and significant	95%
	Determination coefficient	Adjusted determination coefficient	Deviation from regression mean	F0-statistic	F-statistic probability	Durbin-Watson (D-W)
Weighted statistics	0.86	0.821	0.7647	22.103	0.000	1.13

According to the results obtained from the regression model's test as presented in table (2), it is observed that the P-value pertinent to F-statistic ((F-statistic)-Prob) as an indicator of the overall regression's significance is equal to 0.000 indicating that the model is significant in a 95% confidence level. The adjusted determination coefficient (R2) is equal to 0.86 indicating that the model's independent variables account

for nearly 86% of the dependent variables' variations hence the regression possesses a good power of explanation.

Table (3) summarizes the results of the combined regression test for the non-export firms.

Table 3: results of the combined regression test for the non-export firms

Independent variable	Coefficient	Standard error	t-value	P-value	Relation type	Significance level
y-intercept	-9.86	0.977	10.093	0.0000	-	95%
Company size	0.792	0.077	10.3	0.0000	Positive and significant	95%
Currency exchange rate	6.56	0.0000177	3.7	0.0026	Positive and significant	95%
Interest rate	0.0094	0.00241	3.88	0.0123	Positive and significant	95%
Stock return	-0.0201	0.000621	-3.24	0.0014	Negative and significant	95%
Inflation rate	0.8801	0.419	2.102	0.0368	Positive and significant	95%
Weighted statistics	Determination coefficient	Adjusted determination coefficient	Deviation from regression mean	F0-statistic	F-statistic probability	Durbin-Watson (D-W)
	0.86	0.831	0.9326	28.42	0.000	0.817

As it is observed in tables (2&3), the coefficient of the inflation is positive in both states of the export and non-export firms. Considering the t-statistic and p-value of this variable, the results are indicative of this coefficient's significance in 5% level. These findings indicate that there is a positive and significant relationship between the inflation rate and capital depreciation in the export and non-export firms accepted to Tehran's securities exchange market hence the first hypothesis is confirmed.

As it is also observed in table (2&3), the coefficient of the independent variable "stock return" is negative in the export and non-export firms accepted to Tehran's securities exchange market. In other words, the increase in the stock return rate in these companies results in the lowering of the capital depreciation meaning that the increase in the stock return causes reduction in the difference between the profitability rate and inflation rate and the capital depreciation is somewhat compensated. Therefore, the effect of the stock return rate on the capital depreciation is negative. Considering the t-statistic and p-value of this variable, the results are reflective of this coefficient's significance in 5% error level. Based on the findings, the H0 (null hypothesis) is not rejected. Comparing the obtained coefficients in both of the above tables, it can be expressed that the negative effect of the stock return coefficient on capital depreciation is more in non-export companies than the export firms.

The results of tables (2) and (3) showed that the company size's coefficient is positive in both of the models; it was also found out that the company size has a positive effect in all of the companies accepted to the stock market (export and non-export) on capital depreciation. The obtained coefficients were found enjoying the required credibility in statistical terms. It can be asserted that the larger the company size, the more the capital depreciation of the company is increased. Based thereon, the third hypothesis is accepted.

The results of tables (2) and (3) demonstrated that the interest rate's coefficient is positive in both of the models hence indicating that the interest rate of all the companies accepted to the stock market (export and non-export) has a positive effect on the capital depreciation. The obtained coefficients have the required credibility in statistical terms hence it can be stated that the increase in interest rate bring about an increase in the capital depreciation hence the study's fourth hypothesis is affirmed.

As it is observed in tables (2) and (3), the coefficient of the independent variable "foreign currency exchange rate" is positive in the export and non-export companies accepted to Tehran's securities exchange market; in other words, the increase in the foreign currency exchange rate in these companies results in capital depreciation increase. Considering the t-statistic and p-value of this variable, the results indicated that the coefficient is significant in a 5% error level. Based thereon, the null hypothesis (H_0) is rejected.

Discussion

The present study investigated the relationship between the operational debt leverage and the prospective equity return of the companies accepted to Tehran's securities exchange market.

The obtained results have been summarized below:

The findings of the first study hypothesis are reflective of the existence of a positive and significant relationship between the inflation rate and capital depreciation of the export and non-export firms accepted to Tehran's securities exchange market. The results of this study are similar in this regard to those found in the studies by Ahmadpour (2003), Montiz (1970), Ahmadpour (2003), Capril and Chong (1997) and Javadi (1995).

Stock return has a positive effect on capital depreciation in the export and non-export firms accepted to Tehran's securities exchange market. The coefficient of the independent variable "stock return" is negative in the export and non-export firms accepted to Tehran's securities exchange market. In other words, the increase in the return rate of these companies causes reduction in the capital depreciation meaning that the increase in the return brings about reductions in the difference between the profitability and inflation rate and this enables the compensation of the capital depreciation to some extent. Thus, the effect of the stock return rate on the capital depreciation is negative. The obtained results are consistent with the findings of the studies by Roya'ei (1993), Hintez (1970), Moris (1975), Faha (1981) and Roya'ei (1993).

Company size has a positive effect on the capital depreciation in the export and non-export firms accepted to Tehran's securities exchange market. The company size's coefficient is positive in both of the models hence indicating that the company size of all the firms accepted to the stock market (export and non-export) has a positive effect on the capital depreciation. The obtained coefficients are statistically credible enough. It can be asserted that the enlargement of the company size results in the capital depreciation increase. The results are similar to what has been found by Roya'ei (1993), Hintez (1970), Moris (1975) and Ahmadpour (2003) and also Moris (1975), Ahmadpour (2003), Kim Kiyong (2006) and Adel Al-Sharks (2004).

The interest rate has a positive effect on capital depreciation of the export and non-export firms accepted to Tehran's securities exchange market: the interest rate coefficient is positive in both of the models hence indicating that the interest rate has a positive effect in all of the companies accepted to the stock market (export and non-export) on the capital depreciation. These findings are in accordance to the results obtained by Roya'ei (1993), Ahmadpour (2003), Hintez (1970), Moris (1975), Kim Kiyong (2006), Gary Gory (2004), Javadi (1995) and Ahmadpour (2003).

The foreign currency exchange rate exerts a positive effect on the capital depreciation in the export and non-export firms accepted to Tehran's securities exchange market. The coefficient of the independent variable "currency exchange rate" is positive in the export and non-export firms accepted to Tehran's securities exchange market. In other words, the increase in the foreign currency exchange rate in these firms causes increase in the capital depreciation. These results are similar to those found by Roya'ei (1993), Hintez (1970), Moris (1975), Javadi (1995), Berter and Bodnal (1994) and Chong and Noj (1998).

Conclusion

It is the optimal performance of an activity that encourages the financial suppliers operationalize their resources therein because optimal performance is followed by increases in the companies' values hence increase in the wealth of the resource owners. Therefore, in line with the increase in the shareholders' wealth, the capital depreciation quality can be enumerated amongst the most primary decision-making domains of the corporate managers. Making decision about the quality of financial supply plays a considerable role in the change of the companies' values and it is considered as a challenge for the managers.

Prevention of the favorable capitals' depreciation increases the company value, adds to the manager's prestige, satisfies the shareholders and elevates the company's credibility. On the other hand, capital depreciation that causes the flowing of the net cash flows out of the company reduces the company value and is accompanied by the shareholders' dissatisfaction and reduction in the trust in the manager and it may even end with the company's bankruptcy and its activities' termination.

According to the present study's findings that indicated the positive and significant relationship between the company size and capital depreciation in all of the export and non-export firms accepted to Tehran's securities exchange market, it can be suggested to the companies that they should determine their companies' optimal sizes based on the scientific economy mechanisms so that the least depreciation can come about.

The stock return rate of the companies accepted to Tehran's securities exchange market has a negative effect on capital depreciation. Therefore, due care should be exercised on stock pricing and specialized evaluation of the companies' securities. Moreover, the sufficient and sound information should be provided with the least cost to all the stock market activists so that the companies with higher outputs can expand the domain of their activities parallel to the minimization of the capital depreciation.

Inflation rate has the highest positive effect on the capital depreciation. Thus, there is a need for proper monetary and financial policies by the central bank in line with its control. So, it is suggested that the government should enforce the required financial discipline in this regard.

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