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Investigating the Relationship between Exchange Rates and Stock Returns Fama and French Model (Case Study: Industrial Chemicals)

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ABSTRACT
In developing countries, exchange rates, stock prices and other important macro variables to the advanced and industrialized economies have fluctuated and these fluctuations, in turn, has created an uncertain environment for investors and allow investors cannot decide easily and with more confidence for future investment. The aim of this study is to investigate the relationship between exchange rates and stock returns of companies manufacturing chemicals listed on the Tehran Stock Exchange by using Fama and French model. The number of studies surveyed in this study is 20 cases and to test hypothesis E-Views software is used. The result showed that risk premium and the size has a positive and significant relationship with stock returns but the relationship of book value to stock market value and exchange rate and stock returns is not significant.
Keywords: French model, Chemical Industries

INTRODUCTION

One of the characteristics of developed countries is the existence of efficient markets and financial institutions that in addition to playing an important role in the economy of these countries are grounds for economic growth and for developing these countries [1-2]. Financial markets severely effect on the real economy sectors and are also affected by other sectors. Optimal allocation of resources, in turn, causes to optimality of savings and investment and thus national economic growth at close to potential aspects of economy. Financial markets have key role in development and growth of economy [3-5]. In developing countries, imported impacts on the economy compared with other developed countries have more deep effect due to stock market impacts [6-10]. Changing investment return risk resulted from fluctuations of macroeconomic variables can effect on investment choices. In this study, it is tried to discuss about the effect of fluctuations of market exchange rate and stock return of Iran.

RESEARCH HYPOTHESIS

Hypothesis 1: there is a significant relationship between the risk premium and stock returns of chemical industrialized companies listed in the Tehran Stock Exchange.
Hypothesis 2: there is a significant relationship between the size and stock returns of chemical industrialized companies listed in the Tehran Stock Exchange.
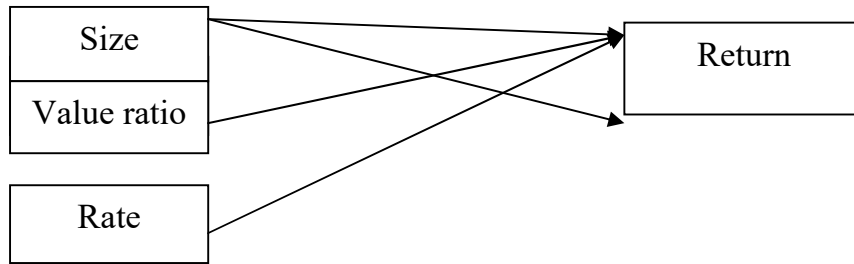Hypothesis 3: there is a significant relationship between the ratio of book value to market value and stock returns of chemical industrialized companies listed in the Tehran Stock Exchange.
Hypothesis 4: there is a significant relationship between the exchange rates and stock returns of chemical industrialized companies listed in the Tehran Stock Exchange.
Research Model
In the model of this study, the factors of company oldness, size, earnings before interest and taxes, last year asset returns and financial leverage are considered for studying. The research model is as following:

$$R_{p,t} - R_{f,t} = \alpha_p + \beta_{p,MRP}(R_{m,t} - R_{f,t}) + \beta_{p,SMB}SMB_t + \beta_{p,HML}HML_t + \beta_{p,ROEX}ROEX\ Factor_t + \varepsilon_{p,t}$$

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┌─────────────────┐                    ┌─────────────────┐
│      Size       │                    │                 │
├─────────────────┤                    │     Return      │
│   Value ratio   │                    │                 │
└─────────────────┘                    └─────────────────┘

┌─────────────────┐
│      Rate       │
└─────────────────┘
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Lin Huang and Colleagues Model [11]

$R_{p,t} - R_{f,t}$: Stock return
$R_m - R_f$: Risk Premium
SBM: Size
HML: ratio of book value to stock market value
ROEX: Exchange rate
$\varepsilon_{p,t}$: Error rate

Population
Chemical industrial companies are the population of this research by the end of stock in 2013 that had been accepted during 2004.

Research Population
The present study is applied. On the other hand, data is derived from actual data and financial statements of companies. Accordingly, this research focuses on the study of the relationship between variables, the research methodology is correlation.

Hypothesis Testing
As it can be seen in the results of Hausman Test, all variables of model except RP and EXR are no statistical significance. Therefore, we can say that premium and exchange variable has a direct relationship with stock return.

Variable	Coefficient	P-value	R-squared	Adjusted R-squared	F-statistic	Prob (F-Statistic)	Durbin-Watson Stat	Approving or rejecting hypothesis
C	-0.72933	0.0831	0.27471	0.259884	18.46922	0.0000	2.000830	
RP	0.66	0.0002						
SMB	0.058	0.3966						
HML	0.022	0.6028						
EXR	6.05	0.003						

Hypothesis 1
The results obtained from the integrated model show that number P of this variable is equal to 0.000. Therefore, in 99% confidence level it can be said that being null hypothesis of this coefficient is rejected and as a result the first hypothesis is confirmed.

Hypothesis 2
The results obtained from the integrated model show that number P of this variable is equal to 0.396. Therefore, in 95% confidence level it can be said that being null hypothesis of this coefficient is not rejected and as a result the first hypothesis is not confirmed.

Hypothesis 3
The results obtained from the integrated model show that number P of this variable is equal to 0.602. Therefore, in 95% confidence level it can be said that being null hypothesis of this coefficient is not rejected and as a result the first hypothesis is not confirmed.

Hypothesis 4
The results obtained from the integrated model show that number P of this variable is equal to 0.003. Therefore, in 99% confidence level it can be said that being null hypothesis of this coefficient is rejected and as a result the first hypothesis is confirmed.

DISCUSSION AND CONCLUSION

The results of hypothesis 1

There is a significant relationship between risk premium and stock returns of chemical companies listed on Tehran Stock Exchange. It means when risk premium is changed, in the following, companies' return is fluctuated. The results of testing the panel data model showed that there is a significant relationship statistically.

The results of hypothesis 2

There is a significant relationship between size and stock returns of chemical companies listed on Tehran Stock Exchange. The results of testing the panel data model showed that there is no a significant relationship statistically. The results of the panel model showed that the hypothesis is rejected in 95% confidence level.

The results of hypothesis 3

There is a significant relationship between book value to stock market value and stock returns of chemical companies listed on Tehran Stock Exchange. The results of testing the panel data model showed that there is no a significant relationship statistically.

The results of hypothesis 4

There is a significant relationship between exchange rate and stock returns of chemical companies listed on Tehran Stock Exchange. The results of testing the panel data model showed that there is a significant relationship statistically.

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