
The Effect of the Exchange Rate Risk on the Stock Prices of the Energy Companies

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Abstract: The purpose of this study is the examination of the effect of the unexpected exchange rate risk on the stock prices of the energy companies which are transacted in the ISE (Istanbul Stock Exchange) National 100 index, for the period of 03/01/2005 – 29/06/2012. In addition, the study has investigated the effect of the market return on the stocks of the related companies in the same period. In line with that purpose, a multi-regression analysis has been realized in order to examine whether there was any effect or not. At the end of this inquiry, it was concluded that the unexpected exchange rate risk had a very small effect on the companies which are active in the energy sector and the return on market, on the contrary, had a very big effect thereon.

Keywords: *Exchange rate risk; stock price; energy; TSKB; ISE*

1. Introduction

Following the effective application of the Bretton Woods system until the late 1960's and its coming to an end in the beginning of the 1970's exchange rate risk has been one of the most important subjects dealt with in the field of international finance. As a result of the ending of the application of that system, countries have left their monetary units to fluctuation and the resulting unpredictability of the exact values that the exchange rates may have in the future has constituted a fundamental risk factor. The changing exchange rates inevitably influence the market value of the companies and consequently the sectors. In addition, the fact that the system is dependent on the decision of USA has caused Dollar to become the international reserve unit. The sources of the exchange rate risk may be summarized under various headings (Asiamoney, 1997-1998). The most known source of exchange rate risk is the fact that the whole or part of the revenues or expenses of the companies are realized through the monetary unit of a foreign country and this means that the whole or part of the sales or expenses of the company are realized through the monetary unit of a foreign country. Another source of the exchange rate risk is having a subsidiary in a foreign country. Here, two forms of exchange rate risk may be incurred. The changes in the exchange rates shall influence the profitability of the company either positively or negatively due to the fact that the transfer of profits is realized through a foreign monetary unit. Besides, the balances of the subsidiary shall also affect the financial structure of the principal company positively or negatively under the influence of exchange rate changes. Another example is the case where exchange rate risk may arise when foreign sources are obtained from the foreign loan markets because the companies may have difficulties in finding foreign financial sources under suitable conditions using their national monetary units. Finally, there is a exchange rate risk which may be called the strategical

exchange rate risk and is not frequently encountered. This form of exchange rate risk emerges as a result of the speedy movement of foreign currency in big amounts. The Asian crisis may be shown as a very good example for this situation. A large scale devaluation was experienced as a result of that crisis and many companies, which have been influenced negatively from the change in the exchange rate, have either shrunk, have been closed or sold (Onal et al., 2002).

Generally, exchange rate risk may be defined as the unpredictable uncertainty in the exchange rate which can be measured by means of the statistical variance and but it is also defined as the uncertainty of the exchange rate that may be measured by the variance of the change in the monetary unit values caused by the active and passive earnings and earnings from the changes in the unexpected changes in the exchange rate (Onal et al., 2002; Levi, 1996; Adler and Dumas, 1984). When the studies, which examine the relation between the stock prices and exchange rate, has been looked that the nominal exchange rate, i.e the price of a foreign monetary unit in terms of the national monetary unit, is included in the calculation (Savas and Can, 2011). There is an inverse relation between the exchange rates and the stock prices. The stock prices shall decrease as the exchange rates increase and the stock prices shall increase as the exchange rates decrease. The increase of the exchange rates means the decrease of the local monetary unit value. The decrease of the local monetary unit value in turn shall also lead to a decrease in the real return of the stock (Albeni and Demir, 2005). In this study, it has been examined whether the return on the stocks of the companies which are active in the energy sector, which is one of the most effective sectors in all countries and has the potential of a high return, is sensitive towards the exchange rate risk and, in addition, the effect of the market return on the stocks returns has been included in the study and the scope of the analysis. The main reason for examining the companies in the energy sector within the scope of the study is the fact that the energy resource is a main factor which is needed very intensively by the developed as well as the underdeveloped countries in all phases of economic development. In parallel to this fact, the increase in the demand for the energy sources brings along with itself an increase of the investments in the energy sector and this situation in turn leads to significant increases in the turnovers realized by the energy companies. Since our country is dependent on foreign sources of energy, the problem of supply of energy and energy investments have a big importance just as in many other countries.

According to the latest calculations the total market value of the companies transacted in ISE has been calculated as approximately 500 billion TL. The total market value of the ten companies in the energy sector which are active in ISE and included in TSKB (Industrial Development Bank of Turkey) energy index has been calculated as approximately 30 billion TL and the size of those companies represent 6% of the total volume of the stock exchange (FinansNews, 2012). When 25 companies, which have obtained a total sales revenue of 166 million TL in the stock exchange in the first nine months of 2012 which corresponds to an increase of 43.7% in comparison to the previous year, has been examined, it can be seen that the energy sector has been the sector of which turnover increased the most in the first nine months and the key factors that accounts for this increase and success were the investments made as well as the price increases in the energy sector. It may be said that this situation is a reflection of the high level of demand for energy (Energy Institute, 2012). Turkey is one of the countries in the world of which demand for energy increase most rapidly as a result of its growing economy and increasing population. The estimations made in the recent periods show that the demand for energy shall increase 6-8%

annually in the coming years. Energy consumption which has been 92 million tons (toe = the tone oil equivalent) in 2006 is expected to rise to 222 million tons (toe) in 2020. However the country is dependent on imported energy sources since its own energy resources are far from meeting that demand. According to the data of the ministry of energy, Turkey is able to meet only 30% of its energy need from its domestic sources. On the other hand, Turkey's eastern neighbors own 71.8% of the world's proven sources of gas and 72.7% of the world's proven sources of oil. On the other hand, European Union which is in the west of Turkey meets most of its demand for energy from Russia and Asia and this situation gives Turkey and Turkish companies an opportunity to be an international bridge in terms of energy supply. This is a factor which is believed to have created a big potential for the Turkish companies in the future (Manual of Energy Investor, 2012; The Energy Strategy of Turkey, 2009). When we have a look at the stock of energy imports in the total amount of imports, it can be seen that 3.7 billion Dollars out of the total amount of imports of 22 billion Dollars in 1992 has been covered by import of energy (16%) while those figures have been 54 billion Dollars (22%) and 240 billion Dollars respectively in 2011 (Sanli, 2012).

Although the returns obtained by these companies in the energy sector is effected by the demand for the energy source in the first degree, the unexpected changes that the exchange rates may undergo, in other words, the exchange rate differences that may arise and the risk that will be created by that situation may cause a decrease in the earnings of the companies by forming a cost of exchange rate difference. Energy prices in our country depend on the import prices to a significant extent and consequently incur the risk of a high exchange rate. In the recent years, companies incur high costs as a result of the increasing energy prices on one side and incur exchange rate risk as a result of the free exchange rate applied on the other side. To give an example, the total amount of energy import was 11.6 billion Dollars in 2003 and that amount is the amount of real imports at the same time. However the total amount of import has risen to 33.9 billion Dollars in 2007 and 19 billion Dollars of that increase was due to the price effect. On the other hand, 37.9 billion Dollars out of the total import amount of 54.1 billion Dollars in 2011 was due to the price effect. Taking the data presented as a basis, it is understood that the amount of increase due the price effect has increased more in comparison to the amount of import of real energy (Turkish Statistical Institute, 2011; Undersecretariat of Treasury, 2011). Turkey has begun to comply with the directives of European Union on energy and passed into a big-scale liberalization process in the energy market following the Helsinki Treaty signed with the European Union in 1999. Today, thousands of companies are active in the energy market whereas there were only three big state enterprises in 1990's. It is one of the priorities of the state that energy investments are realized by the private sector to a great extent. The obstacles in front of the private sector were removed and support was provided for a transparently operating market through the amendments made on the law on electricity, gas, LPG and petroleum in the 2001-2005 period.

Public companies were rapidly privatized and foreign capital investments in huge amounts were introduced into the energy sector. However the country's need for energy was barely met despite all these huge investments. It is estimated that the Turkish energy market shall grow one fold in every ten years assuming that these investment shall continue in the next years. It goes without saying that numerous new companies shall be active in the energy market during that process. Ministry of energy expects that the need of the energy sector for funding shall be approximately 130 billion Dollars until

2023 (Invest in Turkey, 2012). It is estimated that the foreign investors shall be interested in the Turkish energy market more closely since a significant part of that funding shall be obtained from international sources. For that reason, it shall be very useful both for the energy companies and the potential investors to investigate the effect of the exchange rate on the stock prices of the energy companies. The basic limitation of the study is the fact that only limited numbers of companies are listed in the ISE-TSKB index. However, it is expected that the conclusions to be reached by this study shall be useful for the investors and companies due to the fact that the said companies are relatively big and represents the sector to a significant degree (the stock of energy is 40% in the consolidated revenues of the related companies). We must also express that there has not been made any study on the energy sector in this scope in Turkey up to now. In the following section of the study, a review of the literature on the subject is presented. In the section following the latter, the data which have been made use of and the methods of analysis have been explained, and the findings obtained and the evaluations have been presented in the sections thereafter.

2. Literature Review

In the field literature, there are various studies which have concluded at different findings related to the determination of the relation between the exchange rate risk and the returns on stocks. In his study Jorion (1990) has measured the flexibility of the multinational US companies against exchange rate risk and it was he who investigated the factors which determine the effect of the exchange rate empirically for the first time and stated that the effect of the exchange rate risk may be measured by means of regression coefficients. The study concluded that the relevant companies had significant differences in terms of exchange rate risk. In his other study Jorion (1991) has inquired the pricing of exchange rate risk in the US stock market using two and multi-factor pricing models and found out that the relation between the value of Dollar and the return on stocks has systematically changed on an industrial basis. In their study Ma and Kao (1990) has come to the conclusion that an increase of the exchange rate has affected the stock prices positively in export dominated economies and negatively in import dominated economies. Bartov and Bodnar (1994) have investigated whether the exchange rate risk had an effect on the companies operating at the international level. The study came to the conclusion that the changes in the exchange rates have not led to changes in the value of the companies in the current period. In their research Onal et al. (2002) have examined the effect of the exchange rate risk on the stocks of the private Turkish deposit banks which are active in ISE and have come to the conclusion that there was a long-term relation between exchange rate risk and stock prices in only two out of the ten banks which have been examined.

Chamberlain et al. (1997) have examined the effect of the exchange rate risk on the stock prices of the American and Japanese banks and have come to the conclusion that the returns of the stocks of the American banks moved in the same direction as the exchange rates while there was such a relation between the two factors in only some of the Japanese banks. Merikas (1999) has investigated the structural relation between the value of the stocks of the Greek banks and the exchange rate risk. In this study the generalized market model and the index of the Athens stock market which reflects the market return as one of the independent variables, have been used since the exchange rate is indeed an important factor in defining the returns from the bank but is not the only parameter. In the study the nominal exchange rate of Dollar, German Mark and Japanese Yen has been used as the exchange rate. This study has concluded that the changes in the exchange rate have affected the returns of the stocks of the

banks. In his study Altay (1999) has investigated the effect of the real exchange rate risk on the real returns of the stocks which are transacted in ISE. In the study, the changes in the real exchange rate and the monthly real returns of the stocks of the companies which have been taken as an example have been evaluated using ten different models and it has been found out that the real exchange rate risk has not determined the prices of the stocks transacted in ISE to a significant extent. On the other hand, in the study made by Doidge et al. (2000), data belonging to thousands of companies from 18 different countries have been examined and it has been determined that the stocks of the big companies are more sensitive to the changes in the exchange rate in comparison to the stocks of the small companies. In their research Bartram and Karolyi (2006) have examined the changes in the exchange rate risk, firm value and market that have arisen in the European countries, ABD and Japan in parallel to the introduction of Euro into circulation and have determined that the fluctuation in the exchange rate has decreased and the fluctuation in the stock market has increased very much after the introduction of Euro.

Doidge et al. (2006) have come to the conclusion that, in a majority of the economies of the countries that they have examined, the international activities have led to an increase of the risk to a great extent and that the risk turned out to be lower in the companies were self-closed. The study has come to the conclusion that the companies in these countries have determined their policies according to the potential exchange rate levels which have been formed in the past and shall be formed in the future due to the fact that the value of the companies has considerably changed along with these fluctuations. Zanbak (2008) has examined the effect of an increase, which may take place in the exchange rate of Euro, on the sectors, within the scope of ISE and on the basis of twenty four sectors and determined that an increase in the value of Euro has influenced 66% of the sectors negatively. Keser (2011) has investigated the effect of exchange rate risk on the foreign capital companies which are listed in ISE. The said investigation has come to the conclusion that there is a significant relation between the exchange rate risk and stock prices only for three out of ten companies which were examined and that the unexpected changes in the exchange rate did not affect the returns on stocks considerably.

3. Methodology

The purpose of this study is the analysis of the relation between the unexpected changes in the exchange rate and the returns on the stocks of the energy companies. In line with that purpose, the energy companies which are transacted in ISE National 100 index have been included in the study and the analysis has been realized using the daily data for the period 03.01.2005-29.06.2012. It was initially planned to include ten energy companies listed in TSKB (Industrial Development Bank of Turkey) energy index however Aksu Enerji A.Ş. (AKSEN) was excluded from the scope of the analysis as there was no sufficient data about that company. The main reason for the preference of TSKB energy index is that all publicly traded companies which are active in Turkey were represented in that index and consequently that index reflects the performance of the energy sector in Turkey. The data on the daily closing values of the ISE National 100 index (U_t) and stocks (P_t) have been obtained from ISE database and the data on the exchange rate has been obtained from the System of Distribution of Electronic Data of the Central Bank of Republic of Turkey (<http://evds.tcmb.gov.tr>) and Eviews 7.0 software has been made used of for performing the analysis. It was initially planned to calculate the unexpected exchange rate risk separately on the basis of both Dollar and Euro exchange rates and include them in the model as two separate and

independent variables however it was later decided to use the exchange rate of Dollar, which is a more widely used monetary unit, and the unexpected exchange rate risk has been calculated taking Dollar exchange rate as a basis instead of using the both monetary units together since there was a high level of correlation ($r=0.83$) between the exchange rates of Dollar and Euro. Informations related to the stocks examined within the scope of the analysis have been presented in Table 1.

Table 1: Stock Names and Codes

Stock Names	Stock Codes
AK ENERJİ	AKENR
AKSU ENERJİ	AKSU
AYEN ENERJİ	AYEN
AYGAZ	AYGAZ
ENKA İNŞAAT	ENKAI
PETROL OFİSİ	PTOFS
TURCAS	TRCAS
TÜPRAŞ	TUPRS
ZORLU ENERJİ	ZOREN

The main descriptive statistical results related to the variables analyzed have been presented in the Table 2. When we have a look at the related findings that the series belonging to the variables examined show a normal distribution around their average values and the fact that Jarque-Bera statistics are significant at a very high rate definitely puts forward the fact that the series have a normal distribution.

Table 2: Descriptive Statistical Results

Stock	Mean	Median	Max.	Min.	Std.Dev.	J-B	Prob.	Obs.
AKENR	-0.0005	0.000	0.148	-1.500	0.043	41920170	0.000	1884
AKSU	-0.0006	0.000	0.166	-1.268	0.042	13173634	0.000	1884
AYEN	-0.0012	0.000	0.133	-1.799	0.051	53194934	0.000	1884
AYGAZ	0.0004	0.000	0.135	-0.189	0.024	2796.021	0.000	1884
ENKAI	-0.0010	0.000	0.160	-0.727	0.038	1607394	0.000	1884
PTOFS	0.000002	0.000	0.148	-0.207	0.027	4526.539	0.000	1884
TRCAS	-0.0006	0.000	0.152	-1.353	0.044	17929327	0.000	1884
TUPRS	0.0005	0.000	0.150	-0.164	0.0255	1355.659	0.000	1884
ZOREN	-0.0008	0.000	0.157	-0.790	0.033	2324935	0.000	1884
ISE	0.0004	0.0009	0.121	-0.090	0.018	667.9757	0.000	1884
RISK	0.0108	0.0088	0.118	0.0008	0.008	110702.1	0.000	1884

Market return has also been included in the model which has been formed to examine the effect of the unexpected changes in exchange rate on the return on stocks. The reason for the addition of the market return in the model is to determine the effect of the exchange rate more precisely and accurately. The problems arising from the error terms are removed in this way. Besides, the coefficient containing the exchange rate changes also contains the risks arising from the macroeconomic factors. Jorion (1990) has also included the market return in the model in order to overcome this problem. In this way, market return takes over the risks arising from macroeconomic variables and ensures that the risk is separated into different canals, namely the risk arising from the exchange rate change and market return (Zanbak, 2008). In addition, when we depart from the CAPM (Capital Asset Pricing Model) models in which the return on stocks are correlated with the market returns, we see that the models which investigate the stochastic relation between the exchange rate risk and the return on stocks and in which market returns

are also included, ensures that the exchange rate risk is predominantly directed towards the market (Altay, 1999). The correlation between the unexpected exchange rate risk and market return, which have been included in the model as independent variables has been found to be almost nil ($r=0.02$). Unit root tests have been realized on two models, one with a constant and one with a constant-trend for the purpose of examining whether the data were stationary from the point of view of suitability for analysis, before making the regression analysis. Detailed explanations on the unit root analysis are not provided in the literature on the applied econometric analysis due to the fact that this form of analysis is applied very frequently. After the completion of unit root tests a multi-regression analysis has been realized by setting a correlation between the return on the stocks of the energy companies (R_t), unexpected exchange rate risk (S_t) and ISE market return (E_t). The returns belonging to the stocks and the index (%) have been calculated by means of the equalities given below (Keser, 2011).

$$R_t = \log(P_t) - \log(P_{t-1})$$

$$E_t = \log(U_t) - \log(U_{t-1})$$

Within the scope of the analysis period the effect of the unexpected change in the exchange rate of Dollar (S_t) has been calculated using the moveable average standard deviations in the increase of the exchange rate of Dollar. This calculation has been made using the nominal exchange rate (w) in line with the method set forth in the study made by Karasoy (1995). Although Koray (1993) has assumed $m=12$ in his study, it has been assumed that $m=3$ as in the study of Karasoy [27] in order to obtain a return from the degree of independence. The related equality has been presented below.

$$S_t = \left[\frac{1}{m} \sum_{i=1}^m (\omega_{t+i-1} - \omega_{t+i-2})^2 \right]^{1/2}$$

Multi-regression model applied by Merikas (1999) has been taken as a basis for the examination of the effects that would be brought about by the unexpected changes in the exchange rate and the market return on the return of the stocks of nine energy companies which were examined within the scope of the study. According to that model it is accepted that the return on the stocks of each company are determined by means of the unexpected changes in the exchange rate and the general stock market index (market return). The related model is presented hereunder. The α_0 coefficient presented in the model is the expression of regression constant, β_1 coefficient is the expression of the market return and β_2 coefficient is the expression of unexpected change in the exchange rate and “ ε ” coefficient is the expression of the error term.

$$R_t = \alpha_0 + \beta_1 E_t + \beta_2 S_t + \varepsilon$$

4. Results

In the first stage of the study the data have been examined as to whether they are stationary or not from the point of view of suitability for analysis. Unit root tests of Augmented Dickey Fuller (ADF) (1979; 1981) and Phillips-Perron (PP) (1988) have been performed for that purpose and H_0 hypothesis which asserts that the relevant series contains unit root (the state of not being stationary) has been tested. Schwarz information criteria and Newey-West predictor has been taken as a basis for ADF test and PP test respectively in determining the lag length in unit root tests. The results of the unit root tests which

have been performed are presented in the Table 3 and Table 4 below respectively. When the related results are examined, it has been determined that the series belonging to all variables are stationary at the level-I(0) and do not contain unit roots and H_0 has been rejected. It has been put forward that the related series are suitable to be used in the regression analysis in line with the results obtained.

Table 3: Augmented Dickey Fuller (ADF) Unit Root Test Results

ADF Test Statistic	Constant		Constant and Linear Trend	
	t-Statistic	Prob.*	t-Statistic	Prob.*
AKENR	-40.651	0.000	-40.651	0.000
AKSU	-44.735	0.0001	-44.769	0.000
AYEN	-42.028	0.000	-42.057	0.000
AYGAZ	-41.260	0.000	-41.249	0.000
ENKAI	-41.874	0.000	-41.877	0.000
PTOFS	-39.789	0.000	-39.783	0.000
TRCAS	-41.071	0.000	-41.061	0.000
TUPRS	-40.273	0.000	-40.269	0.000
ZOREN	-43.300	0.000	-43.304	0.000
ISE	-40.977	0.000	-40.969	0.000
RISK	-5.147	0.000	-5.147	0.0001
Test Critical Values	1% level	-3.433	-3.962	
	5% level	-2.862	-3.412	
	10% level	-2.567	-3.128	

*MacKinnon (1996) one-sided p-values.

Table 4: Phillips-Perron (PP) Unit Root Test Results

PP Test Statistic	Constant		Constant and Linear Trend	
	t-Statistic	Prob.*	t-Statistic	Prob.*
AKENR	-40.568	0.000	-40.566	0.000
AKSUE	-44.718	0.0001	-44.755	0.000
AYEN	-42.022	0.000	-42.045	0.000
AYGAZ	-41.252	0.000	-41.241	0.000
ENKAI	-41.849	0.000	-41.851	0.000
PTOFS	-39.702	0.000	-39.695	0.000
TRCAS	-41.097	0.000	-41.088	0.000
TUPRS	-40.578	0.000	-40.594	0.000
ZOREN	-43.336	0.000	-43.324	0.000
ISE	-40.988	0.000	-40.978	0.000
RISK	-14.007	0.000	-14.009	0.000
Test Critical Values	1% level	-3.433	-3.962	
	5% level	-2.862	-3.412	
	10% level	-2.567	-3.128	

*MacKinnon (1996) one-sided p-values.

The results of the multi-regression analysis that have been performed are presented in Table 5. When the statistical values related to the models of multi-regression analysis, which have been realized separately for each company, are examined, it has been observed that the significance levels of the models (F-statistics) were high and their ability to explain the relation under examination was sufficient ($Adj.R^2$) and the values of Durbin-Watson coefficient, which was used for the examination of the existence of autocorrelation in the models were 1.5-2.5 and there was not autocorrelation in the models for that reason. According to the results of the regression analysis, when β_1 and β_2 coefficients, which show the effect of the market return and the unexpected exchange rate risk on the returns of the stocks of the said

nine energy companies are examined, it has been observed that the unexpected change in the exchange rate (β_2) has a negative effect at the significance level of 1% on the return of the stocks of only one company while the market return (β_1) had a positive effect at the significance level of 1% on the returns of the stocks of all companies. It may be said that the returns on the stocks of energy companies is in the same direction as ISE National 100 index. When we have a look at β_1 coefficients related to the stocks we see the following values: AKENR (0.806), AKSU (0.744), AYEN (0.806), AYGAZ (0.762), ENKAI (0.767), PTOFS (0.681), TRCAS (0.848), TUPRS (0.825) and ZOREN (0.836). In the light of these findings PTOFS (0.681) has been found to be the company with the lowest β_1 coefficient while TRCAS (0.848) has been found to be the company with the highest β_1 coefficient. The meaning of this is that PTOFS and TRCAS shall incur a change at the rate of 0.681% and 0.848% respectively in case of a change of 1% in the index. Regarding the corrected R^2 (Adj. R^2) belonging to the relevant stocks, it has been determined that the market return is able to account for the returns of the stocks of the companies at the following rates: 10.7% (AKENR), 10.2% (AKSU), 8.3% (AYEN), 34% (AYGAZ), 21.1% (PTOFS), 12.4% (TRCAS), 35.6% (TUPRS) and 21.4% (ZOREN).

When we have a look at β_2 coefficients related to the unexpected changes in the exchange rates we see that only one out of nine energy companies (ENKAI) has been effected from the changes in the exchange rate. The coefficient which shows the degree of the effect created by the unpredictable changes in the exchange rate on the stock of ENKAI has been founded as $\beta_2 = -0.284$ (at the level of significance of 1%). In line with that finding, it may be stated that a decrease shall be observed in the return of the stock of ENKAI during the periods during which Dollar is revaluated against TL, in other words, a change at the rate of 1% in the exchange rate would bring about a 0.28% reduction in the return of the stock of the relevant company. The corrected R^2 (Adj. R^2) value related to the company concerned has been found to be 0.137 and that result shows that the unexpected change in the exchange rate, together with the market return, can clarify for 13.7% of the return of the stock belonging to ENKAI. On the other hand, the values of β_2 coefficients obtained for other companies have not been found to be statistically meaningful. On the basis of the general results obtained it may be said that the effect of the unexpected changes in the exchange rate have a far less influence on the returns of the stocks of energy companies than the market return.

Table 5: The Results of Regression Analyses

	Variable	Coefficient	Std. Error	t-Statistic	Prob.	R ²	Adj. R ²	DW	F-Statistic	Prob.
AKENR	ISE 100 (β_1)	0.782	0.051	15.148	0.000***	0.108	0.107	1.894	114.850	0.000
	Risk (β_2)	0.086	0.108	0.795	0.426					
AKSU	ISE 100 (β_1)	0.744	0.050	14.691	0.000***	0.103	0.102	2.106	108.093	0.000
	Risk (β_2)	0.095	0.106	0.106	0.369					
AYEN	ISE 100 (β_1)	0.806	0.060	13.215	0.000***	0.084	0.083	1.945	87.333	0.000
	Risk (β_2)	0.049	0.128	0.386	0.699					
AYGAZ	ISE 100 (β_1)	0.762	0.024	31.230	0.000***	0.341	0.340	1.965	488.050	0.000
	Risk (β_2)	-0.012	0.051	-0.241	0.809					

ENKAI	ISE 100										
	(β_1)	0.767	0.044	17.088	0.000***	0.138	0.137	1.930	151.637	0.000	
	Risk (β_2)	-0.284	0.094	-3.010	0.002***						
PTOFS	ISE 100										
	(β_1)	0.681	0.030	22.472	0.000***	0.212	0.211	1.851	253.264	0.000	
	Risk (β_2)	-0.049	0.063	-0.778	0.436						
TRCAS	ISE 100										
	(β_1)	0.848	0.051	16.458	0.000***	0.125	0.124	1.913	135.451	0.000	
	Risk (β_2)	0.049	0.108	0.458	0.646						
TUPRS	ISE 100										
	(β_1)	0.825	0.025	32.281	0.000***	0.357	0.356	1.900	521.510	0.000	
	Risk (β_2)	-0.017	0.053	-0.316	0.751						
ZOREN	ISE 100										
	(β_1)	0.836	0.036	22.732	0.000***	0.215	0.214	2.080	258.418	0.000	
	Risk (β_2)	0.054	0.077	0.705	0.480						

Note: *** represent the statistical significance level of 1%

5. Conclusion

The instability and uncertainty that emerged in the foreign currency markets in Turkey along with the introduction of the fluctuating exchange rate in Turkey in 2001 has led to the emergence of the exchange rate risk and many companies from different sectors, engaged in export and import had incurred losses as a result of the unexpected changes in the exchange rate. In this study we have investigated the effect of the exchange rate risk which is expressed as the unexpected changes in the exchange rate and the market return on the returns of the stocks of the companies engaged in the energy sector, which is one of the most important sectors in the world today. The first phase of the study was the performance of unit root tests in order to determine the suitability of the data belonging to the series for analysis and then multi-regression analysis has been carried out after having determined that the data are stationary at the level and consequently suitable for analysis. As a result of the findings obtained in the study, it has been determined that the market return has a significant and positive effect on the returns of the stocks of all companies. In the light of that finding, it may be stated that the market return has a big effect on the companies in the energy sector. On the other hand the unexpected exchange rate risk has been found to have a meaningful and negative effect only on ENKAI and had no meaningful effect on other companies. In other words, departing from the companies under examination, it has been determined that there is no serious exchange rate risk as far as the companies are concerned which are active in the energy sector in Turkey. Departing from that point it may be said that the companies which have not been influenced from the risk have made use of the instruments which have been developed for the purpose of protection from the exchange rate risk while the companies which have been affected from that risk have not made use thereof sufficiently.

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