

# THE EFFECT OF FOREIGN EXCHANGE MARKET RETURNS ON STOCK MARKET PERFORMANCE IN SRI LANKA

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## **Abstract**

*Exchange rate is one of the most influencing macroeconomic variables on stock returns in most of the countries. Thus, main objective of this study is to identify the effect of foreign exchange market returns on stock market performance in Sri Lanka. In order to evidence the study, researcher used publicly available secondary data from Colombo Stock Exchange and Central Bank of Sri Lanka. According to Guneratne (2011), exchange rate has a strong explanatory power in determining the stock market returns of the country. All share price index percentage changes are observed as dependent variable and the respective percentage changes of USD/LKR, EUR/LKR and GBP/LKR exchange rates as independent variables of this research. Exchange rate data for the period of 2002 to 2014 are considered for the research. A linear multiple regression model is developed to find the relationship between selected variables and following Noel & John (2009), correlation between variables are tested. Results of the research discloses that USD/LKR and GBP/LKR exchange rate returns have a strong explanatory power to All share price index (ASPI) returns. At the same time USD/LKR returns exhibits a negative correlation while other two exchange rates have a positive but weak correlation to ASPI returns. Findings of this research provide valuable information to investors in equity markets, to forecast potential stock returns with reference to exchange market fluctuations.*

**Keywords:** Exchange rate; All Share Price Index; Colombo Stock Exchange; Foreign exchange market returns; Stock market performance

## **1 INTRODUCTION**

Stock markets in the world have shown an exceptional growth in the last two decades. The importance of stock markets in developed countries, taking the capitalization of listed domestic companies as an indicator relative to the national product, has developed. The three main positions of stock market capitalization of the world were held by the United States, Japan and the United Kingdom. Emerging countries made up 2.5% of total world capitalization in 1983; 6.5% in 1989 and 6.3% in 1999 which shows the increased importance of emerging stock markets in the world capitalization (Maria and William, 2000). However the CSE Annual report of year 2013 states that, overall performance of Colombo stock exchange continued to be impacted by market activity levels. The CSE Group's revenue fell by 7.0% to Rs.456Mn in 2013 reflective of reduced CSE and CDS fee income streams. This was in line with the fall in Average Daily Turnover from Rs.884Mn in 2012 to Rs.828Mn in 2013.

According to Elwell (2012), foreign investors are unwilling to hold assets in a depreciating currency as that would diminish the return on their investment. In a case of domestic currency depreciation, investors refrain from holding domestic assets, including stocks. This may demotivate foreign investors in the stock market and causes share prices to drop.

The effect of exchange rate movements is different for companies depending on their exposure to imports and exports, whether it owns foreign units, and whether they hedge against exchange rate fluctuation risk. Large importers suffer from depreciation of domestic currency and will have lower earnings, thus a drop in share prices (Krugman and Obstfeld, 2009). Therefore it's important to identify the stock market performance affected by the Foreign exchange market returns.

### **1.1 Colombo stock exchange**

The Colombo stock exchange (CSE) was established under the Companies Act No. 17 of 1982 as a company limited by guarantee. According to the published details in the official website, the CSE is licensed by the Securities & Exchange Commission of Sri Lanka (SEC). The CSE is a mutual exchange and has 15 full members and 13 Trading Members licensed to trade both equity and debt securities, while seven members are licensed to trade in debt securities only. CSE functions as a market operator and through its fully owned subsidiary, Central Depository Systems (Pvt.) Limited (CDS), acts as a clearing and settlement system facilitator.

### **1.2 Foreign exchange market**

Foreign exchange market acts as the platform to trade foreign currency based on demand supply conditions of different foreign currencies. The law regulating foreign exchange transactions is contained in the Exchange Control Act No. 24 of 1953. The Guide to Foreign Exchange Transactions (GFET) 2008 published by the Central Bank of Sri Lanka drives public awareness on the existing rules, regulations and procedures applicable to foreign exchange transactions. According to the statistics of majority of foreign exchange brokers, US Dollars, Euros and UK Pounds are the mostly traded and most popular currencies in Sri Lanka.

## **2. LITERATURE REVIEW**

Gaurav et al. (2010) found a negative correlation between exchange rate and stock returns, and discovered that the stock returns are sensitive to enterprise performance, dividends, stock prices of other countries, gross domestic product, exchange rates, interest rates, current account, money supply, employment, their information etc. Tarika et al. (2011) further argued that exchange rate affects returns of all portfolios in their study evidenced from Taiwan, which motivates researchers to emphasize on foreign exchange rate as a significant macroeconomic variable in determining stock returns. Michael (2009) found a co-movement between exchange rates in explaining stock returns. Ajayi and Mougoue (1996) suggested that a depreciating currency causes a decline in stock prices because of expectations of inflation but the overall effect of exchange rates on stock prices is inconclusive as there is some affect for both a positive and a negative relationship.

As a different point of view, Noel and John (2009) provided evidence of a positive co-integrating relationship between stock market performance and foreign exchange rate movements followed by a study in Australian context. In a similar study, Abdullah et al. (2012) found no causality between foreign exchange market performance and stock market returns in emerging capital markets. Same argument was strengthened by Lutfur and Jashim (2009) after the analysis of three emerging stock markets. Yasar et al. (2010) tested the causality between exchange rates and stock returns, and concluded with a mixed result for different currencies. At the same time Guneratne (2011) disclosed a strong relationship between foreign exchange rate returns and stock prices in Sri Lanka.

Thus the researcher is encouraged to extend the literature by finding the collective dependency of stock market returns on mostly traded exchange rates in the foreign exchange market in Sri Lankan context.

### **3. METHODOLOGY**

#### **3.1 Data collection and Sample**

Researcher used publicly available secondary data in the study. Stock market performance was identified using all share price index movements and data for 12 years were collected from the Colombo Stock Exchange. Exchange market performance was traced using movements of USD/LKR, EUR/LKR and GBP/LKR selling exchange rates. This currency sample was selected based on trading statistics of foreign exchange brokerage firms, and they are known to be the top three currencies traded against Sri Lankan Rupee (Currency rankings, 2015). Exchange rate data for the same period were collected from Central Bank of Sri Lanka. The percentage changes of ASPI and Exchange rates are calculated with reference to Desislava (2005).

#### **3.2 Hypotheses development**

For the purpose of arriving at the research objective, four hypotheses were developed. Guneratne (2011) found a strong relationship between exchange market returns and stock market returns, after a study which considered USD/LKR exchange rate as the explanatory variable. Michael (2009) disclosed the co-movement of different exchange rates in determining stock returns. Argument of Tulin (2012) was that different exchange rates have a mixed effect on stock returns in the same context. Accordingly, researcher outlined following hypotheses:

H1: There is a relationship between USD/LKR exchange rate returns and Stock market returns (Guneratne, 2011)

H2: There is a relationship between EUR/LKR exchange rate returns and Stock market returns (Michael, 2009)

H3: There is a relationship between GBP/LKR exchange rate returns and Stock market returns (Michael, 2009)

H4: The three exchange rate returns have a mixed relationship with Stock market returns (Tulin, 2012)

#### **3.3 Model specifications**

Selected variables were converted to percentage changes in order to plot on a same platform. Below equation is used to find the percentage change of the variables (Desislava, 2005). Under this model, last month's value is subtracted from current value and the resulting difference divided by last month value. The net answer was identified as a percentage after multiplying by 100.

$$Vp_{it} = \frac{(V_{it} - V_{it-1})}{V_{it-1}} \times 100 \quad (1)$$

Where:

$Vp_{it}$  = Percentage return of variable i at the end of month t.

$V_{it}$  = Price of variable i at the end of month t.

$V_{it-1}$  = Price of variable i at the beginning of month t.

Linear multiple regression model was developed using the identified variables to be used in the SPSS software. The explanatory variables were selected as the most traded currency exchange rates, and following Christopher et al. (2001), the multi factor model was generated as follows,

$$R_{it} = \alpha + \beta_{1i}USDLKR_t + \beta_{2i}EURLKR_t + \beta_{3i}GBPLKR_t + ER_t \quad (2)$$

#### 4. FINDINGS AND DISCUSSION

Following output tables were generated with the collected data set using SPSS software. Results contain standardized coefficients of explanatory variables and their significance in determining stock market returns. At the same time correlation between variables are identified as an important finding. Coefficients and P-values of T statistics are indicated in the below table.

**Table 01. Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.019	.006		3.066	.003
	USD/LKR	-1.310	.572	-.206	-2.291	.023
	EUR/LKR	-.201	.346	-.072	-.580	.563
	GBP/LKR	.854	.373	.290	2.291	.023

Dependent Variable: ASPI

USD/LKR exchange rate has a standardized coefficient of -0.206 which indicates the dependency of stock returns on USD/LKR exchange rate. This relationship is further explained by correlation between the two variables. According to 0.023 P-value under T test, it's proved that USD/LKR exchange rate returns have a strong explanatory power on All share price index returns.

EUR/LKR exchange rate shows a standardized coefficient of -0.072, where the effect of EUR/LKR exchange rate returns on ASPI returns is minimal. The same finding is further strengthened by the 0.563 P-value under T statistics.

GBP/LKR has a standardized coefficient of +0.290. This figure states that 1% change in GBP/LKR exchange rate return will create a positive 0.290% change in ASPI returns. P-value of 0.023 for GBP/LKR explains a high significance level in determining ASPI returns, which is similar to the USD/LKR exchange rate returns.

**Table 2. ANOVA (b)**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.049	3	.016	3.089	.029(a)
	Residual	.736	140	.005		
	Total	.785	143			

a Predictors: (Constant), GBP/LKR, USD/LKR, EUR/LKR

b Dependent Variable: ASPI

Table 2 represents the P-value under F statistics which indicates the collective significance of all explanatory variables in determining dependent variable. According to the generated results of the above ANOVA table, F statistics suggest a P-value of 0.029 which is lower than 0.05 under 95% significant level, which rationalizes a strong collective significance of USD/LKR, EUR/LKR and GBP/LKR exchange rate returns in explaining ASPI returns.

**Table 3. Correlations**

		ASPI	USD/LKR	EUR/LKR	GBP/LKR
ASPI	Pearson Correlation	1	-.113	.071	.152
	Sig. (2-tailed)		.179	.395	.070
	N	144	144	144	144
USD/LKR	Pearson Correlation	-.113	1	.356(**)	.411(**)
	Sig. (2-tailed)	.179		.000	.000
	N	144	144	144	144
EUR/LKR	Pearson Correlation	.071	.356(**)	1	.746(**)
	Sig. (2-tailed)	.395	.000		.000
	N	144	144	144	144
GBP/LKR	Pearson Correlation	.152	.411(**)	.746(**)	1
	Sig. (2-tailed)	.070	.000	.000	
	N	144	144	144	144

\*\* Correlation is significant at the 0.01 level (2-tailed).

Table 3 is referred to support the findings of the research by examining correlations between considered variables. This clearly visualizes the negative correlation between ASPI returns and USD/LKR exchange rate returns, and the positive relationship between ASPI returns and other two exchange rate returns. Not a single exchange rate return variable is highly correlated to ASPI returns according to the results.

## 5. CONCLUSIONS

Conclusion derived from this study is that the foreign exchange market returns have a strong effect on stock market returns in general. In addressing each of the hypotheses, USD/LKR exchange rate has a strong effect on stock market returns and the relationship is negative. An increase in exchange rate performance of USD/LKR will cause a boost in stock market

returns. However, EUR/LKR exchange rate return reflects a positive relationship with stock returns, and has a weak explanatory power on stock returns. GBP/LKR as a positively correlated variable with stock returns, it set outs a strong explanatory power on stock returns. Even though all three independent variables have a weak correlation to stock returns, it's found that three exchange rate return variables have a collective explanatory power on stock returns.

However the researcher was constrained in data collection, due to unavailability of some exchange rate data for the specified time period to unhide the relationships, and data set could include unusual events occurred during the selected period. It is suggested that finding the individual and collective relationships between all the exchange rate returns in foreign exchange market and the stock market returns, as future research directions. Focusing on a single sector returns in the Colombo stock exchange is seen as another possibility for further research in this area.

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