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Influence of Exchange Rate on Foreign Direct Investment in Sri Lanka

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Abstract
The objective of this study was to examine the impact of exchange rate and foreign direct investment in Sri Lanka. For the independent variable of exchange rates, USD, Canadian Dollar, Yen, Euro and GBP were obtained, the dependent variable foreign direct investment was obtained from Central Depository System foreign account holders' monthly detail, foreign purchases, and foreign sales in Colombo Stock Exchange for the period of from January 2013 to December, 2014 monthly basis. Collected data were analyzed using graphical method and statistical methods such as correlation and regression analysis are conducted to identify the relationship. Results did not support the hypotheses. This means there is no any relationship between the exchange rate and FDI. The findings of this study would suggest that to attract more FDI in Sri Lanka the governments need to make policies such as monetary policy to maintain the stable Exchange rate. Trade liberalization and reduction in trade barriers have turn out to be the important economic policies in developing countries like Sri Lanka, to motivate domestic economy, generate employments for growing population and searching for new technology foreign direct investment plays a crucial role. Implications, limitations and areas for future research also discussed.
Keywords: Exchange rate, central depository system, foreign purchases, foreign sales

Introduction

In the 1990s the government relaxed exchange control regulations in order to encourage foreign participation in the share market. Non-resident individuals, regional funds and companies incorporated outside Sri Lanka were allowed to invest in Sri Lanka. In the context of regional and global integration, the Colombo Stock Exchange (CSE) plays a pivotal role among South Asian emerging capital markets (Menike, 2012). Moreover, the continuing increases in the world trade and capital movements have made the exchange rates as one of the main determinants of business profitability and equity prices (Agrawal, 2010).

Exchange rate changes directly influence the international competitiveness of firms, given their impact on input and output price. Basically, foreign exchange rate volatility influences the value of the firm since the future cash flows of the firm change with the fluctuations in the foreign exchange rates. When the Exchange rate appreciates, since exporters will lose their competitiveness in international market, the sales and profits of exporters will shrink and the stock prices will decline (Agrawal, 2010). On the other hand, importers will increase their competitiveness in domestic markets. Therefore, their profit and stock prices will increase.

The depreciation of exchange rate will make adverse effects on exporters and importers. Currency appreciation has both a negative and a positive effect on the domestic stock market for an export-dominant and an import-dominated country, respectively (Agrawal, 2010). Exchange rates can affect stock prices not only for multinational and export-oriented firms but also for domestic firms. For a multinational company, changes in exchange rates will result in an immediate change in value of its foreign operations as well as a continuing change in the profitability of its foreign operations reflected in successive income statements. Therefore, the changes in economic value of firm's foreign operations may influence stock prices. Domestic firms can also be influenced by changes in exchange rates since they may import a part of their inputs and export their outputs (Chaudhary, Shah, & Bagram, 2012).

The relationship between stock prices and exchange rates has preoccupied the minds of economists since they both play important roles in influencing the development of a country's economy (Bashiri, 2014). Also this issue, have received considerable attention after the East Asian crises. During the crisis countries affected in both currency and stock markets. If stock prices and exchange rates are related and the causation runs from exchange rates to stock prices, then crises in the stock markets can be prevented by controlling the exchange rates (Bashiri, 2014). Moreover, developing countries can exploit such a link to attract or stimulate foreign portfolio investment in their own countries.

Similarly, if the causation runs from stock prices to exchange rates, then authorities can focus on domestic economic policies to stabilize the stock market. If the two markets are related, then investors can use this information to predict the behavior of one market, using the information on other market. It means that Investors can use this information for speculation and to hedge their return on foreign investment.

Literature review

There are studies which examine the relationship between exchange rate and foreign direct investment (FDI). Evidence to support this argument from the literature has been reviewed in the next section of this paper. Bashiri

(2014) studied the relationship between stock index and exchange rates are related using the variables from Tehran stock index of Iran, market capitalization of Armenia NASDAQ OMX and exchange rate of both countries. The results revealed no casualty between the said variables for every country. However, Azhar, Ullah, and Malik (2014) investigated the impact of exchange rate volatility, real exchange rate, GDP per capita, trade openness and FDI with lag on foreign direct investment in SAARC countries which includes Pakistan, India and Sri Lanka and found there is a negative relationship between exchange rate volatility and foreign direct investment.

Another study (Jayasekara, 2014) with the objective of finding the determinants of Foreign Direct Investment in Sri Lanka and evaluates the attractiveness of India, Sri Lanka, Bangladesh and Pakistan for foreign direct investment during the period of 1975-2012, revealed that GDP growth rate, inflation, infrastructure quality, lending interest rate, labour force, exchange rate, and corporate income tax were significant determinants of FDI in Sri Lanka. A study aimed at investigating the effect of volatility in exchange rate upon foreign direct investment in Asian economies, in the context of four main regions of Asia, Pakistan, India, Bangladesh and Sri-Lanka, Southeast Asian region Malaysia, Indonesia, Singapore and Thailand, East Asia the China, Japan and South Korea and West Asia Turkey, Iran and Israel, show a mixed trend with recording the effect of volatility in exchange rate upon foreign direct investment in some countries, however, in almost half of the sample countries; the relationship between the variables is not found (Chaudhary, Shah, & Bagram, 2012).

However, Khan et al. (2012) studied the impact of interest rate, exchange rate and inflation on stock returns of KSE 100 index. The results shown while that impact of interest rate and inflation is insignificant, the exchange rate has significant impact on stock returns of KSE 100 index. In a different study by Raju and Gokhale (2012) using a time series data between 1992 and 2010 in India found absence of any long term association between the nominal exchange rate and foreign direct investment.

Another study (Gyntelberg, Loretan, & Subhanij, 2012) revealed that higher returns in the stock market relative to a reference stock market are associated with net sales of equities by the investors and a depreciation of the Thai baht, and Net purchases of Thai equities lead to an appreciation of the Thai baht. This implies that foreign investors do not appear to hedge the foreign exchange risk related to their stock market positions.

A different study by Agrawal (2010) examining the relationship between Nifty returns and Indian rupee-US Dollar Exchange Rates found a negative relationship between these two variables. Another study by Dhakal, Nag, Pradhan, and Upadhyaya (2010) studied the impact of exchange rate on FDI among a sample of East Asian countries such as China, Indonesia, Malaysia, the Philippines, South Korea, and Thailand - countries that have continued to attract considerable foreign direct investment (FDI) inflows while also experiencing a great deal of volatility in exchange rates. They found that exchange rate volatility has a favorable effect on foreign direct investment.

However, Gunasekarage, Pisedtasalasai, and Power (2010) shown the share price index does not have any influence on macro-economic variables except for the Treasury bill rate. In support of this argument, another study by Busse, Hefeker, and Nelgen (2010) using comprehensive data set with bilateral direct investment flows and establishes the influence of the de-facto exchange rate regime for FDI flows, found a strong and significant effect from fixed rates on bilateral FDI flows in developed economies, but no significant effect for developing countries.

From the above review it is possible to observe that there is no general and uniform impact of stable exchange rates on FDI. Many authors found contradictory results. Because of this contradiction and inconsistent results there is a need for further study to determine this relationship. Therefore, the objective of this paper is to analyze the effect of exchange rate volatility on FDI in Sri Lanka over the period of 2013 to 2014.

METHODOLOGY

Based on research problem and the literature review the relationship between independent variable exchange rate and the dependent variable FDI is hypothesized. In other words, this study focus on examining whether change in FDI has any response to changes of exchange rate. To identify a relationship between two variables, the regression analysis is carried. The equation will be as follows,

$$Y = a + bX$$

Where X is exchange rate (the Independent variable) and Y is FDI (the dependent variable).

Data were collected from five selected exchange rates which are USD, Canadian Dollar, Yen, Euro and GBP, because they are the mostly traded foreign currency in the world and changes in these currencies affected Sri Lankan business sectors. Foreign investment details of are obtained from Central Depository System (CDS) foreign account holders

Table: 1: Exchange Rate and Foreign purchases, Foreign sales in CSE

Year	Month	Exchange Rates (X)	Contributed to Foreign Purchases.			Contributed to Foreign Sales		
	MONTH	XEXCH	YPC	YPI	YPT	YSC	YSI	YST
2013	Jan	0	0	0	0	0	0	0
2013	Feb	-0.0185	-0.2323	0.0149	-0.229	-0.4042	-0.0435	-0.3961
2013	Mar	-0.0175	-0.0053	0.1653	-0.0023	-0.5306	-0.3105	-0.5227
2013	Apr	-0.0069	-0.2118	1.0766	-0.1856	-0.157	0.9162	-0.1017
2013	May	-0.0054	0.2146	0.7686	0.2433	0.218	0.2648	0.2231
2013	Jun	0.0231	-0.0953	-0.0061	-0.0887	0.7927	-0.6172	0.6325
2013	Jul	0.0125	-0.5187	-0.4223	-0.5109	-0.5677	-0.2513	-0.5593
2013	Aug	0.0176	0.75	0.2178	0.6995	0.558	0.397	0.5507
2013	Sep	0.0077	-0.1833	-0.5425	-0.2078	-0.1228	-0.2058	-0.1262
2013	Oct	0.0003	0.1312	0.738	0.1551	-0.2542	0.3115	-0.2332
2013	Nov	-0.0087	-0.4264	0.1007	-0.3952	0.4133	0.2599	0.4035
2013	Dec	-0.0053	0.1243	-0.0401	0.1066	-0.105	0.0352	-0.097
2014	Jan	-0.0065	1.0646	-0.1526	0.951	0.886	0.2889	0.847
2014	Feb	0.0033	-0.5235	-0.58	-0.5258	0.2525	0.3591	0.2574
2014	Mar	0.0004	-0.156	-0.2506	-0.1594	-0.3212	-0.416	-0.3258
2014	Apr	0.0024	1.3701	0.2188	1.3332	0.3423	0.645	0.3552
2014	May	0.0028	0.6916	3.4614	0.7379	-0.6175	0.2049	-0.5749
2014	Jun	-0.0022	-0.3983	-0.5371	-0.4042	0.2097	-0.3047	0.1343
2014	Jul	0.0039	0.3076	0.6049	0.3175	-0.0713	5.3053	0.4121
2014	Aug	-0.0144	-0.0375	-0.0972	-0.0399	2.7045	-0.7725	1.3085
2014	Sep	-0.0197	0.0905	0.1193	0.0916	-0.1066	0.9797	-0.0636
2014	Oct	-0.0087	0.3752	-0.2712	0.3499	-0.4344	-0.4925	-0.4393
2014	Nov	-0.0206	-0.3381	0.454	-0.3214	-0.4015	0.0112	-0.3703
2014	Dec	-0.0129	-0.3581	-0.8064	-0.3785	0.1655	-0.6856	0.062

Source: Secondary data from CSE

monthly detail, Foreign purchases, foreign sales in CSE. Both set of data were collected pertaining to the period from January 2013 to December 2014 on monthly basis. Collected data is presented in Table 1.

The researcher has selected US Dollar, Euro, Yen, Great Britain Pounds & Canadian Dollar exchange rates for the study. For the purpose of identifying exchange rate, all the exchange rate for every month is added together and monthly average exchange rate is obtained and change in rate is calculated (XEXCH). FDI is obtained from two venues, foreign purchases and foreign sales. These two variables are viewed from the perspective of foreign company purchases (YPC), foreign individuals purchases (YPI), total foreign purchases (YPT), foreign company sales (YSC), foreign individuals sales (YSI) and total foreign sales (YST) change in rate are calculated. These two variables are extracted for the period of January 2013 to December 2014.

Findings and Discussion

Collected data were undergone analysis based on two ways, impact of exchange rate on foreign purchase and impact of exchange rate on foreign sales in CSE. Firstly, to show the fluctuation in FDI as impact of exchange rate graphical presentation is used.

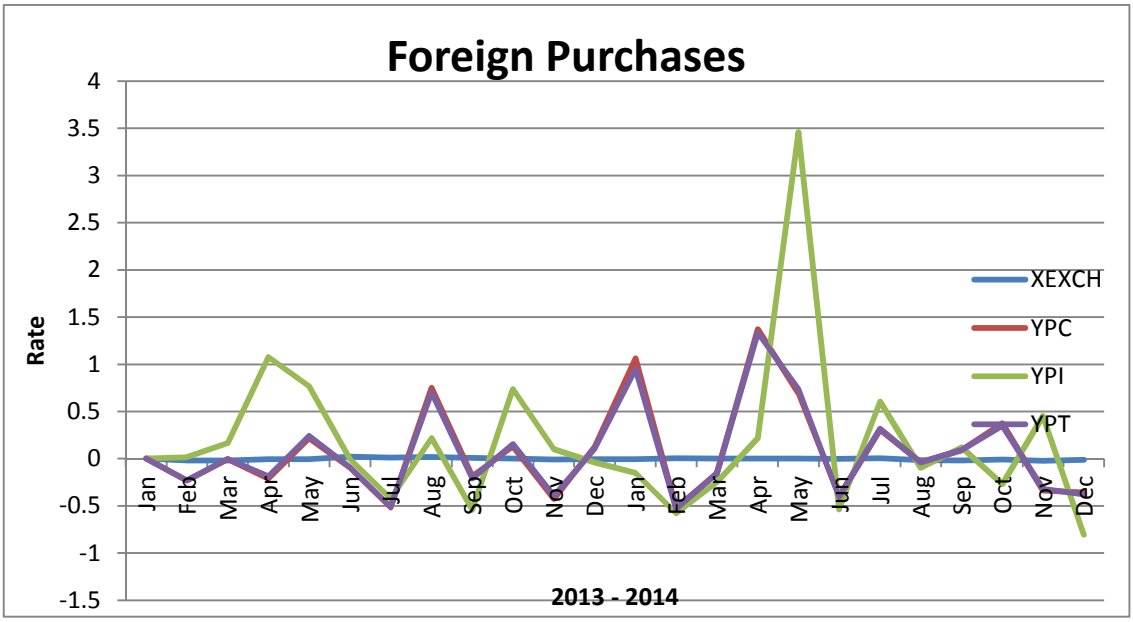

Figure 1 foreign purchase fluctuation in FDI

The Figure 1 shows a significant fluctuation in the behavior of foreign purchase and exchange rate. The graph shows a high steep slope for individual purchase in May, 2014. This implies that the government currency policy change has impact the foreign individual purchasing behavior. Graph also shown a similar pattern for the foreign company purchasig behavior as well. According to this graph foreign purchase is subject to fluctuate for the last two years.

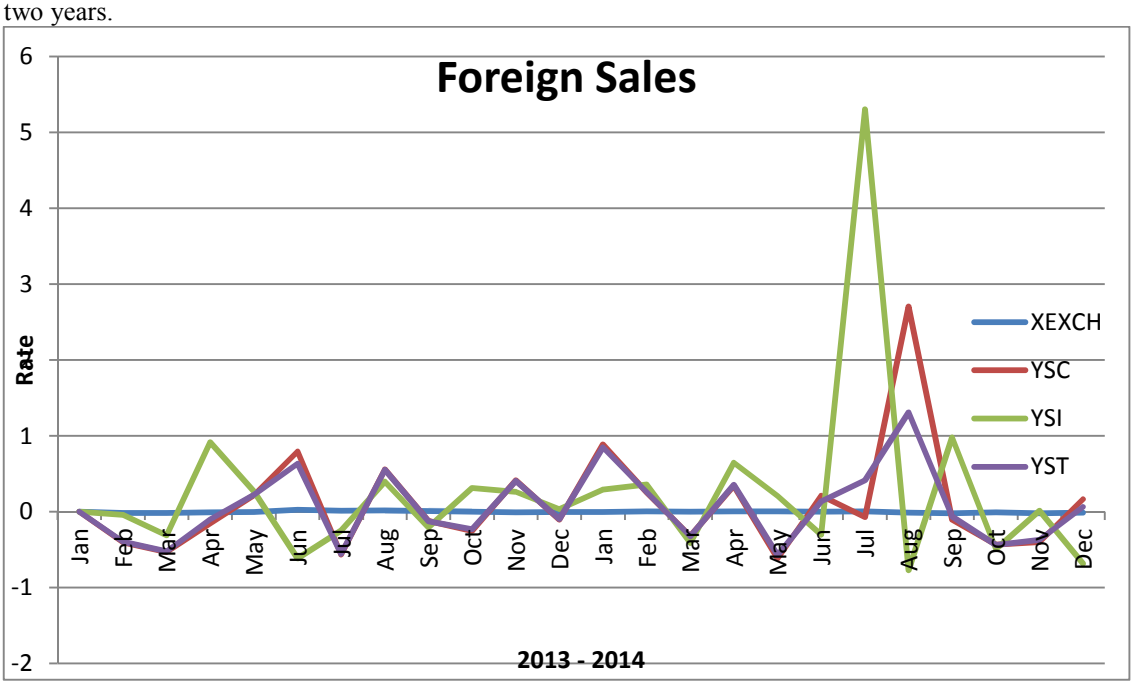

Figure 2 foreign sales fluctuation in FDI

The Figure 2 shows a significant fluctuation in the behavior of foreign sales and exchange rate. The graph shows a similar fluctuation sales behaviour of foreign company and foreign individuals from the period of January, 2013 to June 2014. However, a steep slope for both company and individual sales are observed from June 2014 to October 2014. This may be due to the foreign policy imposed by the government.

Secondly, the data were also undergone correlation analysis. The Table 2 presents the results of correlation analysis between study variables. The results reveal that no significant relationship between exchange rate and foreign company purchase, foreign individual purchase, total purchase, foreign company sales, foreign individual sales, total sales. Therefore, our hypothesis is rejected, as there is no any relationship between exchange rate and FDI.

Table: 2 Correlations between Exchange Rate and Foreign Purchase and Foreign Sales

	EXCH	YPC	YPI	YPT	YSC	YSI	YST
EXCH	1						
YPC	.167	1					
YPI	.033	.369	1				
YPT	.166	.998**	.414*	1			
YSC	.041	.134	-.235	.118	1		
YSI	.095	.231	.248	.245	-.136	1	
YST	.177	.256	-.233	.238	.925**	.128	1

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

*. Correlation is significant at the 0.05 level (2-tailed).

The findings of the correlation are again confirmed with the findings of regression analysis. The results of the regression analysis are presented in the Table 3.

Table: 3 Regression Analysis for Foreign Purchases

Model	R	R Square	Adjusted R Square	Durbin-Watson	F	Sig.
1 YPC	.167[a]	.028	-.016	2.264	.628	.437[b]
2 YPI	.033[a]	.001	-.044	2.221	.023	.880[b]
3 YPT	.166[a]	.027	-.017	2.248	.622	.439[b]

a. Dependent Variable: YPC, YPI, YPT

b. Predictors: (Constant), XEXCH

Regression analysis shows that foreign company purchase, foreign individual purchase and total purchase in CSE has shown no significant impact as a result of exchange rate. The result reveals that only 2.8 % of the change in foreign company purchase is explained by the change in exchange rate. Similarly, only 2.7 % of the change in total foreign purchase is explained by the change in exchange rate. This results are consistent with the previous findings (Raju & Gokhale, 2012: Gyntelberg, Loretan, & Subhanij, 2012: Chaudhary, Shah, & Bagram, 2012).

Regression analysis also carried out for foreign sales as well. Results reveal that foreign company sales, foreign individual sales and total foreign sales are not affected by the change of exchange rate (see Table 4).

Table: 4 Regression Analyses for Foreign Sales

Model	R	R Square	Adjusted R Square	Durbin-Watson	F	Sig.
1 YSC	.041[a]	.002	-.044	2.276	.037	.849[b]
2 YSI	.095[a]	.009	-.036	2.508	.201	.658[b]
3 YST	.177[a]	.031	-.013	2.097	.712	.408[b]

a. Dependent Variable: YSC, YSI, YST

b. Predictors: (Constant), XEXCH

It is observed only 0.2% of the change in foreign company sales behavior is explained by the exchange rate. Similarly, only 3.1% change in foreign total sales are explained by the change in exchange rate. This implies that there is no any significant relationship between exchange rate and foreign sales as a part of FDI. This is also consistent with the previous findings (Raju & Gokhale, 2012: Gyntelberg, Loretan, & Subhanij, 2012: Chaudhary, Shah, & Bagram, 2012).

Findings and Conclusions

The objective of this study was to examine the impact of exchange rate and foreign direct investment in Colombo Stock Exchange. Exchange rates of USD, Canadian Dollar, Yen, Euro and GBP were obtained as these are mostly traded currency for the period of from January 2013 to December, 2014 monthly basis. The dependent variable FDI was obtained from Central Depository System (CDS) foreign account holders' monthly detail, foreign purchases, and foreign sales in CSE. This data also collected for the same period as for the exchange rate.

To test the hypothesized relationship between these variables fluctuations in FDI have been analyzed using graphical method and statistical methods such as correlation and regression analysis are conducted to identify the relationship. Results did not support the hypotheses. This means there is no any relationship between the exchange rate and FDI. However, it is obvious to note that a negative relationship was found between exchange rate and FDI (Azhar, Ullah, & Malik, 2014: Agrawal, 2010). These results imply that changes in FDI are depending on other factors such as interest rate, inflation rate (Jayasekara, 2014; Khan et al., 2012).

The findings of this study would suggest that to attract more FDI in Sri Lanka the governments need to make policies such as monetary policy to maintain the stable Exchange rate. Further, GDP per capita and Openness of economy are the main factors which can encourage more FDI (Azhar, Ullah, & Malik, 2014). Trade liberalization and reduction in trade barriers have turn out to be the important economic policies in developing

countries like Sri Lanka, to motivate domestic economy, generate employments for growing population and searching for new technology foreign direct investment plays a crucial role.

Finding of this study add to the existing body of literature in terms of the relationship between the two variables. A similar study can be conducted using more currencies and the more time period. Some other factors such as interest rate, inflation etc. also can be incorporated in the model for future studies.

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