

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



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Abstract

The study aims to analyze the nature of the relationship between foreign exchange rates and the stock market performance in the Sri Lankan context. The study adopted a quantitative research approach where publicly available secondary data was used for the study. The study gathered data for 19 years from Jan '2000 – Jan '2019, where the data set was tested for unit root and given the non-stationary nature of data; the co-integration model test was applied. The study findings depict the absence of a significant co-integration between the exchange rates and the stock market performance in the Sri Lankan context. The relationship among the foreign exchange rates and the stock prices is of paramount importance for both local and foreign investors implying the decisions regarding the foreign exchange risk hedging and the portfolio performance will depend on this relationship. To the best of our knowledge, this is one of the early studies in Sri Lanka to identify the association between exchange rates and stock returns by covering a period of 19-years.

Keywords – Colombo Stock Exchange, Exchange Rates, Stock Returns.

Introduction

Studies on the association between foreign exchange rate and stock market performance have gradually flourished and received increased attention from scholars over the last two decades (Agarwal, 2012; Ozair, 2006; Granger et al., 2000; Mroua and Trabelsi, 2019). Over the years, investors, academics, practitioners, and portfolio managers have been exerting themselves investigating the mutual dependencies between the exchange rates and the stock market returns as it directly affects the optimal investment strategy selection in a country. However, the topic is still under debate and has not been addressed accurately. Interdependency among the nations is substantial in the

modern globalized world which has led the financial markets all over the world to become vastly integrated (Babecky et al., 2013).

The foreign exchange market and stock market play a significant role as driving forces of the financial markets globally. Sri Lanka is experiencing a rapid growth in international trade since the early 1970s on the back of globalization, where the implementation of the free-floating exchange rate policy in 1973 escalated the exchange rate volatility and related risks. Consequently, firms started making losses owing to exchange risks which signal the potential impact of exchange rate fluctuations on the stock markets. In addition, the deregulation of the

international financial markets in the 1980s caused a faster and easier flow of capital across borders (Yang and Doong, 2004).

The Sri Lankan stock market, in other terms, Colombo Stock Exchange (CSE) depicts higher growth rates and high performance over the last decade. The stock market is a source for the firms to assemble capital for investments while granting the opportunity for the investors to inject their savings into profitable business ventures at a relatively minimized risk (Aydemir and Demirhan, 2009).

Further, stock market investments carry comparatively higher liquidity where the ease of operation is an added advantage (Adam and Tweneboah, 2008). The foreign exchange market is the globally decentralized market for currency trading. The value of the home country's currency in relation to a foreign country's currency or a different economic zone is known as an exchange rate (Khalighi and Fadaei, 2017). The exchange rate is an important economic concept in the modern globalized world, given the significance of enhanced inter-economy trading.

According to Boutchkova and Megginson (2000), stock markets in developed countries play a crucial role given their significance when proxied through the capitalization of listed domestic firms relative to the national product. The global stock market ranking has recognized the United States, Japan, and China as the countries with the highest stock market capitalization (Statista.com, 2021).

Further, emerging countries accounted for 6.3% of world capitalization as of 1999; 10.6% in 2010 and 12.5% in 2019 reflecting the importance of stock markets functioning in emerging markets (Violi and Camerini, 2016; sifma.org, 2021).

Our study is driven by several important theoretical foundations where the

international trading effect (Aggarwal, 1981) plays a major role in comprehending the association between foreign exchange rates and stock market performances. The theory elucidates how fluctuations in exchange rates affect the multinational firms as well as domestic firms engaged in imports and exports of a country (Tsai, 2012). Changes in exchange rates affect the value of an international firm's overseas activities immediately and have a long-term impact on profitability. On the other hand, devaluation in exchange rates positively impacts the export-based domestic firms while increasing their stock values (Wu, 2000) whereas an appreciation causes a negative effect on the exporting firms and vice versa.

Given that most Asian countries are export-oriented countries, currency depreciation positively influences the local stock market (Ma and Kao, 1990). Therefore, the international trading effect reflects that the exchange rates and stock market returns are positively connected in Asian market context (Aggarwal, 1981).

The choice of Sri Lanka as the study context was driven by several factors. The exchange rate volatility in Sri Lanka has risen drastically since the introduction of the floating rate regime in 2001. Consequently, frequent fluctuations of exchange rates were experienced within the Sri Lankan settings.

Policymakers allot this as a major concern given the valuation changes backed by the foreign exchange and shareholder returns, generate substantial fluctuations in international investment positions. With the economic liberalization of Sri Lanka in 1977, the country was further exposed to foreign exchange transactions where the rise in import and export markets has contributed to the growth of the country's foreign currency inflows and outflows. The substantial economic growth followed by

the economic liberalization induced the participation of international investors in the stock market which influenced the domestic stocks as well as domestic currencies. This has eventually led to mutual intertwining between the stock market returns and the exchange rate dynamics (Kanas, 2003).

Our study has several contributions. Firstly, the paper aims to address the inconsistencies of the findings regarding the relationship among the exchange rates and the stock prices which are apparent in the empirical studies. Several scholars found a positive relationship (Caporale, Howells, and Soliman, 2004; Ülkü and Demirci, 2012) whilst some researchers like Soenen and Hennigar, (1988) asserted a negative relationship between the aforesaid two variables. Ajay, Friedman, and Mehdian, (1998) observed a uni-directional relationship whereas Chkili, (2012) argued that the relationship is bi-directional. Similarly, a clear examination of the prior studies evidenced mixed results in this study context. Secondly, the existing studies elaborate that the study results vary according to the nature of the economy. Thus, the relationship amongst the exchange rates and the stock prices varies from a developed country to a developing country context. The decisions regarding the foreign exchange risk hedging arrangements and the portfolio performance will depend on the bond between the stock returns and the exchange rates. Thus, it is vital to have a good know-how of the factors that have an impact on the returns and the performance of the stock market.

Sri Lanka which is a highly Foreign Direct Investment driven developing country, makes it pivotal to study the relationship between the foreign exchange market and

the stock market performance. Also, there is a dearth of studies conducted on the topic in the Sri Lankan context. Therefore, a comprehensive study is required in the Sri Lankan context.

Literature Review

The interrelationship between the stock market returns and the foreign exchange market has been an attractive discussion lately, which has not yet been addressed accurately. A group of researchers has identified a positive relationship (Sevuktekin and Nargelecekener, 2007; Noel and John, 2009; Caporale et al., 2015) whilst others found a negative (Gaurav et al., 2010; Wong, 2017; Kim, 2003) or no relationship (Solnik, 1984) amongst the stock market and the foreign exchange market.

Further, certain articles have concluded a bi-directional relationship (Muhammed and Rasheed, 2002) whereas some scholars came up with a uni-directional relationship (Abdalla and Murinde, 1997; Pan et al., 2007). Some empirical results reveal that the relationship between the stock market returns and the foreign exchange rates depends on the macroeconomic and political atmosphere prevailing in the country (Smith, 1992). The existing literature postulates five main theories in explaining the relationship between the exchange rates and the stock market performance, i.e., the Economic theory, the Keynesian approach, the Portfolio balance approach (stock-oriented approach), the Traditional model (flow-oriented model), and the Asset market approach.

The Economic theory

Macro-economic variables such as the money supply, inflation, and interest rates play a huge role in determining the exchange rates of an economy. Such fluctuations in an exchange rate would directly influence the competitiveness of

the firm's stocks in a global atmosphere (Branson and Masson, 1977), which are also reflected in the firm revenue and equity. Messe and Rogoff (1983) also proved that a linkage exists between the exchange rate and the market returns of the stock market and asserted that such a relationship is facilitated via macroeconomic variables.

The economic theory postulates that the firms which engage in beyond-border operations, usually encounter three exposures namely; operational exposure, transaction exposure, and translation exposure. The operational exposure is a result of exchange rate fluctuations where transaction exposure occurs when engaged in foreign currency denominated transactions and hence causing either profits or losses. The translation exposure arises when aggregate financial statements are converted into a foreign currency, usually if the parent is a foreign company.

The Economic theory is therefore used to analyze the study results based on the mentioned three types of exposures and the impact of exchange rates on market/stock market returns.

Portfolio Balance Approach

The portfolio balance approach which is an extended version of the monetary exchange rate model; addresses the deficiencies of the monetary approach (Bahmani-Oskooee and Sohrabian, 1992). This is a more realistic approach explaining that any alteration in the macroeconomic variables of an economy would exert an impact directly on the supply and demand conditions of domestic and foreign bonds (Aydemir and Demirhan, 2009). The theory suggests that the determination of the exchange rate is directly aligned with the trade, where domestic and overseas financial instruments are considered imperfect substitutes.

The portfolio balance approach explains that an increase in the home country's money supply results in a reduction of the interest rates, causing the asset portfolio to be shifted from domestic bonds to local currency and overseas bonds. The replacement of foreign bonds with domestic bonds causes the local currency to depreciate immediately, resulting in an increase in exports and a decrease in imports. This leads to a trade surplus and thereby an appreciation of home currency (Granger et al., 2000; Stavarek, 2005) which set off a portion of the original depreciation of the currency. The portfolio balance approach also describes exchange over-shooting (Tobin, 1969). In comparison to the traditional approach, the portfolio theory has the key advantage in terms of the tendency of the financial assets to adjust faster to the latest economic conditions than tradable goods and the theory proposes a negative relationship between foreign exchange rates and stock market performance and which could exist in the Asian markets (Tsai, 2012).

International Trading effect theory (Traditional Model)

The International Trading Effect Theory postulates that the depreciation of the local currency boosts export trade given the increase in competitiveness of export products (Joseph, 2002). Thus, the revenues of the firms involved in international trade increase and in turn would result in enhanced stock prices and thereby would favorably impact the domestic stock market (Solnik, 1983; Ma and Kao, 1990). Traditional theories emphasize the competitiveness of the company's exports as the channel through which the exchange rates affect the firm's profitability and thereby the stock market prices.

As put forward by Solnik (1983), the appreciation of the native currency in real

terms is unfavorable to local businesses since it decreases their competitive edge in the export industry, lowering their profits. Exchange rate fluctuations have a short-term impact on the value of a multinational firm's overseas operations and a long-term impact on profitability (Tsai, 2012).

The Keynesian Theory

The Keynesian Theory (Keynes, 1935) explains the behavior of the investors in the stock market through a hypothetical context of a newspaper beauty contest. Keynes argued that most stock market investments are driven by predictions about other investors' thinking patterns, rather than rational expectations about the feasibility or the profitability of the stock investment under consideration (Kaltenbrunner, 2015).

Keynes further explained that the fluctuations in the stock market occur due to the fact that the investments are driven by the herd-like “animal spirits” of the investors.

Empirical Findings

Numerous studies have been undertaken globally to determine the influence of exchange rates on stock market performance. Frank and Young (1972), one of the first studies in this study context, asserted that the effect of the exchange rates on the stock market return depends on the geographical distribution of the firm. i.e., multinational or domestically based company.

Ma and Kao (2008) studied monthly data between Jan'1973 and Dec'1983 to test the reaction of stock prices to the change in the exchange rates in six industrial economies; UK, France, Canada, Japan, West Germany, and Italy and where the findings were in line with the flow-oriented model. They concluded that the degree of the change in the stock prices in relation to exchange rates is determined by the extent to which the economy is exposed to

international trade; exports and imports.

The studies mainly applied simple regression analysis to test any existing relationship between the two variables; thus, were limited and insufficient to arrive at an accurate solution. Bahmani and Sohrabian, (1992), one of the pioneers to test the causality in determining the relationship between the exchange rates and the stock market performance, analyzed the data for a period of 15 years in the US context. They concluded that the exchange rates and the stocks constitute a bi-casual bond within the said period; supporting both portfolio and flow models.

Further, a co-integration test was performed to examine the relationship which provided only limited evidence to prove any such relationship in the long run. On contrary, Jorion (1990) argued that the impact the exchange rate exerts on US multinational companies depends on the industry. In the long and short run, Stavarek (2004) examined the monthly stock prices and exchange rates in four old and four new EU member countries. The results revealed that a more influential connection exists among the two variables during the period 1993-2003 rather than the period 1970-1992. In addition, the research results of Giovannini and Jorion (1989), also supported the results of Stavarek (2004) in the US context.

Further, Ong and Izan (1999) used a non-linear least square technique to determine the relationship between the stock prices and the exchange rates in the US where the result revealed a weak association between the two variables. Aggarwal (1981) studied US monthly stock market indices from 1974 to 1978 period and found a positive relationship between weighted average exchange rates and the stock market indices and concluded that the study results are consistent with the flow model. Using monthly data from 1980 to 1986, demonstrated a significant negative link

between the value of the US Dollar and stock prices. In contrast, using monthly data from 1980 to 1986, Soenen and Hennigar (1988) demonstrated a significant negative link between the value of the US Dollar and stock prices. Branson (1983) and Frankel (1983) also established a negative relationship among the exchange rates and the stock returns supporting the Portfolio Balance theory.

Furthermore, Richards and Simpson (2009) discovered a positive co-integrating association among the stock prices and the foreign exchange rate fluctuations in the Australian context. However, Bhattacharya and Mukherjee (2003) found out that the association between the said two variables shows lesser integration by examining the Indian context.

In the early stages, scholars examined only the developed countries in this context where the focus started to divert towards the developing economies with the rise of the Asian financial crisis during the late 1990s. Granger, Huangb, and Yang (2000) conducted a study on the interaction between the stock market and the exchange rates in the context of Japan, Hong-Kong, Malaysia, Indonesia, South Korea, Philippines, Singapore, Taiwan, and Thailand; the countries which were affected by the Asian financial crisis.

They found little evidence for interaction among the exchange rates and the stock market in all other nations except Singapore where they discovered that the exchange rates rule the stock market in Singapore, supporting the flow-oriented model. Yu (1997) analyzed daily data from three Asian countries; Hong Kong, Singapore, and Tokyo for the period 1983 – 1994, and they ascertained that the relationship among stock market performance and the exchange rate is bi-directional in Tokyo while it is uni-directional in Singapore.

Further, Chkili (2013) also observed a bi-

directional linkage and a significant spillover effect amongst the exchange market and the stock market in 12 emerging economies except for Columbia. Ajayai et al., (1998) observed a uni-directional relationship amongst the foreign exchange and the stock market performance mostly in developed economies where they also found that the relationship between the two variables in developing economies is inconsistent. This weak relationship between the stock prices and the exchange rates was explained by the less attractive investments in emerging economies owing to the political instability and unsupportive legislation.

Kemal (2005) by employing the Granger causality examined the relationship between stock prices and the exchange rates in Turkey. The findings demonstrated a uni-directional relationship that runs from price levels to exchange level changes although a reverse relation was not present. According to Sikarwar and Mehta, (2011) exchange rate is a significant macroeconomic variable determining the stock returns of all the portfolios in Asia. Abdalla and Murinde (1997) used the co-integration approach in the long run to determine the interconnectedness between the two variables in four Asian nations from 1985 to 1994. They concluded the absence of causality in Pakistan and Korea but suggested the availability of such causality in India and the Philippines. Furthermore, Abdalla (2012) and Rahman and Uddin (2009) demonstrated that there is no causal relationship between foreign exchange market performance and stock returns in emerging capital markets. Phylaktis and Ravazzolo (2003) studied long-term and short-term dynamics of the relationship among the stock market and the exchange rates in Pacific Basin countries during 1980-1988 period and concluded that the two variables are positively co-related. Caporale, Howells, and Soliman (2004), Ülkü and Demirci (2012) also demonstrated that the exchange rates have

a positive impact on stock returns. Griffin and Stulz (2001) studied the impact of weekly exchange rates on the stock market of developed countries and concluded that the impact of such weekly exchange rates is comparatively lesser in developed countries.

In the Sri Lankan context, Wickramasinghe (2011) determined a strong connection between exchange rates and stock market prices. However, there is a dearth of studies in this study area in the Sri Lankan setting which requires substantial attention from scholars.

Methodology

Data and Sampling

The study aims to investigate the association between the exchange rates and the stock market prices of the Sri Lankan listed companies. A quantitative research design was used where the study used a deductive approach in a positivist research paradigm. The population of the study includes all the exchange rates and ASPI values-related data whereas the study sample is limited to data from 239 months; from Jan'2000 to Nov'2019. The period of the study was selected to overcome any outliers caused due to the COVID-19 pandemic and the subsequent economic crisis. The study selected the five frequently dealt, major currency types in Sri Lanka i.e., United State Dollars (USD), Euro (EUR), Great Britain Pounds (GBP), Indian Rupees (INR), and Japanese Yen (JPY). The performance of the stock market was examined using the All-Share Price Index (ASPI) and the required data were acquired from the Colombo Stock Exchange. The study collected monthly average exchange rates for the period of 19

years from Jan'2000 to Nov'2019 from the Central Bank website. The data set did not have any missing data or any outliers. Eviews10' statistical package, which is the main macroeconomic forecasting toolset was used for the data analysis in the study.

Variable measurement

The study employed the exchange rate as the independent variable of the study whereas the stock market performance as the dependent variable. The number of units of one currency that can be exchanged for one unit of another is known as the exchange rate (Dada, 2020). Hence, it is the price at which a national currency is valued in relation to a foreign currency. Usually, the supply and demand conditions of a foreign currency in the market influence the exchange rate. Payments for imports of goods and services, as well as capital payments, influence the demand for a currency, whereas the supply of a currency is determined by exports of goods and services, as well as capital receipts. For this study, five main exchange rates i.e., USD/LKR, GBP/LKR, EURO/LKR, JPY/LKR, and INR/LKR have been used as the independent variables.

The Colombo All Share Price Index in Sri Lanka (ASPI), which is the wide market index of the Colombo Stock Exchange, is used to gauge stock market performance (CSE). The ASPI is a market capitalization-weighted index that includes all CSE listed ordinary (voting) and preference (non-voting) shares and is produced in real-time to track general market movements. During a trading day, it covers all traded firms where the index's base value is based on average market values from 1985, and the index's base value is 100. This is the broadest measure of the Sri Lankan stock market.

Operationalization

Table 1- The operationalization

Variables	Measurement	Source
The dependent variable Stock Prices (ASPI)	ASPI=Market capitalization of all listed companies / Base market capitalization * 100 Market capitalization = \sum Current No. of listed Shares of Company i *Market Price i Base Market Capitalization = \sum No.of listed shares of company i *Market Price i	(Richards and Simpson, 2009)
The independent variable Exchange Rates United State Dollars (USD) Great Britain Pounds (GBP) Euro (EUR) Japanese Yen (JPY) Indian Rupees (INR)	LKR per USD (LKR/USD) LKR per GBP (LKR/GBP) LKR per EUR (LKR/EURO) LKR per JPY (LKR/JPY) LKR per INR (LKR/INR)	(Richards and Simpson, 2009) (Perera, 2015)

Hypotheses Development

The hypotheses were formulated based on sound literature available and previous studies conducted in a similar study area.

H1 – There is a significant association between USD/LKR exchange rates and stock returns.

H2 – There is a significant between GPB/LKR exchange rate and stock returns.

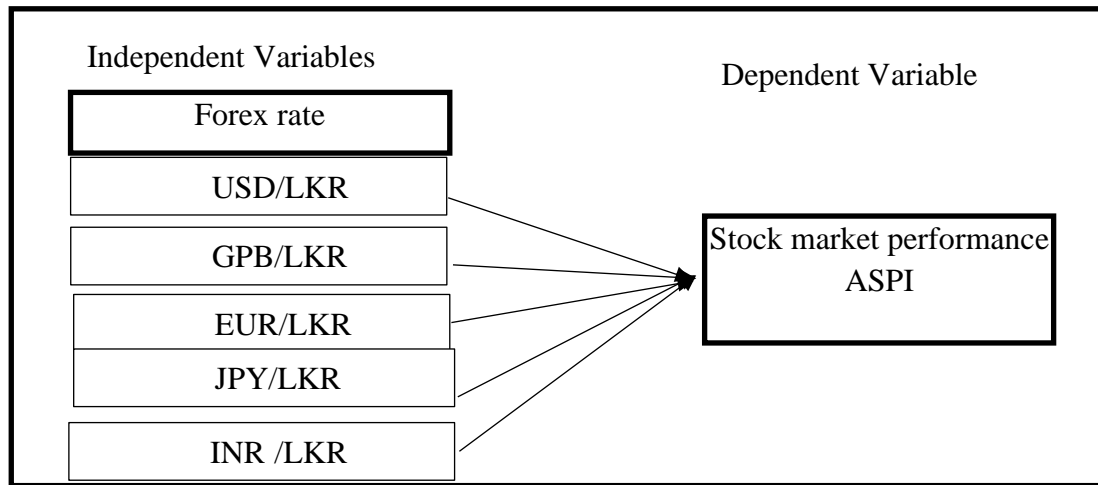
H3 – There is a significant between EUR/LKR exchange rate and stock returns.

H4 – There is a significant between JPY/LKR exchange rate and stock returns.

H5 – There is a significant between INR /LKR exchange rate and stock returns.

Conceptual Framework

Figure 1: Conceptual framework



Findings and Results

Descriptive statistics

The descriptive statistics of the data set are summarized in Table 2. The ASPI has ranged between 398.46 and 7701.19 with a mean value of 3853.30 and a standard deviation of 2462.93 within the 239 months under consideration. The EURO rate with a mean value of 144.30 ($SD=34.92$) has drastically changed within the 19 years from a minimum of 66.37 to a maximum of 208.05. The GBP rate has recorded the

highest mean value for the period; being, 186.03 with a variation of 30.55. The GBP rate fluctuated between a minimum of 111.24 and a maximum of 235.15 within the period. The JPY has recorded a mean of 1.14 ($SD=0.28$) while INR has a mean value of 2.26 ($SD=0.25$) and ranges between the minimum and maximum values of 1.59-2.88 respectively. Further, the USD rate with a mean of 118.88 and a standard deviation of 25.32 has ranged from a minimum of 72.36 to a maximum of 182.13.

Table 2: Descriptive statistics

	ASPI	EURO	GBP	JPY	INR	USD
Mean	3853.303	144.294	186.030	1.137	2.259	118.883
Median	2997.600	152.820	189.871	1.169	2.279	112.111
Maximum	7701.190	208.051	235.151	1.686	2.876	182.128
Minimum	398.460	66.374	111.239	0.666	1.589	72.359
Std. Dev.	2462.931	34.920	30.552	0.284	0.245	25.320
Skewness	-0.020	-0.621	-0.779	0.105	-0.305	0.640
Kurtosis	1.358	2.618	2.890	1.878	3.199	2.880
Jarque-Bera	26.867	16.836	24.272	12.968	4.111	16.469
Probability	0.000	0.000	0.000	0.002	0.128	0.000
Sum	920939.5	24486.37	44461.11	271.6448	539.807	28412.990
Sum Sq. Dev.	1.440009	290217.4	222150.9	19.21418	14.341	152583.5
Observations	239	239	239	239	239	239

The movement of each variable can be graphically depicted as follows. Figure 2 below depicts the drastic increase in ASPI within the period Jan'2000 to Nov'2019 where the highest increase was visible from 2009 to 2010 period. Sri Lanka underwent a 30-year war which was ended in 2009,

opening up the island to the world for a number of investment opportunities. The peaceful atmosphere in the country was a motivating factor for the new business ventures. These reasons together have paved the way for the dramatic increase in the ASPI within the 2009 – 2010 period.

Figure 2 - The movement of the ASPI for the period of 19 years

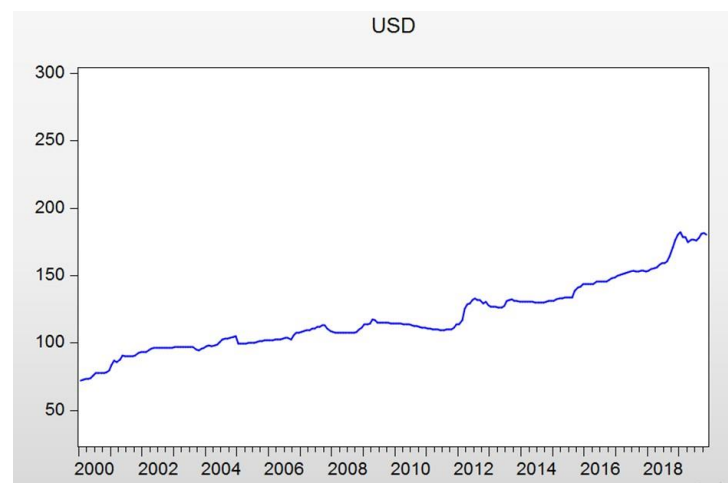


Source: System generated

The USD rate movement shown in Figure 3 portrays a clear increase during the period 2000 to 2019 without any considerable downfall. Nevertheless, the rate shows a

steady increase indicating that the rate of increase is not much steeper where the highest rate has been recorded in 2019 so far.

Figure 3 - The movement of the USD/LKR rate for the period of 19 years

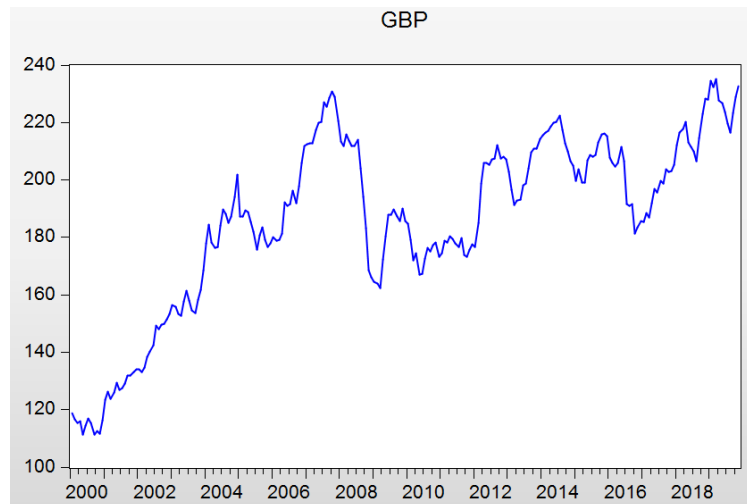


Source: System generated

Figure 4 reflects the huge ups and downs experienced by the GBP rate within the period under consideration. The highest

rates have been recorded in 2007 and has come down steeply in 2008

Figure 4 - The movement of the GBP/LKR rate for the period of 19 years.

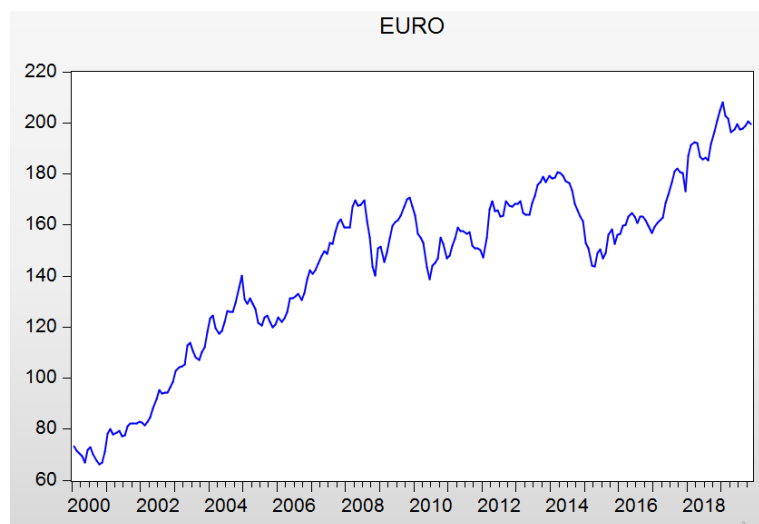


Source: System generated

The Euro rate movement shown in Figure 5 illustrates that the rate has also been

through severe fluctuations during the period 2000 to 2019.

Figure 5- The movement of the EURO/LKR rate for the period of 19 years

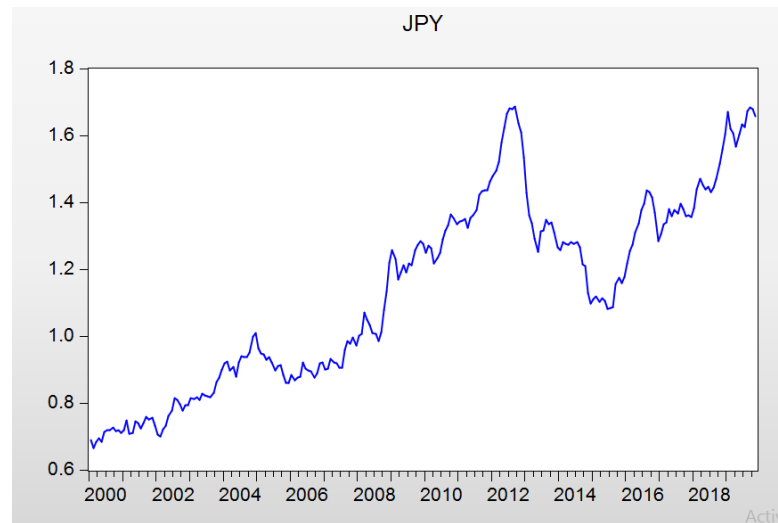


Source: System generated

Figure 6 depicts that the JPY has reached its peak in 2012. This has been varying from a

minimum of 0.66 to a maximum of 1.68 within the period under consideration.

Figure 6- The movement of the JPY/LKR rate for the period of 19 years.

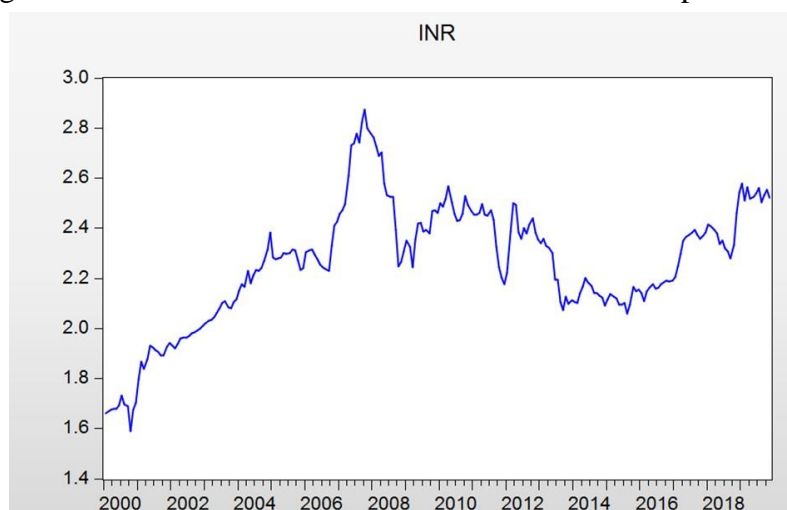


Source: System generated

The INR has recorded its peak in 2007 and it has been ranging between 1.5 to 2.8

from the period 2000 to 2019 as shown in Figure 7 below.

Figure 7 - The movement of the INR/LKR rate for the period of 19 years



Source: System generated

The Regression Assumption Test

The unit root test

The unit root test was conducted as the initial step using the Augmented Dickey-Fuller Test (ADF Test) (Suriyani, Jamil, and Muneer, 2015; Richards and Sympson, 2009) in order to test the stationarity or the non-stationarity of the data incorporated.

The unit root test results given in Table 3, depict that all the data are insignificant as the probability values are higher than 0.05. Therefore, the system-generated null hypothesis needs to be accepted, evidencing the presence of a unit root in the data set. Consequently, the entire data set needs to be concluded as non-stationary at the level which is considered reasonable as

both the exchange rates and the ASPI are macro-economic variables and such macro-

economic variables spontaneously change with time.

Table 3 - Probability values at Level- ADF Test

Variable	Prob.
ASPI	0.7337
USD	0.9732
GBP	0.2786
EURO	0.5079
JPY	0.7474
INR	0.1213

Given that the data set was non-stationary at level, the ADF Test was reperformed at the first difference. The test results in Table 4 reflect a 0.000 probability for all the data which is less than 0.05 (<P value) and concluded as a stationary data set. The Granger Causality Test can be performed to

assess any relationship among the variables, given a data set is stationary at level itself. However, given our data set is non-stationary at level, co-integration test was performed to analyze any existing relationship (Suriyani , Jamil, and Muneer, 2015).

Table 4 - Probability values at first differences - ADF Test

Variable	t-Statistic	Prob.
ASPI	1.2276	0.000
USD	7.2270	0.000
GBP	4.8335	0.000
EURO	4.4286	0.000
JPY	5.3686	0.000
INR	3.9676	0.000

Co-integration Test

The Johansen Co-integration Test was used to determine whether the data set was co-

integrated. The optimum lag length of 1 to 12 is used as per Wooldridge (2012).

Table 5- Johansen Co-integration Test

Relationship	Unrestricted Co-integration Rank Test – TRACE	Unrestricted Co- integration Rank Test – Maximum Eigenvalue
	Prob.	Prob.
ASPI - USD	0.6881	0.7114
ASPI - GBP	0.4085	0.5604
ASPI - EURO	0.2591	0.4202
ASPI - JPY	0.2013	0.2029

ASPI - INR	0.5134	0.6610
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The Johansen Co-integration performs the co-integration under two tests; the TRACE and the EIGENVALUE. As per the Johansen co-integration, the probability values are more than 0.05, under all the five scenarios which proves that the entire data set is non-significant. Hence, we can conclude that there is no co-integration among the independent variable (Exchange rates) and the dependent variable (All Share Price Index).

Discussion and Conclusion

By analyzing the monthly data totaling up to 239 observations for a period of 19 years from Jan'2000 to Nov'2019, the study found that there is no significant relationship between the exchange rates and the ASPI which reflects that the exchange rate does not exercise any impact on the stock market performance. Therefore, all the five hypotheses that were developed, were rejected.

The findings are consistent with several prior study results conducted in this study context. Granger (1969) concluded that there is little evidence to prove a long-term association among the exchange rates and the stock market performance in the long run in the Asian region. Rahman and Uddin (2009) examined the association amongst foreign exchange rates and stock market performance in three South Asian countries; i.e., Bangladesh, India, and Pakistan, and proved the absence of a relationship amongst the same. Further, the findings are consistent with the study done by Abdalla and Murinde (1997) on the relationship between the stock market performances and the exchange rate in emerging economies; including South Asian and East Asian countries; Philippines, India, Pakistan, and Korea which concluded the absence of a co-integration among the stock market performance and the exchange rates.

According to (Ajjay, Friedman, and Mehdiyan, 1998), the findings on the relationship among the exchange rates and the stock market in the developed economies and emerging economies were different from one another. The authors suggested that the stock markets are much more integrated and deeper in developed countries compared to the emerging or developing countries owing to the less access to foreign investment and the higher level of concentration in the economy.

The authors further explained that investment in emerging economies is less attractive due to political instability and the unsupportive legislation which results in a weak relationship between the stock prices and the exchange rates. Sri Lanka being an emerging economy in the South Asian region; the above reasons can be attributable to the absence of a co-integrating relationship among the exchange rate and the Sri Lankan stock market performance.

Conclusion

This study investigated the effect of the Foreign Exchange rates on the stock market performance in Sri Lanka using the ASPI and five exchange rates; USD/LKR, GBP/LKR, EURO/LKR, JPY/LKR and INR/LKR considering 239 monthly observations from January 2000 to November 2019. The data set was tested for stationarity using ADF Test followed by Johansen Co-integration to establish any relationship among the two variables using Eviews10.

According to the statistical outcome, it was concluded that there is no significant relationship among the exchange rate and the stock market performance in the Sri Lankan context. Hence, all the developed hypotheses were rejected.

The implications of the study

The study findings have ramifications for the macroeconomic policies of the Sri Lankan economy. The findings are vital for the policymakers, regulatory authorities, and particularly central banks to make decisions with respect to foreign exchange rates and economic policies of a country.

Further, given that the study area has implications for investors in terms of asset allocation decisions, investor portfolio management, and risk management decisions, it is of paramount importance to comprehend the interconnectivity of exchange rates and stock markets. Our study results depict that given the non-stationary nature of macro-economic variables; it is difficult to predict the variables in the long run. Also, the findings imply that the exchange rate is not the only factor that impacts the stock market performance or the ASPI for this matter.

Other factors such as the performance of the listed companies, the economic and political stability of the country, and the foreign direct investment are having considerable influence on the stock market performance.

Limitations and future directions

The stock market performance is driven by many factors other than the exchange rate and consequently making it an impact on the reliability and the accuracy of the research findings. Future scholars can incorporate other elements such as company performance, macroeconomic atmosphere, and foreign direct investment as the independent variables of the study.

The selected sample consists of data for only 19 years from January 2000 to November 2019 and this may not represent the entire population. The researchers could focus on the COVID-19 impacts and the current economic crisis prevailing in the

country under the study. Better and advanced methods of interpreting and analyzing data were not applied given their complexity and the cost involved that would have predicted more accurate results. Thus, it is advisable for future scholars to incorporate more advanced data analysis techniques such as the VAR model in their studies.

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