FACTORS INFLUENCING FOREIGN PORTFOLIO INVESTMENT IN COLOMBO STOCK EXCHANGE

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INTRODUCTION

Capital flows, which are crucial for maintaining economic growth, are one of the most important sources of funding for emerging nations. Foreign investments can be a transfer of capital from one country to another, granting the foreign investor a significant ownership stake in the local companies and assets. Foreign portfolio investment (FPI), foreign direct investment (FDI), and other investments (OI) are all critical components of capital inflow (Jariya, 2020). Macroeconomic variables significantly determine a country's portfolio investment inflows. Considering the factors influencing FPI, as per the previous research, various factors have been identified, such as; Economic growth (ECG), inflation (INF), the foreign exchange rate (FER), industrial production growth (IPG), stock market performance (SMP), and FDI (Waqas et al., 2015). According to the literature review, specific empirical gaps exist in the factors impacting FPI. Previous studies have paid less attention to FPI and have focused more on FDI. Further, previous studies focused mainly on a few criteria. For instance, company-specific factors, market capitalization (MCAP), earnings quality, GDP growth, and interest rate (IR) (Wijesinghe & De Silva, 2020). However, they have not focused more on some critical factors in the Sri Lankan context. Such as FER, INF, IPG, and SMP. The study's specific objectives are to investigate the critical factors influencing FPI in Colombo Stock Exchange (CSE) and examine the long-run relationship between dependent and independent variables.

METHODOLOGY

This research was conducted using a deductive approach, and this is quantitative research conducted using time series secondary data. This study used the period from 2011, January to 2020, and December as the sampling period by using monthly data. Data was collected from World Bank reports, CSE data library, CBSL reports, Census and Statistic Department reports, and official websites. Further, IR, FER, INF, IPG, MCAP, and SMP are independent variables. Meanwhile, the dependent variable is FPI in CSE. According to the conceptual framework, the researcher developed hypotheses to overcome the objectives of the study as follows,

H_1 - There is a co-integration relationship between dependent (FPI) and independent variables (IR, FER, INF, IPG, MCAP, and SMP).
Previous researchers have performed studies related to the co-integration relationship among the variables that influence FPI (Ullah et al., 2021). There is a long-term relationship between the dependent and independent variables (Anayochukwu, 2012).

H_2 - There is a significant relationship between IR and FPI.

Previous researchers have performed studies related to the relationship between IR and FPI (Nasution et al., 2019). IR has a significant relationship with FPI (Wijesinghe & De Silva, 2020).

H_3 - There is a significant relationship between FER and FPI.

Most of the researchers have selected the FER as the independent variable with FPI for research studies (Ullah et al., 2021). There is a significant relationship between FER and FPI flows (Ullah et al., 2021).

H_4 - There is a significant relationship between INF and FPI.

Previous researchers have performed studies by applying INF as an independent variable while selecting FPI as a dependent variable. INF has a significant relationship with FPI in Pakistan (Aziz et al., 2015).

H_5 - There is a significant relationship between IPG and FPI.

Few researchers have identified IPG as an independent variable for their studies (Daude & Fratzscher, 2006). Waqas et al. (2015) found a significant relationship between IPG and FPI.

H_6 - There is a significant relationship between MCAP and FPI.

According to previous studies, most researchers have selected market capitalization as an independent variable (Aziz et al., 2015). MCAP has a significant relationship with FPI (Chukwuemeka et al., 2012).

H_7 - There is a significant relationship between SMP and FPI.

Most past studies have selected stock market performance as an independent variable for their studies (Al-Smadi, 2018). Ullah et al. (2019) have found that SMP has a significant relationship with FPI.

Table 1 Operationalization of Variables

Type	Variable	Measurements	Extant Literature
Independent Variable	Interest Rate (IR)	RIR= NIR- Inflation	Waqas et al. (2015) Ullah et al. (2021)
Independent Variable	Foreign Exchange Rate (FER)	RER= NER (Nominal Exchange Rate) * (CPIpak/ CPIusa)	Waqas et al. (2015)
Independent Variable	Inflation (INF)	Consumer price index (CPI)	Waqas et al. (2015) Ullah et al. (2021)
Independent Variable	Industrial Production Growth (IPG)	Industrial Production Index	Waqas et al. (2015) Osmond and Okonkwo (2016)
Independent Variable	Market Capitalization (MCAP)	Number of outstanding shares * current shares market price	Aziz et al. (2015)
Independent Variable	Stock Market Performance (SMP)	All Share Price Index (ASPI)	Kumara and Dayaratne (2015)
Dependent Variable	Foreign Portfolio Investments (FPI)	Net Foreign Purchases = Foreign Purchases- Foreign Sales	Liyanaarachchi and Wijesinghe (2021)

RESULTS AND DISCUSSION

Table 2 provides the outcomes of descriptive statistics. The median value of each variable has shown the middle value. The standard deviation has shown that the variables can deviate from their mean within a range. The mean value has shown the average. FPI, FER, INF, and IPG have positive skewness, indicating the maximum values on the right side of the mean. The rest variables have negative skewness. FPI and IPG have high peaks and leptokurtic distribution because those values are higher than 3.

Table 2 Results of the descriptive analysis

Variables	FPI	IR	FER	INF	IPG	MCAP	SMP
Mean	-89.387	7.799	146.179	5.245	121.764	2625.295	6221.897
Median	-127.032	8.025	143.900	5.000	112.150	2688.000	6203.300
Maximum	17943.400	10.580	192.850	12.100	234.300	3115.300	7798.000
Minimum	-9554.610	4.530	109.480	1.000	50.000	1568.400	4289.470
Std. Dev.	3882.055	1.380	23.329	2.253	30.126	337.953	671.276
Skewness	0.729	-0.376	0.385	0.370	2.050	-0.641	-0.190
Kurtosis	3.873	0.102	-0.905	0.003	4.512	-0.151	-0.041

Table 3 provides the results of the correlation analysis. As per the results of correlation analysis, IR, INF, and SMP have a positive correlation with FPI. FER, IPG, and MCAP have a negative correlation with FPI. Each correlation value was examined using two levels of significance, i.e., = 0.01 and = 0.05, to determine whether it was statistically significant to examine the strength of the linear relationship between the independent variables. Accordingly, all the correlation values are statistically significant except for the relationship between IR and FPI, INF and IR, SMP and IPG, and SMP and MCAP.

Table 3 Correlation Matrix

	FPI	IR	FER	INF	IPG	MCAP	SMP
FPI	1						
IR	0.339	1					
FER	-0.354	-0.310	1				
INF	0.045	0.377	-0.086	1			
IPG	-0.068	0.041	-0.584	0.094	1		
MCAP	-0.087	-0.431	0.225	-0.500	-0.03	1	
SMP	0.041	-0.312	-0.422	-0.293	0.491	0.707	1

Table 4 provides the outcomes of the unit root test. Only FPI is stationary and other variables are unit root in the level because of p-values of that variables are greater than 0.05. All the chosen variables are stationary at 1st difference. Because the p-values of all variables are lower than 0.05.

Table 4 Results of the stationary test (ADF)

Variable	Level I (0)	P-values	1st Differences I(1)	P-values
FPI	-7.233	0.000	-9.675	0.000
IR	-0.036	0.952	-5.751	0.000
FER	-0.374	0.908	-8.175	0.000
INF	-2.209	0.204	-8.699	0.000
IPG	-3.483	0.010	-12.915	0.000
MCAP	-2.265	0.184	-11.059	0.000
SMP	-2.490	0.120	-10.473	0.000

Note: Critical values are -2.885 and -2.579 at the 5% and 10% I (0). The critical values are -2.886 and -2.580 at 5% and 10% I (1).

Table 5 demonstrates the outcomes of the co-integration analysis. According to the results, hypothesized co-integrated linear equations are 7, and the independent variables of this study

are six. At the same time, none demonstrates only an intercept model, i.e., a model having no independent variable. The co-integration test found two co-integrating linear relationships as there is a co-integration relationship between dependent and independent variables. Two linear equations were revealed co-integrated, none, and one at most.

Table 5 Results of the Johansen Co-integration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.324	145.509	125.615	0.001
At most 1 *	0.291	99.538	95.753	0.026
At most 2	0.232	59.298	69.818	0.257
At most 3	0.114	28.340	47.856	0.798
At most 4	0.076	14.127	29.797	0.833
At most 5	0.039	4.763	15.494	0.833
At most 6	0.000	0.037	3.8414	0.846

The trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table 6 provides the results of the regression analysis. To overcome this, Ordinary Least Square (OLS) regression analysis method is applied. Regression analysis is carried out to test the statistical significance of variables. The observed value of F-statistic = 7.628 is high enough, and the p-value is (0.000 < 0.05), demonstrating that the overall model is highly statistically significant and is a good model. Further, the value of the Durbin-Watson stat is 1.798, which is closer to two. This indicates that the model is the best fit for data and that the model can be accepted. Furthermore, IR is positively and significantly associated with FPI. INF and MCAP are positively but insignificantly associated with FPI. FER and IPG have shown a negative and significant relationship with FPI. Further, SMP has shown a negative and insignificant relationship with FPI.

Table 6 Regression Coefficients

Variable	Coefficient	Std.Error	t-Statistic	Prob.
C	12033.120	8937.112	1.346	0.180
IR	632.026	302.932	2.086	0.039
FER	-97.583	31.284	-3.119	0.002
INF	35.914	174.610	0.205	0.837
IPG	-47.471	15.054	-3.153	0.002
MCAP	2.397	2.938	0.815	0.416
SMP	-0.560	1.673	-0.335	0.738
R-squared	0.288		Akaike info criterion	19.134
Adjusted R-squared	0.250		Schwarz criterion	19.296
F-statistic	7.628		Hannan-Quinn criter.	19.200
Prob(F-statistic)	0.000		Durbin-Watson stat	1.797

Two residual diagnostics tests were applied, including serial correlation LM and heteroskedasticity tests. The residual diagnostics concludes that the model is the best, and the model can be fitted to the data set.

Table 7 provides the results of the serial correlation LM test. The conclusion is that there is no serial correlation among the residuals, and the null hypothesis can be supported. Because a p-value is 0.888 is higher than 0.05. It demonstrated that the probability is insignificant.

Table 7 Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.310	Prob. F(5,108)	0.905
Obs*R-squared	1.699	Prob. Chi-Square(5)	0.888

Table 8 provides the results of the serial correlation LM test and the heteroskedasticity tests. The conclusion is that there is no heteroskedasticity. Then, the null hypothesis can be supported. Because a p-value is 0.965, is higher than 0.05. It means that the probability is insignificant.

Table 8 Heteroskedasticity Test: ARCH

F-statistic	0.184	Prob. F(5,109)	0.967
Obs*R-squared	0.966	Prob. Chi-Square(5)	0.965

Table 9 Results of Hypotheses

Hypothesis	P-Value	Supported / Not supported
H_1 - There is a co-integration relationship between dependent and independent variables	0.001	Supported
H_2 - There is a significant relationship between IR and FPI	0.039	Supported
H_3 - There is a significant relationship between FER and FPI	0.002	Supported
H_4 - There is a significant relationship between INF and FPI	0.837	Not-supported
H_5 - There is a significant relationship between IPG and FPI	0.002	Supported
H_6 - There is a significant relationship between MCAP and FPI	0.416	Not-supported
H_7 -There is a significant relationship between SMP and FPI	0.738	Not-supported

According to the results above, there is a co-integration relationship between dependent and independent variables. This result is consistent with the study by Tabak (2003; Anayochukwu (2012), which found a co-integration relationship between dependent and independent variables. IR has a significant relationship with FPI. This finding is consistent with the study conducted by Ikenna in 2018. FER has a significant relationship with FPI. This finding is consistent with the study by Nasution et al. (2021). There is no significant relationship between INF and FPI. This finding was confirmed by Waqas et al. in 2015. However, it is inconsistent with the findings of Nasution et al. (2021). IPG has a significant relationship with

FPI. This finding is consistent with the study conducted by Osmond & Okonkwo (2016). Further, MCAP has not a significant relationship with FPI. It is not consistent with the study conducted by Aziz et al. (2015). SMP has not a significant relationship with FPI. This finding is consistent with the study conducted by Al-Smadi, (2018). However, it was not consistent with the findings of Ullah et al. (2019).

CONCLUSIONS AND IMPLICATIONS

This study used time series secondary data to examine the factors influencing FPI in CSE. The study's main objectives are to investigate the critical factors influencing FPI in CSE and examine the long-run relationship between factors influencing FPI. Therefore, investors pay attention to the factors influencing FPI before their investments, and foreign investors need to study and understand the status of FPI in the CSE to make their investment decisions effectively. This study may help to identify the critical factors influencing FPI in CSE to foreign investors before making their investments. In this study, the long-run relationship is analyzed by the co-integration test. The co-integration test found two co-integrating linear relationships as there is a co-integration relationship between dependent and independent variables. Two linear equations were revealed co-integrated, none, and one at most. IR has a positive and significant influence on FPI. FER and IPG have a negative and significant impact on FPI. INF and MCAP have a positive but insignificant influence on FPI. Further, SMP has a negative and insignificant influence on FPI. The researcher concluded that this model is the best as per the regression analysis. Further, the researcher concluded that there is no serial correlation among the residuals and no heteroskedasticity among the residuals as per the residual tests. The researcher implied that he had applied non-common independent variables for the study, the importance of this research area for the new researchers, and how to achieve and enhance foreign portfolio investment by systematically managing the factors in this study of Sri Lanka as a developing country. Further, the researcher has provided practical implications for the country's policymakers.

Keywords: Colombo Stock Exchange, foreign direct investment, foreign portfolio investment

REFERENCES

Anayochukwu, D. (2012). The Impact of Stock Market Returns on Foreign Portfolio Investment in Nigeria. *IOSR Journal of Business and Management*, 2(4), 10-19. doi: 10.9790/487x-0241019

Aziz, B., Anwar, Z., & Shawnawaz, S. (2015). Determinants of Foreign Portfolio Investment (FPI): Empirical Evidence from Pakistan. *Asian Journal of Educational Research & Technology*, 5(2), 161-169.

Daude, Christian & Fratzscher, Marcel, the Pecking Order of Cross-Border Investment (February 2006). *ECB Working Paper No. 590,* Available at SSRN: https://ssrn.com/abstract=885321 or http://dx.doi.org/10.2139/ssrn.885321

Haider, M., Asif Khan, M., & Abdulahi, E. (2016). Determinants of Foreign Portfolio Investment and Its Effects on China. *International Journal of Economics and Finance*, *8*(12), 143. doi: 10.5539/ijef.v8n12p143

Jariya, A. (2020). Effect of Capital Flow on Economic Growth in Sri Lanka. *Journal of Business Economics*, *2*(2), 36-42.

Kumara, G.D.K., & Dayaratne, D.A.I., Long-Run Determinants of Equity Foreign Portfolio Investment (EFPI) in Sri Lanka: A Time Series Analysis with Autoregressive Distributive Lag (ARDL) Approach. Colombo *Business Journal*, 6(2), 1-21.

Liyanaarachchi L.A.A.D., & Wijesinghe, M. R. P. (2021). The impact of firm and market performance on foreign portfolio investments in Sri Lanka. *Journal of Management Matters,* 8(1), 59-75.

Nasution, L., Siregar, T., & Sadalia, I. (2019). Simultaneity Analysis between Portfolio Investment and Macroeconomic Variables in Indonesia. *Proceedings of The 2nd Economics And Business International Conference.* doi: 10.5220/0009326505490554

Ullah, Z., Shah, M. H., Khan, W., & Ali, A. (2021). Macroeconomic Factors as Drivers Of Foreign Portfolio Investment In Emerging Economy. *Multicultural Education*, 7(6), 644-652.

Waqas, Y., Hashmi, S., & Nazir, M. (2015). Macroeconomic factors and foreign portfolio investment volatility: A case of South Asian countries. *Future Business Journal*, *1*(1-2), 65-74. doi: 10.1016/j.fbj.2015.11.002

Wijesinghe, M., & De Silva, A. (2020). The Impact of Company Performance, Earnings Quality and Macroeconomic Variables on Foreign Portfolio Investment: Evidence from Sri Lanka. *Proceedings of the International Conference on Business & Information (ICBI).* 144-163.