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Assessing the Applicability of Uncovered Interest Parity in the South Asian Frontier Financial Markets

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ABSTRACT

Purpose: The purpose of this research is to establish whether, the Uncovered Interest Parity (UIP) condition exists in Bangladesh, Pakistan, and Sri Lanka, categorized as the South Asian frontier financial markets.

Design/Methodology/Approach: The research uses the deductive approach. The data was collected from International Monetary Fund Statistics. The data set used consists of monthly data from March 2010 to April 2020. Interest rate differential was employed as the independent variable in this study, with the foreign currency exchange rate differential as the dependent variable. The researcher used the Cointegration model and the Vector Error Correction Model to analyze the data to measure the long-term and short-term impact respectively.

Findings: It was found that, interest rate differential had a statistically insignificant negative relationship with the exchange rate differential in all three countries both in the short and long run. The overall test results show that the rejection of UIP hypothesis within the given time frame in South Asian frontier financial markets confirming the previous findings relating to practical situation of UIP condition.

Originality: This article reviews the rejection of UIP condition in Bangladesh, Pakistan and Sri Lanka, categorized as the South Asian frontier financial markets. In a single paper it provides both short-term and long-term rejection of UIP. The rejection of the UIP condition implies that there is a possibility for an arbitrage opportunity.

Future Direction: The future research can assess the applicability of UIP for a larger sample and different data analysis techniques such as Generalized Method of Moment.

KEYWORDS

Uncovered interest rate parity, Exchange rate differential, Interest rate differential, Johansen Cointegration, Vector Error Correction Method.

JEL

CLASSIFICATION

E, E17, E43, F, F31

I. Introduction

Background to the Study

Interest rates and exchange rates are two of the most discussed areas in international finance (Nirmali & Rajapakse, 2017). The relationship between interest rates and exchange rates has been a vital consideration in the present context for the purpose of macroeconomic planning by the governments or for policy setting by the institutions engaging in global trade. When considering the main theories that explore these two variables, Uncovered Interest Rate Parity (UIP) is one of the main theories introduced by Keynes in 1923.

The exchange rate can be considered as one of the major determinants under the international finance (Hau & Rey, 2006). Exchange rate defines the price of one currency in terms of another currency. The exchange rate of a country is determined by the demand for and supply of a particular currency. The main factors are recognized as inflation, interest rate, future expectations of exchange rate, government controls, income levels etc. In open economies, foreign exchange rate policies are identified as one of the most important macroeconomic indicators, because it plays an important role in affecting the business

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world's investment decisions (Genc & Artar, 2014).

Interest rates means the price of money. When considering the main theories that explore on these macro-economic factors, UIP is one of the main theories introduced by Keynes in 1923. Nowadays, UIP is the theoretical cornerstone in international finance and open economy macroeconomics which states that under rational expectations, the rate of depreciation of local currency should be precisely equal to the difference between the domestic and the foreign-risk free interest rate (Bozovic, 2020).

The UIP theory suggests that the exchange rate differential would be offset by the differential in interest rates between the two nations under concern. Hence, the domestic interest rate would be the sum of the other nation's interest rate and the expected appreciation or depreciation of the home currency against the foreign currency. Uncovered interest rate parity theory assumes that the investors are risk neutral, and the forward market would not be used simultaneously to cover against the foreign exchange rate risk. If UIP holds, investors cannot gain an arbitrage opportunity due to high yield currency is expected to depreciate by an amount approximately equal to the interest rate differential between two countries. A violation of this relationship indicates that capital markets are not efficient and there is a possibility of arbitrage opportunity (Cook, 2009; Frankel, 1992).

Due to the high volatility in the frontier markets, it is important to ensure that an investor gains no excess return by relative changes or differences in foreign exchange rates. For instance, during the period March 2022 to present Sri Lankan rupee witnessed a massive surge in the exchange rate against the United States Dollar. Thus, this unprecedented change in the exchange rate aroused the curiosity and the motivation to study the UIP condition, which is one of the main theories to explain the behavior of the

exchange rates. Hence, the purpose of this paper is to assess the applicability the uncovered interest parity in the South Asian frontier financial markets.

Research Problem

There are prior studies that have been conducted to examine the UIP condition has been conducted based on the developed and emerging financial markets and very few numbers of articles found to examine the UIP in the South Asian frontier financial markets under which Sri Lanka is categorized along with Bangladesh and Pakistan as per the MSCI index. Particularly, these countries have higher volatility in exchange rates and relatively high diversification of portfolios. Therefore, it is prudent to examine the applicability of the UIP condition in the South Asian frontier financial markets. The problem statement can be derived through the research gap thus, Does the uncovered interest parity (UIP) condition exist in Sri Lanka, Bangladesh and Pakistan categorized as the South Asian frontier financial markets.

Objectives of the Study

The primary objective of the research article is to examine the validity of the UIP condition in Sri Lanka, Bangladesh and Pakistan categorized as the South Asian frontier financial markets. To elaborate the results further it is the researcher's desire to examine the validity of the UIP condition categorizing to both long-term and short-term time frames.

Significance of the Study

This study provides empirical evidence regarding the effect of uncovered interest rate parity on South Asian frontier financial markets. The findings of this study are important to the investors, speculators, and import and export firms, policy makers, market participants and the monetary and financial authorities of these economies to

defend themselves from currency crisis and to earn a high return through diversification. This research offers the foundation for almost all government policies in our economic system. Further, this research is essential for accumulating data on the economic and social structure of the country. This type of information reveals what exactly is happening in the economy, and what adjustments are taking place.

Moreover, this study will help banking & financial organizations to open potential investment doors for rapidly growing organizations worldwide. Therefore, this research benefits not only organizations but also the industry at large. In addition, this will provide guidelines to future studies which are likely to be implemented in an improved research environment.

II. Literature Review and Hypotheses Development

With the expansion in trade and globalization, there is an unequal distribution of the costs and benefits. This appears to have aggravated inequalities of wealth and power within and between countries (Nyiputen & Ubi, 2020). As a result, all nations were compared by and over their explicit economic variables. One of the most used theories to compare and contrast economies is the theory of Interest Rate Parity.

The concept of Interest Rate Parity (IRP)

IRP Theory defines the relationship between interest rates and forward rates implying that the rate of change in interest rate differential between two nations should be reflected by the premium or discount in the forward rates between the currencies of the two nations. Therefore, if Interest Rate Parity holds, there would not be any benefits. There are two forms of interest rate parity developed: covered interest parity (CIP) and uncovered interest parity (UIP), also known as International Fisher

effect. Both forms of interest parity provide simple relationships between interest rates, and foreign exchange market prices, as spot or forward exchange rates.

Covered Interest Rate Parity (CIP)

CIP Theory suggests that the forward premium related to a foreign currency would be equal to the interest rate differential between risk-free investments denominating the currencies (Nirmali & Rajapakshe, 2016). This assumes that the forward market is used to cover against the foreign exchange rate risk. CIP states that the forward premium of a foreign currency should be equal to the interest rate differential between a domestic asset and a substitutable foreign asset. CIP implies the equality of returns on comparable financial assets denominated in different currencies with the assumption of free capital movements between territories.

The difference between UIP and CIP is that CIP is based on the assumption that the forward market is used to cover against exchange risk. Foreign exchange transactions are conducted simultaneously in the spot market and forward markets. The variables in CIP equation are all realized values. Whereas in UIP, there is not any covers against exchange risk. Transactions are conducted only in the current market. The change in spot exchange rate is estimated on its expected value.

Uncovered Interest Rate Parity (UIP)

UIP is one of the foundations of Financial Economics (Flood & Rose, 1994). The UIP theory implies that the exchange rate differential would be offset by the differential in interest rates between the two nations under concern. It states that a country's currency is expected to depreciate against a foreign currency when its interest rate is higher than the foreign

country's interest rate due to international capital arbitrage (Ray 2012).

There have been numerous studies conducted investigating the existence of the UIP condition. One of the most recent studies of Mijai (2022) investigated the effects of the interest rates in the United Kingdom approaching zero lower bound on the uncovered interest rate parity. To conduct this empirical research, three currency pairs were analysed: USD/GBP, EUR/GBP, JPY/GBP. The results were the uncovered interest rate parity fails to hold empirically. According to that, the UIP fails to hold for all three currency pairs as the interest rates in the United Kingdom approach ZLB. Dissanayake and Kethmi (2021) examined the validity of the UIP condition in both long-run and short-run dynamics for Sri Lanka. The results obtained through the ARDL and VECM model shows that exchange rate returns have a positive impact on the interest rate which validates the uncovered interest rate parity (UIP) theory in Sri Lanka.

Kantlar et al. (2021), investigated the validity of the uncovered interest rate parity for Brazil, India, Indonesia, South Africa, and Turkey, which were grouped as the fragile five countries within the literature. In line with the results of the analysis, researchers obtained strong evidence regarding the validity of the uncovered interest rate parity for Brazil, Indonesia, and Turkey. Results for India vary according to the structure of the break and where the structural break is taken into consideration.

Omer and Aisha (2020) conducted the research to contribute to the literature by providing a direct empirical assessment of UIP hypothesis for Pakistan. The results suggest that the UIP doesn't hold for Pakistan for short to medium-term maturities but holds only for the long-term maturity that is 10- years. The result showed that the UIP holds. It means the exchange rate was better predicted by the long-term interest rates. These findings

suggested that the interventions in the foreign exchange market distort the price discovery mechanism of the foreign currency in the short to medium term.

Ronald et al. (2018) examined uncovered interest rate parity (UIP) and economic uncertainty using a threshold estimation model in six industrialized countries (Canada, United Kingdom, Japan, Europe, United States of America and Switzerland). The study indicated that UIP is more likely to hold under low economic uncertainty periods rather than during high economic uncertainty period. The implication is that arbitrage opportunities are more certain in stable periods and therefore would have a more predictable effect on exchange rate movements. Pelin (2018) presented an empirical investigation of the uncovered interest parity (UIP) between the Turkish Lira (TRY)/US Dollar (USD) and Turkish Lira/Euro (EUR). His results did not provide evidence supporting the UIP hypothesis. Moreover, the estimates imply causality from the TRY/USD exchange rate return to the interest rate differential.

Nirmalee and Rajapakse (2017) found that there is no evidence to prove the existence of UIP for the United Kingdom currency compared against the Sri Lankan Rupee. On the other hand, Dmitry, Vladimir and Sergey (2017) shows that UIP holds in Russia better than in other emerging market economies. The study concludes that emerging market economies risk premiums are often constant whereas in Russia, it is almost always volatile. Moreover, Starkova (2015) conducted research to test the validity of the UIP condition for Central and Eastern Europe (CEE) countries. As a result of the regression analysis performed UIP was rejected for the 3-month horizon in all sample countries. During further analysis it was revealed that the main reasons for that were frequent structural breaks and risk aversion of investors.

Shrestha (2014) tested the UIP for Mexico, and Brazil and Japan using monthly data, the result indicate no evidence of UIP

holding for Mexico, Brazil or Japan, supporting the vast literature that it fails empirically. Bhatti (2014) examined UIP for six countries of the Commonwealth of Independent States (CIS) (Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan and Moldova) using quarterly data on spot exchange and three-month Treasury bill interest rates. These results imply that the CIS currencies offering a significant interest differential tend, on average, to depreciate over the sample period as UIP predicts.

Orji et al. (2013) examined whether the theory of UIP holds between Nigeria and USA. The result revealed that the theory of UIP does not hold between Nigeria and USA. Aggarwal (2013) investigated the UIP puzzle in the international market exchange. The paper focused on the theory of UIP from 1992 to 2005 for the United Kingdom and United States. The finding validated the theory of UIP. Furthermore, Ray (2012) tested whether the theory of UIP hold in India and the result indicates that the theory of UIP does not hold in India. Karahan (2012) tested the UIP for Turkey and Tunisia. The result shows that the theory does not hold between Turkey and Tunisia.

Another work by Lily and Kogid (2011) tested UIP between selected developed countries using ARDL. The finding indicates that the theory does not hold between the countries under study. Lily et al. (2011) used quarterly nominal interest rates for four countries namely Malaysia, United Kingdom (UK), Singapore and Japan, and nominal exchange rates between the Malaysian Ringgit and three other currencies (Pound, Singaporean Dollar and Yen) on UIP for the case of Malaysia-UK, Malaysia-Japan and Malaysia-Singapore to examine the relationship between expected nominal exchange rate and interest rate differentials in Malaysia. The empirical results showed that these relationships do not support the UIP in all cases.

Dharmadasa (2010) has carried out a study regarding the Sri Lankan context covering the period from January 1990 to December 2011 using the Generalized Method of Moment (GMM) estimation. The outcomes revealed that UIP condition does not hold for Sri Lankan context. Adrangi et al. (2007) used monthly data from June 1981, May 1978, and January 1976, through January 1997 for the U.S., Korea, Philippines, and Thailand to test the UIP condition for the three emerging markets of Korea, the Philippines, and Thailand. The results identified as that UIP does not exist in any of the three Asian emerging markets tested here for post-1990 periods. Bakaert and Hodrick (1993) conclude that UIP did not hold through the early 1990s as high-interest-rate countries provided a higher net return, taking account of exchange rate changes, than did low interest rate countries. In other words, currency values of high interest rate countries did not depreciate fast enough to offset their yield advantages.

Conceptual Framework and Hypothesis Development

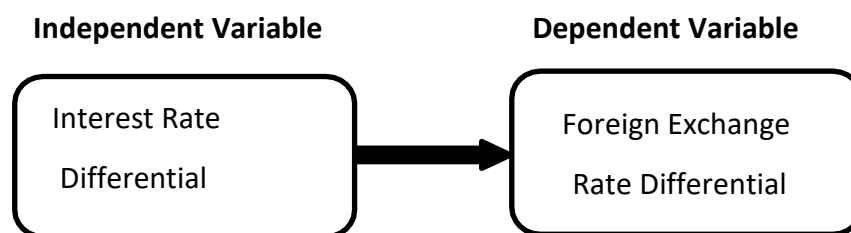
The following conceptual framework has been developed for achieve the objectives the researcher of this study. The framework shows that foreign exchange rate is influenced by a main influencer. That is, Interest Rate. The interest rate is labeled as the independent variables. Foreign exchange rate is labeled as the dependent variable.

Based on the variables represented in the conceptual framework and in line with the objectives of the study, following hypotheses were formulated.

H₁: There is Uncovered Interest Rate short run condition exist in Sri Lanka, Bangladesh and Pakistan categorized as the South Asian frontier financial markets.

H₂: There is Uncovered Interest Rate long run condition exist in Sri Lanka,

Bangladesh and Pakistan categorized as the South Asian frontier financial markets.



Source: Researchers' work based on the study

Figure 1: Conceptual Framework

III. Methodology

Research Design

This research follows a positivism research philosophy and adopts a quantitative research design as it involves the collection of quantitative data that is precise and based on measurement and analyzed using statistical and econometric techniques. The data for the study covers the period from 2010 January to 2020 December and the study was carried out by using 132 monthly observations.

This study would employ a time series data analysis using secondary data collected through the yearly publications of the World Bank database, International Monetary Fund Statistics, and the Central Bank of Sri Lanka, as well as from central bank websites of all relevant countries in the sample. This study forms a deductive approach that examines the validity of UIP theory in the south Asian frontier financial markets.

Operationalization

Table 1: Operationalization of the variables

Variable	Definition	Measurement	Source	Evidence
Interest rate	The interest rate is the amount charge on top of the principle by a lender to a borrower for the use of assets.	Three-month money market rates are the variables under consideration to represent the interest rate.	IMF Statistics	Adrangi, B., & Raffie, K. (2007) Starkova (2015)
Exchange Rate	The Exchange rate is the value of a nation's currency in terms of the currency of another nation or economic zone.	The foreign currency exchange rate (dollars per foreign currency) is used in this research.	IMF Statistics	Adrangi, B., & Raffie, K. (2007) Starkova (2015)

Population and Sample

The population of this research study is comprised with the South Asian Frontier Financial Markets, namely, Sri Lanka, Bangladesh and Pakistan, which is categorized under the MSCI index in June 2022. The sample is the same as the population. Following the previous studies, sample countries are considered as foreign markets, whereas the United States is considered as the home currency and the benchmark country (Shrestha, 2014).

Estimated Model

The following model was prepared Using the dependent and independent variables of the study.

$$FXRT = \alpha + \beta * DR + Ui \quad (i)$$

FXRT is FX return calculated as the depreciation of the local currency against the USD (%) and DR is the Interest rate differentials computed from the U.S. point of

Table 2: Descriptive Statistics

Description	DR BAN	FXR BAN	DR PAK	FXR PAK	DR SL	FXR SL
Mean	6.209426	0.128747	8.393300	0.633302	7.424419	0.592144
Median	5.562500	0.000100	8.758850	0.076600	7.585000	0.165750
Maximum	33.36000	4.988900	13.39030	14.99988	10.45000	7.765300
Minimum	0.230000	-2.668900	4.320200	-6.736600	5.300000	-6.563500
Std. Dev.	4.579644	0.686180	2.637089	2.528212	1.313336	2.013778
Skewness	2.261459	2.775000	0.018809	2.588574	0.447112	1.217408
Kurtosis	12.21115	25.83840	1.751103	15.24597	2.463144	7.343798
Jarque-Bera	535.2858	2808.008	7.935885	898.5641	5.529900	126.0509
Probability	0.000000	0.000000	0.018912	0.000000	0.062979	0.000000
Observations	132	132	132	132	132	132

*DR – Interest Rate Differential

*FXR – Foreign Exchange Rate Differential

view. U_i represents the error term of the actual values.

IV. Findings and Discussion

Descriptive Statistics

The following table depicts the descriptive analysis of the variables. According to the descriptive statistics all three countries show a high standard deviation of interest rate differential. Thus, Bangladesh marked the highest standard deviation of the interest rate differential. Moreover, according to the table, it shows a heavy variation in exchange rates differentials and negative exchange rate differentials means that all three countries' foreign exchange has depreciated on average. Jarque-Bera test of normality rejects normal distribution. According to the below table, the values that far from zero, it signals the data do not have a normal distribution. However, all variables are normally distributed at 10% significance level.

Source: Researchers' work based on the study

Stationarity Test

Among the widely used stationarity test methods, here we used the Augmented Dickey Fuller (ADF) test that the most common method for testing unit root. In level form I (0), the exchange rate differential and interest differential for all three countries have unit roots. Both

variables turn stationary when first difference I (1) is taken. That is, they are I (1) series (integrated of order one). According to the results p-values of two variables of all the three countries are less than 5% significance level.

Table 3: ADRL test results

Country	DR	FXR
Bangladesh	0.0276	0.0000
Pakistan	0.0017	0.0000
Sri Lanka	0.0000	0.0000

Source: Researchers' work based on the study

Findings of the Study

Correlation Analysis

According to the Spearman Rank Correlation, considering the differentials of interest rates and exchange rates in all three

countries under south Asian frontier financial markets those Bangladesh, Pakistan and Sri Lanka, correlation is weak and negative. Thus, when the interest rate differential increases, exchange rate depreciates and vice versa.

Table 4: Correlation Analysis

Bangladesh		Correlation
FXRBAN	FXRBAN	1.000000
DBANR	FXRBAN	-0.133474
Pakistan		
FXRPAK	FXRPAK	1.000000
DPAKR	FXRPAK	-0.079106
Sri Lanka		
FXRSL	FXRSL	1.000000
DSLRL	FXRSL	-0.130664

Source: Researchers' work based on the study

Cointegration Test

Cointegration is a technique used to find a possible correlation between time series processes in the long term. The Johansen test is used to test cointegrating relationships between several non-

stationary time series data. According to the Johansen cointegration test results, there is a positive impact from Bangladesh interest rate differential on exchange rate differential in the long run while Pakistan and Sri Lanka have a negative impact on exchange rate differential. But except the

Sri Lanka other countries' coefficients are not statistically significant at the t statical level.

Table 5: Johansen Cointegration test results

Country	Coefficient	Std. Error	t-Statistic
Bangladesh	-0.026170	(0.01735)	-1.50853
Pakistan	0.046514	(0.08262)	0.56299
Sri Lanka	0.087449	(0.17787)	-5.930847

Source: Researchers' work based on the study

Vector Error Correction Model (VECM)

In order to evaluate the short run properties of the cointegrated series, VECM is applied. The short run coefficient of Bangladesh, a percentage increase in itself (exchange rate differential) will lead to an increase in exchange rate differential by 0.05%. A

percentage increase in interest rate differential will lead to decline in exchange rate differential by 0.04 %. According to the results, all three countries show similar results which A percentage increase in interest rate differential will lead to decline in exchange rate differential.

Table 6: Short run VECM test results

Country	Variables	Coefficient	Std. Error	t-Statistic	Prob.
Bangladesh	D(FX)	0.054006	0.150225	0.359501	0.7199
	D(DR)	-0.049746	0.021105	-2.357076	0.0202
	D(FX)	0.003484	0.178403	0.019530	0.9845
Pakistan	D(DR)	-0.403547	0.486926	-0.828765	0.4090
Sri Lanka	D(FX)	0.016770	0.107189	0.156452	0.8759
	D(DR)	-0.732871	0.627114	-1.168641	0.2449

Source: Researchers' work based on the study

Diagnostic Tests

Autocorrelation

According to the results in table 7 p-values of Serial Correlation LM Tests, is greater than

0.05, in Bangladesh, Pakistan and Sri Lanka. Therefore, null hypothesis is not rejected at 5% level of significance and hence there is no autocorrelation in the residuals of the model at 5% level of significance.

Table 7: LM test results

Country	Lag	LM- Stat	Prob
Bangladesh	1	1.086787	0.8964
	2	4.032746	0.4016
	3	7.110276	0.1302
Pakistan	1	5.074331	0.2798

	2	3.093211	0.5423
	3	2.110359	0.7155
Sri Lanka	1	1.681327	0.7941

Source: Researchers' work based on the study

Heteroskedasticity

White's test for heteroscedasticity revealed the presence of homoscedasticity for Pakistan and Sri Lanka but not Bangladesh. The results of the test are presented in the below table. Due to the presence of heteroscedasticity in some of the regressions, the researcher has used the

Heteroscedasticity Consistent Newey-West estimation for the regressions.

Test of Hypothesis

The summary of the results is indicated in table 8 highlighting the hypothesis. Accordingly, both hypotheses were not supported.

Table 8: Hypothesis results

No	Hypothesis	Results
H ₁	There is UIP short-run condition exist in Sri Lanka, Bangladesh and Pakistan categorized as the South Asian frontier financial markets.	Not Supported
H ₂	There is UIP long-run condition exist in Sri Lanka, Bangladesh and Pakistan categorized as the South Asian frontier financial markets.	Not Supported

Discussion

According to the study, the results show a nonexistence of UIP condition Sri Lanka, Bangladesh and Pakistan categorized as the South Asian frontier financial markets. This result of the study is in line with the results of the studies done by Omer and Aisha (2020), Nirmalee and Rajapakse (2017), Dmitry, Vladimir and Sergey (2017), Shrestha (2014), Orji, Orji and Ani (2013), Karahan (2012), Lily and Kogid (2011), Lily et, al. (2011), Adrangi et, al. (2007) and Bakaert and Hodrick (1993). The outcomes of the study conducted by Dharmadasa (2010) revealed that UIP condition does not hold for Sri Lankan context which validates the results of this research article.

However, this article result is not in line with the results of the studies done by Kanitlar et, al. (2021), who they investigated the validity

of the uncovered interest rate parity for Brazil, India, Indonesia, South Africa, and Turkey. Further, the results of the study conducted by Ronald et, al. (2018) and Aggarwal (2013) validated the UIP condition which is against the results of this research article. Moreover, the result of this paper is not aligned to the results obtained by Dissanayake and Kethmi (2021) in their research titled the validity of the UIP condition in both long-run and short-run dynamics for Sri Lanka validated the uncovered interest rate parity (UIP) theory in Sri Lanka.

V. Conclusion

The aim of this research is to examine the validity of the UIP condition in Sri Lanka, Bangladesh and Pakistan categorized as the South Asian frontier financial markets. The analysis of the study was carried out for

USD that had been important in the import and export trading structure. Monthly data on the three-month interest rates and the exchange rates for the period from April 2010 to March 2020 were obtained and then the analysis was conducted as a country wise time series analysis, independently.

The overall test results obtained through the Johansen Cointegration and VECM models show that the exchange rate returns have an insignificant negative impact on the interest rate differential in both long run and short run in the study. Therefore, through the results of the analysis using Bangladesh, Pakistan, and Sri Lanka, it can be concluded that exchange rate returns have a negative impact on the interest rate that nonexistence of the UIP theory in South Asian Frontier Financial Market of Bangladesh, Pakistan, and Sri Lanka. As previous literature has shown mixed results in this area of study, the results of this study has been discussed in the discussion section in detailed.

Managerial Implication

Several implications can be drawn from this study. First, the UIP condition has a lack of support in the south Asian frontier financial market setting during the given time period, which may imply that there is a possibility for arbitrage opportunity between South Asian frontier financial markets and the foreign financial markets considered in the study. Since, the South Asian frontier financial markets are not well developed, information asymmetry may also cause for the failure of the UIP. On the other hand, since the study used short term-interest rate differentials, they may not be sufficient to predict the exact results.

Further, the implications of these findings for hedge fund managers and other speculators in currency markets is that these investors do have the motivation to attempt to exploit pricing inefficiencies in Asian emerging markets. Also, since it is likely that other factors (besides interest rates)

cause changes in the exchange rates of these markets, policymakers in these countries may want to focus on other causes in their monetary policy decisions.

As the UIP theory assumes that the investors are risk neutral, and the forward market would not be used simultaneously to cover against the foreign exchange rate risk. If UIP holds, investors cannot gain an arbitrage opportunity due to high yield currency is expected to depreciate by an amount approximately equal to the interest rate differential between two countries. According to the results of this study, there is a violation of the UIP condition, thus opening the market participants to short term arbitrage opportunities which also suggests that these capital markets are not efficient to react to the information in the market. As policy makers in the capital markets can increase the information and transaction efficiency to avoid short term arbitrage opportunities.

Recommendations

The fact that the South Asian Frontier financial markets are not well developed and the existence of the macroeconomic disturbances such as the instability in the financial markets due to the partial opening of the capital account to the outside world has been main reasons for the lower predictability of the exchange rate. The underlying cause for the disequilibrium had been information asymmetry. Therefore, it is recommended to introduce proper regulations to maintain sustainability of interest rate aligned to exchange rates stabilize balance of the economy.

Future Research

Future studies could apply a longitudinal study method by using the data for many years and a larger sample size, which would further increase the reliability of the results. This study incorporates monthly data.

Future research could include a comparative study using daily or/and quarterly data along with the monthly data for more robust results. Further, it would be beneficial to try out other types of regression models other than the VECM models and other estimation methods like generalized method of moment (GMM).

Further the future research can avoid the limitations of this paper, such as potential omitted variable biases, and the assumptions underlying UIP i.e., free capital mobility, no transaction cost, no defaults risk, risk neutrality.

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