The Uncovered Interest rate Parity- A Literature Review

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Abstract: Interest rates and exchange rates are considered to be one of the most discussed areas in International Finance. When considering the main theories that explore on these two variables, Uncovered Interest Rate Parity (UIP) states that the interest rate differential is an unbiased predictor of the spot exchange rate changes. The impact on investors' attitude is that they would be indifferent towards the returns on domestic and foreign assets denominated in same currency thereby eliminating any short term arbitrage profits. Studies of this nature are of significance in the case of Sri Lanka, as a country which is trade dependent accurate forecasts of exchange rates would be of immense importance. Hence this study focuses on reviewing what is revealed by literature so far and what is not.
Key words: Interest Rates, Exchange Rates, Uncovered Interest Rate Parity (UIP),

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1.Introduction

Exchange rates are important within an economy as one of the key determinants of many other macroeconomic variables in the economy. The relationship between interest rates and exchange rates has been an important consideration in the current context for the purpose of macroeconomic planning by the governments or for policy setting by the organizations engaging in international trade. Research regarding interest rates and exchange rates have boosted in the recent past, especially after the global financial crisis of 2008. It could be seen that many of the researches were done for the developed countries and a few for the developing countries like Asian countries. The information asymmetries in financial markets discourage researches on this area. The macroeconomic instability and the resulting less predictability of the macroeconomic variables would be another factor. Therefore the sole intention of this study is to examine the up to date progress of studies conducted so far on this area and to identify the research gap that exists with regard to Sri Lanka.

1.1. Theoretical Perspectives

Exchange rate means 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 the particular currency. The main determinants are identified as inflation, interest rate, future expectations of exchange rate, government controls, income levels etc. There are classifications of exchange rates as Spot rates which is the applicable conversion rate for exchange of one currency for another in immediate transactions and Forward rates are the rates applicable for exchanging one currency for another in a future agreed time period.

Interest rates refer to the price of money. The relationship between interest rates and exchange rates is commonly known as Interest Rate Parity and it could be illustrated under two conditions.

Interest Rate Parity 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 be no benefits from covered interest arbitrage. Any gains from higher interest rates in one country would be offset by the discount on the forward rate between the currencies of the two countries. Hence this is an equilibrium condition where the forward rate would differ from the spot rate by a sufficient amount to offset the interest rate differential between currencies of the two countries.

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.

Covered Interest Rate Parity Theory suggests that the forward premium associated with a foreign currency would be equal to the interest rate differential between risk free investments denominating the currencies. This assumes that the forward market is used to cover against the foreign exchange rate risk. Covered Interest Rate Parity 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 underlying mechanism for CIP is covered interest arbitrage.

The difference between UIP and the 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 current 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.

2.Literature

Researchers like Calvo (2000), Calvo and Reinhart (2001 and 2002) and Eichengreen (2005) have shown that there are differences evident in the analysis of advanced economies and emerging economies. These differences were identified as credibility problems, high rate of exchange rate pass through, liability dollarization, non stationarities in the inflationary process etc. Emerging Market Economies are responsible for exchange rate flexibility up to a small degree.

Basically, the researchers have adapted two methodologies in their studies. Some of them have adopted a macroeconomic approach to analyze exchange rates where the involvement of monetary aggregates, national income etc. had been used. The other method used in the analysis of exchange rates is the incorporation of variables that were used in time series analyses in other studies.

Out of the univariate models, the Random Walk Model holds importance due to the wide availability and simple predictions. Most of the researchers have concluded that the exchange rate forecasts have shown mixed results. Most of them had no different conclusions than to show a simple random walk model. (Meese and Rogof ,1983). The argument of Savickas, Guo (2005) with using quarterly data is that random walk model does not hold for the exchange rates.

The multivariate models that are used to study the link between interest rates and exchange rates had been a key area under the interest of researchers when considering the liberalized exchange rate policies and monetary policy actions of Emerging Market Economies (EMEs). Countries like Latin America, Chile have adopted a floating exchange rate policy in the 1990s, most of the middle income Asian countries have declared the same policy after the Asian crisis with accompanying an inflation targeting framework, South Korea took the same policy actions in 1998 and Thailand and Indonesia and Sri Lanka proceeded with it in the year 2000 and 2001 respectively.

The findings of the researchers reveal that the degree of exchange rate pass through is higher for EMEs than that for the advanced economies. It was also revealed that the trend in exchange rate pass through is recorded to be comparatively lower for Asian countries and to be higher in Eastern and Central Europe and Latin America. Based on these findings, the researchers have deduced that irrespective of the recent trend in policy changes to floating exchange rates, there is reversion in the exchange rate management to be tight during crises.

Shreshtha, A. found the fact that UIP could exploit only a smaller variation in exchange rate changes for advanced nations such as Japan and no evidence was found for proving that UIP holds.

Basurto G. and Ghosh A. have conducted a study on the sharp exchange rate depreciations in the East Asian Crisis. The study revealed that tight monetary policies are associated with the appreciation of exchange rates in the countries under concern. (Indonesia, Korea and Thailand). The finding was that during the Mexican crisis, although the governments tightened the monetary policies, the exchange rates have continued to depreciate. They also unveiled that there is little evidence to say that a higher interest rate contributes to a widening of the risk premium.

The constituents of the spot exchange rate comprises of both monetary and non monetary variables. A separation of these two factors could be found in certain studies that aimed at the discussion of the impact of monetary policy or the

interest rates on exchange rates. The findings of Basurto and Ghosh (2000) revealed that a tight monetary policy caused an appreciation of the exchange rate. A study by Pattanaik and Mitra (2001) on the relationship between foreign exchange rates and interest rates in India found that one standard deviation shock to the call rate leads to rupee appreciation in the second month. It was found that the rate of exchange rate appreciation had been ambiguous where an appreciation of the exchange rate caused the same to be depreciated in the following period at a rate more than offsetting the initial impact of the appreciation.

The authors who take a monetarist view state that the high interest rates would effect on reducing the money demand and therefore the resulting depreciation of the home currency with the effect of increase in inflation would finally result in causing the nexus between the foreign exchange rates to be able to be explained through the expected change in exchange rates. It was shown in the overshooting model by Dornbusch that the expected foreign exchange rate would appreciate more than the spot rate that was prevailing before the interest rates were increased in order to equalize the returns received from similar assets in two different domiciles. Therefore the relationship between the interest rates and the exchange rates is clearly mentioned to be an inverse relationship.

Out of the studies related to the analyzing of interest rates and exchange rates in the crisis periods such as Goldfajn and Gupta (1999) has concluded that an increase in interest rates is linked to the appreciation of nominal exchange rates. It was also revealed that the probability of using a higher interest rate as a policy decision is low when considering the post crisis periods.

In the study of Sachsida et al. (2001) on UIP for Brazil during period January 1984 to October 1998, it was considered that expected alterations in the exchange rate should be equal to the interest rate differentials. So they estimate the equation illustration not visible in this except they found that UIP hypothesis was accepted only for period January 1990 through June 1994.

Carvalho et al. (2004) estimate the same model the uncovered interest parity (UIP) in Argentina, Brazil, Chile and Mexico with monthly data during the period January 1990 through December 2001. They reject the UIP hypothesis for the group of the four countries but they don't reject the validity of UIP for the group of Argentina, Brazil and Chile for the sub-periods of January 1991 to December 2000, and January 1991 to

December 1995 and so they accept the hypothesis that $\beta = 1$.

Turnovsky and Ball (1983) has used both monthly data and the quarterly data for Australian and US three-month interest rates, the Australian and US exchange rate and the corresponding three-month forward exchange rates between Australian and US dollars for the period from September 1974 to December 1981.They found that the CIP hypothesis is accepted at the 5% level for the quarterly data, but not for the monthly data.

The test of UIP by Sachsida et al. (2001) as used monthly data for the period January 1984 to October 1998 for Argentina, Brazil, Chile and Mexico. The UIP hypothesis had been rejected but the validity of UIP had not been rejected for the first three currencies.

Kraay (1998) has conducted a study for the purpose of examining any relationship between the interest rate policy and speculative attack by using monthly data for 75 developed and developing countries and he came with the conclusion that the currencies are not being defended through the adoption of a high interest rate policy with the purpose of mitigating speculative attacks. And according to Froot (1990), majority of published studies reject the hypothesis that UIP holds or a linear relationship between the interest rate differentials and the exchange rate changes.

Zhang J. and Dou Y. (2010) have tested the predictive ability of IRP for foreign exchange rates and the findings reveal that the use of IRP generally works well in forecasting foreign exchange rates and the forecasting ability has been depleted in recent years when compared to the previous years. They also point out that the efficiency of IRP is higher for markets with major currencies but 41 the impact of recent recessions have had a deteriorating impact on the quality of IRP. And further there had been no particular trend of IRP getting better recently.

Although there are contradictory views on the relationships between economic fundamentals and exchange rates, the actual impact of interest rates on exchange rates is dependent on a few factors through which the transmission mechanism takes place.

Among the assumptions of the UIP theory, perfect factor mobility, risk neutrality, rational expectations are important and based on these, the traditional theory of exchange rates had been built. These assumptions are not realistic in the

real world context but it could be inferred that the high returns due to high interest rates in a particular country may eliminate over the long run because of the slow depreciation of the exchange rate in order to equalize the returns on domestic assets with those of the foreign assets. The political stability and the existence of perfect information could lead to exchange rate stability and low inflation with a temporary increase in interest rates. This would be accomplished through signaling because it changes the anticipations of investors to expect an appreciation in the exchange rates which, in turn, later lead to change in the appreciation of spot exchange rate even if the high interest rate policy is withdrawn later (Drazen, 2001).

Most of the research concluded that there is no relationship between the interest rates and the exchange rates. Sarno has suggested that one possible reason for these disappointing results that had been obtained so far. He states that, the studies were carried out based on traditional econometric forecasting methods primarily based on linear regression. The other reason could have been the use of only publicly available information. He points out that insider information such as investor behavior, their expectations and decisions could be instrumental in explaining the exchange rate behavior.

3. Evidence from Sri Lanka

It was identified that there had been mixed results from the studies done for various other parts of the world. There are only a few sources that have examined the relationship between the economic variables in the Sri Lankan economy and only a few had been related to testing UIP for Sri Lankan context.

Dharmadasa, C. (2010) has carried out a study regarding the Sri Lankan context covering the period from January 1990 to December 2011. Three bilateral exchange rates namely US Dollar, Japanese Yen and Indian Rupee were used. The outcomes revealed that UIP condition does not hold for Sri Lankan context and hence the interest rate differentials become a poor predictor of the exchange rate yields and the consideration of other possible policy variables under long time span along with interest rate differentials would be advantageous to obtain more accurate results.

Therefore there are discouraging factors that lead to the generation of a few studies for testing UIP in Sri Lankan context and this gap would have arose due to various reasons that would be set at the inferences generated from this study.

4. Conclusion

The diversity in the macroeconomic conditions and the variables coupled with certain other factors has resulted in bringing exchange rate fluctuations in different countries. The disparities in the actual exchange rates from the forecasted rates may cause opportunities for arbitrageurs. And also it is very useful for a country like Sri Lanka to devise a mechanism in order to predict the foreign exchange rates accurate as possible with the aim of predicting the export incomes and import expenditures and thus enable proper macroeconomic planning.

After a careful study of the literature, there exists a research gap for the Sri Lankan context on the conduct of studies concerning the involvement of exchange rates and economic variables like interest rates particularly for developing countries. Only a limited number of studies are available for analyzing the UIP for Sri Lankan context. (Dharmadasa, C. (2010); Weerasinghe, et al. (2006); Sivarajasinham, et al. (2012). For the inadequate focus on the Asian countries like Sri Lanka in the studies on Interest Rate Parity, there could have been many reasons. The lack of data in most reliable sources would be one of the reasons. The non existence of a proper forwards market is another reason. The forwards market is operating as Over the Counter and thus there is very less price transparency. The operation of other derivatives that could be used as alternatives like futures is also nonexistent. The fact that the Sri Lankan financial markets are not well developed and the existence of the macroeconomic disturbances such as the instability in the financial markets and the partial opening of the capital account to the outside world has been major reasons for the lower predictability of the exchange rate. The underlying cause for the disequilibrium had been the information asymmetry.

Since Sri Lanka is a developing country, its economic environment is highly affected by external influences and the macro economic conditions were highly turbulent for about last thirty years due to the civil war existing in the country. Therefore predictive value of economic variables with linking to another variable was very limited. The exchange rate had been managed until 2001 and the budget deficit was inevitable thus these might be the possible reasons for conducting no proper study for linking the country's external trade affairs and the economic variables like interest rates.

Therefore considering all these factors through all studies at disposal, the extent of research focus on UIP for developing Third World countries such as Sri Lanka could have been improved further with introducing more sophisticated analysis techniques and smoothing techniques. For example, the market imperfections should be adjusted with using different methodologies. And also it should be ensured for the availability of free data for research material through the intervention of independent organizations.

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