

Does the Theory of Uncovered Interest Parity Hold for Nigeria?

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ABSTRACT

This study employs the conventional Uncovered Interest Parity (UIP) equation to test the validity of the theory for Nigeria vis-à-vis the United States of America. The study also examine the causality relationship existing between the variables in the UIP model. The results reveal the invalidity of the UIP theory for Nigerian Naira/ United States dollar exchange rates. We hereby conclude that the existence of abnormal profits from interest arbitrage means that the Uncovered Interest Parity between Nigeria and the U.S.A did not hold in reality at some points in time within the period under review. However, the reasons for the failure of UIP theory for Nigeria might be that the capital mobility between the countries is not perfect, or the risk premium in Nigeria is high as perceived by the potential investors. Country risk, which includes political risk and economic risk remain higher for developing countries including Nigeria, than for the developed countries.

JEL Classification: E4, E42, E43, F3, F31

Key Words: Uncovered Interest Parity, international finance, foreign exchange market, Interest rate Differential

1.0 INTRODUCTION

Studies on the puzzle of uncovered interest parity (UIP) is enormous in the literature. And as suggested by Moore and Roche (2011), there is a multitude of relatively recent theoretical papers which explain the failure and success of uncovered interest parity. There are behavioural explanations (Gourinchas and Tornell, 2004; Fisher, 2006; Burnside, et al 2009); rational inattention is offered by Bacchetta and Van (2010); institutional features are emphasised by Carlson and Osler (2005); and Alvarez, et al (2009) explain the forward bias by permitting a time varying degree of asset market participation.

Fundamentally, foreign exchange trading gave rise to the notion of covered interest parity (CIP) which related the differential between domestic and foreign interest rates to the percentage difference between forward and spot exchange rates. This was a short step to the assumption of UIP since UIP builds on the theory of CIP by postulating that forward exchange rate are driven into equality with the expected future spot exchange rate by market forces, (Isard, 1991; Moore and Roche 2011).

Uncovered Interest Parity (UIP) is one of the fundamental theoretical building blocks for understanding the behavior of returns in international financial markets. More specifically, it is a crucial element of monetary models of exchange rates. UIP provides a simple relationship between the interest rate on an asset denominated in any one country's currency unit, the interest rate on a similar asset denominated in another country's currency, and the expected rate of change in the spot exchange rate between the two currencies (Isard, 1991). It postulates that market forces drive the expected rate of change in the spot exchange rate between two currencies into equality with the difference between the interest rates on comparable assets denominated in the two currencies. If UIP holds, the return on a domestic currency deposit equals the expected return from converting the domestic currency into foreign currency, investing it in a foreign deposit and then converting the proceeds back into the domestic currency at the future expected exchange rate. Consequently, expected excess returns in the foreign exchange market then equal zero on average. Therefore it differs from the Covered Interest Parity in that the exchange rate exposure to cross-border investment is not covered by the forward contract, leaving the investor at a risk of future spot exchange rate deviations from expectation.

The Uncovered Interest Parity is recognized as one of the fundamental theories on exchange rate determination. UIP assumption has played a central role in the development of multi periods and continuous time models of open economies. The importance of CIP and UIP lie in the fact that they can be used in measuring capital mobility among countries. In addition to balancing Balance of Payments, improving terms of trade, meeting developmental requirements among others, an important benefit of Long term Capital Movement has to do with equalizing interest rates between countries involved in international capital movement. If there are no

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restrictions in international capital movements, capital moves from capital surplus country to capital scarce country due to the fact that interest rate is higher in the latter. Ultimately, interest rate increases in the capital exporting country and falls in the capital importing country. Thus the verification of UIP in international financial markets would be a joint testing of capital mobility and foreign exchange rate market efficiency.

It has become one of the most debatable issues, to determine whether Uncovered Interest Parity holds between countries, most studies that support the Uncovered Interest Parity like Meredith and Chinn (1998), found evidence that it holds in long run horizons than in short horizons, while other studies like Diez de Los Rios and Sentana (2007), have negated the assumption. Therefore this study aims at finding whether Uncovered Interest Parity holds between Nigeria and the United States of America, with U.S.A being the anchor country.

In addition, the Uncovered Interest Parity assumes equal returns (interest rates) for similar assets, when the interest rates spread between domestic and foreign investments are denominated in the same currency, otherwise interest arbitrage exists. i.e, under perfect capital mobility, capital flows should equalize the returns on any two assets that differ only in their country of issue and currency of denomination. If parity tests where comparable assets are used end up in confirmation of the theory, no barriers thwart capital mobility (Kumhof, 2000). But we find for instance, that the interest rate of Nigeria and that of USA varies over time. In 1970, the interest rate of the former was 4.50% while that of the later was 7.91%. In 2000, Nigeria's interest rate was 13.50% while that of USA was 9.23%. The year 2001 had 14.31% for Nigeria and 6.91% for the US. In 2002, it was, Nigeria: 19.00%, USA: 4.67%. The 2005 case was 13.00% for our country of study and 6.19% for the country we are using as anchor country.

Therefore, the continuous variation in the interest rate of these two countries, especially Nigeria (the study country) raises suspicion of interest rate arbitrage. In an attempt to verify the existence of this arbitrage, thereby nullifying the validity of UIP or otherwise, this research is set to (a) Examine the validity of the Uncovered Interest Parity theory for Nigeria (b) Ascertain the causal relationship existing between the variables in the conventional UIP model used in (a) above. The rest of the paper is structured as follows: Section 2: Literature Review; Section 3: Methodology; Section 4: Result Presentation, Discussions, policy recommendation and Conclusions.

2.0 LITERATURE REVIEW

The Theory of Interest Parity received prominence from expositions by Keynes (Keynes, 1923) whose attention had been captured by the rapid expansion of organized trading in forward exchange following World War 1 (Ernzig, 1962). The Interest Parity relationship states that spreads on yields of two countries should be compensated for by currencies movements so that no excess returns are possible.

Although an understanding of the forward exchange markets must have developed within various banking circles during the second half of the nineteenth century, apart from an isolated exposition by a German economist, Walter Lotz (1889), the nineteenth century literature on foreign exchange theory apparently dealt with spot exchange rates. Einzig (1962). Forward exchange trading gave rise to the notion of covered interest parity which related the differential between domestic and foreign interest rates to the percentage difference between forward and spot exchange rates, and since it was clear that forward rates reflected perceptions about future spot rates, it was a short step to the assumption of UIP since UIP builds on the theory of CIP by postulating that forward exchange rate are driven into equality with the expected future spot exchange rate by market forces. (Isard, 1991).

The concept of Interest Parity recognizes that portfolio investors at any time t , have the choice of holding assets denominated in domestic currency, offering their own rate of interest $r_{d,t}$ between times t and $t+1$, or assets denominated in foreign currency, offering their own rate of interest $r_{f,t}$. thus an investor starting with one unit of domestic currency should compare the option of accumulating $1+r_{d,t}$ units with the option of converting at the spot exchange rate into s_t units of foreign currency, investing in foreign assets to accumulate $s_t(1+r_{f,t})$ units of foreign currency at time $t+1$, and then reconverting into domestic currency. If the domestic and foreign differ only in their currencies of denomination, and if investors have the opportunity to cover against exchange rate uncertainty by arranging at time t to reconvert from foreign to domestic currency one period later at the forward exchange rate f_t (in units of foreign currency) then market equilibrium requires the condition of CIP:

$$1+r_{d,t} = s_t(1+r_{f,t}) / f_t$$

If the above condition does not hold, profitable market opportunities could be exploited without incurring any risks. Investors also have the opportunity to leave their foreign currency positions uncovered at time t and to wait until time $t+1$ to make arrangements to reconvert into domestic currency at the spot exchange rate s_{t+1} . unlike f_t , the value of s_{t+1} is unknown at time t , so that the attractiveness of holding an uncovered position must be assessed in terms of the probabilities of different outcomes for s_{t+1} . The assumption of UIP postulates that market forces will equilibrate the return on the domestic currency asset with the expected value at time t of the