CHAPTER – 2
REVIEW OF LITERATURE

2.1 Introduction:

Since 1970's there has been an increasing trend of econometric sophistication in the efficiency literature. **Hansen and Hodrick (1980)** supplant the simple test of random walk with basic linear regression analysis of uncovered interest parity along with the application of the sophisticated rational expectation estimation. They concentrate on testing the orthogonality of forecast error to lagged forecast errors and observed presence of serial correlation implying rejection of market efficiencies. **Hansen and Hodrick (1980)** note that this serial correlation cannot be dealt with generalized least square (GLS) estimation because of the failure of strict exogeniety. Their results suggest rejection of market efficiency and uncovered interest parity doctrine for six of the seven currencies examined in 1970's and for five of the six currencies examined using 1920's data.

Hakkio (1981) and Baillic, Lippens and Mc Mahon (1983) use bivariate vector autoregression (VAR) model comprising time series for spot and forward rates. They use the set of non-linear, cross-equation restrictions required by the efficient market hypothesis on the parameters of vector autoregression. These restrictions are tested by estimating unrestricted vector autoregression model and constructing a Wald test statistic. All these studies strongly reject the joint null hypothesis of rationality and risk neutrality.

F. X. Browne (1983) uses the daily data to test the theory of interest parity between the Irish pound and three major currencies. The tests are carried out within the context of a model suggested by Pippenger (1978) and the statistical methodology used is spectral analysis. The Pippenger model emphasizes the relaxation of two important implicit assumptions, the exogeneity of the interest differential and the assumed infinitely elastic supply of arbitrage funds, which have tended to characterize previous studies. UIRAP has been upheld in this study.

Fama, Eugene .F. (1984) reports empirical evidence in favour of Covered Interest Parity doctrine and the existence of risk premium in the forward market. Frankel, Jeffrey A, Froot, Kenneth (1990), find some role of UIRP in the dynamics of the foreign exchange market. Guy Meredith, Menzie D. Chinn, (1991) reject the role of UIRP in exchange rate determination, although there is little consensus on why it failed. David Gruen, Gordon Menzies (1991) stress upon failure of UIRP in the foreign exchange market even when the investor makes unsystematic mistakes while forming expectation of exchange rate changes.

Kenneth Rogoff (1984) holds that, it is very difficult to demonstrate that the exchange rate risk premium depends (through a portfolio balance channel) on the currency composition of outside assets. The existence of a 'Portfolio Balance effect' was a necessary condition for sterilized intervention for becoming a genuinely independent tool of monetary policy. This paper studies U.S./Canada data, and attempts to improve on earlier studies by using higher frequency (weekly) data and by implementing an appropriate instrumental variable technique (2SLS). However, they were still failing to detect evidence of a portfolio balance effect in the doctrine of UIRAP.

Cody, Brian J (1990) in "*Exchange Controls, Political Risk and the Eurocurrency Market: New Evidence from Tests of Covered Interest Rate Parity*" employs daily data to examine the effects on Eurocurrency and on-shore returns after the imposition of exchange controls by French President Mitterrand. Prior to this time, transaction costs explain the average onshore deviations from covered parity. However, these averages ignore short-lived political risk premia which emerged just before the imposition of controls. As expected, there is no evidence of political risk on Eurocurrency markets. Yet when exchange controls were in effect, premia in excess of transaction costs surfaced on nonfranc Eurocurrency deposits at the time of devaluations of the franc within the EMS.

Frankel, Jeffrey A, Froot, Kenneth (1990) in "*Exchange Rate Forecasting Techniques, Survey Data, and Implications for the Foreign Exchange Market",* examine the dynamics of the foreign exchange market. The first half addresses a number of key questions regarding the forecasts of future exchange rates made by market participants, by means of updated estimates using survey data. Here the authors follow most of the theoretical and empirical literature in acting as if all market participants share the same expectation. The second half addresses the possibility of heterogeneous expectations, particularly the distinction between "chartists" and "fundamentalists," and the implications for trading in the foreign exchange market and for the formation of speculative bubbles.

David Gruen, Gordon Menzies (1991) in the paper "*The Failure of Uncovered Interest Parity: Is It Near-Rationality in the Foreign Exchange Market?"* hold that a risk-averse US investor adjusts the shares of a portfolio of short-term nominal domestic and foreign assets to maximize expected utility. The optimal strategy is to respond immediately to all new information which arrives weekly. They calculate the expected utility foregone when the investor abandons the optimal strategy and instead optimizes less frequently. They also consider the cases where the investor ignores the covariance between returns sourced in different countries, and where the investor makes unsystematic mistakes while forming expectations of exchange rate change.

Liu and Maddala (1992a) employ cointegration technique for testing market efficiency hypothesis. They use survey data on dollar exchange rates for pound starling, mark, Swiss franc and yen. They hold that violation of market efficiency is due to risk premium in case of weekly data. Again they observed that both risk premium and expectation errors account for rejection of joint null hypothesis in case of monthly data.

Liu and Maddala (1992b), in another study with the survey data, hold that their findings support the rational expectations hypothesis but reject the market efficiency hypothesis.

Mac Farland, Mc Mahon and Ngama (1994) employ fully modified regression analysis, suggested by Phillips and Hansen (1990), to construct appropriate Wald test to analyze if forward rate is an unbiased predictor of the future spot rate for the 1920's by using daily data for five UK sterling exchange rates vis-a-vis German mark, Belgian franc, French franc, Italian lira and US dollar. They reject forward unbiasedness hypothesis for three (Belgian franc, French franc and German mark) of the five exchange rates. However, they hold that such failure of the hypothesis may be due to the presence of a risk premium for the Belgian as well as French francs and to the market failure for the German mark.

Marianne Baxter (1994) investigates the link between real exchange rates and real interest differentials over the recent floating-rate period. In contrast to earlier econometric studies, they find evidence of a relationship, with the strongest link at trend and business-cycle frequencies. Because these prior studies focused on high-frequency components of the data, they found no statistical link between real exchange rates and real interest differentials.

McCallum, J. Monet (1994) in *"Uncovered Interest Parity and Policy Behavior: New Evidence",* introduces the policy behavior to resolve previous empirical rejections of the uncovered interest parity (UIP) theory. He reexamines the policy behavior argument. First, he extends the data set to include the recent 8 years, makes a thorough econometric analysis of the UIP specification. It is shown that in most cases the theory is supported by the data as well as it passes conventional econometric tests. Finally he takes a closer look at the policy behavioral relationship, but unfortunately it turns out that this specification is inconsistent with the UIP specification suggested by McCallum.

Bhatti, Razzaque H, Moosa, Imad, A (1995) present supportive evidences for UIRP hypothesis through a cointegration analysis. The authors compare the Treasury bill rate denominated in eleven currencies to the US dollar and find a long-run relationship in all cases.

Robin J. Brenner and Kenneth F. Kroner (1995) use a no-arbitrage, cost-of-carry asset pricing model to show that the existence of cointegration between spot and forward (futures) prices depends on the time-series properties of the cost-of-carry. They argue that the conditions for cointegration are more likely to hold in currency markets than in commodity markets, explaining many of the empirical results in the literature. They also use this model to demonstrate why the forward rate forecast error, and the forward premium are serially correlated, and to develop econometric tests of the 'unbiasedness hypothesis' (sometimes called the "simple effinciancy hypothesis") in various financial markets. They employ four of the common tests and use their cointegration results to demonstrate why each of these tests should reject the null hypothesis of unbiasedness.

Bryant (1995) reviews existing interpretations of exchange risk premium and presents an alternative conceptual framework. He revisits the issue of modeling the determination of exchange rates in empirical macroeconomic models, focusing on the typical use of the uncovered interest parity condition combined with the assumption of model-consistent expectations. The paper discusses why this treatment of exchange rates is inadequate and makes some suggestions for future research.

Moosa, A Imad (1996) in *"An Empirical Investigation into the Causes of Deviations from Covered Interest Parity across the Tasman"*, examines the deviations from the equilibrium condition implied by covered interest parity as applied to the exchange rate between the Australian and New Zealand dollars over the period 1985 to 1994. Formal empirical evidence shows that spot and forward speculations do not play any role in determining the forward exchange rate. The significant deviations in 1985 are attributed to political risk. Further shrinkage of the deviations in the 1990s is attributed to a possible reduction in transaction costs resulting from financial deregulation.

Malliaropulos, Dimitrios (1997) in "*A Multivariate GARCH Model of Risk Premia in Foreign Exchange Markets",* investigates that the existence of time-varying risk premia in deviations from uncovered interest parity, on the basis of market capital asset pricing model. The empirical analysis is conducted using a broad data set of seven major currencies against the US dollar, and a world equity index in order to approximate the benchmark portfolio. The conditional covariance matrix of excess returns is modelled as a multivariate GARCH process. The results indicate significant conditional systematic risk. Estimated conditional beta coefficients are very similar across currencies and behave uniformly over time. The explanatory power of the model is significantly higher compared to the constant beta CAPM specification. Furthermore, estimation results suggest that (1) expected excess returns are less volatile in foreign exchange markets compared to stock markets, and (2) including nominal dollar assets in international equity portfolios can reduce overall portfolio risk.

Malliaropulos, D (1997) employs a multivariate GARCH model of Risk Premium and reports the existence of time-varying risk-premium in deviations from UIRAP.

Burton Hollifield, R Uppal (1997) examine effects of segmented commodity markets on the relation between forward and future spot exchange rates in a dynamic economy and find the presence of risk premium.

Clarida and Taylor (1997) develop an empirical framework to accommodate rejection of pure efficiency hypothesis while allowing forward premia to contain information about future spot rate changes. They follow the idea advocated by Beveridge and Nelson (1981), and Stock and Watson (1987) that any unit root process can be decomposed into the sum of a pure random walk process and a stationary process.

Guy Meredith, Menzie D. Chinn (1998) in ***"****Long-Horizon Uncovered Interest Rate Parity"* hold that the Uncovered interest parity (UIRAP) has been almost universally rejected in studies of exchange rate movements, although there is little consensus on why it fails. In contrast to previous studies, which have used relatively short-horizon data, they test UIRAP using interest rates on longer-maturity bonds for the G-7 countries. These long-horizon regressions yield much more support for UIRAP -- all the coefficients on interest differentials are of the correct sign, and almost all are closer to the UIRAP value of unity than to the zero coefficient implied by the random walk hypothesis.

Nathan S. Balke (1998) in "*Nonlinear dynamics and covered interest rate parity*" examines the dynamics of deviations from covered interest parity using daily data on the UK/US spot, forward exchange rates and interest rates over the period January 1974 to September 1993. Like other studies there exists a substantial number of instances in which the covered interest parity condition exceeds the transaction costs band, implying arbitrage profit opportunities. While most of these implied profit opportunities are relatively small, there is also evidence of some very large deviations from covered interest parity in the sample.

John Pippenger (2002) in his paper "*What covered interest parity implies about the theory of uncovered interest parity and risk premiums*" assumes that the theory of uncovered interest parity fails because investing without cover is risky and investors are risk adverse. But covered interest parity implies that the theory can fail even when investors are risk neutral and hold when investors are risk adverse and there is a risk premium. The failure to fully appreciate the relation between uncovered interest parity and risk premiums has probably contributed to his failure to understand why UIRAP fails empirically.

Teresa M. Foy (2005) in "*An Empirical Analysis of Uncovered Interest Rate Parity and the Forward Discount Anomaly*" tries to examine the hypothesis of uncovered interest rate parity. He presents the economic theory underlying this relationship, a description of the data as well as the techniques employed in testing this hypothesis. He specifically examines the pound, yen and Canadian dollar with respect to the U.S. dollar from 1986 to 1998. The results of his findings are examined and compared to the existing literature. Primary findings include a rejection of the uncovered interest rate parity hypothesis with all three exchange rates.

D Menzie. Chinn (2006) examines several new empirical findings in the study of uncovered interest parity. It reviews recent developments in the study of long-horizon interest parity regressions, the implications of relaxing the rational expectations methodology and the characteristics of results pertaining to the non-G7 currencies, including those in less developed economies. In brief, the evidence against uncovered interest parity in the current floating rate era is not as great as is commonly thought, although it is still true that for the major currencies, the short-term interest differential remains a biased predictor of ex post changes in the exchange rate.

Jose Olmo, Keith Pilbeam (2009) reject the uncovered interest parity (UIP) on the basis of regressions of the actual exchange rate change against the forward premium/discount. They confirm that the conventional regression analyses constitute only an indirect test of UIP and that there are serious econometric flaws in such regressions that make them an unreliable means of testing for UIP. Instead, they propose new profitability based tests of the UIP condition based on actual dollar returns in domestic and foreign currencies and they find evidence that in fact the UIP condition seems to be holding for three of the four parities studied even though the conventional test would have rejected UIRAP in all four cases. They further hold that only these economically more meaningful profitability based tests lead them to accept the UIP condition for three of four currencies studied but they also seem to offer superior econometric properties compared to the conventional regression analyses.

Jaratin Lily, Mori Kogid, Mohd Rahimie Abd Karim, Rozilee Asid and Dullah Mulok (2011) use quarterly data span from 1998Q1 to 2010Q3 and run conventional regressions (OLS) and simple GARCH analysis on UIRAP for the case of Malaysia-UK, Malaysia-Japan and Malaysia-Singapore. The empirical results show that these relationships did not support the UIRAP in all cases. They, therefore, cannot reject the validity of UIRAP violation such as in widely documented literature reviews. In addition, they also find that traditional (conventional) regressions on UIRAP yield positive slope estimates for both Malaysia-UK and Malaysia-Japan cases, whereby for the case of Malaysia-Singapore, the beta slope estimates has a wrong sign (negative value). Results also show that the UIRAP deviation for the case of Malaysia-Singapore has the smallest standard deviation. Moreover, the volatility analysis on the UIRAP deviation using simple GARCH analysis reveals that there are significant ARCH and GARCH effects in Malaysia-Singapore case and it seems to be persistent in the long term period. In addition, the empirical investigation on the impact of the interest rate volatility shocks on UIRAP deviation does not exist in any cases.

James R. Lothian, Liuren Wu (2011) investigate the validity of uncovered interest-rate parity by constructing ultra-long time series that span two centuries. The forward-premium regressions yield positive slope estimates over the whole sample. The estimates become negative only when the sample is dominated by the period of 1980s. They also find that large interest-rate differentials have significantly stronger forecasting powers for currency movements than small interest-rate differentials. Furthermore, when they regress domestic currency returns on foreign bonds against returns on domestic bonds as an alternative test of the parity condition, the null hypotheses of zero intercept and unit slope cannot be rejected in most cases. These results are consistent with a world in which expectations formation is highly imperfect and characterized on the one hand by slow adjustment of expectations to actual regime changes and on the other by anticipations for extended periods of regime changes or other big events that never materialize. The historical account of expected and realized regime changes adds credence to this explanation and illustrates how uncovered interest-rate parity holds over the very long haul but nevertheless can be deviated from over long periods of time due to ex post expectation errors.

Ozcan Karahan, Olcay Çolak (2012) state that most of the earlier empirical studies focusing on developed countries failed to give evidence in favor of the Uncovered Interest Rate Parity (UIRAP). After intensive financial liberalization processes and mostly preferred free exchange rate regimes, a new area of research starts to involve the investigation whether UIP holds for developing economies differently. Accordingly, they test the UIP for Turkey's monthly interest rate and exchange rate data between 2002 and 2011. They run conventional regressions in the form of Ordinary Least Squares (OLS) and use a simple Generalized Autoregressive Conditional Heteroskedasticity (GARCH) analysis. The empirical results of both methods do not support the validity of UIP for Turkey. Thus, together with most of the earlier empirical studies focusing on developed countries and detecting the invalidity of UIP, they can argue that the experience of Turkey and developed economies are not different.

Anthony Orji, Onyinye, I. Anthony-Orji, Emeka Gabriel Ani (2013) employs the conventional Uncovered Interest Parity (UIP) equation to test the validity of the theory for Nigeria vis-a-vis the United States of America. The study also examines the causality relationship existing between the variables in the UIRAP model. The results reveal the invalidity of the UIRAP theory for Nigerian Naira/United States dollar exchange rates. They finally 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 within the period under review. However, the reasons for the failure of UIRAP 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.

A Sahil (2013) focuses on the theory of uncovered interest rate parity and whether interest-rate differentials have resulted in the higher interest rate currency depreciating over time. Previous literature has empirically rejected the theory indicating that higher interest rate currencies have actually appreciated relative to lower interest rate currencies. In this paper, uncovered interest rate parity is examined from 1992 to 2005 for the Pound sterling-US dollar, Pound sterling-Japanese yen and Pound sterling-Australian dollar currency pairs. A component GARCH model explicitly controls short-term and long-term volatility and estimates positive slope coefficients, thus supporting the theory of uncovered interest rate parity and a depreciating relationship. This paper also confirms the extreme sampling hypothesis that large interest-rate differentials have a greater effect on currency movements than small differentials.

Maram Srikanth and Krishna Reddy Chittedi (2014) examine the dynamics of USD/INR forward market. They have collected primary information from the market practitioners with the help of a structured mailed questionnaire. It is observed that forward contracts play an important role in addressing the exchange rate risk. It is observed that qualitative attributes like market sentiments, expectations, political stability and financial news play a vital role in determination of forward premia apart from quantitative factors viz., Interest Rate Differential, Crude Price, Net Intervention of RBI, lagged values of forward premia and Turnover in the foreign exchange market. It is also found that forwards and futures would continue to have their respective market shares in the Indian foreign exchange market since both of them have unique features in minimizing the exchange rate risk. It is also evident from the responses that international oil price has a marked impact on the movement of forward premia due to India's heavy reliance on oil imports. Further, the survey results reveal that multi-currency regime and forward market would co-exist in future. There is a unanimous view that RBI played a proactive role in bringing down volatility in the Indian markets during the financial crises in the past. This negates the role of UIRAP in Indian Foreign Exchange market.

Lungu Wilson, Johannes Peyavali Sheefeni Sheefeni (2014) investigate the relationship between the exchange rate and interest rate for Namibia with the time series techniques such as unit root tests, cointegration test, and impulse response and variance decomposition. The study use quarterly data for the period 1993:Q1 to 2012:Q4. The results for cointegration show that there is no cointegration among the variables. The empirical results of this study have been unable to detect a clear systematic relationship between interest rates and exchange rates. However, the variance decomposition further reveals that the errors in the forecast of both the exchange rate and interest rate are dominated by itself and an insignificant percentage is also attributed to other variables.

Deepika Chandwani1, Manminder Singh Saluja (2014) hold that after 1991 economic reforms, India registered tremendous fluctuation in Rupee exchange rate figures owing to its increasing trade and financial relationship with its major trading partners i.e. USA, Europe, and China. This paper examines the International parity conditions viz. Relative Purchasing Power Parity (RPPP), Covered Interest Rate Parity (CIRP), Uncovered Interest Rate Parity (UIP), Fisher Effect, and Forward Rate Hypothesis, to reveal the changing financial and economic relations of India with USA, China and Europe. The major objectives of the research are to study the extent to which these International Parity conditions hold for the examined period by employing single cointegration framework and, examining the strong and weak form of parities - allowing for more channels of interaction between variables under joint modeling framework. Using Johansen cointegration test, it is argued that all the parities - except forward rate hypothesis- fail to hold in Rupee/Dollar case, reflecting that the commodity and capital markets of these two countries are not integrated. CIP and Fisher effect hold in weak form in India with respect to China and validity of weak Fisher effect with Europe indicates partial integration and openness of India to these countries. Evidence for the joint validity of strong PPP and weak CIP is reported for India - China suggesting that these parities hold when the actions of importers and exporters, and investors are combined together.

Ibrahim Zubairu (2014) investigates purchasing power parity (PPP), interest rate parity (IRP) and unbiased expectation hypothesis by analyzing three main currencies; UK sterling, Japanese Yen and US dollar during 2008 to 2010. Further, forward premium or discount is calculated and interpret in the study with time series data and ordinary least square (OLS) regression methodologies. It is found that, the unbiased expectation hypothesis and international interest parity hold for Japan-US case but does not hold for Japan-UK case. Finally, the purchasing Power Parity (PPP) holds for both the two cases.

Charles Engel (2016) holds that the uncovered interest parity puzzle relates to the empirical regularity that high interest rate countries tend to have high expected returns on short term deposits. A separate puzzle is that high real interest rate countries tend to have currencies that are stronger than can be accounted for by the path of expected real interest differentials under uncovered interest parity. These two findings have apparently contradictory implications for the relationship of the foreign-exchange risk premium and interest-rate differentials. They document these puzzles, and show that existing models fail to account for both. A model that might reconcile the findings is discussed in that study.

N. Deebii, Lezaasi Lenee Torbira (2016) hold that the results from empirical studies on IRP have been mixed. Variations in macroeconomic behaviours across countries condition exchange rate movements and thus interest rate changes. Even temporal macroeconomic policies such as the Certificate of Capital Importation (CCI) in Nigeria and similar policy in Malaysia could distort the application of the theory of interest rate parity across board. Given that such distortions are rift, it is difficult to obtain a perfect result for IRP (Covered or Uncovered). This paper examines uncovered interest rate parity using the methodology of applied financial econometrics of panel data in selected African countries. The result is wholesomely inconclusive. While parity is applicable between Nigeria, Kenya and Egypt, it is not the case with Botswana and Ghana.

N. Hiruni, R. P. C. R. Rajapakse (2016) hold that Uncovered Interest Rate Parity (UIP) basically 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. This eliminates 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. They stress upon the fact that accurate forecasts of exchange rates would be of immense importance in examining the Validity of UIRAP doctrine.

W. Alfred, D. Leung and C. Ng (2016) extend the theory of covered interest parity (CIP), aligning different risks involved in uncollateralized money market transactions and collateralized foreign exchange (FX) swap transactions, which underscore CIP deviations in times of elevated uncertainty. They postulate that the swap dealer behaves as if he tries to filter out the counterparty risk embedded in money market rates in pricing FX swaps. Their results suggest that he does so not only during turbulent times but also under normal market conditions. The extended theory also uncovers a simple way to disentangle counterparty and liquidity risk premiums embedded in money market rates. The efficiency of swap dealers in this respect affect the validity of UIRAP to a large extent.

Ian Hudson (2016) attempts to solve the forward premium puzzle with little to no success. The global currency market is considered to be the most information efficient and transparent of all financial markets since it demonstrates a balance between over and under-reaction to information with remarkable consistency. The Efficient Market Hypothesis, therefore, espouses that investors cannot systematically outperform a benchmark since all investors have access to the same information. Consequently, the expected long-term rate of excess return for currencies is essentially zero. Again the '*Arbitrage Pricing Theory*' asserts that investment returns are random. As such, traders cannot avail themselves of mispriced currencies. Thus the assertion of Uncovered Interest Rate Parity essentially holds that bi-national interest rate variance is equal to the expected differential in exchange rates. In such case excess returns merely emerge as a collection of behavioral biases.

Sikdar S and C.K. Mukhopadhyay (2016) examine the 'efficiency' of Indian foreign exchange (rupee/dollar) market and the relevance of Covered Interest Rate Arbitrage Parity (CIRAP) doctrine therein over the period 11th November, 2011- 27th February, 2015. ARIMA (4, 1, 0) stochastic structure of weekly spot rate s_t has been used to generate one – period ahead forecast s^e_{t+1} series. These forecasts are MMSE forecasts and 'Rational' by nature. Forward rates tF_{t+1} served as the 'Unbiased predictor' of the spot rate s_{t+4} implying that CIRAP did hold good in the market. Again absence of 'risk premium' testifies for the 'efficiency' of the Indian foreign exchange (rupee / dollar) market over the period of study.

In some of the studies cited above relationship between spot rate and one-period lagged forward exchange rate has been examined with the intent of observing if Granger Causality runs from the forward rate to spot rate. More specially, tests in these studies have been so designed as to examine if unconditional expectation of spot rate equaled the one-period lagged forward rate. Spot rate has been reported to hold Cointegrating relation with lagged forward rates. In some other studies relation between spot rate and contemporaneous forward rate has been examined. Strong correlation between these two rates has been reported.

2.2 Existing Research Gap and Relevance of the Present Study

Survey of literature indicates that econometric methodologies for studies on market efficiency underwent striking changes and improvement over time. Starting from simple regression analysis, methods like GLS, and 2SLS were employed. Exchange rate volatility has been studied through ARCH, and GARCH. Simultaneous equation systems were introduced and the relation between forward rate and future spot rates were studied through Cointegration, VAR, VEC models.

These studies presents examination of the relation between forward rate and future spot rate directly without any concern for estimated series of expected spot rate. Rational expectations of future spot rate series have not been quoted in these studies.

However, this present study involves an estimation of rationally expected series of future spot rate. This series has been generated on the basis of an estimated univariate stochastic structure of spot rate over the period of study. This study thus fills in the existing research gap as stated above. The methodology adopted in the study is being stated in Chapter number 3.