

ON CONVERGENCE OF THE FOREIGN EXCHANGE MARKET: SOME EMPIRICAL EVIDENCE BASED ON TIME AND FREQUENCY-DOMAIN ANALYSIS

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Introduction

This paper investigates comovements and predictability of foreign currencies in the Malaysia for the period January 1990 to June 1994. Weekly observation of the spot exchange rates, one- and two month forward exchange rates series: US Dollar (US), Pound Sterling (BP), Deutsche Mark (DM), Japanese Yen (JY) and Singapore Dollar (SD) are utilized in the analysis. Malaysia's foreign exchange market has grown rapidly since the implementation of the floating exchange rate regime in 1976. The spectacular development in the currency market are due to factors such as liberalisation of exchange rate controls, rapid inflows of foreign investments, opening of financial markets and improvements in telecommunication facilities. There is no restrictions placed in hedging of currency exposures so long as the transactions are trade related. Dealings in the currency market is still dominated by spot transactions with major proportion of transaction in of the forward market is interbank. The currencies traded are mainly in US dollar, Singapore dollar, Pound Sterling, Deutsche Mark and Japanese Yen.

Materials and Methods

This study addressed the issue of market efficiency by utilizing two econometric techniques: Johansen procedure and spectral analysis. Both the Augmented Dickey-Fuller (ADF) and Phillip Perron (PP) were utilised in this study to determine the time series properties of the exchange rate series. The unit root tests were conducted first on level and then on first-difference of the variables. We apply the Johansen and Juselius (1990) multivariate trace and maximum eigenvalue tests on the five exchange rates to test for the long-run relationship. Akaike's formal prediction error and Sim's (1980) likelihood ratio test are employed in the analysis to determine the appropriate lag length for the vector autoregressive (VAR) model. Next, we employed the spectral analysis to examine the behaviour of the exchange rates movements as a complement to the Johansen test procedure.

Results and Discussion

The results of the unit root test confirmed that an I(1) presentation is reasonable for all spot and forward rates. The results are consistent with those reported earlier by Baillie and Bollerslev (1989a), Lai and Lai (1991) and Copeland (1991), among others. The results Johansen multivariate cointegration analysis may be summarised as follows. First, both the trace and maximum eigenvalue test yield identical results: The null hypothesis of zero cointegrating vector ($r=0$) is rejected using the 95% critical value in all cases except one-The Japanese Yen. However, the test fails to reject the null hypothesis in $r \geq 1$, against the alternative $r \geq 2$ for various maturities of US, BP, JY DM and SD. Overall, our results found that spot and forward rates shared a common stochastic trend, that is, they are cointegrated.

Conclusions

Results obtained from this study show that forward rates and the actual spot rates is cointegrated and forward prices can explain movements in spot prices. However, our study shows that the use of forward rates as predictor of future spot rates should be considered only with utmost care since the result of study cast doubts on the usefulness of forward rates as a predictor for future rates. Thus, the evidence provided in this study in general is not favourable to the joint hypothesis of market efficiency and no risk premium. Intuitively, the results appear sensible since the forward market is only of recent origin and is still at its infancy stage. The liquidity problems could partially accounts for the inefficient nature of the forward market. We also cannot rule out that the presence of risk premium and high transaction costs as possible reasons for the rejection of EMH in the Malaysian foreign exchange market. Clearly, this is beyond the scope of the present study.

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