

Rationale for Forecasting Exchange Rate and Hedge Risk

Yuan Yue

Adam Smith Business School, University of Glasgow, Glasgow, UK

yy980925@outlook.com

Abstract

Exchange rates affect international trade relations and order, and are linked to the economic and political stability of individual countries. Therefore, forecasting exchange rate movements is also essential in foreign exchange risk management. This essay first explains the reasons for forecasting exchange rate movements. It then considers the concepts of two exchange rate forecasting models, purchasing power parity (PPP) and interest rate parity (IRP). And it explains their significance for exchange rate forecasting and the corresponding applications. Finally, the essay discusses how to hedge risk.

Keywords

Exchange Rate Forecast; Purchasing Power Parity(PPP); Interest Rate Parity(IRP); Exchange Rate Risk.

1. Introduction

Exchange rate movement had been considered as an important subject of both market surveillance and macroeconomic analysis according to Lam et al.[1]. Nonetheless, the importance of forecasting exchange rate had been undermined by lots of challenge. For example, on the one hand, Meese and Rogoff had argued that, in view of the superiority of random-walk model, forecasting movement of exchange rate movement should be impossible [2]. On the other hand, Wright had recognized movement of exchange rate could be predicted [3]. In fact, lots of forecasting model for exchange rate movement had been available. Among all, the usefulness of purchasing power parity theory (PPP) had been considered extensively. Castillo-Maldonado et al., had argued that some forecasting models, including the PPP, could be useful in predicting movement of exchange rate, both the direction and magnitude [4]. Based on the argument, the essay considers the significance of PPP and IRP to the forecast of exchange rate and the corresponding applications. And it explains the reasons for the forecast exchange rate. Finally, the essay discusses how to hedge risk.

2. Why Forecasting Exchange Rate

Znacza had acknowledged that the need of forecasting exchange movement should be the direct result of internationalization of business segment in the era of globalization after the formation of Bretton Woods System when exchange rates in the international markets were not fixed [5]. Exchange rates are important for business and academic environment. On the one hand, forecast of exchange rate movement did result in improving profitability for not only the firms, but also the household from the perspective of microeconomics issues. In its business application, Haskamp had recognized three principal uses of forecasting exchange rate movement, namely; pricing for goods being traded across national borders, valuation of international financial projects and the value of remuneration for emigrants and expatriate [6]. In the situation, De Grauwe et al. had acknowledged that forecasting exchange rate movement could be an essential element of assets pricing in multinational financial management [7].

In addition, Costantini et al. had acknowledged that effective forecast of exchange rate movement would result in the generation of revenue sources [8]. For example, De Grauwe et al. had acknowledged that movement of exchange, as well as the magnitude of the movement, could be anticipated through the use of statistical methods [7]. In this regards, some form of arbitrage would be the core element of the profit seeking activities.

On the other hand, forecasting movement of exchange rate could result in the minimization of operation and financial risks in multinational environment. In the case, the hedging activities would be involved. In this regards, Pacelli had acknowledged that forecasting exchange rate effectively could bring in the reduction of probability of occurrence of international economic crisis [9]. In this regards, the forecast did relate with the minimization of risks which concerned with the possibility of loss in cash flow, assets and liabilities [10]. It had been acknowledged that forecasting exchange rate should be of utmost importance in reducing financial risks of financial institution when active management of the banks in the area of multinational finance required the adoption of effective forecasting models [9].

Based on the above analysis, the use of forecasting movement of foreign exchange rate could be summarized into two principal streams, namely; profit seeking and risk minimization. In the former, the arbitrage and speculation would be involved. In the latter, hedging will become the principal element in the significance of forecast of exchange rate movement. In fact, as acknowledged by Pacelli, the economic crisis happened in recent decades had already highlighted the need for financial institutions to implement appropriate systems for estimating the market risks which fuel the need of adopting effective forecast of exchange rate movement [9].

3. Literature Review

In the section, the concepts of purchasing power parity (PPP) and interest rate parity (IRP) were considered. Machobani et al. had acknowledged that both PPP and IRP had been the crucial models for forecasting movement of exchange rates because of their implications for the existence of market efficiency in the market of foreign exchange [11]. In the empirical literature, MacDonald and Taylor, had acknowledged that both PPP and IRP did play important role in determine rate of exchange and currency involving the principle of arbitrage relation under the circumstance that the former considered the long-run equilibrium and the latter consider the constant relationship among different parity [12].

3.1. Purchasing Power Parity

The purchasing power parity (PPP) exchange rate, according to Sarno and Taylor, could be viewed as the exchange rate between two currencies which would equate the two price levels among relevant nations if expressed in a common currency at that rate, so that, in both economies, the purchasing power of a unit of one currency would be equal [13]. Carvalho and Nechio had acknowledged that, in the situation, the real exchange rate between any two countries, in view of the ratio of their price levels being quoted in a common currency, should be constant[14].

In the application, Engel had acknowledged that the consumer price of a good, being relative to a different good within a country, would tends to be more constant than the price of that good relative to a similar good in another country [15]. According to Tica et al., the theories of PPP, did imply the existence of "border effect", when the globalization process would result in convergence of relative prices[16].

In view of the advantage of using PPP as the model of forecasting exchange rate movement, Tweneboah did acknowledged that the simplicity as well as universal validity about the assumption that internationally produced goods could serve as perfect substitutes for domestic

goods in the existence of a backward adjustment mechanism because of the establishment of price differentials [17]. Nonetheless, some drawbacks about the PPP could be identified. For example, it had been acknowledged that the empirical verification of this hypothesis had been in general very poor [18].

In the situation, the criticisms of PPP could be stemmed from the validity of the “Law of one price” when the identical goods in the international markets should have the identical price [19]. Also, Officer did argue that including both tradable and non-tradable goods should not be reasonable [20].

Also, in application of PPP, Tweneboah had acknowledged that PPP did involve the implication of long-run perspective because of the validity of assumption could be dampened by the simple classification of the tradable and non-tradable sectors among different countries and by the existence of the technology differentials which affect the productivity and factor price [17].

3.2. Interest Rate Parity

The Interest Rate Parity (IRP) condition, as being recognized by Bilson, had been stemmed from the situation that he expected returns on domestic and foreign bonds would be equal if currencies could be unified [21]. Thus, unlike the assumption of PPP which consider the law of one price, IRP did consider the assumption of unified return in open economy models.

Lam et al., had acknowledged that, by mean of ignoring transaction cost as well as liquidity constraints, the adoption of IRP did generate the implication of the existence of an arbitrage mechanism, driving the exchange rate to a value which would equalize the returns on holding both the foreign assets and domestic assets [1]. Alexius had acknowledged that application of IRP could result in effective forecast of exchange movement in long run [22].

In the process of applying IRP, some advantages and disadvantages could be identified. One of the advantages of using the IRP model was its capability of integrating inflation and interest rate in the process of determination of exchange rates [23].

However, the application of the model did involve the evaluation of risks which were not constant but of time varying nature. Cavaglia et al. indicate the kind of time-varying risk would adversely affect the accuracy of the forecast of movement of exchange rate [24]. Also, Backus et al. did recognize that IRP model did not consider the issue of endogenous responses of monetary rule to consumption shocks [23].

3.3. Comparing the Contributions of Both

In view of the above review, it could be concluded that these models did explain the movements of the exchange rate between currencies of two different economies. Nonetheless, according to Lam et al., PPP considered the impact of price level while IRP considered the impact of interest rates on the change of currencies [1]. In both cases, according to the literature, long run forecast could be made with accuracy. Nonetheless, the model did not perform significantly better than random walk model in the short run. In this regards, the models could offer tool for forecasting exchange movement in the long run which should be of significant importance to the hedging and arbitrage activities of organizations in financial sectors or not.

4. Managing Exchange Rate Risk

Hekman had acknowledged the floating rate system after the outbreak of globalization had result in the need of managing exchange rate risks [25]. In the contemporary business environment, Pantzalis, Simkins, and Laux had recognized that operational and financial hedges were of complementary nature in risk management strategies [26]. Nonetheless, Hommel had shown that that operational hedging, being the strategic complement to financial hedging, would bring in flexibility [27]. Nonetheless, Bartram, Brown and Minton, had acknowledged

that four options could be available in managing exchange rate risk, namely choice of invoice currency, pricing (pass-through) policy, and operational hedging, as well as financial hedging [28].

Apart from the recognition of Ito et al. had acknowledged that exchange rate risks could be reduced by denominated the transaction with the currency in home country [29-30]. Also, in the case of pricing policy, Ito et al. had acknowledged that risks could be priced with additional price premium during the determination of export prices [30].

Basically, hedging is the most common way of managing exchange rate risks. For MNCs, hedging could be adopted to reduce their foreign exchange rate risk from the operations as well as transactions dominated by foreign currency as acknowledged by Bartram [31]. Also, hedging would increase the value of MNCs in certain conditions according to Stulz [32]. In practices, three kinds of strategies had been acknowledged by Hasan, namely Natural Hedge, Constant Profit Margins and Forward Contracts [33].

In the case of natural hedge, Hasan had acknowledged that business processes would be conducted in such a manner that the currencies of cash outflows and inflows would be matched to minimize the forex risks [33]. Jones et al. had acknowledged that the use of natural hedges could happen by way of funding in currencies where MNCs produce and sell and by way of locating manufacturing as well as sourcing in countries in which selling take place [34]. In addition, the matching of cash flow could be extended to the case of equity investment. In this regards, González et al. had acknowledged that foreign debts could be used to hedge the forex risks associated with equity investment in foreign markets [35]. On the other hand, in case of constant profit margin, Hasan had acknowledged that the Forex risks could be transferred from one party to another by use of constant profit margins strategy, when any change in the acquisition cost of products would be reflected in their selling price as well for the case of importer [32]. Brealey and Kaplanis had acknowledged that the kind of risks from one period cash flow could be effectively hedged through adjusting pricing policies in response to any movement in exchange rate [36].

Also, Hasan had acknowledged that hedging could be achieved by use of derivative [33]. In this regards, firms could make use of two basic principal means to hedge exchange rate risk, namely financial hedge via various financial market instruments such as foreign currency debt as well as exchange rate derivatives, and operational hedge through operational organization of any exporting firms [30]. in the case of forward and futures, Kyte had defined forward rate agreements as contracts settled in cash which enable the purchaser to agree to a pre-determined FOREX rate for a set period of time [37]. The same definition could be used in futures as well under the circumstance that futures were structural contract while the amount in forward could be negotiated. The effective management of long-term exchange rate risks of any firms would demand the development of operational hedging strategies as well as the extensively uses of hedging strategies.

5. Conclusion

The needs of managing exchange rate risks could be determined by its usefulness in decision making and business operation. Basically, it could be concluded that the reduction in exchange rate risks could lead to reduction of operation risks. As a results, profitability could be enhanced and firm value could be increased. In this regards, Glaum had recognized that business entities should achieve the goal of reducing or eliminating exchange risk by, in the forward markets, transacting counterbalancing transaction. Nonetheless, the difficulty in anticipating the magnitude and direction of the currency movement would affect the effectiveness and usefulness of exchange rate management. In addition, the cost of hedging exchange risks could

be high according to Hekman. In this regards, the usefulness and importance of managing exchange rate risks had been challenged.

Nonetheless, the development of the financial markets and the numerous participants in the trading of the financial derivative had reduced the costs of holding financial derivative as well as facilitate the hedging transactions. Thus, in view of the massive fluctuation of currency market, hedging of FOREX risks with the aim of reducing risks in FOREX transaction should be of great importance in the business operation.

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