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Theories of Exchange Rate Determination: A Brief Theoretical Review

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Abstract
This paper endeavored to categorise and evaluate exchange rate theories. These theories included the International Fischer's Effect Theory, the Purchasing Power Parity Theory, the Interest Rate Parity Theory, the Balance of Payments Theory, the Monetary Approach to Foreign Exchange, and the Portfolio Balance Approach. The paper analyses these theories' advantages and disadvantages.

Keywords: Exchange Rate; Purchasing Power Parity Theory; Interest Rate; Portfolio Balance Approach; Monetary Approach; Foreign Exchange

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1.0 Introduction

Theories of how exchange rates are determined have changed since the transition from the fixed rate system to the floating rate system. Traditional theories that mainly addressed the real sector at the time of fixed exchange rates included the elasticity method and the absorption approach. But even in this era of fluctuating exchange rates, the monetary system continues to be a significant influence on exchange. The exchange rate is influenced by a number of variables. On the basis of these characteristics, numerous theories have been established to forecast the rate of exchange between various currencies. This essay conducts a critical analysis of exchange rate theories. (Branson, 2013)

2.0 The Purchasing Power Parity Theory

The interestingly simple theory of purchasing power parity (PPP) states that for a unit of currency from one country to have the same purchasing power in another country, the nominal exchange rate between the two currencies must be equal to the ratio of the aggregate price levels between the two countries (Krugman and Obstfeld, 2009). The cost of a universal commodity that is the same in both nations is measured and compared to determine the purchasing power parity.

If there is a gap, demand should move from one country to the next, pushing prices closer together. For instance, a product of the same size and calibre is produced in both China and India. The hypothesis states that when represented in same currency, the price of the goods in China and India will be the same. However, if the product is more affordable in China, demand will rise there and fall in India. Prices in India will progressively decline until they are equal due to the decreased demand (Abuaf, N. and Jorion P, 2014).

There are two types of purchasing power parity: absolute and relative. This is one of the two main assumptions of economic theory. A basket of goods should have the same worth once two currencies have been exchanged, according to the basic Purchasing Power Parity principle. Absolute purchasing power parity is what this is (APPP). Usually, the theory depends on converting foreign currencies into US dollars. For instance, the idea states that if a

can of Coca-Cola costs $1.50 in Zambia, a can of Coca-Cola in Malawi should equally cost $1.50 after being converted from USD to the local currency (Koustas and Serletis, 2015)

The classic purchasing power parity (PPP) hypothesis has been extended to include relative purchasing power parity in order to account for variations in inflation over time (RPPP). The quantity of goods or services that one unit can buy is referred to as its purchasing power, and inflation can reduce this amount. Theoretically, currencies in countries with higher inflation rates will decline. Additionally, changes in the exchange rate between the two countries would be impacted by differences in the rates of inflation and the cost of commodities between the two nations, according to relative purchasing power parity (RPPP) (Bigman, 2012).

2.1 Strengths of the Purchasing power parity theory (PPP)

This theory clarifies how a country's currency may be overvalued or undervalued as a result of the significant variances in purchasing power. This is important because currencies that are overvalued or undervalued in PPP terms will probably correct over time, which could have long-term consequences on the economy and exchange rate fluctuations. The theory also helps to make these economic consequences somewhat foreseeable. For instance, it is reasonable to expect that a local currency that PPP determines to be significantly overvalued will depreciate over time in relation to other widely traded currencies like the US dollar (Krugman and Obstfeld, 2009).

Despite all of its flaws, the hypothesis is the sole rational explanation for long-term variations in exchange values in all monetary contexts, including the gold standard (Abuaf, N. and Jorion P, 2014). The theory also explains how to compute the balance of payments. It illustrates how shifts in the relative pricing levels of the concerned countries are what primarily drive changes in global trade and payments. As a result, relative pricing and price changes have an impact on exchange rates over the long run. The hypothesis is crucial when price changes have a significant impact on exchange rates.

2.2 Weaknesses of the Purchasing Power Parity Theory

The hypothesis suggests that price indices should be used to monitor shifts in purchasing power. Other types of price indices, such as information on the cost of living and wholesale pricing indexes, do exist. As a result, the issue of which index number to use to calculate changes in purchasing power arises. Furthermore, because they are constructed using separate procedures and have varied base periods, price indices from different countries cannot be compared, whereas representative commodities take into consideration the weights assigned to individual goods and the averaging process. In other words, by comparing such index statistics, we cannot reliably estimate the buying power parity between any two countries (Abuaf and Jorion, 2014; Mwange, et, al., 2022).

The theory excludes capital transactions in international economic relations and all other parts of the balance of payments besides trade in goods. In other words, the purchasing power parity hypothesis completely ignores capital account and only, at best, pertains to current account activities. The purchasing power parity theory, which is designed for trading states, provides little guidance for a country that is both a trader and a banker, claim (Cheung et al., 2012; Mwange, and Meyiwa, 2022; Mwange, et. al., 2022).

The hypothesis ignores changes in the bilateral economic relations. It disregards the idea that, even if prices remain constant, the equilibrium exchange rate could fluctuate due to modifications in the economic links between two countries. For instance, if trade between the original two nations is disrupted, the exchange rate may vary, which could alter the equilibrium exchange rate (Britton, 2010).

The theory makes false assumptions about stable exchange rates since it relies on unrestricted trade and the lack of currency regulations. State interference in the free flow of international trade, such as export duties, import duties, import quotas or licencing, as well as exchange control mechanisms, is what actually causes a permanent departure from the exchange rate determined by relative price levels, or the purchasing power parity. A brief deviation from the purchasing power parity may also result from the actions of speculators or capital transfers prompted by fear (Cheung et al, 2012).

The significance of the reciprocal demand's elasticities is not taken into consideration. According to Keynes, the parity theory has two major flaws: it ignores the elasticities of reciprocal demand and the effects of capital movements. Other factors that affect exchange rates, in his view, are price movements, elasticities of reciprocal demand, and foreign exchange supply (Chinn and Frankel., 2012).

3.0 Interest rate parity theory

The interest rate parity theory governs the relationship between interest rates and currency exchange rates. The interest rate parity (IRP) theory states that the difference between the forward and spot exchange rates is equivalent to the difference in interest rates between two countries. The essential principle of the idea is that hedged returns

from assets in different currencies ought to be constant, regardless of the interest rates related to those investments. Interest rate parity is the notion of no-arbitrage in the foreign exchange markets (the simultaneous purchase and sale of an asset to profit from a difference in the price). Investors are unable to purchase one currency below the going rate of exchange and then purchase another currency from a country with a higher exchange rate (Britton, 2010).

The Interest Rate Parity (IRP) hypothesis further contends that in a free-floating exchange system, national inflation rates, national interest rates and exchange rates among currencies, are all interrelated and mutually determined. Each of these factors tends to proportionally affect the others as well (Branson, 2013).

3.1 Strengths of Interest parity theory

The primary advantage of the interest rate parity theory is its capacity to estimate currency forward exchange rates (Chinn and Frankel., 2012; Mwange, et. al, 2022). Nations' markets or financial organisations can easily offer the information required to forecast future currency exchange rates.

The interest rate parity hypothesis is a representation of the no-arbitrage state of foreign exchange rates. According to the notion of arbitrage, businesses can make money when identical commodities are sold for significantly different prices in different markets. As an illustration, a trader might buy a share for $10 on one market and sell it for $11 on another. This happens as a result of poor communication between the two marketplaces. Entities may take use of this ignorance to their benefit (Rapach, 2011).

Businesses cannot profit from international arbitrage if the interest rate parity argument is true. An investor, for instance, cannot profit if they borrow money in one nation at 5% interest and invest it in another one at 8% interest. This is because, according to the theory, the difference in interest rates is essentially cancelled out by the variation in the long-term exchange rates between the currencies of the two countries. Because the interest rates in the two countries are different, exchange rates have changed throughout (Koustas and Serletis, 2015).

Additionally, the theory explains how interest rates and currency exchange rates are related, and how national interest rates and currency exchange rates are related can be described using the interest rate parity hypothesis. According to this theory, the value of a country's currency will depreciate in comparison to the currency of a country with a lower interest rate if the latter has a higher interest rate than the former. For instance, if Zambia has an interest rate of 10% and Congo DR has an interest rate of 8%, Zambia's currency will lose value in comparison to Congo DR's currency at the end of the term. The difference between the two nations should equal 2% of this decline in currency value (Mwange, et. al, 2022; Della et al, 2016; Mwange, 2022)

3.2 Weaknesses of Interest parity theory

The differential in interest rates is a major factor in determining forward exchange rates. This hypothesis states that arbitrageurs will trade whenever there is a discrepancy between the forward rate differential and the interest rate differential. However, arbitrageurs can only be effective in a market that is devoid of restrictions and rules. The range of short-term interest rates in the money market (where rates on Treasury Bills, Commercial Paper and so on differ, differ) is another restriction that makes it impossible to assume interest rate parity. The foreign exchange market may occasionally be influenced by speculative acts for unconnected political and economic reasons. Market expectations have a significant impact on forward rates as well (Krugman and Obstfeld, 2009).

The notion of parity of interest rates also assumes an ideal market. A perfect market is one in which all information is immediately made available to market participants. Additionally, there are many transactions, uniform products, no entry barriers, and no transaction costs in perfect markets. The ideal market does not actually exist; it only exists in theory. When it identifies an offset between interest rates and the spot and future exchange prices of two currencies, interest rate parity assumes that there is a perfect market (Egilsson, 2016).

4.0 The Balance of Payments Theory (BOP)

The rate at which one country's currency is exchanged for another is determined by factors other than internal price level and money supply, according to the theory of exchange rates. It highlights the significant influence that a country's balance of payments situation has on the exchange rate (Bigman, 2012).

A country's balance of payments is considered to be in deficit when, at a certain exchange rate, the demand for foreign currency outpaces the supply. The demand for foreign money is driven by a desire for goods and services offered abroad. The supply of foreign exchange, on the other hand, comes from the home country's delivery of goods and services to the foreign country (Bigman, 2012)

In other words, the excess of foreign exchange demand over foreign exchange supply is coincidental with the balance of payment (BOP) imbalance. The pressure from rising demand is what has caused foreign currency

exchange rates to rise. The exchange rate of the domestic currency to the foreign currency decreases as a result (Black et al, 2013).

A balance of payments surplus is the result of their being more foreign currency available than there is demand for it. In this case, the value of foreign currencies falls while the value of the local currency rises. The equilibrium rate of exchange is reached when the BOP is neither in deficit nor in surplus. In other words, the equilibrium exchange rate and BOP equilibrium of a nation are same (Bigman, 2012).

4.1 Strengths of the BOP theory

The balance of payments theory of exchange rates has a number of noteworthy benefits. First off, by seeking to do so through the forces of supply and demand, this theory attempts to bring the setting of exchange rates within the purview of the general theory of value. The exchange rate and the BOP scenario are related by this second hypothesis. It suggests that this theory does not restrict the fixing of exchange rates to just the trade in goods, unlike purchasing power parity theory. It encompasses every element that might have an effect in some way on the state of the balance of payments or the supply and demand for foreign currency (Britton, 2010).

Additionally, this hypothesis is preferable to the purchasing power parity theory from a policy perspective. It suggests that the BOP's state of disequilibrium can be altered by making minor adjustments to the exchange rate, such as depreciation or revaluation. A deliberate deflationary or inflationary policy may be used to remedy BOP disequilibrium, according to the purchasing power parity theory. Price adjustments are likely to have more disruptive effects than changes in exchange rates (Branson, 2013).

4.2 Weaknesses with the BOP theory

The BOP theory holds that the domestic price level and the exchange rate are not causally related. Such a claim is false. Undoubtedly, changes in the domestic price level can affect the situation of the balance of payments, which can then affect the exchange rate. The BOP theory of the currency rate is also assumed. If it is understood that the BOP must always be in a position of balance, the possibility of an exchange rate movement will be completely avoided. The BOP equilibrium and the equilibrium exchange rate don't always coincide in reality. There may be exchange rates that are balanced and compatible with either the surplus or deficit of the BOP (Black et al, 2013)

The currency rate is influenced by the balance of payments, according to this theory. It is anticipated that the BOP surplus or deficit will change along with changes in the currency rate. It implies that the exchange rate is what causes the BOP. This shows that the BOP exchange rate concept is speculative. It is unable to explain how the presumption of a particular exchange rate came to be (Chinn and Frankel., 2012).

5.0 The Monetary Approach to Rate of Exchange

The aggregate demand and supply of each nation's national currency are balanced to determine exchange rates, according to the monetary method. According to this approach, the demand for money is influenced by real income, general price levels, and interest rates. Real income, price level, and the demand for money are all directly correlated. The relationship between it and the interest rate, however, is the opposite. The quantity of money in circulation is separately determined by the monetary authorities of individual countries (Branson, 2013).

The initial state of the foreign currency market is thought to be equilibrium or interest parity. Additionally, it is presumable that the country of origin's monetary authority increases the money supply. Long-term effects include a corresponding increase in price in the country of origin. Additionally, the value of the domestic currency will decline (Britton, 2010).

5.1 Strengths of the Monetary Approach to Rate of Exchange.

The fact that the idea is based on the Purchasing Power Parity Theory is one of its benefits. Second, the theory assumes that the initial interest rates in two different countries are equal. A currency's value is impacted by changes in the money supply, interest rates, and real income (Chinn and Frankel., 2012).

5.2 Weaknesses of the Monetary Approach to Rate of Exchange

The inherent premise of monetary models is that global demand for reserves does not exist. The theory's constrained viewpoint, which misses a number of arguments for demand for foreign currencies, is among its most important weaknesses. Currency substitution, which occurs when a reserve currency is demanded in addition to or instead of the local currency, is a noteworthy situation that defies the tenets of monetary theory. Suppose that domestic currency is not a reserve currency while foreign currency is. According to monetary theories, the nominal exchange rate should increase as real income in the country of origin increases (Branson, 2013)

6.0 The Portfolio Balance Theory

Trading is specifically taken into account while analysing the exchange rate using the portfolio balance approach. It sees local and foreign bonds and other financial assets as subpar alternatives. The essential assumption behind this technique is that the process of equilibrating or balancing the supply and demand of financial assets, of which money is only one type, determines the exchange rate (Clower et al, 2014). The domestic currency increases as a result, appearing to have a trade surplus, partially offsetting the initial devaluation. As a result, the portfolio balancing technique also explains exchange overshooting.

6.1 Strengths of the Portfolio Balance Theory

The explicit inclusion of trade in the long-term adjustment process is one of the main advantages of the monetary theory to exchange rates. The theory goes further and makes the assumption that any financial market can only reach equilibrium when there is an equal supply and demand for each financial asset (Black et al, 2013)

6.2 Weaknesses of the Portfolio Balance Theory

There are some disadvantages to the portfolio balance strategy. First off, it doesn't consider real income when establishing exchange rates. Second, this strategy does not address trade flows. Thirdly, it doesn't specify any specific roles. Additionally, the theory as it is does not provide a thorough and consistent understanding of how exchange rates are established that consistently and fully incorporates the short- and long-term financial and commodities markets (Chinn and Frankel., 2012).

7.0 International Fisher Effect (IFE) Theory

The projected difference between two currencies' exchange rates is essentially similar to the difference between their respective nominal interest rates, according to the International Fisher Effect (IFE), a theory of economics. The hypothesis, which predicts currency fluctuations, is based on an analysis of interest rates associated with present and potential risk-free assets, such as Treasury securities. In contrast to previous systems that merely use inflation rates to forecast exchange rate swings, this approach ties inflation and interest rates to a currency's gain or depreciation (Coppock and Poitras, 2010).

Real interest rates, which are independent of other monetary variables like changes in a country's monetary policy, are thought to provide a better indication of the health of a certain currency within a global market. The international fisher effect states that countries with lower interest rates are probably also to have lower rates of inflation, which may increase the actual worth of the connected currency in comparison to other nations. On the other hand, currencies in countries with higher interest rates will lose value (Clower et al, 2014).

7.1 Strengths of the International Fisher Effect (IFE) Theory

Since it is a crucial metric used by lenders to determine whether or not they are making money on a loan, the Fisher effect is vital (Koustas and Serletis, 2015). A lender will not benefit from interest, unless the interest rate charged is higher than the rate of economic inflation. According to Fisher's theory, even if a loan is given out without interest, the lending party must, at the very least, charge the same amount as the inflation rate in order to maintain purchasing power upon repayment.

This important theory is widely used to anticipate the current exchange rate for the currencies of various countries based on differences in nominal interest rates. To calculate the future exchange rate, the present market exchange rate and the nominal interest rates in two distinct nations may be employed (Krugman and Obstfeld, 2009).

7.2 Weaknesses of the International Fisher Effect (IFE) Theory

The inconsistent differences between nominal interest rates and actual inflation rates is one of the system's shortcomings. Because of this, even if the Fisher effect can accurately predict projected inflation using nominal interest rates over a certain period, the market may be inaccurate (Rapach, 2011). Another difficulty is from the demand's elasticity with regard to interest rates. Higher real interest rates would not always lead to reduced demand when commodity prices are growing and consumer confidence is high, thus central banks would need to raise the real interest rate even more to achieve this.

8.0 Conclusion

Even though exchange rates can be confusing, practically everyone has to understand them to function in the modern global economy. As the world gets smaller, there is a greater likelihood that we will have to deal with the risks associated with the fact that there are many different currencies in circulation around the globe and that these currencies will have a direct impact on our world. We must be able to evaluate how changes in exchange rates will impact our financial planning, corporate strategies, governmental initiatives, and other life decisions in order to take the necessary action (both financial and otherwise). Examining various exchange rate theories can help us

better understand exchange rates. The essay has covered a number of theories and has highlighted each's main benefits and drawbacks.

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