Chapter-15

Exchange Rate Determination

OUTLINE

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15.1 Introduction

- Modern exchange rate theories are based on the monetary approach and the asset market or portfolio balance approach to the balance of payments that have been developed since the late 1960s.
- These theories view the exchange rate, for the most part, as a purely financial phenomenon.
- They also seek to explain the great short-run volatility of exchange rates and their tendency to overshoot their long-run equilibrium level, which have often been observed during the past four decades.

- Traditional exchange rate theories (Chapters 16 and 17), which are based on trade flows and help explain exchange rate movements only in the long run or over the years.
- Since the advent of floating rates in 1973, international financial flows have increased tremendously and are now far larger than trade flows.
- Therefore, it is only natural that interest shifted toward monetary theories of exchange rate determination.
- Traditional exchange rate theories are still important, however, especially in explaining exchange rates in the long run.

15.2 Purchasing-Power Parity Theory

Purchasing-power parity theory provides the long-run framework for the monetary and asset market or portfolio balance approaches to exchange rate determination.

The purchasing-power parity (PPP) theory by the Swedish economist ***Gustav Cassel***

To estimate the equilibrium exchange rates at which nations could return to the gold standard after the disruption of international trade and the large changes in relative commodity prices in the various nations caused by World War I.

Absolute Purchasing-Power Parity Theory

- The **absolute purchasing-power parity theory** postulates that the equilibrium exchange rate between two currencies is equal to the ratio of the price levels in the two nations.

- $R = P/P*$

R=Exchange Rate or Spot Rate

P= Domestic Price Level

P*= Foreign Price Level

- Example

If the price of one bushel of wheat is $1 in the United States and € 1 in the European Monetary Union

- R = \$1/€1 = 1

- According to the **Law of One Price**, a given commodity should have the same price (so that the purchasing power of the two currencies is at parity) in both countries when expressed in terms of the same currency.
- Commodity arbitrage thus operates just as does currency arbitrage in equalizing commodity prices throughout the market

- This version of the PPP theory can be very misleading.
- First, it appears to give the exchange rate that equilibrates trade in goods and services while completely disregarding the capital account. Thus, a nation experiencing capital outflows would have a deficit in its balance of payments, while a nation receiving capital inflows would have a surplus if the exchange rate were the one that equilibrated international trade in goods and services.

- Second, this version of the PPP theory will not even give the exchange rate that equilibrates trade in goods and services because of the existence of many nontraded goods and services
- Nontraded goods include products, such as cement and bricks, for which the cost of transportation is too high for them to enter international trade, except perhaps in border areas.
- Most services, including those of mechanics, hair stylists, family doctors, and many others, also do not enter international trade.

- International trade tends to equalize the prices of traded goods and services among nations but not the prices of nontraded goods and services.
- Since the general price level in each nation includes both traded and nontraded commodities, and prices of the latter are not equalized by international trade, the absolute PPP theory will not lead to the exchange rate that equilibrates trade.

- Absolute PPP theory fails to take into account transportation costs or other obstructions to the free flow of international trade.
- As a result, the absolute PPP theory cannot be taken too seriously

15.2B Relative Purchasing-Power Parity Theory

- **Relative Purchasing-Power Parity Theory** postulates that the *change* in the exchange rate over a period of time should be proportional to the *relative* change in the price levels in the two nations over the same time period

- $R_1 = [(P_1/P_0)/(P*_1/P*_0)]* R_0$

R_1=Exchange Rate in current period

R_0=Exchange Rate in base period

P_1= Domestic Price Level in current period

P_0= Domestic Price Level in base period

$P*_1$= Foreign Price Level in current period

$P*_0$= Foreign Price Level in base period

- For example, if the general price level does not change in the foreign nation from the base period to period 1 (i.e., $P*1/P*0= 1$),
- The general price level in the home nation increases by 50 percent,
- The exchange rate (defined as the home-currency price of a unit of the foreign nation's currency) should be 50 percent higher (i.e., the home nation's currency should depreciate by 50 percent) in period 1 as compared with the base period.

- Note that if the absolute PPP held, the relative PPP would also hold, but when the relative PPP holds, the absolute PPP need not hold.
- For example, while the very existence of capital flows, transportation costs, other obstructions to the free flow of international trade, and government intervention policies leads to the rejection of the absolute PPP, only a *change* in these would lead the relative PPP theory astray.

- The **Balassa–Samuelson effect** results from labor productivity in traded goods being higher in developed than in developing countries, but about the same in many nontraded goods and services sectors (for example, haircutting).
- To remain in nontraded goods and services sectors in developed nations, however, labor must receive wages comparable to the high wages in *traded*-goods sectors. This makes the price of nontraded goods and services systematically higher in developed than in developing nations

- Since the general price index includes the prices of both traded and nontraded goods and services, and prices of the latter are not equalized by international trade but are relatively higher in developed nations,
- Relative PPP theory will tend to predict overvalued exchange rates for developed nations and undervalued exchange rates for developing nations, with distortions being larger the greater the differences in the levels of development
- Significant structural changes also lead to problems with the relative PPP theory.