

### **Notes on the Balance of Payments in a One-Currency World and a Multi-Currency World**

Chapter 7, section 7.3, of Mankiw extends the long-run, closed-economy analysis of a monetary economy studied in the module on “Money, Inflation, and Interest Rates” to a world of several open economies, each with its own currency. He focuses on the long-run situation in which prices are flexible and money is neutral. (Short-run models of exchange rate behavior are dealt with in elective courses in international finance.)

Before considering multiple currencies, it is worth thinking about the monetary interactions between a group of open economies if there is only one currency. This question is historically relevant because it describes periods when several countries used a single commodity (usually gold) as money. It is relevant today because there are movements afoot among groups of countries, notably the European Union, to establish a common currency. Similar proposals have been advanced for some East Asian and Latin American countries.

Adding a common currency to our multi-country real model is quite simple and allows us to discuss the determination of the world price level and the flows of money among countries. It is perhaps simplest to think of the common currency as a commodity money like gold, which was in fact the principal money in many countries before the advent of paper currency. For simplicity, suppose that the world's stock of gold is fixed and that gold is used only as money.

First consider how international gold flows are recorded in the balance of payments accounts and what these flows imply. Flows of gold between countries show up in the last line (line 7) of the balance of payments accounts (BPAs) and, because gold is the only international reserve asset in our simple example, gold flows are the only item that shows up there. Exchanges of nonmonetary assets like stocks, bonds, and real estate are recorded in line 6 of the BPAs and are referred to as private capital account transactions. The overall capital account (lines 6 and 7 combined) and the current account must sum to zero. The sum of the current account and the private capital account (line 6) is known as the official settlements balance of payments and is sometimes loosely referred to simply as the balance of payments. It is possible for the official settlements balance of payments to be nonzero. If there is a surplus on the official settlements balance of payments, domestic residents are selling more goods, services, and assets to foreigners than they are buying from them. This can occur only if domestic residents receive money (gold in our example) from foreigners. Loosely speaking, we say that a balance of payments surplus shows up as an inflow of money, and this is recorded as a negative entry on line 7.

If the entire world is a single, integrated market with a common currency, there can be only a single nominal interest rate  $i$  for the entire world. In addition, output must sell for the same nominal price  $P$  throughout the world. In effect, the world is like the individual closed economies we have studied up to this point.

The world demand for real money balances depends negatively on the world nominal interest rate and positively on world output. The world price level  $P$  adjusts to clear the money market. If world output grows

and the stock of gold is fixed, the world price level must fall.

What if an individual country, say France, grows more rapidly than other countries? France's demand for real money balances (gold) rises faster than money demand in other countries. The increased money demand in France cannot be met by a drop in the French price level relative to the price level in other countries. This is because a common price level  $P$  prevails throughout the entire world. The increased French demand for money must be met by an inflow of gold from other countries. This shows up as a negative entry on the last line of the French BPAs, indicating that the French official settlements balance of payments must be in surplus. The balance of payments surplus means that the French must run either a current account surplus (selling goods and services abroad in return for gold) or a surplus on the private capital account (selling bonds or other private assets in return for gold).

In summary, in a world with a single currency, the world price level is determined so as to clear the world money market. Currency gets allocated across countries in proportion to real income. Countries that grow relatively rapidly have net inflows of currency (balance of payments surpluses), and countries that grow slowly have net currency outflows (balance of payments deficits).

In the modern world, most countries have their own paper currencies, and the rate of exchange between a pair of currencies can change over time. This sort of international monetary system is the main topic of Mankiw's chapter 7, section 7.3. With multiple currencies, several exchange rate mechanisms are feasible.

Consider the case of purely fixed exchange rates and examine once again the situation in which France runs an official settlements balance of payments surplus. Suppose that French residents hold francs and no other currency. Suppose also that residents of the rest of the world hold dollars but no francs. To keep the exchange rate fixed between the franc and the dollar, the French central bank must buy or sell francs on the currency market to offset any excess supply or demand arising in the private sector. The French balance of payments surplus implies that French residents are net recipients of dollars from the rest of the world. When they try to exchange these dollars for francs on the currency market, the value of franc tends to appreciate relative to the dollar. To prevent this appreciation, the French central bank must buy dollars (sell francs) on the market. This purchase of dollars shows up as a negative entry on line 7 of the French BPAs and as a positive entry on line 7 of the rest-of-the-world BPAs. In the modern world, line 7 records official purchases and sales of international reserves (including foreign currencies, gold, and IMF special drawing rights) by central banks, hence the term "official settlements" balance of payments. These purchases and sales are the modern counterpart to the gold flows of earlier times.

How would the situation described above change if the French central bank (as well as foreign central banks) did not buy or sell francs on the foreign exchange market? In that case, line 7 of the French BPAs would be zero, implying that the official settlements balance of payments must be zero rather than in surplus. What could occur to bring about a zero balance of payments? With no central bank intervention in the currency market, the exchange rate between francs and dollars can change. A French balance of payments surplus implies an excess supply of dollars and an excess demand for francs on the currency market. To clear the market, the franc appreciates relative to the dollar. The appreciation of the franc tends to increase French purchases of goods, services, and assets and to reduce foreign purchases of French goods, services, and assets. The equilibrium exchange rate occurs when French residents demand the same number of dollars to purchase foreign goods, services, and assets as foreign residents supply when they purchase French goods, services, and assets – that is, when the balance of payments is zero.