Econ 345 International Finance Prof. Kasa Fall 2004

A Glossary of Terms and Concepts In International Finance

- 1. Asset Market Approach to Exchange Rate Determination: The view that the exchange rate adjusts instantly to equilibrate the market for existing *stocks* of national assets. The exchange rate is therefore regarded as the price of a durable asset, as are stock market prices and gold, for example. As such, the key determinant of the exchange rate is current expectations of its future value, and changes in exchange rates represent revisions of these expectations. Since unanticipated events are primarily responsible for movements in exchange rates, this approach implies that changes in exchange rates *should* be difficult to forecast. Although this may seem obvious now, given the experience of the past 30 years, until the 1970s most people viewed the exchange rate as equilibrating *flows* of goods and services. For example, in a 'flow market approach' an excess demand for foreign goods causes the domestic currency to depreciate. While this may have been a reasonable approach in an era of little or no capital mobility, it is a misleading view in today's world of highly integrated capital markets.
- 2. Balance of Payments: An accounting record of all (observable) transactions between domestic and foreign residents that occur during a given period of time (usually a year). Transactions resulting in payments to foreigners (e.g., imports of goods or services) are entered as debit items and assigned negative values. Transactions which result in receipts from foreigners (e.g., the sale of an asset to pay for imports) are recorded as credit items and assigned positive values. In an accounting sense, the Balance of Payments is 'always in balance'. In other words, the sum of all the components of the Balance of Payments must be zero.
- 3. Bretton Woods System: The system of fixed exchange rates that prevailed between the end of World War II and 1973. It was the result of an international conference held at Bretton Woods, New Hampshire, in 1944. Under this agreement countries fixed the value of their currencies vis-a-vis the U.S. dollar, while the U.S. government was obliged to maintain a constant price of gold in terms of dollars (\$35 per ounce). In essence then, the value of all currencies was fixed in terms of gold. In contrast to a gold standard, however, U.S. dollars were used as reserves (in addition to gold) by central banks when settling their accounts. This system gave a lot of power to U.S. policymakers since dollars were the *reserve currency*. The abuse of this power was a contributing factor to the system's collapse. Excessive U.S. monetary growth in the late 1960s led speculators to believe that the dollar would need to be devalued in terms of gold. This led to massive gold losses by central banks as they attempted to defend the existing dollar price of gold, and eventually forced Nixon to sever the dollar's link to gold in 1971. This was the beginning of the end for the Bretton Woods System. The essential weakness of the system was its reliance on a large degree of macroeconomic policy coordination between its participants.
- 4. Capital Inflow: A term used to describe a financial account surplus. In other words, a capital inflow represents borrowing from abroad. For example, 'capital inflows have been financing an excess of U.S. investment over its national savings'.
- 5. Capital Mobility: A term used to describe how easy it is for domestic and foreign residents to exchange assets. A variety of government controls and taxes can impede the free exchange

of assets across borders. For example, most countries impose restrictions on the ability of foreigners to acquire equity in domestic businesses.

- 6. Capital Outflow: The opposite of capital inflow, i.e., lending to foreigners.
- 7. Covered Interest Parity: An arbitrage condition relating spot and forward exchange rates to the interest differential on assets that are identical except in their currency of denomination. In symbols, covered interest parity implies: $f_t s_t = i_t i_t^*$, where f_t and s_t are logs of the forward and spot rates measured in domestic currency per unit of foreign currency, and where i_t and i_t^* are the domestic and foreign interest rates.
- 8. Current Account: The component of the Balance of Payments that records imports and exports of goods and services. Note, included in services are net interest payments on foreign assets. A surplus (credit balance) implies that the country is exporting more goods and services than it is importing.
- 9. **DD-AA Model:** The model of output and exchange rate determination contained in Krugman and Obstfeld's text. The DD curve represents combinations of exchange rates and output that clear the market for goods and services. The AA schedule represents combinations of exchange rates and output that clear the asset markets (i.e., the money market and the foreign exchange market). The price level, money supply, government spending, foreign interest rate, and expectations of future exchange rates are all held constant when deriving the DD and AA curves, and therefore, changes in these variables shift the curves.
- 10. **Domestic Credit:** One of the two major components of the asset-side of a central bank's balance sheet (the other being international reserves). Domestic credit consists primarily of holdings of government bonds. The important point is that when a central bank expands domestic credit (holding international reserves constant) it automatically increases the money supply, as it pays for the purchase of bonds by 'writing a check on itself'.
- 11. Financial Account: The component of the Balance of Payments that records purchases and sales of assets with foreign residents. Until recently, it was called the Capital Account. A debit balance on this account implies that the country is *lending* to foreigners. In other words, since a debit balance implies an excess of imports over exports of assets, a financial account deficit implies that the country is buying more IOU's from foreigners than they are issuing to foreigners. This is just another way of saying that the country is lending abroad. Conversely, a financial account surplus means a country is on net *borrowing* from foreign residents.
- 12. Foreign Direct Investment (FDI): International capital flows in which residents (usually firms) of one country acquire a controlling stake in a foreign business. This occurs, for example, when a firm headquartered in one country expands a subsidiary in another. For purposes of definition, a 'controlling interest' is usually defined as 10% ownership of voting shares by a single foreign resident (as opposed to 51%, which would literally be a controlling interest).
- 13. Foreign Exchange Market: A world-wide, 24-hour market in which bank deposits denominated in different currencies are exchanged. Trading takes place almost exclusively between large commercial banks, multinational corporations, central banks, and foreign exchange brokers. These participants are linked together by an efficient network of phones and computers. The volume in the market is enormous. It is estimated that on average the equivalent of well over one *trillion* dollars are exchanged *every day* in this market, making it the largest market in the world. The vast majority of this trading takes place in the currencies of the major industrialized countries. The major trading centers are London, New York, and Tokyo.
- 14. Forward Market: An informal 'over-the-counter' market in which firms can enter into contracts with large commercial banks which specify that a certain amount of foreign exchange

will be bought or sold on a given future date at a prespecified exchange rate. Such a contract allows firms to hedge against future exchange rate changes. Unless the creditworthiness of the firm is in doubt, forward contracts generally do not involve the exchange of any money until the maturity date of the contract. Although in principle forward contracts can be written for any maturity, in practice the longest maturities do not exceed two years. The forward market is strictly a "large player's" market. Individuals and small firms do not have access to this market.

- 15. Futures Market: In contrast to the forward market, the foreign exchange futures market consists of several organized exchanges (the largest being in Chicago), in which standardized contracts are traded in an auction type setting (i.e., in 'trading pits' where the highest bidder and lowest seller execute trades). The contracts are standardized in the sense that only certain currencies, contract sizes, and maturity dates are traded. For example, the maturities of all contracts are in the third week of either March, June, September, or December. Because of the rigid nature of the contracts, it is generally more difficult to use the futures market to hedge, since it is unlikely that the specifics of a foreign currency transaction will match the terms of a futures contract. In addition, the exchange requires the posting of initial and variation margins if the exchange rate moves sufficiently against you, you will be asked to fork over additional funds. This is done to ensure the contracts are honored. For these reasons, most large firms hedge currency risk by entering into forward contracts.
- 16. Gold Standard: In the gold standard each country fixed the price of its currency in terms of gold by standing ready to trade domestic currency for gold whenever necessary to defend the official price. In effect then, all exchange rates became fixed against each other (due to triangular arbitrage). Advocates of a gold (or other commodity) standard claim that it provides a means of disciplining a nation's central bank against excessive monetary growth and resulting inflation. If a nation expands its money supply at a rate exceeding the growth in money demand, the excess money supply will flow out of the country in the form of gold losses. This occurs via a balance of payments deficit, caused by the higher domestic prices resulting from rapid money growth and inflation. There are two traditional arguments against a gold standard: (1) A country must relinquish control of its own money supply. Those who believe that monetary policy can be used to stabilize the economy view this loss of control as a serious drawback. (2) It would place inordinate power to affect the world's money supply in the hands of the few major gold producing nations (e.g., Russia and South Africa). The period between 1870 and 1914 was the heyday of the gold standard. During this period most developed countries adhered to the gold standard. Although attempts were made after World War I to restore the gold standard, a variety of factors prevented its successful operation (see Krugman and Obstfeld for more details).
- 17. International Monetary Fund (IMF): An international organization created at the Bretton Woods conference in 1944. Its original purpose was to oversee the system of fixed exchange rates that was established at the conference. This involved the provision of international reserves to those countries experiencing 'temporary' balance of payments difficulties. Since the collapse of the Bretton Woods system its main role has been to serve as an intermediary in the rescheduling negotiations between developing country debtors and creditors in the industrialized nations.
- 18. International Reserves: One of the two major components of the asset-side of a central bank's balance sheet (the other being domestic credit). International reserves consist primarily of holdings of foreign governments' bonds (denominated in foreign currency). An adequate supply of international reserves is important to the viability of a regime of fixed, or pegged, exchange rates since international reserves allow the central bank to offset transitory excess demands for foreign exchange, i.e., they serve the role of a buffer stock.
- 19. J-Curve: An empirical relationship between changes in the exchange rate and changes in the trade balance. A change in the exchange rate has offsetting effects on the level of imports

(measured in terms of domestic goods). First, a (real) depreciation of the exchange rate raises the relative price of imports. Ceteris paribus, this reduces net exports. However, the higher price causes domestic residents to purchase fewer imports (and foreign residents to purchase more, which increases domestic exports). This reduction in the volume of net imports offsets the increased price of imports. Which effect dominates depends on the 'elasticity' of demand for imports. If import demands are sufficiently sensitive to changes in their price (i.e., the Marshall-Lerner Condition holds) then the volume effect outweighs the price effect and net exports increase after a depreciation. In practice, a J-curve pattern in the time path of net exports following a depreciation is often observed. This reflects the fact that elasticities tend to be larger in the long-run than in the short-run. This is because it takes time for households and firms to adjust their spending plans following a change in relative prices.

- 20. Marshall-Lerner Condition: A condition relating the sum of the domestic and foreign import elasticities to the change in net exports. If (the absolute value of) the sum of these two elasticities exceeds one then net exports will increase after a depreciation of the domestic currency. Conversely, if the sum is less than one then net exports decrease in response to a depreciation. (Note, strictly speaking, the Marshall-Lerner condition is only valid when trade is initially balanced between two countries. However, the basic idea remains - the likelihood of an increase in net exports after a depreciation increases with import demand elasticities.
- 21. Monetary Approach to the Balance of Payments: Essentially, a modern-day statement of the 'price-specie-flow mechanism', first discussed by David Hume in 1752. The key insight of this approach is that for each country there is some given, equilibrium, level of the money supply that is determined by the level of money demand (which, in turn, is determined by variables such as the level of output and the interest rate). If the government attempts to expand its money supply beyond the point of demand then the result will be a deficit in the Balance of Payments, and a corresponding loss of gold (or international reserves in modern-day parlance). Gold will continue to flow abroad until the nominal money stock falls enough to equate money supply and money demand. Hume advanced the price-specie-flow mechanism in an attempt to discredit the then prevailing philosophy of *mercantilism*. Briefly, mercantilism held that the way for a nation to become powerful was to amass as much gold and other precious metals as possible by exporting more than it imported. Sound familiar? Although the fallacies of mercantilism have been know for centuries, many government leaders still talk like mercantilists.
- 22. Mundell-Fleming Model: An open-economy extension of the standard IS-LM model. In the case of a 'small' country and perfect capital mobility, this model predicts that the relative effectiveness of monetary versus fiscal policy in influencing real GNP depends critically upon whether the economy is operating under a regime of fixed or flexible exchange rates. Under fixed exchange rates monetary policy loses its ability to affect output. On the other hand, the effectiveness of fiscal policy is enhanced (i.e., there is no crowding-out since the interest rate is fixed in world markets). However, under flexible exchange rates fiscal policy becomes ineffective because it crowds-out net exports one-for-one (as opposed to partial crowding-out of investment in the standard closed-economy IS-LM model). Monetary policy regains its effectiveness under flexible exchange rates as it affects the real exchange rate, and hence net exports. The Mundell-Fleming model is closely related to the DD-AA model (see above). The primary difference is that the DD-AA model places the exchange rate on the vertical axis, while the Mundell-Fleming model places the interest rate on the vertical axis.
- 23. National Income Accounting Identity: In a closed economy, output must either be consumed by domestic residents, invested, or bought by the government. Using the usual symbols this *identity* can be expressed as: $Y \equiv C + I + G$. In economies that trade with other countries, however, part of domestic production will be purchased by foreigners, and part of domestic spending will fall on foreign goods. Letting X denote exports and M denote imports, we then have the following open-economy national income accounting identity: $Y \equiv$

C + I + G + X - M. If we define the current account deficit as, $CAD \equiv M - X$, then we can rewrite the national income identity as $CAD \equiv GD + I - S_p$, where GD is the government deficit and S_p represents saving by the private sector. This tells us that there is a necessary, unavoidable, link between the current account deficit, the government budget deficit, and the difference between investment and private sector saving. For example, if investment and private sector saving do not change when the government changes taxes or purchases, then government deficits are necessarily associated with current account deficits (the so-called 'twin deficits' phenomenon).

- 24. Overshooting of the Exchange Rate: In a world where prices of goods do not adjust immediately to money supply shocks, the short-run response of the exchange rate *exceeds* its long-run response. This excess response of the exchange rate relative to its long-run value is termed 'overshooting'. The concept of overshooting helps to explain why exchange rates move so sharply in response to economic shocks. Overshooting occurs because of Uncovered Interest Parity. For example, because prices of goods are 'sticky', after an unexpected (permanent) increase in the money supply the domestic interest rate must fall to clear the money market. Since the change in the money supply is assumed not to affect the foreign interest rate we now have the domestic interest rate below the foreign interest rate (assuming, without loss of generality, that initially they were equal). From Uncovered Interest Parity, for this to be consistent with foreign exchange market equilibrium it must be the case that the domestic currency is expected to appreciate. However, we know that in the long-run all prices will increase in the same proportion as the money supply, including the price of foreign currency. This means that after the money supply increases the domestic currency must immediately depreciate by *more* than its long-run amount so that it can then appreciate back down to its higher long-run level.
- 25. Purchasing Power Parity (PPP): One of the two fundamental parity relationships in international finance (the other being Uncovered Interest Parity). The basic idea behind PPP is that international commodity arbitrage will enforce the 'law-of-one-price'. This 'law' states that the same good sold in different countries should sell for the same price when expressed in common currency units. PPP is just an aggregative version of the law-of-oneprice, which states that the price of any *basket* of goods should be the same in all countries. As a theory of exchange rate determination PPP therefore implies that the exchange rate is equal to the ratio of national price levels, defined for example by each country's CPI. There is a weaker version of PPP called 'relative PPP' which only requires that percentage *changes* in the exchange rate equal the difference in inflation rates between the two relevant countries. As long as factors causing deviations from 'absolute PPP' remain constant over time (e.g., different goods are used in constructing price indices in difference countries) then relative PPP can still be valid in situations where absolute PPP isn't. The major weakness of PPP as a theory of exchange rate determination is that due to such things as transportation costs, not all goods are traded between countries. If these nontraded goods are a component of the price indices used to evaluate PPP, then changes in the relative price between traded and nontraded goods can lead to changes in the ratio of price levels that are unrelated to the exchange rate. In practice, except over long time horizons, or in situations of extreme inflation, PPP is not a very useful guide to exchange rate determination.
- 26. **Real Exchange Rate:** The nominal exchange rate corrected for inflation (or price level) differences between countries. One way to view the real exchange rate is that it simply measures deviations from Purchasing Power Parity. However, in some models the term real exchange rate is used in a more narrow sense, namely, as the price of nontraded goods relative to traded goods.
- 27. Sterilized Intervention: When a central bank buys or sells foreign exchange (i.e., government securities denominated in foreign currency) in an attempt to influence the exchange rate, its actions affect the monetary base, and hence the domestic money supply. For example, if

the Fed sells yen in an attempt to prop up the dollar this will reduce the U.S. monetary base as bank reserves at the Fed are debited to pay for the ven. If the Fed wants to 'have its cake and eat it too' (i.e., influence the exchange rate but not affect the domestic money supply), it will offset the foreign exchange market operation by conducting the opposite transaction with domestic securities. In the above example, this would mean that at the same time it is selling yen-denominated securities the Fed *purchases* the same amount of dollar-denominated securities. The net effect is to change the currency composition of the Fed's balance sheet while leaving the monetary base unaffected. There are now more ven-denominated securities and fewer dollar-denominated securities on the market than before. The only way to induce investors to make this portfolio shift is to increase the expected relative rate of return on yen deposits. If expectations of the yen's future value remain the same, one way for this to happen is for the ven to depreciate now (or equivalently, for the dollar to appreciate). Note, the ability of sterilized intervention to affect the exchange rate hinges on the imperfect substitutability of bonds denominated in different currencies. If bonds denominated in different currencies are perfect subsitutes in the portfolios of investors (holding constant their expected returns), then sterilized intervention will not affect the exchange rate.

- 28. Swap: Although there are several different kinds of swaps traded in the foreign exchange market the most common is one in which a spot and forward transaction are collapsed into a single transaction, called a *spot-forward swap*. In a spot-forward swap a trader will buy (sell) on the spot market and simultaneously sell (buy) on the forward market. By collapsing the spot and forward trades into a single deal, swaps economize on transactions costs. Swaps are so widely used that forward rates are usually inferred from the existing spot and swap rates.
- 29. **Terms of Trade:** The price of a country's exports relative to the price of its imports. An improvement in the terms of trade means that the price of a country's exports have risen relative to the price of its imports. In other words, the country can now acquire more imports in exchange for the same amount of exports.
- 30. **Triangular Arbitrage:** This is sometimes called cross-rate arbitrage. The basic idea is that between any three currencies there are only two independent exchange rates. For example, the dollar/yen exchange rate and the dollar/euro exchange rate determine the yen/euro exchange rate as: yen/euro = yen/dollar × dollar/euro. If this weren't the case one could arbitrage by buying low and simultaneously selling high.
- 31. Uncovered Interest Parity (UIP): One of the two fundamental parity relationships in international finance (the other being Purchasing Power Parity). Uncovered Interest Parity provides the condition under which all assets that differ only in currency of denomination yield the same expected return (when expressed in common currency units). Mathematically, this can be expressed as: $E_t s_{t+n} s_t = i_t i_t^*$, where s_t is the log of the spot exchange rate (defined as the price of foreign currency), i_t and i_t^* are domestic and foreign *n*-period nominal interest rates, and $E_t s_{t+n}$ denotes the expected value of s_{t+n} evaluated at time-t. (This formula is only an approximation, but a good approximation). Note, if UIP *doesn't* hold, implying that the forward rate is not the best predictor of the future spot rate, this does not imply that you can somehow take advantage of the situation and make arbitrage profits. The reasoning behind the above formula involves taking an open position in foreign currency, and is therefore risky. You should understand the difference between Covered Interest Parity, which is an arbitrage relationship, and Uncovered Interest Parity, which is an economic hypothesis that may or may not be true.