

## **The Global Economy—MALS**

### **Unit 5: Exchange Rate Systems**

#### **Introduction**

One of the principle problems of a liberal global economy is the exchange rate system. The exchange rate system determines how the value of currencies will adjust to patterns of trade.

- Why is the dollar worth 126 yen?
- What happens when it is worth only 114 yen?
- What might cause such a shift?
- How do such changes affect countries with respect to trade?

Such questions are especially important given the relative frequency of financial crises—periods in which the value of foreign currencies is subject to wild fluctuation—in a liberal world economy. Indeed, even though most economists agree that international markets and free trade in goods are usually worthwhile, there is no such agreement when it comes to markets for foreign exchange. In fact, some economists believe it would be better to somehow “fix” the price of one currency against another. This unit examines the history of exchange rates systems, the theories behind them, and some contemporary examples of their use (and failure).

Many people find exchange rates confusing, as you will find in this entertaining video.

**VIDEO:** Making Sense of Exchange Rate Quotes

## Part 1: Brief History of Exchange Rate Systems

Historically speaking, the need for an international payment system arose when nations no longer sought to extract wealth through pillage and plunder, but decided that voluntary trade—rather than bloody and costly invasions—was mutually beneficial. In order for such trade to take place, there had to be **money**, which served three purposes:

- a unit of account
- a store of value
- a medium for exchange

**An ancient system.** In ancient times the monetary system was fairly informal. It was comprised of moneychangers who worked with merchants operating in a given trading region. The moneychangers were illegal in some places, but where trade thrived, they were present. During the Roman Empire, the use of coin spread rapidly, in no small part because people needed money with which to pay their taxes, but also as an effect of the Empire's economic integration. As Rome grew more powerful, and more people used its currency, the Empire looked quite like a trade bloc with a single currency.

**Coins and paper in Medieval Europe.** It wasn't until the 13<sup>th</sup> century that gold coins, like those minted in Rome, were used across much of Western Europe. But by this point there were all kinds of gold coins: florins from Florence, sequins and ducats from Venice, and so on. Silver coins were also common in everyday use, as were copper coins. This heady mix of monies was the basis of international settlements. Coin would flow into nations who sold more than they bought or who borrowed more than they lent, and would flow out of countries that did the reverse. Paper currency—which were more like checks or IOUs, usually offered at a discount, representing a claim to a certain amount of precious metal—developed as moneychangers became lenders and depositories of precious metal, and people began to recognize the inconvenience of carrying around heavy metal coins.

**Advent of the gold standard.** In the late 19<sup>th</sup> century the gold standard really took hold in Europe and the United States. Its origins were in the Napoleonic wars earlier that century. At that time, the Bank of England printed lots of pound notes to finance war efforts; but that left the Bank and the British government in a sticky position: far more pound notes would be in circulation than the Bank could actually redeem in gold at the given price. Fearing a run on the Bank's gold supplies—since the pound notes were no longer fully backed—they suspended the pound's gold convertibility. But, as we might expect, these policies weakened the pound's value, leading to higher prices and inflation. So after the wars, the men of Parliament (mostly landowners and merchants hurt by inflation) sought to prevent further erosion of their money's value. They passed laws that made the pound fully convertible into gold at a specified rate. By 1821, England was on the gold standard; by 1880 most other nations had followed suit, and the international gold standard was officially in place.

Gold, along with silver, functioned as the international store of monetary value until the beginning of World War I. At that time, the gold standard was abandoned, primarily because

nations needed deficit financing for the war, which increased the amount of paper money in circulation beyond nations' gold reserves.

**After WWI.** After the war many countries let their currencies float (that is, fluctuate in value against each other and gold), but in looking forward to the return of the gold standard, tightened their monetary policies and supply of money in the 1920s. By doing this, central banks sought to strengthen their currencies so that when they went back on the gold standard, they could maintain the prewar currency-gold exchange rates. These “deflationary” policies—so named because they increased the value of currency, rather than decreasing it, as “inflationary” policies do—did strengthen currencies; but they did so at the cost of sending the economies of Europe and America into severe recession and contributing to the great depression. High interest rates, caused by a smaller supply of money in circulation, and increasing money values did mean lower prices; but lower prices were a disaster for businesses (individuals) who owed money: the value of their debts increased while the price of their goods (the value of their wages) decreased. Unemployment and bankruptcies soon followed.

To put it another way, the basic idea was that, after the War, nations began printing money to pay for the War. They soon had more of their money in circulation than they had in gold to back its value at the official “gold” price (they really had no choice given the War), so the gold standard fell apart. After the War, nations expected gold to return as the standard. Wanting their currency to be strong (worth lots of gold) they pursued policies to limit the amount of their money in circulation, which caused deflation (lowers prices and wages)—and lower prices can be a disaster for an economy. Why? If you own a business and prices are falling, covering your production costs will be nearly impossible. And if you have debt and your wages are falling, it will be nearly impossible pay it back. *This is why there were so many business failures and foreclosures during the Great Depression.*

\*\*\*Tip Box: Confused by inflation/deflation?

Inflation means higher prices, which means your money doesn't go as far and is consequently “worth” less.

Deflation means lower prices, which means your money goes further and is consequently “worth” more.

But if you incur a debt during a period of normal rates or inflation, and must pay it back during deflation, you have fewer dollars to pay back what you owe and consequently a greater chance of failing to pay your debts.

Prices in an economy are basically a relationship between the amount of stuff an economy produces and the amount of money in circulation. For example, suppose your economy made 10 widgets and there were 10 dollars of money in circulation. The price of a widget would be 1 dollar (units of money / units of widgets). Now suppose that you decided try to make your economy richer by printing an additional 10 units of money, giving you a total of 20. In the long-run, the only effect such an increase in your money supply would have is to double the

price of your widgets. In other words, printing money does not make you richer—it merely creates inflation, which makes the individual units of your money worth proportionally less. So how would you make your economy richer? Improve your productivity and make more widgets... (Sound familiar?)\*

**WEBSITE:** For more detailed information on this period of the history of the exchange rates visit:

Money Matters: An IMF Exhibit—The Importance of Global Cooperation:  
[Conflict & Cooperation \(1871–1944\)](#)

**Advent of the dollar standard.** The initial return to the gold standard, then, was not a happy one. Indeed, some economists have suggested that the international community's insistence on conformity to the old gold parities was a principle cause of the rise of German fascism and World War II. So, after the war, when the world returned to gold, it did so under the auspices of the Bretton Woods agreements, which also established the World Bank and International Monetary Fund.

Essentially, these agreements put the world on a dollar standard, and the US on a gold standard. That is, currencies other than the dollar had to be maintained in a certain trading range with respect to *it* (the dollar), and the US agreed to change dollars for gold at \$35 per ounce—for foreign central banks only, not the public. The IMF was the central bank for central bankers, providing foreign currencies to intervene in foreign exchange markets. But US monetary policy guided the international financial system.

**WEBSITE:** For more detailed information on this period of the history of the exchange rates visit:

Money Matters: An IMF Exhibit—The Importance of Global Cooperation:  
[Destruction & Reconstruction \(1945–1958\)](#)

**The impact of the US's role.** This arrangement worked throughout postwar rebuilding and the emergence of Japan as an economic power into the late '60s and '70s, in part because most of the developed world was happy to follow the dictates of US monetary policy. That was true until the late 1950s, when the needs of the system grew as countries began to trade more freely. In the early '70s, after the US had pursued inflationary monetary policy for a decade (to fund the Vietnam War and Lyndon B. Johnson's Great Society programs), the primary contradiction in this system became evident. Since the world was on a dollar standard, US policy increasingly drove world economic growth. And for the world to grow, the US had either to lend more than it borrowed, or buy more than it sold abroad. There *had* to be an increase in the supply of dollars to the rest of the world. In other words, expansionary monetary policy—which stimulates growth—could only be provided by the US.

By definition, however, expanding the US money supply undermined the value of the dollar against all of the currencies that were pegged to it. So, to keep the dollar from depreciating, the Bretton Woods system required the world's central banks to intervene in the foreign

exchange markets and buy up dollars. Eventually, however, there were a lot more dollars floating around than the US Federal Reserve and Treasury could convert into gold at \$35 an ounce. In 1973, with the world's central banks—which had accumulated vast supplies of dollars—questioning the US's commitment to buy back dollars for gold, the US ended dollar gold convertibility. And with the dollar no longer backed, central banks, naturally, stopped supporting its value, leaving exchange rates to freely float.

**WEBSITE:** For more detailed information on this period of the history of the exchange rates visit:

Money Matters: An IMF Exhibit—The Importance of Global Cooperation:  
[The System in Crisis \(1959–1971\)](#)

**VIDEO:** Money Used to be Backed by Gold, Now It's Backed by God

**The managed-floating currency system.** Since then, the world has worked on the managed-floating currency system, which has had mixed results, but has been critical to international integration. The task in this era has been to stabilize this system, whose volatility increased markedly in the '80s and '90s, particularly among fragile developing nations, whose economies often flourished or fell on the success or failure of a single market. For this a number of things—often variations on the old fixed-rate system—have been tried: exchange rate and “crawling” rate pegs, currency boards, and dollarization, to name a few. It is difficult to generalize about the results, since these currency arrangements often stand or fall on other macroeconomic policies—and on the policies of the IMF. Suffice to say that, although theory tells us that free monetary and capital mobility might be optimal, the globalized world is still working to make the most out of second-best alternatives.

**WEBSITES:** For more detailed information on this period of the history of the exchange rates visit:

Money Matters: An IMF Exhibit—The Importance of Global Cooperation:  
[Reinventing the System \(1972–1981\)](#)

Money Matters: An IMF Exhibit—The Importance of Global Cooperation:  
[Debt & Transition \(1981–1989\)](#)

Money Matters: An IMF Exhibit—The Importance of Global Cooperation:  
[Globalization and Integration \(1989–1999\)](#)

## Part 2: The Historical Gold Standard

One of the reasons the gold standard was so attractive in the 18<sup>th</sup> and 19<sup>th</sup> centuries was that it promised a certain kind of efficiency and stability in international payments. (Contemporary advocates of returning to the gold standard always make this argument.) The system was governed by the **price-specie-flow mechanism**, which was initially elaborated by David Hume.

Technically, the official International Gold Standard began in 1880 and lasted until 1914, ending with the outbreak of WWI. It worked through each nation's fixing the value of its currency to a certain amount of gold, the parity price of that currency. For example, if the price of gold in British pounds were £4/oz, and the price of gold in dollars were \$8/oz, then the implied exchange rate would be \$2 per £1, or £1/2 per \$1, depending on how you looked at it.

Importers, exporters, lenders, and borrowers know that at any point they can buy gold with their currencies and then trade them for other currencies, if they so choose. So, if the exchange rate in the market ever priced pounds above their parity value of \$2 per £1 to, say, \$2.10, then holders of dollars who needed pounds would simply bypass the currency market, covert dollars to gold at the official rate, and then use the gold to buy pounds, effectively securing a parity rate. Plus, if the market rate for dollars deviated from its parity rate, arbitrage profits could be had; holders of pounds would buy dollars on the market (and get more dollars than the parity rate), convert the dollars into gold (the price of which is fixed), and then with the gold buy pounds again.

Using the example above, 4£ on the market buys \$8.40, which buys more than 1 oz of gold, which buys back more than 4£. But the price-specie-flow mechanism in theory prevents easy profits like this because it prevents the exchange rate from deviating from its implied gold parity rate. When people start buying cheap currency (dollars, in the example above) to exchange for gold, this pushes the dollar's value up in the market, which closes the profit-making opportunity and restores parity rates in the market. Neither of the above examples takes into account the transportation and transactions costs associated with gold conversion, but these costs just set an upper and lower bound on how far markets rates can deviate from the parity rate.

Moreover, the mechanism applies to changes in the exchange rate for any reason. For example, if the UK ran a trade surplus with the US, demand for pounds would go up relative to the dollars, which would make pounds more expensive on the market. This, however, would cause either (a) dollars to be converted to gold and shipped to the UK so that pounds could be gotten at parity or (b) speculators with pounds engaging in arbitrage and buying dollars on the market. In either case, the money supply of the US is moving to the UK, causing prices to rise in the UK and fall in the US—which would mean, all else equal, a trade deficit for the UK in the next period and the movement of market rates back toward parity. In other words, Hume's price-specie-flow mechanism continually works towards restoring exchange rate parity and balanced trade under a gold standard exchange rate system.

Why then would nations choose to abandon such a system? Well, although such a system guarantees balanced trade, it does so at the cost of handcuffing a nation's monetary policy—since you can only print more money if you mine more gold. And when push comes to shove, a nation will typically favor control over internal objectives—such as financing a world war—over a guarantee of balanced trade.

**VIDEO:** The Theory of the Gold Standard

### **Part 3: The Bretton Woods Modified Gold Standard**

The modified gold standard after the Bretton Woods agreement aimed was designed to take advantage of the virtues of both fixed and floating exchange rates. The relative stability of a gold-backed system was needed to bring nations out of the isolationism that characterized the interwar period. But the exchange rates were meant to be changeable: in the event of a fundamental disequilibrium, the gold parity rates could be modified.

The Bretton Woods system led to a specific kind of policy impasse, sometimes called the “**trilemma**” of the system. (A trilemma is like a dilemma, except there are three choices [tri-] rather than two.) The trilemma was that nations could choose any two of the following three, but could not have the third at any given time:

- capital mobility and trade
- fixed exchange rates
- policy independence

In the early years of the Bretton Woods system, many countries maintained policy independence, but did so at the cost of restricting investment flows. As trade increased and the need for capital mobility grew, it was necessary for these countries to give up fiscal and monetary policy independence and to target exchange rates as their policy focus. Over time (see part 1), the very size of the interventions needed to make a difference dwarfed most governments’ abilities. Initially, in reaction to these pressures, the Bretton Woods system was modified—with exchange parities being redefined—but eventually the exchange rates anchored to gold through the dollar had to be abandoned.

Ultimately, then, the reason for Bretton Woods’ failure was quite familiar: whatever value the stability of this system brought to international markets was overshadowed by the loss of sovereignty over domestic policy, which it required.

**VIDEO:** The Ineffectiveness of Monetary Policy under Fixed Rate Systems



## Part 4: Pegged and Crawling Pegged Rate Systems

**Pegged rate systems.** Pegged rate systems are those in which one currency's value is anchored—or pegged—by another. The Bretton Woods modified gold standard was a pegged rate system: all of the world's currencies had set exchange rates with the dollar; exchange rates were only allowed to move within a specified band set before central bank intervention in the market was required. Although no global pegged rate “system” is currently in place, many world currencies still work with implied or declared exchange pegs.

For example the Chinese Yuan, much to everyone's dismay (see Unit 2), is currently pegged to the dollar. Before the Asian financial crisis, the currencies of Indonesia, Malaysia, and South Korea (among others) were pegged to the dollar. This helped to exacerbate the crisis in the region: as the dollar rose in the mid-1990s, these countries' trade surpluses evaporated, which (among other things) prompted investors to head for the exits in late 1997.

**AUDIO CLIP:** This NPR All Things Considered audio clip, which aired on 8/12/2003, discussed US opinion of the Chinese Yuan's pegged value against the US dollar.

[U.S. companies blast China's exchange rate policy](#)

**Crawling pegged rate systems.** Crawling pegged rate systems are those in which currency pegs are allowed to change, but slowly. In the 1990s the Mexican peso was assigned a crawling peg value relative to the dollar. But, as the Mexican peso crisis of 1994 showed, crawling pegs have the same weaknesses as stationary pegs: if speculators think they can make money by making the government defend the exchange rate, they will; and they usually win in a contest of financial wills.

In fact, any variation of a pegged exchange rate system in a nation that allows financial capital to freely flow in and out is ripe for attack. The reason for this is simple: if a central bank pegs the value of its currency, unless it can fully cover that rate—by having enough of the other nation's currency to sell—the rate will only hold so long as market forces agree it is correct.

For example, suppose weakening macroeconomic conditions in a foreign nation which has its currency pegged to the dollar encourages Americans invested in that nation to look elsewhere for higher rates of return. What will happen? Well, the investors will sell their investments in that nation and look to its central bank to exchange their funds back into dollars—and if that nation's central bank does not have adequate dollars in reserve, they will not be able to defend their rate and the value of their currency will be forced to fall.

## Part 5: Dollarization, Currency Boards, and Single Currency Areas

*Some countries have recently considered making another country's currency their own: in particular, adopting the dollar. This is a highly consequential step for any country, one that has to be considered very carefully and, in our view, should not be done without consultation with United States authorities. On one hand, dollarization offers the attractive promise of enhancing stability. On the other hand, the country also must be prepared to accept the potentially significant consequences of doing without the capacity independently to adjust the exchange rate or the direction of domestic interest rates. The implications for the United States are also consequential. We do not have an a priori view as to our reaction to the concept of dollarization. We would also observe that there are a variety of possible ways for a country to dollarize. But it would not, in our judgment, be appropriate for United States authorities to extend the net of bank supervision, to provide access to the Federal Reserve discount window, or to adjust bank supervisory responsibilities or the procedures or orientation of U.S. monetary policy in light of another country's decision to dollarize its monetary system.*

~Treasury Secretary Robert E. Rubin, April 21, 1999

Since the end of the modified Bretton Woods gold standard in the '70s, the volatility of exchange rates and financial markets has increased markedly. In a way, that is to be expected: both the volume of trade and the size of foreign exchange markets have also increased rapidly, and the oversight of the postwar Bretton Woods system is gone. The increasing volatility has especially been a problem for late-industrializing economies—such as those in South East Asia—and developing economies all over the world. Without stable currencies and capital markets, industrialization, especially on the IMF's terms (i.e. export-oriented growth), can be difficult, if not impossible.

**Dollarization.** One solution to currency instability has been “dollarization.” When a country dollarizes, they accept the US dollar (or some other nation's currency) as their own currency; by doing so, they usually hope to contain inflation, which not only hampers consumer confidence, but also drives away foreign investors. Theoretically, the process of dollarization is quite simple. Suppose, for example, that Mexico dollarized. How would the process work? Well, if the current exchange rate is 10 pesos per dollar and there are 10 billion pesos in circulation, then Mexico could “destroy” their currency and ask the US Treasury to print them a billion US dollars. As a result, goods that used to cost 10 pesos in Mexico would now cost a dollar.

But how would adding a billion dollars into circulation affect US prices? It wouldn't. Why? Because the billion newly circulating dollars are covering a billion dollars worth of Mexico's output, which is now priced in dollars. In other words, the overall ratio of the US money supply to output covered by dollars remains the same, implying prices in the US will be unaffected. Does Mexico's dollarization cost anything for the US? Other than the cost of the paper, ink and labor required to make the dollars for Mexico, not really.

What about the cost for Mexico? By using dollars, Mexico is effectively handing over control of their money supply—and their monetary policy—to the US Federal Reserve. Why would Mexico do this? If Mexico had a history of exchange rate volatility and mismanagement, it would be hard for them to attract foreign investment, so dollarizing eliminates this risk. In reality, of course, Mexico is not dollarized, although it hasn't gone without consideration; but Panama and El Salvador are, and Argentina, Peru, and Uruguay each have more dollars than their own currencies on deposit in their financial systems—allowing them to successfully defend the value of their currencies against the dollar.

**Currency board.** Argentina's efforts at dollarization suggest another related mechanism for curbing financial volatility: a currency board. A currency board oversees the domestic money supply and ensures financial stability by making sure that domestic currency is backed by another. In Argentina's case, the supply of Argentine pesos had to be matched one-for-one with dollars on reserve. So, even though the Argentine peso was still the currency in circulation, it had dollarized by assuring investors and consumers that domestic money supply would not stray from the supply of reserve dollars on hand.

A currency board, then, is more of an official exchange window for a nation than a central bank—its sole purpose is to ensure that any domestic currency introduced is fully covered in reserves by the currency it is backed against. As such, any nation wishing to successfully guarantee and defend its currency in this way must also be willing to relinquish sovereignty and forgo debt-financed monetary expansion. Although Argentina was able to temporarily cure its hyperinflation problem this way, the need of the government to run deficits when the economy slowed pushed the peso off the dollar standard and led to Argentina's sovereign debt default—and a severe political crisis—in 2002.

**VIDEO:** The Theory of Dollarization and Currency Boards

**Single currency.** Finally, we might consider a single currency area, such as the European Union, as a response to increasing financial volatility. This area is defined by separate national governments and economic institutions, but a monetary policy guided by a supra-national policy-making central bank. There are basically four reasons why countries would enter into a currency area agreement:

- First, and most obviously, a single currency area **eliminates the transactions costs** of changing one currency into another: in doing so, it simplifies accounting and allows consumers to compare cross-national prices more easily.
- Second, a currency area **eliminates price volatility** that is a function of exchange rates alone: this will generally ease business transactions and obviate the need for many kinds of speculative hedging.
- Third, such an exchange area can **cement trust among nations**. At the very least, trade disputes that might come about because of fluctuations in the exchange rate will be eliminated.

- Finally, for developing countries, a common shared currency can give them **credibility in financial markets**, which could lead to lower interest rates, easier credit, and greater opportunities for economic development.

## Part 6: Market-Driven Flexible Exchange Rate Determination

When the United States ended gold convertibility in 1973, its European trading partners were not particularly happy. Because of the US's huge current account deficit, the dollar naturally fell against other currencies. That put foreign exporters at a distinct disadvantage: as their currencies appreciated against the dollar, their goods became more expensive for US consumers. The US was accused of "exporting inflation"—it was making its trading partners pay for vicissitudes of the dollar's value. That was the price that Europe had to pay for the switch to market-driven exchange rates.

**Supply and demand.** As we might guess, the theory of market-driven exchange rates is fairly simple: the exchange rate is driven by supply and demand. That's fine. But money is different than other goods in the sense that there are few production costs for it—the "actual" costs for printing hard currency are small; the cost of money itself is the interest rate. Unlike bicycles, computers or pizza, in other words, the supply curve for currencies is not driven by the actual cost of producing a unit of currency.

So what drives supply and demand? Well, interest rates matter, as we've seen, but what else? To name a few:

- inflation rates
- growth rates
- tastes and preferences
- trade patterns/protectionism
- speculation

**Productivity and rates of return on investments.** The real answer to this question is very complicated. But, as a first approximation, it's not unfair to say that in market-driven exchange rate systems, the exchange rate is a function of a country's productivity and rates of return on portfolio investment relative to others—at least in the near term. For example, if country A can produce cars much more efficiently than its competitors, then demand for that country's currency will go up, since in order to buy the cars foreigners have to purchase country A's currency. Likewise, if stocks or bonds in country A have a high expected rate of return (perhaps because of their productivity), then demand for the currency will, likewise, go up.

**No precedent.** While this is an oversimplification, it does explain some exchange rate movements. For example, the yen's appreciation against the dollar was due in part to Japanese productivity in the late 1970s. The appreciation of the dollar against almost all world currencies in the '90s was due to high expected rates of return on US investment. The bigger problem with understanding market-driven exchange rate systems is that we have no real contemporary precedent for them. Although currencies have nominally floated against one another since the 1970s, this has been a managed float: when any of the world's major currencies threatens to change value quickly, central bankers from its trading partners usually intervene to keep the changing currency within an informally defined trading range. For example, following the September 11<sup>th</sup> terrorist attacks, central bankers feared financial

instability from “panic” sales of US investments, so they agreed to buy up dollars from those wanting to sell in order to show support and commitment to the US economy and the dollar’s value.

**VIDEO:** Central Bank Intervention after 9/11

**Impact of inflation rates.** An important longer term explanation for exchange rate determination is the inflation rate differential between nations. If a nation experiences higher rates of inflation than its trading partners, its products will become relatively more expensive and demand for its currency over time will fall. In the days of fixed exchange rate systems, such differentials were part of the natural adjustment process toward balance trade, as we have seen; but in a flexible rate world such inflation will work to perpetually undermine a currency’s value if left unchecked.

**VIDEO:** S&D of Exchange Rates, Major Determinants of Rates

## **Weblinks**

During your reading of UNIT 7, Parts 1–6, the following weblinks were presented. Read them now if you have not already done so.

[\*Conflict & Cooperation \(1871–1944\)\*](#)

[\*Destruction & Reconstruction \(1945–1958\)\*](#)

[\*The System in Crisis \(1959–1971\)\*](#)

[\*Reinventing the System \(1972–1981\)\*](#)

[\*Debt & Transition \(1981–1989\)\*](#)

[\*Globalization and Integration \(1989–1999\)\*](#)

[\*U.S. companies blast China's exchange rate policy\*](#)