

Same basic terms

The liberalization of the flow of capital that begins in industrialized countries in the 1970s and later in developing countries constitutes the context for a highly inter-dependent financial system.

It all starts with the Federal Reserve of the United States and the setting of the interest rate, and the U.S. Treasury selling bonds.

- **Bonds:** a bond is a document that governments use to raise credit, that is, to get loans when they are running deficits and need money to cover them. The bond has a face (nominal) value and establishes a periodic payment (could be monthly or yearly) and a period of repayment. For example, a 10 year bond might have a nominal value of \$100 and establish and yearly payment of \$10, which means that the interest rate or the return of that bond is 10%. When the tenth year arrives the buyer of the bond can go the Federal Reserve and ask for the \$100 back (seen from the other side, the Treasury is canceling its loan).

Bonds, additionally, are transferable. So if I bought a bond last year but I don't want to wait until 2013 to get my \$100 back, I can go to the stock market and sell mine. However, the price I'll get for it varies. If the government that issued the bond is doing really well (that is, the country's exports are booming, the government is running budget surpluses, etc.) I might be able to sell for more than \$100. However, if the opposite is true, I might have to sell it for less than \$100. Note that the monthly payment (\$10) stays the same, so changes in the price of the bond actually imply changes on the return of it, on its interest rate (that is, for the person that bought the bond in \$90, the monthly payment of \$10 will imply a—higher—return of 11%).

- **Interest Rate:** is the percentage charged over a loan, that is, the cost of money for a person/government that is asking for a loan. The Federal Reserve sets reference interest rates for the U.S. economy.

As it is assumed that the government of the United States will NEVER default on its debt, the Treasury bonds are considered the safest in the world, they're considered the benchmark with which the risk of other bonds is evaluated.

- **Country risk rate:** involves the evaluation of the possibility that a country might not honor its debts (that is, default on its debts).
- **Interest rate spread:** the difference between a certain interest rate and the rate of a risk-free asset, such as a bond from the U.S. Treasury.

Developing countries also need resources and thus get indebted just as the United States. However, the interest rate that they offer is necessarily higher (for an investor to decide to

invest in riskier bonds, it has to be compensated with interest rates higher than those offered by the U.S. government, otherwise, the investor would keep its money in U.S. treasury bonds).

Developing countries, then, offer a spread over the rate set by the U.S. Federal Reserve.

$$i_{DEV} = i_{US} + \text{risk premium}$$

(where i =interest rate)

There are two types of investment, or two types of functions that foreign capital pursue when they enter into a country:

- **Portfolio Investment:** foreign investment that enters a country and invests in very liquid assets (the liquidity of an asset is measured by how fast can that asset be turned into cash) such as government bonds or stocks from traded companies. As there is a stock market where these assets are traded every day, once the investor decides to get rid of those bonds or stocks, all he/she has to do is sell it in the stock market, and get cash in exchange.
- **Foreign Direct Investment:** foreign investment that enters a country and invests in illiquid assets such as companies, property, etc. (a prominent example of this type of investment was the flow of foreign capital that entered developing countries to buy privatized utilities during the 1990s).

When capital flows are unregulated, those funds that are in portfolio investments can react immediately to movements in international variables.

Why would the Federal Reserve move the interest rate?

First let's review what are the effects of movements in the interest rate:

Interest rates affect the real economy through various means. Whenever a company is evaluating a possible investment (buying new machinery to expand production, expanding its existing facilities, etc), it will need to get a loan to pay for the new machinery. The interest rate the company gets charged for that loan will determine whether the investment is profitable or not (if I expect that the new machinery will increase my monthly profit by \$10 dollars, but I am required to pay a larger amount as a monthly quota for the loan, the investment is just not feasible).

As a consequence, as the interest rate goes up, less and less investment projects are profitable (the monthly quota gets bigger and bigger, while the return to the investment (the increased profit) stays the same). At the same time, as the interest rate goes down more and more investment projects become feasible and profitable (the opposite logic applies to the one just described). This can be summarized in the following:

$i \uparrow \rightarrow I \downarrow$ and
 $i \downarrow \rightarrow I \uparrow$

(where I=Investment)

The increase or decrease in investment, in time has clear effects over employment. If a factory expands, there will be a need for more workers, if a new restaurant opens, that will generate new job offerings as well). And employment, finally has effects on the national income (GDP) and thus on aggregate consumption. This can be summarized as follows:

$I \uparrow \rightarrow N \uparrow \rightarrow GDP \uparrow \rightarrow C \uparrow$ and
 $I \downarrow \rightarrow N \downarrow \rightarrow GDP \downarrow \rightarrow C \downarrow$

(where N=employment, GDP=gross domestic product, and C=consumption)

The Federal Reserve usually tries to set the interest rate so as to maintain the economy on a path of growth. However, policies that are too expansionist (that is, too conducive to growth) might end by generating inflation (by producing excess demand for labor or goods, both of which would cause higher prices). Then, what the Reserve will try to do is to maintain the economy in a path of growth (by keeping interest rates low enough to increase investment levels, and thus GDP and consumption) while trying not to overdo it.

However, the Reserve—of course—is looking at the U.S. economy, and it cares about how the U.S. economy is doing in terms of growth and inflation. BUT, the interest rate it sets has influence not only on local credit markets, but on the whole world.

International effects of movements in the U.S. interest rate

We'll focus on portfolio investment, that is, international capital that moves across countries buying and selling bonds and stocks and that try to maximize their gains (actors such as Soros, that manages its own and other people capital, or investment banks such as JP Morgan, or private pension administrators that keep the savings that people do for retirement).

How a crisis is made:

The U.S. economy is showing signs of recession, unemployment figures have grown in the last few months, consumer's confidence indexes are not doing too well, and consumption has declined as well. Mr. Greenspan decides is time to lower the U.S. interest rate to just 2%.

This is way too low for most investors in search of short term gains, and so they decide to take their money out of the U.S. and put it in some country that offers better returns.

On the other hand, with such low interest rates, investors see the opportunity to get cheap loans on the U.S. and use the money to invest abroad, cash in the interest rate differential and then return the loan, keeping quite a large profit for themselves.

In other words, there are capital outflows in the U.S. and capital inflows in any emerging country that looks promising at the time, for example: Mexico.

Mexicans couldn't be happier to be receiving all those inflows, after all, the government needs funds to cover budget deficits (and thus needs people to buy the bonds they sell, which is the way in which governments get loans), and there are many new investment projects that can also use those incoming funds. Finally, markets are all about consumption, and upper class Mexicans can't wait to buy that new DVD player in the stores, or get the new Beetle, being produced by Volkswagen in Northern Mexico. For doing this, of course, they get indebted too (the deregulation and privatization of the financial sector helps, and Citibank is all over the place offering great new credit packages).

(important note, dollars are entering Mexico, which means that Mexican central bank—the equivalent of the Federal Reserve—is exchanging those dollars for pesos, and increasing its dollar reserves. If the exchange rate is flexible this means the peso is gaining value—appreciating).

So far, so good. However, finally the U.S. economy responds, and Mr. Greenspan thinks that it might be time to increase a bit the interest rate again, because employment figures look ok, and he wants to be really sure that inflationary pressures don't appear in the U.S. economy. So he sets the new interest rate at 4%.

At the same time, Mexico starts looking a bit more risky (budget deficits, increasing private indebtedness, the high exchange rate is starting to hurt Mexico's exports as well, etc.) and investors re-evaluate their positions. As U.S. (risk-free) investment looks somewhat attractive again, what's the need to stay in Mexico? Mexico is—after all—a Third World country, and everybody knows you can't trust those unstable economies anyway... (I mean, look at Argentina!).

So Soros decides to take out his money from Mexico, and then Soros' neighbor in Wall Street starts to have second thoughts. After all, if Soros is taking his money out, there must be some reason... So Soros' neighbor follows, and then the other investor that has lunch with Soros' neighbor every Monday starts thinking about it as well, and then he goes and takes his money out of Mexico as well.

This outflow has two effects:

. On Mexican government bonds prices: if investors start selling Mexican bonds in order to then leave, their prices will fall, making their return go up, making them riskier.

. On Mexican exchange rate: again, Mexican central bank will have to start receiving the pesos of the investors that are leaving, and giving them dollars (the only internationally valid currency) which means that there will be a downward pressure on the peso (excess supply of pesos means lower prices for pesos) and a loss of dollar reserves in the central bank.

So, if Mexico didn't look bad before the outflow started, now it will really start looking bad (low priced government bonds, as nobody wants to buy them, the central bank running out of reserves...) and thus those Wall Street investor that had not left by then, decide to leave now, and the rest follow suit.

This is the exact definition of a **self-fulfilling prophecy**, which means that if enough people start believing that Mexico will fall and act upon that belief, then—even if there was no objective reason *a priori*—Mexico will at some point fall as a consequence of these pressures.

Going back to Mexico, the central bank IS now REALLY running out of dollars, and there are still investors wanting to get rid of their bonds, and then of their pesos, and exchanging them for dollars so there is a problem.

The problem is that if investors that are rushing out of Mexico don't get their dollars back they won't be able to fulfill many obligations they have back home (in the U.S.). As it was discussed before, one of the strategies of these investors was to raise loans with low interest rates in the U.S. and gain by putting that money in the higher yielding investments in Mexico. On the other hand, investment banks also have to respond to their clients, and they need to return their money anytime they ask for it.

As a consequence, a failure of the Mexican central bank to exchange the pesos of outgoing investors will result in real effects over the neighboring economy of the U.S. As a consequence, the U.S. economic team starts to look for alternatives to "rescue" Mexico from the crisis.

These rescue packages are usually implemented through the IMF, which offers a loan, and imposes a set of conditions (see Stabilization Packages below). If everything goes "well" Mexico receives fresh funds and repays investors going out.

However, as we defined it earlier, the high interest rate that investors were receiving was due to the risk of non-repayment. However, with the rescue packages, the investors got their high returns and their money back. In other words, when default was going to materialize a visible hand provided fresh funds to prevent it.

What was described is exactly the definition of **moral hazard** in the international financial system. In a well-functioning market only very risky investors would put their money in very risky investments. However, if there is an expectation that there will always be a rescue package, then even risk-averse investors are putting their money in the so-called emerging markets. The existence of rescue packages provides incentives to

underestimate the real risk of certain investments an excess supply of funds for these risky endeavors.

(note: of course not everything goes well all the time, both Russia and Argentina defaulted on their debt—the former also received a rescue package, but not the later—and the investors had to assume heavy losses).

How a crisis is “solved” by the IMF

Once the massive capital outflow occurred, the local economy is in disarray. The access to credit by the country in crisis is of course limited, and so their access to foreign currency is quite reduced as well.

The balance of payment is the account that tracks the transactions between a country and the rest of the world, it looks as follows:

$$\text{BoP} = (X - M) + (X_s - M_s) + (K_{in} - K_{out})$$

Where X = exports of goods

M = imports of goods

X_s = exports of services

M_s = imports of services

K_{in} = capital inflows

K_{out} = capital outflows

A country needs foreign currency (that is, U.S. dollars) to pay for the goods it imports, the international services it imports (i.e. plane tickets, consultancy services from foreign companies, debt services (that is, interest rates)) and for—as we just saw—satisfying the requests of investors that are willing to get out of the country (capital outflows).

On the other hand, a country gets foreign currency from the goods it exports (sells abroad), the services it sells abroad, and the dollars that are brought by foreign investors willing to invest in the country (be it in portfolio investment or in long term direct investment). Finally, a country can sell bonds and that would lead to an inflow of U.S. dollars as well, and the same happens when the IMF or the World Bank grant a loan to that country.

After a crisis such as the one described, it becomes more difficult to get credit. When a bond is offered for the first time, the monthly payment is calculated according to the interest rate a country has to pay, and if the country is in bad times, then the monthly payment that has to be set in order to generate interest among investors gets higher and higher, making debt very expensive, and potentially unsustainable over time.

(Think of a government external debt as an investment project, but instead of the return of the investment the country relies GDP growth for repayment of debts. If interest rates

at which countries get loans start growing, the feasibility of repaying those debts even with consistent and sustainable growth decreases).

The Stabilization Packages offered by the IMF are *ad hoc* policies designed to overcome a crisis of this type, and are *different* from structural adjustment programs (SAPs). Usually IMF provides the much needed funds in exchange of certain conditions, namely a set of policies that the country will have to implement. These policies are the following:

- Devaluation (serves to increase X , as local products become cheaper abroad and reduce M , as imported products become more expensive) – Many times devaluations have already occurred due to the outward flow of capital, which imposed downward pressures over the value of the local currency.
- Reduction of budget deficits through cuts in government expenditures (including subsidies, usually applied to transportation and basic food)
- Imposition of wage freezes (to make sure that the devaluation effect is not counteracted)
- Increases in interest rates (to attract foreign capital, and thus increase K_{in} , which would come attracted by the increased interest rate spread).
- Provide incentives for foreign capital (K_{in} increases).

The increase in price of imports and the cuts in subsidies to transportation and food generates an increase in prices which, together with the frozen wages results in lower real wages for the population (real wages is wages measured by their purchasing power) and thus increasing poverty.

The increase in the interest rate might attract foreign capital but it also generates a reduction in investment, which of course results in lower employment growth, or even some unemployment. The drop in demand due to the falling real wages also results in unemployment.

The cuts in expenditures can also affect some social programs, leading as well to increased vulnerability of lower income groups.

In short, while the macroeconomic consequences of the policies outlined is to solve the balance of payment crisis (as all the terms with a negative sign are made to decrease and all the terms with a positive sign are made to increase), a recession usually follows the implementation of these policies, and some of the measures are highly regressive (in the sense of hitting harder the lower income groups in society) resulting in increased rates of poverty. Lower income people usually spend most of their salary in food and transportation, two items that become more expensive as a consequence of these policies.

The social consequences just described are the basis of what is known as an “IMF riot,” that is, demonstrations and riots that follow the implementation of these measures in which people protest the removal of subsidies, demand employment, government services, etc. These riots are shown for the cases of South Korea and Jamaica in the movies *The Crash* and *Life and Debt* respectively.

