Day 3 Hour 1
What Determines Exchange Rates

I. A Little Terminology:

The question posed in the title of this reading is a very ambitious question indeed. If one *really* knew precisely what determined foreign exchange rates, then one could make a lot of money by trading foreign exchange futures. You would merely buy forex futures when you thought rates would rise, and you would sell forex futures if you thought rates would fall. Every day we see professional market analysts telling us why the US dollar is rising on markets today, or why the *euro* fell yesterday. Some brave analysts even venture to tell us what will happen in the coming months. In fact, it is rather easy to create reasons for exchange rate movements after the fact. It is much harder to predict what will happen to exchange rates in the near future. Indeed, if you can make money predicting financial variables, those variables will soon become impossible to predict.

But, can't we say anything in general about the movement of exchange rates?

First, we need a little terminology. There is not really a thing called "the" foreign exchange rate. There are many foreign exchange rates. An exchange rate is merely the price of foreign money, and there are many types of foreign money.[1] For example, in Taiwan, the most important exchange rate is the NT$/US$ rate. Today is September 3, 2018 and the price of the US dollar in Taiwan is roughly $30.68 NT. This means that to buy 10,000 USD you need to pay about $306,800 NT. Thus, we say that the price of the US dollar in Taiwan is roughly $30.68 NT. Like all prices, it is determined by supply and demand. Second, it is always possible to create an index of exchange rates, which is like an average of rates. These indexes in Taiwan are often weighted by the volume of trade between Taiwan and other countries. The US similarly has trade weighted indexes for the value of the dollar. Finally, not all exchange rates change. Some are managed by the

[1] Some people will say that a better definition of a foreign exchange rate is that it is the price of one currency in terms of another. That is true. But, it is terribly confusing at times. It is so much better to think of the foreign exchange rate as the price of foreign money.

central bank buying and selling foreign exchange. The central bank will buy forex when the targeted rate is falling. This will help push it back up. It will sell forex when the targeted rate is rising. This will cause it to fall back to its targeted level. Thus, the central bank fixes exchange rates by guaranteeing to buy or sell at a particular price. Simply declaring rates to be fixed is not enough; the central bank must be ready to actually buy or sell to keep the rates fixed.

II. Capital Flows are Powerful

If the exchange rate (say for the US dollar) is flexible, then supply and demand for the US dollar will determine its value. Now there are many factors which affect the supply and demand for the dollar in Taiwan. However, it is often useful to think of a currency as reflecting how investors feel about a particular country's economy relative to other countries. If, for example, people feel that the US economy is going to grow substantially in the near future; that American companies are going to make large profits; and that American consumers are going to be buying goods and services at a fast rate, then the US dollar will rise. Money from foreign countries, including Taiwan, will flow into the US and seek to buy assets there – earning high interest, dividends, and rents, while also waiting for the expected appreciation in the US dollar. Therefore, we see that capital flows tend to determine exchange rates in the short run. Such capital flows are very liquid and money can move between countries very fast. Like a butterfly floating around looking for the prettiest flower, capital floats around the globe looking for the highest return it can receive for any given level of risk. In fact, the amount of US dollar denominated capital flow in **one week** globally is greater than the whole value of trade for the world in **one year**. Capital flows are very powerful in determining the value of the USD.

Given the level of risk and liquidity, capital will always go seeking the place offering the highest default free interest rates. Some countries have high interest rates, but they also have very high risk of default or exchange fluctuations. Other countries have high rates, but it is not easy to repatriate your profits after you make them. These counties have capital controls which prohibit the free movement of money into and out of the country.

Taxes are yet another consideration, since each country's tax laws are somewhat different. There are political risks to consider as well. Some countries may offer high rates of interest, but are also engaged in a war, revolution, or a civil conflict. Overall, we say that capital flows to the country appearing to give the highest return on investment, given acceptable levels of risk and liquidity. In the short run, say less than a year, these capital flows push the exchange rate up or down.

III. Trade is Governed by Relative Saving Rates

Over a longer run of several years, deeper structural factors combine to determine the levels of exchange rates. If a country saves very little and borrows internationally to finance its trade deficit, then its currency will become weak over time. By contrast, a country which is continuously experiencing overall trade surpluses and is lending internationally will begin to experience a falling foreign exchange rate. This may not happen quickly, since trade surpluses are offset by capital outflows. It may take a decade or more for the system to begin to change. However, most economists feel that at some point overall lending countries (like Taiwan) will no longer wish to continue to lend money to overall borrowing countries (like the US) and at that time the exchange rate (the value of the US dollar) will begin to fall.

Why is saving less in some countries than other countries? Let's look at the US and compare it with Asia.

If we look at the US we can understand why that it saves so very little. The economy is very consumer oriented. Nearly every country in the world is trying to sell things to the American consumer. Americans are very used to using credit cards and banks are very happy to let them run up enormous debts using these cards. Americans live in a highly disposable world. This means that they value convenience and time saved. Eating out three or even four times a week or using microwave prepared meals, while it saves time on shopping and cooking, can be expensive. Entertainment and leisure industries in the US are unsurpassed and use up much of potential US saving. Americans buy large houses and live on large plots of land. These houses have many rooms, each needing furniture and upkeep. An average American family probably spends more on their lawn upkeep than most people in Asian countries spend on their electric bill. Anyone who has shopped in a large and modern American grocery store in the US knows that it is stocked with at least 10 times as many goods and products as the average store in Taiwan. No doubt such an elaborate set of choices serves to increase greatly consumption in the US. The American family or household is not nearly as highly concentrated as families in Asia. Children are encouraged at an early age to seek their own housing and lifestyle. Thus, the typical economies of scale in household production are lost in the US and this increases consumption expenditures. The US has an elaborate social security system which many people see as a means of preparing well for their retirement. This system, from the individual's point of view, is a means of saving. However, it is a ***pay-as-you-go*** system, which means that current workers contribute money to the system, and this money is immediately paid to old people today to use for their consumption. From a macroeconomic perspective, social security is not saving at all. The American tax system does not encourage saving very much. If you borrow money to buy a house, you can deduct the payment of interest from your income before figuring your taxes. However, if you save money and earn interest, this is included in your taxable income when figuring your taxes. You pay less tax if you borrow, and you pay more tax if you save. Naturally, this encourages consumption and not saving. In the US profits of companies are taxed at the corporate level. Anything left can be paid to stockholders as dividends; however, these dividends are then taxed again at the individual level. Thus, you pay taxes twice on any profits from companies you may partly own. Once again, there is no incentive to save money through buying corporate stock. The whole of American society is geared towards spending and not saving. This is why the US is always running trade deficits. This is why that that the US dollar must fall in the future. Exchange rates in the long run are determined by relative saving rates.

But are there any other variables that determine rates?

Yes, there are other variables that can affect exchange rates. Here are three. First, if a country's inflation rate rises too quickly relative to other countries, then the foreign exchange rate will begin to rise. Second, if speculators expect rates to rise in the future, then this expectation can push the exchange rate up. Sometimes it is only a rumor that is at the base of such speculations. Finally, economic growth has an ambiguous effect on exchange rates. If a country grows very quickly it may attract capital flows into the country and this will lower the exchange rate (i.e. the price of foreign money). This is a short run effect. If the growth continues, it may cause imports to rise sharply and this will raise the foreign exchange rate. This latter effect occurs over a longer period.