Introduction to International Finance

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1. Introduction

International macroeconomics (or international finance) as a subject covers many topical issues. What has happened (what will happen) to the dollar? Is the current account deficit too large? Should China devalue its *yuan*?[1] Should it first liberalize financial flows? Should Sweden give up its currency to join the *euro*? Should emerging market economies liberalize their financial markets? Is this good for world economic growth, or a source of instability? How, if at all, should we reform the IMF? What about globalization? These are interesting questions. To answer them we need to learn some international finance. What is this field about?

As with international trade, international macro is the result of the fact that economic activity is affected by the existence of nations. If there were no national economies then we would not have this field. If there was no international trade we would not need international macro either. But countries do trade with each other, and because countries (not all, but many) use their own currencies we have to wonder about how these goods are paid for and what determines the prices that currencies trade at. More subtly, however, we have to also consider the fact that countries borrow and lend from each other: in other words, they trade inter-temporally – consumption today for consumption in the future. Because of international borrowing and lending economic opportunities are expanded and households have better options to smooth their incomes. These are good things. But just as the existence of banks make bank panics possible, the existence of an international financial system makes international financial crises possible. This is where all the interesting action of the course comes from. In order to understand such crises we need to understand the nature of the international financial system.

[1] The reminbi has been pegged to the dollar at the rate 8.28 since 1995.

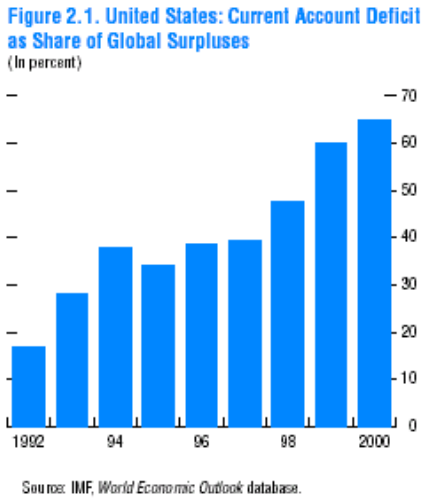

Figure 1: US Current Account as Share of Global Surpluses

It is useful to begin with some general facts about the international economy. First some magnitudes.[2] Foreign Exchange is the biggest market in the world, $1.5 trillion per day. US GDP is about $13.14 trillion as of 2006:2. Exports and imports are much smaller, about $1.437 and $2.220.6 trillion annually.[3] Net exports are thus about -$783.1 billion. Compared to that federal government expenditures are about $921.8 billion,[4] of which $617 billion is defense spending, while gross private investment is about $2.237 trillion, gross private savings is $1.795 trillion (gross government savings is $107 billion), so gross savings as a pct of GDP is 13.8%. Of course, most of that is replacement of capital, so net savings ($247 billion) as a percent of GDP is about 1.9%.[5]

- International trade is important. Even more so with globalization. Not just the shares of exports and imports, but the shares of import-competing goods. In recent years the US has moved from being the largest international creditor to the largest international debtor. Does that have consequences?

[2] National Income data is available at the BEA website, http://www.bea.gov/bea/dn/nipaweb/index.asp.

[3] Figures are for 2005:2 unless otherwise noted. A good source for this is the BEA website: http://www.bea.gov/bea/dn/nipaweb/SelectTable.asp?Popular=Y

[4] This does not include transfer payments of about $1.3 trillion. Hence total federal receipts are about $1.9 trillion, against spending of $2.3 trillion, leaving -$400 billion deficit.

[5] See, for example, http://www.bea.gov/bea/dn/nipaweb/TableView.asp#Mid.

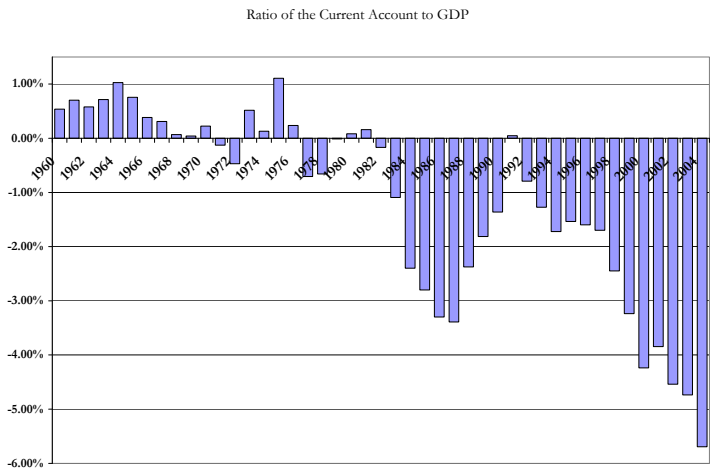

Figure 2: US Current Account Balance as Share of GDP

US now absorbs almost 70% of global current account surpluses (see figure 1). The current account deficit of the US is now about 6% of GDP. This is quite large by historic standards, especially for the world's reserve currency country. You can see that this is a recent trend, though quite strong. We can see in figure 2 that in the 1960's and early 1970's the current account balance was positive. We were acquiring net foreign assets. Since then foreigners have been accumulating our IOU's.

Most observers believe that for the US to eliminate its current account imbalance the dollar will have to adjust significantly. Why? How much will it have to adjust? What about interest rates? What effect will this have on the global economy? Clearly to understand this we have to have some theory of the current account, how it is determined and what effects it.

Notice the irony: The rest of the world is supplying the largest economy with low-cost financing. It is hard to know what the excess reserves of the rest of the world are, but suppose that they are twice the level of their short-term debt (one year). We can see how large these excess reserves have grown recently: see figure 3. Then it amounts to some $1.5 trillion, and earns perhaps a zero real return (if those currencies are expected to appreciate). Given that those countries could perhaps earn 6% easily if they invested this wealth, this is a large transfer to the US.[6] Note that 6% of $1.5 trillion is close to $100 billion. As Dani Rodrik has

[6] Of course another way to think about it is as an insurance policy against future crises, and the price paid

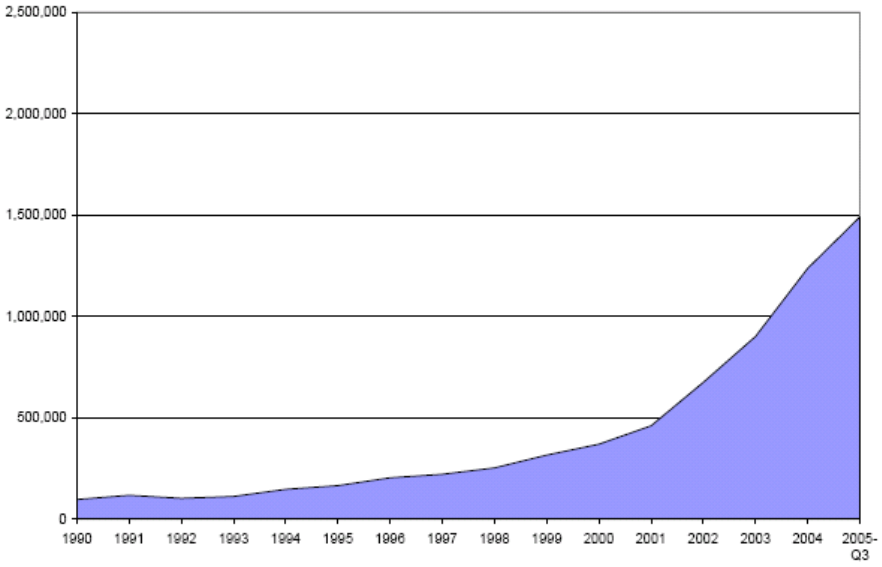

Figure 3: Excess Reserves Beyond 2X Short Term Debt Due Within 1 Year, Developing Countries.

pointed out, this is comparable to the gains thought to be achievable from the next round of trade liberalization, to global foreign aid, or to spending on key social sectors in a number of countries.

Conclusion 1 *Thus, we find the world economy in the oddest of situations: the rest of the world providing low-cost finance to its biggest power. Absent nuclear weapons, how can this happen?*

2. Some Questions of International Finance

- International finance a consequence of multiple currencies
  - multiple fiat currencies
  - less of an issue with competing commodity currencies
- It is also a consequence of *intertemporal trade*

to avoid having to go to the IMF.

– This could be the subject of trade theory, but we study it because this trade often is manifested in securities. It is a subject of finance. These flows are very large, much larger than trade on a gross basis. Figure 4 shows that gross capital flows are about 6 to 7 times net flows. And it is primarily gross flows that unsettle markets.

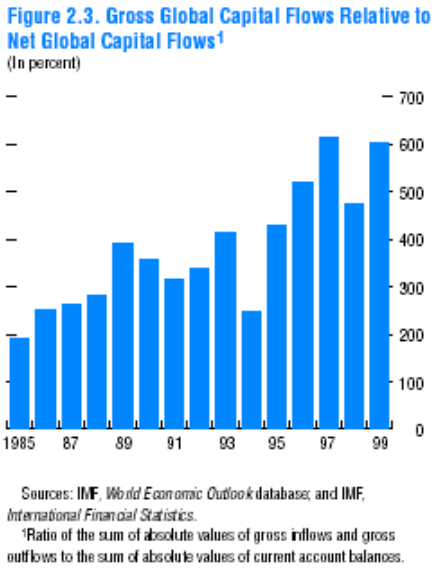

Figure 4:

- It is the interaction of the two that is really important – the fact that many countries borrow in currencies that differ from their domestic ones. This is what sets the stage for currency and financial crises

- Globalization is not new. As we shall see, the last part of the 19th century was the peak of globally integrated capital markets.

  – A stylized view of the history of capital flows is seen in figure 5. This is a stylized view, but it is based on what we observed in global current accounts. Notice that capital flows were very large until 1913. Then there is a big trough that does not really recover till the mid-1980's, though the post-1945 period is better than the 1930's. Obviously, WW1 ended the golden years of world capital mobility. The

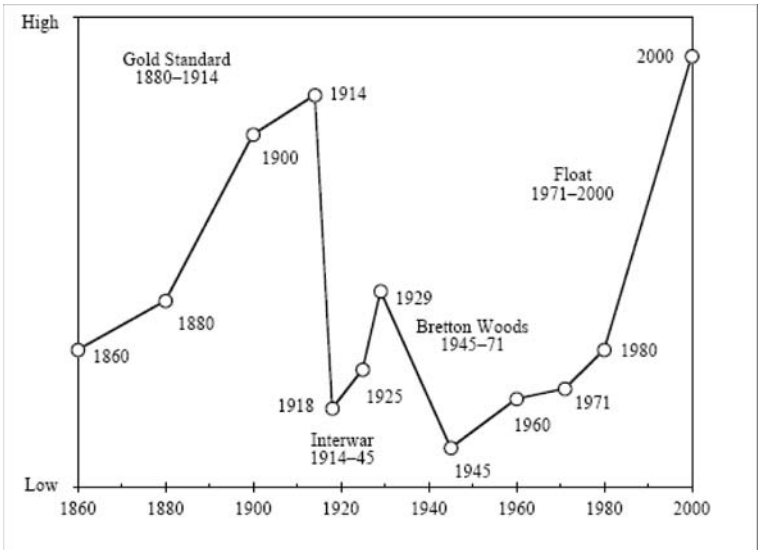

Figure 5: A Schematic History of Capital Flows

Depression years though WWII were very bad. The big recovery starts with the oil shocks. Only recently are we back to the levels of pre-WW1.

- This tells us that it is not only technology that fuels globalization and capital flows, but also institutions.

- International Financial System is crucial to efficient organization of international economies. There are several periods to identify.
  - first system is bimetallism
  - gold standard
    - this is the peak of the integrated global capital market
    - if it worked so well, why can't it be put back together? This is a very good question.
  - WW1, Depression breaks the system
  - Bretton Woods
    - works until it breaks down in the wake of Vietnam War and OPEC

- is globalization the culprit?

  - hard to figure since international capital mobility was very high in the 19th century
  - Does globalization cause debt crises, or does it enhance growth in poorer countries?

- breakdown has led to our current non-system, of floating and currency areas
  - Some major countries float, like US and Japan
  - Some major countries have eliminated their currencies to form a union, the euro
  - Some countries peg to the dollar or another major currency; e.g., China, and many Asian countries
  - Some countries have dirty floats or managed exchange rates
  - Some countries have currency boards

3. Brief Tour of Recent US Data

It is useful to look at some recent US data to get a feel for what international finance is about. We can look at bilateral exchange rates, which are simply the price of one currency in terms of another. In figure 6 I have plotted the price of one dollar in terms of the yen over

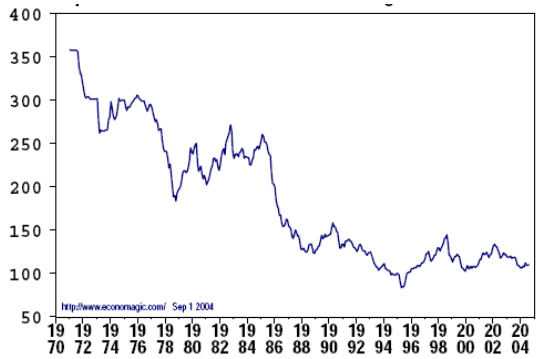

Figure 6: Yen-Dollar Rate since 1970

the period since 1970. You can see that over time the dollar has generally depreciated, but that it has also been *volatile*. This becomes more apparent when we look at the Yen/dollar rate over a shorter horizon, say since 1990. What is striking about figure 7 is how volatile is

the exchange rate between the two largest economies in the world. Notice both short-term and longer-term volatility.

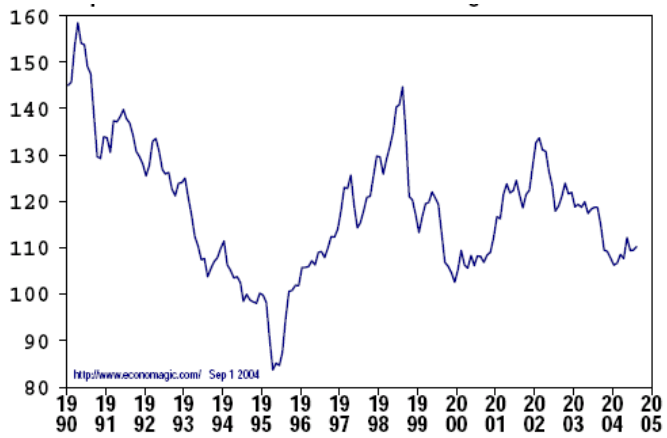

Figure 7: Japanese Yen-Dollar Rate since 1990

We can similarly look at the dollar -ECU rate, in figure 8. In both pictures the late 1970's and early 1980's stand out as periods of extreme volatility. The ECU is the European Currency Unit, a basket of EU currencies and a precursor to the Euro. European economies have tried to stabilize the fluctuations of their currencies amongst each other, while letting the basket float against the rest of the world. The EMS was a precursor to the euro. It kept the individual currencies but the governments were obliged to narrow bands. The system suffered a huge crisis in 1993 when the UK, Italy, and Sweden dropped out. This fueled the drive to the euro, where there would no longer be individual currencies to speculate against.[7]

Notice that joining the euro is still a serious political issue in both the UK and Sweden (see section 6.1. below). The latter is soon to hold a referendum on joining. All new EU members must adopt the euro. Interestingly, Italy managed to make it in, despite lots of *ex ante* skepticism. And now it is Germany and France that violate the rules.

Besides looking at bilateral rates it is useful to look at effective, or trade-weighted exchange rates. Looking at a single currency is often misleading as the current account balance is the outcome of trade with many countries. Trade-weighted exchange rates given an average for a

[7]The euro had already been agreed to in the Maastricht treaty before the EMS crisis. Indeed, uncertainty over the establishment of the euro fueled the crisis.

Figure 8:

group of countries based on their shares of trade with the US (in the case of a trade-weighted exchange rate for the dollar). For example, the Fed calculates an index of the dollar's value based on 10 major currencies. If we look at this picture we see that there are two periods: pre-1971 and post-1973. In the former period the dollar was rather stable.[8] In the period after the collapse of Bretton Woods we see much greater volatility. In particular, we see a huge appreciation in the mid-1980's that followed depreciation in the late 1970's, and preceded an even larger depreciation in the late 1980's. This is clear in figure 9 which plots the trade-weighted value of the dollar since 1973. Notice the long swings in this rate. It is clearly not rapidly moving to some long-run equilibrium rate.

One might think of various reasons for this behavior in the post-Bretton Woods period. Of course, the elimination of fixed exchange rates should have led to more volatility. But should it have been this large? One factor, we shall see is that inflation became much more volatile post-1973, and differences in national inflation rates play an important role in the determination of nominal exchange rates.

4. Current Account

We might also look at what happened to the *current account* during this period. We will proceed to define this much more carefully below. For now I just want to point out some

[8] The shock in 1949 is due to the revaluation of the pound, and subsequent realignments of several currencies traditionally tied to the pound.

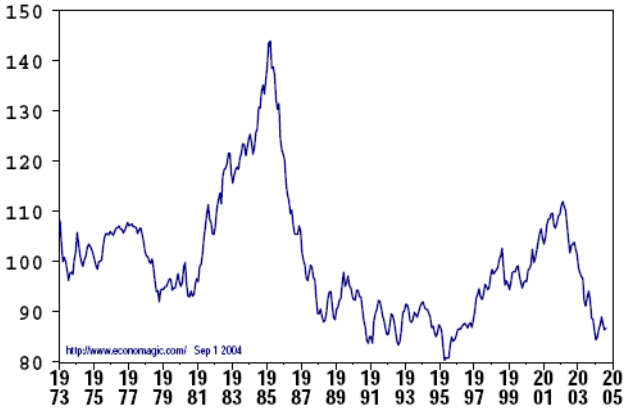

Figure 9: Trade-Weighted Exchange Value of the Dollar Against Major Currencies

patterns. Suffice it for now to consider the current account balance as the sum of net exports (exports minus imports) of goods and services for a country, plus any net transfers. It is a measure of a country's relations with the rest of the world. If a country has a current account surplus it is acquiring assets from the rest of the world. In the opposite case its debt is increasing.

In figure 10 we have the US current account from 1960 to the present. You can see that the CA balance used to be near zero, but slightly positive. Of course this figure gives the absolute balance. It is more useful to look at the current account as a share of GDP, as in figure 11. We used to be a large international creditor, and we earned net interest income which offset a tiny deficit in the trade balance.[9] Recently, it has become negative, and quite large. Now we are the largest international debtor in the world.[10]

If we look at the period from 1960 to 1973 we see that US current account balances used to be rather small, but on average, slightly positive. Rarely did the balance exceed 1% of GDP until the 1980's. During this period the overall US position was a net creditor to the

[9] In 1985, US data showed that we had become a net international debtor for the *first* time since WW1. In 1989, US data again showed that we had become a net international debtor for the *first* time since WW1. How is this possible? In the interim, a revision had raised the value of US assets overseas, by recognizing appreciation of capital assets. This points to a problem with such data. We collect better data on what flows in that on the value of what flows out.

[10] In 1996 the market value of net foreign wealth was -$831.1 billion, about 12% of GDP. This was larger than the total foreign debt of all Western Hemisphere developing countries. But that debt represented 37% of their collective GDP's.

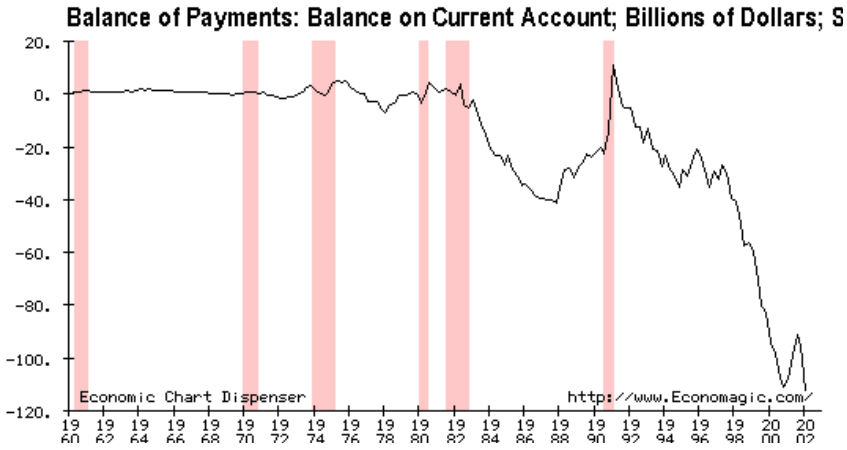

Figure 10:

rest of the world. In the 1980's we see rather huge deficits in the current account, figures of almost 4% of GDP.[11] When the current account deficits got so large in the mid-80's it was quite a shock. Now they are even larger.[12] These are very large magnitudes in terms of recent history, but similar figures were experienced in the 19th century.

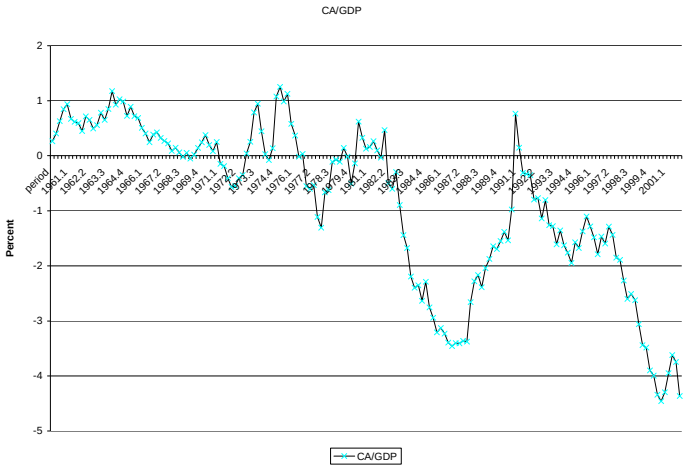

Figure 11: Current Account Balance as Share of GDP

We can also consider the current account in global context. Suppose that we look at the change in the current account balance across economies between 1996 and 2004. The main thing we observe is the huge increase in the US current account deficit, and the big swing

[11] Notice a rather similar pattern for Germany, Japan, and the UK.
[12] Notice how the CA improves during recessions. Why is this?

Countries	1996	2003
Industrial	**46.2**	**-342.3**
United States	-120.2	-530.7
Japan	65.4	138.2
Euro Area	88.5	24.9
France	*20.8*	*4.5*
Germany	*-13.4*	*55.1*
Italy	*39.6*	*-20.7*
Spain	*0.4*	*-23.6*
Other	12.5	25.3
Australia	*-15.8*	*-30.4*
Canada	*3.4*	*17.1*
Switzerland	*21.3*	*42.2*
United Kingdom	*-10.9*	*-30.5*
Developing	**-87.5**	**205.0**
Asia	-40.8	148.3
China	*7.2*	*45.9*
Hong Kong	*-2.6*	*17.0*
Korea	*-23.1*	*11.9*
Taiwan	*10.9*	*29.3*
Thailand	*-14.4*	*8.0*
Latin America	-39.1	3.8
Argentina	*-6.8*	*7.4*
Brazil	*-23.2*	*4.0*
Mexico	*-2.5*	*-8.7*
Middle East and Africa	5.9	47.8
E. Europe and the former Soviet Union	-13.5	5.1
Statistical discrepancy	**41.3**	**137.2**

Figure 12: Global Current Account Balances, 1996 and 2003 (Billions of U.S. dollars)

in the developing countries current account balances. It seems rather odd that developing countries would become large net lenders to the rich world. But this seems to be the case.

One reason this occurred is the currency crises of the late 90's. Developing countries reacted by building up reserves. Oil producing countries have also had big changes in their current accounts, as oil prices were much lower in the mid 90's. Notice also that some advanced countries have large surpluses, notably Japan and Germany. One reason is saving for their demographic problems to come. But then what about Italy?

One other thing to note about the data in figure 12 is the statistical discrepancy. Shouldn't they all add up to zero? We will discuss this shortly.

Is a large current account deficit bad? Often it is spoken of that way. But then it is interesting to note that Japan – in a 8 year economic slump – has a CA surplus of 2.5% of GDP. Russia, which some term an "economic basket case," has a CA surplus of 13.7% of GDP

($25 billion)![13] Who is better off? The country that is lending 13% of its GDP to foreigners, or the country that can borrow that from the rest of the world? That is an interesting question.

The other side of the large current account deficit is a surplus in the capital account. It is interesting that most people seem to think that a current account deficit is bad and a capital inflow is good. But these are two sides of the same coin. This is evident in figure 13 which gives the capital account since 1960. Notice how the patter of the current account is reversed. Notice also the very recent downturn.

Many people speak of the current account deficit as being *financed* by the capital inflow. Then they worry what happens if the latter dries up. Of course, we could also say that the current account deficit is caused by the capital inflow. The excess demand for US assets causes a current account deficit. Spoken this way the CA deficit is a sign of strength. Think of it this way, who is better able to borrow: General Electric or a poor family in an urban ghetto? Note that the long-term debt of GE is around $82 billion at the end of 2000.

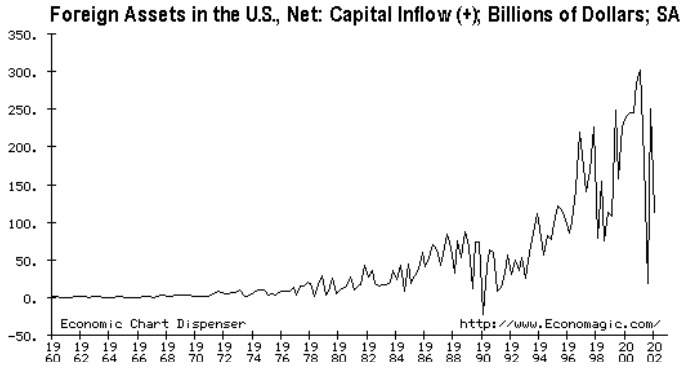

Figure 13:

The reason why capital flows into this country is because domestic investment exceeds national savings. The current account deficits – the capital account surpluses – reflect the spending boom in the US economy.[14] We are spending more than we produce and the rest of the world is financing it. They do this via our current account deficits. Our export industries are crowded out. Notice that popular opinion might explain our trade deficits by improper

[13] Perhaps the appelation of basket case is misleading.

[14] For much of the 1990's this was due to a boom in investment spending, as we shall see. Since the tech bubble started investment spending has fallen, but so has the public savings.

trade practices in other countries. But, in fact, they are the result of our desire to live beyond our means, and the *willingness* of the rest of the world to finance that. This raises the important question of how is the US able to get away with such large deficits seemingly without end? Other countries would certainly face a crisis in such a situation. Is it important that the world uses the dollar as the international currency? Will our deficits erode this role?

Given that exchange rates were allowed to float after 1973 it may seem puzzling that the current account balances are so large in the latter period. One may have suspected that with markets determining exchange rates that exports and imports would be brought into balance. In fact, the opposite seems to have happened. The important point to draw from this is that the current account represents more than just *trade* behavior with the rest of the world. It also depends on savings and investment. Large fiscal deficits combined with low national savings may lead to net borrowing from the rest of the world; in other words, a current account deficit. We will examine this in more detail.

The huge fluctuations in exchange rates is one reason why many economists call for a return to fixed rates.

5. Recent Events

Recent events include the Asian currency crisis and the emergence of the Euro. We can see the effect of the currency crisis in a superficial way by looking at the exchange value of the baht. We observer the huge depreciation of the baht in 1997 in figure 14. This triggered the Asian flu, and it eventually spread throughout emerging markets. Similar problems are evident in Brazil and Turkey today.

You can see the large depreciation of the baht. We want to understand the causes, consequences, and the reason for contagion.

This is an example of a sudden stop, and a reversal of capital flows. What we have is a sudden reversal in the flows across economies, and this is reflected in the price. To see this more clearly, let us look at current account balances in developing and emerging economies, in figure 15. Notice that for these economies deficits mean inflows of capital. You can see that

Figure 14:

the 1990's were especially good for these economies – capital flowed in. But in 1998 there was a sudden reversal in the direction of these flows. You can also see the earlier debt crisis of the early 1980's, though the magnitudes are much smaller. One question we will want to ask about is why the size of these flows are so much larger since the early 1990's, and is this good for the world economy.

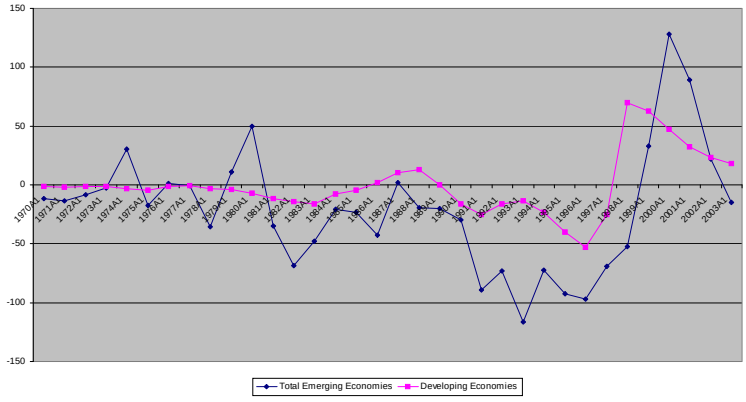

Figure 15: Current Account Balances: Emerging and Developing Economies

6. Argentina

Argentina is a case in point why this is important. A currency crisis has turned into an economic and social crisis. Governments replaced. A few days ago (Sept. 1) the interim agreement with the IMF expired. Perhaps there will be a default on outstanding loans to the

IMF. What happened?

The problem is evident when we look at what has happened to GDP in recent years (see figure 16). Argentina experienced a major depression – look at the fall in output and its components in 2002. Since the trough it has also experienced a recover as a result of the depreciated exchange rate that resulted.

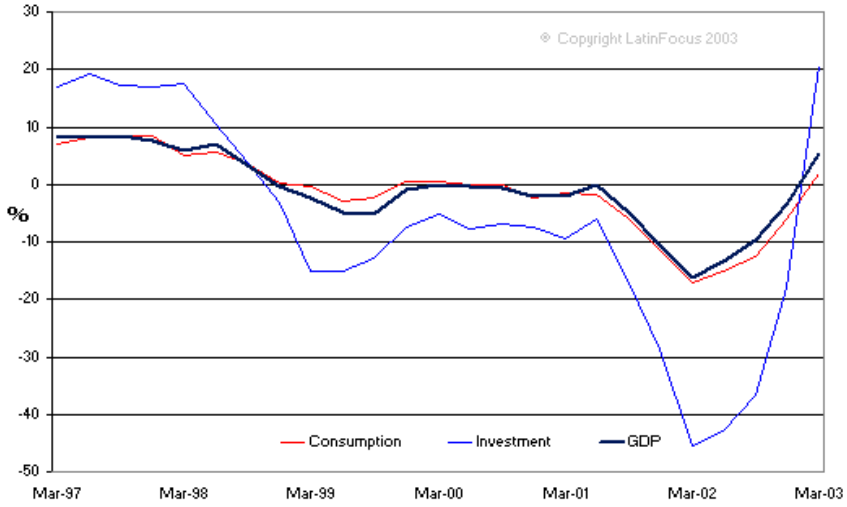

Figure 16: Consumption, Investment, and GDP in Argentina

- Argentina is suffering from an even more difficult dilemma. How to exit a currency board? Clearly, it failed the exam. Argentina is currently negotiating another large program with the IMF, and there are protests in Buenos Aires over crisis policies.
  - Argentina has a large foreign debt – about $128 billion, or three times its annual foreign earnings. It appears that it cannot pay its debts unless it earns more. But the peso cannot depreciate due to its currency board. And most Argentines do not want to lose the currency board because it saved the country from high inflation. But this also makes it easier for capital to flow out of the country in anticipation of default.
  - To understand this we first need to see why countries would establish a currency board

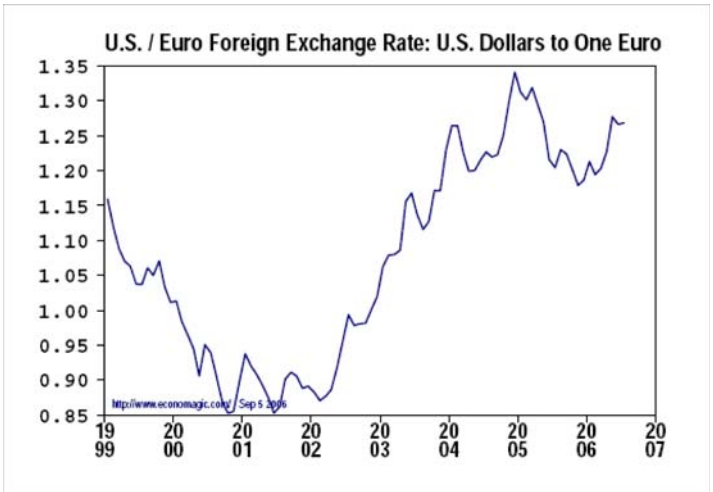

Figure 17: Dollar price of one euro

6.1. Euro

One of the interesting questions in international monetary economics is when should a group of countries share the same currency. Why should countries have different currencies? Doesn't this just make trade more difficult? The US is a monetary union – states do not have their own currencies. Now Europe has formed a monetary union. What are the costs and benefits of such arrangements?

This question is topical again for two reasons. First, the ten accession countries to the European Union must adopt the euro as a condition of joinging. But they are not sure when it will be advantageous for them to join. Britain similarly has postponed a decision about adopting the euro. The second reason is that some politicians in Italy have begun to ask whether Italy should drop out of the euro. They attribute their economic difficulties to the value of the euro, and they see Italy as facing a conundrum like Argentina. Exit from the euro rather than from a currency board, but similar problems may ensue.

All this comes against the backdrop of difficulties in getting the stability pact to operate properly. But what is the stability pact, and why was it needed for the euro to work?

7. International Financial Architecture

A major issue is reform of the IMF. Some question whether the IMF introduces more risk into the system. The issue is *moral hazard*. Another criticism is that IMF remedies with regard to crises are too painful. Some look for reform to make the system work better. Is it broke? How to fix it. These are complex questions and require an examination of international capital flows.

There are related questions regarding the whole issue of globalization. Should the IMF encourage financial liberalization in emerging markets? Do international financial institutions make the system better or worse.