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Chapter 18

The International Monetary System, 1870–1973

Preview

- Goals of macroeconomic policies
- Gold standard
- Interwar years
- Bretton Woods system
- Collapse of the Bretton Woods system
- International effects of US macroeconomic policies

Macroeconomic Goals

- Internal balance" is a name given to the macroeconomic goals of **full employment** (or normal production) and **price stability** (or low inflation).
  - ❑ Over-employment tends to lead to increased prices and under-employment tends to lead to decreased prices.
  - ❑ Volatile aggregate demand and output tend to create volatile prices.
  - ❑ Unexpected inflation redistributes income from creditors to debtors and makes planning for the future more difficult.
- "External balance" is a name given to a current account that is not "too" negative or "too" positive.
  - ❑ A large current account *deficit* can make foreigners think that an economy can not repay its debts and therefore make them stop lending, causing a financial crisis.
  - ❑ A large current account *surplus* can cause protectionist or other political pressure by foreign governments (e.g., pressure on Japan in the 1980s and China in the 2000s).
- "External balance" can also mean a **balance of payments equilibrium**:

- a current account (plus capital account) that matches the non-reserve financial account in a given period, so that official international reserves do not change.

Gold Standard, Revisited

- The gold standard from 1870–1914 and after 1918 had mechanisms that prevented flows of gold reserves (the balance of payments) from becoming too positive or too negative.
  - Prices tended to adjust according the amount of gold circulating in an economy, which had effects on the flows of goods and services: the current account.
  - Central banks influenced financial capital flows, so that the non-reserve part of the financial account matched the current account, thereby reducing gold outflows or inflows.
- **Price specie flow mechanism** is the adjustment of prices as gold ("specie") flows into or out of a country, causing an adjustment in the flow of goods.
  - An inflow of gold tends to inflate prices.
  - An outflow of gold tends to deflate prices.
  - If a domestic country has a current account surplus in excess of the non-reserve financial account, gold earned from exports flows into the country—raising prices in that country and lowering prices in foreign countries.
    - Goods from the domestic country become expensive and goods from foreign countries become cheap, reducing the current account surplus of the domestic country and the deficits of the foreign countries.
- Thus, price specie flow mechanism of the gold standard could reduce current account surpluses and deficits, achieving a measure of external balance for all countries.

- The "**Rules of the Game**" under the gold standard refer to another adjustment process that was theoretically carried out by central banks:
  - ❑ The selling of domestic assets when gold exits the country to pay for imports. This decreased the money supply and increased interest rates, attracting financial capital inflows to match a current account deficit, reducing gold outflows.
  - ❑ The buying of domestic assets when gold enters the country as income from exports. This increased the money supply and decreased interest rates, reducing financial capital inflows to match the current account, reducing gold inflows.
- Banks with decreasing gold reserves had a strong incentive to practice the rules of the game: they could not redeem currency without sufficient gold.
- Banks with increasing gold reserves had a weak incentive to practice the rules of the game: gold did not earn interest, but domestic assets did.
- In practice, central banks with increasing gold reserves seldom followed the rules.
- And central banks often sterilized gold flows, trying to prevent any effect on money supplies and prices.
- The gold standard's record for internal balance was mixed.
  - ❑ The US suffered from deflation and depression in the 1870s and 1880s after its adherence to the gold standard: prices (and output) were reduced after inflation during the 1860s.
  - ❑ The US unemployment rate averaged 6.8% from 1890–1913, but it averaged under 5.7% from 1946–1992.

Interwar Years: 1918–1939

- The gold standard was stopped in 1914 due to war, but after 1918 was attempted again.
  - ❑ The US reinstated the gold standard from 1919–1933 at $20.67 per unce and from 1934–1944 at $35.00 ounce, (a devaluation the dollar).
  - ❑ The UK reinstated the gold standard from 1925–1931.

- But countries that adhered to the gold standard the longest, without devaluing the paper currency, suffered most from deflation and reduced output in the 1930s.

Bretton Woods System: 1944–1973

- In July 1944, 44 countries met in Bretton Woods, NH
  - For a history lesson: http://en.wikipedia.org/wiki/Bretton_Woods_system
- They established the Bretton Woods system: fixed exchange rates against the US dollar and a fixed dollar price of gold ($35 per ounce).
- They also established other institutions:
  - The International Monetary Fund
  - The World Bank
  - General Agreement on Trade and Tariffs (GATT), the predecessor to the World Trade Organization (WTO).

International Monetary Fund

- The IMF was constructed to lend to countries with persistent balance of payments deficits (or current account deficits), and to approve of devaluations.
  - Loans were made from a fund paid for by members in gold and currencies.
  - Each country had a quota, which determined its contribution to the fund and the maximum amount it could borrow.
  - Large loans were made conditional on the supervision of domestic policies by the IMF: **IMF conditionality**.
  - Devaluations could occur if the IMF determined that the economy was experiencing a “fundamental disequilibrium”.
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Bretton Woods System: 1944–1973

- In order to avoid sudden changes in the financial account (possibly causing a balance of payments crisis), countries in the Bretton Woods system often prevented flows of financial capital across countries.
- Yet, they encouraged flows of goods and services because of the view that trade benefits all economies.
  - ❑ Currencies were gradually made convertible (exchangeable) between member countries to encourage trade in goods and services valued in different currencies.
- Under a system of fixed exchange rates, all countries but the US had ineffective monetary policies for internal balance.
- The principal tool for internal balance was fiscal policy (government purchases or taxes).
- The principal tools for external balance were borrowing from the IMF, financial capital restrictions and infrequent changes in exchange rates.

Macroeconomic Goals

- Suppose internal balance in the short run occurs when output at full employment equals aggregate demand:

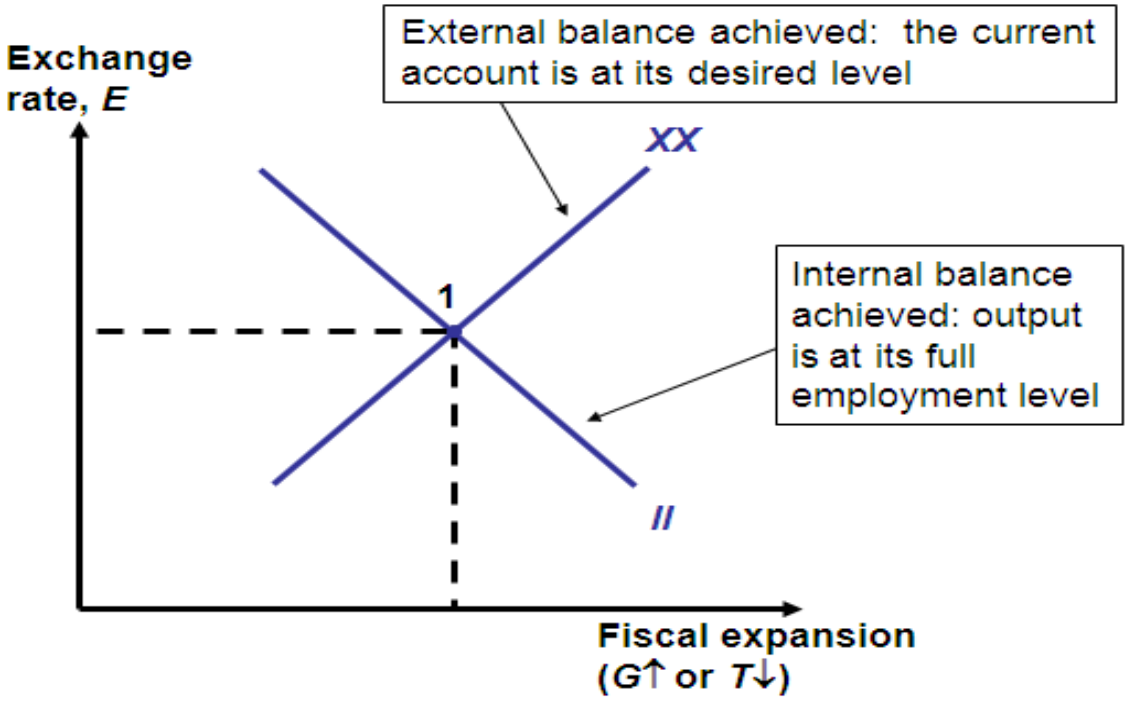
$$Y^f = C(Y^f - T) + I + G + CA(EP^*/P, Y^f - T)$$

- An increase in government purchases (or a decrease in taxes) increases aggregate demand and output above its full employment level.
- To restore internal balance in the short run, a revaluation (a fall in E) must occur.

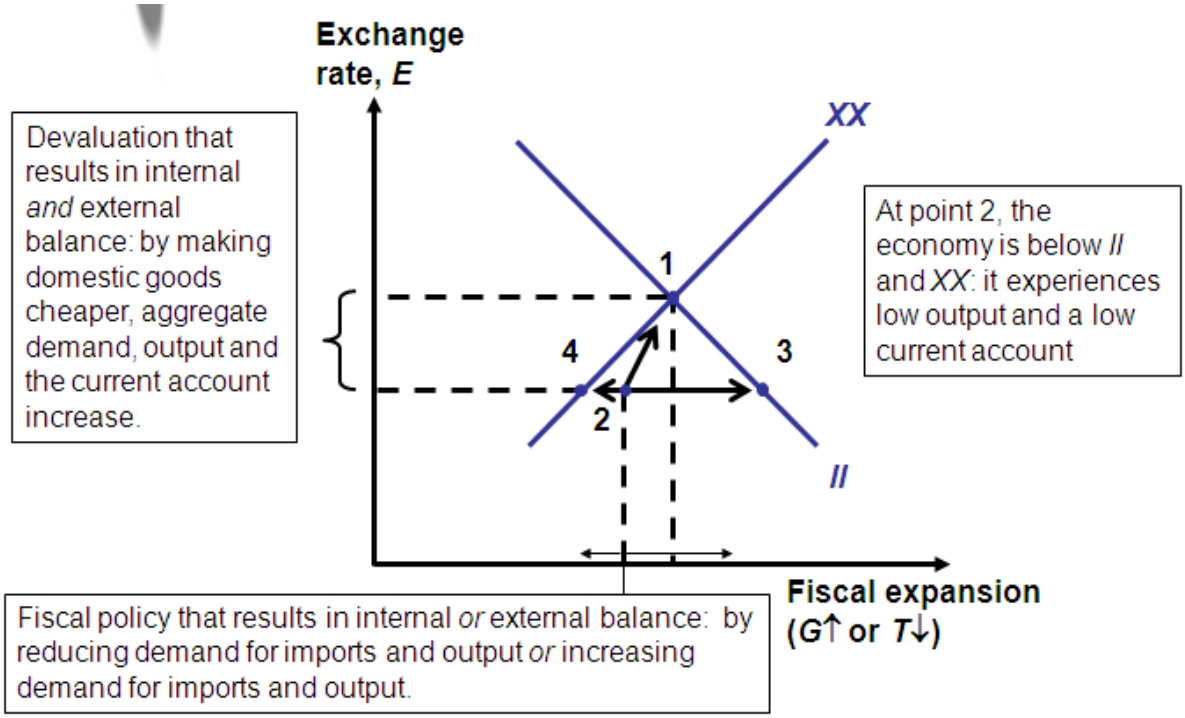
- Suppose external balance in the short run occurs when the current account achieves some value *X*:

$$CA(EP^*/P, Y - T) = X$$

- An increase in government purchases (or a decrease in taxes) increases aggregate demand, output and income, decreasing the current account.
- To restore external balance in the short run, a devaluation (a rise in *E*) must occur.



- But under the fixed exchange rates of the Bretton Woods system, devaluations were supposed to be infrequent, and fiscal policy was supposed to be the main policy tool to achieve both internal and external balance.
- But in general, fiscal policy can not attain both internal balance and external balance at the same time.
- A devaluation, however, can attain both internal balance and external balance at the same time.



- Under the Bretton Woods system, policy makers generally used fiscal policy to try to achieve internal balance for political reasons.
- Thus, an inability to adjust exchange rates left countries facing external imbalances over time.
  - ❑ Infrequent devaluations or revaluations helped restore external and internal balance, but speculators also tried to anticipate them, which could cause greater internal or external imbalances.

External and Internal Balances of the US

- The collapse of the Bretton Woods system was caused primarily by imbalances of the US in 1960s and 1970s.
  - ❑ The US current account surplus became a deficit in 1971.
  - ❑ Rapidly increasing government purchases increased aggregate demand and output, as well as prices.
  - ❑ A rapidly rising price level and money supply caused the US dollar to become over-valued in terms of gold and in terms of foreign currencies.

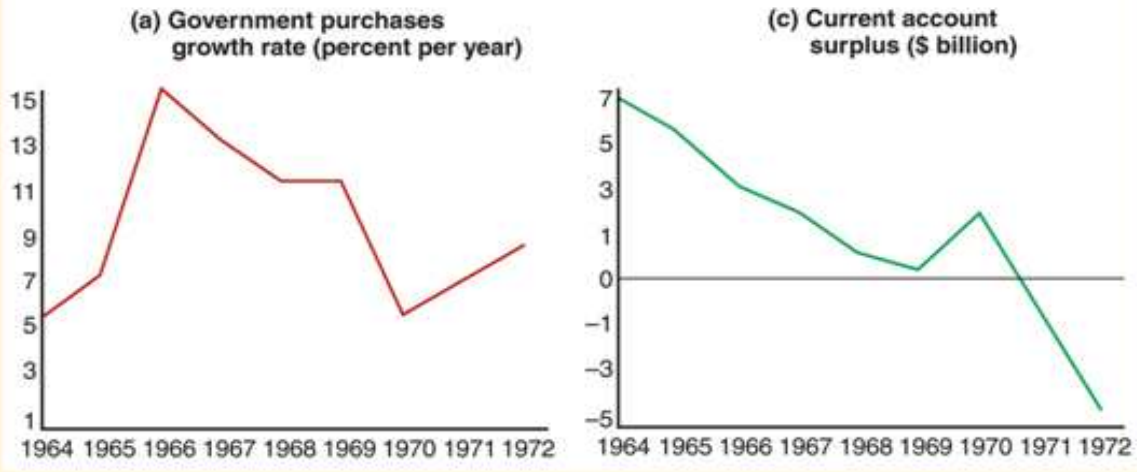
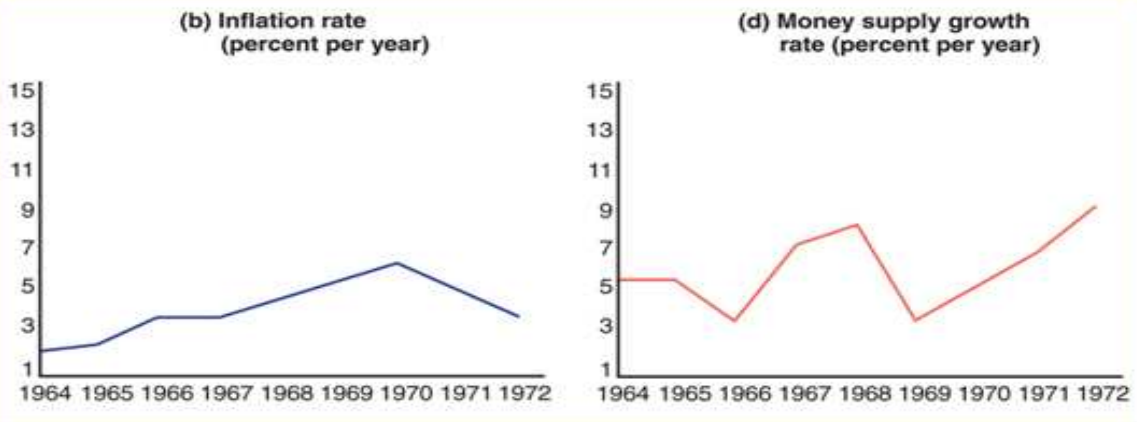


Figure 18-3

U.S. Macroeconomic Data, 1964–1972

Source: *Economic Report of the President,* 1985. Money supply growth rate is the December to December percentage increase in M1. Inflation rate is the percentage increase in each year's average consumer price index over the average consumer price index for the previous year.



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Source: *Economic Report of the President,* 1985. Money supply growth rate is the December to December percentage increase in M1. Inflation rate is the percentage increase in each year's average consumer price index over the average consumer price index for the previous year.

Problems of a Fixed Exchange Rate, Revisited

- Another problem was that as foreign economies grew, their need for official international reserves grew.
- But this rate of growth was faster than the growth rate of the gold reserves that central banks held.

- ❑ Supply of gold from new discoveries was growing slowly.
- ❑ Holding dollar denominated assets was the alternative.

- At some point, dollar denominated assets held by foreign central banks would be greater than the amount of gold held by the Federal Reserve.
- The US would eventually not have enough gold: foreigners would *lose confidence* in the ability of the Federal Reserve to maintain the fixed price of gold at $35/ounce, and therefore would rush to redeem their dollar assets before the gold ran out.
  - ❑ This problem is similar to what any central bank may face when it tries to maintain a fixed exchange rate.
  - ❑ If markets perceive that the central bank does not have enough official international reserve assets to maintain a fixed rate, a balance of payments crisis is inevitable.

Collapse of the Bretton Woods System

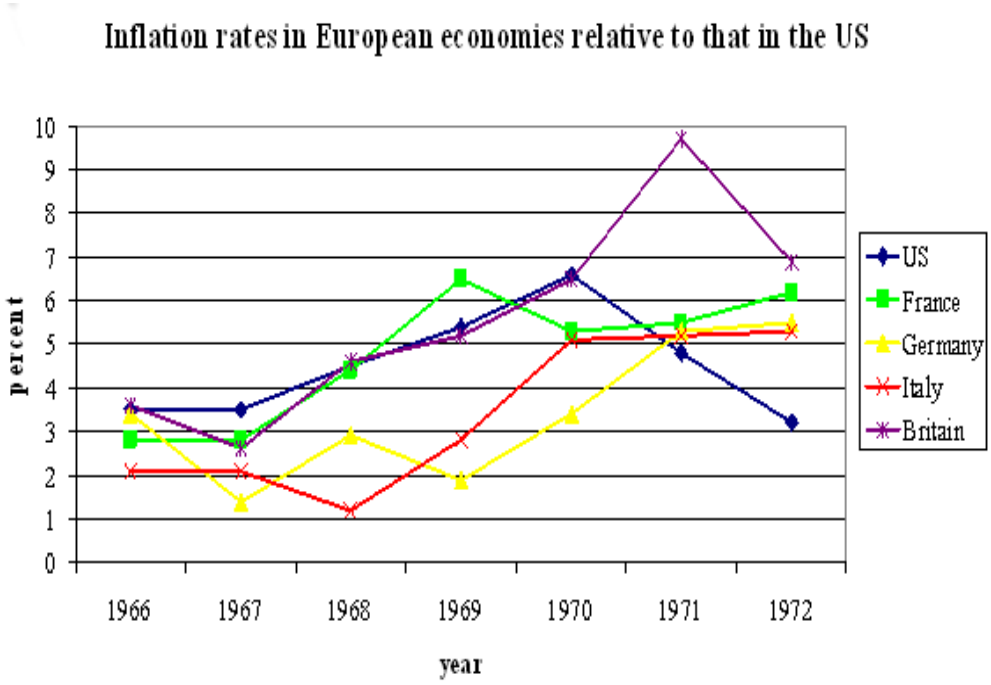
- The US was not willing to reduce government purchases or increase taxes significantly, nor reduce money supply growth.
- These policies would have reduced output and inflation, and increased unemployment.
  - ❑ The US could have attained some semblance of external balance at a cost of a slower economy.
- A devaluation, however, could have avoided the costs of low output and high unemployment and still attain external balance (increased current account and official international reserves).
- The imbalances of the US, in turn, caused speculation about the value of the US dollar, which caused imbalances for other countries and made the system of fixed exchange rates harder to maintain.
  - ❑ Financial markets had the perception that the US economy was experiencing a “fundamental equilibrium” and that a devaluation would be necessary.

- First, speculation about a devaluation of the dollar caused markets to buy large quantities of gold.
  - ❑ The Federal Reserve sold huge quantities of gold in March 1968, but closed markets afterwards.
  - ❑ Thereafter, private investors were no longer allowed to redeem gold from the Federal Reserve or other central banks.
  - ❑ The Federal Reserve would sell only to other central banks at $35/ounce.

  But even this arrangement did not hold: the US devalued its dollar in terms of gold in December 1971 to $38/ounce.
- Second, speculation about a devaluation of the dollar in terms of other currencies caused markets to buy large quantities of foreign currency assets.
  - ❑ A coordinated devaluation of the dollar against foreign currencies of about 8% occurred in December 1971.
  - ❑ Speculation about another devaluation occurred: European central banks sold huge quantities of European currencies in early February 1973, but closed markets afterwards.
  - ❑ Central banks in Japan and Europe stopped selling their currencies and stopped purchasing of dollars in March 1973, and allowed demand and supply of currencies to push the value of the dollar downward.

International Effects of US Macroeconomic Policies

- Recall from chapter 17, that the monetary policy of the country which owns the reserve currency is able to influence other economies in a reserve currency system.
- In fact, the acceleration of inflation that occurred in the US in the late 1960s also occurred internationally during that period.



Source: Organization for Economic Cooperation and Development.
Figures are annual percentage increases in consumer price indexes.

- Evidence shows that money supply growth rates in other countries even exceeded the rate in the US.
- This could be due to the effect of speculation in the foreign exchange markets.
  - ❑ Central banks were forced to buy large quantities of dollars to maintain fixed exchange rates, which increased their money supplies at a more rapid rate than occurred in the US.

TABLE 18-2 Changes in Germany's Money Supply and International Reserves, 1968–1972 (percent per year)

Growth rate of	1968	1969	1970	1971	1972
Money supply	6.4	−6.3	8.9	12.3	14.7
Official international reserves	37.8	−43.6	215.7	36.1	35.8

Source: Organization for Economic Cooperation and Development. *Main Economic Indicators: Historical Statistics, 1964–1983.* Paris: OECD, 1984. Figures are percentage increases in each year's end-of-year money supply or international reserves over the level at the end of the previous year. Official reserves are measured net of gold holdings.

Summary

1. Internal balance means that an economy enjoys normal output and employment and price stability.
2. External balance roughly means a constant level of official international reserves or a current account that is not too positive or too negative.
3. The gold standard had two mechanism that helped to prevent external imbalances
    - ❑ Price specie flow mechanism: the automatic adjustment of prices as gold flows into or out of a country.
    - ❑ Rules of the game: buying or selling of domestic assets by central banks to influence financial capital flows.
4. The Bretton Woods agreement in 1944 established fixed exchange rates, using the US dollar as the reserve currency.
5. The IMF was also established to provide countries with financing for balance of payments deficits and to judge if changes in fixed rates were necessary.
6. Under the Bretton Woods system, fiscal policies were used to achieve internal and external balance, but they could not do both simultaneously, often leading to external imbalances.
7. The Bretton Woods agreement in 1944 established fixed exchange rates, using the US dollar as the reserve currency.
8. The IMF was also established to provide countries with financing for balance of payments deficits and to judge if changes in fixed rates were necessary.
9. Under the Bretton Woods system, fiscal policies were used to achieve internal and external balance, but they could not do both simultaneously, often leading to external imbalances.

Figure 18-1

Internal Balance (*II*), External Balance (*XX*), and the "Four Zones of Economic Discomfort"

The diagram shows what different levels of the exchange rate and fiscal ease imply for employment and the current account. Along *II*, output is at its full-employment level, Y^f. Along *XX*, the current account is at its target level, *X*.

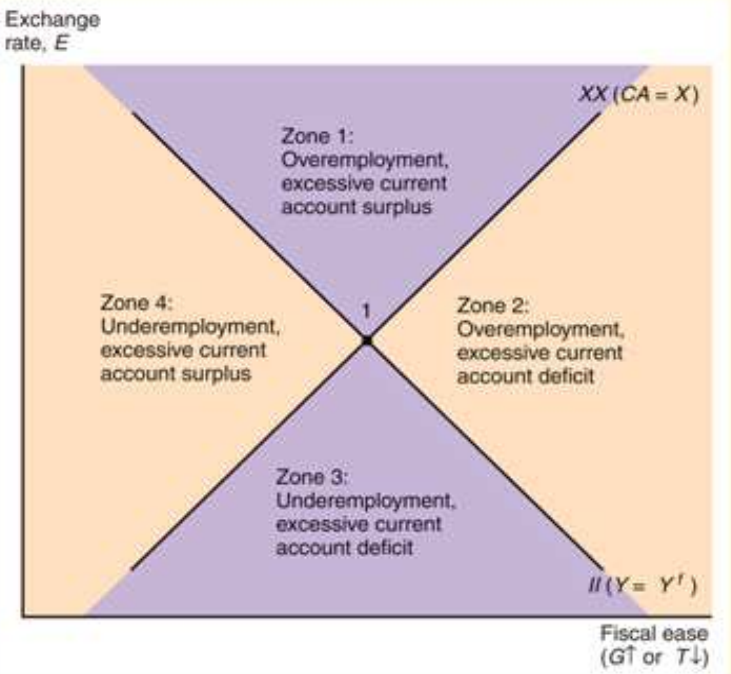


Figure 18-2

Policies to Bring About Internal and External Balance

Unless the currency is devalued and the degree of fiscal ease increased, internal and external balance (point 1) cannot be reached. Acting alone, fiscal policy can attain *either* internal balance (point 3) *or* external balance (point 4), but only at the cost of increasing the economy's distance from the goal that is sacrificed.

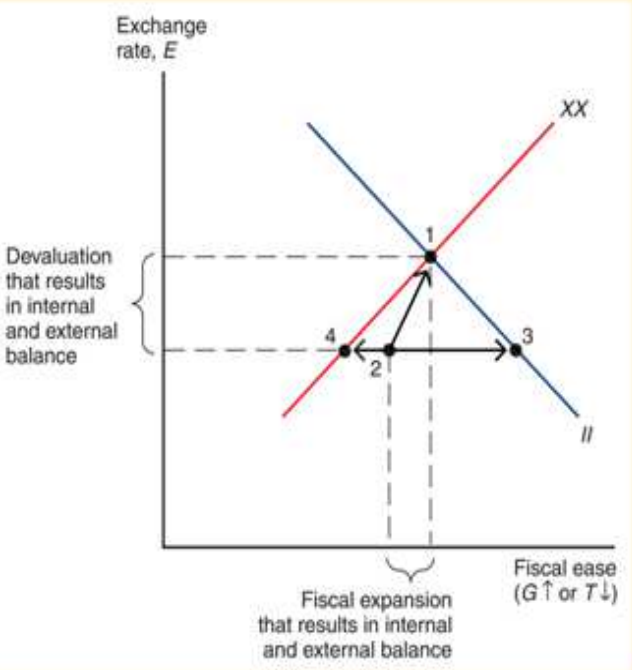
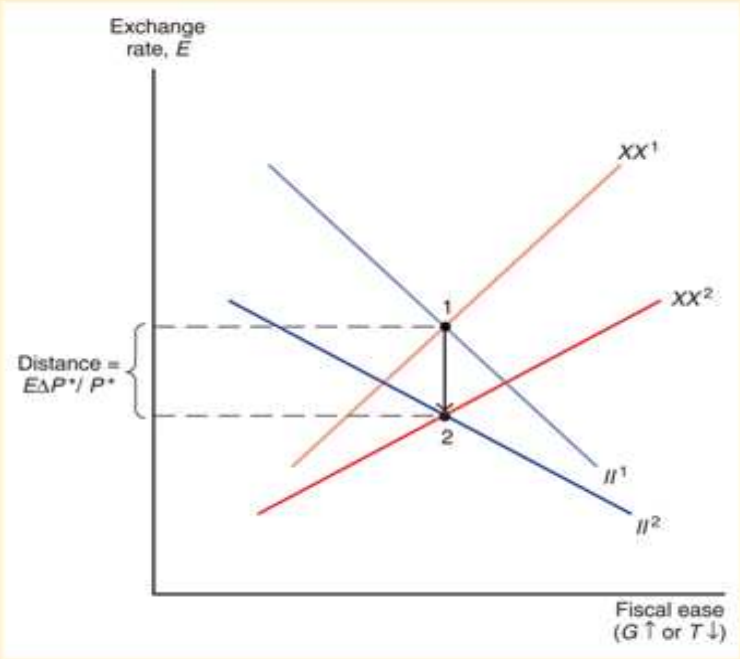


Figure 18-4

Effect on Internal and External Balance of a Rise in the Foreign Price Level, P^*

After P^* rises, point 1 is in zone 1 (overemployment and an excessive surplus). Revaluation (a fall in E) restores balance immediately by moving the policy setting to point 2.



Chapter 19

Macroeconomic Policy and Coordination Under Floating Exchange Rates

Preview

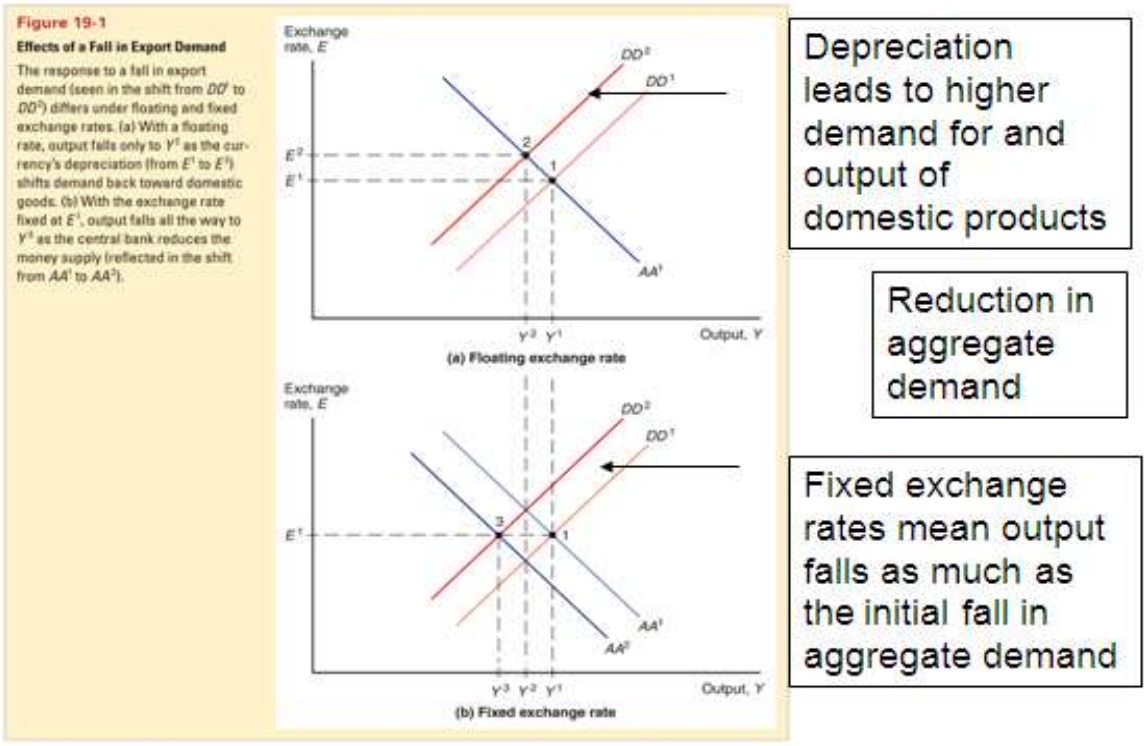
- Arguments for flexible exchange rates
- Arguments against flexible exchange rates
- Foreign exchange markets since 1973
- Interdependence of large countries
- The Chaing Mai Initiative for East Asian countries

Introduction

- The Bretton Woods system collapsed in 1973 because central banks were unwilling to continue to buy over-valued dollar assets and to sell under-valued foreign currency assets.
- Central banks thought they would stop trading in the foreign exchange for a while, and would let exchange rates adjust to supply and demand, and then would re-impose fixed exchange rates soon.
- But no new global system of fixed rates was started again.

Arguments for Flexible Exchange Rates

1. Monetary policy autonomy
    - ❑ Without a need to trade currency in foreign exchange markets, central banks are more free to influence the domestic money supply, interest rates and inflation.
    - ❑ Central banks can more freely react to changes in aggregate demand, output and prices in order to achieve internal balance.
2. Automatic stabilization
    - ❑ Flexible exchange rates change the prices of a country's products and help reduce "fundamental disequilibria".
    - ❑ One fundamental disequilibrium is caused by an excessive increase in money supply and government purchases, leading to inflation, as we saw in the US during 1965–1972.
    - ❑ Inflation means that the currency's purchasing power falls, both domestically and internationally, and flexible exchange rates can automatically adjust to account for this fall in value, as PPP predicts should happen.
    - ❑ Another fundamental disequilibrium could be caused by a general shift in aggregate demand for a country's products.
    - ❑ Flexible exchange rates would automatically adjust to stabilize high or low aggregate demand and output, thereby keeping output closer to its normal level and also stabilizing price changes in the long run.
    - ❑ In the long run, a real depreciation of domestic products occurs as prices fall (due to low aggregate demand, output and employment) under fixed exchange rates.
    - ❑ In the short run and long run, a real depreciation of domestic products occurs through a nominal depreciation under flexible exchange rates.



- Fixed exchange rates can not survive for long in a world with divergent macroeconomic policies and other changes which affect national aggregate demand and national output differently.
- Flexible exchange rates may also prevent speculation in some cases.
    - Fixed exchange rates are unsustainable if markets believe that the central bank does not have enough official international reserves.

Arguments Against Bretton Woods System

4. Symmetry (not possible under Bretton Woods)
    - ❑ The US is now allowed to adjust its exchange rate, like other countries.
    - ❑ Other countries are allowed to adjust their money supplies for macroeconomic goals, like the US.

Arguments Against Flexible Exchange Rates

1. Uncoordinated macroeconomic policies
    - ❑ Flexible exchange rates lose the coordination of monetary polices through fixed exchange rates.

- ❑ Lack of coordination may cause "*expenditure switching*" policies: each country may want to maintain a low valued currency, so that aggregate demand is switched to domestic output *at the expense of other economies*
    - In contrast, "expenditure changing" fiscal policies are thought to change the level of aggregate demand in the short run for both domestic and foreign products.
- ❑ Lack of coordination may cause *volatility* in national economies: because a large country's fiscal and monetary policies affect other economies; aggregate demand, output and prices become more volatile across countries as policies diverge.
    - Volatile aggregate demand and output, especially in export sectors and import-competing sectors, leads to volatile employment.
    - Volatility, not stabilization, may occur.

2. Speculation and volatility in the foreign exchange market become worse, not better.
    - ❑ If traders expect a currency to depreciate in the short run, they may quickly sell the currency to make a profit, even if it is not expected to depreciate in the long run.
    - ❑ Expectations of depreciation lead to actual depreciation in the short run.
    - ❑ Earlier we assumed that expectations do not change under temporary shocks to the economy, but this assumption is not valid if expectations change quickly in anticipation of even temporary economic changes.
    - ❑ Such speculation tends to increase the fluctuations of exchange rates around their long run values, as currency traders quickly react to changing (interpretations of) economic news.
    - ❑ In fact, volatility of exchange rates since 1973 has become larger.
    - ❑ But how big of a problem is this?
3. Reduction of trade and international investment caused by uncertainty about exchange rates.

- ❑ But precisely because of a desire to reduce this uncertainty, forward exchange rates and derivative assets were created to insure against exchange rate volatility.
- ❑ And international investment and trade have expanded since the Bretton Woods system was abandoned.
- ❑ And controls on flows of financial capital are often necessary under fixed exchange rate systems, in order to prevent capital flight and financial market speculation.

4. Discipline: if central banks are tempted to enact inflationary monetary policies, adherence to a fixed exchange rates may force them not to print so much money.
   - ❑ But the temptation may not go away: devaluation due to inflationary monetary policy may still be necessary.
   - ❑ And inflation is contained in the country that creates it under flexible exchange rates: the US could no longer "export" inflation after 1973.
   - ❑ And inflation targets may be better discipline than exchange rate targets.
5. Illusion of greater monetary policy autonomy
   - ❑ Central banks still need to intervene in the foreign exchange market because the exchange rate, like inflation, affects the economy a great deal.
   - ❑ But for the US, exchange rate stability is usually considered less important by the Federal Reserve than price stability and output stability.

Since 1973

- In 1975, IMF members met in Rambouillet, France to allow flexible exchange rates, but to prevent "erratic fluctuations".
- In 1976 in Kingston, Jamaica, they amended the articles of agreement for IMF membership to formally endorse flexible rates,
  - ❑ but prevented members from "manipulating exchange rates…to gain an unfair competitive advantage", i.e., no expenditure switching policies were allowed.

- ❑ The articles allowed “surveillance” of members by other members to be sure they were playing fairly.

Since 1973

- Due to contractionary monetary policy and expansive fiscal policy in the US, the dollar appreciated by about 50% relative to 15 currencies from 1980–1985.
  - ❑ This contributed to a growing current account deficit by making imports cheaper and US goods more expensive.

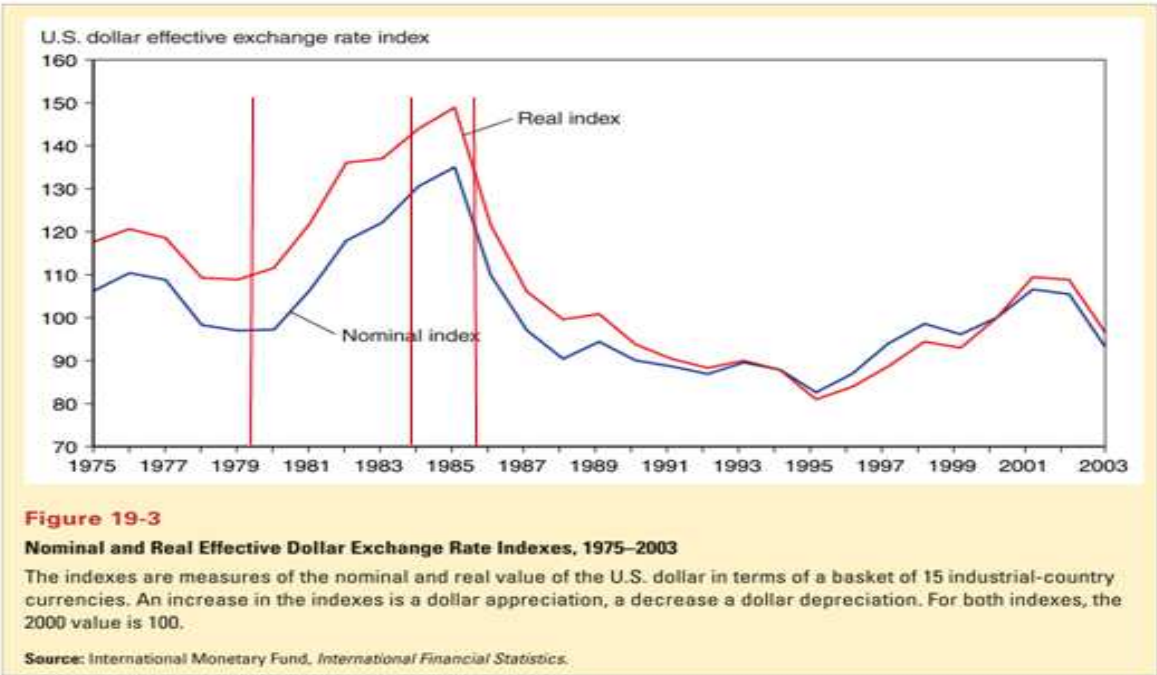


Figure 19-3

Nominal and Real Effective Dollar Exchange Rate Indexes, 1975–2003

The indexes are measures of the nominal and real value of the U.S. dollar in terms of a basket of 15 industrial-country currencies. An increase in the indexes is a dollar appreciation, a decrease a dollar depreciation. For both indexes, the 2000 value is 100.

Source: International Monetary Fund, *International Financial Statistics.*

To reduce the value of the US $, the US, Germany, Japan, Britain and France announced in 1985 that they would jointly intervene in the foreign exchange markets in order to depreciate the value of the dollar.

- ❑ The dollar dropped sharply the next day and continued to drop as the US continued a more expansionary monetary policy, pushing down interest rates.
- ❑ Announcement was called the Plaza Accords, because it was made at the Plaza Hotel in New York.

- After value of the dollar fell, countries were interested in stabilizing exchange rates.

- ❑ US, Germany, Japan, Britain, France and Canada announced renewed cooperation in 1987, pledging to stabilize current change rates.
- ❑ They calculated zones of about +/- 5% around which current exchange rates were allowed to fluctuate.
- ❑ Announcement was called the Louvre Accords, because it was made at the Louvre in Paris.

- It is not at all apparent that the Louvre accord succeeded in stabilizing exchange rates.
  - ❑ Stock market crash in October 1987 made output stability a primary goal for the US central bank, and exchange rate stability a secondary goal.
  - ❑ New targets were (secretly) made after October 1987, but by the early 1990s, central banks were no longer attempting to adhere to these or other targets.
  - ❑ Price stability (low inflation) was also a main goal of the US central bank, not exchange rate stability.
- Many fixed exchange rate systems have nonetheless developed since 1973.
  - ❑ European monetary system and euro zone (studied in chapter 20).
  - ❑ China fixes its currency.
  - ❑ ASEAN countries have considered a fixed exchange rates and policy coordination.
- No system is right for all countries at all times.

Interdependence of "Large" Countries

- Previously, we assumed that countries are "small" in that their policies do not affect world markets.
  - ❑ For example, a depreciation of the domestic currency has no significant influence on aggregate demand, output and prices in foreign countries.
  - ❑ For countries like Costa Rica, this may be an accurate description.
- However, large economies like the US, EU, Japan, and China are interdependent because policies in one country affect other economies.

- If the US permanently increases the money supply, the *DD-AA* model predicts for the short run:
  - ❑ an increase in US output and income
  - ❑ a depreciation of the US dollar.
- What would be the effects for Japan?
  - ❑ an increase in US output and income would raise demand for Japanese products, thereby increasing aggregate demand and output in Japan.
  - ❑ a depreciation of the US dollar means an appreciation of the yen, lowering demand for Japanese products, thereby decreasing aggregate demand and output in Japan.
  - ❑ The total effect of (1) and (2) is ambiguous.
- If the US permanently increases government purchases, the *DD-AA* model predicts:
  - ❑ an appreciation of the US dollar.
- What would be the effects for Japan?
  - ❑ an appreciation of the US dollar means an depreciation of the yen, raising demand for Japanese products, thereby increasing aggregate demand and output in Japan.
- What would be the subsequent effects for the US?
  - ❑ Higher Japanese output and income means that more income is spent on US products, increasing aggregate demand and output in the US in the short run.

Chiang Mai Initiative

- In May 2000, ASEAN countries (Thailand, Brunei, Singapore, Philippines, Malaysia, Indonesia) plus China, South Korea and Japan met in Chiang Mai, Thailand.
  - ❑ They agreed to establish a network of financing for countries with balance of payments deficits.
  - ❑ They also considered coordinating monetary policies to fix their currencies, or to create a common currency, in the future.

- ASEAN +3 countries wanted to avert another crisis like the one that occur in 1997.
  - ❑ Banks did not insure (hedge) against a decline in the value of domestic currency assets, making the value of assets less than the value of foreign currency liabilities after devaluations, leading to bankruptcy.
  - ❑ Banks expected that that the exchange rate would be fixed, but since 1997 banks expect greater volatility, and they have likewise insured against exchange rate risk.
  - ❑ Thus, one of the reason for having a fixed exchange rate (to avoid a banking crisis) has been already reduced by banks.
- Some countries are interested in developing export goods sectors (e.g., clothing, toys, computers).
  - ❑ These sectors would benefit from a low valued domestic currency, making exports cheap in foreign markets.
  - ❑ China currently has an undervalued currency; some policy makers in other countries may be interested in having a low valued currency at a fixed rate.
  - ❑ But capital controls are necessary to keep markets from buying domestic assets and selling foreign assets that might threaten the stability of a fixed exchange rate.
- But not all countries may want to follow a fixed exchange rate: central banks may target an inflation rate instead of an exchange rate, depending on macroeconomic policy and development goals.
  - ❑ Under a flexible exchange rate, central banks may respond to exchange rate fluctuations if they believe fluctuations are caused by short term flows of financial capital.
  - ❑ But long run changes in demand for exports (e.g., Korean toys) or in supply factors (e.g., productivity of labor in Korea) may not justify targeting a certain exchange rate, and the central bank may target inflation or other macroeconomic goals instead.

- Each major ASEAN member contributed $150 million to a fund for balance of payments problems, and may withdraw up to 2 times their contribution in US dollar, euros or yen if the need arises.
    - ❑ In addition, bilateral loans maybe made between ASEAN and other participating countries.
    - ❑ But it is unclear whether the total fund of about US $ 1 billion is sufficient to maintain a fixed currency rate.

Summary

1. Arguments for flexible exchange rates are that they grant monetary policy autonomy, can stabilize the economy as aggregate demand and output change, and can limit some forms of speculation.
2. Arguments against flexible exchange rates are that they cause expenditure switching policies, can make aggregate demand and output more volatile because of uncoordinated policies across countries, and make exchange rates more volatile.
3. Since 1973, countries have engaged in 2 major global efforts to influence exchange rates:
    1. The Plaza accord reduced the value of the dollar relative to other major currencies.
    2. The Louvre accord was intended to stabilize exchange rates, but it was quickly abandoned.
4. Models of large countries account for the influence that domestic macroeconomic policies have in foreign countries.

Exchange Rates and Inflation

Figure 19-4

Exchange Rate Trends and Inflation Differentials, 1973–2003

Over the floating-rate period as a whole, higher inflation has been associated with greater currency depreciation. The exact relationship predicted by relative PPP, however, has not held for most countries. The inflation difference on the horizontal axis is calculated as $(\pi - \pi_{US}) \div (1 + \pi_{US}/100)$ using the exact relative PPP relation given in footnote 1 on p. 372.

Source: International Monetary Fund and Global Financial Data.

Figure 19-2

A Rise in Money Demand Under a Floating Exchange Rate

A rise in money demand (the shift from AA^1 to AA^2) works exactly like a fall in the money supply, causing the currency to appreciate to E^2 and output to fall to Y^2. Under a fixed exchange rate the central bank would prevent AA^1 from shifting by purchasing foreign exchange and thus automatically expanding the money supply to meet the rise in money demand.

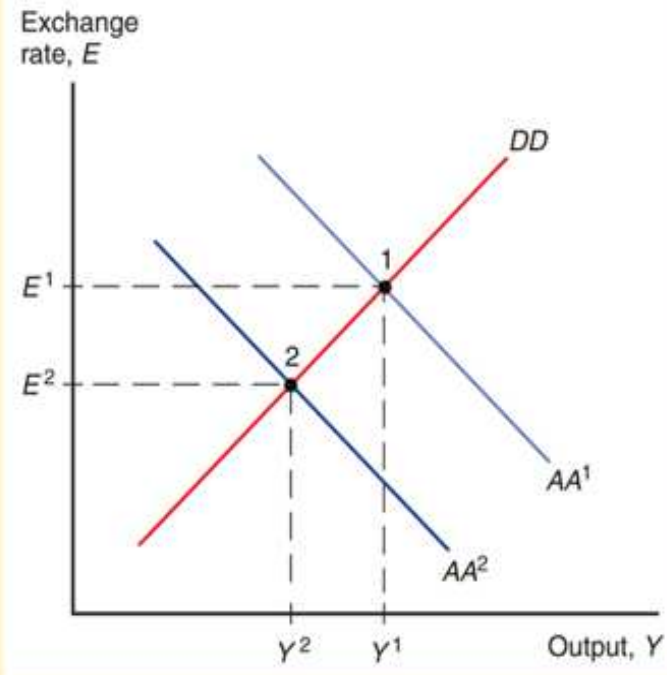


TABLE 19-1 Macroeconomic Data for Key Industrial Regions, 1963–2005

Period	1963–1972	1973–1982	1983–1992	1993–2002	2003	2004	2005
Inflation (percent per year)							
United States	3.3	8.7	4.0	2.6	2.3	3.0	3.0
Europe	4.4	10.7	5.1	2.4	2.0	2.2	2.0
Japan	5.6	8.6	1.8	0.2	−0.2	−0.2	−0.2
Unemployment (percent of labor force)							
United States	4.7	7.0	6.8	5.2	6.0	5.5	5.4
Europe	1.9	5.5	9.4	9.6	8.9	9.0	8.7
Japan	1.2	1.9	2.5	3.9	5.3	4.7	4.5
Per-Capita Real GDP Growth (percent per year)							
United States	2.8	0.9	2.4	2.1	2.0	3.3	2.5
Europe	3.9	2.0	3.0	2.0	−0.1	1.9	1.9
Japan	8.5	2.9	3.4	0.7	2.3	4.3	2.3

Source: International Monetary Fund. Some data are IMF forecasts.

Figure 19A-1

Hypothetical Effects of Different Monetary Policy Combinations on Inflation and Unemployment

Monetary policy choices in one country affect the outcomes of monetary policy choices made abroad.

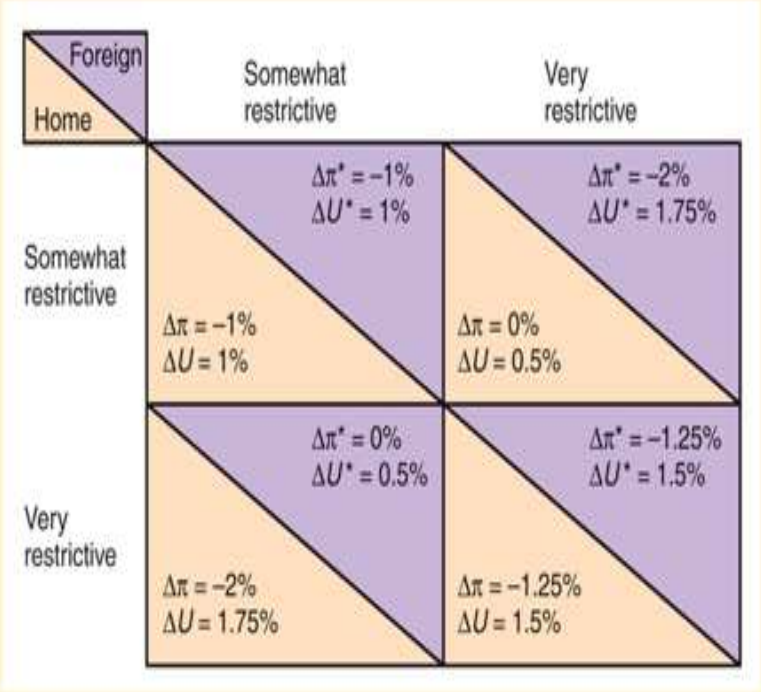
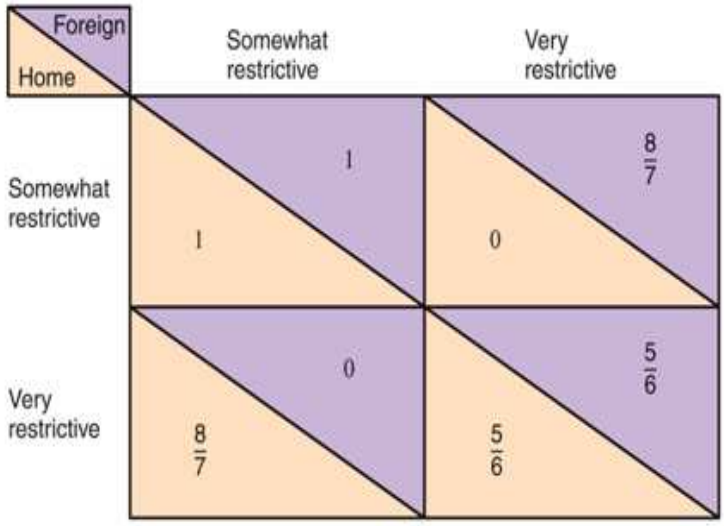


Figure 19A-2

Payoff Matrix for Different Monetary Policy Moves

Each entry equals the reduction in inflation per unit rise in the unemployment rate (calculated as $-\Delta\pi/\Delta U$). If each country "goes it alone," they both choose very restrictive policies. Somewhat restrictive policies, if adopted by both countries, lead to an outcome better for both.



Chapter 20

Optimum Currency Areas and the European Experience

Preview

- The European Union
- The European Monetary System
- Policies of the EU and the EMS
- Theory of optimal currency areas
- Is the EU an optimal currency area?
- Other considerations of a economic and monetary union

What Is the EU?

- The European Union is a system of international institutions, the first of which originated in 1957, which now represents 25 European countries through the:
  - ❑ European Parliament: elected by citizens of member countries
  - ❑ Council of the European Union: appointed by governments of the member countries
  - ❑ European Commission: executive body
  - ❑ Court of Justice: interprets EU law

- **European Central Bank**, which conducts monetary policy, through a system of member country banks called the **European System of Central Banks**

What Is the EMS?

- The **European Monetary System** was originally a system of fixed exchange rates implemented in 1979 through an **exchange rate mechanism** (ERM).
- The EMS has since developed into an **economic and monetary union** (EMU), a more extensive system of coordinated economic and monetary policies.
  - The EMS has replaced the exchange rate mechanism for most members with a common currency under the economic and monetary union.

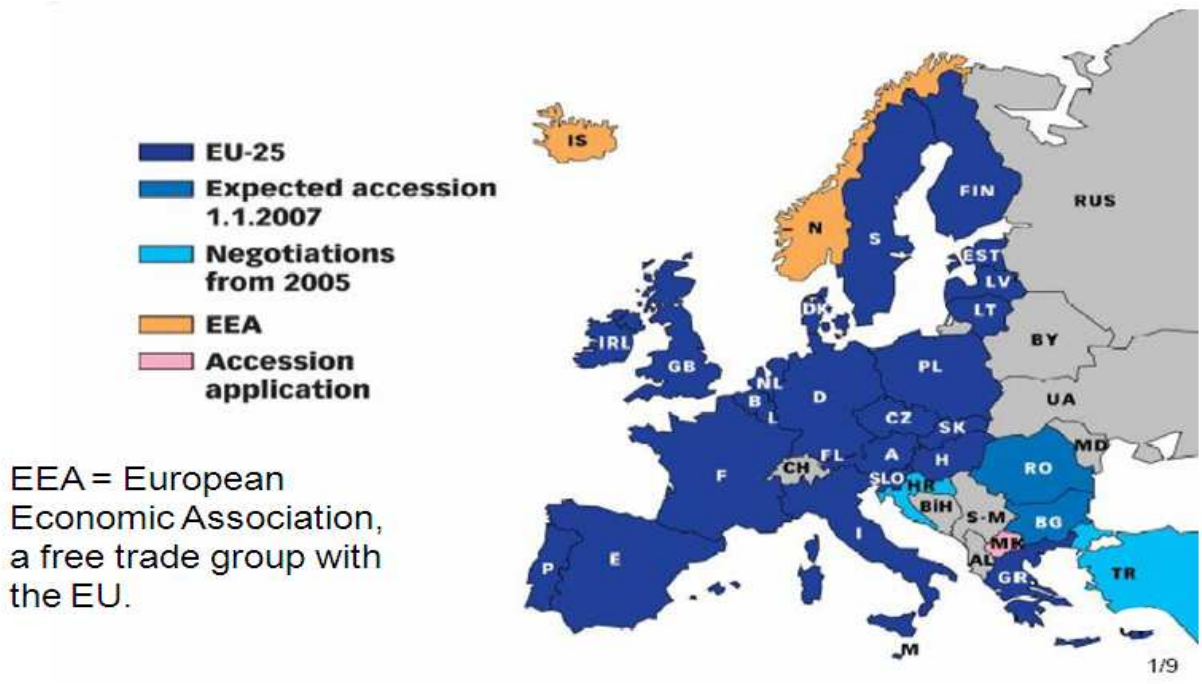
Membership of the Economic and Monetary Union

- To be part of the economic and monetary union, EMS members must
  1. first adhere to the ERM: exchange rates were fixed in specified bands around a target exchange rate,
  2. next follow restrained fiscal and monetary policies as determined by Council of the European Union and the European Central Bank,
  3. finally replace the national currency with the euro, whose circulation is determined by the European System of Central Banks.

Membership of the EU

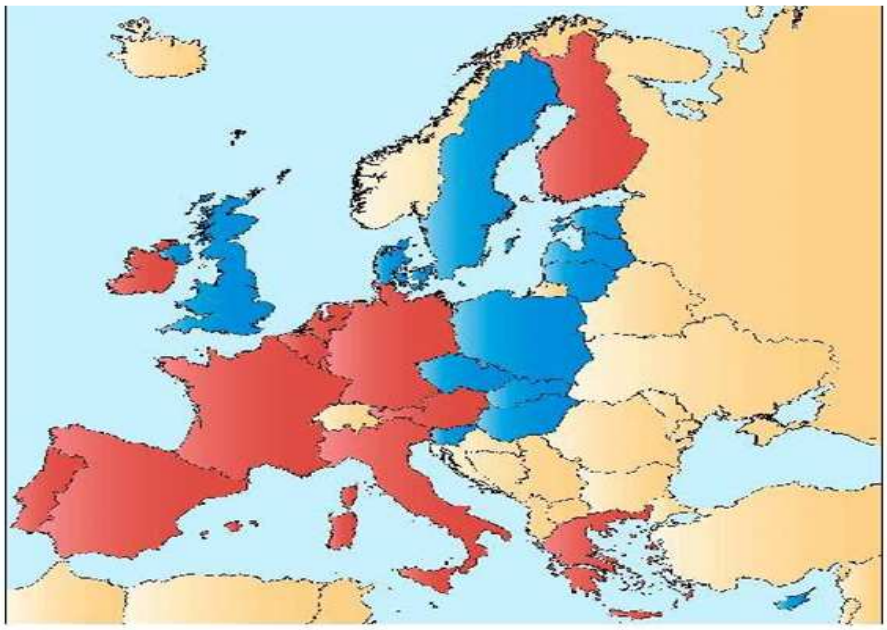
- To be a member of the EU, a country must, among other things,
  1. have low barriers that limit trade and flows of financial capital
  2. adopt common rules for emigration and immigration to ease the movement of people.
  3. establish common workplace safety and consumer protection rules
  4. establish certain political and legal institutions that are consistent with the EU's definition of liberal democracy.

Members of the European Union



EU/EMS Members of the Economic and Monetary Union (EMU)

Countries in red: EU members that use the euro and are members of the EMU.
Countries in blue: EU members that do not use the euro and are not members of the EMU.



Why the EU?

- Countries that established the EU and EMS had several goals
    1. To enhance Europe's **power in international affairs**: as a union of countries, the EU could represent more economic and political power in the world.

2. To make Europe a **unified market**: a large market with free trade, free flows of financial capital and free migration of people—in addition to fixed exchange rates or a common currency—were believed to foster economic growth and economic well being.
3. To make Europe **politically stable and peaceful**.

Why the Euro (EMU)?

EU members adopted the euro for principally 4 reasons:

1. **Unified market**: the belief that greater market integration and economic growth would occur.
2. **Political stability**: the belief that a common currency would make political interests more uniform.
3. The belief that **German influence** under the EMS **would be moderated** under a European System of Central Banks.
4. **Eliminate the possibility of devaluations/revaluations**: with free flows of financial capital, capital flight and speculation could occur in an EMS with separate currencies, but would be more difficult with a single currency.

The EMS from 1979–1998

- From 1979–1993, the EMS defined the exchange rate mechanism to allow most currencies to fluctuate +/- 2.25% around target exchange rates.
- The exchange rate mechanism allowed larger fluctuations (+/- 6%) for currencies of Portugal, Spain, Britain (until 1992) and Italy (until 1990).
  - ❑ These countries wanted greater flexibility with monetary policy.
  - ❑ The wider bands were also intended to prevent speculation caused by differing monetary and fiscal policies.

To prevent speculation,

- early in the EMS some *exchange controls* were also enforced to limit trading of currencies.
  - ❑ But from 1987–1990 these controls were lifted in order to make the EU a common market for financial capital.

- a *credit system* was also developed among EMS members to lend to countries that needed assets and currencies that were in high demand in the foreign exchange markets.
- But because of differences in monetary and fiscal policies across the EMS, markets participants began buying German assets (because of high German interest rates) and selling other EMS assets.
- As a result, Britain left the EMS in 1992 and allowed the pound to float against other European currencies.
- As a result, exchange rate mechanism was redefined in 1993 to allow for bands of +/-15% of the target value in order devalue many currencies relative to the deutschemark.
- But eventually, each EMS member adopted similarly restrained fiscal and monetary policies, and the inflation rates in the EMS eventually converged (and speculation slowed or stopped).
    - ❑ In effect, EMS members were following the restrained monetary policies of Germany, which has traditionally had low inflation.
    - ❑ Under the EMS exchange rate mechanism of fixed bands, Germany was "exporting" its monetary policy.

Convergence of Inflation Rates Among EMS Members, 1978–2000

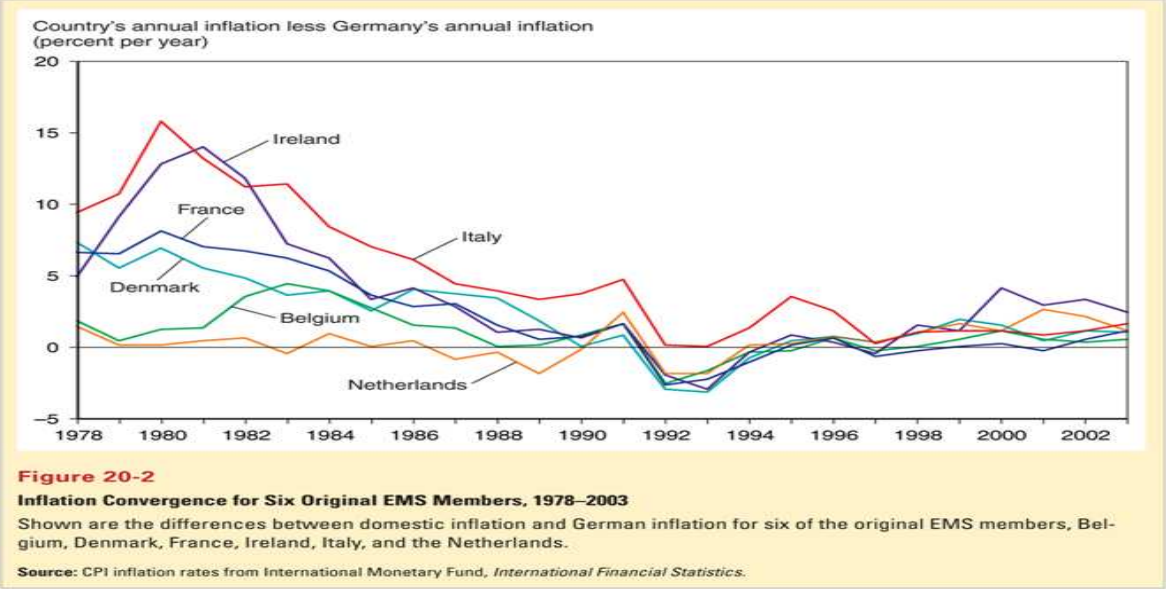


Figure 20-2
Inflation Convergence for Six Original EMS Members, 1978–2003
Shown are the differences between domestic inflation and German inflation for six of the original EMS members, Belgium, Denmark, France, Ireland, Italy, and the Netherlands.
Source: CPI inflation rates from International Monetary Fund, *International Financial Statistics.*

Policies of the EU and EMS

- *Single European Act of 1986* recommended that many barriers to trade, financial capital flows and immigration be removed by December 1992.
  - ❑ It also allowed EU policy to be approved with less than unanimous consent among members.
- *Maastricht Treaty*, proposed in 1991, required the 3 provisions to transform the EMS into a economic and monetary union.
  - ❑ It also required standardizing regulations and centralizing foreign and defense policies among EU countries.
  - ❑ Some EU/EMS members have not ratified all of the clauses.
- The Maastricht Treaty requires that members which want to *enter* the economic and monetary union

1. attain exchange rate stability defined by the ERM before adopting the euro.
2. attain price stability: a maximum inflation rate of 1.5% above the average of the three lowest national inflation rates among EU members.
3. maintain a restrictive fiscal policy:
   - ❑ a maximum ratio of government deficit to GDP of 3%.
   - ❑ a maximum ratio of government debt to GDP of 60%.

- The Maastricht Treaty requires that members which want to *remain* in the economic and monetary union

1. maintain a restrictive fiscal policy:
   - ❑ a maximum ratio of government deficit to GDP of 3%.
   - ❑ a maximum ratio of government debt to GDP of 60%.
   - ❑ financial penalties are imposed on countries with “excessive” deficits or debt.

- The *Stability and Growth Pact*, negotiated in 1997, also allows for financial penalties on countries with “excessive” deficits or debt.
- The euro was adopted in 1999, and the previous exchange rate mechanism became obsolete.

- But a new exchange rate mechanism—ERM 2—was established between the economic and monetary union and outside countries.
    - It allowed countries (either within or outside of the EU) that wanted to enter the economic and monetary union in the future to maintain stable exchange rates before doing so.
    - It allowed EU members outside of the economic and monetary union to maintain fixed exchange rates if desired.

Theory of Optimum Currency Areas

- The theory of **optimum currency areas** argues that the optimal area for a system of fixed exchange rates, or a common currency, is one that is *highly economically integrated*.
    - ❑ economic integration means free flows of
        - goods and services (trade)
        - financial capital and physical capital
        - workers/labor (immigration and emigration)
- The theory was developed by Robert Mundell in 1961.
- Fixed exchange rates have costs and benefits for countries deciding whether to adhere to them.
- Benefits of fixed exchange rates are that they avoid the uncertainty and international transaction costs that floating exchange rates involve.
- Define this gain that would occur if a country joined a fixed exchange rate system as the **monetary efficiency gain**.
- The monetary efficiency gain of joining a fixed exchange rate system depends on the amount of economic integration.
- After joining a fixed exchange rate system:
    - ❑ If trade is extensive between members, then transaction costs would be reduced greatly.
    - ❑ If financial capital can flow freely between members, then the uncertainty about rates of return would be reduced greatly.

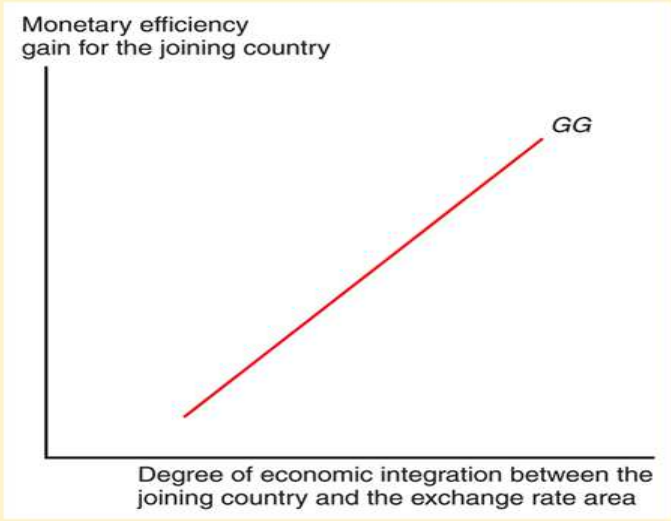
- ❑ If people can migrate freely across borders to work, then the uncertainty about wages would be reduced greatly.

- In general, the higher the degree of economic integration, the greater the monetary efficiency gain.
- Draw a graph of the monetary efficiency gain as a function of the degree of economic integration.

Figure 20-3

The *GG* Schedule

The upward-sloping *GG* schedule shows that a country's monetary efficiency gain from joining a fixed exchange rate area rises as the country's economic integration with the area rises.



When considering the monetary efficiency gain,

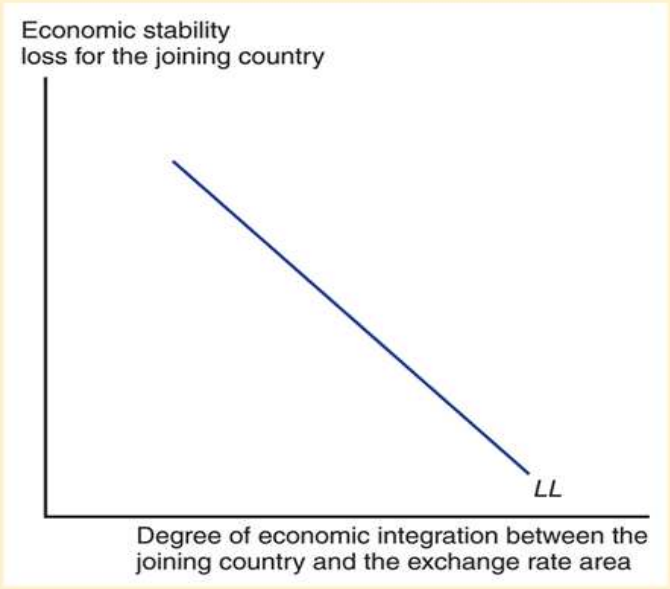
- we have assumed that the members of the fixed exchange rate system maintained a stable price level.
  - ❑ But when variable inflation exists among member countries, then joining the system would not reduce uncertainty (as much).
- we have assumed that a new member would be fully committed to a fixed exchange rate system.
  - ❑ But if a new member is likely to leave the fixed exchange rate system, then joining the system would not reduce uncertainty (as much).
- Economic integration also allows prices to converge between members of a fixed exchange rate system and a potential member.
  - ❑ The law of one price is expected to hold better when markets are integrated.

- Costs of fixed exchange rates are that they require the loss of monetary policy for stabilizing output and employment, and the loss of automatic adjustment of exchange rates to changes in aggregate demand.
- Define this loss that would occur if a country joined a fixed exchange rate system as the **economic stability loss**.
- The economic stability loss of joining a fixed exchange rate system also depends on the amount of economic integration.
- After joining a fixed exchange rate system, if the new member faces a fall in aggregate demand:
    - ❑ Relative prices will tend to fall, which will lead other members to increase aggregate demand greatly if economic integration is extensive, so that the economic loss is not as great.
    - ❑ Financial capital or labor will migrate to areas with higher returns or wages if economic integration is extensive, so that the economic loss is not as great.
    - ❑ The loss of the automatic adjustment of flexible exchange rates is not as great if goods and services markets are integrated.
    - ❑ Automatic adjustment would cause an appreciation of foreign currencies, which would cause an increase in many prices for domestic consumers when goods and services markets are integrated.
- In general, the higher the degree of economic integration, the lower the economic stability loss.
- Draw a graph of the economic stability loss as a function of the degree of economic integration.

Figure 20-4

The *LL* Schedule

The downward-sloping *LL* schedule shows that a country's economic stability loss from joining a fixed exchange rate area falls as the country's economic integration with the area rises.

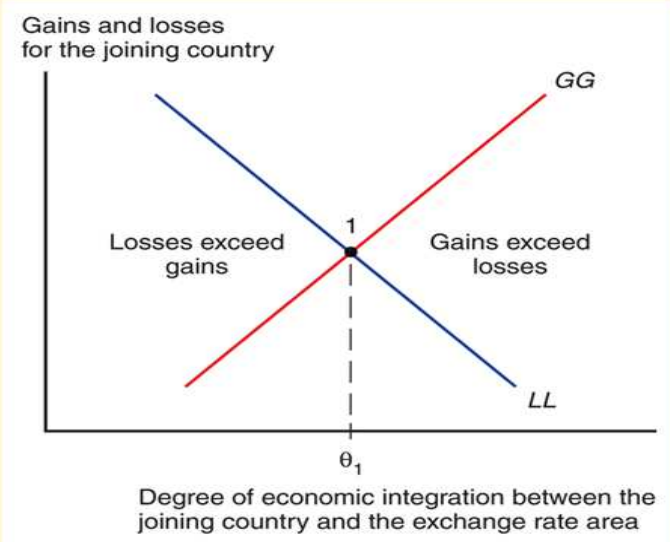


- At some critical point measuring the degree of integration, the monetary efficiency gain will exceed the economic stability loss for a member considering joining a fixed exchange rate system.

Figure 20-5

Deciding When to Peg the Exchange Rate

The intersection of *GG* and *LL* at point 1 determines a critical level of economic integration θ_1 between a fixed exchange rate area and a country considering whether to join. At any level of integration above θ_1, the decision to join yields positive net economic benefits to the joining country.



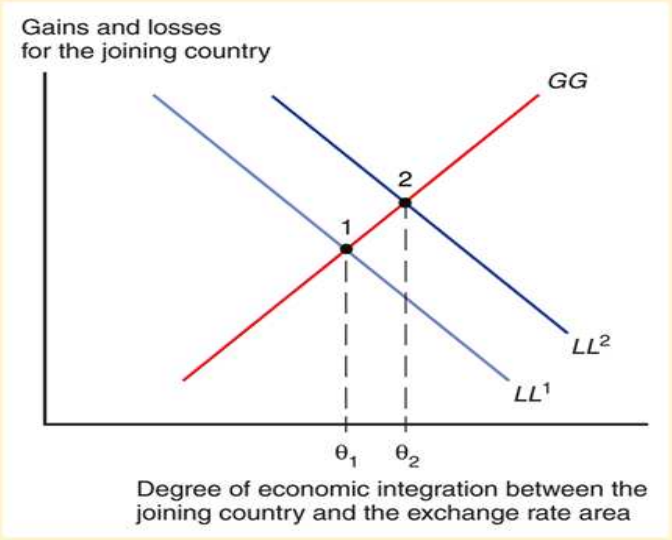
- There could be an event that causes the frequency or magnitude of changes in aggregate demand to increase for a country.
- If so, the economic stability loss would be greater for every measure of economic integration between a new member and members of a fixed exchange rate system.

- How would this affect the critical point where the monetary efficiency gain equals economic stability loss?

Figure 20-6

An Increase in Output Market Variability

A rise in the size and frequency of country-specific disturbances to the joining country's product markets shifts the *LL* schedule upward from LL^1 to LL^2 because for a given level of economic integration with the fixed exchange rate area, the country's economic stability loss from pegging its exchange rate rises. The shift in *LL* raises the critical level of economic integration at which the exchange rate area is joined to θ_2.



Is the EU an Optimum Currency Area?

- If the EU/EMS/economic and monetary union can be expected to benefit members, we expect that its members have a high degree of economic integration:
  - ❑ large trade volumes as a fraction of GDP
  - ❑ a large amount of foreign financial investment and foreign direct investment relative to total investment
  - ❑ a large amount of migration across borders as a fraction of total labor force
- Most EU members export from 10% to 20% of GDP to other EU members
  - ❑ This compares with exports of less than 2% of EU GDP to the US.
  - ❑ But trade between regions in the US is a larger fraction of regional GDP.
- Was trade restricted by regulations that were removed under the Single European Act?

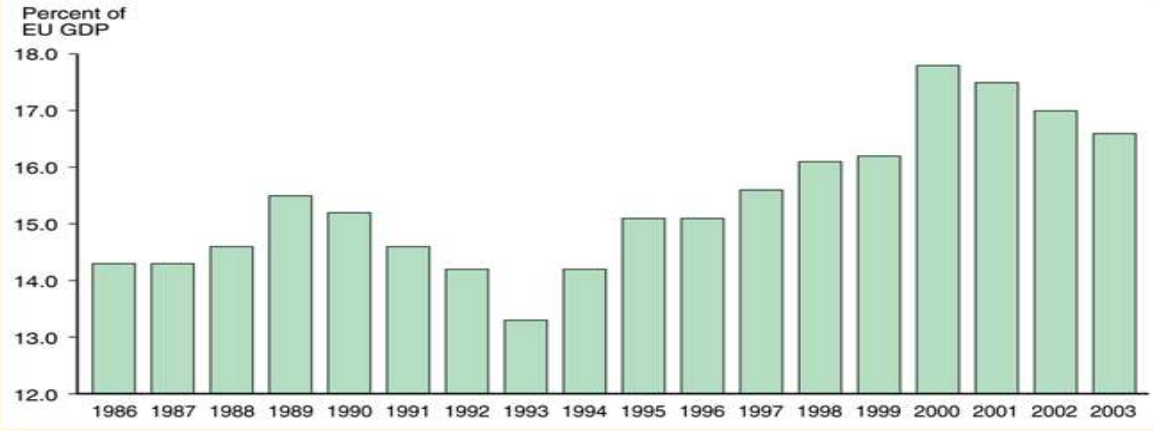


Figure 20-7

Intra-EU Trade as a Percent of EU GDP

Trade of EU countries with other EU countries has increased since the euro was introduced at the start of 1999. In constructing the figure, the extent of an EU country's trade with EU members is defined as the average of its imports from and exports to other EU countries. The numbers shown are calculated from total intra-EU trade (for all EU members) divided by the total GDP of the EU.

Sources: *OECD Statistical Yearbook* and Eurostat.

- Deviations from the law of one price also occur in many EU markets.
  - ❑ If EU markets were greatly integrated, then the (currency adjusted) prices of goods and services should be nearly the same across markets.
  - ❑ The price of the same BMW car varies 29.5% between British and Dutch markets.
  - ❑ How much does price discrimination occur?
- There is also no evidence that regional migration is extensive in the EU.
- Europe has many languages and cultures, which hinder migration and labor mobility.
- Unions and regulations also impede labor movements between industries and countries.

TABLE 20-2 People Changing Region of Residence in the 1990s (percent of total population)

Britain	Germany	Italy	United States
1.7	1.1	0.5	3.1

Source: Peter Huber, "Inter-regional Mobility in Europe: A Note on the Cross-Country Evidence," *Applied Economics Letters* 11 (August 2004), pp. 619–624; and "Geographical Mobility, 2003–2004," U.S. Department of Commerce, March 2004. Table data are for Britain in 1996, Germany in 1990, Italy in 1999, and the United States in 1999.

- Evidence also shows that differences of US regional unemployment rates are smaller and less persistent than differences of national unemployment rates in the EU, indicating a lack of EU labor mobility.
- There is evidence that financial capital flows more freely in the EU after 1992 and 1999.
- But capital mobility without labor mobility can make the economic stability loss greater.
    - After a reduction of aggregate demand in a particular EU member, financial capital could be easily transferred elsewhere while labor is stuck.
    - The loss of financial capital could further reduce production and employment.

Other Considerations for an EMU

- The *structure of the economies* in the EU's economic and monetary union is important for determining how members respond to aggregate demand shocks.
    - ❑ The economies of EU members are similar in the sense that there is a high volume of *intra-industry trade* relative to the total volume.
    - ❑ They are different in the sense that Northern European countries have *high levels of physical capital per worker and more skilled labor*, compared with Southern European countries.
    - ❑ How an EU member responds to aggregate demand shocks may depend how the structure its economy compares to that of fellow EU members.
    - ❑ For example, the effects of a reduction in aggregate demand caused a reduction in demand in the software industry will depend if a EU member have a large number of workers skilled in programming relative to fellow EU members.
- The *amount of transfers* among the EU members may also affect how EU economies respond to aggregate demand shocks.

- ❑ Fiscal payments between countries in the EU's federal system, or **fiscal federalism**, may help offset the economic stability loss from joining an economic and monetary union.
- ❑ But relative to inter-regional transfers in the US, little fiscal federalism occurs among EU members.

Summary

1. The EMS was first a system of fixed exchange rates but later developed into a more extensive coordination of economic and monetary policies: an economic and monetary union.
2. The Single European Act of 1986 recommended that EU members remove barriers to trade, capital flows and immigration by the end of 1992.
3. The Maastricht Treaty outlined 3 requirements for the EMS to become an economic and monetary union.
   - ❑ It also standardized many regulations and gave the EU institutions more control over defense policies.
   - ❑ It also set up penalties for spendthrift EMU members.
4. A new exchange rate mechanism was defined in 1999 vis-à-vis the euro, when the euro came into existence.
5. An optimum currency area has members that have a high degree of economic integration among goods & services, financial capital and labor markets.
   1. It is an area where the monetary efficiency gain of joining a fixed exchange rate system is at least as large as the economic stability loss.
6. The EU does not have a large degree of labor mobility due to differences in culture and due to unionization and regulation.
7. It is doubtful if the EU could be classified as an optimum currency area.

TABLE 20-1 A Brief Glossary of Euronyms

ECB	European Central Bank
ESCB	European System of Central Banks
EMS	European Monetary System
EMU	Economic and Monetary Union
ERM	Exchange Rate Mechanism
SGP	Stability and Growth Pact

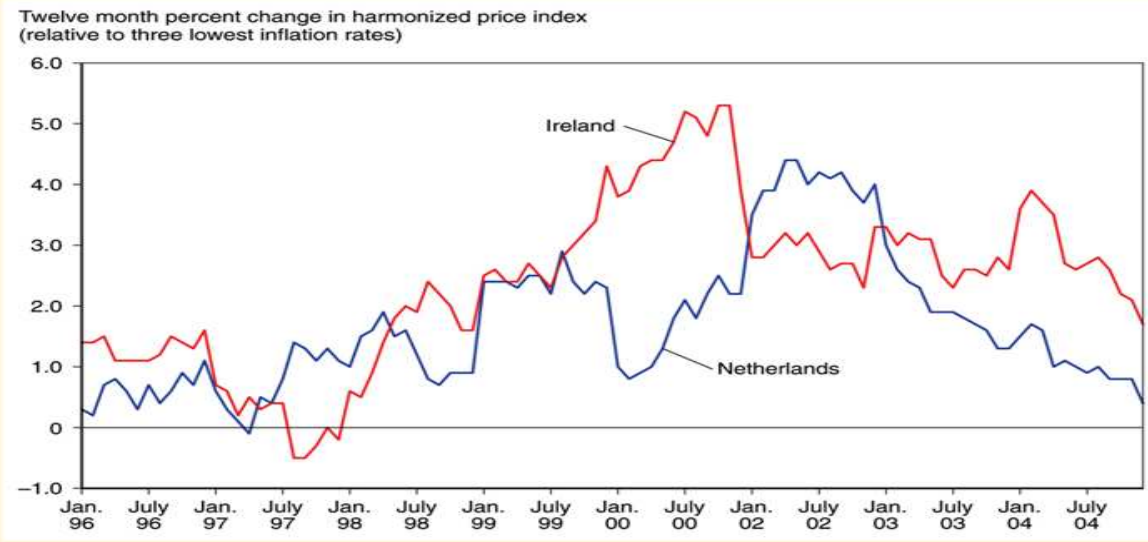


Figure 20-8

Divergent Inflation in the Euro Zone

In 1997 Ireland and the Netherlands both had inflation rates no more than 1.5 percent above the average of the three lowest EU inflation rates. Subsequently, however, both countries have violated that norm, which is one of the Maastricht Treaty's tests for admission to the euro club.

Chapter 21

The Global Capital Market: Performance and Policy Problems

Preview

- Gains from trade
- Portfolio diversification
- Players in the international capital markets
- Attainable policies with international capital markets
- Offshore banking and offshore currency trading
- Regulation of international banking
- Tests of how well international capital markets allow portfolio diversification, allow intertemporal trade and transmit information

International Capital Markets

- International capital markets are a group of markets (in London, Tokyo, New York, Singapore, and other financial cities) that trade different types of financial and physical capital (assets), including
  - ❑ stocks
  - ❑ bonds (government and corporate)
  - ❑ bank deposits denominated in different currencies

- ❑ commodities (like petroleum, wheat, bauxite, gold)
- ❑ forward contracts, futures contracts, swaps, options contracts
- ❑ real estate and land
- ❑ factories and equipment

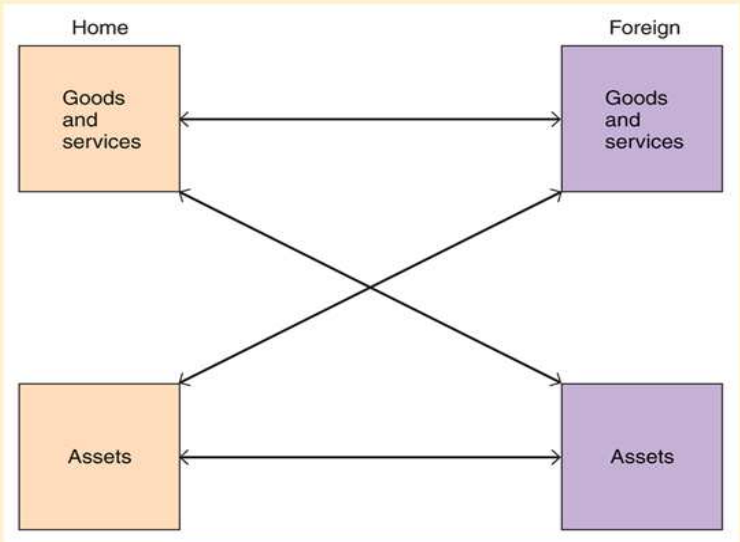
Gains from Trade

- How have international capital markets increased the gains from trade?
- When a buyer and a seller engage in a voluntary transaction, both receive something that they want and both can be made better off.
- A buyer and seller can trade
  - ❑ goods or services for other goods or services
  - ❑ goods or services for assets
  - ❑ assets for assets

Figure 21-1

The Three Types of International Transaction

Residents of different countries can trade goods and services for other goods and services, goods and services for assets (that is, for future goods and services), and assets for other assets. All three types of exchange lead to gains from trade.



- The theory of **comparative advantage** describes the gains from trade of goods and services for other goods and services:
  - ❑ with a finite amount of resources and time, use those resources and time to produce what you are most productive at (compared to alternatives), then trade those products for goods and services that you want.
  - ❑ be a specialist in production, while enjoying many goods and services as a consumer through trade.

- The theory of **intertemporal trade** describes the gains from trade of goods and services for assets, of goods and services today for claims to goods and services in the future (today's assets).
    - ❑ Savers want to buy assets (future goods and services) and borrowers want to use assets (wealth) to consume or invest in more goods and services than they can buy with current income.
    - ❑ Savers earn a rate of return on their assets, while borrowers are able to use goods and services when they want to use them: they both can be made better off.
- The theory of **portfolio diversification** describes the gains from trade of assets for assets, of assets with one type of risk with assets of another type of risk.
    - ❑ Many times in economics (though not in Las Vegas) people want to avoid risk: they would rather have a sure gain of wealth than invest in risky assets.
    - ❑ Economists say that investors often display **risk aversion**: they are averse to risk.
    - ❑ Diversifying or "mixing up" a portfolio of assets is a way for investors to avoid or reduce risk.

Portfolio Diversification

- Suppose that 2 countries have an asset of farmland that yields a crop, depending on the weather.
- The yield (return) of the asset is uncertain, but with bad weather the land can produce 20 tonnes of potatoes, while with good weather the land can produce 100 tonnes of potatoes.
- On average, the land will produce 1/2 * 20 + 1/2 * 100 = 60 tonnes if bad weather and good weather are equally likely (both with a probability of 1/2).
    - ❑ The *expected value* of the yield is 60 tonnes.
- Suppose that historical records show that when the domestic country has good weather (high yields), the foreign country has bad weather (low yields).

- What could the two countries do to make sure they do not have to suffer from a bad potato crop?
- Sell 50% of one's assets to the other party and buy 50% of the other party's assets:
  - ❑ diversify the portfolios of assets so that both countries always achieve the portfolios' expected (average) values.
- With portfolio diversification, both countries could always enjoy a moderate potato yield and not experience the vicissitudes of feast and famine.
  - ❑ If the domestic country's yield is 20 and the foreign country's yield is 100 then both countries receive: 50%*20 + 50%*100 = 60.
  - ❑ If the domestic country's yield is 100 and the foreign country's yield is 20 then both countries receive: 50%*100 + 50%*20 = 60.
  - ❑ If both countries are risk averse, then both countries could be made better off through portfolio diversification.

Classification of Assets

Claims on assets ("instruments") are classified as either

1. Debt instruments
   - ❑ Examples include bonds and bank deposits
   - ❑ They specify that the issuer of the instrument must repay a *fixed* value regardless of economic circumstances.
2. Equity instruments
   - ❑ Examples include stocks or a title to real estate
   - ❑ They specify ownership (equity = ownership) of *variable* profits or returns, which vary according to economic conditions.

International Capital Markets

The participants:

1. Commercial banks and other depository institutions:
   - ❑ accept deposits
   - ❑ lend to governments, corporations, other banks, and/or individuals
   - ❑ buy and sell bonds and other assets

- Some commercial banks **underwrite** stocks and bonds by agreeing to find buyers for those assets at a specified price.

2. Non bank financial institutions: pension funds, insurance companies, mutual funds, investment banks
   - Pension funds accept funds from workers and invest them until the workers retire.
   - Insurance companies accept premiums from policy holders and invest them until an accident or another unexpected event occurs.
   - Mutual funds accept funds from investors and invest them in a diversified portfolio of stocks.
   - Investment banks specialize in underwriting stocks and bonds and perform various types of investments.
3. Private firms:
   - Corporations may issue stock, may issue bonds or may borrow from commercial banks or other lenders to acquire funds for investment purposes.
   - Other private firms may issue bonds or borrow from commercial banks.
4. Central banks and government agencies:
   - Central banks sometimes intervene in foreign exchange markets.
   - Government agencies issue bonds to acquire funds, and may borrow from commercial or investment banks.
5. Because of international capital markets, policy makers generally have a choice of 2 of the following 3 policies:
   1. A fixed exchange rate
   2. Monetary policy aimed at achieving domestic economic goals
   3. Free international flows of financial capital
6. A fixed exchange rate and an independent monetary policy can exist if restrictions on flows of financial capital prevent speculation and capital flight.
7. Independent monetary policy and free flows of financial capital can exist when the exchange rate fluctuates.

8. A fixed exchange rate and free flows of financial capital can exist if the central bank gives up its domestic goals and maintains the fixed exchange rate.

Offshore Banking

- Offshore banking refers to banking outside of the boundaries of a country.
- There are at least 4 types of offshore banking institutions, which are regulated differently:
    1. An agency office in a foreign country makes loans and transfers, but does not accept deposits, and is therefore not subject to depository regulations in either the domestic or foreign country.
- A **subsidiary bank** in a foreign country follows the regulations of the foreign country, not the domestic regulations of the domestic parent.
- A **foreign branch** of a domestic bank is often subject to both domestic and foreign regulations, but sometimes may choose the more lenient regulations of the two.
- **International banking facilities** are foreign banks in the US that are allowed to accept deposits from and make loans to foreign customers only. They are not subject to reserve requirement regulations, interest rate ceilings and state and local taxes.
    1. Bahrain, Singapore and Japan have similar regulations for offshore banks.

Offshore Currency Trading

- An offshore currency deposit is a bank deposit denominated in a currency other than the currency that circulates where the bank resides.
    - An offshore currency deposit may be deposited in a subsidiary bank, a foreign branch, a foreign bank or another depository institution located in a foreign country.

❑ Offshore currency deposits are sometimes (unfortunately) referred to as eurocurrencies, because these deposits were historically made in European banks.

Offshore currency trading has grown for three reasons:

1. growth in international trade and international business
2. avoidance of domestic regulations and taxes
3. political factors (e.g., to avoid confiscation by a government because of political events)

- **Reserve requirements** are the primary example of a domestic regulation that banks have tried to avoid through offshore currency trading.

4. Depository institutions in the US and other countries are required to hold a fraction of *domestic currency* deposits on reserve at the central bank.
5. These reserves can not be lent to customers and do not interest in many countries, therefore the reserve requirement acts a tax for banks.
6. *Offshore currencies* in many countries are not subject to this requirement, and thus the total amount of deposits can earn interest if they become offshore currencies.

Balance Sheet for Bank

Assets	Liabilities + Net worth
Reserves at central bank	Deposits
Loans -business -home -car -real estate	Borrowed funds
Government and corporate bonds	Net worth = bank capital

Regulation of International Banking

- Banks fail because they do not have enough or the right kind of assets to pay for their liabilities.
  - The principal liability for commercial banks and other depository institutions is the value of deposits, and banks fail when they can not pay their depositors

- ❑ If many loans (a type of asset) fail or if the value of assets decline in another manner, then liabilities could become greater than the value of assets and bankruptcy could result.

- In many countries there are several types of regulations to avoid bank failure.
- Deposit insurance
  - ❑ insures depositors against losses up to $100,000 in the US when banks fail
  - ❑ prevents bank panics due to a lack of information: because depositors can not distinguish a good bank from bad one, it is in their interests to withdraw their funds during a panic when banks do not have deposit insurance
  - ❑ creates a moral hazard for banks to take on too much risk
  - ❑ **Moral hazard**: a hazard that a borrower (e.g., bank or firm) will engage in activities that are undesirable (e.g., risky investment, fraudulent activities) from the less informed lender's point of view.

2. Reserve requirements
   - ❑ Banks are historically required to maintain some deposits on reserve at the central bank in case of emergencies
3. Capital requirements and asset restrictions
   - ❑ Higher bank capital (net worth) allows banks to protect themselves against bad loans and investments
   - ❑ By preventing a bank from holding (too many) risky assets, asset restrictions reduce risky investments
   - ❑ By preventing a bank from holding too much of one asset, asset restrictions also encourage diversification
4. Bank examination
   - ❑ Regular examination prevents banks from engaging in risky activities
5. Lender of last resort
   - ❑ In the US, the Federal Reserve may lend to banks with large deposit outflows

- ❑ Prevents bank panics
- ❑ Acts as insurance for depositors and banks, in addition to deposit insurance
- ❑ Increases moral hazard for banks to take on too much risk

Difficulties in Regulating International Banking

1. Deposit insurance in the US covers losses up to $100,000, but since the size of deposits in international banking is often much larger, the amount of insurance is often minimal.
2. Reserve requirements also act as a form of insurance for depositors, but countries can not impose reserve requirements on foreign currency deposits in agency offices, foreign branches, or subsidiary banks of domestic banks.
3. Bank examination, capital requirements and asset restrictions are more difficult internationally.
    1. Distance and language barriers make monitoring difficult.
    2. Different assets with different characteristics (e.g., risk) exist in different countries, making judgment difficult.
    3. Jurisdiction is not clear in the case of subsidiary banks: if a subsidiary of an Italian bank located in London that primarily has offshore US dollar deposits, which regulators have jurisdiction?
4. No international lender of last resort for banks exists.
    - ❑ The IMF sometimes acts a “lender of last resort” for *governments* with balance of payments problems.
5. The activities of non bank financial institutions are growing in international banking, but they lack the regulation and supervision that banks have.
6. New and complicated financial instruments like derivatives and securitized assets make it harder to assess financial stability and risk.
    - ❑ A securitized asset is a small part of many combined assets with different risk characteristics.

International Regulatory Cooperation

- **Basel accords** (1988 and Basel II scheduled for 2006–2008) provide standard regulations and accounting for international financial institutions.
  - ❑ 1988 accords tried to make bank capital measurements standard across countries.
  - ❑ It developed risk-based capital requirements, where more risky assets require a higher amount of bank capital.
- **Core principles of effective banking supervision** was developed by the Basel Committee in 1997 for developing countries without adequate banking regulations and accounting standards.

Extent of International Portfolio Diversification

- In 1999, US owned assets in foreign countries represented about 30% of US capital, while foreign assets in the US was about 36% of US capital.
  - ❑ These percentages are about 5 times as large as percentages from 1970, indicating that international capital markets have allowed investors to increase diversification.
- Likewise, foreign assets and liabilities as a percent of GDP has grown for the US and other countries.

TABLE 21-1 Gross Foreign Assets and Liabilities of Selected Industrial Countries (percent of GDP)

		1983	1993	2003
Australia				
	Assets	13	33	68
	Liabilities	52	89	136
Canada				
	Assets	34	49	95
	Liabilities	70	90	93
France				
	Assets	40	69	165
	Liabilities	45	78	172
Germany				
	Assets	38	66	148
	Liabilities	31	55	139
Italy				
	Assets	23	43	102
	Liabilities	27	54	111
Netherlands				
	Assets	94	150	374
	Liabilities	73	134	384
United Kingdom				
	Assets	152	208	352
	Liabilities	136	203	357
United States				
	Assets	29	45	70
	Liabilites	25	49	96

Source: Philip R. Lane and Gian Maria Milesi-Ferretti, "Financial Globalization and Exchange Rates." Photocopy, Trinity College, Dublin and IMF, June 2004.

- Still, some economists argue that it would be optimal if investors diversified more by investing more in foreign assets, avoiding "home bias" of portfolios.

Extent of International Intertemporal Trade

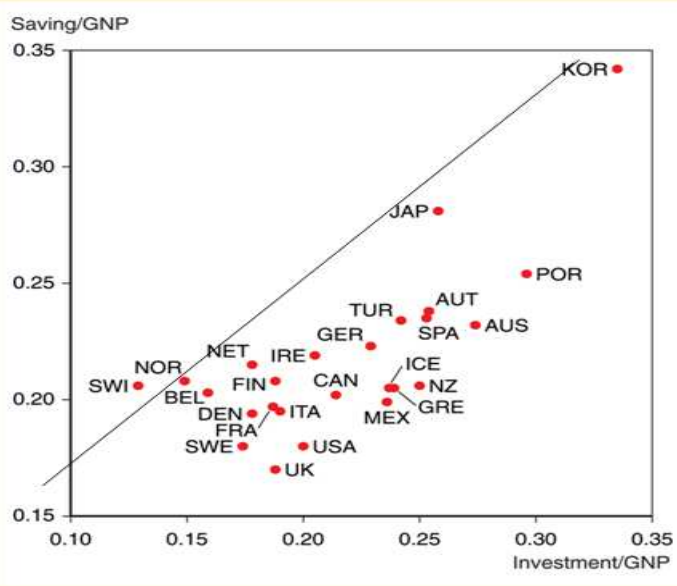
- If some countries borrow for investment projects (for future production and consumption) while others lend to these countries, then national saving and investment levels should not be highly correlated.
  - ❑ Recall that national saving – investment = current account
  - ❑ Some countries should have large current account surpluses as they save a lot and lend to foreign countries.
  - ❑ Some countries should have large current account deficits as they borrow a lot from foreign countries.
- In reality, national saving and investment levels are highly correlated.

Figure 21-2

Saving and Investment Rates for 25 Countries, 1990–2001 Averages

OECD countries' saving and investment ratios to GNP tend to be positively related.

Source: World Bank, *World Development Indicators.*



- Are international capital markets unable to allow countries to engage in much intertemporal trade?
- Not necessarily: factors that generate a high saving rate, such as rapid growth in production and income, may also generate a high investment rate.
- Governments may also enact policies to avoid large current account deficits or surpluses.

Extent of Information Transmission and Financial Capital Mobility

- We should expect that interest rates on offshore currency deposits and those on domestic currency deposits within a country should be the same if

- ❑ the two types of deposits are treated as perfect substitutes,
- ❑ financial capital moves freely and
- ❑ international capital markets are able to quickly and easily transmit information about any differences in rates.

- In fact, differences in interest rates have approached zero as financial capital mobility has grown and information processing has become faster and cheaper through computers and telecommunications.

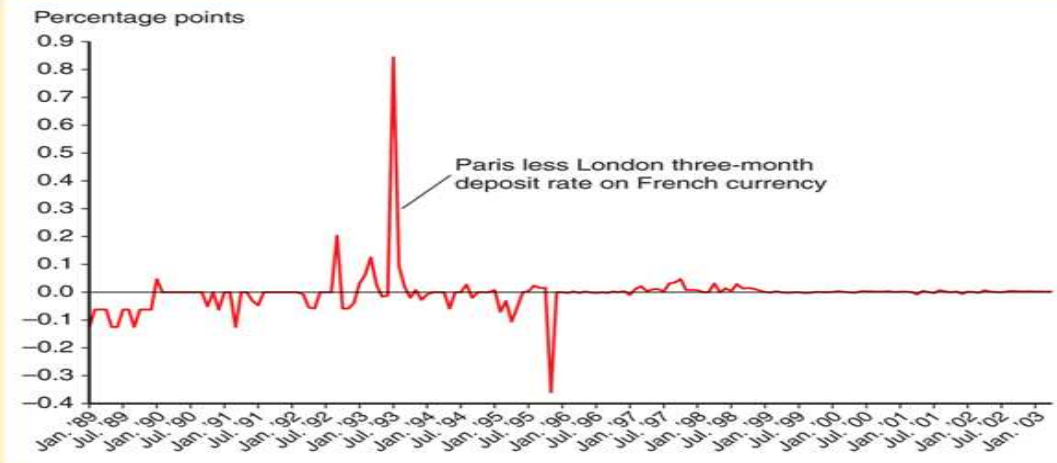


Figure 21-3

Comparing Onshore and Offshore Interest Rates for France

The difference between the London and Paris interest rates on French-currency deposits has approached zero as international capital mobility has grown.

Source: *Datastream,* monthly data.

- If assets are treated as perfect substitutes, then we expect interest parity to hold on average:

$$R_t - R^*_t = (E^e_{t+1} - E_t)/E_t$$

- Under this condition, the interest rate difference is the market's forecast of expected changes in the exchange rate.
  - ❑ If we replace expected exchange rates with actual future exchange rates, we can test how well the market predicts exchange rate changes.
  - ❑ But interest rate differentials fail to predict large swings in actual exchange rates and even fail to predict which direction actual exchange rates change.

- Given that there are few restrictions on financial capital in most major countries, does this mean that international capital markets are unable to process and transmit information about interest rates?
- Not necessarily: if assets are imperfect substitutes then

$$R_t - R^*_t = (E^e_{t+1} - E_t)/E_t + \rho_t$$

  - ❑ Interest rate differentials are associated with exchange rate changes and with risk premiums that change over time.
  - ❑ Changes in risk premiums may drive changes in exchange rates rather than interest rate differentials.

$$R_t - R^*_t = (E^e_{t+1} - E_t)/E_t + \rho_t$$

- Since both expected changes in exchange rates and risk premiums are functions of expectations and since expectations are unobservable,
  - ❑ it is difficult to test if international capital markets are able to process and transmit information about interest rates.

Exchange Rate Predictability

- In fact, it is hard to predict exchange rate changes over short horizons based on money supply growth, government spending growth, GDP growth and other "fundamental" economic variables.
  - ❑ The best prediction for tomorrow's exchange rate appears to be today's exchange rate, regardless of economic variables.
  - ❑ But over long time horizons (more than 1 year) economic variables do better at predicting actual exchange rates.

Summary

1. Gains from trade of goods and services for other goods and services are described by the theory of comparative advantage.
2. Gains from trade of goods and services for assets are described by the theory of intertemporal trade.
3. Gains from trade of assets for assets are described by the theory of portfolio diversification.

4. Policy makers can only choose 2 of the following: a fixed exchange rate, a monetary policy for domestic goals, free international flows of financial capital.
5. Several types of offshore banks deal in offshore currency trading, which developed as international trade has grown and as banks tried to avoid domestic regulations.
6. Domestic banks are regulated by deposit insurance, reserve requirements, capital requirements, restrictions on assets, and bank examinations. The central bank also acts as a lender of last resort.
7. International banking is generally not regulated in the same manner as domestic banking, and there is no international lender of last resort.
8. As international capital markets have developed, diversification of assets across countries has grown and differences between interests rates on offshore currency deposits and domestic currency deposits within a country has shrunk.
9. If foreign and domestic assets are perfect substitutes, then interest rates in international capital markets do not predict exchange rate changes well.
10. Even economic variables do not predict exchange rate changes well in the short run.

Chapter 22

Developing Countries: Growth, Crisis, and Reform

Preview

- Snapshots of rich and poor countries
- Characteristics of poor countries
- Borrowing and debt in developing economies
- The problem of “original sin”
- Types of financial capital
- Latin American, East Asian and Russian crises
- Currency boards and dollarization
- Lessons from crises and potential reforms

- Geography's and human capital's role in poverty

Rich and Poor

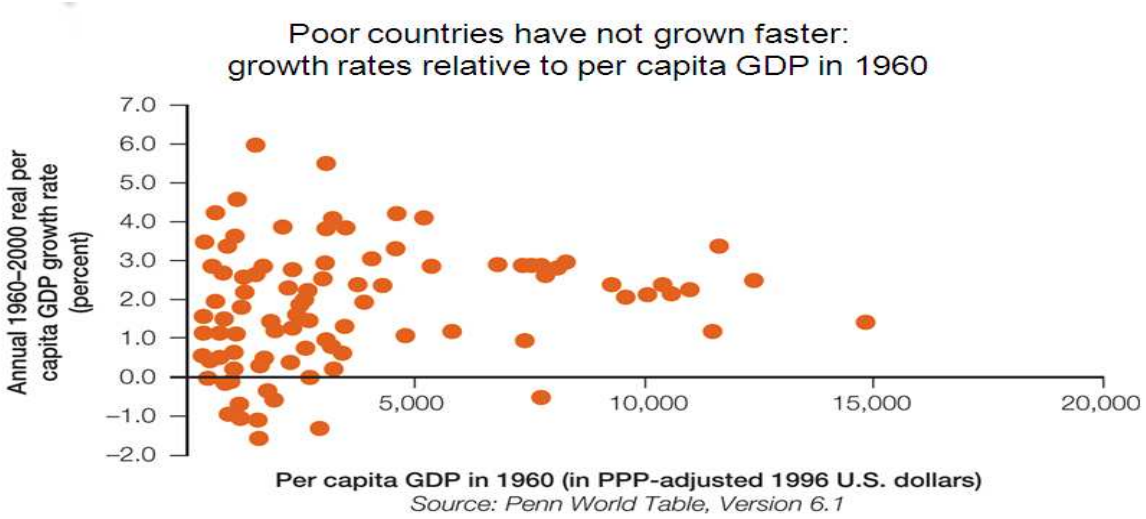
Indicators of Economic Welfare for 4 groups of countries, 2003		
	GNP per capita (1995 US$)	Life expectancy
Low income	450	58
Lower-middle income	1480	69
Upper-middle income	5340	73
High income	28850	78
Source: World Bank, World Development Report 2004/2005		

- Low income: most sub-Saharan Africa, India, Pakistan
- Lower-middle income: China, former Soviet Union, Caribbean
- Upper-middle income: Brazil, Mexico, Saudi Arabia, Malaysia, South Africa, Czech Republic
- High income: US, France, Japan, Singapore, Kuwait
- While some previously middle and low income countries economies have grown faster than high income countries, and thus have "caught up" with high income countries, others have languished.
    - The income levels of high income countries and some middle income and low income countries have converged.
    - But the some of the poorest countries have had the lowest growth rates.

	GDP per capita (1996 US $)		annual growth rate
Country	1960	2000	1960-2000 average
United States	12414	33308	2.5
Canada	10419	26922	2.4
Hong Kong	**3047**	**26703**	**5.6**
Ireland	**5208**	**26379**	**4.1**
Singapore	**2280**	**24939**	**6.9**
Japan	**4657**	**24672**	**4.3**
Sweden	10112	23662	2.1
France	7860	22371	2.6
United Kingdom	9682	22188	2.1
Italy	6817	21794	2.9
Spain	4693	18054	3.4
Taiwan	**1468**	**17056**	**6.7**
South Korea	**1571**	**15881**	**6.0**
Argentina	7395	10995	1.0

	GDP per capita (1996 US $)		annual growth rate
Country	1960	2000	1960-2000 average
Malaysia	2147	9937	3.9
Chile	3818	9920	2.4
Mexico	3970	8766	2.0
Brazil	2395	7185	2.8
Thailand	**1121**	**6857**	**4.6**
Venezuela	7751	6420	-0.5
Colombia	2525	5380	1.9
Paraguay	2437	4682	1.6
Peru	3118	4583	1.0
China	**685**	**3747**	**4.3**
Senegal	1833	1622	-0.3
Ghana	832	1349	1.2
Kenya	780	1244	1.2
Nigeria	1035	713	-0.9

Source: Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 6.1



Characteristics of Poor Countries

- What causes poverty?
- A difficult question, but low income countries have at least some of following characteristics, which could contribute to poverty:

1. Government control of the economy
   - ❑ Restrictions on trade
   - ❑ Direct control of production in industries and a high level of government purchases relative to GNP
   - ❑ Direct control of financial transactions
   - ❑ Reduced competition reduces innovation; lack of market prices prevents efficient allocation of resources.

2. Unsustainable macroeconomic polices which cause high inflation and unstable output and employment
    - ❑ If governments can not pay for debts through taxes, they can print money to finance debts.
    - ❑ **Seignoirage** is paying for real goods and services by printing money.
    - ❑ Seignoirage generally leads to high inflation.
    - ❑ High inflation reduces the real value of debt that the government has to repay and acts as a "tax" on lenders.
    - ❑ High and variable inflation is costly to society; unstable output and employment is also costly.
3. Lack of financial markets that allow transfer of funds from savers to borrowers
4. Weak enforcement of economic laws and regulations
    - ❑ *Weak enforcement of property rights* makes investors less willing to engage in investment activities and makes savers less willing to lend to investors/borrowers.
    - ❑ *Weak enforcement of bankruptcy laws and loan contracts* makes savers less willing to lend to borrowers/investors.
    - ❑ *Weak enforcement of tax laws* makes collection of tax revenues more difficult, making seignoirage necessary (see 2) and makes tax evasion a problem (see 5).
    - ❑ *Weak of enforcement of banking and financial regulations* (e.g., lack of examinations, asset restrictions, capital requirements) causes banks and firms to engage in risky or even fraudulent activities and makes savers less willing to lend to these institutions.
        1. A lack of monitoring causes a lack of transparency (a lack of information).
        2. **Moral hazard**: a hazard that a borrower (e.g., bank or firm) will engage in activities that are undesirable (e.g., risky investment, fraudulent activities) from the less informed lender's point of view.

5. A large underground economy relative to official GDP and a large amount of corruption
    - ❑ Because of government control of the economy (see 1) and weak enforcement of economic laws and regulations (see 4), underground economies and corruption flourish.
6. Low measures of literacy, numeracy, and other measures of education and training: low levels of **human capital**
    - ❑ Human capital makes workers more productive.

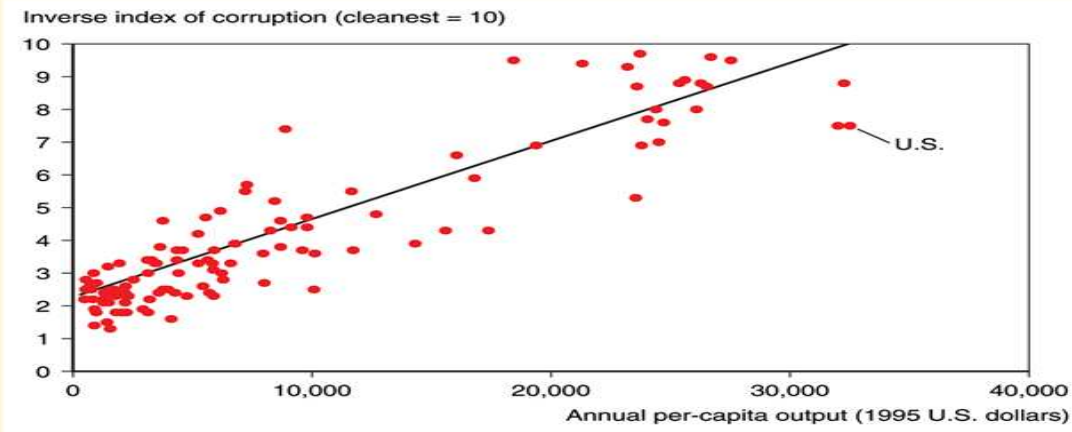


Figure 22-1

Corruption and Per-Capita Income

Corruption tends to rise as real per-capita income falls.

Note: The figure plots 2003 values of an (inverse) index of corruption and 2003 values of PPP-adjusted real per-capita output, measured in 1995 U.S. dollars (the amount a dollar could buy in the United States in 1995). The straight line represents a statistician's best guess at a country's corruption level based on its real per-capita output.

Source: Transparency International, *Global Corruption Report 2004;* World Bank, World Development Indicators.

Borrowing and Debt in Developing Economies

- Another common characteristic for many middle income and low income countries is that they have borrowed extensively from foreign countries.
    - ❑ Financial capital flows from foreign countries are able to finance investment projects, eventually leading to higher production and consumption.
    - ❑ But some investment projects fail and other borrowed funds are used primarily for consumption purposes.
    - ❑ Some countries have defaulted on their foreign debts when the domestic economy stagnated or during financial crises.

- national saving – investment = the current account
  - ❑ where the current account is approximately equal to the value of exports minus the value of imports
- Countries with national saving less than domestic investment will have a financial capital inflows and negative current account (a trade deficit).

Current account balances of major oil exporters, other developing countries and high income countries, 1973-2003 in billions of US$			
	Major oil exporters	Other developing countries	High income countries
1973-1981	363.8	-410.0	7.3
1982-1989	-135.3	-159.2	-361.1
1990-1997	-73.9	-600.1	79.0
1998-2003	236.5	-12.8	-1344.3
Source: IMF, World Economic Outlook, various issues			

A financial crisis may involve

1. a **debt crisis**: an inability to repay government debt or private sector debt.
2. a **balance of payments crisis** under a fixed exchange rate system.
3. a **banking crisis**: bankruptcy and other problems for private sector banks.
4. A *debt crisis* in which governments default on their debt can be a self-fulfilling mechanism.
    1. Fear of default reduces financial capital *inflows* and increases financial capital *outflows* (capital flight), decreasing investment and increasing interest rates, leading to low aggregate demand, output and income.
    2. Financial capital outflows must be matched with an increase in net exports or a decrease in official international reserves in order to pay people who desire foreign funds.
    3. Otherwise, the country can not afford to pay people who want to remove their funds from the domestic economy.

4. The domestic government may have no choice but to default on its sovereign debt when it comes due and investors are unwilling to re-invest.

5. In general, a debt crisis causes low income and high interest rates, which makes **sovereign** (government) and private sector debt even harder to repay.
    1. High interest rates cause high interest payments for both the government and the private sector.
    2. Low income causes low tax revenue for the government.
    3. Low income makes private loans harder to repay: the default rate for private banks increases, which may lead to increased bankruptcy.
6. If the central bank tries to fix the exchange rate, a *balance of payment crisis* may result with a debt crisis.
    1. Official international reserves may quickly be depleted, forcing the central bank to abandon the fixed exchange rate.
7. A *banking crisis* may result with a debt crisis.
    1. High default rates may increase bankruptcy.
    2. If depositors fear bankruptcy due to possible devaluation of the currency or default on government debt (assets for banks), then they will quickly withdraw funds (and possibly purchase foreign assets), leading to bankruptcy.
8. A debt crisis, a balance of payments crisis and a banking crisis can occur together, and each can make the other worse.
    1. Each can cause aggregate demand, output and employment to fall (further).
9. If people *expect* a default on sovereign debt, a currency devaluation, or bankruptcy of private banks, each can occur, and each can lead to another.

The Problem of "Original Sin"

- When developing economies borrow in international financial capital markets, the debt is almost always denominated in US$, yen, euros: "**original sin**".

- The debt of the US, Japan and European countries is also mostly denominated in their respective currencies.
- When a depreciation of domestic currencies occurs in the US, Japan or European countries, liabilities (debt) which are denominated in *domestic* currencies do not increase, but the value of foreign assets does increase.
    - ❑ A devaluation of the domestic currency causes an increase in net foreign wealth.
- When a depreciation/devaluation of domestic currencies occurs in developing economies, the value of their liabilities (debt) rises because their liabilities are denominated in *foreign* currencies.
    - ❑ A fall in demand for domestic products causes a epreciation/devaluation of the domestic currency and causes a decrease in net foreign wealth if assets are denominated in domestic currencies.
    - ❑ A situation of "negative insurance" against a fall in aggregate demand.

Types of Financial Capital

1. Bond finance: government or commercial bonds are sold to private foreign citizens.
2. Bank finance: commercial banks lend to foreign governments or foreign businesses.
3. Official lending: the World Bank or Inter-American Development Bank or other official agencies lend to governments.
    - ❑ Sometimes these loans are made on a "concessional" or favorable basis, in which the interest rate is low.
4. Foreign direct investment: a foreign firm directly acquires or expands operations in a subsidiary firm.
    - ❑ A purchase by Ford of a subsidiary firm in Mexico is classified as foreign direct investment.
5. Portfolio equity investment: a foreign investor purchases equity (stock) for his portfolio.

- ❑ Privatization of government owned firms has occurred in many countries, and private investors have bought stock in such firms.

6. Debt finance includes bond finance, bank finance and official lending.
7. Equity finance includes direct investment and portfolio equity investment.
8. While debt finance requires fixed payments regardless of the state of the economy, the value of equity finance fluctuates depending on aggregate demand and output.

Latin American Financial Crises

- In the 1980s, high interest rates and an appreciation of the US dollar, caused the burden of dollar denominated debts in Argentina, Mexico, Brazil and Chile to increase drastically.
- A worldwide recession and a fall in many commodity prices also hurt export sectors in these countries.
- In August 1982, Mexico announced that it could not repay its debts, mostly to private banks.
- The US government insisted that the private banks **reschedule** the debts, and in 1989 Mexico was able to achieve:
    - a reduction in the interest rate,
    - an extension of the repayment period
    - a reduction in the principal by 12%
- Brazil, Argentina and other countries were also allowed to reschedule their debts with private banks after they defaulted.
- The Mexican government implemented several reforms due to the crisis. Starting in 1987,
    - It reduced government deficits.
    - It reduced production in the public sector (including banking) by privatizing industries.
    - It reduced barriers to trade.
    - It maintained an adjustable fixed exchange rate (“crawling peg”) until 1994 to help curb inflation.

- It extended credit to newly privatized banks with loan losses.
    - Losses were a problem due to weak enforcement or lack of accounting standards like asset restrictions and capital requirements.
- Political instability and the banks' loan defaults contributed to another crisis in 1994, after which the Mexican government allowed the value of the peso to fluctuate.
- Staring in 1991, Argentina carried out similar reforms:
    - It reduced government deficits.
    - It reduced production in the public sector by privatizing industries.
    - It reduced barriers to trade.
    - It enacted tax reforms to increase tax revenues.
    - It enacted the Convertibility Law, which required that each peso be backed with 1 US dollar, and it fixed the exchange rate to 1 peso per US dollar.
- Because the central was not allowed to print more pesos without have more dollar reserves, inflation slowed dramatically.
- Yet inflation was about 5% per annum, faster than US inflation, so that the price/value of Argentinean goods appreciated relative to US and other foreign goods.
- Due to the relatively rapid peso price increases, markets began to speculate about a peso devaluation.
- A global recession in 2001 further reduced the demand for Argentinean goods and currency.
- Maintaining the fixed exchange rate was costly because high interest rates were needed to attract investors, further reducing investment and consumption demand, output and employment.
- As incomes fell, tax revenues fell and government spending rose, contributing to further peso inflation.
- Argentina tried to uphold the fixed exchange rate, but the government devalued the peso in 2001 and shortly thereafter allowed its value to fluctuate.

- It also defaulted on its debt in December 2001 because of the unwillingness of investors to re-invest when the debt was due.
- Brazil carried out similar reforms in the 1980s and 1990s:
    - It reduced production in the public sector by privatizing industries.
    - It reduced barriers to trade.
    - It enacted tax reforms to increase tax revenues.
    - It created fixed the exchange rate to 1 *real* per US dollar.
    - But government deficits remained high.
- High government deficits lead to inflation and speculation about a devaluation of the *real*.
- The government did devalue the *real* in 1999, but a widespread banking crisis was avoided because Brazilian banks and firms did not borrow extensively in dollar denominated assets.
- Chile suffered a recession and financial crisis in the 1980s, but thereafter
    - enacted stringent financial regulations for banks.
    - removed the guarantee from the central bank that private banks would be bailed out if their loans failed.
    - imposed financial capital controls on short term debt, so that funds could not be quickly withdrawn during a financial panic.
    - granted the central bank independence from fiscal authorities, allowing slower money supply growth.
- Chile avoided a financial crisis in the 1990s.

East Asian Financial Crises

- Before the 1990s, Indonesia, Korea, Malaysia, Philippines, and Thailand relied mostly on domestic saving to finance investment.
- But afterwards, foreign financial capital financed much of investment, and current account balances turned negative.

TABLE 22-4 East Asian CA/GDP (annual averages, percent of GDP)

Country	1990–1997	1998–2000	2001–2004
China	1.5	2.4	2.5
Hong Kong	0.6	4.1	8.7
Indonesia	−2.5	4.6	3.9
Malaysia	−5.6	12.8	10.3
South Korea	−1.6	6.5	1.9
Taiwan	4.0	2.3	8.1
Thailand	−6.3	10.2	5.1

Source: International Monetary Fund, Central Bank of China, Deutsche Bank.

- Despite the rapid economic growth in East Asia between 1960–1997, growth was predicted to slow as economies "caught up" with Western countries.
  - ❑ Most of the East Asian growth during this period is attributed to an increase in physical capital and an increase in education.
  - ❑ Returns to physical capital and education are diminishing, as more physical capital was built and as more people acquired more education and training, each increase became less productive.
  - ❑ The economic growth was predicted to slow after the rapid increases in early generations.
- More directly related to the East Asian crises are issues related to economic laws and regulations:

1. Weak of enforcement of financial regulations and a lack of monitoring caused firms, banks and borrowers to engage in risky or even fraudulent activities: moral hazard.
   - ❑ Ties between businesses and banks on one hand and government regulators on the other hand lead to some risky investments.
2. Non-existent or weakly enforced bankruptcy laws and loan contracts caused problems after the crisis started.
   - ❑ Financially troubled firms stopped paying their debts, and they could not operate because no one would lend more until previous debts were paid.
   - ❑ But creditors lacked the legal means to confiscate assets or restructure firms to make them productive again.

3. The East Asian crisis started in Thailand in 1997, but quickly spread to other countries.
    - ❑ A fall in real estate prices, and then stock prices weakened aggregate demand and output in Thailand.
    - ❑ A fall in aggregate demand in Japan, a major export market, also contributed to the economic slowdown.
    - ❑ Speculation about a devaluation in the value of the baht occurred, and in July 1997 the government devalued the baht slightly, but this only invited further speculation.
4. Malaysia, Indonesia, Korea, and the Philippines soon faced speculations about the value of their currencies.
5. Most debts of banks and firms were denominated in US dollars, so that devaluations of domestic currencies would make the burden of the debts in domestic currency increase.
    - ❑ Bankruptcy and a banking crisis would have resulted.
6. To maintain fixed exchange rates would have required high interest rates and a reduction in government deficits, leading to a reduction in aggregate demand, output and employment.
    - ❑ This would have also lead to widespread default on debts and a banking crisis.
7. All of the effected economies except Malaysia turned to the IMF for loans to address the balance of payments crises and to maintain the value of the domestic currencies.
    - ❑ The loans were conditional on increased interest rates (reduced money supply growth), reduced budget deficits, and reforms in banking regulation and bankruptcy laws.
8. Malaysia instead imposed financial capital controls so that it could increase its money supply (and lower interest rates), increase government purchases, and still try to maintain the value of the ringgit.

9. Due to decreased consumption and investment that occurred with decreased output, income and employment, imports fell and the current account increased after 1997.

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Source: International Monetary Fund, Central Bank of China, Deutsche Bank.

Russia's Financial Crisis

- After liberalization in 1991, Russia's economic laws were weakly enforced or non-existent.
  - ❑ There was weak enforcement of banking regulations, tax laws, property rights, loan contracts and bankruptcy laws.
  - ❑ Financial markets were not well established.
  - ❑ Corruption and crime became growing problems.
  - ❑ Because of a lack of tax revenue, the government financed spending by seignoirage.
  - ❑ Due to unsustainable seignoirage, interest rates rose on government debt to reflect high inflation and the risk of default.
- The IMF offered loans of foreign reserves to try to support the fixed exchange rate conditional on reforms.
- But in 1998, Russia devalued the ruble and defaulted on its debt and froze financial capital flows.
- Without international financial capital for investment, output fell in 1998 but recovered thereafter, partially helped by rising oil prices.
- Inflation rose in 1998 and 1999 but fell thereafter.

Russia's real output growth and inflation, 1991-2003										
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000-2003
Real output growth	-9.0%	-14.5%	-8.7%	-12.7%	-4.1%	-3.4%	1.4%	-5.3%	6.3%	6.8%
Inflation rate	92.7%	1734.7%	878.8%	307.5%	198.0%	47.7%	14.8%	27.7%	85.7%	18.0%

Source: IMF, World Economic Outlook

Currency Boards and Dollarization

- A **currency board** is a monetary policy where the money supply is entirely backed by foreign currency, and where the central bank is prevented from holding domestic assets.
  - ❑ The central bank may not increase the domestic money supply (by buying government bonds).
  - ❑ This policy restrains inflation and government deficits.
  - ❑ The central bank also can not run out of foreign reserves to support a fixed exchange rate.
  - ❑ Argentina enacted a currency board under the 1991 Convertibility Law.
- But a currency board can be restrictive (more than a regular fixed exchange rate system).
  - ❑ Since the central bank may not acquire domestic assets, it can not lend currency to domestic banks during financial crisis: no lender of last resort policy or seignoirage.
- **Dollarization** is a monetary policy that replaces the domestic currency in circulation with US dollars.
  - ❑ In effect, control of domestic money supply, interest rates and inflation is given the Federal Reserve.
  - ❑ A lender of last resort policy and the possibility of seignoirage for domestic policy makers are eliminated.

- Argentina ultimately abandoned its currency board because the cost was too high: high interest rates and a reduction in prices were needed to sustain it.
  - ❑ The government was unwilling to reduce its deficit to reduce aggregate demand, output, employment and prices.
  - ❑ Labor unions kept wages (and output prices) from falling.
  - ❑ Weak enforcement of financial regulations lead to risky loans, leading to troubled banks when output, income and employment fell.
  - ❑ Under the currency board, the central bank was not allowed to increase the money supply or loan to troubled banks.

Lessons of Crises

1. Fixing the exchange rate has risks: governments desire to fix exchange rates to provide stability in the export and import sectors, but the price to pay may be high interest rates or high unemployment.
   - ❑ High inflation (caused by government deficits or increases in the money supply) or a drop in demand for domestic exports leads to an over-valued currency and pressure for devaluation.
   - ❑ Given pressure for devaluation, commitment to a fixed exchange rate usually means high interest rates (a reduction in the money supply) and a reduction in domestic prices.
   - ❑ Prices are reduced through a reduction in government deficits, leading to a reduction in aggregate demand, output and employment.
   - ❑ A fixed currency may encourage banks and firms to borrow in foreign currencies, but a devaluation will cause an increase in the burden of this debt and may lead to a banking crisis and bankruptcy.
   - ❑ Commitment a fixed exchange rate can cause a financial crisis to worsen: high interest rates make loans for banks and firms harder to repay, and the central bank can not freely print money to give to troubled banks (can not act as a lender of last resort).

2. Weak enforcement of financial regulations can lead to risky investments and a banking crisis when a currency crisis erupts or when a fall in output, income and employment occurs.
3. Liberalizing financial capital flows without implementing sound financial regulations can lead to financial capital flight when risky loans or other risky assets lose value during a recession.
4. The importance of expectations: even healthy economies are vulnerable to crises when expectations change.
    - ❑ Expectations about an economy often change when other economies suffer from adverse events.
    - ❑ International crises may result from **contagion**: an adverse event in one country leads to a similar event in other countries.

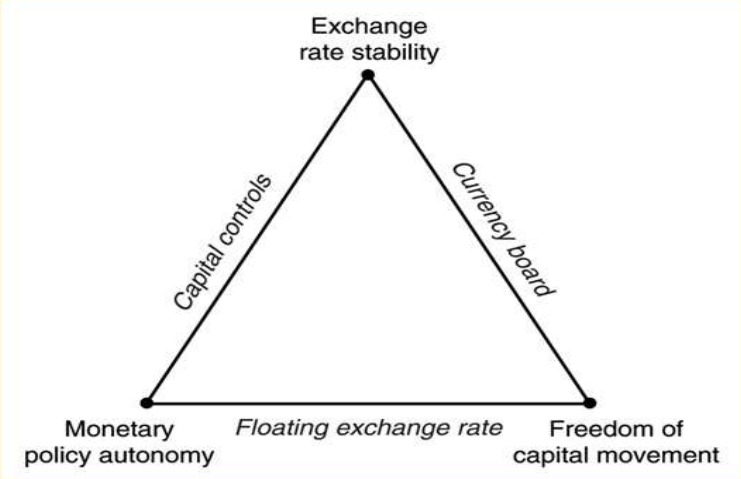
Potential Reforms: Policy Trade-offs

- Countries face trade-offs when trying to achieve the following goals:
    - ❑ exchange rate stability
    - ❑ financial capital mobility
    - ❑ autonomous monetary policy devoted to domestic goals
- Generally, countries can attain only 2 of the 3 goals, and as financial capital has become more mobile, maintaining a fixed exchange with an autonomous monetary policy has been difficult.

Figure 22-2

The Policy Trilemma for Open Economies

The vertices of the triangle show three goals that policy-makers in open economies would like to achieve. Unfortunately, at most two can coexist: At most one of the triangle's three sides can be chosen. Each of the three policy regime labels (floating exchange rates, currency board, capital controls) is consistent with the two goals that it lies between in the diagram.



Potential Reforms

Preventative measures:

1. Better monitoring and more transparency: more information for the public allows investors to make sound financial decisions in good and bad times
2. Stronger enforcement of financial regulations: reduces moral hazard
3. Deposit insurance and reserve requirements
4. Increased equity finance relative to debt finance
5. Increased credit for troubled banks through the central bank or the IMF?

Reforms for after a crisis occurs:

1. Bankruptcy procedures for default on sovereign debt and improved bankruptcy law for private sector debt.
2. A bigger or smaller role for the IMF as a lender of last resort? (See 5 above.)
    - ❑ Moral hazard versus benefit of insurance before and after a crisis occurs.

Geography, Human Capital and Institutions

- What causes poverty?
- A difficult question, but economists argue if geography or human capital is more important in influencing economic and political institutions, and ultimately poverty.

Geography matters:

1. International trade is important for growth, and ocean harbors and a lack of geographical barriers foster trade with foreign markets.
    - ❑ Landlocked and mountainous regions are predicted to be poor.
2. Also, geography *determined* institutions, which may play a role in development.

Geography determined whether Westerners established property rights and long-term investment in colonies, which in turn influenced economic growth.

Human capital matters:

1. As a population becomes more literate, numerate and educated, economic and political institutions evolve to foster long-term economic growth.

- Rather than geography, Western colonization and plantation agriculture; the amount of education and other forms of human capital determine the existence or lack of property rights, financial markets, international trade and other institutions that encourage economic growth.

Summary

1. Some countries have grown rapidly since 1960, but others have stagnated and remained poor.
2. Many poor countries have extensive government control of the economy, unsustainable fiscal and monetary policies, lack of financial markets, weak enforcement of economic laws, a large amount of corruption and low levels of education.
3. Many developing economies have borrowed heavily from international capital markets, and some have suffered from periodic sovereign debt, balance of payments and banking crises.
4. Sovereign debt, balance of payments and banking crises can be self-fulfilling, and each crisis can lead to another within a country or in another country.
5. “Original sin” refers to the fact that developing economies can not borrow in their domestic currencies.
6. A currency board fixes exchange rates by backing up each unit of domestic currency with foreign reserves.
7. Dollarization is the replacement of domestic currency in circulation with US dollars.
8. Fixing exchange rates may lead to financial crises if the country is unwilling restrict monetary and fiscal policies.
9. Weak enforcement of financial regulations causes a moral hazard and may lead to a banking crisis, especially with free movement of financial capital.
10. Geography and human capital may influence economic and political institutions, which in turn may affect long-term economic growth.

TABLE 22-1 Indicators of Economic Welfare in Four Groups of Countries, 2003

Income Group	GNP per Capita (1995 U.S. dollars)	Life Expectancy (years)*
Low-income	450	58
Lower middle-income	1,480	69
Upper middle-income	5,340	73
High-income	28,850	78

* Simple average of male and female life expectancies.

Source: World Bank, *World Development Report 2004/2005.*

TABLE 22-2 Output per Capita in Selected Countries, 1960–2000 (in 1996 U.S. dollars)

	Output per Capita		
Country	1960	2000	1960–2000 Annual Average Growth Rate (percent per year)
Industrialized in 1960			
Canada	10,419	26,922	2.4
France	7,860	22,371	2.6
Ireland	5,208	26,379	4.1
Italy	6,817	21,794	2.9
Japan	4,657	24,672	4.3
Spain	4,693	18,054	3.4
Sweden	10,112	23,662	2.1
United Kingdom	9,682	22,188	2.1
United States	12,414	33,308	2.5
Africa			
Ghana	832	1,349	1.2
Kenya	780	1,244	1.2
Nigeria	1,035	713	−0.9
Senegal	1,833	1,622	−0.3

TABLE 22-2 Output per Capita in Selected Countries, 1960–2000 (in 1996 U.S. dollars)

	Output per Capita		
Latin America			
Argentina	7,395	10,995	1.0
Brazil	2,395	7,185	2.8
Chile	3,818	9,920	2.4
Colombia	2,525	5,380	1.9
Mexico	3,970	8,766	2.0
Paraguay	2,437	4,682	1.6
Peru	3,118	4,583	1.0
Venezuela	7,751	6,420	−0.5
Industrializing Asia			
China	685	3,747	4.3
Hong Kong	3,047	26,703	5.6
Malaysia	2,147	9,937	3.9
Singapore	2,280	24,939	6.9
South Korea	1,571	15,881	6.0
Taiwan	1,468	17,056	6.7
Thailand	1,121	6,857	4.6

Note: Data for Singapore and Taiwan only through 1996 and 1998, respectively. Data are taken from the Penn World Table, Version 6.1, and use PPP exchange rates to compare national incomes. For a description, see Alan Heston, Robert Summers, and Bettina Aten, Penn World Table Version 6.1, Center for International Comparisons at the University of Pennsylvania, October 2002.

TABLE 22-3 Current Account Balances of Major Oil Exporters, Other Developing Countries, and Industrial Countries, 1973–2003

	Major Oil Exporters	Other Developing Countries	Industrial Countries
		(billions of dollars)	
1973–1981	363.8	−410.0	7.3
1982–1989	−135.3	−159.2	−361.1
1990–1997	−73.9	−600.1	79.0
1998–2003	236.5	−12.8	−1,344.3

Source: International Monetary Fund, *World Economic Outlook,* various issues. Global current accounts generally do not sum to zero because of errors, omissions, and the exclusion of some countries.

TABLE 22-5 **Real Output Growth and Inflation: Russia and Poland, 1991–2003 (percent per year)**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000–2003
Real Output Growth										
Russia	−9.0	−14.5	−8.7	−12.7	−4.1	−3.4	1.4	−5.3	6.3	6.8
Poland	−7.0	2.0	4.3	5.2	6.8	6.0	6.8	4.8	4.1	2.6
Inflation Rate										
Russia	92.7	1,734.7	878.8	307.5	198.0	47.7	14.8	27.7	85.7	18.0
Poland	70.3	43.0	35.3	32.2	27.9	19.9	14.9	11.8	7.3	4.6

Source: International Monetary Fund, *World Economic Outlook,* various issues.

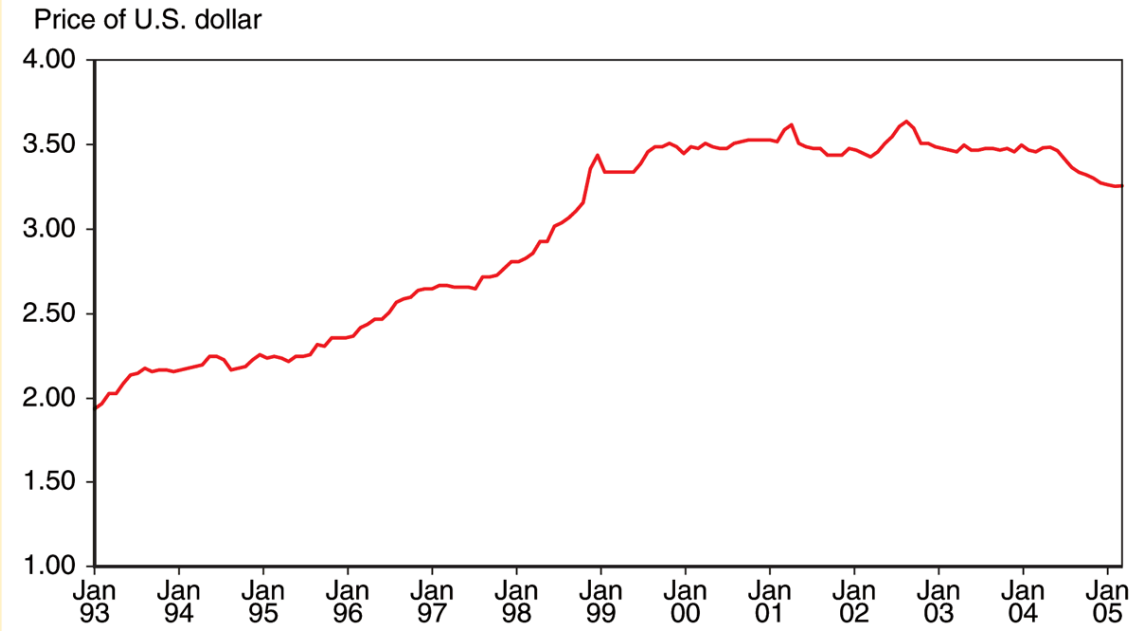


Figure 22-3

Peru New Sol Exchange Rate vs. the U.S. Dollar

Even though Peru's currency, the new sol, is classified by the IMF as "freely floating," sharp changes in its exchange rate against the dollar have been limited.

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Учебное пособие

Materials are prepared in accordance to the chapters structure of: International Economics: Theory and policy/ Krugman, Paul R. Obstfeld, Maurice © Pearson Addison-Wesley and are supposed to be used by MIEPM students as additional material to the book.

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