The International Monetary System

Chapter Objective:

This chapter serves to introduce students to the institutional framework within which:

• International payments are made.
• The movement of capital is accommodated.
• Exchange rates are determined.
Chapter Two Outline

- Evolution of the Int’l Monetary System (Not 4 Exam)
- Current Exchange Rate Arrangements
- European Monetary System (Not 4 Exam)
- The Euro (€) and the European Monetary Union
- The Mexican Peso Crisis (1994) (Not 4 Exam)
- The Asian Currency Crisis (1997-98) (Not 4 Exam)
- The Argentine Peso Crisis (2002) (Not 4 Exam)
- European Crisis (2009-?)
- Fixed vs. Flexible Exchange Rate Regimes

Evolution of the International Monetary System

- Bimetallism: Before 1875
- Classical Gold Standard: 1875-1914
- Interwar Period: 1915-1944
- Bretton Woods System: 1945-1972
- Flexible Exchange Rate Regime: 1973-Present
Bimetallism: Before 1875

- A “double standard” in the sense that both gold and silver were used as money
- Some countries were on the gold standard (e.g., U.K. after 1816), some on the silver standard (e.g., Germany), some on both (e.g., France till 1873)
- Gold & silver were used as international means of payment.
  - Exchange rates among currencies were determined by either their gold or silver contents
- *Gresham’s Law* implies that it is the least valuable metal that would tend to circulate.
  - Why? Weights (metal contents) are fixed, so…

Classical Gold Standard: 1875-1914

- During this period in most major countries:
  - Gold alone was assured of unrestricted coinage
  - There was two-way convertibility between gold and national currencies at a stable ratio.
  - Gold could be freely exported or imported.
- The exchange rate between two countries’ currencies was determined by their relative gold contents.
Classical Gold Standard: 1875-1914

For example, if the dollar is pegged to gold at U.S.$30 = 1 ounce of gold, and the British pound is pegged to gold at £6 = 1 ounce of gold, then it must be the case that the exchange rate is determined by the relative gold contents:

\[ \text{\$30} = \text{\£6} \]
\[ \text{\$5} = \text{\£1} \]

Classical Gold Standard: 1875-1914

- There are advantages:
  - The highly stable exchange rates under the classical gold standard created, before WWI, an environment that was conducive to international trade and investment.
  - Misalignment of exchange rates and international imbalances of payment were automatically corrected by the price-specie-flow mechanism.
Price-Specie-Flow Mechanism

- Suppose Great Britain exported more to France than France exported to Great Britain.
- This cannot persist under a gold standard.
  - Net export of goods from Great Britain to France will be accompanied by a net flow of gold from France to Great Britain.
  - This flow of gold will lead to a lower price level in France and, at the same time, a higher price level in Britain.
    - Money is backed by gold, so the domestic stocks of money rise or fall
- (Because the FX rates are fixed) the resultant change in relative domestic price levels will slow exports from Great Britain and encourage exports from France.

Classical Gold Standard: 1875-1914

- Periodically, a return to the gold standard is advocated…
- …but the standard has two major shortcomings:
  - Money can be printed only if there is gold to back it
    - The supply of newly minted gold is so restricted that the growth of world trade and investment could be hampered for the lack of sufficient monetary reserves.
  - Moral hazard
    - Even if the world returned to a gold standard, any national government could abandon the standard.
Interwar Period: 1915-1944

- Exchange rates fluctuated as (*post* WWI) countries widely used “predatory” depreciations of their currencies as a means of gaining advantage in the world export market.
- Attempts were made to restore the gold standard, but participants lacked the political will to “follow the rules of the game”.
- The result for international trade and investment was highly detrimental.

Bretton Woods System: 1945-1972

- Named for a 1944 meeting of 44 nations at Bretton Woods, New Hampshire.
- The purpose was to design a postwar international monetary system.
- The goal was exchange-rate stability without the gold standard.
- The result was the creation of the IMF and the World Bank.
Under the Bretton Woods system, the U.S. dollar was pegged to gold at $35 per ounce
- Other currencies were pegged to the U.S. dollar.
- Each country was responsible for maintaining its exchange rate within ±1% of the adopted par value by buying or selling foreign exchange reserves as necessary.
- The Bretton Woods system was a dollar-based gold exchange standard.
Problems with Bretton Woods.

- More flexible than gold-based system
  - Physical gold quantity limits do not hamper growth
- **But**: U.S. must be willing to supply $ to ROW.
  - *i.e.*, the U.S. must be running a current-account deficit.
  - This is known as the *Triffin paradox*:
    - U.S. CA deficit is needed, yet it may cause the system’s demise
- What happens if the U.S. does not have enough gold to back up the dollar?
  - Run on gold? (De Gaulle, 1960’s)

Today’s Analogy with Bretton Woods.

- The U.S. dollar itself is the reserve asset
  - “hard” currencies make up 90%+ of official reserves
  - USD makes up 62%+ of all FX reserves (68% of est. Chinese ones)
- **But**: U.S. must be willing to supply $ to ROW.
  - *i.e.*, the U.S. must be running a current-account deficit.
  - This CA deficit is what provides the world with liquidity
    - there is no physical limit to supply of dollars (unlike gold)
    - *Illustration: FT article by Martin Wolf, Oct. 2009*
- This “System” could keep working as long as
  - U.S. are willing to let foreigners build up claims on it
  - U.S. inflation is low
  - Other countries are willing to hoard U.S. dollars (*Economist_06h*)
The Flexible Exchange Rate Regime: 1973-Present

(Back to Exam Material)

- Flexible exchange rates were declared acceptable to the IMF members (effectively 1973; formally 1976)
  - Central banks were allowed to intervene in the exchange rate markets to iron out “unwarranted” volatilities
- Gold was abandoned as an international reserve asset (dollar not convertible into gold any more)
- Non-oil-exporting countries and less-developed countries were given greater access to IMF funds

Current Exchange Rate Arrangements

- Free Float (most flexible)
  - The largest number of countries, about 48, allow market forces to determine their currency’s value (e.g., U.S., U.K., Sweden)
- Managed Float
  - About 25 countries combine government intervention with market forces to set FX rates (e.g., China (?), S’pore, Tunisia, Switzerland)
- Pegged to another currency
  - Such as the U.S. dollar or euro (through franc or mark)
  - Crawling bands (e.g., Israel, Romania) to crawling pegs to pegs with horizontal bands (e.g., Denmark) to fixed pegs (e.g., China and Malaysia till July 2005) to currency board (e.g., Hong Kong)
- No national currency (least flexible; Economist-06k)
  - Some countries do not bother printing their own, they just use the U.S. dollar (e.g., Ecuador, Panama, & El Salvador have dollarized)
**Exchange Rate Determinants in a Free Float**

- What determines the equilibrium spot exchange rate in a free float?
  - Supply and demand of foreign currency.
    - Trade in goods and services
      - Impact of inflation?
    - Attractiveness of financial assets
  - Expectations
    - Liquidity
    - Short term vs. long term (*overshooting*)

**Central Bank Intervention**

- Official reserves
- Sterilized *vs.* unsterilized intervention
  - Open market operations (*fixed-income market*)
    - *Either* to mop up excess domestic liquidities
      - Following an intervention pushing *down* the local currency, oversupply of domestic currency → CB sells bonds mop up
    - *Or* to increase liquidity
      - Following an effort to prop up the local currency, sterilization = “CB prints money & uses it to buy back bonds

- Do central banks need FX operations? E. 06a
Central Bank Effectiveness

- **Intervention**
  - Theory:
    - Affects relative D&S of domestic vs. foreign assets
    - Signaling, if they are not kept secret
  - But, mixed evidence that they are successful

- **Communications**
  - Theory:
    - Could help coordinate the perceptions of traders
    - In practice, seem to change rate levels and volatility

European Monetary System and Union, ECU and Euro

- The next 9 pages (including graphs) are NOT Exam Material
European Monetary System
1979-1999

- A set of European countries maintain exchange rates among their currencies within narrow bands, and jointly float against outside currencies.

- Objectives:
  - To establish a zone of monetary stability in Europe.
  - To coordinate exchange rate policies vis-à-vis non-European currencies.
  - To pave the way for the European Monetary Union.

What Is the Euro?

- The euro is the single currency of the European Monetary Union which was adopted by 11 Member States on January 1st, 1999.

- The original member states were:
  - Austria, Belgium, Luxembourg, Netherlands, France, Germany, Italy, Ireland, Spain, Portugal, Finland

- Now add to that set:
  - Greece, Slovenia, Malta, Cyprus, Slovakia, Estonia, Latvia
Euro Area

23 Countries “participating” in the euro:

- Austria
- Belgium
- Cyprus
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Malta
- Netherlands
- Poland
- Portugal
- Slovakia
- Slovenia
- Spain
- Sweden
- UK

EURO CONVERSION RATES

1 Euro is Equal to:

<table>
<thead>
<tr>
<th>Currency</th>
<th>Conversion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEF</td>
<td>40.3399</td>
</tr>
<tr>
<td>DEM</td>
<td>1.95583</td>
</tr>
<tr>
<td>ESP</td>
<td>166.386</td>
</tr>
<tr>
<td>FRF</td>
<td>6.55957</td>
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<tr>
<td>IEP</td>
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<tr>
<td>ITL</td>
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<tr>
<td>LUF</td>
<td>40.3399</td>
</tr>
<tr>
<td>NLG</td>
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<tr>
<td>ATS</td>
<td>13.7603</td>
</tr>
<tr>
<td>PTE</td>
<td>200.482</td>
</tr>
<tr>
<td>FIM</td>
<td>5.94573</td>
</tr>
</tbody>
</table>

Belgian franc
German mark
Spanish peseta
French franc
Irish punt
Italian lira
Luxembourg franc
Dutch guilder
Austrian schilling
Portuguese escudo
Finnish markka
What is the official sign of the euro?

- The sign for the new single currency looks like an “E” with two clearly marked, horizontal parallel lines across it.

€

- It was inspired by the Greek letter epsilon, in reference to the cradle of European civilization and to the first letter of the word 'Europe'.

What are the different denominations of the euro notes and coins?

- There are 7 euro notes and 8 euro coins.
- €500, €200, €100, €50, €20, €10, and €5.
- The coins are: 2 euro, 1 euro, 50 euro cent, 20 euro cent, 10, euro cent, 5 euro cent, 2 euro cent, and 1 euro cent.
- The euro itself is divided into 100 cents, just like the U.S. dollar.
How did the euro affect contracts denominated in national currency?

- All insurance and other legal contracts continued in force with the substitution of amounts denominated in national currencies with their equivalents in euro.

Value of the Euro in U.S. Dollars

January 1999 to 2014: Ups & Downs…
Value of the Euro in Yen

January 1999 to 2014: Wild rides!

European Monetary System & Union; ECU and Euro

- Back to Exam Material!
The Long-Term Impact of the Euro

- Euro success ↔ political integration of Europe?
- It is possible that the U.S. dollar will lose its place as the *sole* dominant world currency;
  - Chinese, S. Korean and Japanese central banks stated (in 2005) that they might start to diversify out of dollars
    - Evidence?
      → Swedish CB did so in 2006 (*FT, April 22 2006*); Others?
    - Would it matter if the Chinese moved out of dollars?
- The euro and the U.S. dollar might share the role of the world’s major currency (*what about Yuan?*)

How likely is the Euro to succeed?

- Benefits of monetary union:
  - Reduces FX risk
  - Cuts transactions costs (direct costs + hedging costs)
  - Merges markets, increases liquidity, reduces WACC
- Costs of monetary union:
  - Loss of economic policy independence (*Greece!*)
  - FX rate vs. monetary policy vs. fiscal policy (*Greece!*)
    - Solution to self-made mess? Competitive devaluation impossible (Italy’s old way) (*Greece!*) *Solution? tax labor more, firms less*
    - Response to “asymmetric shocks” – i.e., the question is not trivial & the answer is relevant to FX risk in non-euro countries
The main cost of monetary union is the loss of national monetary and exchange rate policy independence.
- The more trade-dependent and less diversified a country’s economy is, the more prone to asymmetric shocks that country’s economy would be
- Particularly relevant for less-diversified economies
- Is this what is happening now in the Euro zone?
  - Contrast the performance of Germany with the periphery’s
  - Solution? Cut wages?

Take the example of Texas, Oklahoma, etc.
- Those states are on a “dollar peg”
- Their economies are dependent on gas and oil
  - if oil prices rise substantially on the world market, they cannot adjust monetary or FX policies -> inflation goes up
  - if the price of oil falls precipitously -> they get into a slump
- Similar for Middle Eastern countries (pegged to US$)

By contrast, it must be that the benefits of European monetary union usually outweigh costs
The Mexican Peso Crisis (1994)
(Not Exam Material)

- On 20 December, 1994, the Mexican government announced a plan to devalue the peso against the dollar by 14%.
- This decision changed currency trader’s expectations about the future value of the peso.
- They stampeded for the exits.
- In the rush to get out, the peso fell by 40%+

The Mexican Peso Crisis

- The Mexican Peso crisis is unique
  - It was the first serious international financial crisis touched off by cross-border flight of portfolio capital.

- Two lessons emerge:
  - It may be essential to have a multinational safety net in place, to safeguard the world financial system from such crises *(debate on the role of the IMF, anyone?)*
  - An influx of foreign capital can lead to an overvaluation in the first place
The Mexican Peso Crisis

- Comparison to the U.S. situation today?
  - Easy access to cheap foreign credit.
    - Mexico financed its development mostly with foreign capital;
    - The U.S. are financing their trade deficit with foreign funds.
  - Let the good times roll in domestic credit markets:
    - Mexico: easy credit policy.
    - United States?
  - All that is needed for a painful adjustment is a change in foreign investors’ expectations.
    - So far, however, this has not happened. Tomorrow?

The Asian Currency Crisis (1997)
(Not Exam Material)

- Capital markets opened
  \(\rightarrow\) large inflows of private capital \(\rightarrow\) credit boom
- Fixed or stable exchange rates encouraged unhedged financial transactions and excessive risk-taking (by both borrowers and lenders)
- The real exchange rate rose \(\rightarrow\) export slowdown
- Japan’s recession (and concomitant ¥ depreciation) compounded domestic problems.
The Asian Currency Crisis (1997)

- The Asian currency crisis in 1997-1998 turned out to be far more serious than the Mexican crisis:
  - in terms of the extent of the contagion
  - and in terms of the severity of the resultant economic and social costs
- Many firms with foreign currency bonds were forced into bankruptcy
- The region experienced a deep, widespread recession
The Argentinean Peso Crisis (2002)
(Not Exam Material)

- In 1991, the Argentine government passed a convertibility law that linked the peso to the U.S. dollar at parity (1-1)
- The initial economic effects were positive:
  - Argentina’s chronic inflation was curtailed
  - Foreign investment poured in
- As the U.S. dollar appreciated on the world market, the Argentine peso became stronger too

The Argentinean Peso Crisis

- The strong peso hurt exports from Argentina and caused a protracted economic downturn that led to the official abandonment of the peso–dollar parity in January 2002.
  - The unemployment rate rose above 20 percent
  - The inflation rate reached a monthly rate of 20 percent
The Argentinean Peso Crisis

- There are at least three factors that are related to the collapse of the currency board arrangement and the ensuing economic crisis:
  - Lack of fiscal discipline
  - Labor market inflexibility
  - Contagion from the financial crises in Brazil and Russia

The USA & China (Not Exam Material)
The USA and China

- China maintained a fixed exchange rate between the renminbi (RMB) / yuan and the U.S. dollar for a long time.
  - Pressure from China’s trading partners for a stronger RMB.

Crisis in European Periphery (2009-?)

- There are at least three factors that may be related to the run on currencies and the economic crisis:
  - Lack of fiscal discipline? Some (e.g., Hungary)
  - Credit boom
    - US: in a downturn, the money tide goes out and a lot of people were shown to have been “swimming naked”
    - EE: not only did EE firms and residents borrow a lot, they borrowed in foreign currency (SF and Euro)
      - This carry trade, predicated on the assumption of an eventual accession to the euro, turned out deadly.
    - EMU Periphery: on top of it, borrowed funds invested in RE
“PIIGS” Crisis (Winter 2010-?)

- Who?
  - Portugal, Italy (?), Ireland, Greece, Spain

- What happened?
  - Investor sentiment?
    - If so, what’s the fix?
      - Short sales restrictions? Ban CDS?
      - Fix fundamentals?
        - Risk of tightening the belt too much $\rightarrow$ spiral $\rightarrow$ default
  - Fundamentals! Lack of fiscal discipline
    - Crucial for monetary union

Int’l Investment Positions (% of GDP)
Currency Crisis Explanations

- In theory, a currency’s value mirrors the fundamental strength of its underlying economy, relative to other economies. In the long run.
- In the short run, currency traders’ expectations play a much more important role.
- In today’s environment, traders and lenders, using the most modern communications, act by fight-or-flight instincts. For example, if they expect that others are about to sell Brazilian reals for U.S. dollars, they want to “get to the exits first”.
- Thus, fears of depreciation can be self-fulfilling prophecies.

Currency Crisis Prevention?

- Precautionary savings
  - Relevant to households?
  - Relevant to firms?
    - IBM, Berkshire Hathaway, Apple, etc.
    - Harley-Davidson borrowed at 15% from BRK in 2009, but a year later was able to tap the market at 6%
  - Relevant to countries
    - An explanation for emerging-market and BRIC FX reserve accumulations?
      - Risk of dual run (on local banks and on currency)
      - Implications for US BOP?
      - 05b_Economist, January 2009
Arguments in favor of flexible exchange rates:
- Easier external adjustments.
- National policy autonomy.
  - “Trilemma”:
    - you can have only two of (i) a fixed FX rate; (ii) free international flows of capital; (iii) an independent monetary policy.
  - Example: Economist_06bb.

Arguments against flexible exchange rates:
- Exchange rate uncertainty may hurt international trade
- No safeguards to prevent crises

Example to compare both regimes:
- Suppose the exchange rate is $1.40/£ today.
- In the next slide:
  - we see that the demand for British pounds far exceeds the supply at this exchange rate
- The U.S. experiences trade deficits.
- Key question:
  - How is the trade deficit eliminated under either regime?
Flexible (as opposed to Fixed) Exchange Rate Regimes

- Under a flexible exchange rate regime, the dollar will simply depreciate to $1.60/£, the price at which supply equals demand and the trade deficit disappears.
Flexible (as opposed to Fixed) Exchange Rate Regimes

- Demand (\(D\))
- Supply (\(S\))
- Demand (\(D^*\))

Dollar depreciates (flexible regime)

\[D = S\]

D = S
Q of £

Dollar price per £ (exchange rate)

- $1.60
- $1.40

Fixed (as opposed to Flexible) Exchange Rate Regime

- Instead, suppose the exchange rate is “fixed” at $1.40/£, and thus the imbalance between supply and demand cannot be eliminated by a price change.
- The government would have to shift the demand curve from \(D\) to \(D^*\)
  - In this example this corresponds to contractionary monetary and fiscal policies.
Fixed \textit{(as opposed to Flexible)} Exchange Rate Regime

<table>
<thead>
<tr>
<th>Dollar price per £ (exchange rate)</th>
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<tbody>
<tr>
<td>$1.40</td>
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</table>

\[ D^* = S \]

**Supply (S)**

**Demand (D)**

**Demand (D*)**

**Contractionary policies (fixed regime)**

**Exchange Rate Determinants (FF)**

- What determines the equilibrium spot exchange rate in a free float?
  - Supply and demand of foreign currency.
    - Trade in goods and services
      - impact of inflation?
    - Attractiveness of financial assets
  - Expectations
    - Short term vs. long term
    - liquidity