

# International Monetary System



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## Agenda

- ◉ Introduction
- ◉ The Evolution of IMS
  - Fixed Exchange Rate Regime
  - Flexible Exchange Rate Regime
- ◉ Impossible Trinity (Trilemma)





## Part-I

# Introduction



## International Monetary System

- ◉ International Monetary System (IMS) is a set of agreed regulations that facilitates the exchange of goods and capital accross countries
- ◉ What is the main objective of IMS?
  - To achieve stable exchange rate and price to support long-term economic growth
- ◉ Economic growth for all countries in the world rather than one or some strong countries

## Ideal Condition (Balance Payment Creates Stability)



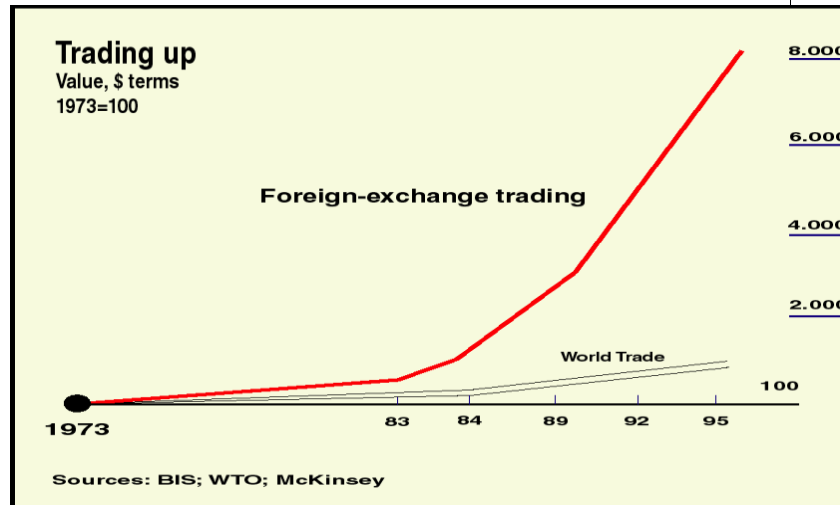
	Surplus	Deficit
• Balance of Payment	Export > Import	Export < Import
• Currency	Appreciate	Depreciate
• Price of goods in international market	Increase (less competitive)	Decrease (more competitive)
• Next BOP	Export < Import	Export > Import
• Balance of Payment	Inflow > Outflow	Inflow < Outflow
• Currency	Appreciate	Depreciate
• Interest Rate	Decrease	Increase
• Next BOP	Inflow < Outflow	Inflow > Outflow

## What Happens Today?



- ◉ Imbalance payments
  - Heavy trade surplus and deficit across countries
  - Lack of coordination in monetary and fiscal policies
  - Exchange rate fluctuation
  - Attract the speculative behaviors
- ◉ Rely on a single national currency (USD)
  - Most international transactions, FX reserve, and goods price are stated in USD
  - US economic tend to be unstable since 1970s
  - USD often fluctuates against other currencies

## Worldwide Forex Trading



## Part-II

### The Evolution of IMS (Fixed Exchange Rate Regime)



## IMS Timeline



Year	System	Leader	Reserve Assets
..... – 1876	Bimetallism	UK, German	Gold, Silver
1876 – 1914	Classical Gold Standard	UK, France	Gold, GBP
1914 – 1944	Interwar Period	UK, US, France	Gold, USD
1944 – 1973	Bretton Woods	US	USD
1973 – .....	Flexible Exchange Rate	US, EU, IMF	USD, EUR



## Bimetallism Standard



- ◉ Prior bimetallism is the use of gold and silver as medium of exchange in trading (It displaced the barter system used before).
- ◉ Bimetallic standard had been used since 600 BC in Greece and then adopted by Romans.





## Modern Bimetallism (Prior 1876)



- ◉ Bimetallism is a standard where monetary unit can be expressed in either certain amount of gold or certain amount of silver.
- ◉ Example: in the early 1800, US government set:
  - ◉ USD 1 = 371.25 grains of silver
  - ◉ USD 1 = 24.75 grains of gold

*Legal silver-gold ratio was fixed at 15.0*
- ◉ The legal ratio was set based on long historical market price of gold and silver in each country.
- ◉ People could bring gold or silver bars to the Mint (legal agency), and exchange them for gold or silver coins.



## Modern Bimetallism (Prior 1876)





## Bullion Market and Legal Tender



### **Bullion Market**

(Market for silver and gold as raw metal)

#### **Market Ratio:**

Determined by relative supply and demand in the market

The market price of gold and silver fluctuate every day (change the market ratio)

### **Legal Tender (Mint)**

(Market for exchange gold and silver to coin)

#### **Legal Ratio:**

Determined by government (based on historical data)

Example in US:

- 1791 → 15.0 : 1
- 1820 → 15.9 : 1
- 1890 → 16.5 : 1

Legal ratio is set to match with market ratio, thus Legal Ratio and Market Ratio should be similar



## Disequilibrium of Gold-Silver Prices



### ⦿ If Market Ratio > Legal Ratio (e.g. 15.5 > 15.0)

- Gold price increases (gold coin is more worth than silver)
- People go to Mint to convert gold coin with gold bar
- Gold bars are sold in the market (get more money)
- Silver coins are used as money

### ⦿ If Market Ratio < Legal Ratio (e.g. 15.0 > 15.5)

- Silver price increases (silver coin is more worth than gold)
- People go to Mint to convert silver coin with silver bars
- Silver bars are sold in the market (get more money)
- Gold coins are used as money



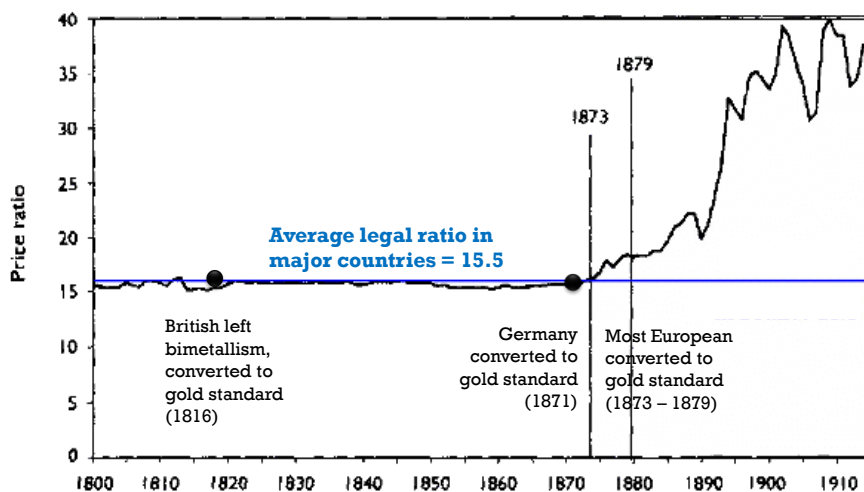
## Back to Equilibrium



- ◉ Under Bimetallism (Gresham's Law):  
People tend to use the relatively cheapest metal as money, and remove another from circulation
- ◉ When market ratio > legal ratio → silver coin used as money, people sell their gold to market → gold supply increase → gold price will fall → market ratio decreases toward legal ratio
- ◉ Bimetallism kept the gold-to-price ratio stable, so was the exchange rate



## Gold to Silver Price Ratio (1800 – 1914)







## End of Bimetallism



- ◉ In 1871, German won a war against France, and asked the heavy compensation in gold.
- ◉ During next 5 years, others countries started to leave bimetallism, moved to gold standard.
- ◉ 1873 (Belgium, Italy, Switzerland), 1874 (Scandinavia), 1875 (Sweden, Denmark, Norway, Holland), 1876 (Spain, France, US).



## Adv and Disadv of Bimetallism



### Advantages

- ◉ Facilitate international trade (capital flow) → easy to establish gold-silver ratio
- ◉ Price stability for metal and silver
- ◉ Relatively stable exchange rate (legal ratio around 15.5)
- ◉ Greater metal reserve

### Disadvantages

- ◉ Need strong commitment among countries (single country can not adopt it)
- ◉ Create confusion in business when disequilibrium
- ◉ High cost for storing gold and silver reserve
- ◉ Difficult for government to set appropriate legal ratio



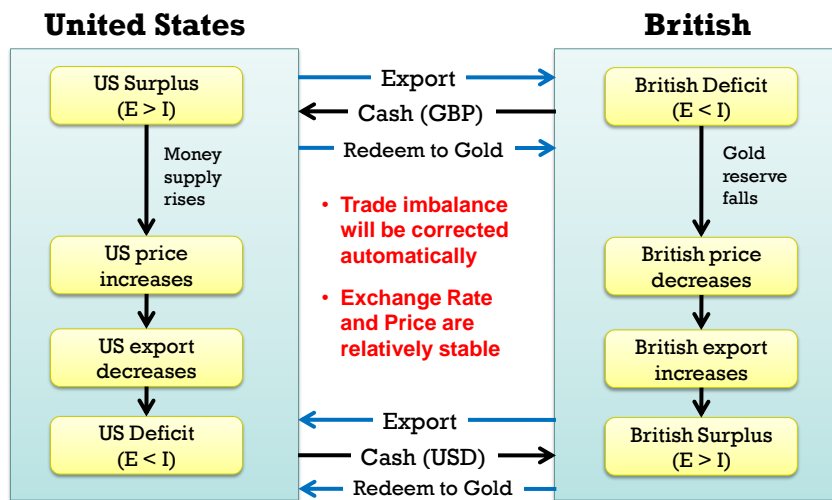
## Classical Gold Standard (1876 – 1914)



- Each currency declared its value compared to gold, so that it created a fixed exchange rate.
- Example:
  - 1 ounce of gold = USD 20.67
  - 1 ounce of gold = GBP 4.2474
$$\text{GBP/USD} = \frac{20.67}{4.2474} = 4.8665$$
- If USD money supply was USD 20.67 billion, US should have at least 1 billion ounce of gold bar in reserve.
- Beside fixed exchange rate, the classical gold standard also provided price stability through **Price-Specie-Flow mechanism**.



## Price-Specie-Flow Mechanism





## Classical Gold Standard Rules



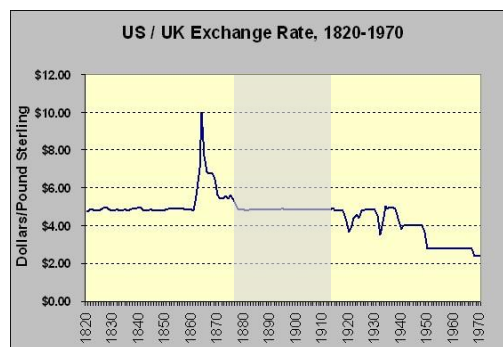
- ◉ Fixed value of currency compared to gold, and allow free convertibility
- ◉ No restrictions on import and export of gold
- ◉ National currency must be backed with sufficient gold reserve
- ◉ When short-run liquidity occurs (gold reserve falls), central bank should increase domestic interest rate



## Quite Ideal Condition



- ◉ Stability
  - There's no lasting trade deficit and surplus
  - Stable price (low inflation)
  - Stable exchange rate
- ◉ It encouraged global economic growth
  - Rapid expansion of international trade
  - Free flow of labor and capital
- ◉ Peace

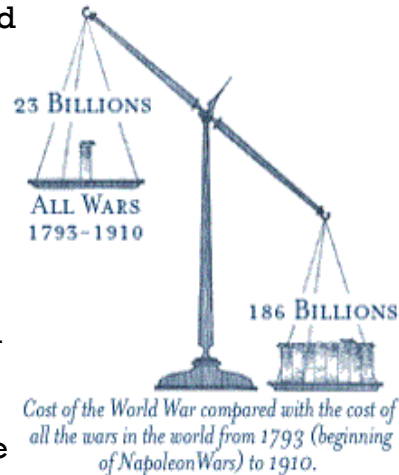




## End of Classical Gold Standard



- ◉ WW I ended the classical gold standard as
  - Major countries suspended redemption in gold
  - Imposed embargoes on gold export
  - World gold productions can not meet to back international trade
- ◉ At that time, US has become a new super power country as their leading in technology and economy (start to replace British's domination).



## Interwar Period (1914 – 1944)



- ◉ During WWI, many countries issued more currencies to support war (without increase of gold reserve)
- ◉ Exchange rate were allowed to fluctuate fairly wide range as supply-demand mechanism.
- ◉ Many countries widely depreciated of their currencies as a means of gaining advantage in the world export market.
- ◉ After WWI, British tried to restore the gold standard and maintain the same exchange rate of gold as before WWI.

## Interwar Period (1914 – 1944)



- ◉ Since not supported by sufficient of gold reserve, GBP was obviously overvalued at that rate → **weak currency**
- ◉ Other countries (e.g. US, France) enjoyed heavy surplus of gold as their export increased → **strong currency**
- ◉ Speculation behavior by investors (**sell weak currencies for gold**, or **buy strong currencies with gold**)
- ◉ This make the weak currencies weaker and the strong currencies stronger

## Short Weak Currency, Long Strong Currency



- ◉ Weak currency: 1 ounce of gold = GBP 5.0
  - **Sell GBP 1,000 now (to get 200 ounce of gold)**
  - **In the future, investor hoped GBP will be devaluation (e.g. 1 ounce of gold = GBP 8.0)**
  - **Sell 200 ounce of gold (to get GBP 1,600)**
- ◉ Strong currency: 1 ounce of gold = USD 25
  - **Buy USD 1,000 now (by selling 40 ounce of gold)**
  - **In the future, investor hoped USD will be appreciated (e.g. 1 ounce of gold = USD 20)**
  - **Sell USD 1,000 to get 50 ounce of gold**

## Interwar Period (1914 – 1944)



- ◉ In 1931, British stopped the conversion between pound and gold (leave gold standard)
- ◉ In 1934, US adopted “modified gold standard”:
  - Setting \$35 per ounce of gold
  - US government only traded gold with central banks only (not private citizen)
- ◉ During WWII, USD became the only major currency that continued to be convertible.
- ◉ This condition led to the formulation of Bretton Woods System



## Bretton Woods System (1944 – 1973)



- ◉ Representing of 44 countries (Jul 1944) to design IMS with more stable exchange rate.
- ◉ It was used USD as an anchor currency, and US promised to redeem USD in gold to every central bank
- ◉ The creation of International Monetary Fund (IMF) and The International Bank for Reconstruction and Development (World Bank)
- ◉ World Bank helped fund post-war reconstruction and since then has supported general economic development



## The IMF



- ◉ IMF was created to provide temporary assistance to member countries defend their currencies against unexpected conditions (e.g. financial crisis)
- ◉ Each member country should deposit some reserves at the IMF, in which 25% is gold (special drawing right, SDR) and 75% is the local currency (general drawing right, GDR)
- ◉ SDR is an international reserve asset created by IMF in term of gold (later, it consists of four major currencies: USD, EUR, GBP, and JPY, in which the weight are updated every five years)



## Bretton Woods System Rules



- ◉ Fixed value of currency in term of gold, but were not required to exchange their currencies for gold
- ◉ Only USD can be convertible into gold at \$35 per ounce (at that time, 75% of world gold is held by US)
- ◉ Each currency established its exchange rate with the USD
- ◉ Maintain the value of their currencies within 1% of par by buying or selling foreign exchange or gold as needed
- ◉ Devaluation was not to be used as a competitive trade policy
- ◉ If a currency became too weak to defend, a devaluation of up to 10% was allowed without formal approval by the IMF
- ◉ However, large devaluations required IMF approval



## Eurocurrencies



- ◉ **Eurocurrencies:** domestic currencies of one country on deposit in a second country
  - Example: Eurodollar, Euroyen, Eurosterling, etc
  - Banks in which Eurocurrencies are deposited are called Eurobanks
- ◉ **Development of Eurocurrencies:**
  - During 1950s, Soviet and Eastern Europe's investors were reluctant to deposit their USD in US's banks.
  - Europe countries offered USD deposit service
  - Surplus in European and Middle east countries in USD
  - Eurocurrencies rose significantly



## Eurocurrencies



- ◉ **Benefit of Eurocurrencies:**
  - Convenient and easy to access, especially for short-term financing
  - Eurocurrencies use LIBOR, that is free from US government intervention. (LIBORs are set by British Banker Association)
  - Narrow spread between deposit and loan rate
- ◉ Now, the largest stock market in the world is in New York, but the largest foreign exchange market is in London.





## US's Payment Deficit



- ◉ US experienced deficit payment during 1960s to finance Vietnam War. Inflation rose as the increasing government spending.
- ◉ US' gold reserve declined from 55% to 22% (of the world gold), and made USD holders lost faith in the US's ability to redeem.
- ◉ Triffin Dilemma (proposed by Robert Triffin in 1960s)  
When a national currency also serve as an international reserve currency, there could be conflicts of interest between short-term domestic and long-term international objectives



## Nixon Shock



- ◉ Nixon Shock (Aug 1971):  
suspend USD' convertibility into gold
- ◉ G-10 Summit at Smithsonian (Dec 1971):
  - Set 1 ounce of gold = USD 38 (devaluation of USD)
  - Reset par value by 10% against USD
  - Increase par value band to +/- 2.25%





## End of Bretton Woods System



- ◉ Some countries started to leave Bretton Woods System (e.g. Germany in May 1971), and was followed by other countries as gold price rose continuously.
- ◉ February 1973, the fixed-rate system no longer appeared feasible given the speculative flows of currencies
- ◉ The major foreign exchange markets were actually closed for several weeks in March 1973, and when they reopened, most currencies were allowed to float to levels determined by market forces
- ◉ In June 1973, floating rates continued to drive the now freely floating USD down by about 10%

## Exercise-1



- ◉ Why is exchange rate stability matter?
- ◉ Geopolitics has provided great influences to the development of IMS and its practices. Give at least three examples of those influences!
- ◉ Speculative behaviors in foreign exchange market in bimetallism and classical gold standard were less than in interwar period. Why?
- ◉ Does Triffin Dilemma still occur today? Give one example.



## Part-III

# **The Evolution of IMS (Flexible Exchange Rate Regime)**

## **Flexible Exchange Rate (1973 – Present)**



- ◉ Since March 1973, exchange rates have become much more volatile than they were during the “fixed” period
- ◉ Initiated by European countries that lost faith in USD, and rejected to devalue their currencies as recommended by G-10 summit (Dec 1971)
- ◉ This system allows central bank to make some intervenes to influence its currency value based on chosen exchange rate regime.
- ◉ Jamaica Agreement (1976)

## Jamaica Agreement (1976)



- ◉ Member countries can choose among different exchange rate regimes freely
- ◉ The special drawing right is no longer defined in terms of gold. The SDR is redefined every 5 years. Today, SDR is the weighted average of four major currencies: 44% USD, 34% EUR, 11% JPY, and 11% GBP
- ◉ Each country's foreign exchange reserves includes:
  - ◉ SDR in the form of deposits at the IMF
  - ◉ Its reserve position at the IMF
  - ◉ Foreign exchange
  - ◉ The official holdings of gold

## Exchange Rate Regime Classification



Arrangement	Description
<b>Exchange rate with no separate legal tender</b>	<ul style="list-style-type: none"> <li>• Use the currency of other country as the legal tender (e.g. Ecuador, Panama)</li> <li>• Share the same legal tender in a monetary union (EU)</li> </ul>
<b>Currency board</b>	<ul style="list-style-type: none"> <li>• Maintain the fixed exchange rate to a specified foreign currency by <b>legislation (predetermined)</b></li> <li>• Issue more domestic currencies <b>only when acquiring the specified foreign currency</b></li> <li>• Example: HK maintains about 7.8 HK dollars/US\$ since 1983</li> </ul>
<b>Conventional fixed peg (Pegging)</b>	<ul style="list-style-type: none"> <li>• Peg its currency at a fixed rate to a major currency (or a basket of currencies)</li> <li>• The exchange rate fluctuates <b>within 1%</b> around the central rate</li> <li>• Example: China</li> </ul>
<b>Pegging within horizontal bands</b>	<ul style="list-style-type: none"> <li>• Similar to the conventional fixed peg arrangements, but the margin of fluctuation is <b>wider than <math>\pm 1\%</math></b></li> <li>• Example: Denmark, Hungary</li> </ul>

# Exchange Rate Regime Classification



Arrangement	Description
<b>Crawling pegs</b>	<ul style="list-style-type: none"> <li>Peg currency at a fixed, preannounced rate to a major currency (or a basket of currencies) within a <b>small fluctuation range</b> (usually smaller than 1%)</li> <li>The exchange rate is adjusted <b>periodically</b> or in response to <b>changes in selective quantitative indicators</b> (e.g., the inflation rates in the local country and in the major trading partners). E.g. Nicaragua, Costa Rica</li> </ul>
<b>Exchange rates within crawling pegs</b>	<ul style="list-style-type: none"> <li>Similar to the crawling pegs, but the margin of fluctuation is <b>wider than <math>\pm 1\%</math></b></li> </ul>
<b>Managed floating with no pre-announce path (Dirty Float)</b>	<ul style="list-style-type: none"> <li>Influence exchange rate <b>without specifying or pre-announcing exchange rate target</b></li> <li>Indicators: the balance of payments position, foreign reserves, etc. (e.g. Indonesia, Taiwan)</li> </ul>
<b>Independent floating (Clean Float of Free Float)</b>	<ul style="list-style-type: none"> <li>Market-driven with any interventions aimed at moderating the rate of change and preventing undue fluctuations in the exchange rate, rather than at establishing a level for it</li> </ul>

## Example-1



	Another Currency as Legal Tender	CFA Franc Zone <sup>1</sup>	Euro Zone	ECCU <sup>2</sup>
<i>Exchange arrangements with no separate legal tender (40)</i>	East Timor (U.S. dollar)	Benin	Austria	Antigua & Barbuda
	Ecuador (U.S. dollar)	Burkina Faso	Belgium	Domenica
	El Salvador (U.S. dollar)	Cameroon	Finland	Grenada
	Kiribati (Australian dollar)	Central African Republic	France	St. Kitts & Nevis
	Marshall Islands (U.S. dollar)	Chad	Germany	St. Lucia
	Micronesia (U.S. dollar)	Congo	Greece	St. Vincent & the Grenadines
	Palau (U.S. dollar)	Cote d'Ivoire	Ireland	
	Panama (U.S. dollar)	Equatorial Guinea	Italy	
	San Marino (euro)	Gabon	Luxembourg	
		Mali	Netherlands	
		Niger	Portugal	
		Senegal	Spain	
		Togo		
<i>Currency board arrangement (7)</i>	Bosnia and Herzegovina (euro)	Djibouti (U.S. dollar)	Hong Kong (U.S. dollar)	
	Brunei Darussalam (Singapore dollar)	Estonia (euro)	Lithuania (euro)	
	Bulgaria (euro)			

## Example-2



	Against a Single Currency		Against a Composite
<i>Other conventional fixed peg arrangements (including de facto peg arrangements under managed floating) (41)</i>	Aruba	Malaysia	Botswana
	Bahamas	Maldives	Fiji
	Bahrain	Namibia	Latvia
	Barbados	Nepal	Libya
	Belize	Netherlands Antilles	Malta
	Bhutan	Oman	Morocco
	Cape Verde	Qatar	Samoa
	China, P. R.	Saudi Arabia	Vanuatu
	Comoros	Seychelles	
	Eritrea	Swaziland	
	Guinea	Syria	
	Iraq	Turkmenistan	
	Jordan	Ukraine	
	Kuwait	United Arab Emirates	
	Lebanon	Venezuela	
	Lesotho	Zimbabwe	
	Macedonia		
	Within a Cooperative Arrangement		Other Band Arrangements
<i>Pegged exchange rates within horizontal bands (5)</i>		Denmark	Cyprus
		Slovenia	Hungary
			Tonga
		Bolivia	Nicaragua
		Costa Rica	Solomon Islands
<i>Crawling pegs (6)</i>		Honduras	Tunisia

## Example-3



<i>Exchange rates within crawling bands (1)</i>	Belarus			
<i>Managed floating with no preannounced path for exchange rate (51)</i>	Afghanistan	Georgia	Mauritania	Sao Tome and Principe
	Algeria	Ghana	Mauritius	Serbia and Montenegro
	Angola	Guatemala	Moldova	Singapore
	Argentina	Guyana	Mongolia	Slovak Rep.
	Azerbaijan	Haiti	Mozambique	Sudan
	Bangladesh	India	Myanmar	Suriname
	Burundi	Indonesia	Nigeria	Tajikistan
	Cambodia	Iran	Pakistan	Thailand
	Croatia	Jamaica	Paraguay	Uzbekistan
	Czech Republic	Kazakhstan	Peru	Vietnam
	Egypt	Kenya	Romania	Zambia
	Ethiopia	Kyrgyzstan	Russia	Zimbabwe
	Gambia	Laos	Rwanda	
<i>Independently floating (35)</i>	Albania	Iceland	Norway	Switzerland
	Armenia	Israel	Papua New Guinea	Tanzania
	Australia	Japan	Philippines	Turkey
	Brazil	Korea	Poland	Uganda
	Canada	Liberia	Sierra Leone	United Kingdom
	Chile	Madagascar	Somalia	United States
	Colombia	Malawi	South Africa	Uruguay
	Congo	Mexico	Sri Lanka	Yemen
	Dominican Republic	New Zealand	Sweden	

## Fixed vs. Float



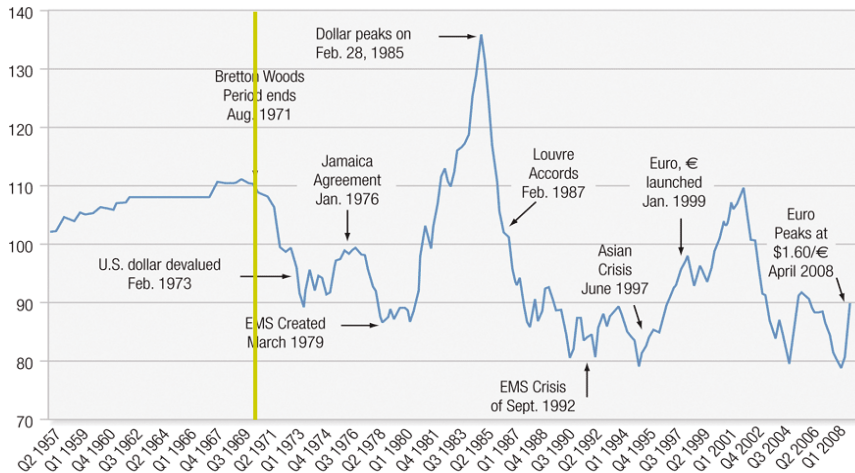
- ◉ **Fixed Rate System:** government are committed to maintain a target exchange rate.
  - E.g.: Bimetallism, Gold standard, Bretton Woods
  - Central bank actively buys or sells its currency in the foreign exchange market to maintain stated par value
- ◉ **Flexible Float:** exchange rate allowed to fluctuate and permit central bank to make some interventions based on chosen exchange rate regime (not always to maintain fixed target exchange rate)
  - Eight categories of exchange rate regime classified by the IMF

## Advantage & Disadvantage



System	Strength	Weakness
Fixed Rate	<ul style="list-style-type: none"> <li>• Provide stability in international price</li> <li>• Anti-inflationary (maintain money supply carefully)</li> </ul>	<ul style="list-style-type: none"> <li>• More difficult to pursue policy to alleviate internal economic problems</li> <li>• Need large national reserve</li> <li>• Late response in official fixed exchange rate</li> </ul>
Flexible Float	<ul style="list-style-type: none"> <li>• Easier to adjust imbalance payment</li> <li>• More autonomous in monetary policy</li> <li>• Not necessary to maintain large quantities of foreign exchange reserve</li> </ul>	<ul style="list-style-type: none"> <li>• Excessive volatility that affects domestic economy, and impede capital mobility</li> <li>• Risky to global or regional crisis</li> <li>• Risk to issue too much currency (result in serious inflation)</li> </ul>

## IMF's Nominal Exchange Rate Index of the USD



## Crises and Stabilization Attempts



- ◉ Many attempts to stabilize exchange rate:
  - European Monetary System - EMS (1979)
  - Plaza Agreement (1985)
  - Louvre Accords (1987)
  - Maastricht Treaty (1991)
  - The Euro (1999)
  - G-20 Washington Summit (2008)
  - G-20 London Summit (2009)
  - World Economic Forum (2010)
  - etc
- ◉ More frequent crises, especially in emerging countries:
  - EMS crisis (1992)
  - Mexico crisis (1994)
  - East Asia crisis (1997)
  - Russian crisis (1998)
  - Brazil crisis (1999)
  - Argentina and Venezuela crisis (2002)
  - US Subprime mortgage crisis (2007)
  - European Sovereign debt crisis (2008)



## European Monetary System (March 1979)



- ◉ EMS: agreement among 12 European countries to maintain their exchange rate among within narrow bands, and jointly float against outside currencies
- ◉ European Exchange Rate Mechanism (ERM)
  - Each member determined a mutually agreed of exchange rate with margin around +/- 2.25%
  - Create the European Currency Unit (ECU), i.e. a basket of currencies of European Union countries  
Example: 13.34% GBP, 32.98% DEM, 19.83% FRF, etc.
- ◉ Objectives
  - Establish a zone of monetary stability in Europe
  - Coordinate exchange rate policies vis-à-vis non-European currencies

## Maastricht Treaty (Dec 1991)



- ◉ EU countries concluded to replace all individual currencies with a single currency – the Euro
- ◉ **Convergence**: the process to integrate and coordinate of the member's monetary and fiscal policies.
  - Maximum inflation = 1.5% above the average of three lowest inflation countries
  - Maximum long-term interest rate = 2.0% above the average of three lowest inflation countries
  - Maximum fiscal deficit = 3% of GDP
  - Maximum government debt = 60% of GDP
- ◉ The criteria were so tough

## The Euro



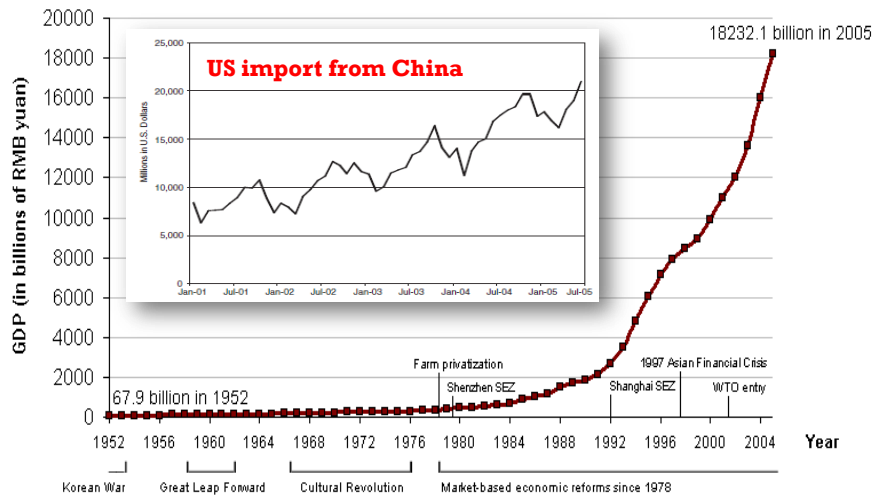
- ◉ In 1994, European Monetary Institute was established in Frankfurt (latter it became European Central Bank)
- ◉ The main purpose: to promote price stability within the European Union, and the Euro vis-à-vis with other major currencies
- ◉ A single currency of the European Monetary Union which was adopted by 11 members on January 4, 1999 (1 EUR = USD 1.1743).
- ◉ Euro coins and notes entered the circulation at January 1, 2002

## Emerging Countries

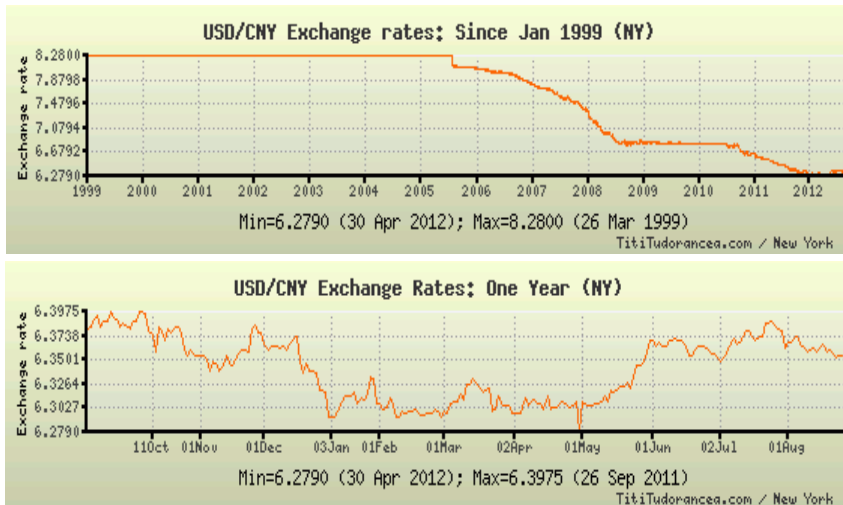


- ◉ Most emerging countries had their independences after WW II.
- ◉ To support their economic growth, most of them applied “more fixed” exchange rate system, e.g. currency board, dollarization, pegging, etc.
- ◉ Many enjoyed high economic growth, and at the same time, also suffered international trade deficit.
- ◉ When USD became more volatile, they suffered into financial crisis along 1990s.
- ◉ China reforms

## China GDP



## Historical USD/RMB

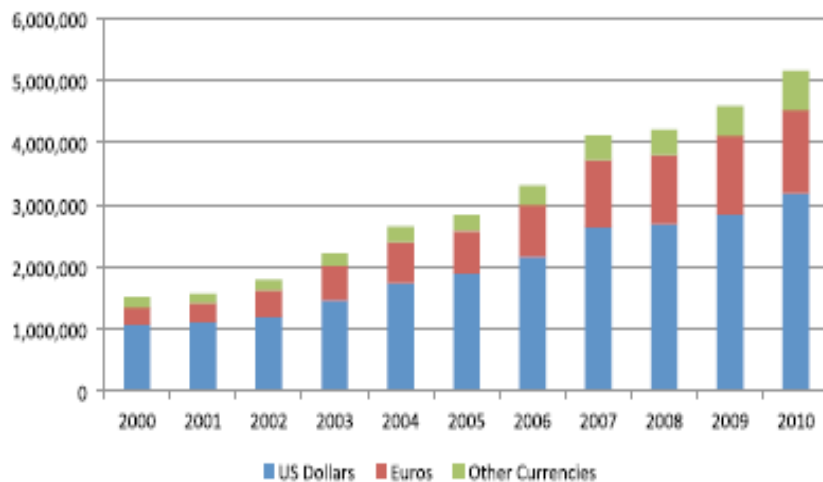


## What's Wrong with Current IMS?



- ⊙ Over-reliance on single national currency
  - Lack of demand for SDR
  - Non-convertible of Renmimbi, Euro harmonization
- ⊙ Lack of coordination
  - Lack of coordination among international institutions (e.g. IMF, World Bank, WTO)
  - Lack of policy coordination across countries (monetary, fiscal, and economic structure)
- ⊙ Less development of financial market in emerging countries

## Composition of World National Reserve



## Economic Data (2010 - 2011)



Component		US	EU	China	Indonesia
Consumption	C	70.8%	58.0%	24.2%	58.7%
Investment	I	12.0%	19.9%	46.5%	30.5%
Government Spending	G	20.6%	22.0%	10.0%	9.0%
Export-Import	NX	-3.4%	0.1%	19.3%	1.8%
<b>Total (\$ trillion)</b>	<b>GDP</b>	<b>15.0</b>	<b>12.8</b>	<b>7.3</b>	<b>0.85</b>
GDP growth		2 - 2.3%	1.4 - 1.6%	8 - 9%	6.4 - 6.5%
Interest rate		0.25%	0.75%	6.4%	6.0%
Inflation		1.7%	3.1%	5.4%	3.8%
Unemployment		8.3%	10.3%	4.2%	6.8%
Public debt (%GDP)		100.9%	82.5%	25.8%	24.5%
Fiscal deficit (% GDP)		8.7%	4.1%	1.15%	1.6%

## Part-IV

### Impossible Trinity (Trilemma)



## Three Objectives

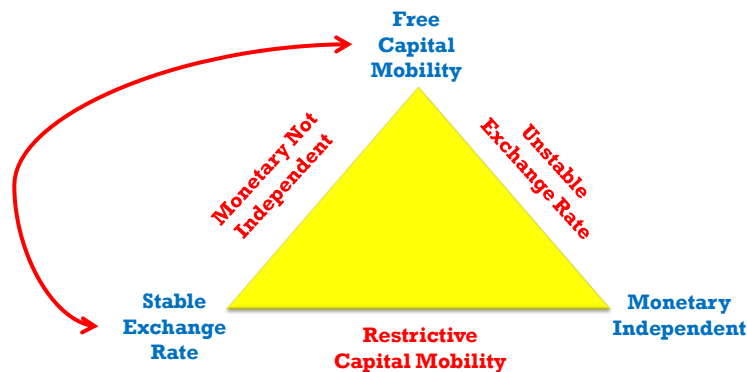


- ◉ Policy makers (governments) are faced with three international macroeconomic objectives:
  - **Exchange rate stability**  
Decrease the volatility of exchange rate to reduce uncertainty (forex risk) in international trade or future planning
  - **Free capital mobility**  
Capital can move across countries freely (absence of capital control) → investment and foreign borrowing
  - **Monetary independent**  
Central bank can employ monetary policy to stabilize domestic economy (through money supply and interest rate), e.g. inflation, unemployment, economy growth. It is not driven by international condition

## Impossible Trinity



- ◉ But government can maintain two any objectives and have to give up the third (trilemma).
- ◉ Illustrations:



## Example-1



- ⦿ Indonesia focused objectives:
  - Open for financial and real exchange (**free capital mobility**)
  - Set interest rate and money supply primarily to achieve inflation target (**monetary independent**)
  - Bank Indonesia does not target a specific target zone, except it just manages the fluctuation of IDR. **Thus, exchange rate is not relatively stable.**
- ⦿ Hong Kong focused objectives:
  - Open for financial and real exchange (**free capital mobility**)
  - Currency board system (**exchange rate stability**)
  - Its monetary policy is **not independent**
    - HK increases money supply only if it receives capital inflow
    - Interest rate falls only if capital inflow is too much

## Example-2



- ⦿ US focused objectives:
  - Open for investment and borrowing (**free capital mobility**)
  - Set interest rate and money supply to support economic growth (**monetary independent**)
  - The Fed lets USD fluctuates freely (**exchange rate is not stable**)
- ⦿ China focused objectives:
  - Central Bank of China pegs CNY to USD with daily deviation of +/- 0.3% (**exchange rate stability**)
  - Set interest rate and money supply to slow economic growth and reduce high inflation (**monetary independent**)
  - Open for real transactions, but strict control in financial market (**capital mobility is not fully free**)

Thank  
You

