INTERNATIONAL FINANCIAL AND FOREIGN EXCHANGE MARKETS

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INTRODUCTION

February 20th, 2017

What is International Finance?

- **International finance** is the branch of economics that studies the dynamics of exchange rates, foreign investment, the global financial system, and how these affect international trade. It also studies international projects, international investments and capital flows, and trade deficits. It includes the study of futures, options and currency swaps. International finance is a branch of international economics.

- Important theories in international finance include the Mundell-Fleming model, the optimum currency area (OCA) theory, as well as the purchasing power parity (PPP) theory. Whereas international trade theory makes use of mostly microeconomic methods and theories, international finance theory makes use of predominantly macroeconomic methods and concepts.

The Textbook

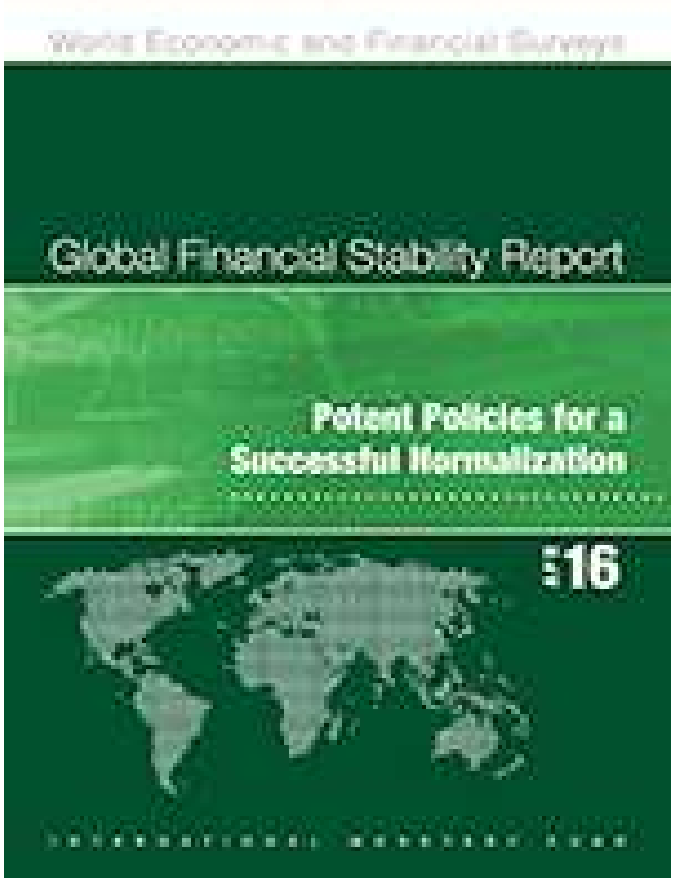
Maurice Levi, *International Finance*, 5°Edition, 2009

- A comprehensive reading, covering the financial markets, the economic environment and management of multinational business.

- A good blend of both macro and micro economic analyses. It sets operational finance in the appropriate macroeconomic framework.

- Covers practical managerial topics such as how to evaluate foreign investment opportunities, where to borrow and invest, how exchange rates affect cash flows, how to measure foreign exchange risk and exposure, how to do business in the current global financial environment.

Other sources of information on International finance



IMF Global Financial Stability Report (October 2016)

BIS Annual Report 2014-2015 (June 2016)

Other sources of information on International finance

- **Institute of International Finance** (**IIF**) (the private institution that has negotiated with Greece the restructuring of the country's debt); various reports and publications

- **www.worldbank.org**, **www.oecd.org**, **www.euromoney.com** (Periodical Reports on Country Risk).

Purpose of this Introduction

- Why it is important to study IF.
- Why IF has grown so much.
- What are the pros and cons of IF.
- What are the basic notions that are needed to approach IF.
- What are the main players in IF, how big they are and how they interact.

INTRODUCTION - **Part I**

INTERNATIONAL FINANCE

Its pros and cons

Benefits of studying IF

- Among the events that affect the firm and that must be managed are changes in exchange rates, inflation rates, and asset values (and these events are often themselves related).
- Because of the integration of financial markets, events in distant lands have effects that reverberate in other regions of the world (domino effects, contagion, systemic risk).
- Even companies with a domestic focus are affected by the global financial environment as they compete with firms that are internationally active.
- Inflation, jobs, economic growth rates, bonds and stock prices, oil and food prices, government revenues and other important financial variables are all tied to exchange rates and other developments in the increasingly integrated financial market.
- For students in economics or business administration understanding IF is of fundamental importance.

Growing importance of IF

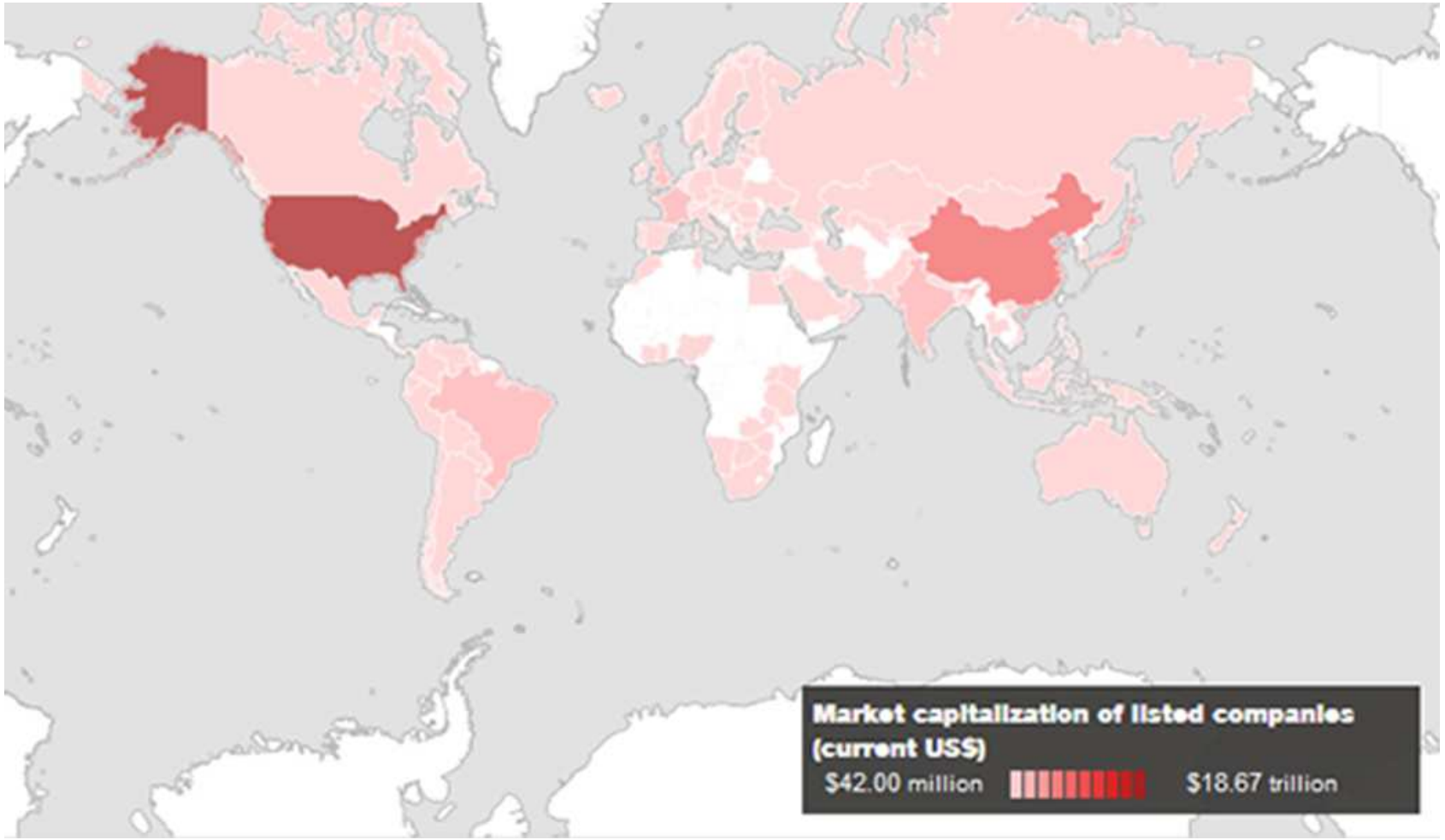
- Over the last decades international financial flows have grown much faster than world GDP or world trade.
- This trend is in large parte a reflection of international trade and the process of globalization.
- However, international financial flows have grown much faster than the real economy.
- Between 2002 and 2007 (before the start of the current crisis) international financial flows (gross) have grown from 5% to 17% of world GDP.
- While IF contributes to world prosperity through the efficient allocation of capital worldwide, it is also a source of concern for the challenges that it poses for financial stability as shown by the recent financial crises.
- Financial flows are extremely volatile. After the Lehman default (gross) international financial flows plummeted to 1% of GDP in 2008!!
- IF has become as subject of immense importance and a great deal of attention is being payed to gain a better understanding of the way financial markets work.

Market capitalization of listed companies

Market capitalization (also known as market value) is the share price times the number of shares outstanding. Listed domestic companies are the domestically incorporated companies listed on the country's stock exchanges at the end of the year. Listed companies does not include investment companies, mutual funds, or other collective investment vehicles. Data are in current U.S. dollars.

Source: World Federation of Exchanges, 2016

Market capitalization of listed companies



Source: Standard & Poor's, Global Stock Markets Factbook and supplemental S&P data

Factors behind the growth of IF

- Growth of International Trade (finance associated to commercial trade)
- Growth of Multinational Corporations (finance associated to FDIs and M&A activity) and Multinational Banking
- Growth of the eurodollar market
- Growth of International Finance *per se* (finance associated to the growth of global saving and the need to improve risk-return trade-offs)

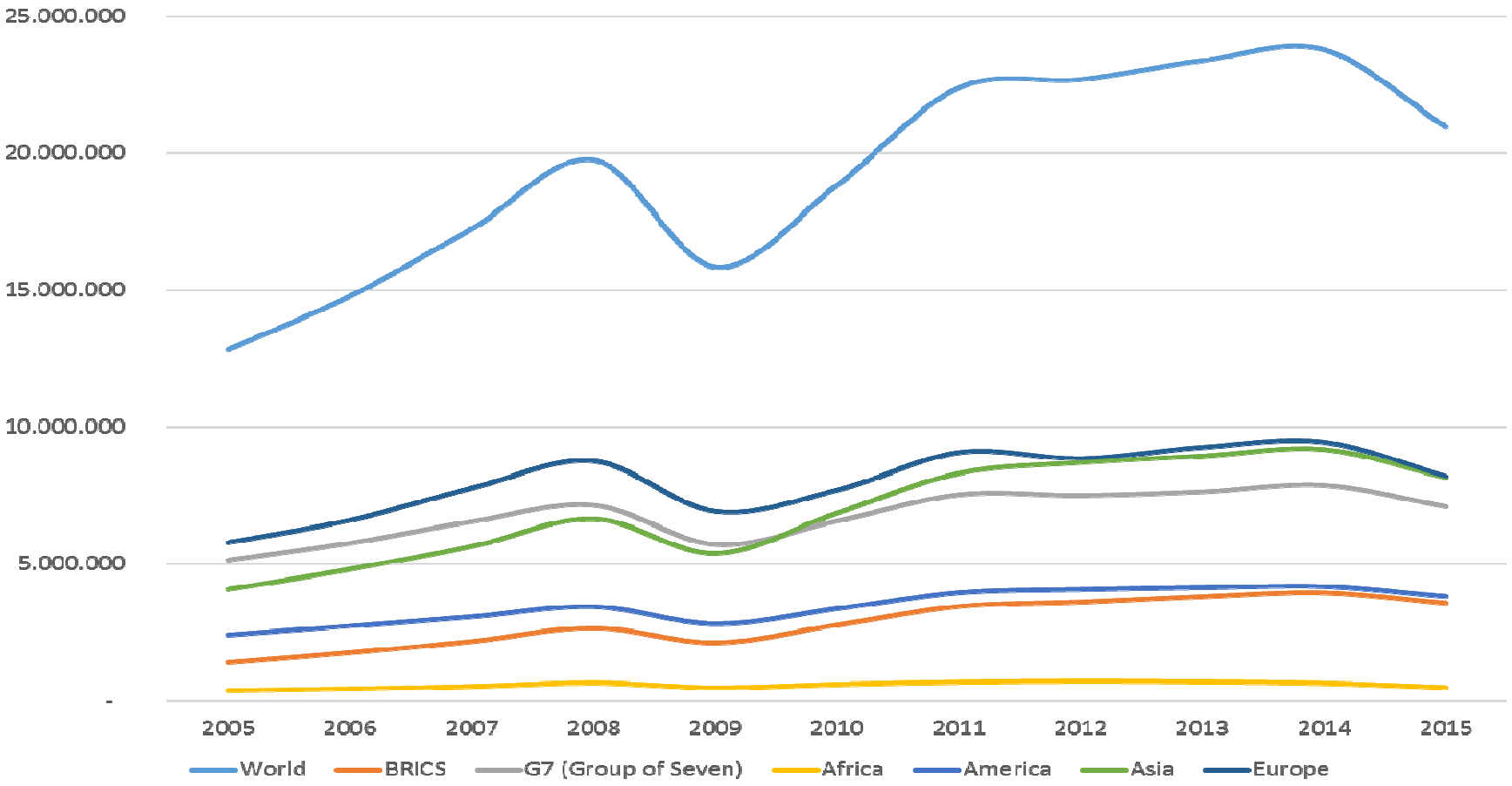
Growth of International Trade

- Since 1950 world trade has grown by 6% per annum on average, roughly twice world output over the same period.
- Since 1970 trade growth accelerated, with commercial flows expanding by a factor of 35 times.
- International trade has benefitted from the liberalization carried out in the post war period that has allowed the mechanisms of comparative and competitive advantages to operate in full.
- Global trade now accounts for about 30% of world GDP (see Table 1.1 in Levi).
- IT has implications for IF by way of: the monetary and credit flows associated with import and export activity; the exchange of national currencies with foreign currencies; the need to cover against exchange rate risk and/or the country risk; the need to finance commercial trade deficits.

Values of merchandise exports and imports

(annual, 2005-2015)

This table shows the value of total merchandise exports and imports by economic grouping expressed in millions of dollars at current prices and current exchange rates in millions



Source: UNCTAD, 2017

Aggregate international trade versus GDP: billions US dollars

Year	*Global GDP*	*Global imports*	*Imports/ GDP percent*
1970	3,370.0	392.0	11.6
1975	6,253.7	1,064.2	17.0
1980	11,755.5	2,381.4	20.3
1985	12,888.1	2,338.1	18.1
1990	22,679.9	4,285.8	18.9
1995	29,302.8	6,199.8	21.2
2000	31,546.1	7,830.4	24.8
2005	43,886.0	12,509.3	28.5
2006	45,941.8	13,506.7	29.4

International trade of newly industrialized Asian economies: billions US dollars and relevant percents

Year	*Combined GDP*	*Combined imports*	*Imports/GDP percent*	*Combined exports*	*Exports/GDP percent*
1980	145.92	100.4	69	92.0	63
1985	211.66	119.1	56	130.5	62
1990	536.76	305.3	57	316.7	59
1995	1008.00	636.8	63	638.1	63
2000	1077.83	743.5	70	794.4	74
2005	1419.37	1089.1	77	1165.6	82
2006	1513.58	1205.4	80	1282.8	85

Note
Imports and exports form a very large fraction of GDP for the newly industrialized economies because they import and then re-export many goods. Only the value added from re-exported products contributes to the countries' GDPs.

Source: World Economic Outlook Database: WEO Aggregates, International Monetary Fund, 2007: <http://www.imf.org/external/ns/cs.aspx?id=29>

Increased importance of MCE

- Chapter 20 of Levi
- The UN estimates that there are more than 35,000 multinational corporations, with the largest 100 of these possibily being responsible for approximately 16% of the world's productive assets.
- MCE are responsible for FDIs (Foreign Direct Investment), which means producing directly abroad (instead of exporting in a foreign country).
- FDI is an hybrid between a real and a financial flow. Foreign direct investment reflect the objective of obtaining a lasting interest by a resident entity in one economy (''direct investor'') in an entity resident in an economy other than that of the investor (''direct investment enterprise'').
- The lasting interest implies a significant degree of influence on the management of the (direct investment) enterprise (the OECD definition: 10% of the ordinary shares or the voting power).

World's largest corporations, 2015

Rank	Company	Industry	Revenues ($b)	Employees	Country
1	Walmart	Retail	482	2.300.000	USA
2	State Grid	Electric Utility	330	927.839	China
3	Samsung	Conglomerate	305	319.000	South Korea
4	China Nat. Petroleum	Oil & Gas	299	1.589.508	China
5	Sinopec Group	Oil & Gas	294	810.538	China
6	Royal Dutch Shell	Oil & Gas	272	90.000	NED/GB
7	Exxonmobil	Oil & Gas	246	75.600	USA
8	Volkswagen	Automotive	237	610.076	Germany
9	Toyota	Automotive	237	348.877	Japan
10	Apple	Electronics	234	110.000	USA
11	BP	Oil & Gas	223	79.800	GB
12	Berkshire Hataway	Conglomerate	211	331.000	USA
13	Glencore	Commodities	170	102.388	Swiss
14	Industrial & Commercial Bank of China	Financial services	167	466.346	China
…	….	….	….	….	….
19	Exor	Financial services	153	303.247	Italy

Source: Forbes, 2017

Growth of Multinational Banking

- Chapter 22 of Levi

- Through the opening of representative offices, agencies, and branches and through the acquisition or establishment of subsidiaries, banking has become a truly multinational business.

- In the US more than 500 foreign banks had offices in 2004. By 2007, foreign banks owned 24% of total US banking assets.

- In most countries domestic and foreign banks compete normally on the market for deposits and loans. In order to protect the domestic banks, countries may put restrictions to the entry of foreign banks.

Factors behind Multinational Banking

Beyond those factors that contribute to the internationalization of business in general, there are specific factors that apply to banking.

1. *Market information*. To get useful and timely information on how markets develop the best is to operate locally.

2. *Borrower information*. To better assess the creditworthiness of your clients, the best is to get 'fresh' information on the spot and have regular contacts with your borrowers.

3. *Serving clients*. If your clients invest internationally, it may be best to 'follow' them in the foreign market and support their operations directly (not through a correspondent), otherwise you risk that your clients go to local banks.

4. *Custodial services*. Obtaining by clients the custody of stocks and bonds require physical proximity.

5. *Avoiding regulation*. Banks are the most regulated sector of the economy in every part of the world. By operating internationally banks try to avoid or soften regulation (reserve requirements, deposit insurance, reporting requirements, interest-rate ceilings, etc.)

How big are multinational banks

Bank	Country	Total assets $Bn	% of World GDP	% of USA GDP	% of EU GDP
ICBC	China	3.549	4.8	19.7	21.8
CCBC	China	2.981	4.0	16.5	18.3
Mitsubishi UFJ	Japan	2.901	3.9	16.1	17.8
Agricultural Bank of China	China	2.818	3.8	15.6	17.3
Bank of China	China	2.656	3.6	14.7	16.3
HSBC	UK	2.608	3.5	14.5	16.0
JPMorgan Chase	USA	2.466	3,3	13.7	15.1
BNParibas	France	2.417	3.3	13.4	14.8
Bank of America	USA	2.186	2.9	12.1	13.4
Japan Post Bank	Japan	2.022	2.7	11.2	12.4
Deutsche Bank	Germany	2.006	2.7	11.1	12.3
Credit Agricole	France	1.970	2.7	10.9	12.1
Mizuho FG	Japan	1.923	2.6	10.7	11.8
…	…	…	…	…	…
Unicredit	Italy	992	1.3	5.5	6.1

Source: Forbes, 2017

The Eurodollar Market

- Chapter 22 of Levi.
- Bank accounts in different currencies exist side-by-side in just about every financial center. In London you can open a bank deposit in € (a foreign currency in the UK) and obtain a loan in US $.
- *A Eurodollar deposit is a US dollar-denominated bank deposit outside the US.*
- ‘Offshore currencies’ is a generalization to all currencies that are treated in markets outside the country of origin of the currency.
- There are no reliable estimates of how big is the offshore currency market but it is certainly very big! As for domestic banking, offshore deposits may give rise to multiplier effect that raise the supply of global liquidity.

Factors behind the Growth of the Eurodollar Market

- During the 50s - Soviet Union $ deposits in British and French Banks, which were preferred to US banks by the soviets.
- During the 60s and 70s - Regulation Q put limitations on interest rates that US banks could pay on deposits. It became more convenient to deposit $ in banks outside the US, especially in Europe. Most US banks decided to open branches in the old continent.
- Regulation M imposed the keeping of reserves against deposits, which created another incentive for offshore operations.
- Interest equalization tax (1963-1974): a tax on US loans to foreigners, which made convenient to get loans on the eurodollar market to avoid the tax.
- Despite the removal of these restrictions, the eurodollar market continued to grow.
- Same factors (mostly avoiding regulatory restrictions) contributed to the growth of the offshore market for other currencies

Growth of cross border financial flows

- Parallel to trade, in the world war period and especially after the 70s there has been an enormous growth in cross border financial flows of all kinds: foreign investment in the money market (e.g. interbank market), the bond market, the stock market and the real estate market.
- The importance of foreign investment may overshadow that of domestic investments and investors (for instance the role of foreign investors is of crucial importance for the successful sales of US Treasury bills as well as Italian BOTs)
- There has been an explosion of internationally oriented financial products such as mutual funds, which can be globally or regionally diversified or focused on a single foreign country market.
- Fig. 1.1 Since the mid-70s Americans have increased their investments abroad by more than 10 times while non-US investors have increased their interest in US assets by 20 times.
- The US moved from being the largets net creditor to the largest net debtor in only a quarter of a century.
- Both advanced, emerging and developing economies are nowadays strictly dependent on foreign financing.

Benefits from international investment

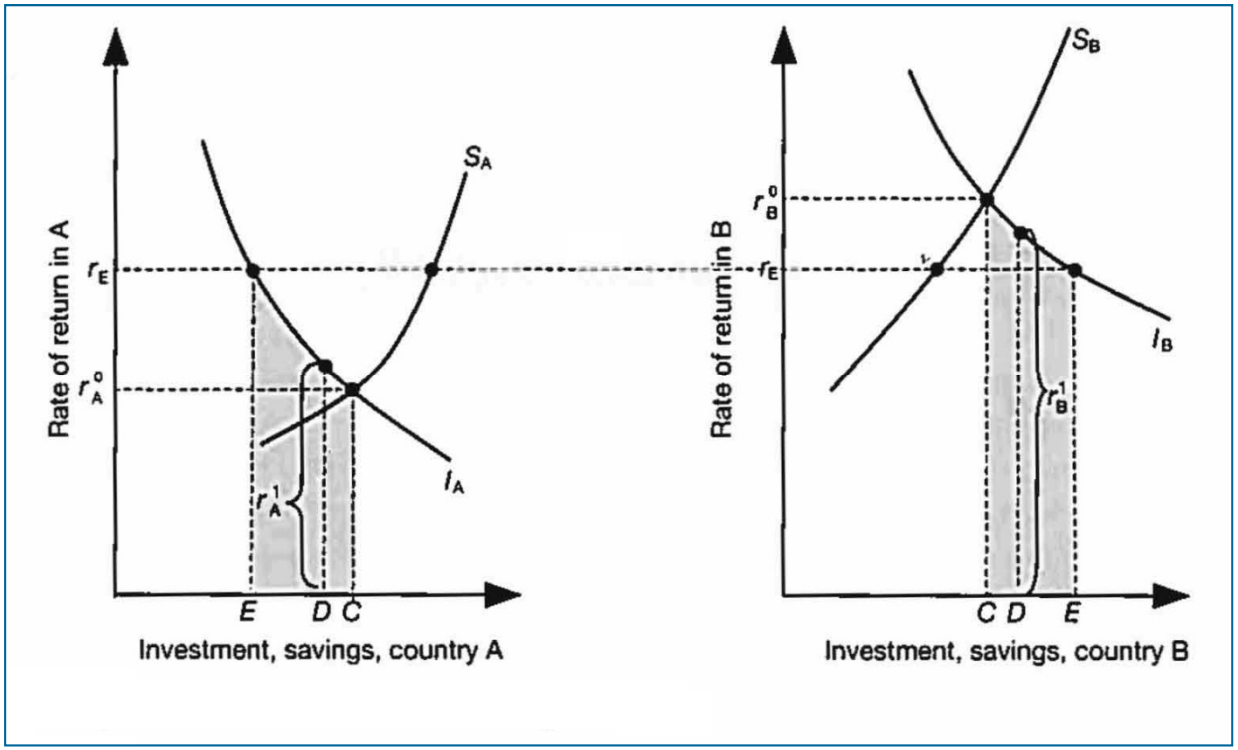
- **Micro perspective**: an investor can search for higher returns abroad (for instance investing in emerging market stocks and bonds) and better diversify risk than he could do by investing his savings only domestically.

- **Macro perspective 1**: finance can flow from high saving countries (typically the advanced economies), where returns are low, to the low saving ones where returns are normally higher (fig. 1B.1)

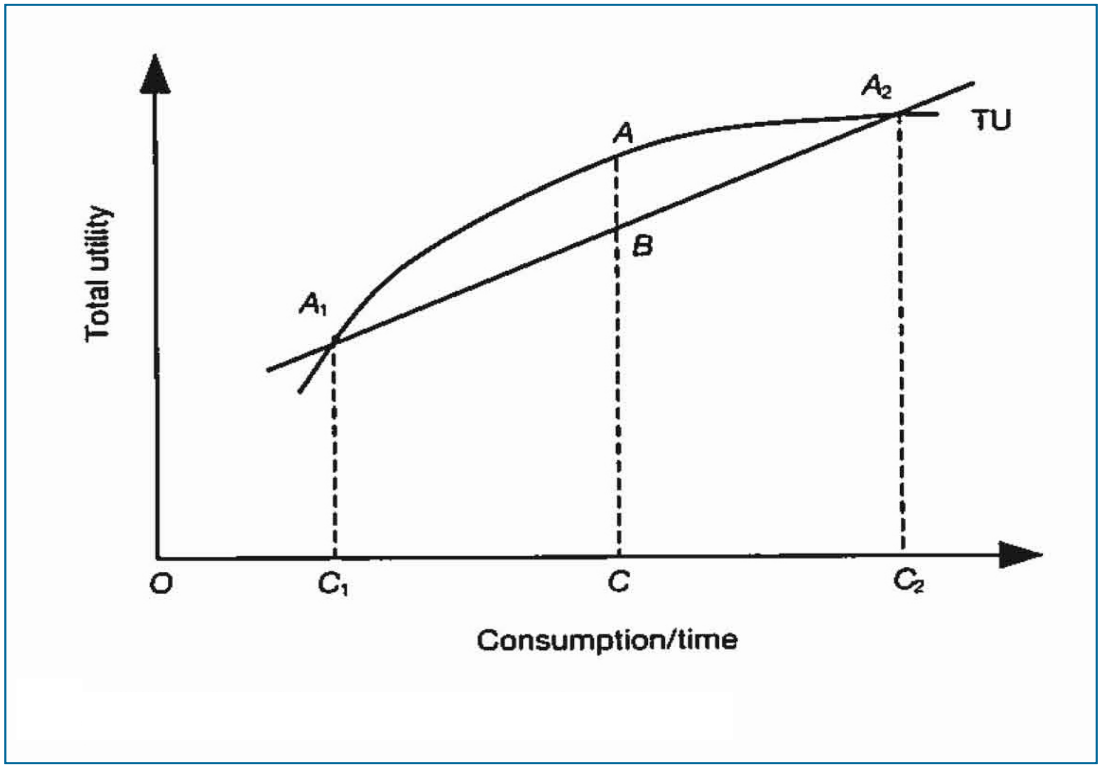
- **Macro perspective 2**: borrowing from abroad allows a country to smooth consumption over time (when national income is low and hence consumption is low, one can use foreign capital to keep consumption constant) (fig. 1B.2)

Investing internationally is better than investing only at home.

The gain from a better allocation of capital



Utility from different consumption patterns



Home bias

- We have seen that cross-border financial flows are very consistent and that international investment is indeed convenient from a micro and macro perspective…
- ..and yet investors from all over the world prefer domestic assets to foreign assets as empirical evidence shows, especially for the case of equities.
- This phenomenon is called ‘home bias’ and can (partly) be explained by: (i) legal restrictions to foreign investment, (ii) double taxation, (iii) informational asymmetries (investors normally have more information on domestic firms).
- None of these explanation is fully convincing, hence economists speak of a “home bias puzzle”.
- *Given the existence of a home bias, there is still much room for financial globalization!!!*

Home Bias in Equities in 2008 for Selected Countries

Source country	Domestic market in % of world market capitalization (1)	Share of portfolio in domestic equity in % (2)	Degree of equity home bias $= EHB_i$ (3)
Australia	1.8	76.1	0.76
Brazil	1.6	98.6	0.99
China	7.8	99.2	0.99
Canada	2.7	80.2	0.80
Euro Area	13.5	56.7	0.50
Japan	8.9	73.5	0.71
South Africa	1.4	87.8	0.88
South Korea	1.4	88.5	0.88
Sweden	0.7	43.6	0.43
Switzerland	2.3	50.9	0.50
United Kingdom	5.1	54.5	0.52
United States	32.6	77.2	0.66

$$EHB_i = 1 - \frac{\text{Share of Foreign Equities in Country } i \text{ Equity Holdings}}{\text{Share of Foreign Equities in the World Market Portfolio}}.$$

Financial Instability

- Financial instability is the ‘dark side’ of international finance. It may consist of:

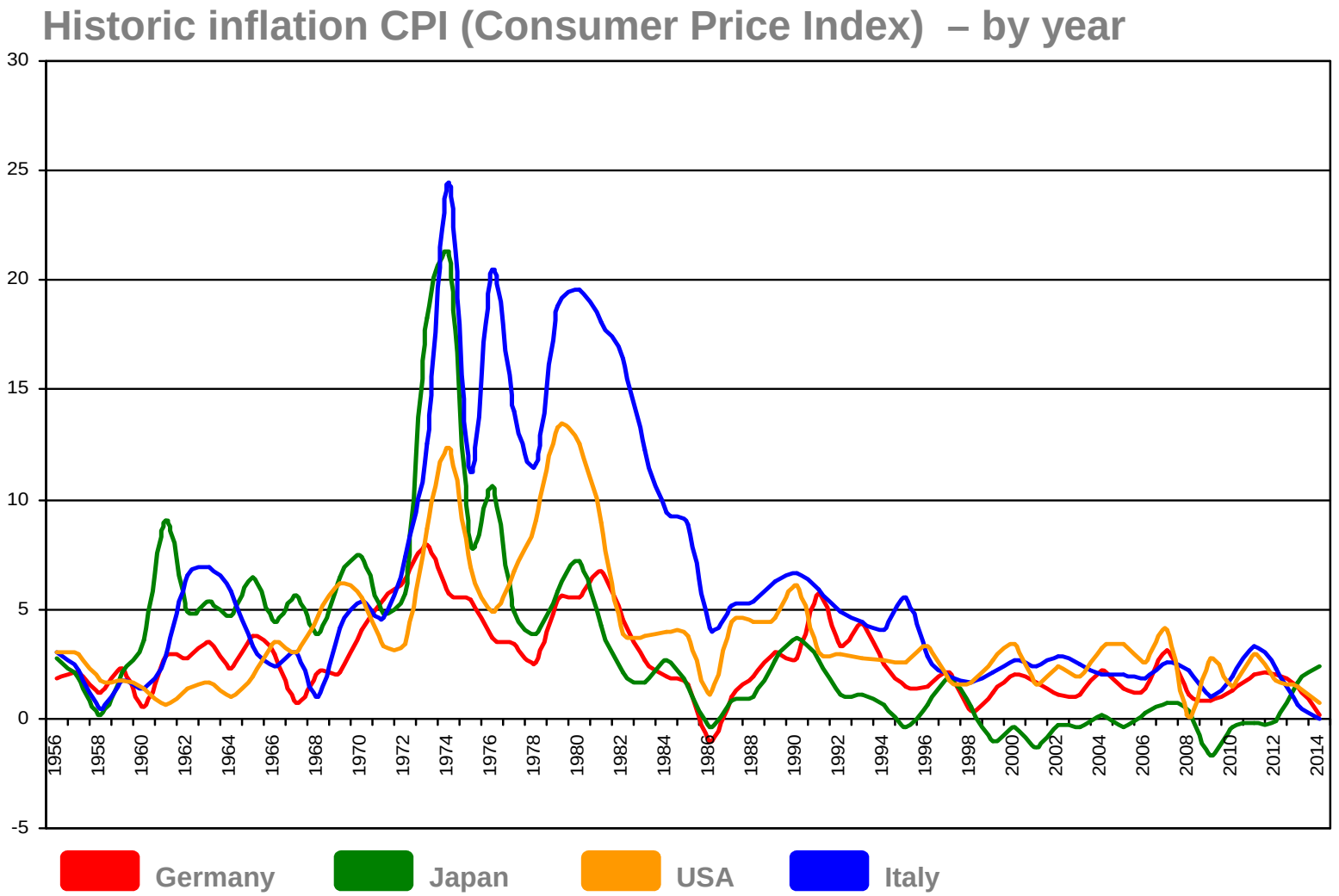
  - excess volatility of exchange rates (especially amongst major currencies) which can be disruptive for trade and financial flows;

  - excess volatility in stock and bond markets, which makes difficult to evaluate investments;

  - excess instability of financial flows, which can move from one country to another massively and with extreme rapidity giving rise to bubbles or financial crises having real economic consequences.

Euro Stoxx 50 Volatility

World slides toward deflation



Source: Eurostat 2015

Financial crises

In recent years heavily disruptive financial crises have dominated the scene of global finance and put into question the benefits from financial globalization.

- 1982 Latin American Debt Crisis
- 1992 ERM crisis
- 1994 Mexican crisis
- 1997 Asian Crisis
- 1998 Russian Crisis
- 2000/01 New Economy Bubble Burst
- 2001 Argentina’s financial crisis
- The Great Crisis 2007-2010
- Greece and the Euro Crisis 2011-2015

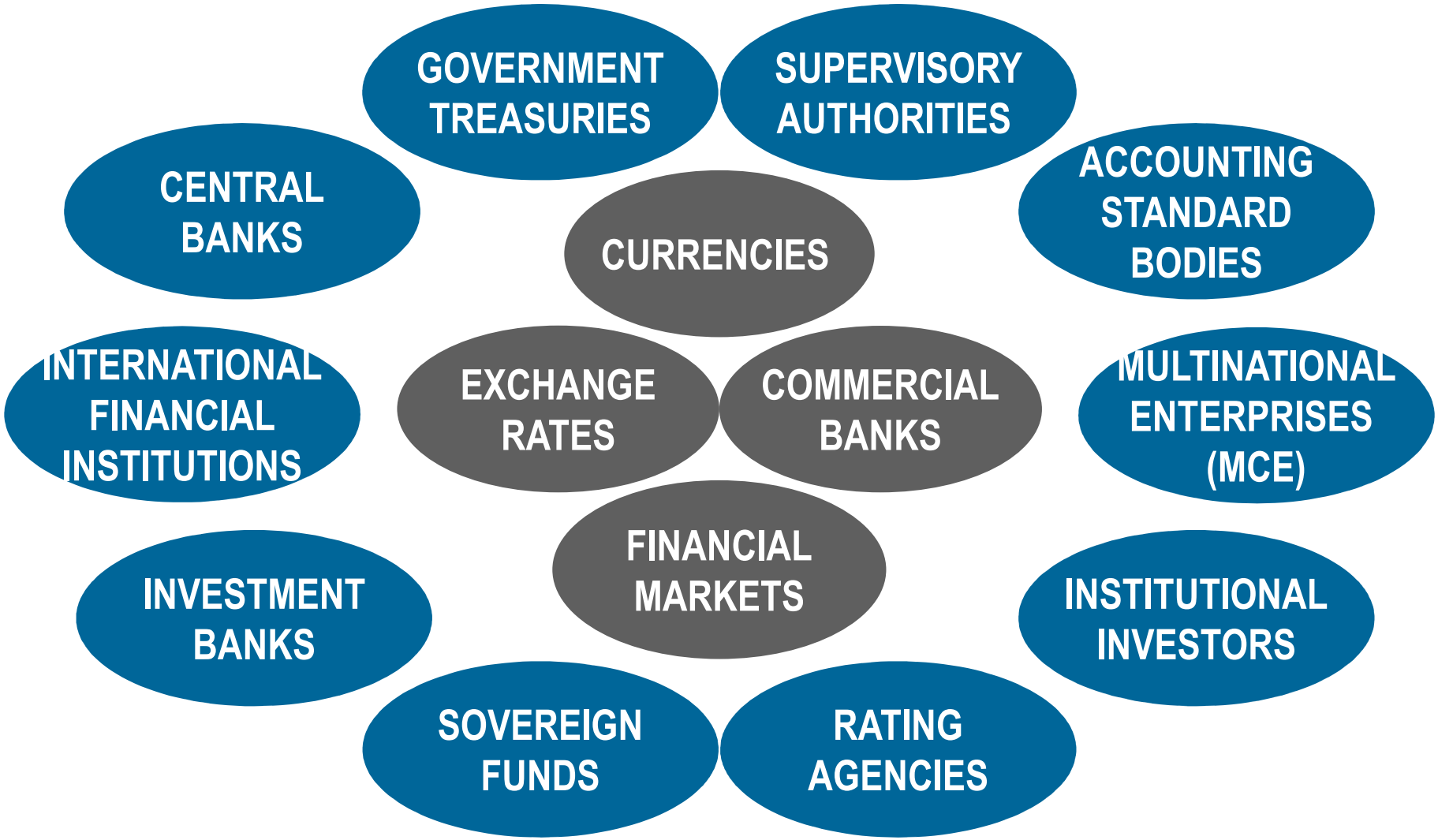
INTRODUCTION - **Part II**

Main notions and players in International Finance

Main components of global finance

- Currencies
- Market and policy variables (exchange rates, interest rates, risk, ratings)
- Assets/financial instruments (cash and deposits, bonds, stock, loans,
- Derivatives, insurance contracts, etc.)
- Players (international organizations, central banks, supervisory authorities, accounting standard setting bodies, rating agencies, commercial and investment banks, institutional investors, sovereign funds, MCEs, financial lobbies, etc.)
- Markets: the (physical or virtual) places or ‘centres’ where financial transactions take place

The Global Financial System



A world of currencies

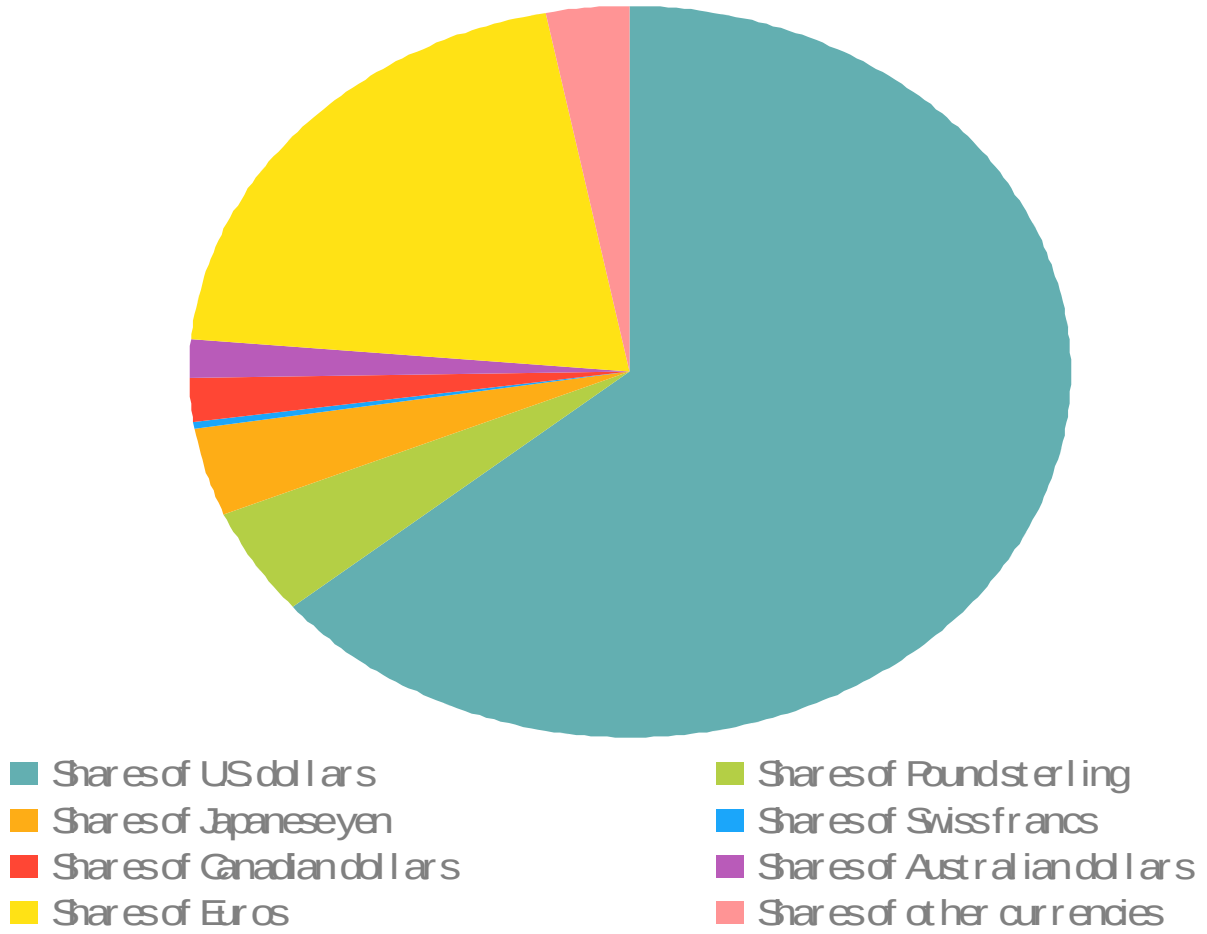
- When dealing with IF one has to face the problems of having different currencies and how to exchange one for another (through exchange rates).
- The number of national currencies remains very high notwithstanding 18 national currencies have disappeared with the introduction of the euro.
- Not only money and bank deposits but also financial assets are denominated in a national currency.
- ***Reserve currencies*** are those mostly used in international transactions (US $, Euro, yen, once the British pound).
- The US $ is still used to price oil.
- Central banks normally hold relevant quantities of reserve currencies to use in the money and exchange markets for their operations in addition to ***gold***.
- The ***IMF Special Drawing Rights*** (SDR) is an international currency albeit it is not physical but only serves as an accounting unit.
- The US $ still accounts for 60% of all international reserves (Table on distribution of international reserves)

World Currency Composition of Official Foreign Exchange Reserves

	2014Q1	2014Q2	2014Q3	2014Q4	2015Q1	2015Q2	2015Q3	2015Q4	2016Q1	2016Q2	2016Q3
Total Foreign Exchange Reserves	**11.851.372,89**	**11.985.747,62**	**11.761.669,28**	**11.594.618,22**	**11.439.259,12**	**11.463.441,30**	**11.191.576,25**	**10.926.932,87**	**10.933.872,29**	**10.973.444,34**	**11.009.220,95**
Allocated Reserves	**6.247.122,23**	**6.320.397,73**	**6.191.460,56**	**6.086.972,87**	**6.072.199,50**	**6.669.153,72**	**6.608.046,59**	**6.817.306,69**	**7.189.958,09**	**7.498.815,21**	**7.797.853,50**
U.S. dollars	3.811.620,03	3.858.073,58	3.882.841,18	3.855.329,16	3.905.977,57	4.251.537,04	4.239.623,54	4.374.204,23	4.601.512,39	4.787.500,53	4.934.415,16
Euros	1.507.667,90	1.504.840,35	1.380.517,80	1.332.821,93	1.248.645,44	1.360.799,97	1.331.703,48	1.345.060,26	1.448.758,24	1.498.028,48	1.581.982,00
Pounds sterling	241.337,20	244.755,56	237.853,02	230.575,72	236.937,31	313.704,60	311.915,56	331.382,23	342.669,03	348.883,53	350.833,08
Japanese yen	245.510,37	254.134,60	243.178,11	237.179,32	254.701,25	255.713,31	248.599,51	274.767,91	280.524,86	328.818,85	349.703,10
Canadian dollars	117.065,92	125.807,36	119.983,56	115.051,65	111.373,75	126.274,20	122.384,01	127.649,63	136.210,41	143.999,31	156.296,69
Australian dollars	118.566,66	121.412,27	116.289,95	108.532,89	105.039,30	127.090,06	119.980,72	130.999,28	133.464,65	138.019,30	151.332,88
Swiss francs	16.526,61	17.013,04	15.919,78	16.344,57	17.774,69	21.385,95	18.271,11	19.770,12	14.383,50	15.295,90	15.858,15
Other currencies	188.827,55	194.360,97	194.877,15	191.137,63	191.750,19	212.648,60	215.568,65	213.473,03	232.435,01	238.269,31	257.432,45
Unallocated Reserves	**5.604.250,66**	**5.665.349,89**	**5.570.208,72**	**5.507.645,34**	**5.367.059,62**	**4.794.287,57**	**4.583.529,66**	**4.109.626,18**	**3.743.914,20**	**3.474.629,13**	**3.211.367,45**
Shares of Allocated Reserves	**52,71**	**52,73**	**52,64**	**52,50**	**53,08**	**58,18**	**59,04**	**62,39**	**65,76**	**68,34**	**70,83**
U.S. dollars	61,01	61,04	62,71	63,34	64,33	63,75	64,16	64,16	64,00	63,84	63,28
Euros	24,13	23,81	22,30	21,90	20,56	20,40	20,15	19,73	20,15	19,98	20,29
Pounds sterling	3,86	3,87	3,84	3,79	3,90	4,70	4,72	4,86	4,77	4,65	4,50
Japanese yen	3,93	4,02	3,93	3,90	4,19	3,83	3,76	4,03	3,90	4,38	4,48
Canadian dollars	1,87	1,99	1,94	1,89	1,83	1,89	1,85	1,87	1,89	1,92	2,00
Australian dollars	1,90	1,92	1,88	1,78	1,73	1,91	1,82	1,92	1,86	1,84	1,94
Swiss francs	0,26	0,27	0,26	0,27	0,29	0,32	0,28	0,29	0,20	0,20	0,20
Other currencies	3,02	3,08	3,15	3,14	3,16	3,19	3,26	3,13	3,23	3,18	3,30
Unallocated Reserves	**47,29**	**47,27**	**47,36**	**47,50**	**46,92**	**41,82**	**40,96**	**37,61**	**34,24**	**31,66**	**29,17**

Source: International Financial Statistics (IFS), 2016

World –Allocated Reserves by Currency (in Percent)

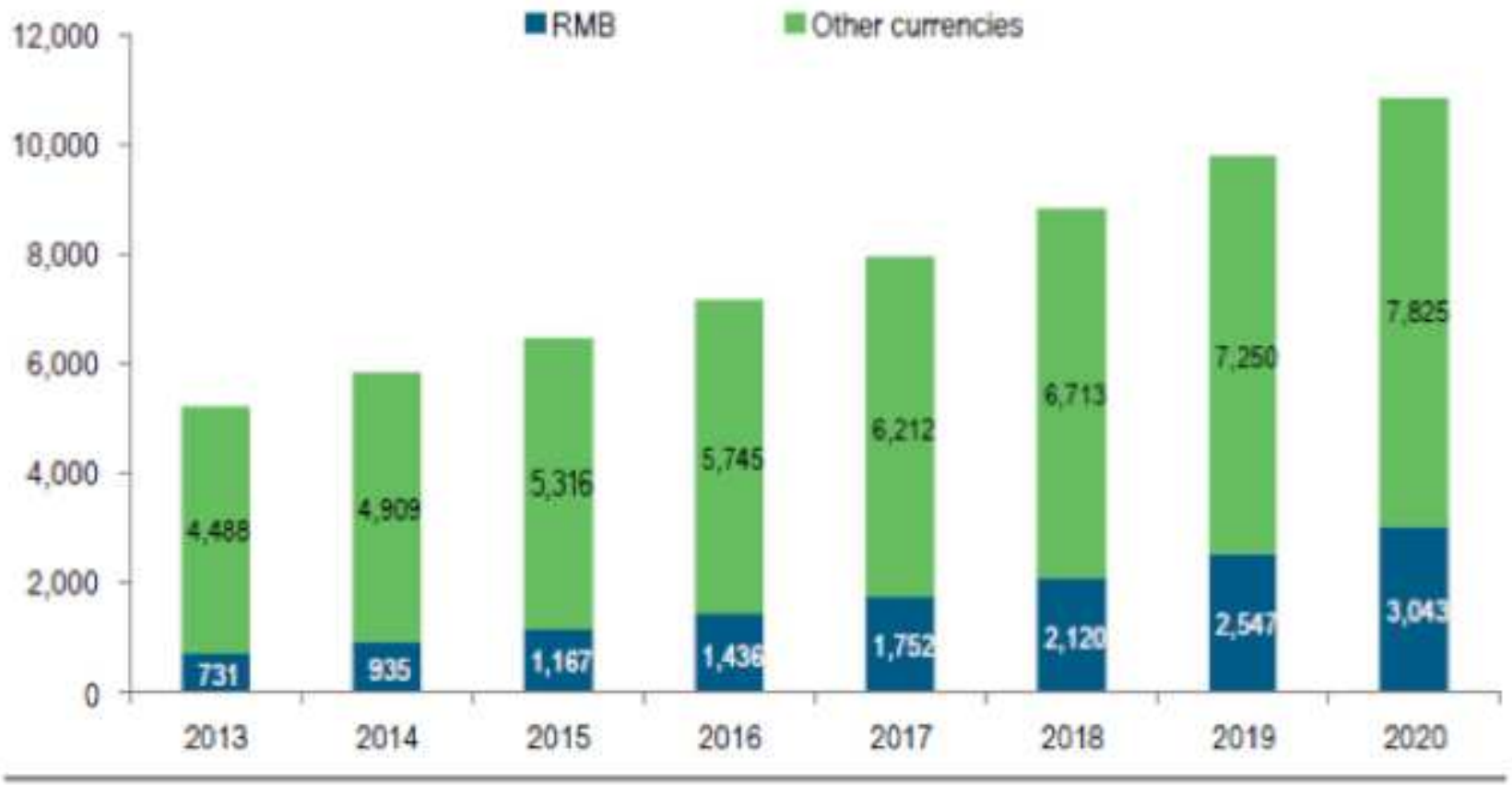


Source: IMF, 2016

The rise of Renmimbi as an International Currency

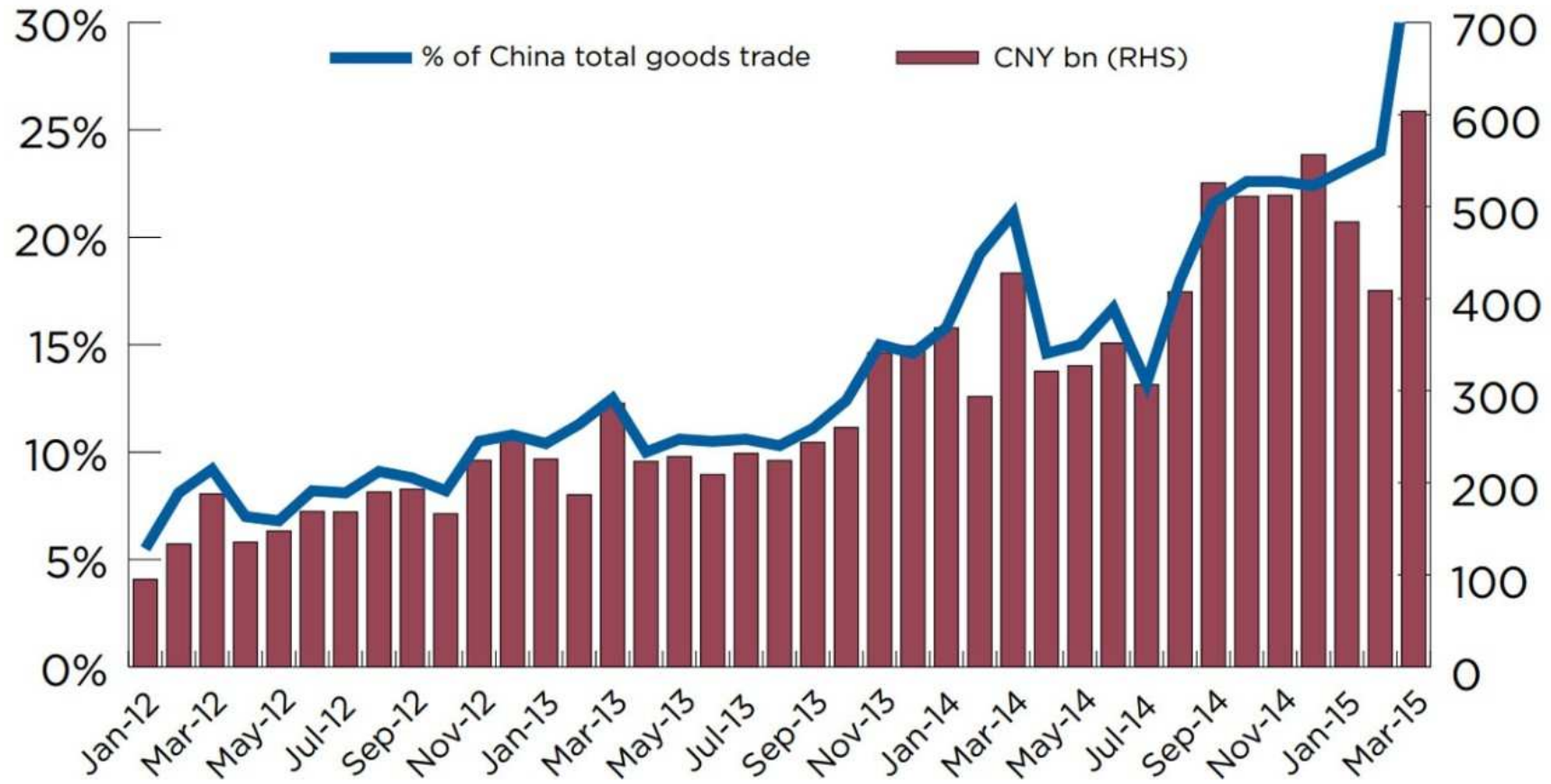
Share of Renminbi trade settlement set to double by 2020

China total trade projection by currency (USD bn)



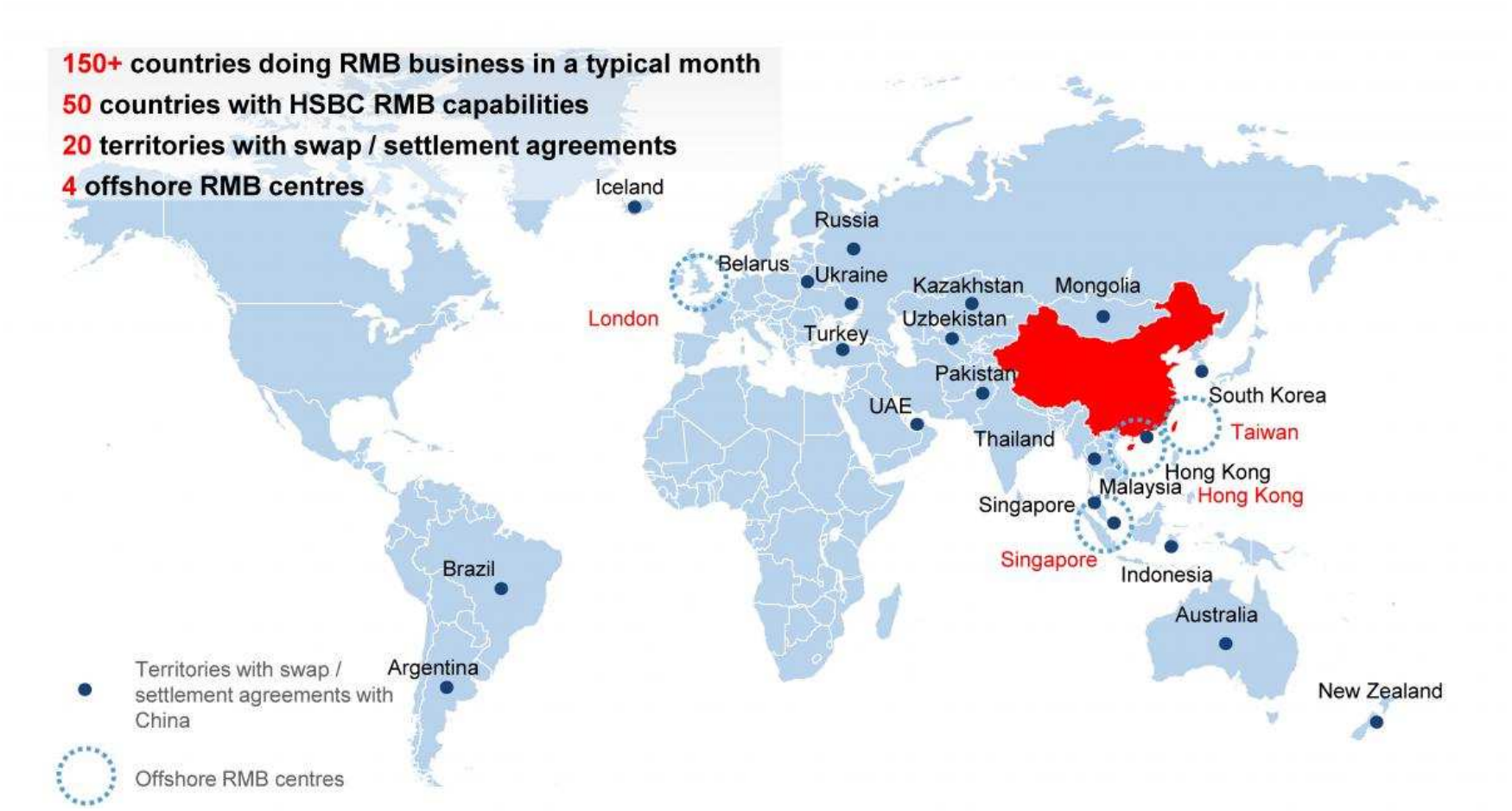
Source: Standard Chartered Research

China Total Goods Trade settled in Renminbi



Source: HSBC

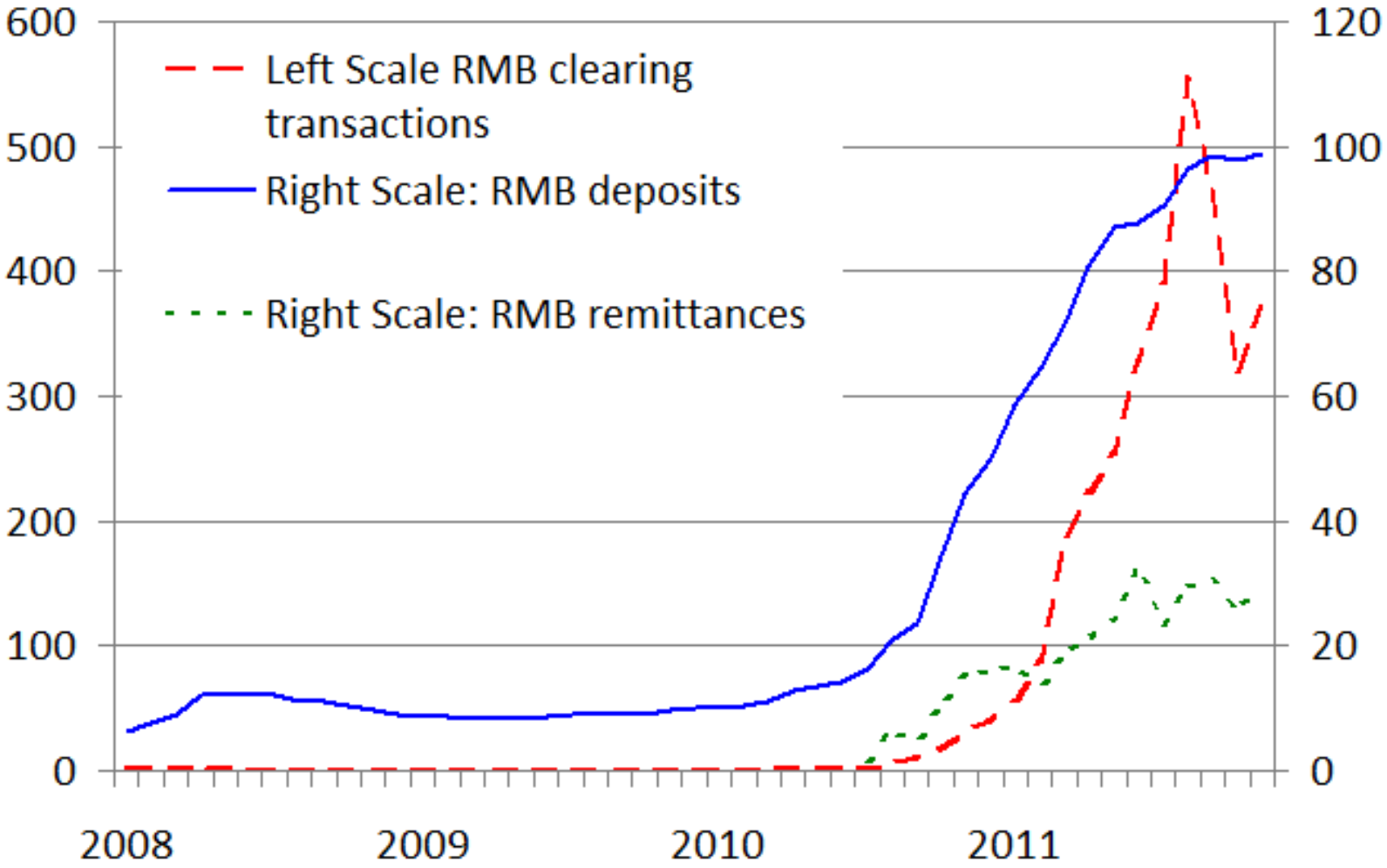
The Internationalization Of The Renminbi



Source: HSBC

Renminbi offshore developments

(in billions of US dollars)



Source: Monthly data from CEIC and the Hong Kong Monetary Authority

Gold

- Gold still represents an important share of international reserves (see IMF statistics).

- Most of gold is held by central banks and the IMF but private institutions like investment funds also have gold in their asset portfolios.

- The US and most European countries hold more than 70% of their foreign reserves in gold bars.

- *Why is gold so important?*

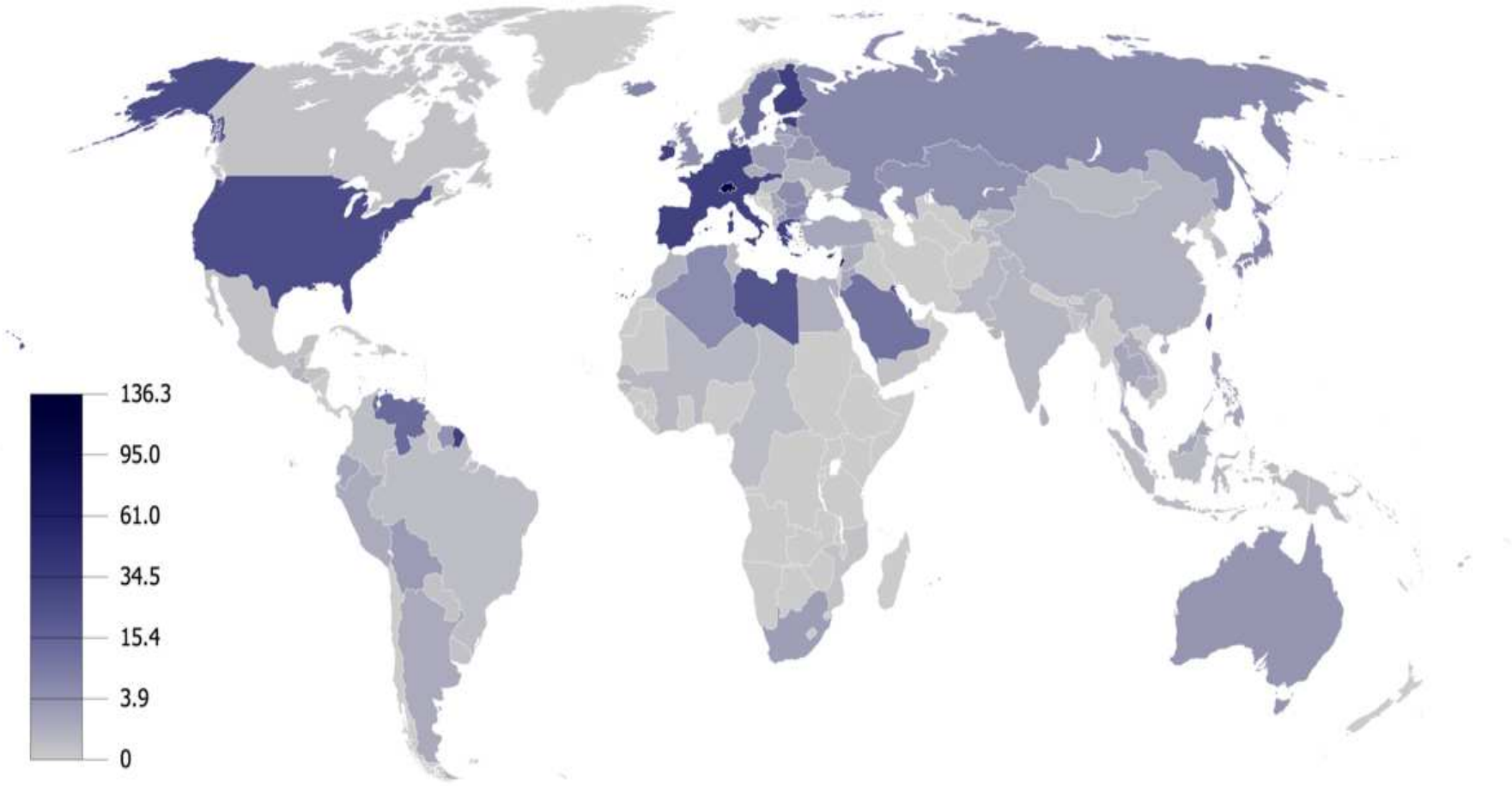
- Gold still represents an important store of value. Albeit its price changes daily on a market basis, its value does not depend on ‘trust’ like in the case of currencies.

Gold Reserves

International Financial Statistics, February 2017

Rank	Country/Org.	Gold holdings (in tonnes)	% of reserves
1	USA	8,133.5	73,8%
2	Germany	3,377.9	67,6%
3	IMF	2,814.0	
4	Italy	2,451.8	66,8%
5	France	2,435.8	61,5%
6	China	1,842.6	2,2%
7	Russia	1,615.2	15,2%
8	Switzerland	1,040.0	5,6%
9	Japan	765.2	2,3%
10	Netherlands	612.5	62,8%

Gold reserves per capita



Exchange rates

- Exchange rates determine the rate of change in the market of a currency with another (or with gold).
- The US $/euro exchange rate is the number of $ units that are needed to get 1 euro.
- When left to market forces exchange rates may vary considerably and even abruptly.
- When the euro was introduced on Jan. 1 1999 its value was initially set at 1.17$ but at the beginning of 2002 it went to 0.85$. Its quotation is now around 1.06$*.
- Most countries define their exchange rate in ‘direct terms’, that is ‘units of national currency against 1unit of a foreign currency’ (UK is an exception). This is sometimes called ‘uncertain for certain’.
- One has always to make sure of what is the currency at the numerator and which one at the denominator

**February 16, 2017*

Chinese Renmimbi Vs. Dollar, Euro, Yen, Won

Fixed vs flexible exchange rates

- The determination of an exchange rate may be left to market forces (demand and supply of currencies) or may be fixed in terms of another currency or benchmark (e.g. gold). What ‘regime’ to chose is a political decision.
- Before WWI, exchange rates were internationally set in terms of gold and were thus fixed (gold standard), not left to market forces.
- After WWI till 1971-73 exchange rates were fixed in terms of the US $ which was the dominant reserve currency.
- In the present ‘system’ we observe a large variety of exchange rates regimes (a non-system?). Flexible regimes are as much frequent as fixed regimes.
- There is no theoretical or empirical evidence that a given regime is better than another (in terms of growth and employment creation or in terms of financial stability)
- The exchange rates of the major reserve currencies are left to market forces

Relevance of exchange rates

- Exchange rates lie at the heart of IF.
- The ‘interbank foreign exchange market’ (i.e. the market where international banks exchange deposits in different currencies) is the largest financial market in the world, with an average turnover of $4 trillion per day.
- The changes or levels of an exchange rate have important effects on sales prices and costs of imported goods and raw materials and hence influence the profits of importers and exporters (see Exhibit 1.1 Currency matters: corporate experiences)
- They influence a country’s BoP and inflation rate through the valuation of exports and cost of imports especially of oil and raw materials.
- They may be related to the persistence of external imbalances at the global level (consider the debate on the overvaluation of chinese yuan).

Some taxonomy on exchange rates

- ***Exchange rate 'regime'***: is the type of criterion that a country choses to set the value of its exchange rate, whether flexible (i.e. determined by market forces) or fixed or any other form between these two extremes.
- ***Exchange Rate 'System'***: refers to an agreement by which some countries, in a region or at the global level, set their (reciprocal) exchange rates according to a given mechanism (e.g. the Bretton Woods System of exchange rates 1944-1973).
- ***Devaluation/Revaluation***: a fixed exchange rate that is devalued/revalued by the country's authorities (the exchange rate parity is revised).
- ***Depreciation/Appreciation***: a flexible exchange rate that registers a depreciation/appreciation on the foreign exchange market.

More on exchange rates

Prof. A. Ziliotto

- Spot and forward rates, ask and bid spread
- Banks, brokers and typologies of foreign exchange makets
- Interbank market and SWIFT
- Triangular arbitrage
- Swaps
- Currency futures and options contracts
- Etc, etc.

Interest rates

See also:

- The relationship between spot, forward and money market rates

- FX parity conditions and their deviations

- Interest rates are another fundamental factor of IF. They influence in a significant way cross border financial flows searching for the best risk/return combinations.
- Interest rates indicate the returns on financial assets and vary according to the degree of liquidity and the risk embedded in each asset (bank deposits, corporate bonds, treasury bonds, investment funds, etc)
- Market interest rates vary on a daily basis but are influenced by the ‘policy’ rates set by the monetary authorities. These are the rates at which central banks lend money to the commercial banks (e.g. the FED overnight rate).
- Economic theory has paid a lot of attention to the equilibrium level of interest rates in an international economy (interest parity conditions, Chapter 6)

Federal Funds Rate

Banks hold the reserve requirement either at their local Federal Reserve branch office or in their vaults. If a bank is short of cash at the end of the day, it borrows from a bank with extra money. The Fed funds rate is the rate that banks charge each other for overnight loans to meet these reserve balances. The amount lent and borrowed is known as the Fed funds.

The Federal Reserve, through its Federal Open Market Committee (FOMC), targets a particular level for the Fed funds rate.
It uses open market operations to push the Fed funds rate to its target. If it wants the rate lower, the Fed purchases securities from its member banks. It deposits credit onto the banks' balance sheets, giving them more reserves than they need. That means the banks need to lower the Fed funds rate to lend out the extra funds to each other.

When the Fed wants rates higher, it does the opposite. It sells its securities to banks, removing funds from their balance sheet, giving them fewer reserves. That allows them to raise rates.

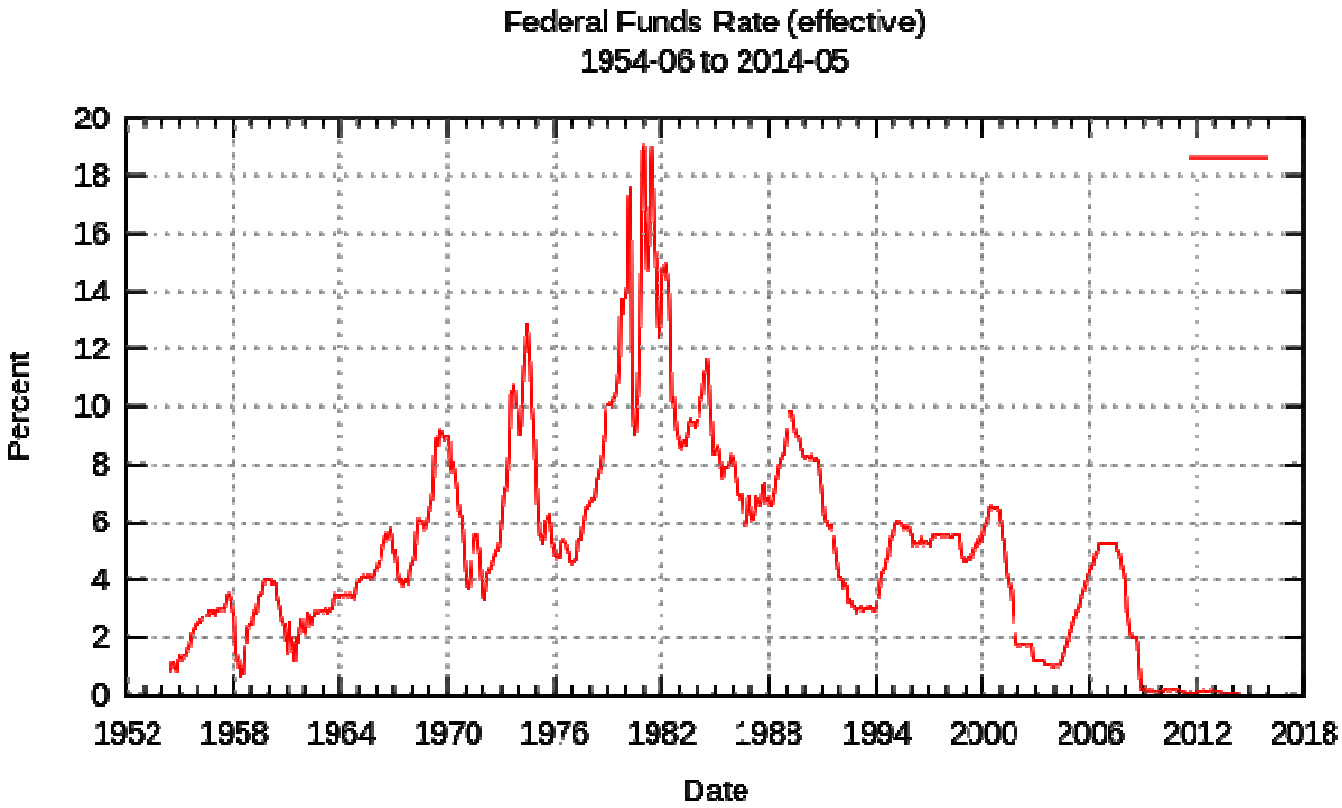
Federal Funds Rate

The current Fed funds rate is targeted to be between 0.50% and 0.75%. The FOMC raised it on December 15, 2016.

The Fed uses the Fed funds rate as a tool to control U.S. economic growth. That makes it the most important interest rate in the world. Banks use the Fed funds rate to base all other short-term interest rates. That includes LIBOR, which is the interest rate that banks charge each other for one-month, three-month, six-month, and one-year loans, and the prime rate, which is the rate banks charge their best customers. That's how it also affects interest rates paid on deposits, bank loans, credit cards, and adjustable-rate mortgages.

Longer-term interest rates are indirectly influenced. Usually, investors want a higher rate for a longer-term Treasury note. The yields on Treasury notes drive long-term conventional mortgage interest rates.

Federal Funds Rate-Historical chart



How the Fed Uses It to Control the Economy

The FOMC changes the Fed funds rate to control inflation while maintaining healthy economic growth. The FOMC members watch economic indicators to determine if the economy is speeding up (inflation) or slowing down (recession). The key indicator for inflation is the core inflation rate. The most important indicator in predicting a slowdown is the durable goods report.

Interest rates and financial crises

- An inappropriate ‘level’ of some (reference) interest rates may be at the root of a financial crisis (interest rates reflect the ‘stance’ of monetary policy).
- When interest rates are too high on a reserve currency, this may cause financial problems in the periphery:
  - the Latin American crisis in 1982 was (also) due to the change in monetary policy operated by Paul Volcker
  - the ERM crisis in the early 90s was (also) a consequence of the Bundesbank policy of high interest rates (after German Unification)
- When interest rates are too low for a sustained period they are also a cause for concern as they may reflect too much liquidity in the system that in turn leads to inflation and/or a lax credit policy).
- Greenspan legacy: In autumn 2001, as a decisive reaction to the September 11 attack and various corporate scandals which undermined the economy, the Greenspan-led Federal Reserve initiated a series of interest cuts that brought down the Federal Funds rate to 1% in 2004. Most critics attribute the rapid rise in commodity prices and asset inflation as well as a weak dollar to Greenspan's loose monetary policy.

Risk

See also:
Working within an international context: arising risks and available mechanisms for hedge

- Interest rates vary according to the degree of risk embedded in financial assets. The higher the risk for the lender or the investor to get his money back, the higher the interest rate that he demands.

- International investors face all kinds of risk that are typical in the activity of lending/borrowing money: i.e. credit risk, operational risk, etc. *What kinds of (additional) risks an international investor face?*

- **Exchange rate risk**: when investing in an asset denominated in a foreign currency, the exchange rate prevailing at the end of the investment period is going to affect significantly the final return. Ex. An European investor buying US Treasury bonds at $/€=1.2 will sustain a reduction in his return if at the end of the period $/€=1.3 (the dollar has depreciated vis-à-vis the euro).

- **Country risk**: the risk that a country may default (totally or partially) on its foreign obligations due to economic, political or social problems. Ex. In Europe a measure of country risk is given by the **spread** between returns on Government bonds using German bonds as the risk-free benchmark.

- Exchange rate risk and country risk are normally (positively) related. The higher the probabilty that a country may default on its debt, the higher the risk of a devaluation/depreciation of its currency (e.g. Argentina's 2001 default).

Exchange Rate Risk

A European Investor wants to buy US Treasury Bonds, which offer a yearly return of 10%.

He has 100 € to invest and the exchange rate is **$/€ = 1**

Therefore, he exchanges his 100 euro in $ and buys $100 of US Treasury Bonds.

At the end of the period he gets back his capital plus interest, **hence = $110**.
In $ terms, he has earned $10.

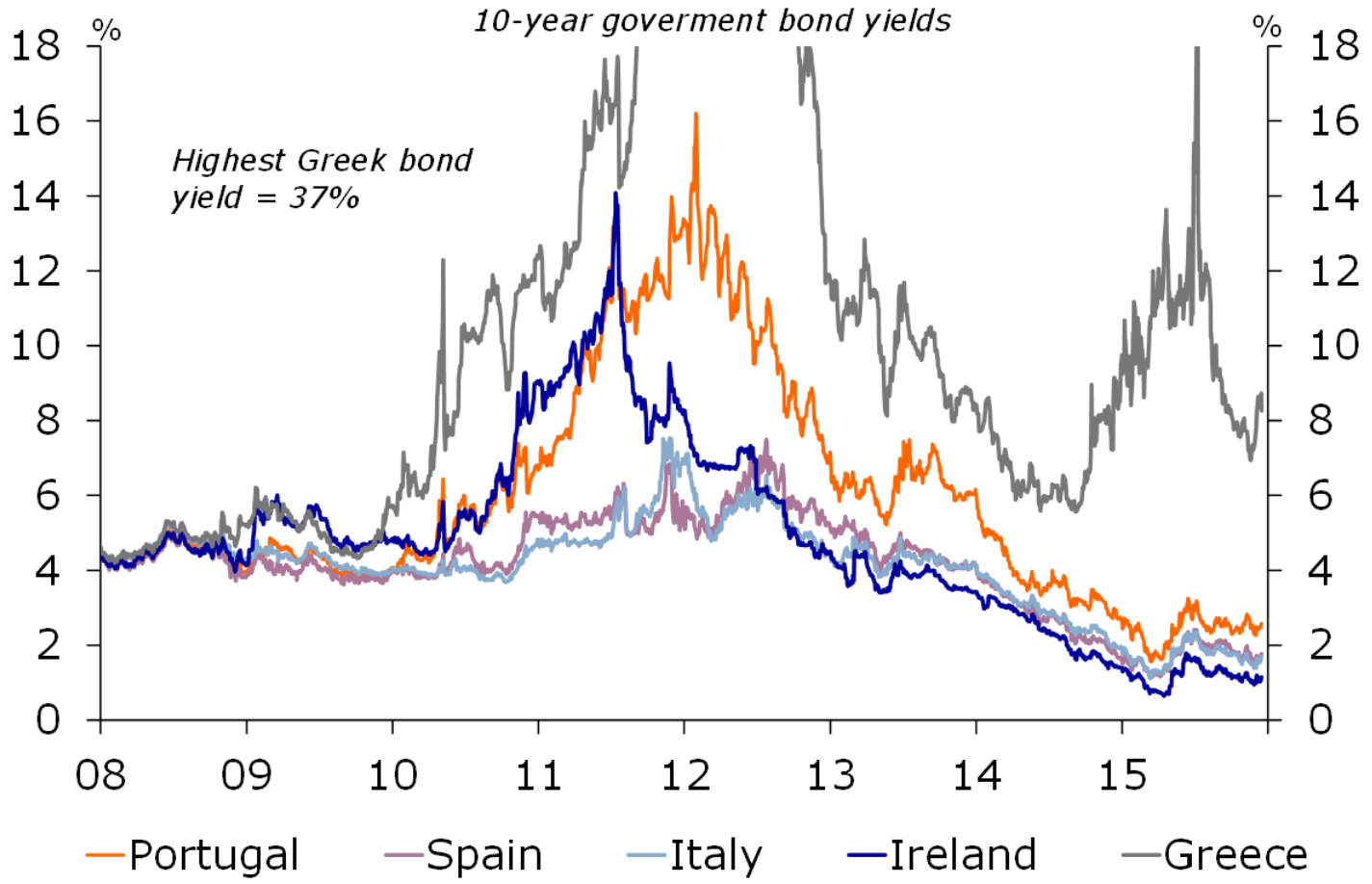
However, our investor lives in Europe and he is therefore interested in having his money back in euros. To this aim, he will have to convert the $110 in euros

Assume that in the meantime the dollar has depreciated by 10% vis-à-vis the euro. **Hence $/€ = 1,1**

His total capital in euros will then be: **110/1,1=100** which means that in

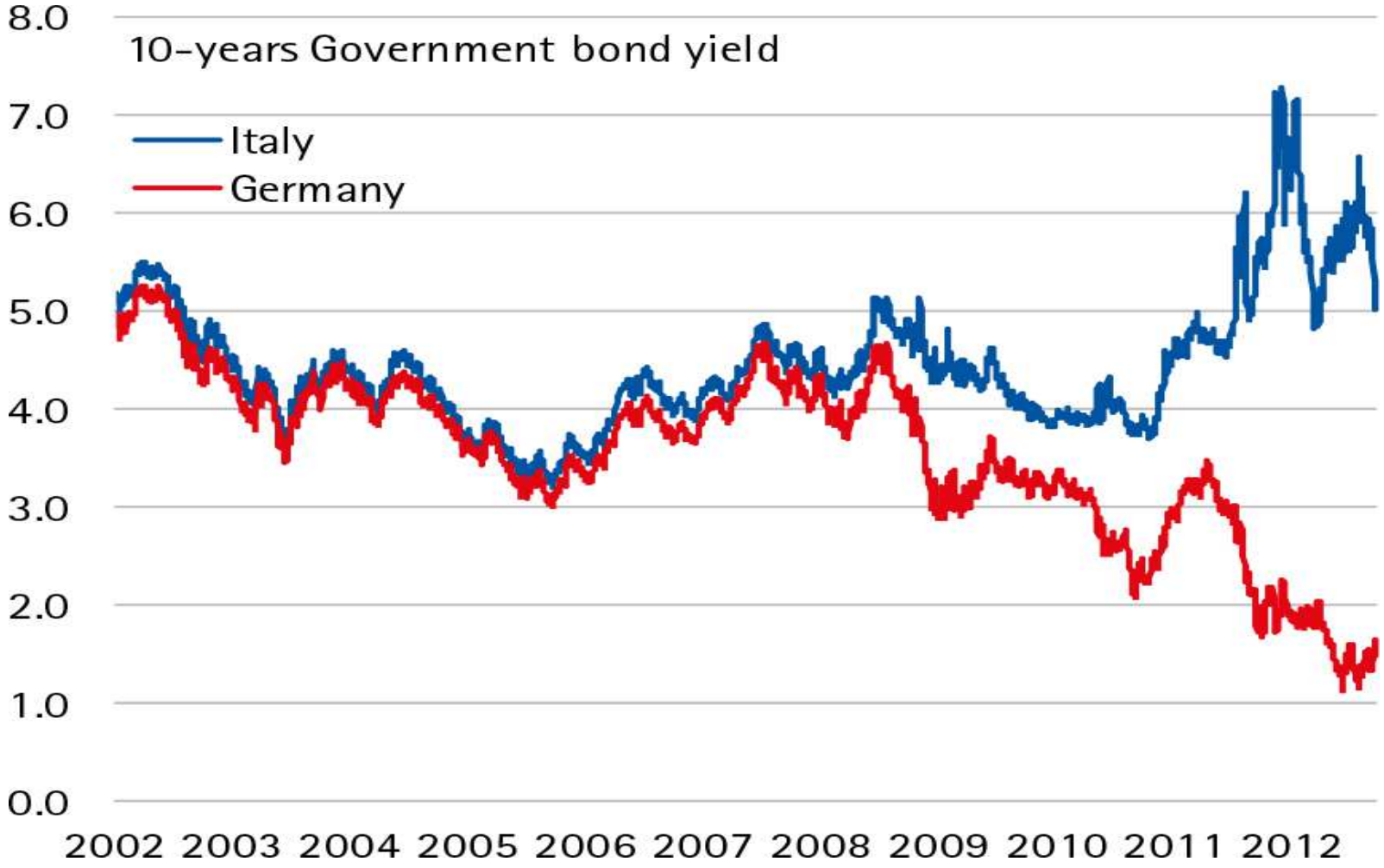
'real' terms his return is **zero**!!!

Yields and spreads relative to the German Bund for some euro area countries



Source: Rabobank, 2016

10-years Government bond yield Italy Vs Germany



Source: Thomson Reuters data

Risk aversion

Individuals and investors are normally ***risk adverse***. There a two fundamental ways to cope with risk.

1. ***Diversification***: *an international investors has additional opportunities compared to a domestic investor as he can diversify his portfolio over a much larger number of assets, countries and regions of the world.*

2. ***Hedging*** *(especially against ex. rate risk): special types of contracts designed to enable investors as well as importers and exporters to cover the risk of unexpected changes in exchange rates (Chapter 15, Prof. Ziliotto).*

Systemic Risk

- SR is the risk that a crisis may involve an entire region or even the global economy.
- A systemic crisis can originate in a single country (or region) and spill over to the entire system through various financial and real channels (‘contagion’ or ‘domino’ effect).
- The financial system with its multiple links is a major channel of transmission of shocks.
- In a systemic crisis rational behaviour – like running away from too risky assets or countries – may be heightened by irrational components (herding or panic).
- Financial globalization has hightened systemic risk.
- Large financial institutions (like Lehman Brothers) may be ‘too large to fail’ and hence be classified as ‘systemically’ important.

Systemic risk in the globalized economy is drawing a lot of attention on the part of both economists and policy makers.

Commercial Banks

See also: ***International finance and the global economy***

- Commercial (or deposit) banks are at the centre of global financial system. Virtually any financial transaction involves a commercial bank.
- To buy a stock or a bond, a capital good or an apartment, to exchange currencies or making a loan, you have always to do with a commercial bank and move money in and out of your deposit.
- Systemick risk (at the local or wider level) is intrinsic to commercial banking. Hence, it is not by chance that commercial banks are the most regulated sector in any economic system!
- Banks are supervised by banking authorities that have special skills and not necessarily coincide with the national central banks, whose main purpose is to provide liquidity.
- Prudential supervision is the dominant approach in dealing with financial instability. Banks have to respect some minimum capital requirements as a proportion of their total assets. This capital provides a buffer in the case of crisis.

Investment Banks

- Investment banks are involved in the business of raising capital for companies. They sell securities to public investors in order to raise cash and these securities can come in the form of stocks or bonds.
- Full-service investment banks usually provide both advisory and financing banking services, as well as the sales, market making, and research on a broad array of financial products including equities, credit, rates, currency, commodities, and their derivatives.
- The difference between how a typical investment bank and a typical commercial bank operate is simple: a commercial bank takes deposits for checking and savings accounts from consumers while an investment bank does not.
- The biggest full service investment banks include Bank of America, Barclays Capital, Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs, JPMorgan Chase, Lazard, Morgan Stanley, Nomura Securities, UBS, Wells Fargo Securities.

Top 10 Investment Banks by Revenue

Company	Revenue ($B)
Goldman Sachs & Co.	28,8
Morgan Stanley	32,4
JP Morgan	97,2
Bank of America Merill Lynch	94,4
Citi	78,3
Wells Fargo	86,1
Barclays	50,2
Deutsche Bank	42,9
Credit Suisse	27,1
UBS	29,6

Source: Financial Times, Bloomberg, 2016

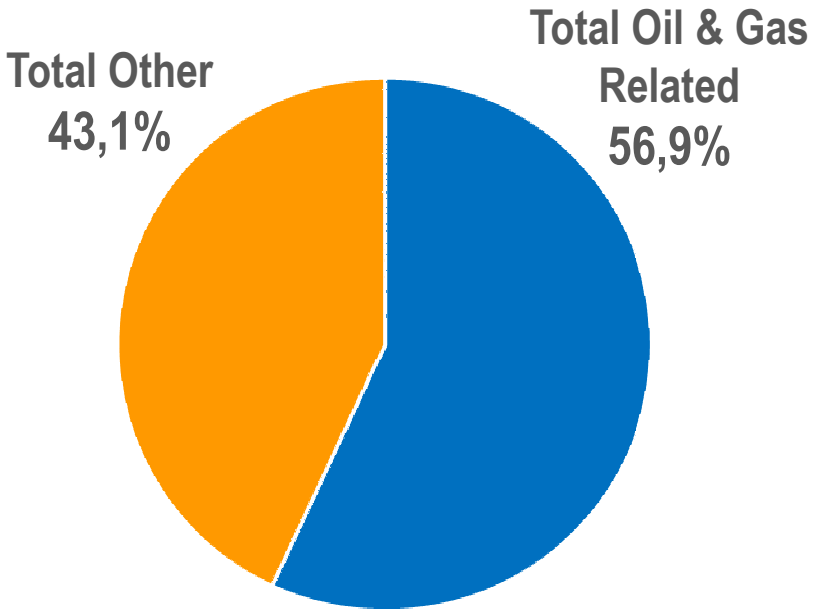
Institutional Investors

- This category refers to a variety of entities that intermediate savings: insurance companies, pension funds, mutual funds, hedge and speculative funds, etc. etc.
- They manage huge pools of money and have no less influence than banks in affecting financial markets and the global economy.
- Institutional investors may invest in all kinds of assets, from real estate to the most complex financial instruments depending on their specific mandate. Some have a more long-term perspective (like pension and insurance funds), others are more short-term oriented (like hedge and speculative funds).
- As shareholders, institutional investors can play important roles in the *governance* of large corporations and be entitled to voting rights.
- Institutional investors play a vital role in capital markets as they diversify portfolios across asset classes, economic sectors, countries, and regions of the world. However, as they move huge flows of funds, they can exert a daunting influence on financial markets and the real economies.

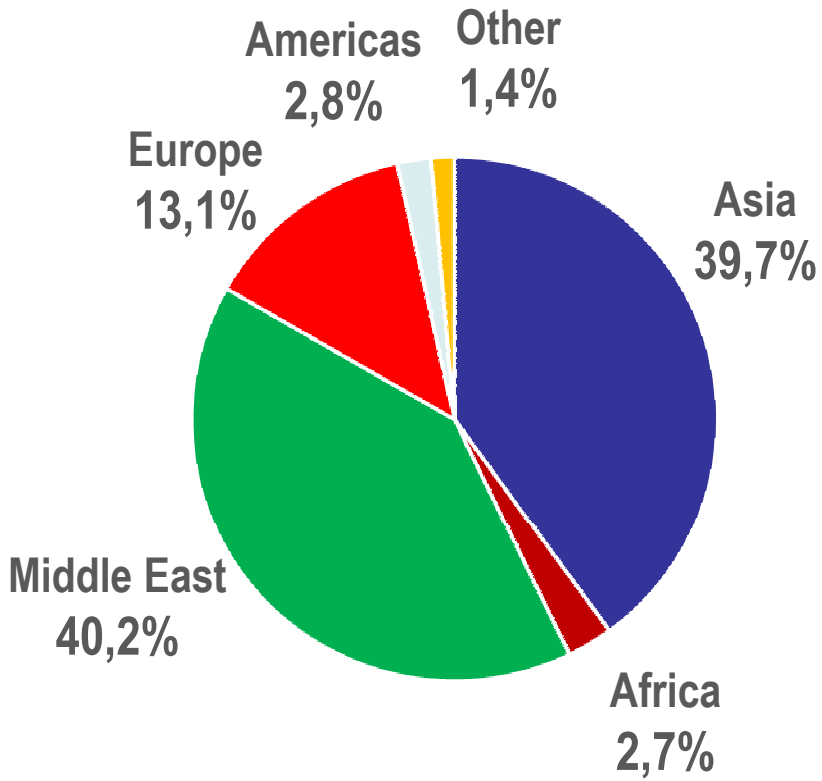
Sovereign Wealth Funds

- SWF are a special kind of investment funds in that they are not private but state-owned funds.
- They hold and manage the wealth accumulated by a country through its central banks' activity, its balance of payments (mostly oil revenues) or its state-owned entreprises.
- The first SWF was the Kuwait Investment Authority, that was created in 1953 from oil revenues. It is now worth approximately $300 billion.
- Sovereign wealth funds have been around for decades but since 2000 their number and importance has increased dramatically.
- There are several reasons why the growth of sovereign wealth funds is attracting close attention: (1) their potential impact on financial markets given their sheer size; (2) the concern that SWF can get control of strategically important industries for political and not economic reasons; (3) their lack of transparency.
- It's estimated that taken together, governments of SWFs, largely those in emerging economies, have access to a pool of funds totalling $20 trillion.
- The ***Santiago Principles*** (2008) set out the best practices that SWFs should follow, on a voluntary basis, in their operations.

Sovereign Wealth Funds by Funding Source and by Region



SWF by Source



SWF by Region

Source: SWFI, 2017

Top 10 Sovereign Wealth Fund by Assets

Country	Sovereign Wealth Fund Name	Asset $billion	Inception	Origin
Norway	GPFG	885	1990	Oil
China	China Investment Corporation	813	2007	Non commodity
UAE Abu Dhabi	Abu Dhabi Invest. Authority	792	1976	Oil
Kuwait	K. Invest. Authority	592	1953	Oil
Saudi Arabia	SAMA	576	n/a	Oil
China	SAFE	474	1997	Non commodity
China-Hong Kong	H.K.Monetary Authority Inv Portfolio	457	1993	Non commodity
Singapore	Singapore Inv.Corp.	350	1981	Non commodity
Qatar	Qatar Inv.Authority	335	2005	Oil
China	National Social Security Fund	295	2000	Non commodity

Source: SWFI, 2017

Central Banks

- Central banks are major actors in financial markets as they create money (fiat money) and regulate the amount of liquidity in the system.
- They play a fundamental role in financial crises by discharging the ‘lender of last resort function’.
- In systemic crises they can help avoid a liquidity crunch (see the role the ECB is playing in the current euro crisis) by providing cheap money to banks or (exceptionally) through the subscription/acquisition of government debt or other assets (e.g. bad loans from banks).
- Approches differ from central bank to central bank. For instance, there is a major difference between the FED, whose mandate includes the objective of supporting economic growth, and the ECB, that targets inflation (less than 2%).
- In some cases CBs are also charged with banking supervision, in others they are not (e.g. Prudential Regulation Authority-PRA in the UK).

The Basel Capital Accord (s)

See also:
Working within an international context: arising risks and available mechanisms for hedge

- The Basle Accord is the way prudential supervision is implemented at the international level, with the purpose of avoiding ‘competitive deregulation’.
- The Accord is an outcome of the work of the Basle Committe on Banking Supervision, a forum for regular cooperation on banking supervisory matters that was established in 1974 after the default of the Herstat bank.
- The Committee is headquartered at the BIS (*Bank for International Settlements*) (see Levi p. 515). Its objective is to enhance the understanding of key supervisory issues and improve the quality of banking supervision worldwide.
- The Basel Accord sets the minimum capital requirements that banks around the world should hold on a prudential basis.
- The level at which capital requirements are set is a major determinant of the banks’ capacity to provide credits and of the likelihood that financial crises occur.

Brief History of the Capital Accord

- **Basel I – 1988**

  Focused on credit risk. Assets of banks were classified and grouped in five categories according to credit risk, carrying risk weights of zero (for example home country sovereign debt), 10, 20, 50, and up to 100 percent (this category include, among others, most corporate debt). Banks with international presence were required to hold capital equal to 8 % of the 'risk-weighted assets'.

- **Basel II – 2004**

  Uses a "three pillars" concept – (1) minimum capital requirements (addressing risk), (2) supervisory review and (3) market discipline. Extends the focus to 'operational risk' and 'market risk'. Relies heavily on ratings either set by rating agencies or directly by banks.

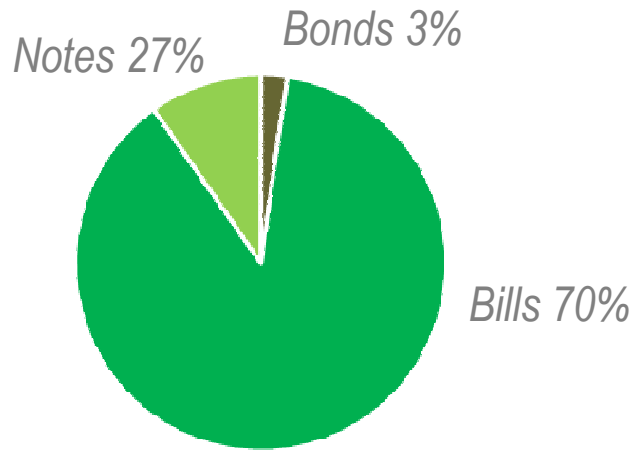
- **Basel III – 2010-11**

  A much wider and complex approach to banking supervision developed in response to the deficiencies in financial regulation revealed by the late-2000s financial crisis. In addition to raising basic capital requirement levels, it introduces additional capital buffers in order to reduce: (i) leverage, (ii) the maturity mismatch, and (iii) countercyclical effects.

Government Bonds

- Government Treasuries are another important player in international financial markets mainly through the issuance of short, medium and long-term bonds.
- In 2015, the U.S. Treasury issued **$2.1 trillion** in new long-term securities, almost three times the $788.5 billion issued in 2006.
- The U.S. Treasury bond market outstanding was $13.2 trillion as of end-2015, up three-fold from end-2006.

U.S. Treasury Bond Issuance By Tenor, 2015
Total: $7.0 trillion



Government Bonds

- European government bond issuance is estimated at €**1.24 trillion** in 2012, compared to €**1.19** trillion in 2010.

- Italian government bond issuance was €**60 billion** in 2015.

Do government bonds still represent the risk-free asset?

Ratings

- Ratings help assess the creditworthiness of firms, banks and countries (government bonds) when they operate internationally. They are a measure of the ‘quality’ of credits.

- Standard&Poors, Moody’s and Fitch are the best known (international) rating agencies but there are a lot more.

- Ratings go from AAA of Std&Poors (Aaa for Moody’s and Fitch) to Bbb or ‘C’ (junk bonds.) Assets with a rating above BBB are said ‘investment grade’.

- Bank regulation relies significantly on ratings (Basel Accord)

- Institutional Investors also rely on ratings in their investment decisions. Fund managers may set a threshold rating above which investments are allowed (this implies that if an asset that is present in the fund portfolio falls below the threshold rating it is to be dismissed).

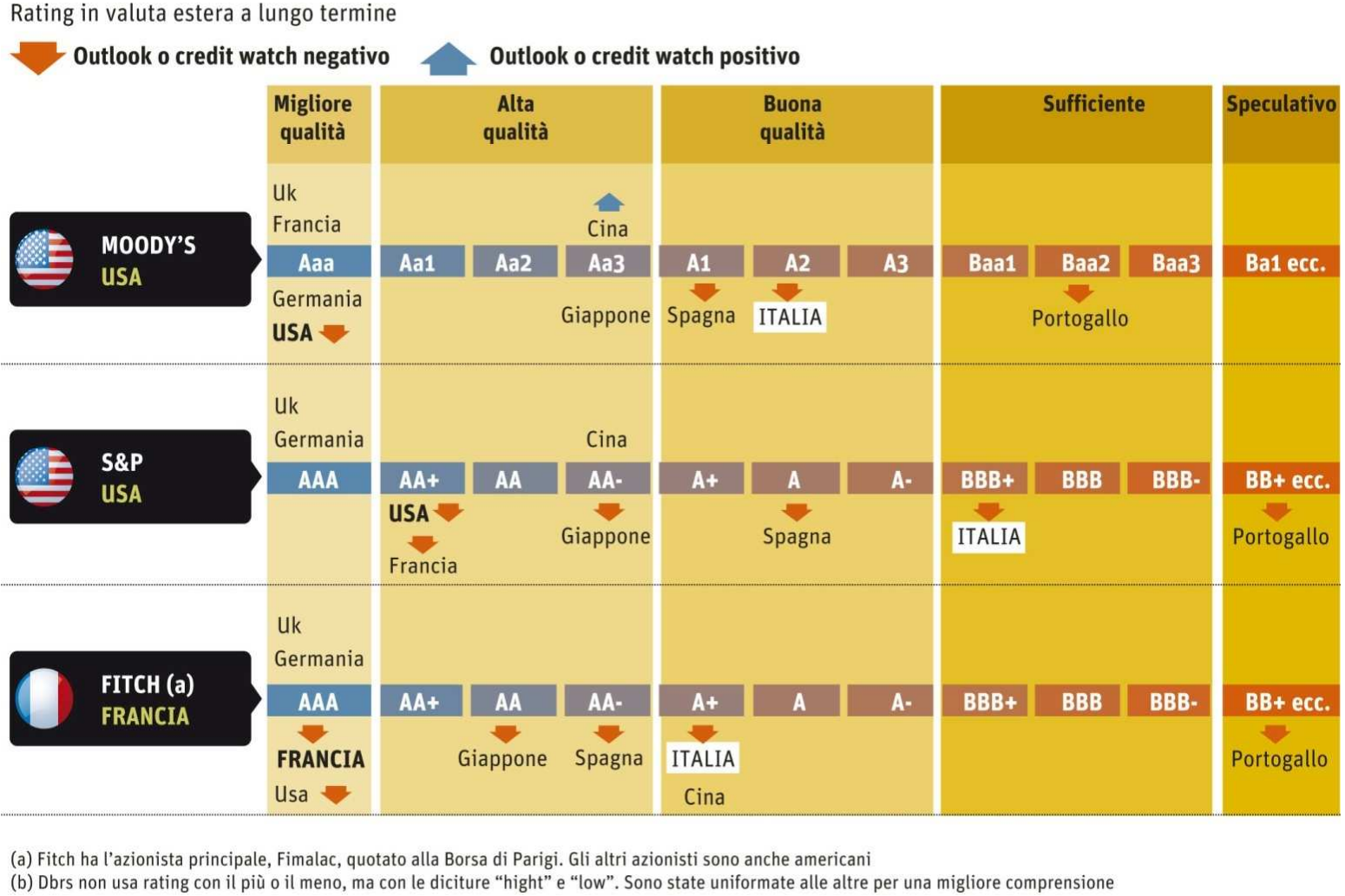
How reliable are rating agencies?

There is a serious debate on the validity of ratings, on rating agencies and their methods. Rating agencies are accused of:

- setting often the wrong ratings (e.g. subprime loans)
- failing in predicting financial/corporate crises thus issuing downgrades when it is too late (see Lehman Brothers)
- aggravating financial or corporate crises due to the wrong timing of downgradings (see the recent downgrading of several European countries during the euro crisis)
- being in a conflict of interest as they are paid by the firms that ask to be rated.

Yet, it is difficult to imagine a world without ratings!

The 3 giants of rating



(a) Fitch ha l'azionista principale, Fimalac, quotato alla Borsa di Parigi. Gli altri azionisti sono anche americani
(b) Dbrs non usa rating con il più o il meno, ma con le diciture "hight" e "low". Sono state uniformate alle altre per una migliore comprensione

Other rating agencies

(a) Fitch ha l'azionista principale, Fimalac, quotato alla Borsa di Parigi. Gli altri azionisti sono anche americani
(b) Dbrs non usa rating con il più o il meno, ma con le diciture "hight" e "low". Sono state uniformate alle altre per una migliore comprensione

International Accounting Standards

- Accounting Standards are an important variable in the context of financial crises, as they may contribute to the spread of financial instability depending on the way assets are valued in financial statements.
- Recording assets at their ‘historical’ values may not reflect over time their true value.
- Using the ‘mark-to-market’ principle (i.e. the market price or quotation), however, introduces ‘instability’ in financial statements.
- During financial/liquidity crises, application of the mark-to-market principle may trigger a downward spiral: assets prices go down, financial statements worsen and this may lead to more asset sales.
- This spiral was certainly at work during the recent crisis, and has hit especially banks.

Economists and accountants are debating on how to mitigate the undesired effects of the mark-to-market principle.

International Financial Organizations

- International financial organizations, like the World Bank and the IMF, provide liquidity to countries with temporary or structural problems and hence may influence financial markets.
- The WB issues AAA-rated bonds in order to finance projects in developing countries (long term financing).
- The IMF supports countries with liquidity problems due to a worsening of the BoP and helps prevent or resolve financial crises (short terms or emergency financing).
- The IMF supervises economic and financial policies around the world and is the true guardian of financial and exchange rate stability.
- It has intervened in almost every recent financial crisis episode, but it failed to predict the Great Crisis.

Back to Financial Crises

- Financial Crises touch most of the variables and players we have discussed.
- They normally affect (i) the exchange rate; (ii) the banking system; (iii) the BoP and the external debt of a country…
- .. and can trigger domino effects.
- Causes of financial crises vary from case to case and can be found in both ‘internal’ and ‘external’ factors.
- Internal factors are normally to be found in unsound domestic policies (typically fiscal policy) and inefficiencies in the economy.
- External factors may be found in the instability of international financial flows and/or too high (international) interest rates.

In every financial crisis economists and policy makers debate on how relevant are the internal factors vis-à-vis the external ones.


THE END
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