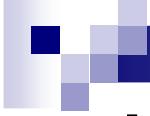


***University of Cassino***  
***Economics and Business***  
**Academic Year 2023/2024**

# International Finance

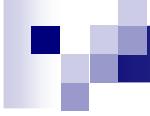
## Key issues - lecture 1

***prof. Maurizio Pugno***  
University of Cassino



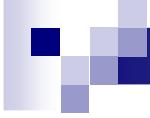
# How to look at the information on the course

- General and ordinary (about your career, exam booking etc): **GOMP** (and Didactic Segreteriat)
- General information on International Economics (program, texts, etc.): Introductory lecture in **Classroom**
- Specific and urgent information on *International Finance*:  
**<http://mauriziopugno.com/en/>**
- For any other information write to:  
**m.pugno(at)unicas.it**



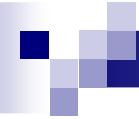
# International Economics: the subject

- General subject:
  - the economic and *financial* interdependence among nations,
- Specific subjects:
  - the flow of goods, services (including labour services), *payments*, and *monies* between a nation and the rest of the world,
  - the *policies* directed at regulating these flows,
  - and their *effect* on the nation's economy.



# International Trade and Finance

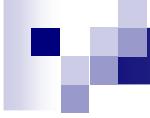
- International Trade:
  - based on microeconomics,
  - focused on real flows (goods, services),
- International Finance:
  - based on *macroeconomics*,
  - focused on financial flows (currencies, assets),
- They are two sides of the same coin:
  - IT needs IF if trade deficit arises,
  - IF may enhance or dampen IT.
- Both contribute to economic growth, but also to economic crises.



# I Basic issue in International Finance

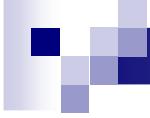
- Why don't nations import everything they need (or at least in excess of their exports)?
  - Because each nation normally pays imports by using a different currency than the domestic one (i.e., foreign currency; e.g. the currency of the partner country), which is something that the nation cannot produce.

Note: domestic currency is produced by the domestic central bank.



# I Related issues in Int. Finance

- How does a country get foreign currency?
  - exports (of goods) provide foreign currency,
  - international debts, called foreign capital inflows,
  - reserves of foreign currency accumulated in the past by the domestic central bank.
- How to register imports, exports, debts, etc. in a single balance sheet? (BoP)
- Since debts must be paid back, what problems arise if the debt persists or increases?



# I Related issues in Int. Finance

- Since the domestic country must buy foreign currency from abroad:
  - what is its price (called exchange rate), how it is determined?
  - what are the consequences if it increases or decreases?
  - can an importer insure his purchases against future price increases?
  - is it possible to administer such price by the central bank?



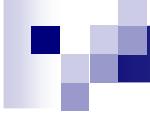
## II Basic issue in International Finance

- Can international finance stimulate economic growth?

Note: How economic growth can be stimulated:

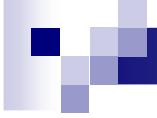
*International Trade*: international division of labour → **specialisation** of production → higher productivity → economic growth (microchannel).

*International Finance*: international debts → more domestic **investment** (and then imports) → more GDP (through multiplier) = economic growth (macrochannel)



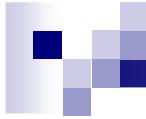
## II Related issues in Int. Finance

- However:
  - the macrochannel from International Finance to economic growth can go wrong.  
If international debts → are not used to buy investment goods (but to import consumption goods or to accumulate financial assets) → reduced economic growth and capability to pay back debts → ***international crisis***.
- Therefore: International Finance is both a powerful and dangerous means for economic growth.



# Some historical facts and interpretations

- Industrial Revolution (XVIII-XIX centuries) led to increases in productivity, starting with England.  
It was interpreted as due to division of labour, specialisation and (domestic and international) trade (Adam Smith and David Ricardo).
- Before the Industrial Revolution economic crises were mainly due to famines, wars, epidemics.  
Afterwards, economic crises have been mainly due to ***financial crises***.  
Effective counter-cyclical policies were first conceived by J. Keynes (1936).

- 
- Let's sketch two of these issues with some charts about:
    - the trade balance,
    - the exchange rate.

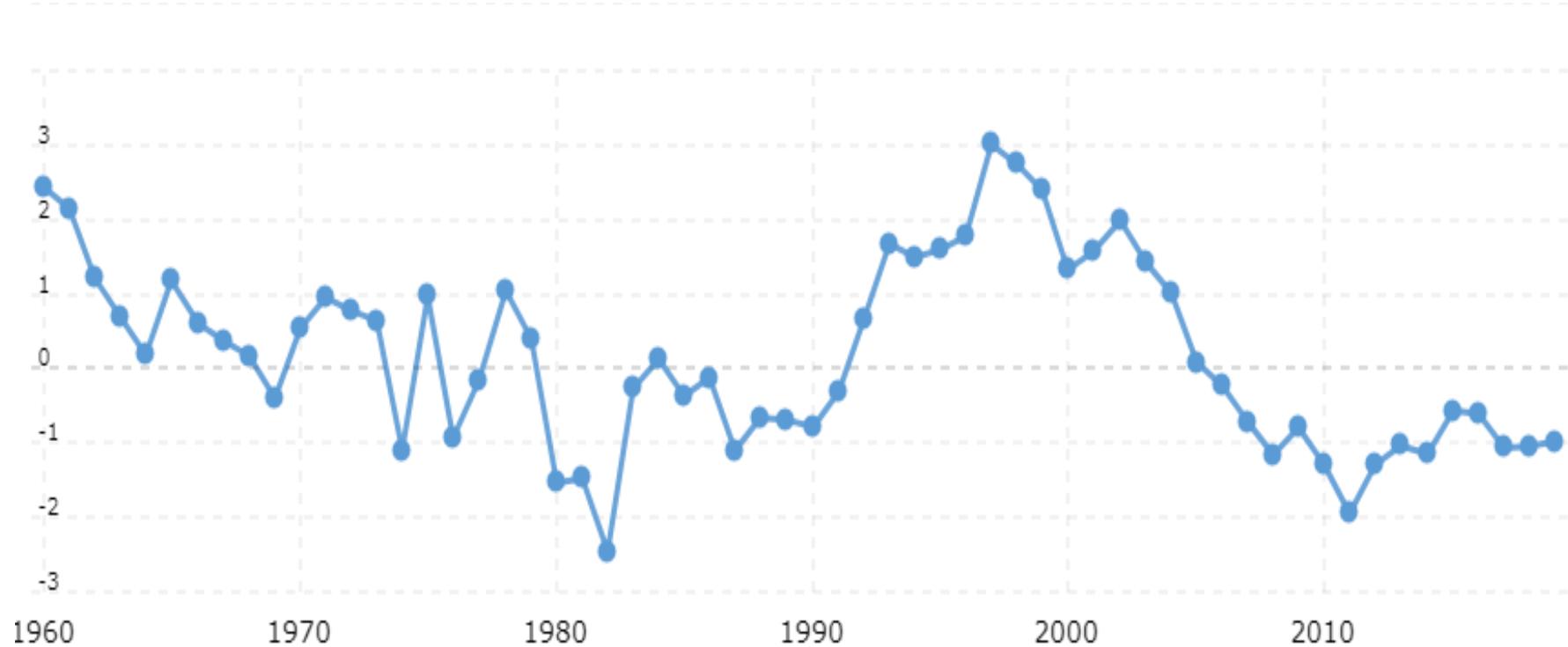
# Italy's Trade Balance 1970-2019

(Exports-Imports)/GDP\*100



# France's Trade Balance 1970-2019

(Exports-Imports)/GDP\*100



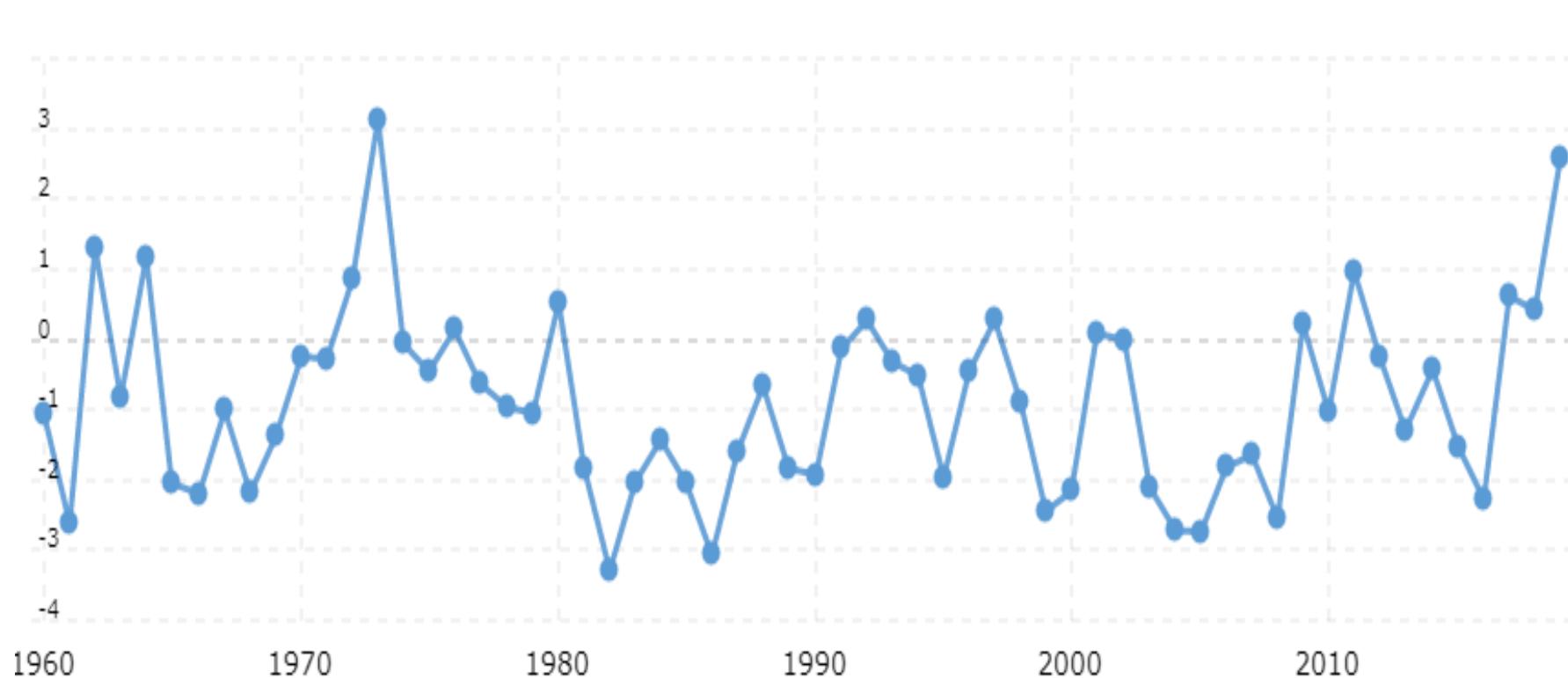
# Spain's Trade Balance 1970-2019

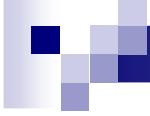
(Exports-Imports)/GDP\*100



# Australia's Trade Balance 1960-2019

(Exports-Imports)/GDP\*100



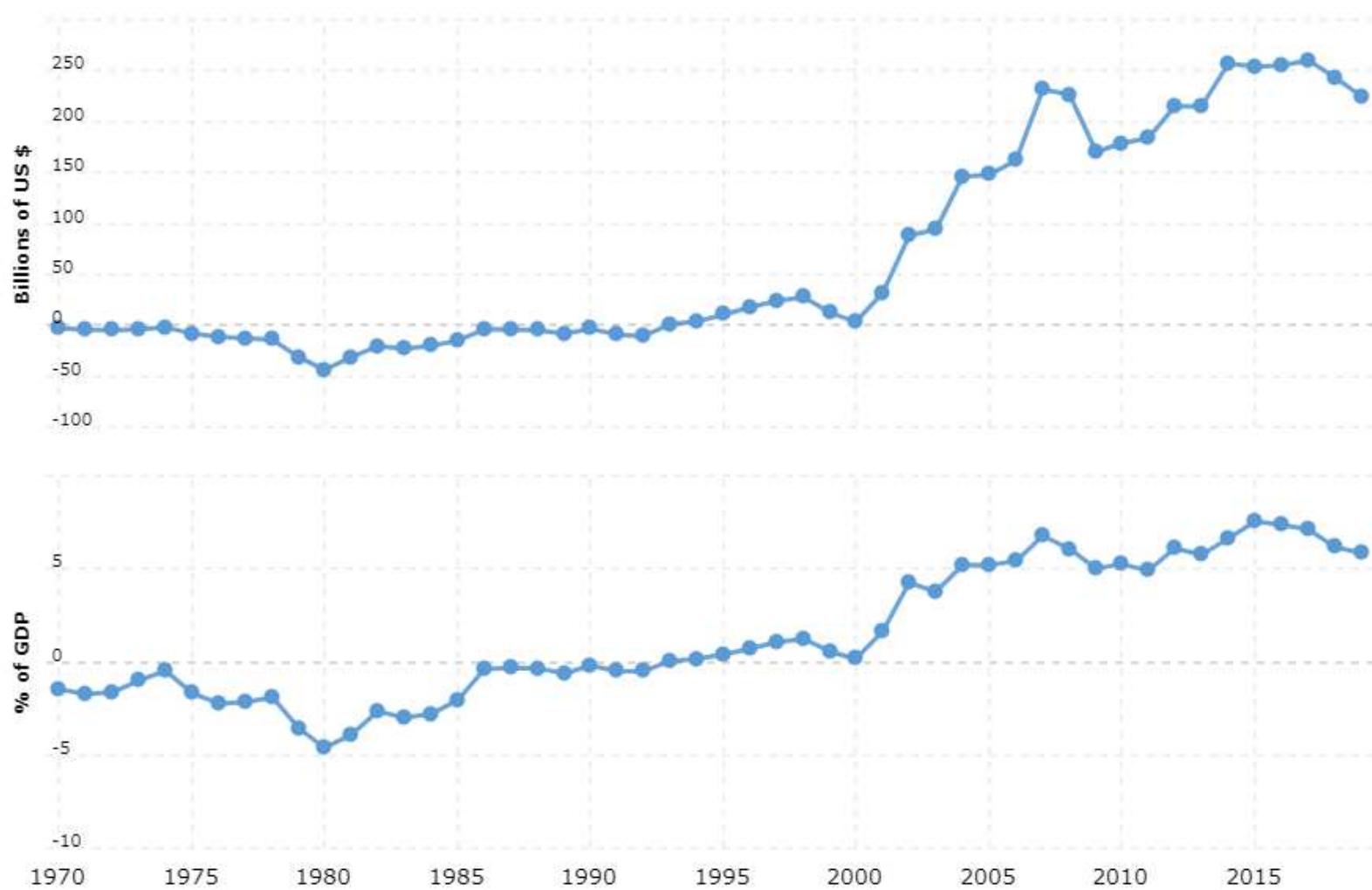


# Comments on the charts

- The Trade Balance oscillates around zero over decades in several countries.
- I.e., the Trade Balance can be different from zero, but not for too long.

However,...

# Germany's Trade Balance 1970-2019

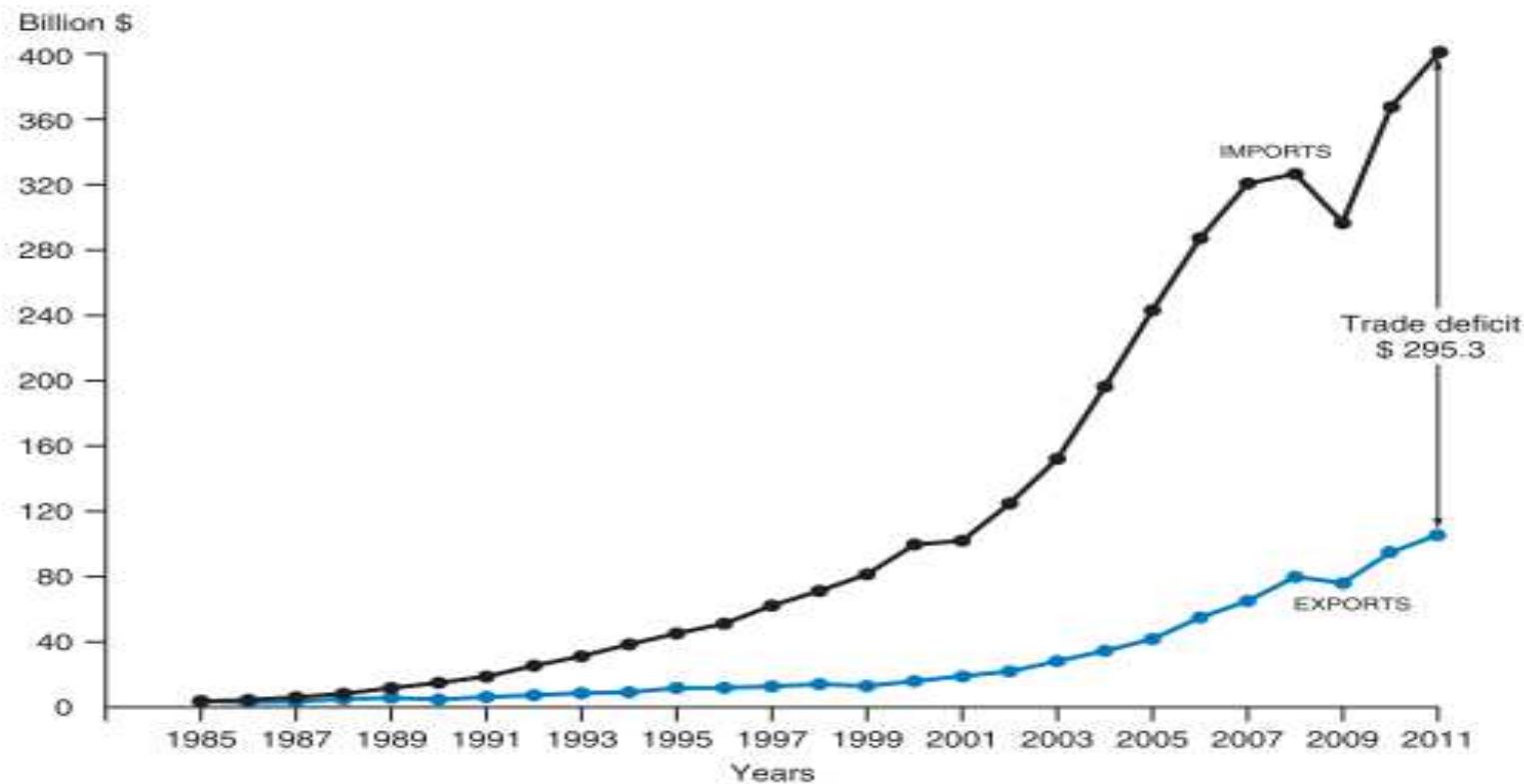


# UK's Trade Balance 1970-2019

(Exports-Imports)/GDP\*100



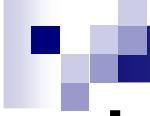
# U.S.- Trade deficit with China



**FIGURE 13.2.** U.S. Exports, Imports, and Net Trade Balance in Goods with China, 1985–2011 (billions of dollars). U.S. imports from China grew much faster than its exports. This resulted in a huge trade deficit.  
Source: U.S. Department of Commerce, *Survey of Current Business* (Washington, D.C.: U.S. Government Printing Office, various issues).

# Comments on the charts

- Normally, the Trade Balance must be in equilibrium in the long run.
  - Exceptionally it may depart from equilibrium
    - Germany's surplus is the anomaly in the European Monetary Union
    - the UK and the US deficit are anomalies in the world.
- Since surpluses in some countries must be balanced with deficits in other countries, national policies are constrained.
- This suggests that not only deficits, but also surpluses give rise to problems.

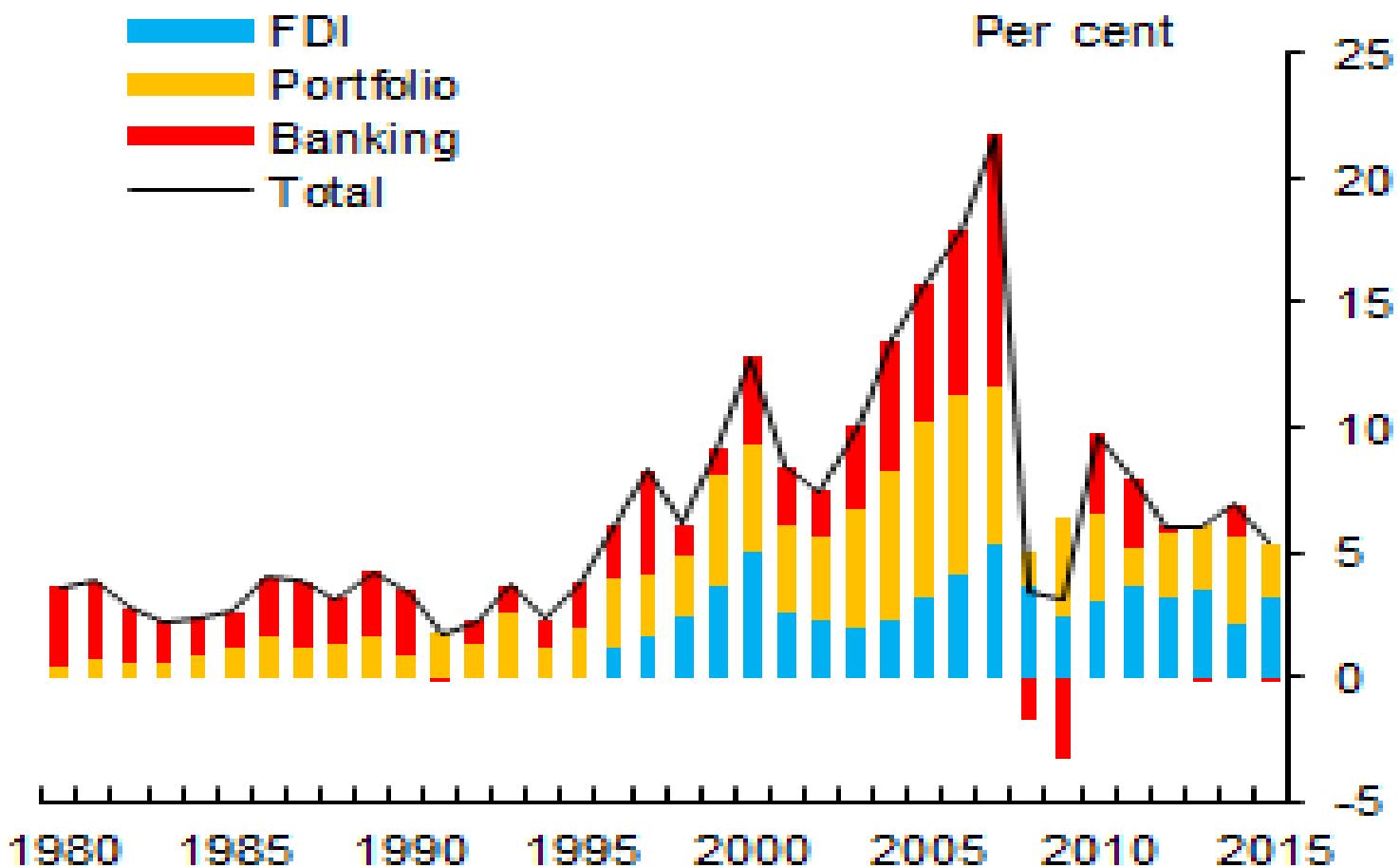


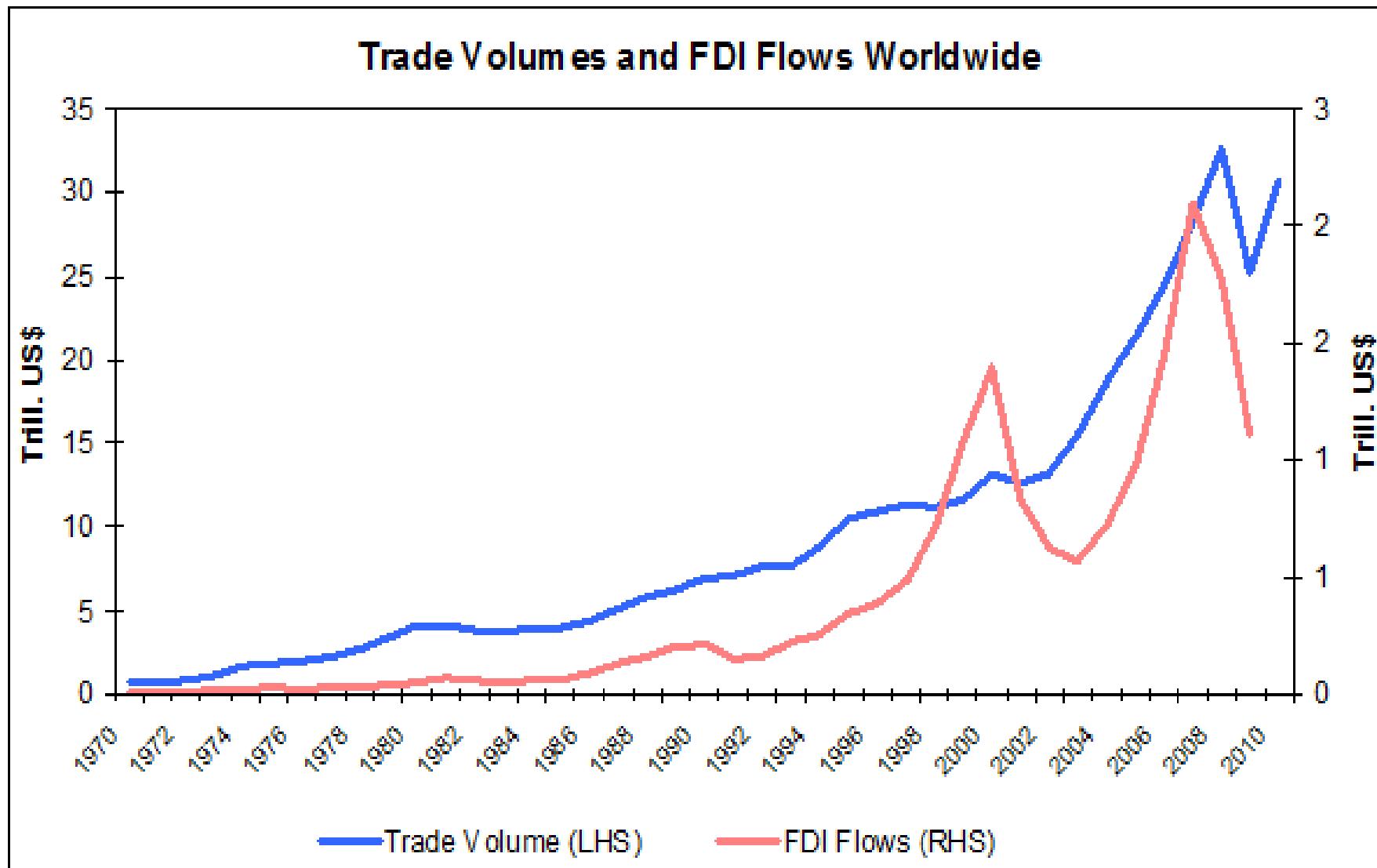
# How to relax the Trade Balance deficit: the Capital Mobility

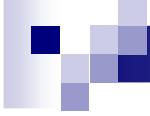
Types of capital inflows:

- **Financial capital** represents portfolio assets (such as stocks, bonds, currencies), and bank accounts. The usual aim is speculation.
- **Foreign Direct Investments** represent physical assets such as real estate, factories, and businesses. The usual aim is to establish control on production.
- **Official indebtedness.** The usual aim is to manage the exchange rate of domestic currency.

# Capital flows (% of world GDP)

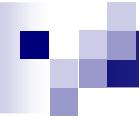






# Comments on the charts

- International capital flows have increased rapidly after the 1990s, collapsed in the great recession, and then slightly recovered.
- Foreign direct investments have increased almost like merchandise trade.
- International capital flows are more volatile than merchandise trade.



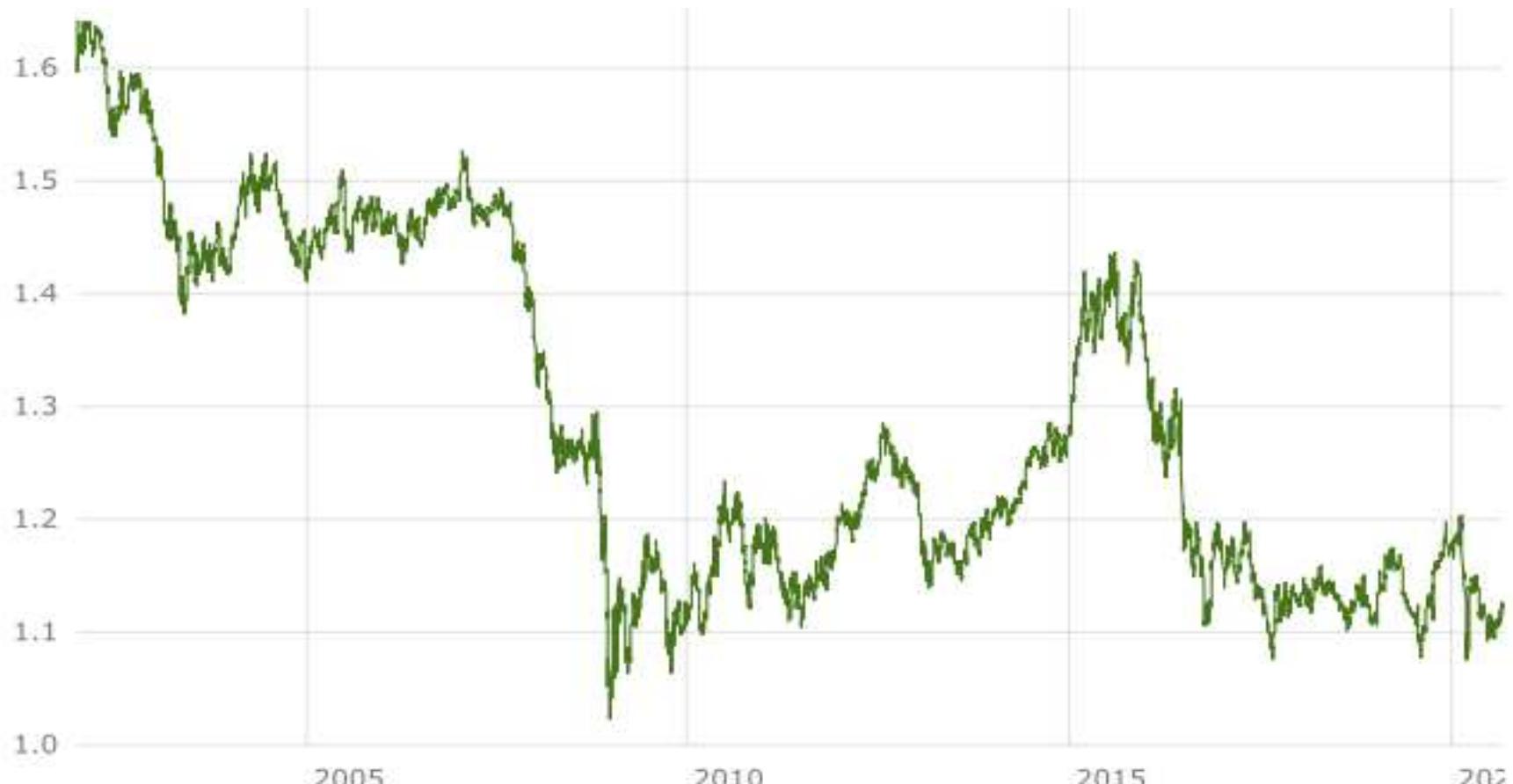
# Exchange rate

- A definition: the price of a unit of foreign currency in terms of domestic currency.
- Insofar as a currency can be bought and sold, its price can fluctuate.

# Euros for 1 US\$ in 2002-2020

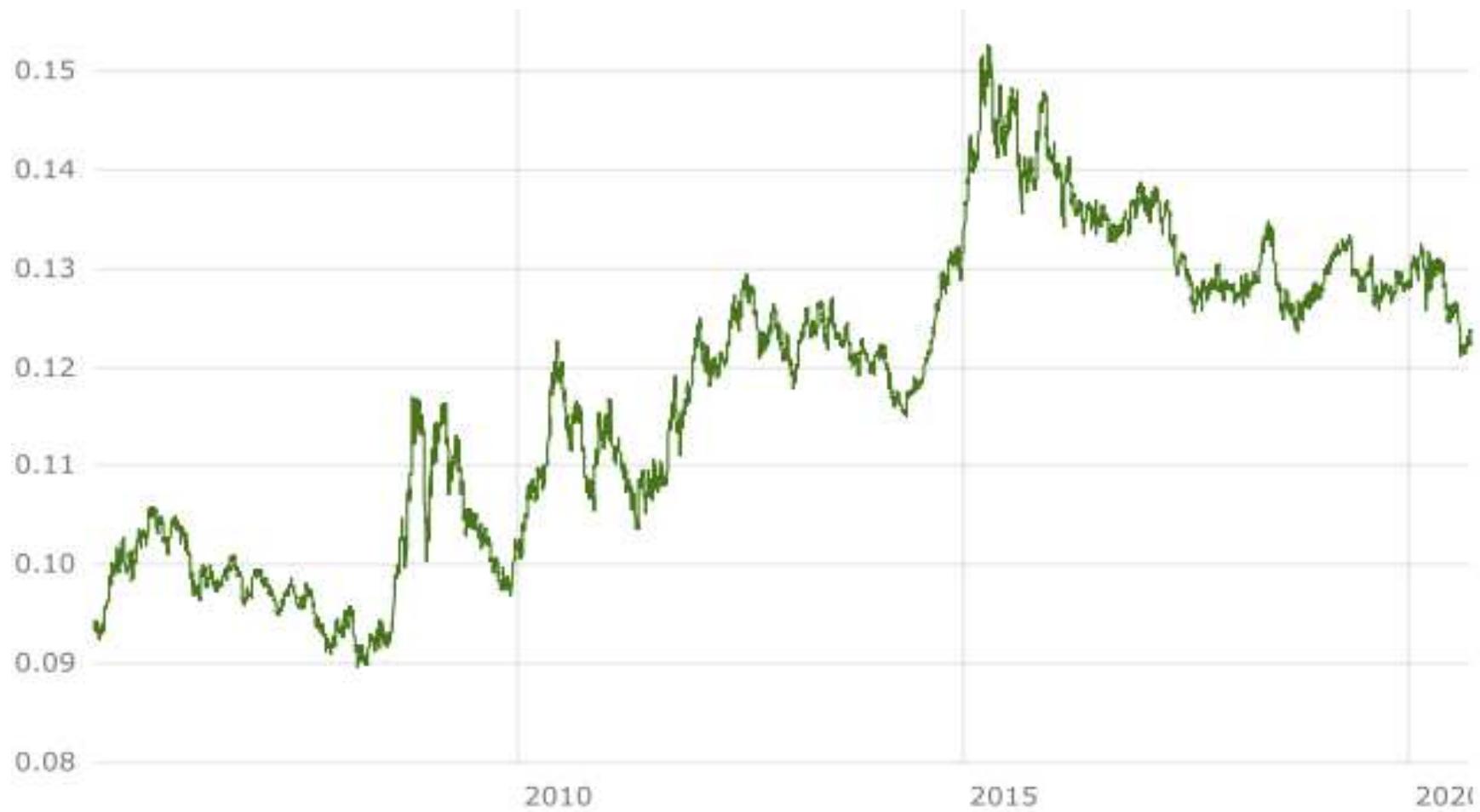


# Euros for 1 GB Pound in 2002-2020



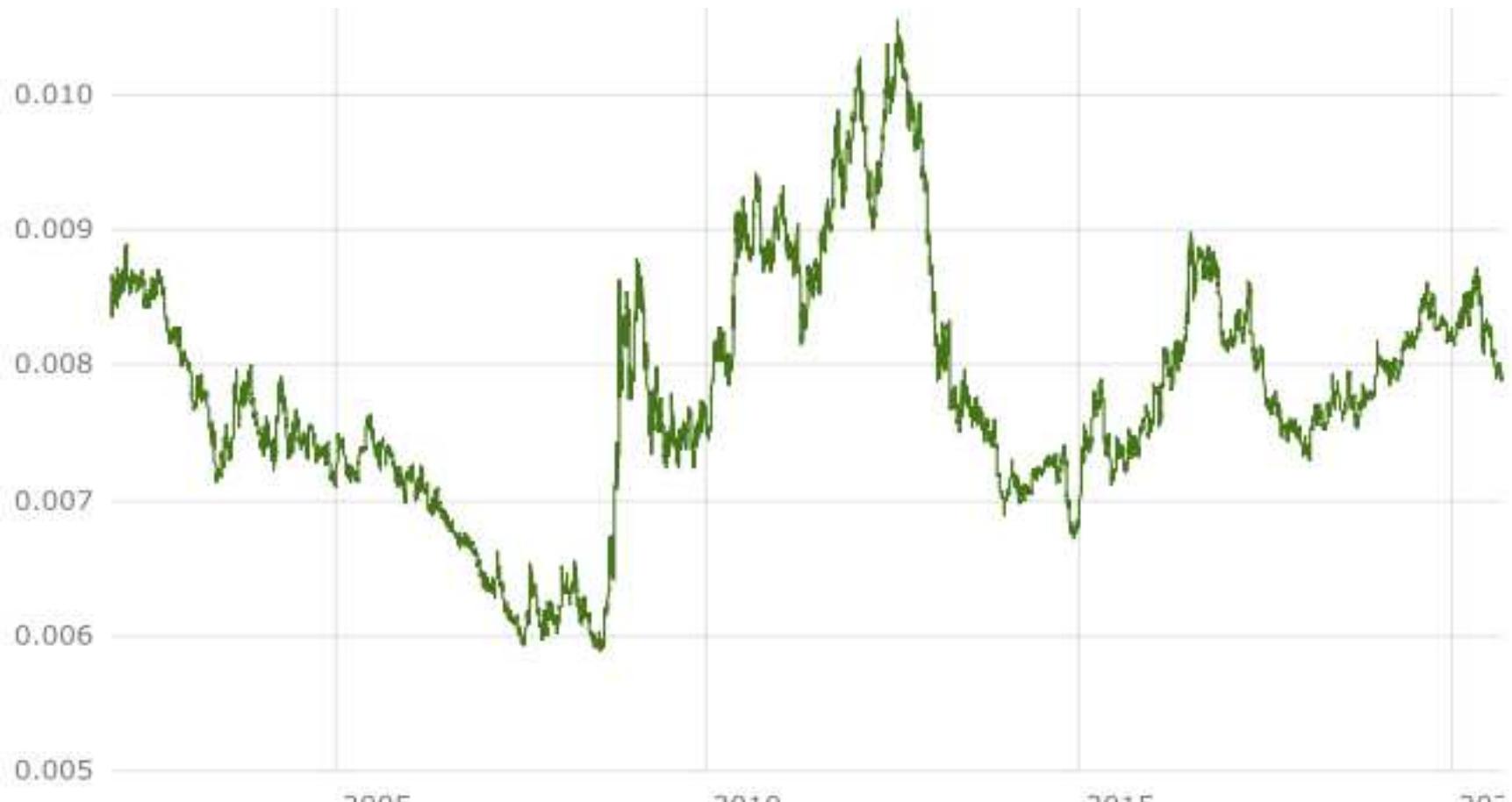
Brexit referendum  
2016

# Euros for 1 Chinese Yuan/Euro in 2005-2020

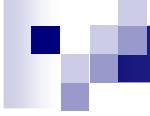


China enters the World Trade Organization in 2001

# Euros for 1 Jap. Yen in 2002-2020

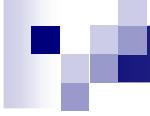


Japan tendentially stagnates during these decades



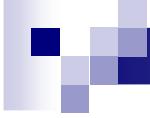
# Comments on the charts

- Changes of the exchange rates can be ample and persistent over time.
- Changes are very frequent because of speculation.
- Predicting exchange rates dynamics is very difficult, at least in the short run.
- It is easier to explain the *effects* of changes in the exchange rates on the economies.



# The goals of International Finance

- Provide a balance sheet to account for all international flows, both real and financial (ch.9).
- Define the exchange rate, and explain its changes (only) in the long run (ch.10).
- Explain the effects on the economy due to exports, imports, changes in the exchange rates (ch.11).
- Mention the short run effects of macro-policies (ch.11).
- Explain how the international financial crises arise (ch.12).
- Explain the relation of the Trade Balance and the economy in the long run (ch.16 + Thirlwall).



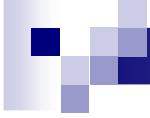
# Downloadable files in International Finance

- The slides of the lectures,
- Chapters 9-12 of the textbook (Gerber J, 2018)
- Other material addressed during the lectures
- Exercises

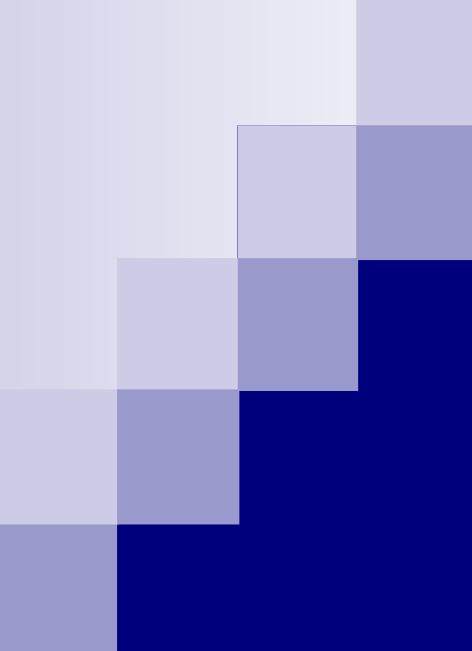
downloadable at the website:

<http://mauriziopugno.com/en/>

→ Look at the website every week for any urgent information!



End of the first lecture  
of  
International Economics  
(International Finance)  
*M. Pugno*



***University of Cassino***  
***Economics and Business***  
**Academic Year 2023/2024**

# International Economics

## International Finance

### (Balance of Payments – chapter 9 - lecture 2)

***Prof. Maurizio Pugno***  
**University of Cassino**

# The Balance of Payments

- The BoP gives an *official account* of all transactions between an economy and the rest of the world.
- It usually refers to an economy which uses a currency different from that of the other economies
- It is constructed on double-entry system of accounting. Every international transaction is accounted for a credit entry and a debit entry.
- It signals the performance (strength/ vulnerability) of an economy in international markets.

# What is the BoP?

- *BoP*: summary statement in which all the transactions of the residents of a nation with the residents of all other nations are recorded during a particular period of time (a calendar year).
- An *international transaction* refers to the exchange of goods, services, and assets.
- *Resident of a nation* are:
  - citizens,
  - persons who temporarily migrate,
  - corporations (but not its foreign branches).

# The three accounts of the BoP

1. Current Account . . . . . € X

2. Capital Account . . . . . € Y

3. Financial Account . . . . . € Z

■ Statistical Discrepancy . . . € W

= Balance of Payments . . . € 0

# The double entry principle

- Each operation gives rise to two entries, one debit and the other credit, so that the "accounting balance" is always zero.

- Example:

<input type="checkbox"/> Import of goods	-100€
<input type="checkbox"/> Payed by selling a financial asset	+100€
<input type="checkbox"/> Accounting balance	0 €
→ The debt increases by	100 €
→ In this case, no net exchange of foreign currency	
→ The “economic balance” worsens (deficit) by 100 €.	

# Structure of BoP

- 1. Current Account:
  - 1.1 trade account
  - 1.2 income account
  - 1.3 transfers account
- 2. Capital Account
- 3. Financial Account:
  - 3.1 foreign direct invest.
  - 3.2 portfolio investments
  - 3.3 other financial invest.
  - 3.4 official reserves
- Statistical discrepancy

# Structure of BoP

- 1. Current Accounts:**    **1.1 trade account**  
                                 **1.2 income account**  
                                 **1.3 transfers account**
- 2. Capital Account
- 3. Financial Account:    3.1 foreign direct invest.  
                                 3.2 portfolio investments  
                                 3.3 other financial invest.  
                                 3.4 official reserves
- Statistical discrepancy

# 1.1 Trade Account

## - TRADE IN GOODS AND SERVICES = TRADE BALANCE

+ goods exports

- goods imports

= + Balance of goods

+ services exports

- services imports

= + Balance of services

= Trade Balance

*Examples of services:  
travel and passengers fares,  
transportation, financial  
services, etc.*

# 1.2 Income Account

## INCOME (RECEIPTS / PAYMENTS)

+ income residents received from abroad in exchange for something

(**INCOME FROM INVESTMENTS**: interests received from abroad on money we lent abroad, i.e. interests on **bonds** issued by another country, profits received from abroad on **stocks** we possess of foreign firms; **COMPENSATIONS OF EMPLOYEES** for jobs done abroad)

- income paid to foreigners in exchange for something

(**INCOME FROM INVESTMENT**: interests paid to foreigners on money we borrowed from them, i.e. interests on domestic bonds sold abroad, profits paid to foreigners on stocks they possess of domestic firms; **COMPENSATIONS OF EMPLOYEES** to foreign workers for jobs done in our country)

# 1.3 Transfers Account

+ payments received from abroad **IN EXCHANGE FOR NOTHING**  
(foreign aids, remittances of immigrants, i.e. transfer of wages earned in one country to residents of another country, etc.)

- payments made abroad **IN EXCHANGE FOR NOTHING**  
(foreign aids, remittances of immigrants, i.e. transfer of wages earned in one country to residents of another country, etc.)

# Structure of BoP

1. Current Accounts: 1.1 trade account
  - 1.2 income account
  - 1.3 transfers account
- 2. Capital Account**
3. Financial Account: 3.1 foreign direct invest.
  - 3.2 portfolio investments
  - 3.3 other financial invest.
  - 3.4 official reserves
- Statistical discrepancy

# Capital Account

## - SPECIALIZED CAPITAL TRANSFERS

this a small account recording capital TRANSFERS (i.e. in exchange of nothing), such as debt forgiveness, international aids and so on. Similar to the transfers in current account but referring to capital and not income transfers.

→ These flows are usually irregular and not substantial.

# Structure of BoP

- 1. Current Accounts:
  - 1.1 trade account
  - 1.2 income account
  - 1.3 transfers account

- 2. Capital Account

- 3. Financial Account:
  - 3.1 foreign direct invest.
  - 3.2 portfolio investments
  - 3.3 other financial invest.
  - 3.4 official reserves

- Statistical discrepancy

## 3.1 Foreign Direct Investments

- + foreign firms build a factory in our country (Greenfield FDI) or they buy an existing factory/firm in our country by buying stocks (Brownfield FDI); when buying stocks they buy them in order to get control over a firm.
- domestic firms build a factory in another country (Greenfield FDI) or they buy an existing factory/firm in another country by buying stocks (Brownfield FDI); when buying stocks they buy them in order to get control over a firm.

## 3.2 Portfolio Investments

- + STOCKS: foreign subjects buy stocks issued by domestic firms with the aim of selling them when the prices of these stocks rise: they do not want to obtain control over the firms;
- + BONDS: foreign subjects lend money to our firms or to our Government by buying bonds issued by domestic firms and/or domestic Government: our foreign debt increases.
- STOCKS: domestic subjects buy stocks issued by foreign firms with the aim of selling them when the prices of these stocks rise: they do not want to obtain control over the firms;
- BONDS: domestic subjects lend money to foreign firms or to foreign Governments by buying bonds issued by foreign firms and/or by foreign Government: our foreign debt decreases.

### 3.3 Other Financial Investments

- + incoming of currencies, bank deposits, loans and compensations for insurance contracts from foreign subjects.
- outgoing of currencies, bank deposits, loans and compensations for insurance contracts to foreign subjects.

## 3.4 Official Reserves

- Stock of external assets (foreign currency, foreign bonds, gold, etc) that are controlled by monetary authorities (central bank).
- In a first approximation, all other BoP items are ‘spontaneous’ (decided by private and public agents of the economy), while Official Reserves are changed either as a response to the economy or for the governance of it.

# Structure of BoP

- 1. Current Accounts:
  - 1.1 trade account
  - 1.2 income account
  - 1.3 transfers account
- 2. Capital Account
- 3. Financial Account:
  - 3.1 foreign direct invest.
  - 3.2 portfolio investments
  - 3.3 other financial invest.
  - 3.4 official reserves

## ■ Statistical discrepancy

# Statistical Discrepancy

## STATISTICAL DISCREPANCY (net errors and omissions)

Since transactions cannot be accurately measured, also after the use of reserves the balance of the Balance of Payments is often not nil. Statistical discrepancy is hence calculated as the residual algebraic sum of the three account with the opposite sign.

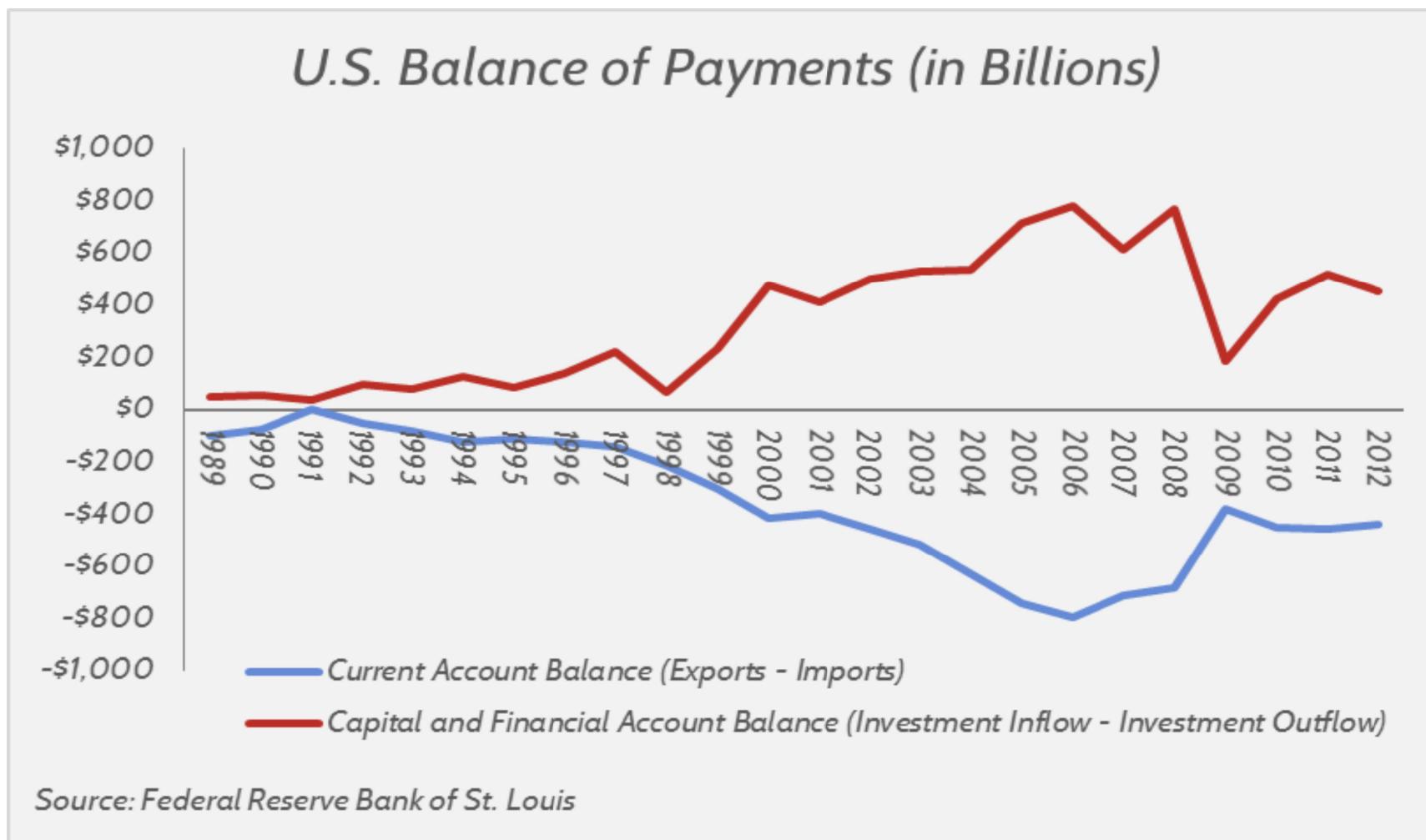
# BoP of the previous example

## ■ Example:

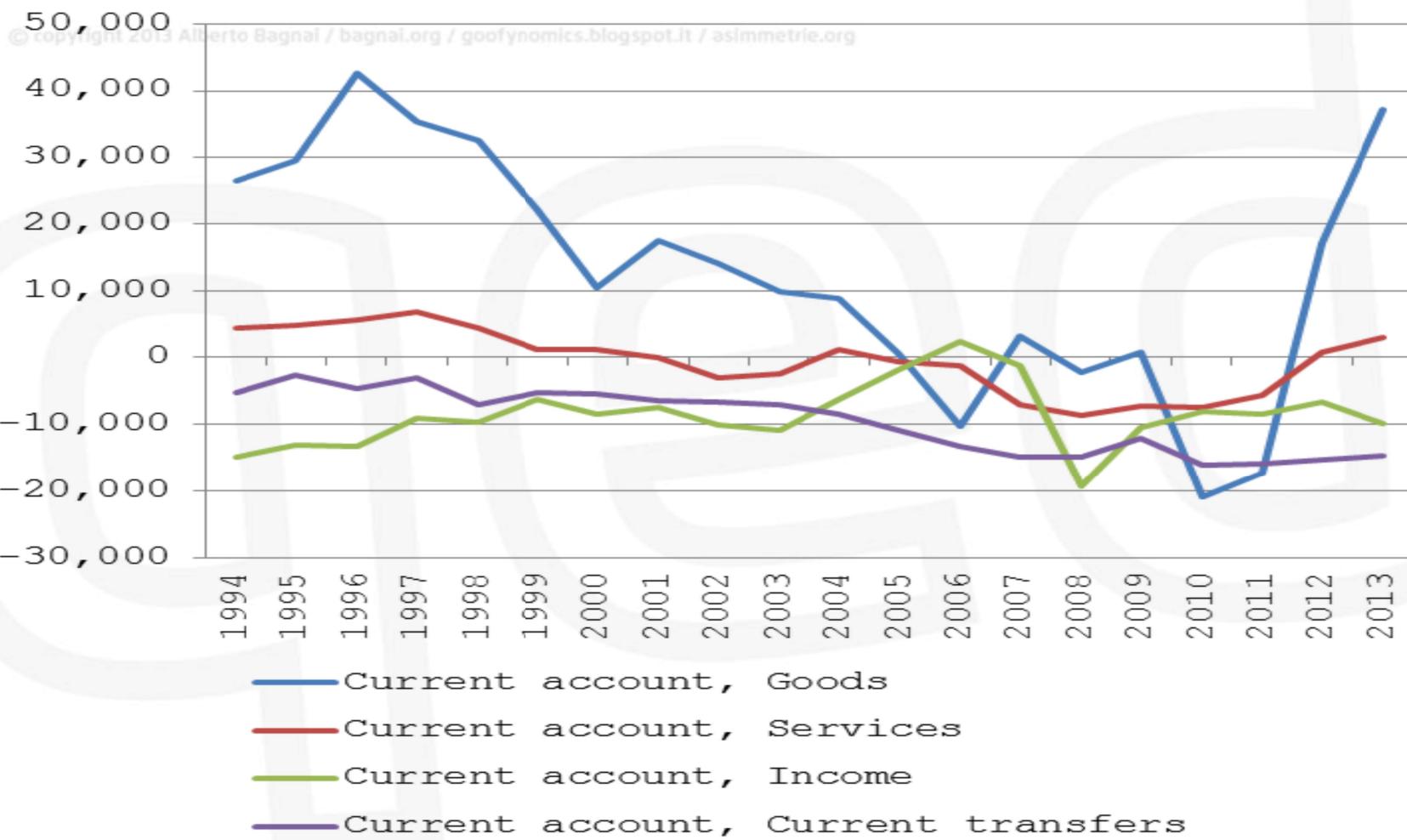
1. Current Account (import of goods)	- 100 €
2. Capital Account	0 €
3. Financial Accounts	
3.1 Sale of financial asset (i.e. <i>debt</i> )	+ 100€
= Accounting balance	<hr/> 0 €

- A deficit in the Current Account weakens the economy.
- Policies should aim to balance the Current Accounts in the long run.

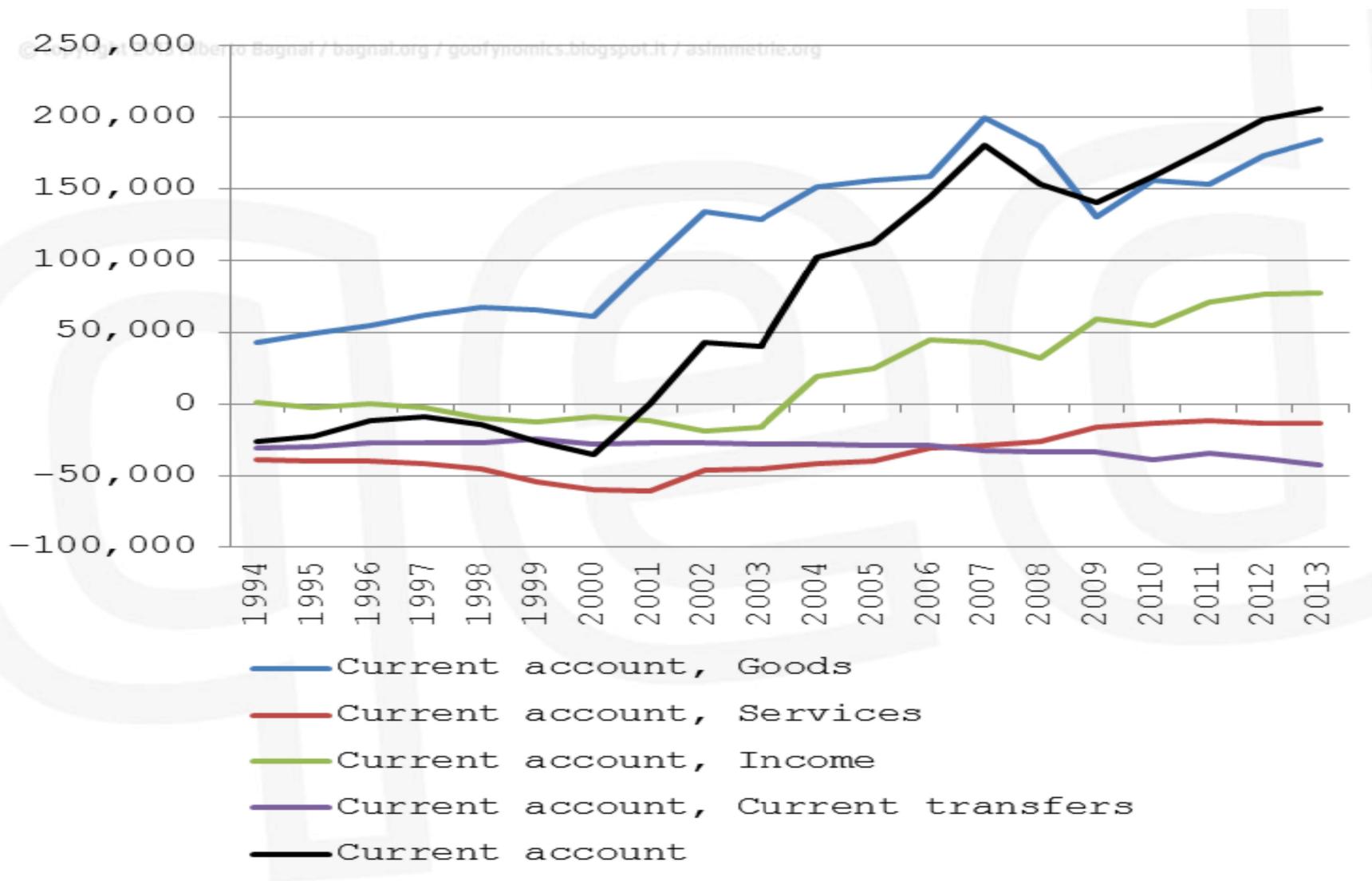
# The ‘specularity’ of the BoP accounts



# The Current Account in Italy



# The Current Account in Germany





# A split in the BoP example

## ■ Example:

1. Current Account (import of goods)	- 100 €
2. Capital Account	0 €
3. Financial Accounts	
3.1 Sale of financial asset (i.e. <i>debt</i> )	+ 70 €
3.4 Foreign currency bought by the central bank	+ 30 €
= Accounting balance	<hr/> 0 €



# The rewritten split in the BoP example

## ■ Example:

1. Current Account (import of goods)	- 100 €
2. Capital Account	0 €
3. Financial Accounts	
3.1 Sale of financial asset (i.e. <i>debt</i> )	+ 70 €
...	...
= Economic deficit of BoP	-30 €
3.4 Foreign currency bought by the central bank to pay for imports	+ 30 €

# The steps of the example

I import a good (value of -30€) to be paid in \$.

I go to the central bank and I buy 30\$ in exchange for 30€ (if the exchange rate =1)  
So that I can pay for the good.

The central bank:

- draws from its Reserves 30\$, thus decumulating them,
- issues 30€, which add to the stock of € circulating in the economy (creation of money)

# The role of the Official Reserves

- The central bank sells to domestic citizens (or buys from them) foreign currency to compensate for the deficit (or surplus) of the ‘spontaneous’ flows of the BoP.
- To do this, the central bank:
  - reduces (or increases) its Official Reserves,
  - collects (or issues) domestic currency (i.e. destroys (or creates)) domestic money that circulates in the economy.

# A conclusion

- A country becomes vulnerable if it displays:
  - deficits in the Current Account when financed with debts,
  - deficits in the economic BoP, because the central bank reduces Official Reserves,

# Further example

Now, imagine the following situation for Argentina:

<b>1) CURRENT ACCOUNT</b>	<b>= -200</b>
<b>2) CAPITAL ACCOUNT</b>	<b>= + 0</b>
<b>3) FINANCIAL ACCOUNT</b>	
FOREGIN DIRECT INVESTMENTS	= +0
PORTFOLIO INVESTMENTS	= +150
OTHER INVESTMENTS	= +0
FINANCIAL DERIVATIVES	= +0
	-----
	<b>= -50</b>

How can Argentina pay 50?

By drawing from Reserves of the central bank.

The economy receives from the central bank 50,  
i.e. 50 is a financial *inflow* (+ sign!)

The central bank decumulated 50 of reserves.

<b>1) CURRENT ACCOUNT</b>	= -200
<b>2) CAPITAL ACCOUNT</b>	= + 0
<b>3) FINANCIAL ACCOUNT</b>	
FOREGIN DIRECT INVESTMENTS	= +0
PORTFOLIO INVESTMENTS	= +150
OTHER INVESTMENTS	= +0
FINANCIAL DERIVATIVES	= +0
	-----
	= -50
<b>RESERVES</b>	=+50
	-----
	= 0

- The economic deficit of BoP is 50.
- Imports are financed only for 150 with debt, and for the rest with 50 from Official Reserves.
- The accounting balance of BoP is obviously 0.

# Reserves: composition

- The official Reserve assets include:
  - the gold holdings of country's monetary authorities,
  - the official foreign currency holdings of country's monetary authorities
  - Special Drawing Rights (SDR),
  - the country's reserve position in the International Monetary Fund (IMF).



# SDR and the reserve position in IMF

- Special Drawing Rights (SDRs, or “paper gold”) are international reserves created on the books of IMF and distributed to member nations according to their importance in international trade.
- The reserve position in the IMF refers to the reserves paid by the nation upon joining the IMF, which the nation can then borrow automatically and without questions asked in case of need. Membership in the IMF allows nations to borrow additional amounts subject to the conditions imposed by the IMF.

# Exercises

# Solved exercise on BoP

Calculate the balance (from an economic point of view) of the following example of BoP (write in the box):

Explain.

■ Current Accounts:	- 300
■ Capital Accounts:	-2
■ Financial Accounts:	
direct investments in the US	-150
FDI	-350
foreign official assets in the US	+400
official reserves	+490
■ Statistical discrepancy	-88

# Exercise on BoP - solution

Calculate the balance of the following example of the BoP  
(write in the box): -490

**Because official reserves decumulates, revealing the excess demand of foreign currencies, i.e. the deficit.**

■ Current Accounts:	- 300
■ Capital Accounts:	-2
■ Financial Accounts:	
direct investments in the US	-150
FDI	-350
foreign official assets in the US	+400
official reserves	+490
■ Statistical discrepancy	-88

# Exercise on the BoP to be solved

- If a EU citizen receives 100€ as interest from a foreign bond. Write down the changes in the BoP (with the sign):

1. Current Accounts:

1.1 trade account . . . . . ..... €

1.2 income account . . . . . ..... €

1.3 transfers account . . . . . ..... €

2. Capital Account . . . . . ..... €

3. Financial Account:

3.1 foreign direct investments . . . . . ..... €

3.2 portfolio investments . . . . . ..... €

3.3 other financial investments . . . . . ..... €

3.4 official reserves . . . . . ..... €

= Accounting balance ..... €

# Exercise with open answers

- What do official reserves include?  
(list at least three items)

1. ...., ,

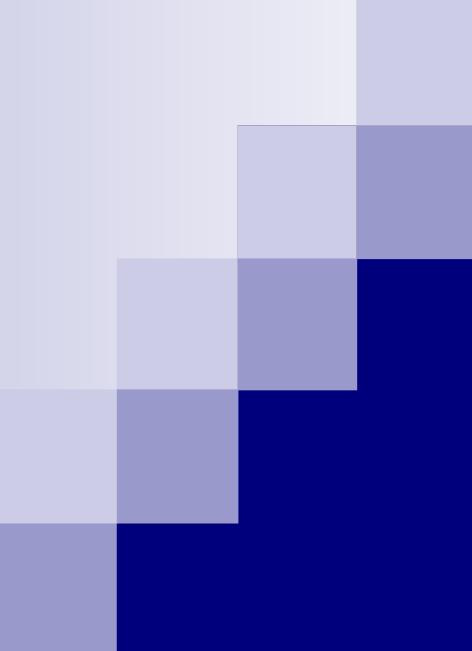
2. ...., ,

3. ...., ,

4. ...., ,

5. ...., ,

End of the second lecture  
on  
International Finance  
*M. Pugno*



***University of Cassino***  
***Economics and Business***  
**Academic Year 2023/2024**

# International Economics International Finance (Exchange Rate – chapter 10 - lecture 3)

***Prof. Maurizio Pugno***  
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# Overview

- Definition and role of the exchange rate
- The foreign exchange market
- The exchange rate systems
- The *effective* exchange rate
- The *forward* exchange rate
- Theories of the exchange rate:
  - the PPP theory
  - the relative PPP theory
- The *real* exchange rate

# Why exchange rates?

- Imports are usually paid in foreign currency (i.e. \$), which has to be exchanged with the domestic currency (€).
- A loan from a foreign bank or firm is normally denominated in foreign currency, while it is usually needed in domestic currency within the economy.
- Speculators:
  - buy/sell foreign currency to realize profits,
  - hold foreign currency to gain from interest rate differentials.

# The exchange rate

- **Definition:** the **exchange rate** ( $E$ ) is the price of one currency stated in terms of another currency.
- There is a market for each currency, i.e. a foreign exchange market (forex).
- This is a centralised market. Brokers (or dealers) negotiate directly with one another, with no central exchange or clearing house.
- The US\$ is by far the most traded currency. The euro is the second most traded currency.

# The role of the exchange rate

- Changes of the exchange rate ( $E$ ) influence:
  - the competitiveness of imports and exports,
  - the convenience to borrow and to lend on the international market,  
→ the macroeconomy.
- $E$  can change because there is a market for it.
- If  $E$  can freely change, it is called flexible  $E$ .  
If  $E$  is maintained constant over time by the central bank, it is called fixed  $E$ . Intermediate regimes are rather frequent.

# Two measures of the exchange rate

- Most used measure is the **price quotation system**: units of domestic currency per unit of foreign currency (like the price of any good).
- We will use this measure of E: e.g. €/\$.
- This implies that a rise (decrease) in the E means a *depreciation (appreciation)* of the domestic currency (depreciation of € means that more €s are necessary to buy a \$).
- Second measure is the **volume quotation system**: the amount of foreign currency required to purchase one unit of domestic currency (\$/€).

# The foreign exchange market (forex)

- Forex is the market in which individuals, firms, and banks buy and sell foreign currencies.
- Forex is the market where Es are determined.
- The foreign exchange market for any currency works in all the locations in the world where the currency is bought and sold for other currencies.
- These locations are connected electronically and are in constant contact with one another, thus forming a single market of the currencies.

# Exchange rates systems

- **Flexible (or floating) exchange rates:**

when it is determined by the demand and supply of the domestic currency.

All flows are “spontaneous” (ie CA, CapA, and FA net of Reserves), and the change of the official reserves is zero.

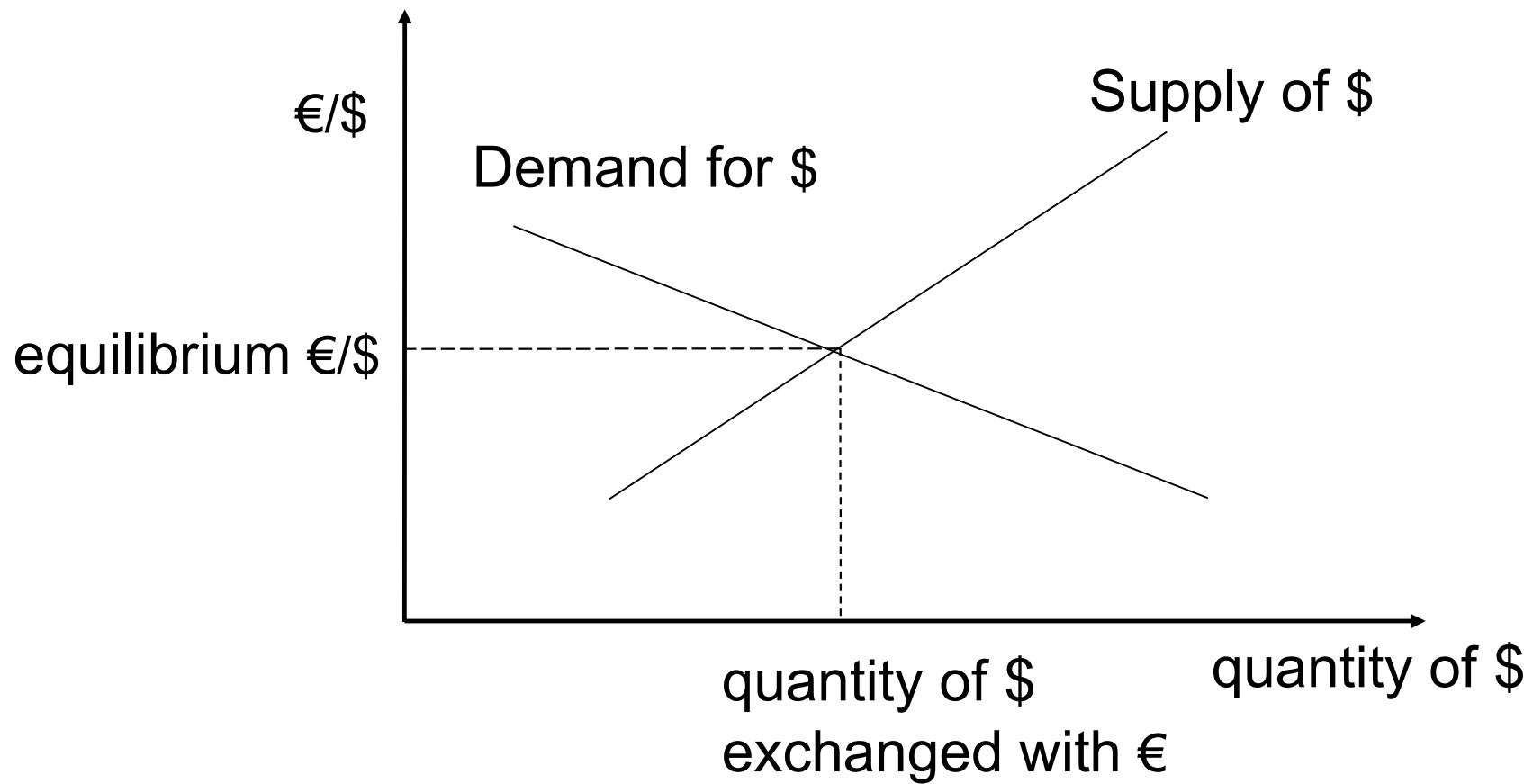
- **Fixed exchange rates:**

when the demand tends to exceed or fall short of the supply of the domestic currency,

and the “spontaneous” flows tend to open a deficit or a surplus,

so that the change of the official reserves compensates.

# The demand and supply of US\$ against €



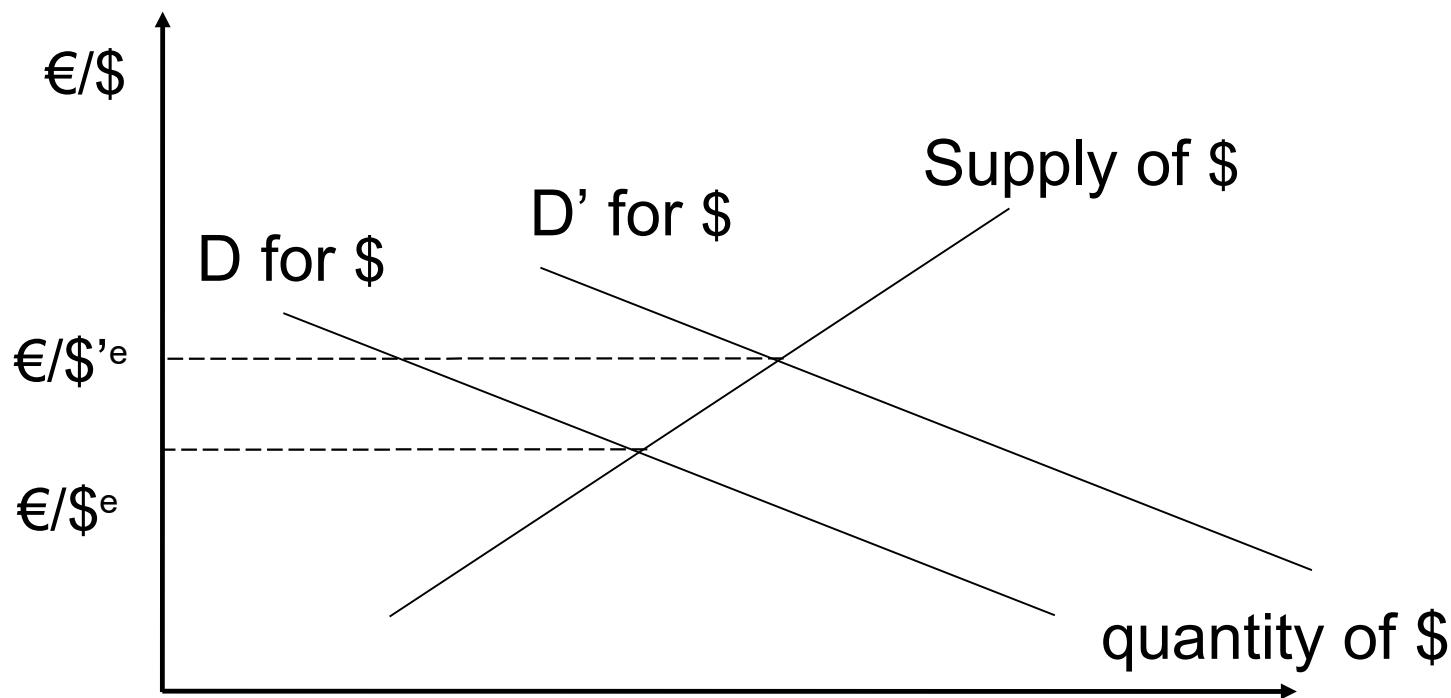
# Demand and supply of foreign currency

- We are measuring the price of the \$—the E as Euros per 1 dollar ( $\text{€}/\text{\$}$ )—on the y-axis.
- Movements up the y-axis represent increases in the price of the \$. Similarly, movements down the vertical axis represent decreases in the price of the \$.

# The slopes of the curves

- The demand for \$s is negatively sloped, ie the lower the E, the greater the quantity of \$s demanded.
- The supply of \$s is positively sloped, ie the higher the E, the greater the quantity of \$s supplied.

# Shift of the demand for US\$ under flexible E system



An increase in the demand for US\$ causes a rise in the equilibrium E, ie a *depreciation* of the € (and an appreciation of the \$).

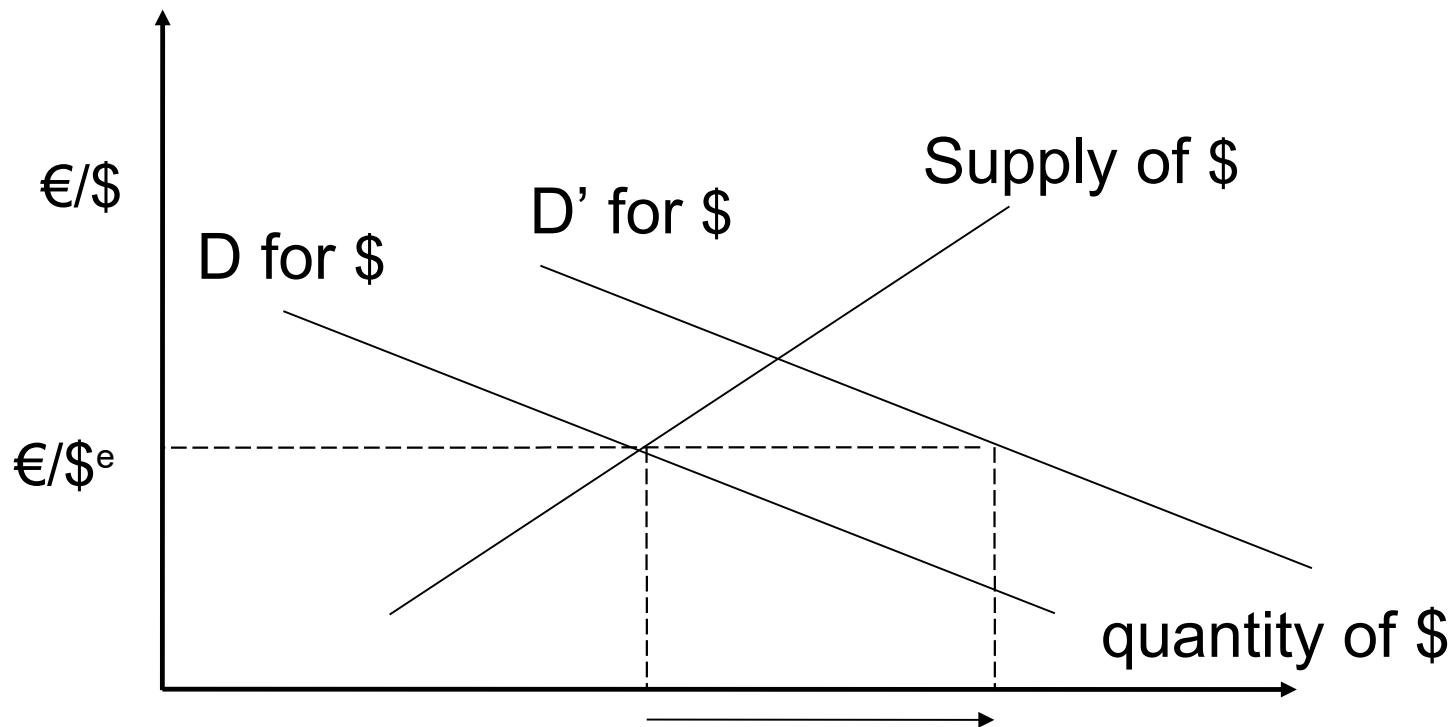
# The effective E: a useful measure

- The **effective E** is a weighted average of the exchange rates between the domestic currency and that of the nation's most important trade partners.
- The weights are given by the relative importance of the nation's trade with each of these trade partners.
- The effective E is important, because a currency may depreciate with respect to some currencies and appreciate against others.

# Arbitrage

- The exchange rate between any two currencies is kept the same in different monetary centers (eg New York and Frankfurt) by **arbitrage**.
- Arbitrage refers to the purchase of a currency in the monetary center where it is cheaper, for immediate resale in the monetary center where it is more expensive, in order to make a profit.
- For example, if the price of 1\$ was 0.99€ in New York and 1.01€ in Frankfurt, an arbitrageur purchases \$s in New York and immediately resells them in Frankfurt, thus realizing a profit of €0.02 per \$. This raises the demand for \$s against € in NW (and vv in Frankfurt).
- This helps to maintain a single E over different locations.

# Shift of the demand for US\$ under fixed E system



An increase in the demand for US\$ causes a rise in the quantity of \$s exchanged, and no appreciation /depreciation of both currencies.

# Fixed E, official reserves and domestic money

- If the demand for \$s goes up then the European Central Bank (ECB) sells \$s (that it previously bought). This has three effects:
  1. the new supply of \$s restores the previous equilibrium of E, so that no depreciation of the € (and no appreciation of the \$) takes place;
  2. ECB reduces its official \$ reserves;
  3. ECB ‘destroys’ domestic money, since it buys €s in exchange for \$ (ie €s go out of the economy and return to the issuer of €s).

# Fixed E, official reserves and domestic money (cont)

- If the demand for \$s shrinks, then the ECB buys \$s. This has three effects:
  1. the new demand for \$s restores the previous equilibrium of E, so that no depreciation of the € (and no appreciation of the \$) takes place;
  2. ECB accumulates official \$ reserves;
  3. ECB creates domestic money, since it issues new €s in order to buy \$s.

# Memo: *Flexible E, official reserves and domestic money* (cont)

- If demand for \$s changes and E is perfectly flexible, ECB does nothing, so that:
  1. equilibrium E fluctuates, and currencies appreciate and depreciate;
  2. official reserves remain unchanged;
  3. domestic money is neither destroyed nor created by the ECB along this channel.

# Risks from E changes

- **Exchange rate risks** under flexible E regime:  
the risk for firms to receive from abroad a different payment denominated in domestic currency at time  $t+1$ , with respect to the payment fixed in the contract signed at time  $t$ , because of a change in E.
- How to defend business against this risk?

# The forward market

- The market for buying and selling in the present is called a spot market.
- The **forward market** refers to the market in which the buying and selling of currencies for future delivery takes place.

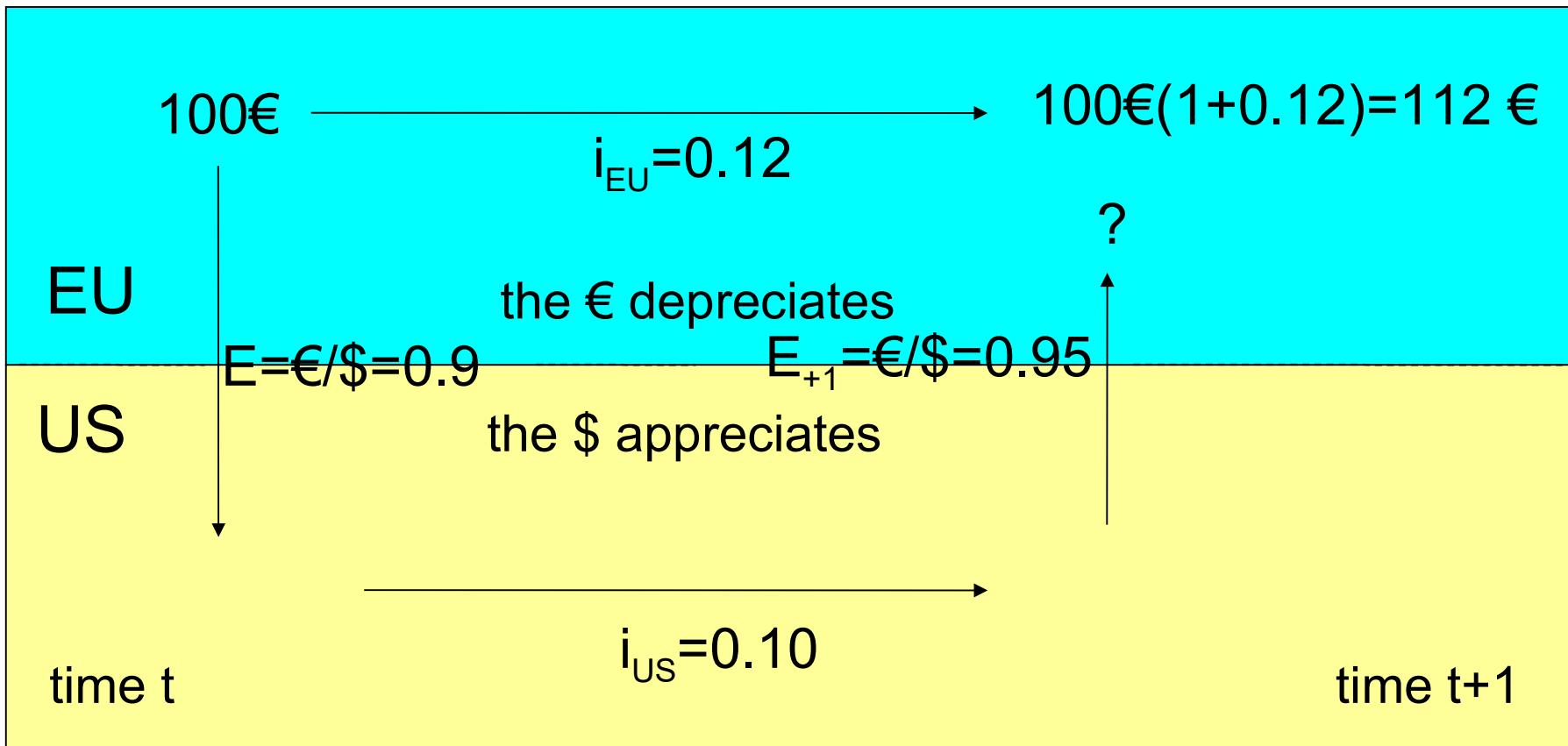
The currency contract guarantees a set price for the foreign currency, usually 30, 90, or 180 days into the future.

- Forward market for currencies is an everyday tool for international traders, because it is a way to eliminate the exchange rate risk associated with future payments and receipts.
- The **forward exchange rate** is the price of a currency that will be delivered in the future.

# Speculation in the forward market

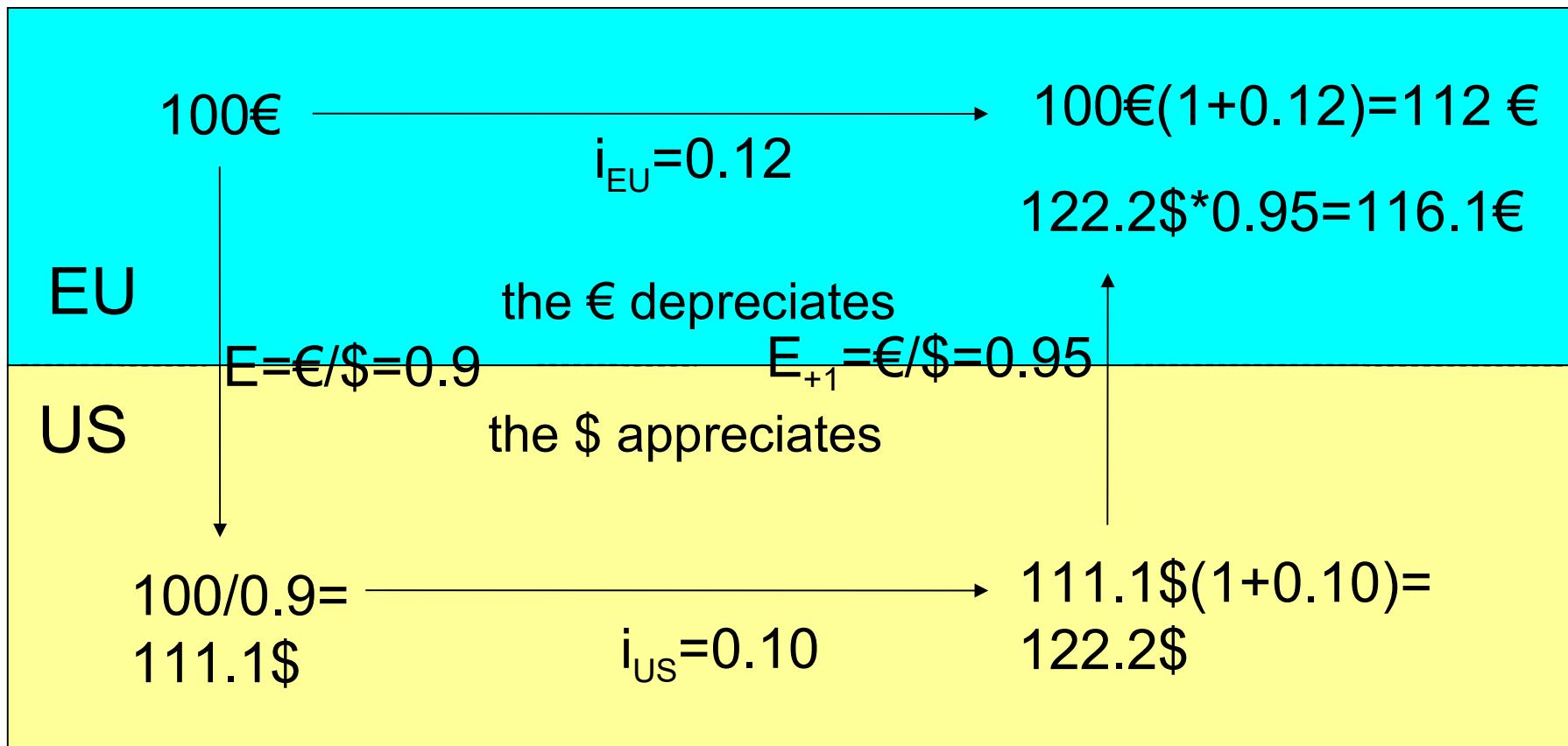
- Arbitrageurs often use forward markets to protect themselves against the foreign exchange risk incurred while holding foreign financial assets.
- *Covered interest arbitrage* is a strategy of **arbitrage** trading whereby an investor capitalizes on the **interest rate** differential between two countries by using a forward contract to cover (eliminate exposure to) exchange **rate** risk.

# Example of speculation



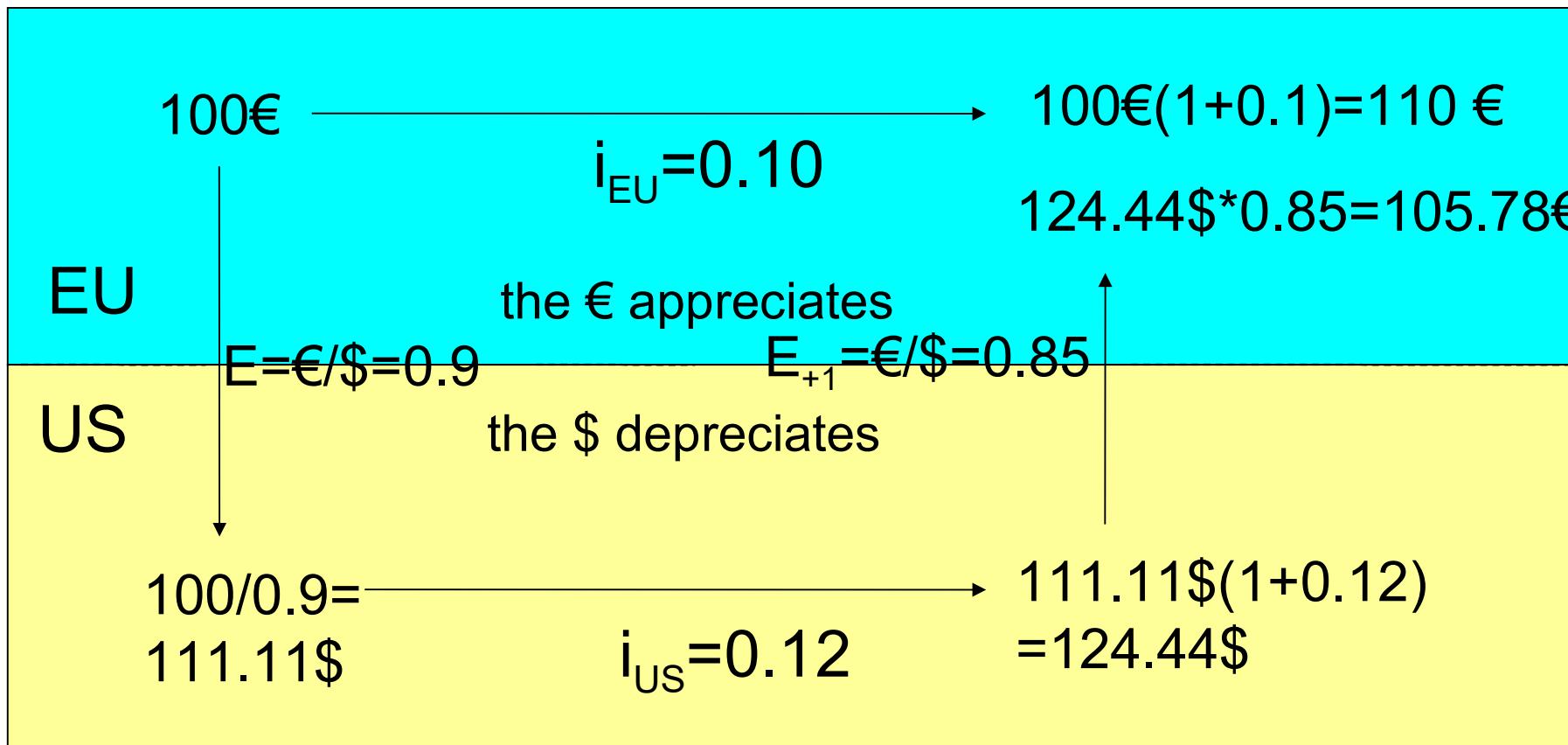
If  $i_{\text{EU}} > i_{\text{US}}$  and if  $\text{€}/\$$  is going to depreciate, is it convenient to invest in the US assets?

# Example of speculation (cnd)



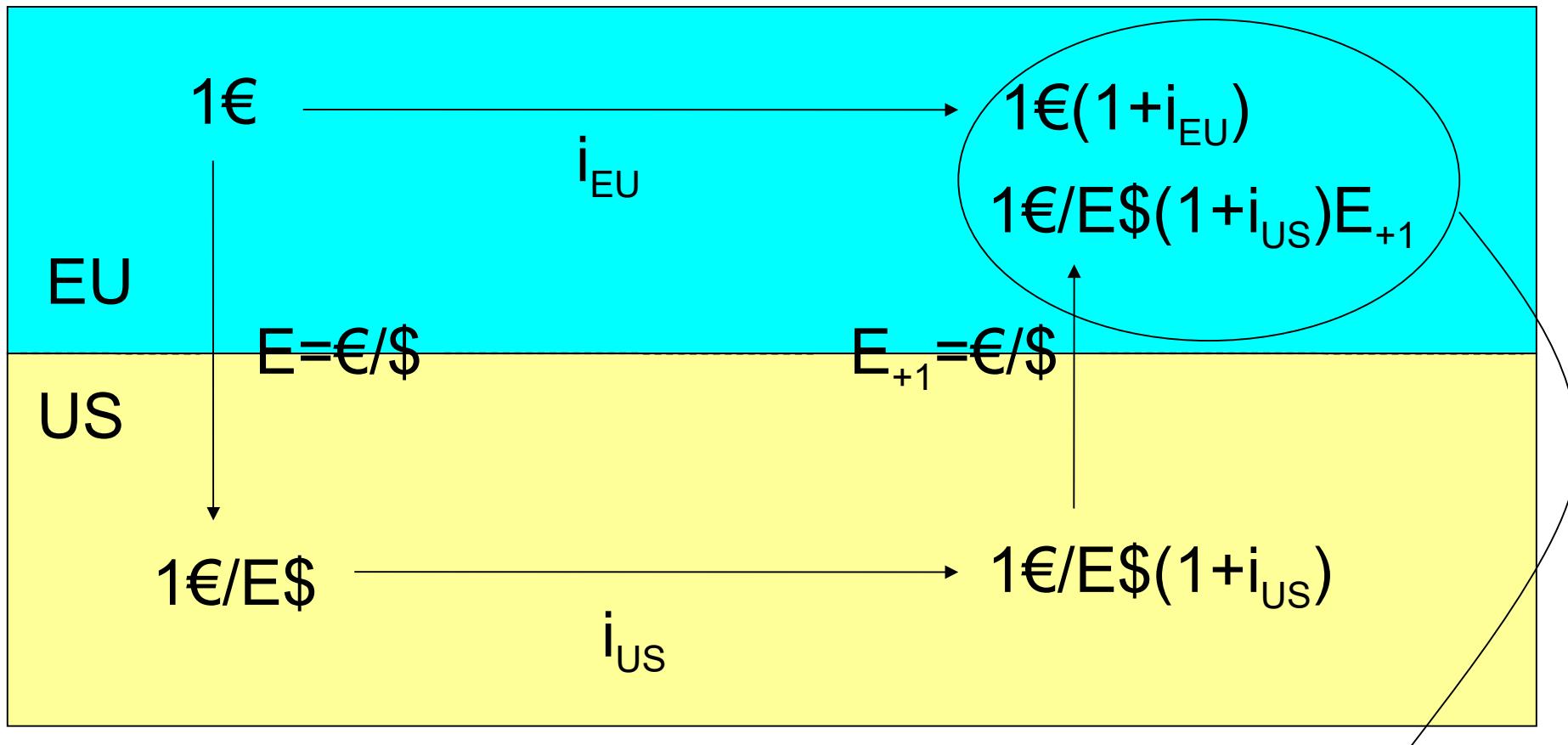
- Buying at 0.9 (spot E) and selling at 0.95 (forward E) is convenient ( $116.1 > 112$ ) despite the lower  $i$  of the US

# Second example of speculation



Case of  $i_{EU} < i_{US}$  and €/\$ appreciation

# General formula



- **Covered interest arbitrage condition**

$$(1+i_{\text{US}})E_{+1}/E > (1+i_{\text{EU}})$$

# Comments from the example

- Speculators look at the ‘covered interest rate arbitrage condition’ (where  $E$  is determined by the spot exchange rate market,  $E_{+1}$  by the forward exchange rate market, and the interest rates by the respective countries) in order to decide where to buy and sell financial assets, and make profits.

# The ‘covered interest rate arbitrage condition’

- The condition can be written as:

$$i_{EU} = (1+i_{US})E_{+1}/E - 1$$

- This can be approximated by the formula

$$i_{EU} = (E_{+1} - E)/E + i_{US}$$

which is called the ‘interest parity condition’  
(see the Gerber at p. 249, and the Appendix of Ch.10 for the math).

- The approximation is good for not too different interest rates (which are usually small numbers).

# On the determination of E

- The changes of E can be distinguished in short run changes, which are frequent, and long run changes. For example:



# On the determination of E

- E is so volatile in the short run that is VERY difficult to foresee.
- The shifts in the supply and demand are many, and the determinants of these shifts are many.  
→ there is no solid theory of *short run* determination of E.
- Then we turn to a theory of *long run* determination of E. This is more solid, but not too much.

# Long run E: the PPP theory

- **The purchasing power parity (PPP)** states that the equilibrium value of an E is at the level that allows a given amount of money to buy the same quantity of goods abroad that it will buy at home.
- For example, the equilibrium exchange rate is the point where the euro buys dollars at a rate that keeps its purchasing power over goods and services constant.

# The formula of PPP theory

- In formula:  $E = P/P^*$   
where  $P$  and  $P^*$  are, respectively, the general price level in the home nation and in the foreign nation.
- Ie: the PPP theory postulates that the equilibrium  $E$  between two currencies is equal to the ratio of the price levels in the two nations.
- *Law of one price*: a given commodity should have the same price (so that the purchasing power of the two currencies is at parity) in both countries when expressed in terms of the same currency:  $EP^* = P$

# The formula of PPP theory (cont)

- PPP will involve looking at a basket of goods to determine effective living costs. The PPP is determined by dividing a basket of goods in one country, by the cost of basket of goods in another.
- Example: a Big Mac costs £2 in the UK and \$4 in the US. The correct exchange rate according to purchasing power parity would be £1 equals \$2. This would leave a customer indifferent to buying the good in the UK and buying it in the US.

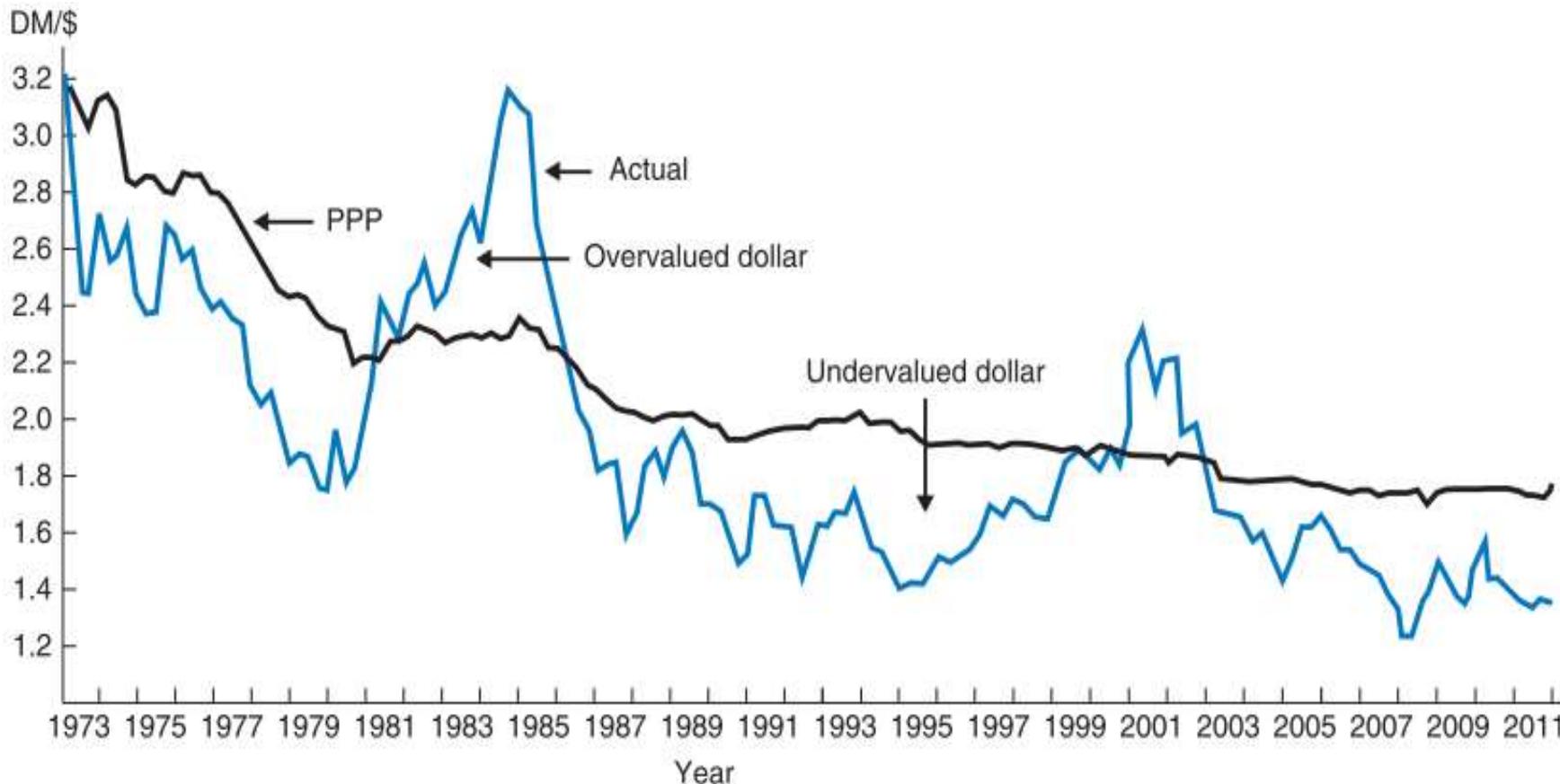
# Stabilization of the PPP

- When a currency is overvalued or undervalued, it creates profit-making opportunities for merchants that can move goods across international borders.
- Prices are moving in the direction that equalizes the purchasing power of the two currencies instead of equalization through E movement.

# Validity of PPP

- PPP theory holds under restrictive assumptions:
  - goods flow costlessly across international borders,
  - all goods and services can be traded,
  - no tariffs are levied,
  - capital flows are disregarded.
- The general price index includes the prices of both traded and nontraded goods and services, so that prices of the latter are not equalized by international trade.
- Since prices are relatively higher in developed nations, the PPP theory predicts overvalued Es for developed nations and undervalued Es for developing nations.

# PPP and actual E (of DM and) € per \$ in 1973-2011 (1€=1.956DM in 1999)



# Comments on the chart

- The PPP exchange rate goes together with the actual exchange rate:
  - only in the long run,
  - and only in the case of two similar (i.e. advanced) countries.
- The PPP exchange rate better captures the long-run changes rather than levels (negative changes in chart).

# Relative PPP theory

- This postulates that the *change* in the E over a period of time should be proportional to the *relative change* in the price levels in the two nations over the same time period.
- Formally (the subscript 0 = base period, and 1 = a subsequent period):

$$\frac{E_1}{E_0} = \frac{P_1/P_0}{P_1^{US}/P_0^{US}} \quad \text{or} \quad E_1 = \frac{P_1/P_0}{P_1^*/P_0^*} E_0$$

# Relative PPP theory (cont)

$$\frac{E_1}{E_0} = \frac{P_1 / P_0}{P_1^{US} / P_0^{US}}$$

- If inflation in Europe ( $P_1/P_0$ ) is higher, then  $E = €/\$$  is expected to rise, i.e the € to depreciate.
- This is a less demanding theory than PPP theory, and it better approximates facts.

# Real exchange rates:

## a useful measure

- The real exchange rate (RE) is the nominal exchange rate (E) divided by the ratio of the domestic consumer price index to the consumer price index in the foreign nation. That is,

$$RE = E \left/ \frac{P_{EU}}{P_{US}} \right.$$

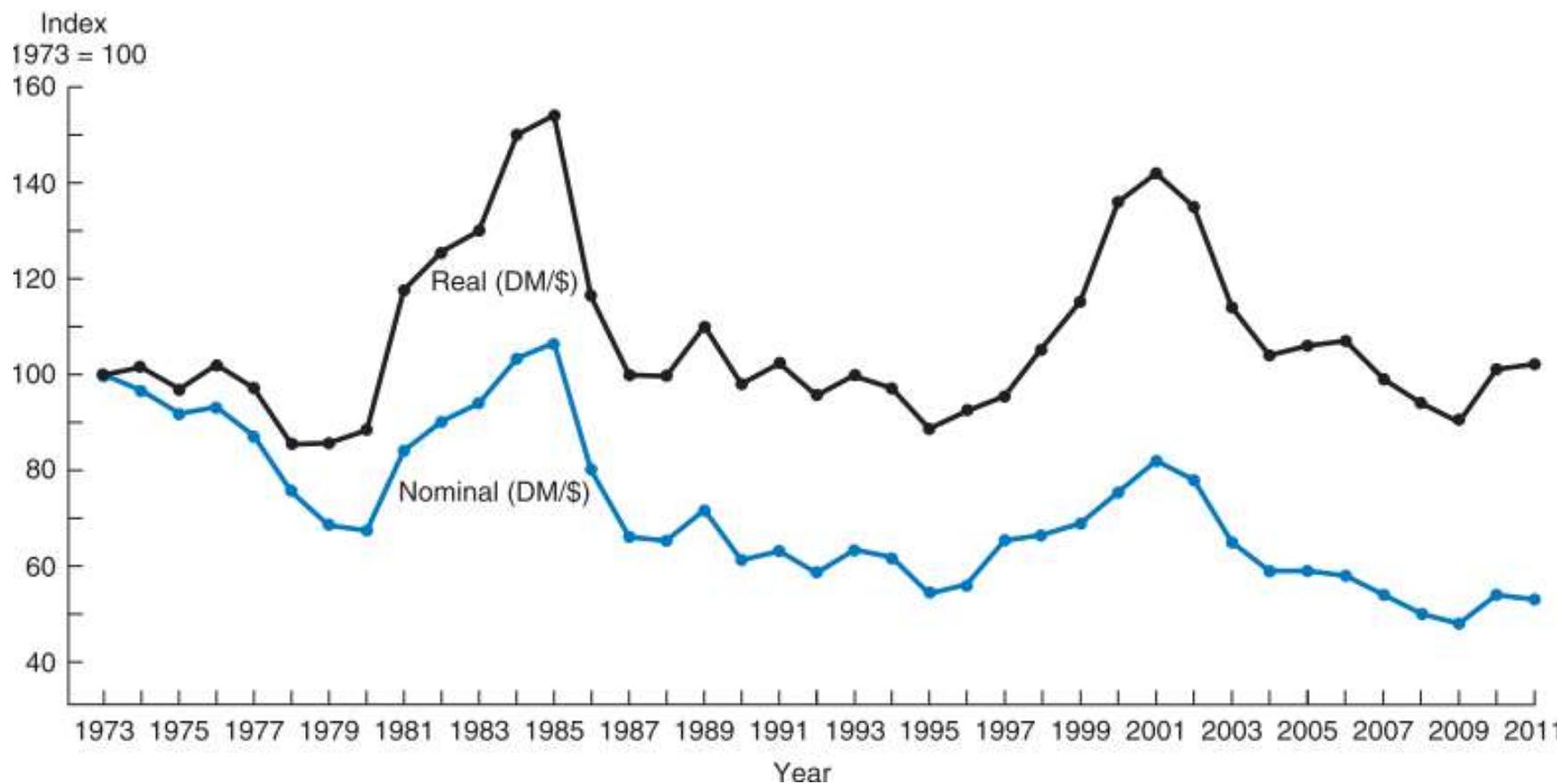
- The RE is the exchange rate of a currency expressed in constant price term in order to adjust for the effect of inflation.

# Real Exchange Rates

$$RE = \frac{\text{Euro}}{\$} / \frac{P_{EU}}{P_{US}} = E / \frac{P_{EU}}{P_{US}}$$

- For example: if EU experiences a higher rate of inflation than the US (i.e.  $+\Delta P_{EU}/P_{US}$ ), then the EU export becomes more expensive and imports become cheaper than domestic goods, unless the EU exchange rate depreciates (i.e.  $+\Delta E$ ) to offset the inflation differential.
- This is a measure of country's competitiveness.
- If RE decreases (because of  $-\Delta E$  and/or  $+\Delta P_{EU}/P_{US}$ ), this is a real appreciation, and competitiveness declines.

# E and RE of (DMark and then) Euro per 1\$



# Exercises

# Exercise on the BoP (solved)

- If a EU citizen receives 100€ as interest from a foreign bond. Write down the changes in the BoP (with the sign):

1. Current Accounts:

1.1 trade account . . . . . ..... €

1.2 income account . . . . . +100€

1.3 transfers account . . . . . ..... €

2. Capital Account . . . . . ..... €

3. Financial Account:

3.1 foreign direct investments . . . . . ..... €

3.2 portfolio investments . . . . . ..... €

3.3 other financial investments . . . . . ..... €

3.4 official reserves . . . . . -100€

= Accounting balance 0 €

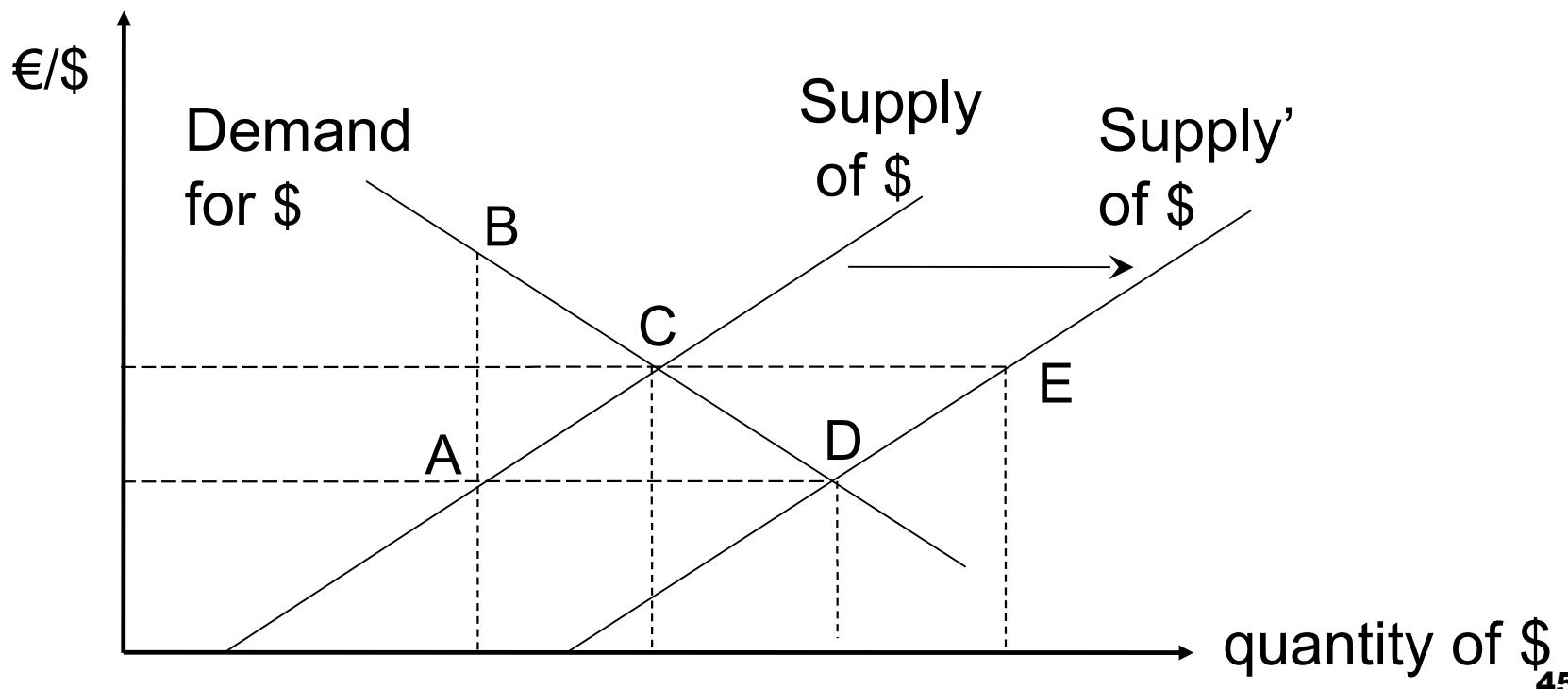
# Exercise on the Official reserves: solution

- What do official reserves include?  
(list at least three items)
  1. foreign currency,
  2. foreign bonds,
  3. gold,
  4. Special Drawing Rights (SDR),
  5. the country's reserve position in the International Monetary Fund (IMF).

# Exercise on the foreign exchange market

If the Supply of \$ shifts as in the figure, and if the exchange rate is flexible: (underline the correct answer)

- 1.What is the new equilibrium point, A, B, C, D, or E?
- 2.What is the dynamics of the exchange rate:  
the € (2.1) appreciates, (2.2) depreciates, (2.3) does not change.



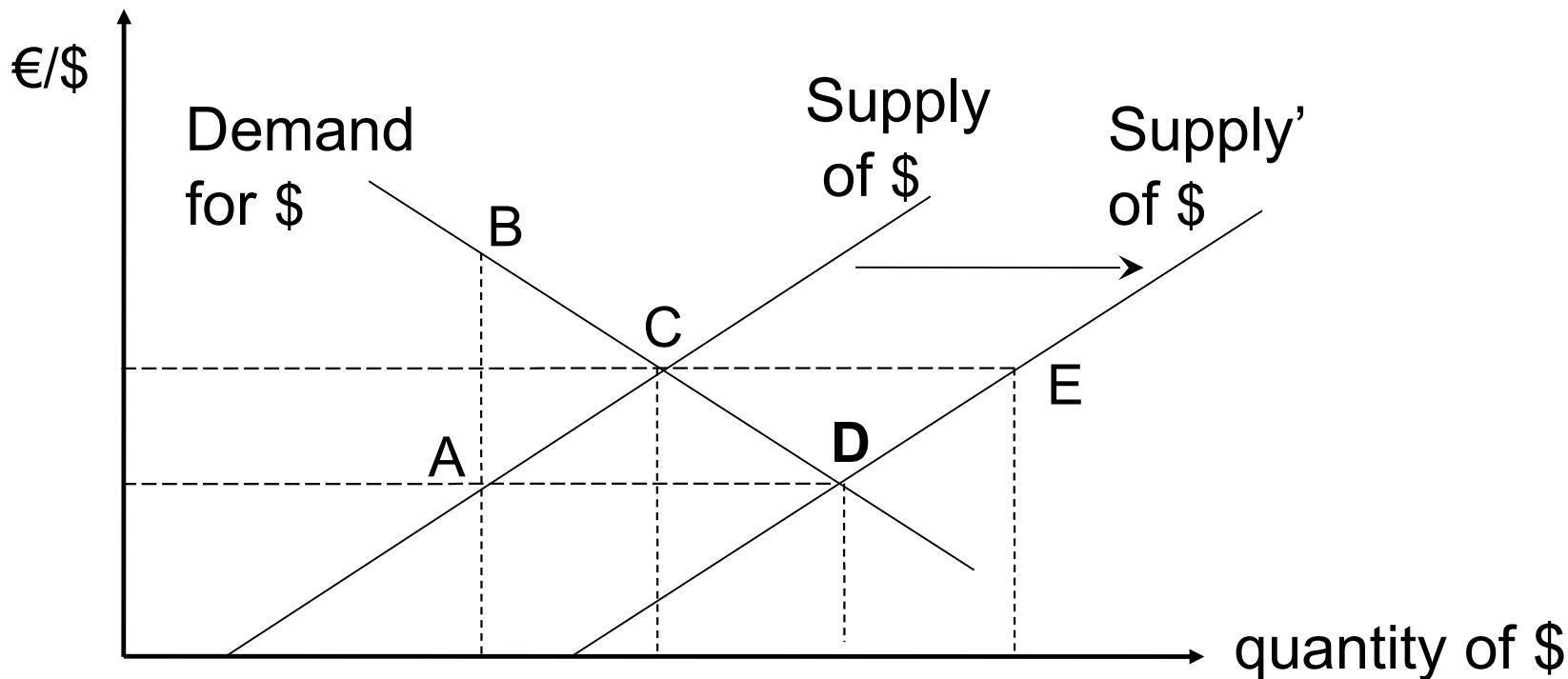
# Exercise on forex: solution

If the Supply of \$ shifts as in the figure, and if the exchange rate is flexible: (underline the correct answer)

1.What is the new equilibrium point, A, B, C, D, or E?

2.What is the dynamics of the exchange rate:

the € (2.1) appreciates, (2.2) depreciates, (2.3) does not change.



# Exercise on the relative PPP theory

If inflation in the EMU is 2% and inflation in the US is 4%:

- how much is the percentage change in the exchange rate that is predicted by the relative PPP theory?
- is it an appreciation or a depreciation?

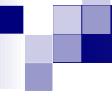
# Exercise on the relative PPP theory

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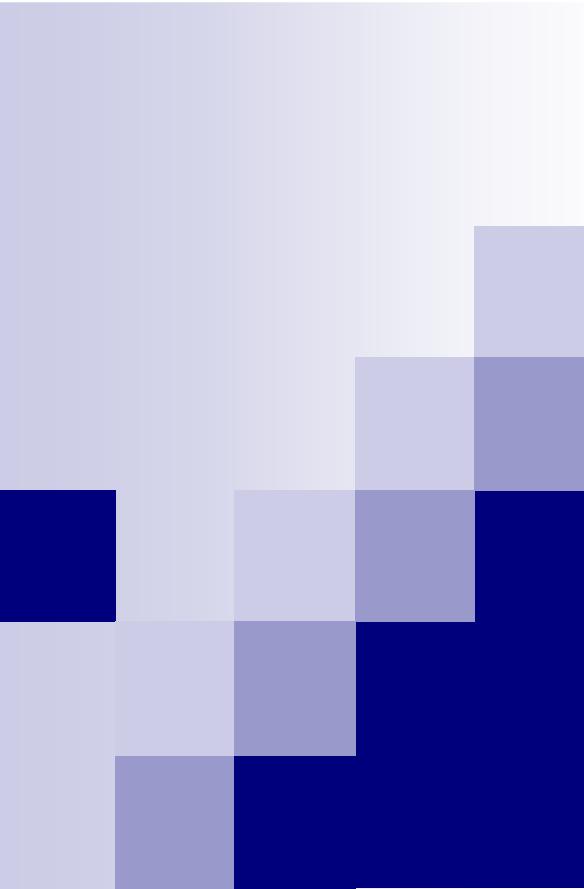
- how much is the percentage change in the exchange rate that is predicted by the relative PPP theory?
- is it an appreciation or a depreciation?

$$\frac{E_1}{E_0} = \frac{P_1/P_0}{P_1^{US}/P_0^{US}} = \frac{1+0.02}{1+0.04} - 1 = -0.019 = -1.9\%$$

This is an appreciation of the exchange rate.



# End of the third lecture on International Finance *M. Pugno*



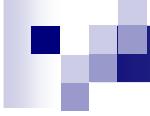
***University of Cassino***  
***Economics and Business***  
**Academic Year 2023/2024**

# International Economics

## International Finance

(GDP in an open economy –  
chapter 11 - lecture 4)

***Prof. Maurizio Pugno***  
**University of Cassino**



# GDP determination in an open economy

- We will look at the relationship between:
  - the balance of payments (Current Account),
  - the exchange rate,
  - and the overall national economy  
(consumption, investment, and government spending).



# Income in an open economy (Keynes)

- $Y = C + I + G + X - M$  (identity)  
domestic production = final demand
- $Y \leftarrow C + I^p + G + X - M$  (behaviour)  
domestic production  $Y$  is caused by  
*programmed* demand
- $\Delta$  real stock (=production–sales) =  $I - I^p$

Programmed Demand =  $C + I^p + G + X - M$

$C$  = consumption

$I^p$  = programmed investments

$G$  = public expenditure

$X$  = exports of goods and services

$M$  = imports of goods and services

# Determination of Y

- Programmed Demand =  $C + I^p + G + X - M$

$$C = c_1 + c_2(Y - T)$$

$$M = m_1 + m_2 Y$$

$T$  exogenous

$I^p$  exogenous

$G$  exogenous

$X$  exogenous

- In equilibrium:  $Y = \text{programmed demand}$  ( $\Delta \text{stocks} = 0$ )

$$Y = C + I^p + G + X - M$$

$$Y = c_1 + c_2(Y - T) + I^p + G + X - m_1 - m_1 Y$$

- Rearranging:

$$Y = c_1 - c_2 T + I^p + G + X - m_1 + (c_2 - m_1) Y$$

# When GDP improves (i.e. $+\Delta Y$ )

- The solution for  $Y$  is:

$$Y = 1/(1-c_2+m_2) (c_1 - c_2 T + I^p + G + X - m_1)$$

where  $1/(1-c_2+m_2)$  is the income multiplier ( $k$ ).

→  $Y$  rises if:

$X$  increases (exports):  $\Delta Y = k^* \Delta X$

$M$  diminishes, i.e.

$m_1$  diminishes (autonomous import):  $\Delta Y = -k^* \Delta m_1$

$m_2$  diminishes (propensity to import), so that

$k$  increases.

→ GDP improves when the  $CA = X - M$  improves

# Determinants of $CA=X-M$

- This implies studying:
  - the determinants of  $X$ ,
  - the determinants of  $M$ .
- Common determinants are:
  - domestic prices  $P$ ,
  - foreing prices  $P^*$ ,
  - the exchange rate  $E$ ,  
→ or the real exchange rate  $EP^*/P$ ;
  - income (foreing,  $Y^*$ , and domestic,  $Y$ , respectively).

# Determinants of exports

- Exports compete with foreign products.
- If the price of exports diminishes relative to foreign price (i.e. if  $P^*/P$  increases), this has two effects:
  - (1) it encourages the foreign demand for exports (more units bought); (2) each unit costs less to foreigners.
- If exports are *substitutable* with foreign products, the effect 1 prevails and spending for exports increases.
- The same is true if the domestic currency depreciates.
- The higher foreign income ( $Y^*$ ), the higher exports.

$$\rightarrow X = f^X (EP^*/P, Y^*)$$

+ + - +

# Determinants of imports

- Imports compete with domestic products.
  - If the price of imports increases relative to domestic price (i.e. if  $P/P^*$  diminishes), this has two effects:
    - (1) it discourages the domestic demand for imports (less units bought); (2) each unit costs more.
- If imports are *substitutable* with domestic products, the effect 1 prevails and imports diminish.
- The same is true if the domestic currency depreciates.
  - The higher domestic income ( $Y$ ), the higher imports.

$$\rightarrow M = f^M (P/EP^*, Y)$$

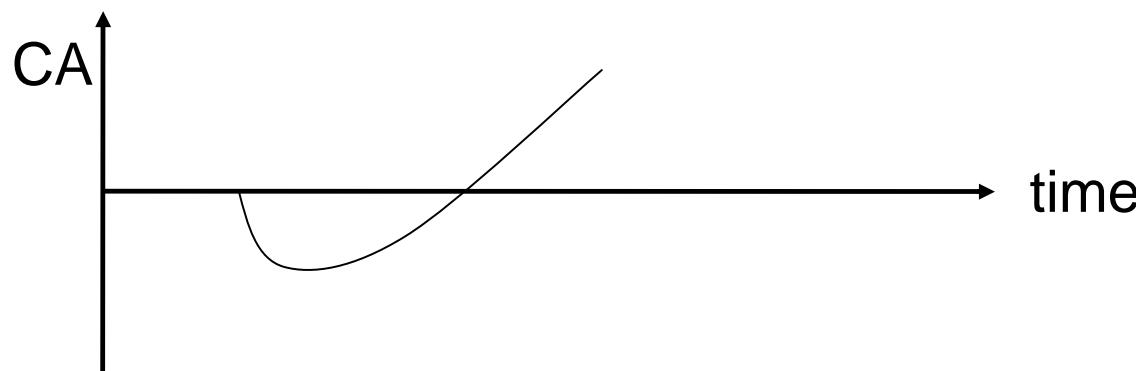
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# A conclusion about prices and E

- A lower domestic inflation ( $-\Delta P$ ):
    - increases exports and diminishes imports  
→ improves CA and GDP.
  - A higher domestic inflation ( $+\Delta P$ ):
    - diminishes exports and increases imports  
→ worsens CA and GDP.
  - A depreciation,  $+\Delta E$  (or an appreciation,  $-\Delta E$ ):
    - improves (or worsens) CA and GDP
- IF products are substitutable.

# The J-effect of a devaluation

- But a depreciation (rise of E) increases the cost of a unit of imports. Usually, imports are difficult to substitute in the short term (e.g. for delayed contracts), so that the CA may worsen.
  - When imports become more substitutable, CA improves.
- CA first worsens and then improves (J curve).



# Conditions to improve the CA

- The high substitutability with other goods is captured by the high elasticity of demand with respect to price of the good.
- A depreciation improves the trade balance  
IF:  
*the sum of the export- and the import-elasticity with respect to the exchange rate is high, i.e. greater than 1* (Marshall-Lerner condition).
- Buyers' reaction may take time → J-effect ,<sub>11</sub>

# Imports and exports elasticities

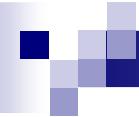
Country	Impact	Imports		Impact	Exports	
		Short Run	Long Run		Short Run	Long Run
United States	–	1.06	1.06	0.18	0.48	1.67
Japan	0.16	0.72	0.97	0.59	1.01	1.61
Germany	0.57	0.77	0.77	–	–	1.41
United Kingdom	0.60	0.75	0.75	–	–	0.31
France	–	0.49	0.60	0.20	0.48	1.25
Italy	0.94	0.94	0.94	–	0.56	0.64
Canada	0.72	0.72	0.72	0.08	0.40	0.71
Austria	0.03	0.36	0.80	0.39	0.71	1.37
Belgium	–	–	0.70	0.18	0.59	1.55
Denmark	0.55	0.93	1.14	0.82	1.13	1.13
Netherlands	0.71	1.22	1.22	0.24	0.49	0.89
Norway	–	0.01	0.71	0.40	0.74	1.49
Sweden	–	–	0.94	0.27	0.73	1.59
Switzerland	0.25	0.25	0.25	0.28	0.42	0.73

Source: J. R. Artus and M. D. Knight, *Issues in the Assessment of Exchange Rates of Industrial Countries*, Occasional Paper 29 (Washington, D.C.: International Monetary Fund, July 1984), Table 4, p. 26. The dashes indicate values that are not available.



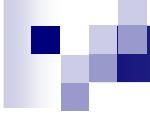
# Comments on the chart

- The long-run imports and exports elasticities are greater than the short run elasticities.
- The sum of the imports and exports long run elasticities are often, but not always, greater than 1.



# A policy issue

- A rise of E (depreciation of €), in the long run, may improve the trade balance ( $X-M$ ).
- A better trade balance increases domestic production, because:  $k\Delta(X-M)=\Delta Y$ .
- I.e.:  $+ΔE \rightarrow +Δ(X-M) \rightarrow +ΔY$
- [Symmetrically, an appreciation of € may worsen ( $X-M$ ) and thus  $Y$ ].
- Is (a one-shot) depreciation an effective expansionary policy?



# The dangerous effect of depreciation on domestic inflation

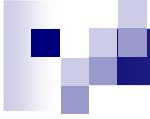
- A rise of  $E$  (depreciation of  $\epsilon$ ) makes domestic goods more convenient for foreign buyers.
- But this opens the possibility for domestic producers to increase domestic prices, in order to make more profits (per unit sold).
  - Currency depreciation calls for domestic inflation.
  - I.e.  $+ΔE \rightarrow +ΔP/P^*$

# Dangerous effects of depreciation

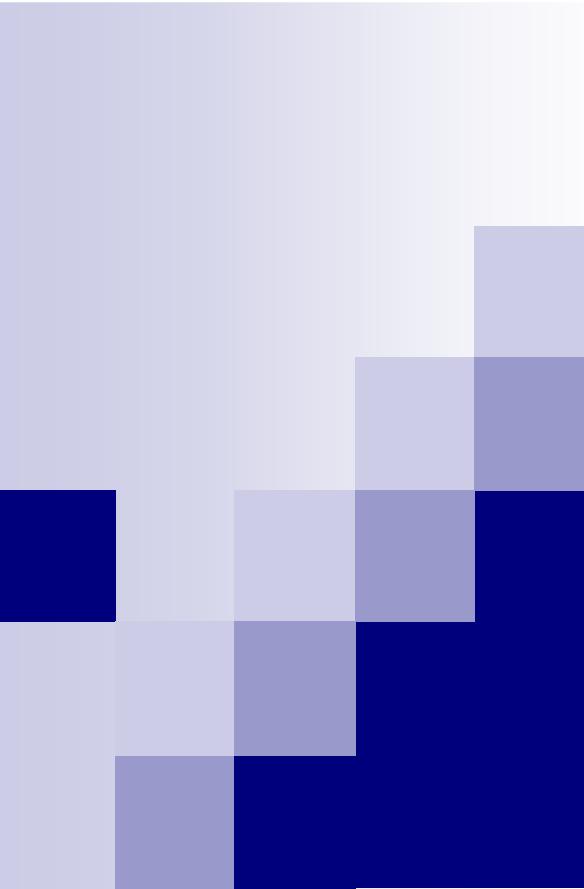
- However, domestic inflation reduces X and increases M, i.e. it can neutralise the original effect of the depreciation on the trade balance
  - I.e.  $+ΔE \rightarrow +ΔP/P^* \rightarrow \text{no change in } (X-M)$
  - or it may even go beyond:  
 $+ΔE \rightarrow +ΔP/P^* \rightarrow -Δ(X-M)$
- Foreign currencies run into excess demand  
(because the demand for foreign currency to pay for imports rises, and the demand for domestic currency to pay for exports diminishes).
- If the central bank supplies foreign currency to maintain the fixed level of E, then it decumulates Reserves.
- Inflation and the decumulation of reserves put the economy in weak position.

# The depreciation / inflation spiral

- In order to stop decumulation of Reserves, the central bank leaves further depreciation of the domestic currency.  
→  $+ΔE \rightarrow +ΔP/P^* \rightarrow -Δ(X-M) \rightarrow +ΔE$  (spiral).
- Conclusion: Depreciation may counterproductive as a policy to improve the trade balance and to expand Y.  
→ It may ignite inflation, which may call for a deflationary policy.



End of the 4th lecture  
of  
International Finance  
*M. Pugno*



***University of Cassino***  
***Economics and Business***  
**Academic Year 2023/2024**

# International Economics

## International Finance

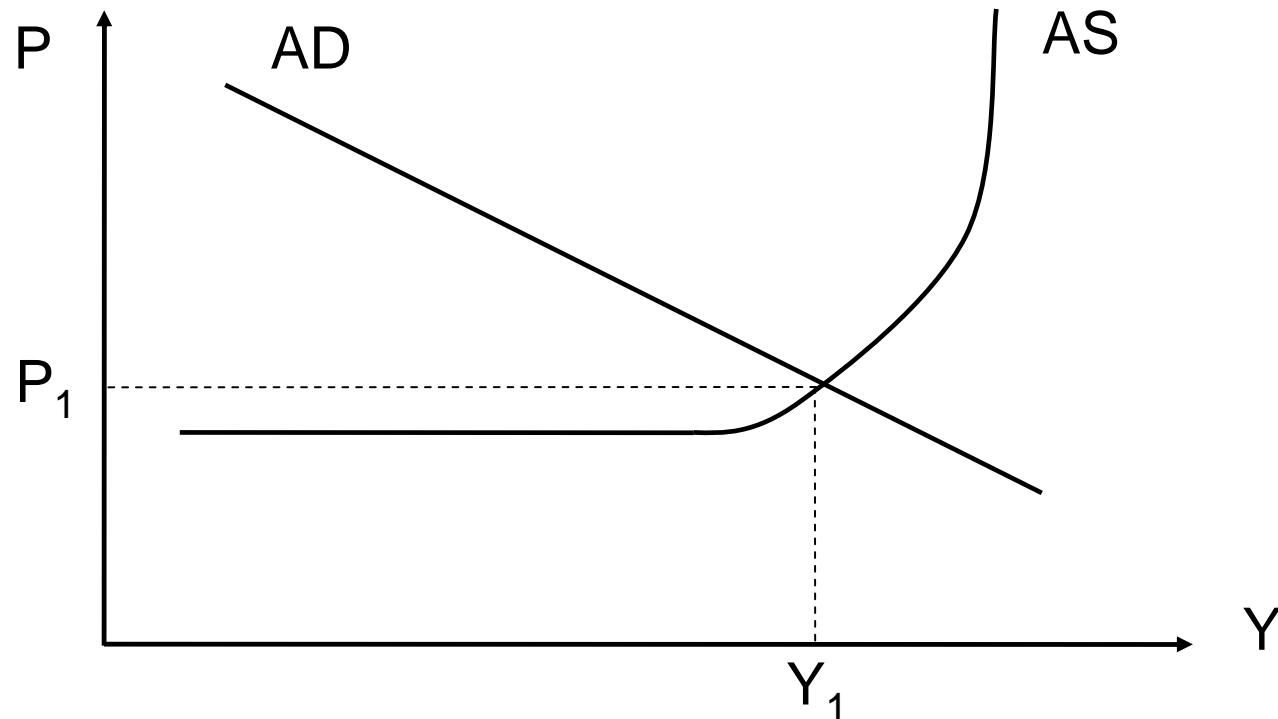
(Policies in an open economy –  
chapter 11 - lecture 5)

***Prof. Maurizio Pugno***  
**University of Cassino**

# Aggregate Demand and Supply

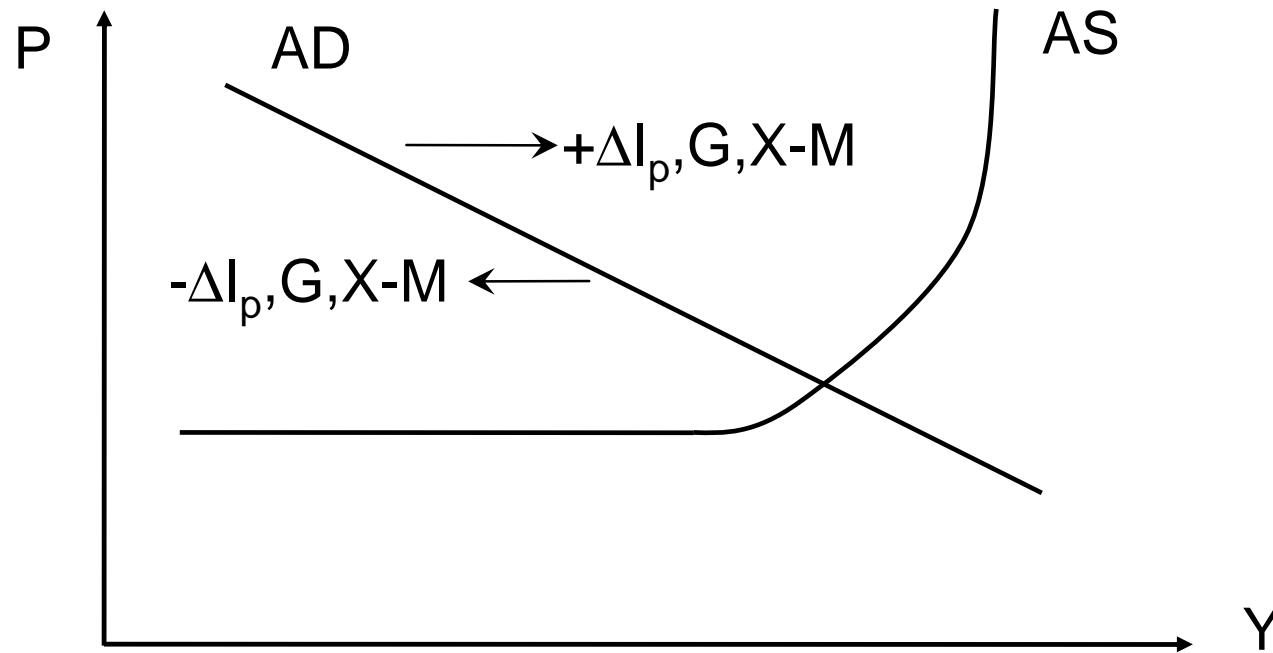
- Aggregate demand: total demand for all final goods and services.
- Aggregate supply: total output offered on the market of all final goods and services.
- The AD represents the equilibrium levels of output and prices that are consistent on the demand side of the economy.
- The AS shows the points that are consistent from a supply-side point of view.
- They can be represented on a graph, where the x-axis measures quantity ( $Y$ ) and the y-axis measures the level of prices ( $P$ ).

# The AD-AS diagram



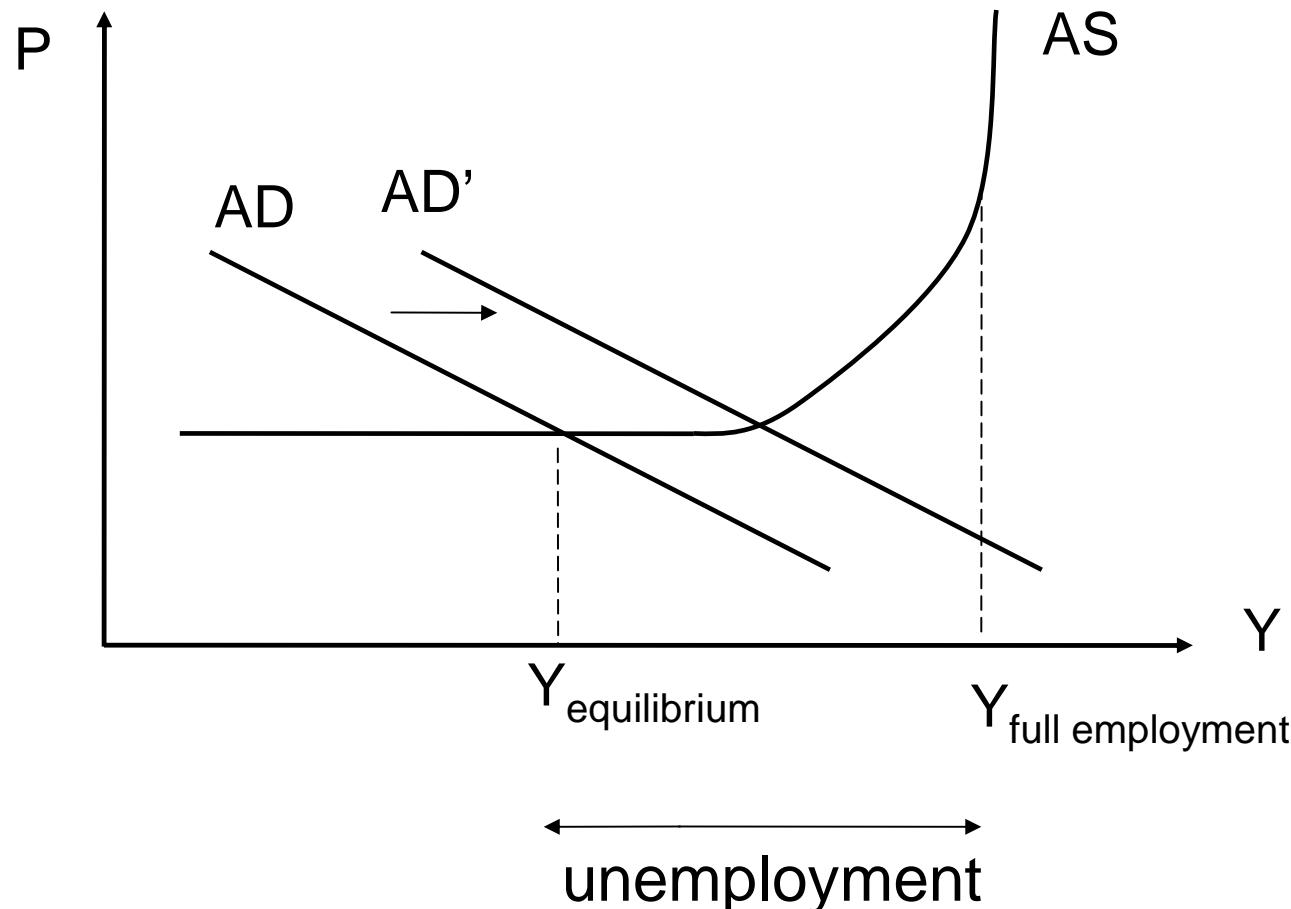
- At the cross point lies the levels of equilibrium output ( $Y_e$ ) and prices ( $P_e$ ) at a given point in time.

# The AD-AS diagram



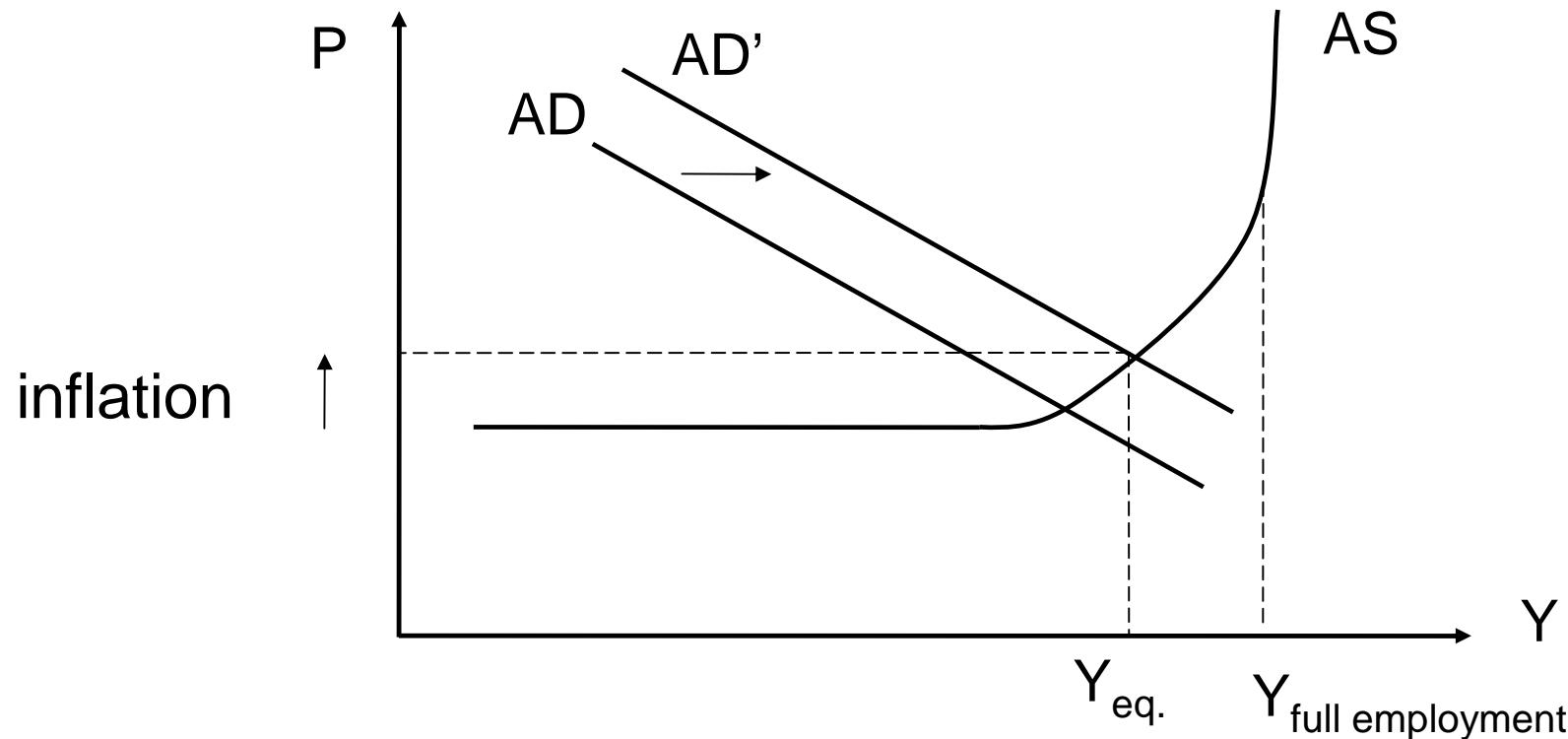
- An increase of  $I_p$ ,  $G$ , or  $X-M$  shifts the AD to the right, thus increasing  $Y_e$ .
- A reduction of  $I_p$ ,  $G$ , or  $X-M$  shifts the AD to the left, thus reducing  $Y_e$ .

# AD-AS and unemployment



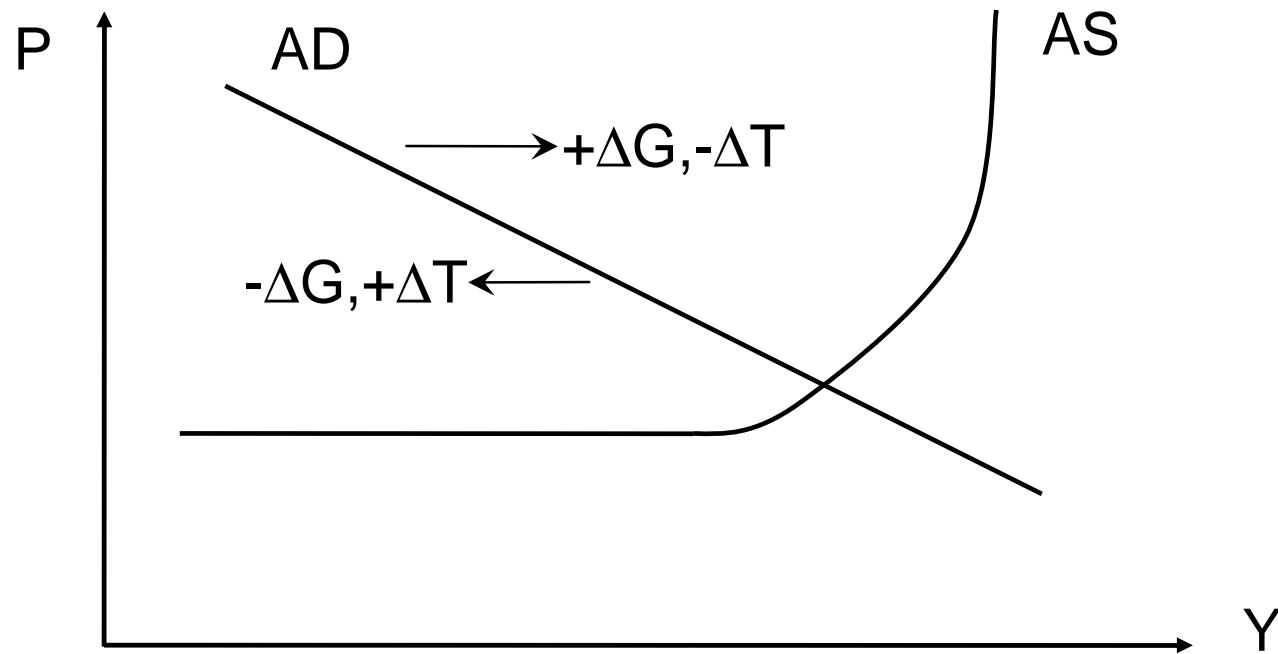
If AD increases (right-shift), unemployment diminishes.

# AD-AS, unemployment & inflation



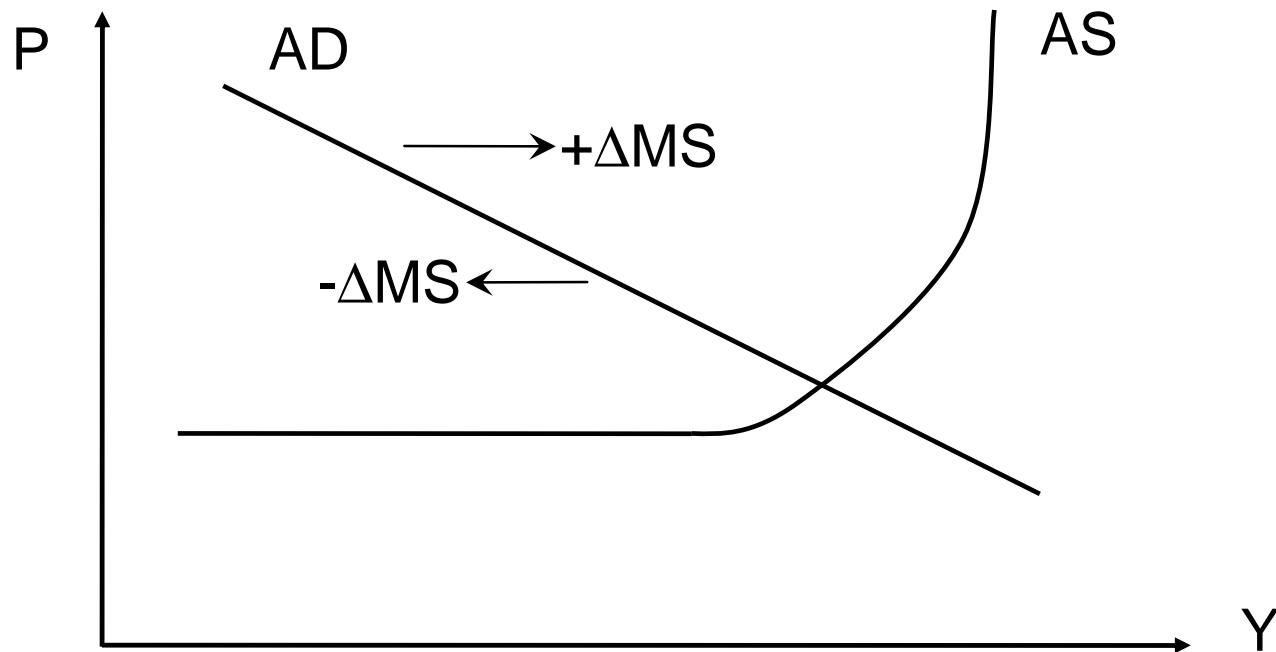
If AD shifts further, unemployment diminishes but P rises, because shortage of labor pushes wages up, and thus P.

# Fiscal policy



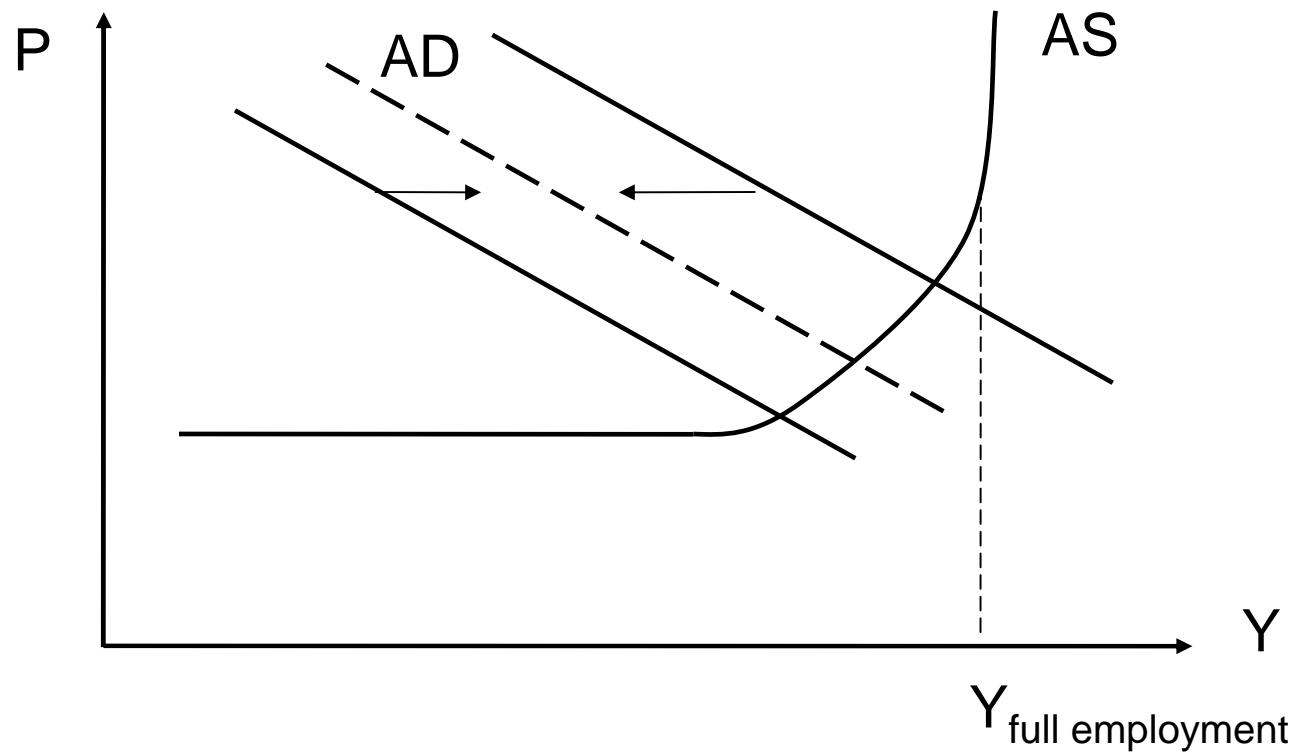
- The two channels of fiscal policy:
  - increasing/reducing public expenditure (G)
  - reducing/increasing taxes (T).

# Monetary policy



- The channel of monetary policy:
  - increasing/reducing the supply of money (MS).

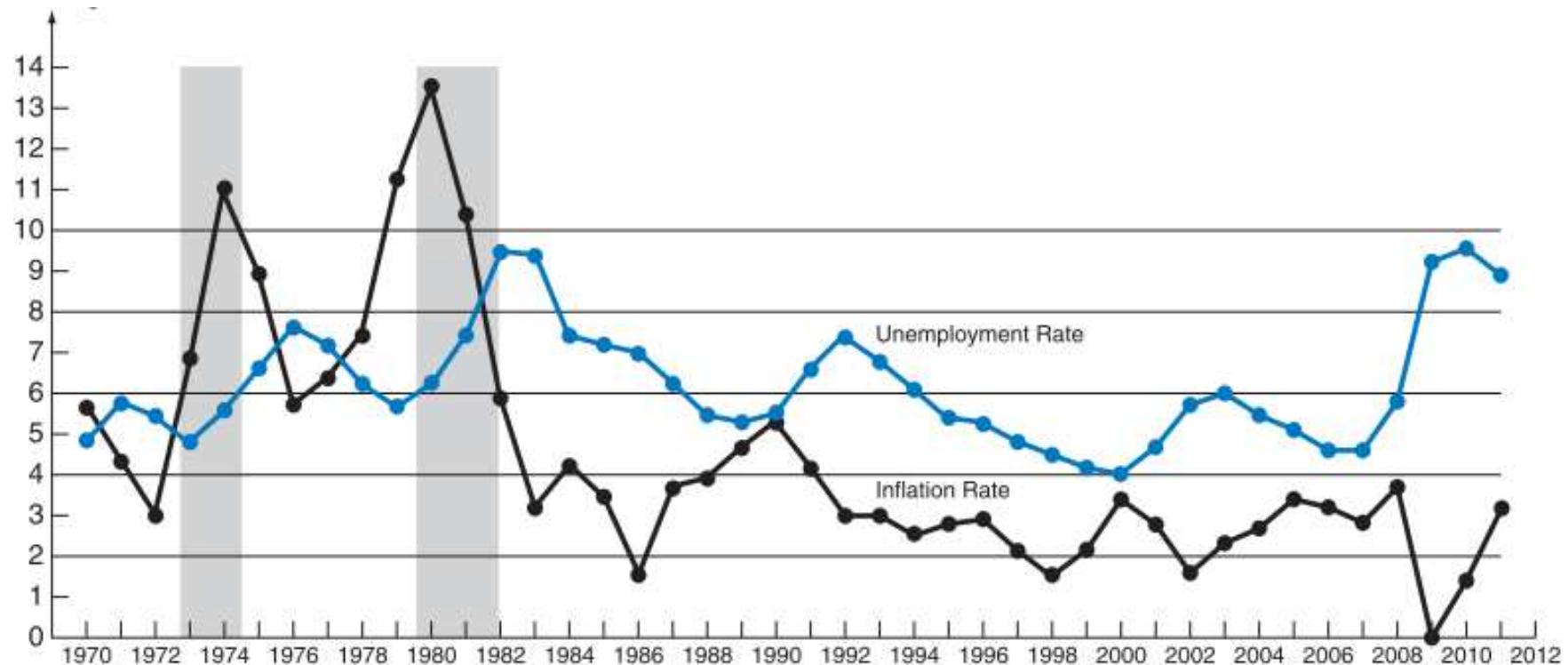
# Macro-economic policy (fiscal & monetary)



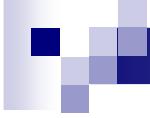
The goals of macro-economic policies is:

- to reduce unemployment by increasing AD,
- to reduce inflation by dampening AD.

# The unemployment-inflation trade off



How the inflation- and the unemployment-rate go in opposite direction (in the US economy)



# Macro-economic policy and BoP

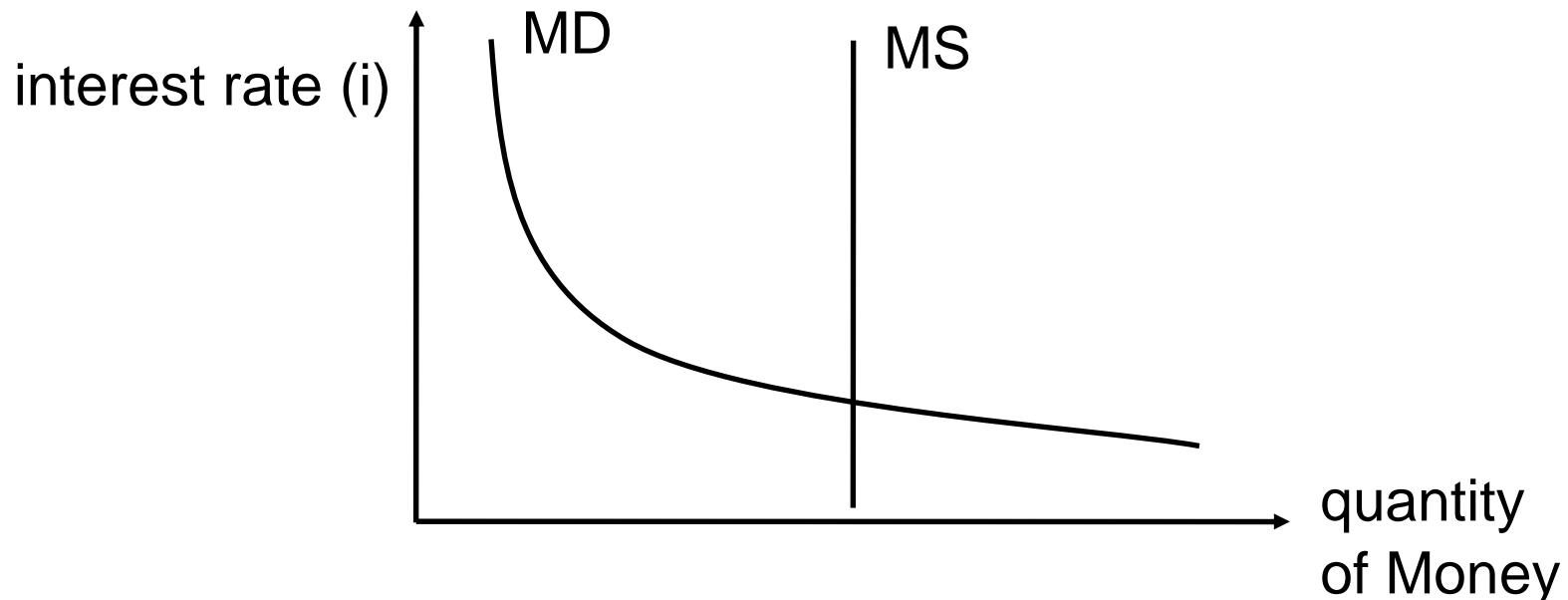
- Macro-economic policies aim at manipulating AD, but, in an open economy, they also interact with BoP.
- Two problems arise:
  - an expansionary policy may worsen BoP,
  - changes in BoP (and in E) may reduce the effects of policies on AD.



# The macro-economic policies

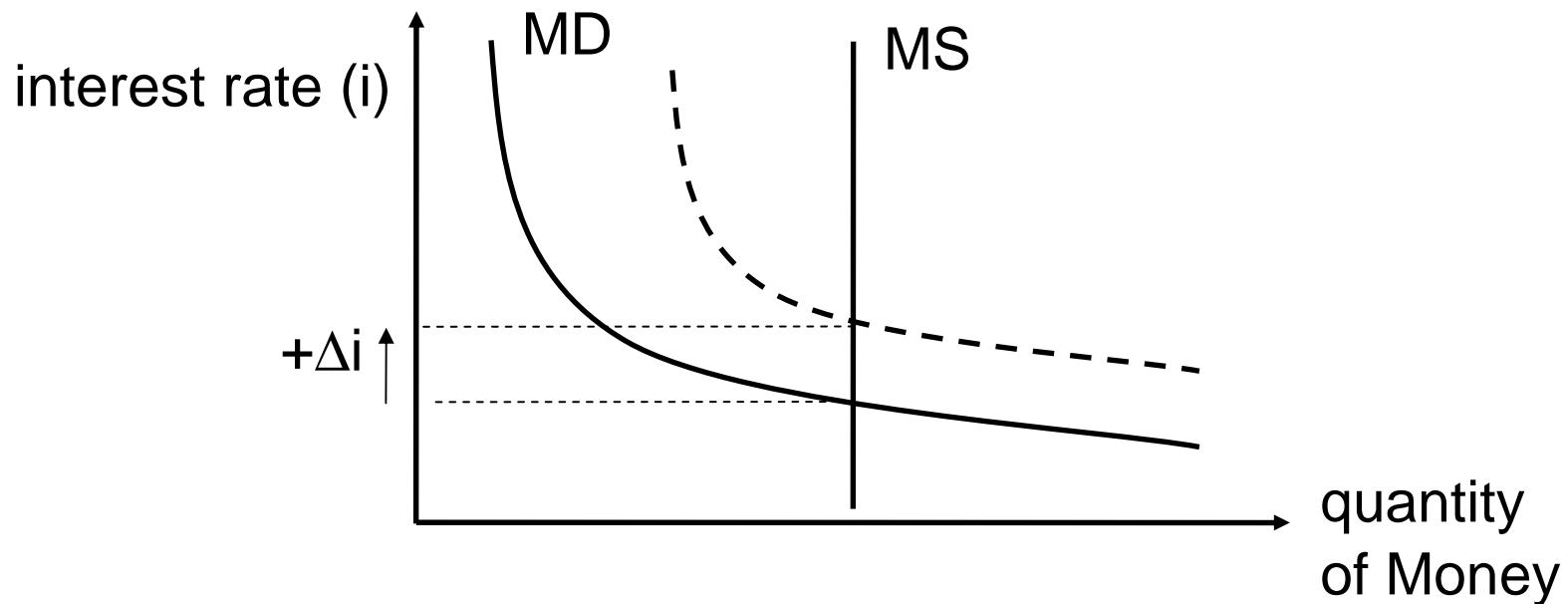
- Macro-economic policies are of two kinds:
  - fiscal policy done by the government:
    - the rise of G increases Y,
    - the reduction of T increases Y
      - i.e.  $+ΔY=k(+ΔG,-ΔT)$ ;
  - monetary policy done by the central bank:
    - the expansion of money supply (MS) finances the economy. Why?

# Memo: the money market



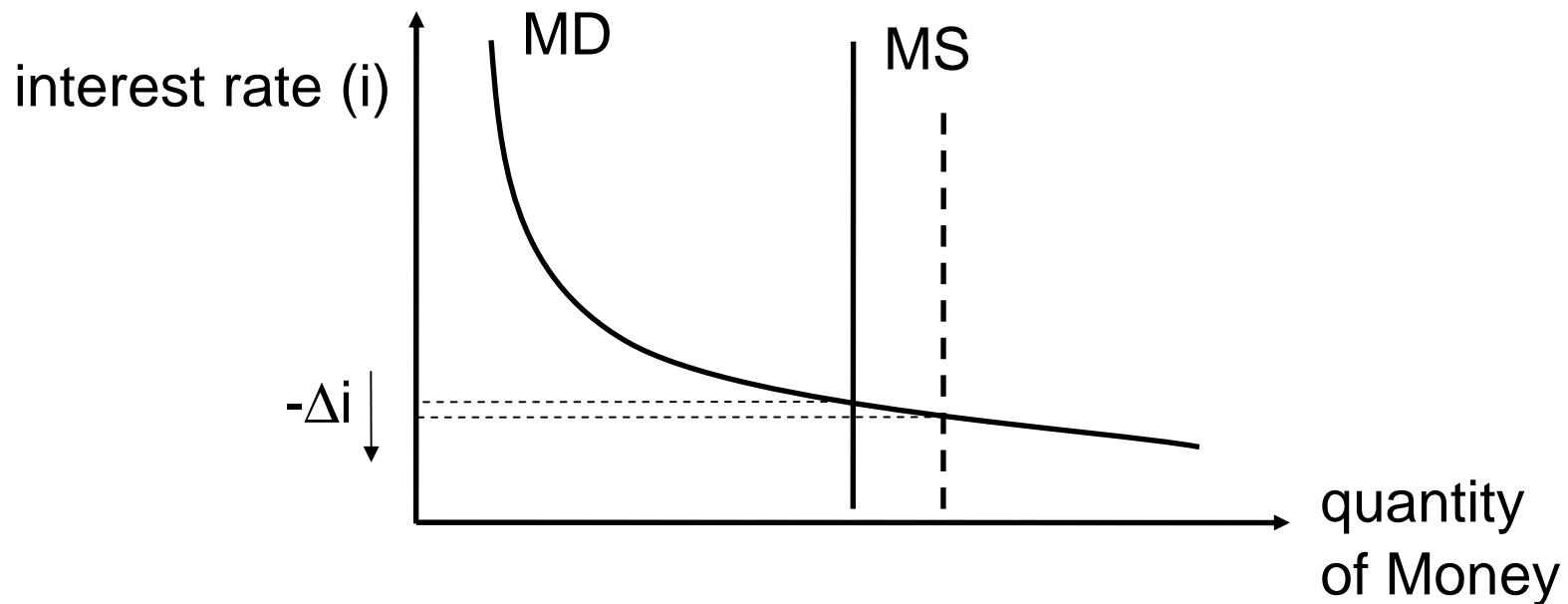
- $MD = f(i, YP)$  by families, business, etc.
  - ++
- MS issued by the central bank

# Memo: the money market



- $MD = f(i, YP)$  by families, business, etc.  
- +
- Therefore:  $+ΔY \rightarrow +ΔMD \rightarrow +Δi$

# Memo: the money market



- MS issued by the central bank
- Therefore:  $+ΔMS \rightarrow -Δi$

# Memo: the investment equation

- If the interest rate diminishes, firms pay less borrowed funds from banks in order to finance real investments:

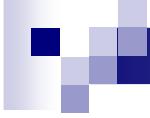
$$I^p = f(i)$$

—

- Therefore:

$$+\Delta MS \rightarrow -\Delta i \rightarrow +\Delta I^p \rightarrow +\Delta Y$$

$$-\Delta MS \rightarrow +\Delta i \rightarrow -\Delta I^p \rightarrow -\Delta Y$$



# MS and Official reserves

- The central bank creates money (i.e.  $+ΔMS$ ) by buying assets in exchange, i.e.:
  - bonds,
  - foreign currencies.
- When the central bank buys foreign currencies accumulates Official reserves.
- And viceversa: the central bank destroys money by selling foreign currencies drawn from Official reserves.



# The effects of policies

	Fixed exchange rate regime	Flexible exchange rate regime
Fiscal policy by the government (G, T)		
Monetary policy by the central bank (MS)		

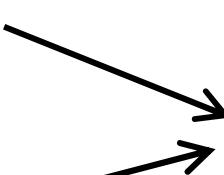
With free capital mobility through national borders

# The effects of policies when E is fixed

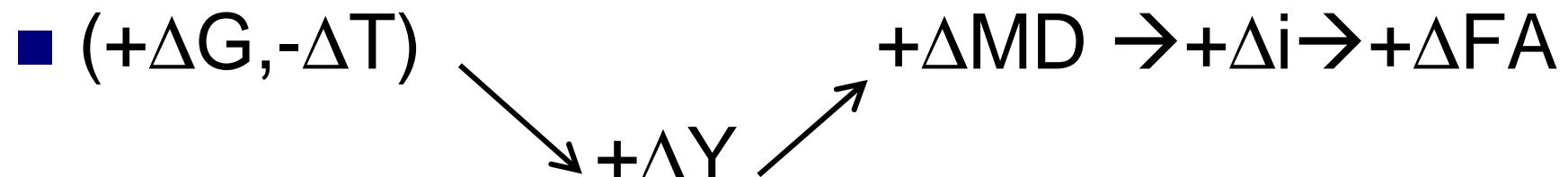
	Fixed exchange rate regime	Flexible exchange rate regime
Fiscal policy by the government (G, T)		
Monetary policy by the central bank (MS)		

With free capital mobility through national borders

# Real effects of policies on the CA (trade balance)

- $(+\Delta G, -\Delta T)$    $+ \Delta Y \rightarrow + \Delta M \rightarrow - \Delta CA$
- $(+ \Delta MS)$  
- Fiscal and monetary policies:
  - are effective (ie increase  $Y$ ),
  - but they worsen the CA (by increasing imports of goods and services).

# Financial effects of fiscal policy



- Expansionary fiscal policy increases the demand for money (MD), thus increasing interest rate (i).
- This attracts financial flows from abroad, which improve the Financial Account (FA).

# Total effects of fiscal policy

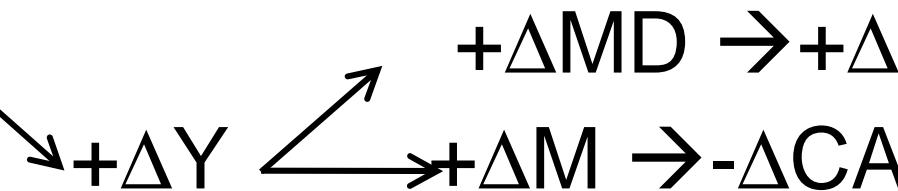
- $(+\Delta G, -\Delta T)$ 

```
graph TD; A["(+ΔG, -ΔT)"] --> B["+ΔY"]; A --> C["+ΔMD"]; B --> D["+ΔM"]; C --> E["+Δi"]; E --> F["+ΔFA"]; D --> G["-ΔCA"]
```
- $-\Delta CA$  worsens BoP,  
 $+\Delta FA$  improves BoP  
 $\rightarrow$  BoP may not worsen (if  $\Delta FA > \Delta CA$ ).
- If international capital flows are very mobile:
  - 1) BoP improves,

# Total effects of fiscal policy

- $(+\Delta G, -\Delta T)$ 
  - $\rightarrow +\Delta Y$
  - $\rightarrow +\Delta MD \rightarrow +\Delta i \rightarrow +\Delta FA$
  - $\rightarrow +\Delta M \rightarrow -\Delta CA$
- $-\Delta CA$  worsens BoP,  
 $+\Delta FA$  improves BoP  
 $\rightarrow$  BoP may not worsen (if  $\Delta FA > \Delta CA$ ).
- If international capital flows are very mobile
  - 1) BoP improves,
  - 2) the central bank accumulates Reserves

# Total effects of fiscal policy

- $(+\Delta G, -\Delta T)$   $+ΔMD \rightarrow +Δi \rightarrow +ΔFA$  $+ΔM \rightarrow -ΔCA$
- $-\Delta CA$  worsens BoP,  
 $+ΔFA$  improves BoP  
→ BoP may not worsen (if  $\Delta FA > \Delta CA$ ).
- If international capital flows are very mobile
  - 1) BoP improves,
  - 2) the central bank accumulates Reserves, and creates money.
  - 3)  $+ΔMS \rightarrow +ΔY$ : this helps fiscal policy.

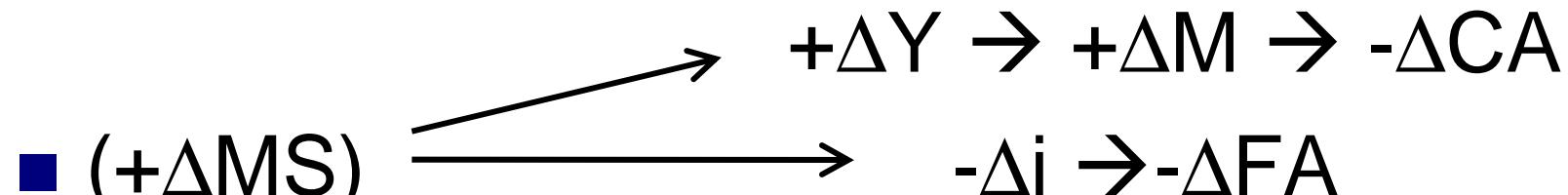
# The effects of policies when E is fixed

	Fixed exchange rate regime	Flexible exchange rate regime
Fiscal policy by the government (G, T)	<b>Effective on Y. BoP may improve if capitals are very mobile.</b>	
Monetary policy by the central bank (MS)		

# Financial effects of monetary policy

- $(+\Delta MS) \longrightarrow -\Delta i \rightarrow -\Delta FA$
- Monetary policy reduces the interest rate, because  $+\Delta MS$  expands (domestic) money supply.
- This makes domestic assets less attractive, so that financial capital outflows (if it is mobile).

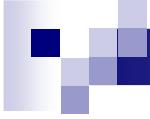
# Total effects of monetary policy

- 
- $(+\Delta MS)$   $\xrightarrow{\hspace{1cm}}$   $+ \Delta Y \rightarrow + \Delta M \rightarrow - \Delta CA$
  - $- \Delta i \rightarrow - \Delta FA$
  - Monetary policy worsens both CA and FA.
  - BoP ( $= CA + FA$ ) worsens, and the demand for domestic currency drops.
  - In order to maintain fixed E, the central bank buys the excess of domestic currency.
  - This destroys money ( $-\Delta MS$ ).
  - This counteracts the initial expansion.

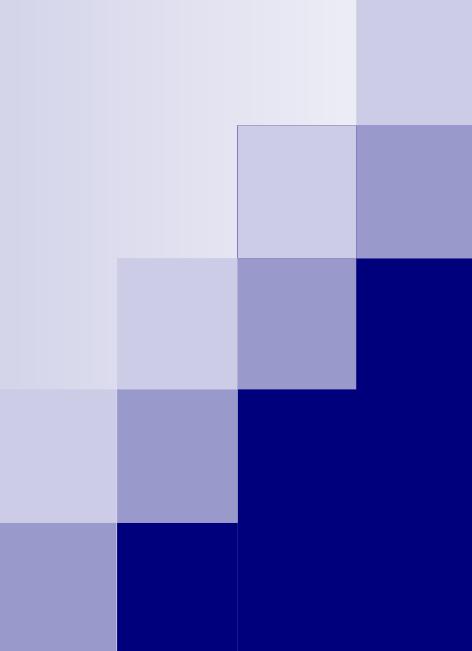
# The effects of policies when E is fixed

	Fixed exchange rate regime	Flexible exchange rate regime
Fiscal policy by the government (G, T)	Effective on Y. BoP may improve if capitals are very mobile.	
Monetary policy by the central bank (MS)	<b>Little effective on Y. BoP worsens.</b>	

With capital mobility through national borders



End of the 5th lecture  
of  
International Finance  
*M. Pugno*



***University of Cassino***  
***Economics and Business***  
**Academic Year 2023/2024**

# **International Economics**

## **International Finance**

**(Policies in an open economy II –  
chapter 11 - lecture 6 &  
exercises)**

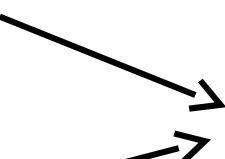
***Prof. Maurizio Pugno***  
**University of Cassino**

# The effects of policies when E is flexible

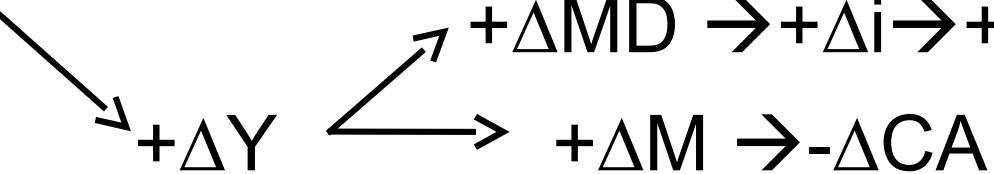
	Fixed exchange rate regime	Flexible exchange rate regime
Fiscal policy by the government (G, T)	Effective on Y. BoP may improve if capitals are very mobile.	
Monetary policy by the central bank (MS)	Little effective on Y. BoP worsens.	

With capital mobility through national borders

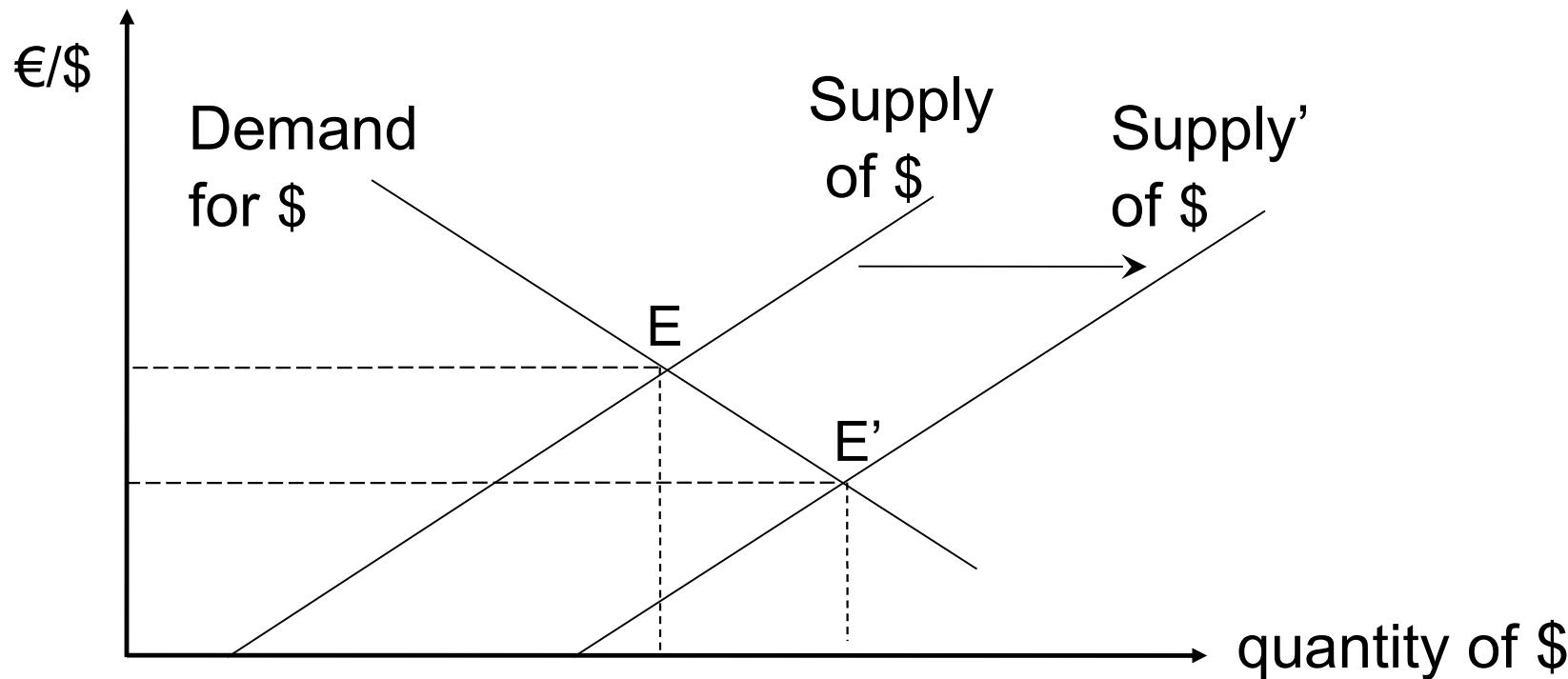
# Real effects of policies on the CA (trade balance)

- $(+\Delta G, -\Delta T)$    $+ \Delta Y \rightarrow + \Delta M \rightarrow - \Delta CA$
- $(+\Delta MS)$  
- Fiscal and monetary policies:
  - are effective (ie increase  $Y$ ),
  - but they tend to worsen the CA (by increasing imports of goods and services).

# Total effects of fiscal policy with flexE

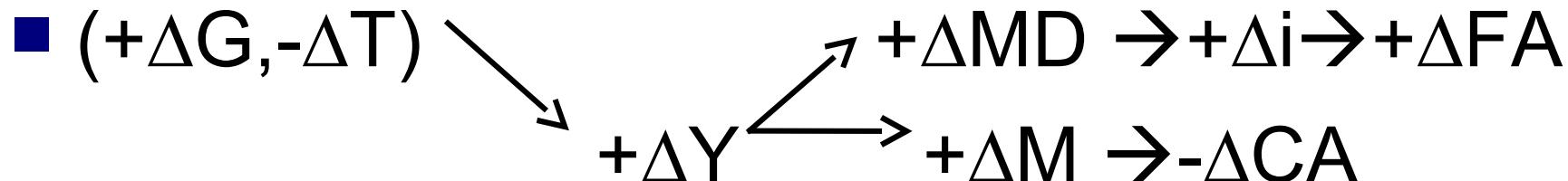
- $(+\Delta G, -\Delta T)$  
- Fiscal policy is initially effective (on Y).
- Capital inflows may compensate the worsening of the CA, so that the supply of foreign currency may be in excess.
- But if E is flexible, it appreciates ( $-\Delta E$ ). See why in the following slide.

# Memo: excess supply of foreign currency in the flexible exchange rate market



If the Supply of \\$ shifts rightwards,  
the new equilibrium point moves from E to E',  
i.e. E appreciates.

# Total effects of fiscal policy with flexE



- $(+ΔG, -ΔT)$  leads to  $+ΔY$ , which then leads to  $+ΔMD \rightarrow +Δi \rightarrow +ΔFA$  and  $+ΔM \rightarrow -ΔCA$ .
- Fiscal policy is initially effective (on Y).
- Capital inflows may compensate the worsening of the CA, so that the supply of foreign currency may be in excess.
- Consequently, E appreciates ( $-ΔE$ ).

Exports are discouraged, imports are encouraged

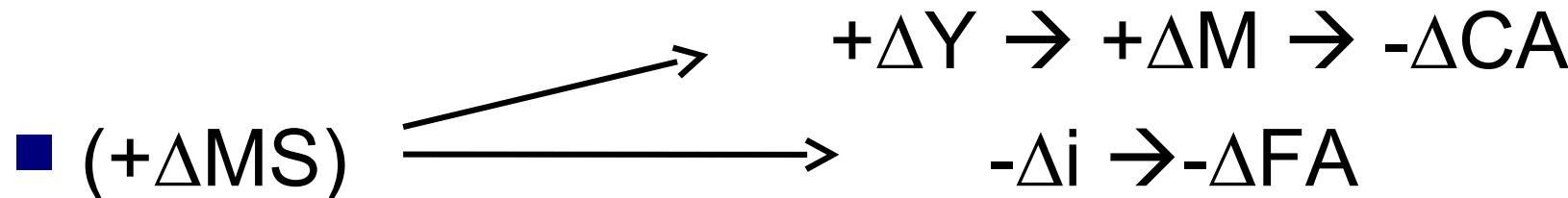
This reduces initial fiscal effectiveness on Y.

# The effects of policies when E is flexible

	Fixed exchange rate regime	Flexible exchange rate regime
Fiscal policy by the government (G, T)	Effective on Y. BoP may improve if capitals are very mobile.	<b>Little effective on Y E appreciates</b>
Monetary policy by the central bank (MS)	Little effective on Y. BoP worsens.	

With capital mobility through national borders

# Total effects of monetary policy

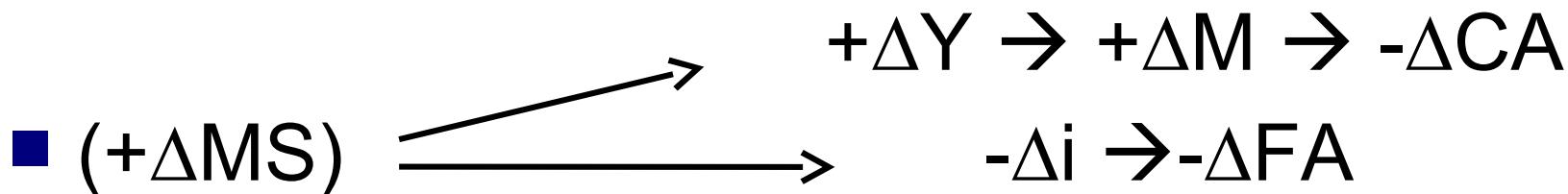


- $(+ΔMS)$   $\xrightarrow{\quad}$   $+ΔY \rightarrow +ΔM \rightarrow -ΔCA$
- $-Δi \rightarrow -ΔFA$
- Monetary policy is effective on  $Y$ .
- It tends to deteriorate BoP in both accounts ( $CA+FA$ ), i.e. the demand for foreign currency exceeds the supply.

In fact, importers (of goods and assets) demand for foreign currency to pay for excess imports.

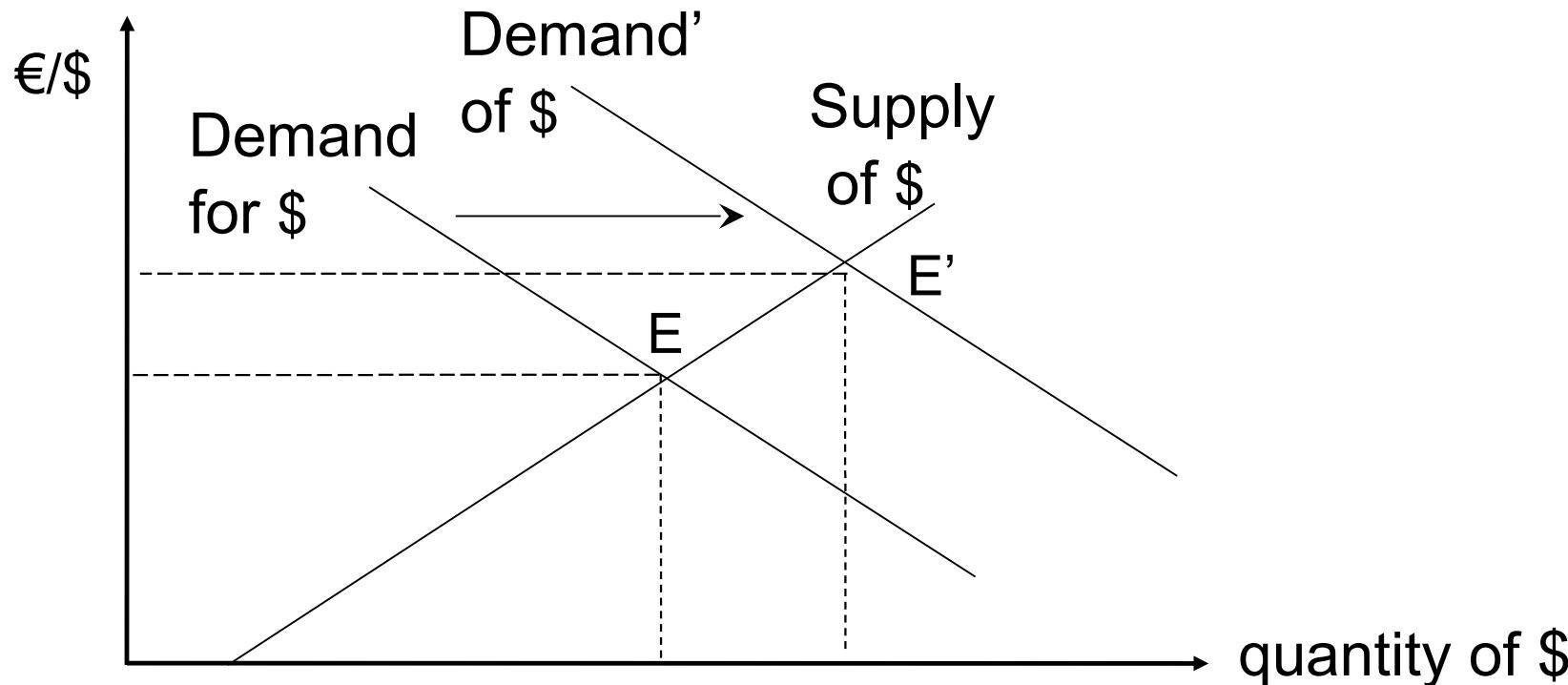
But the Central Bank does not intervene by selling foreign currency.

# Total effects of monetary policy



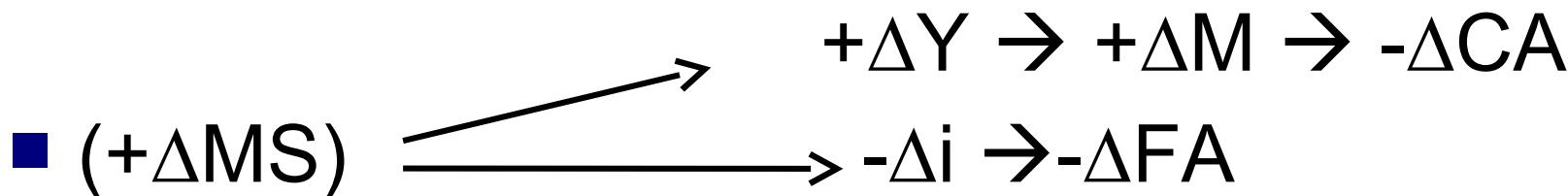
- $(+\Delta MS)$
- Monetary policy is effective on  $Y$ .
- It tends to deteriorate BoP in both accounts ( $CA+FA$ ), i.e. the demand for foreign currency exceeds the supply.
- Consequently,  $E$  depreciates  $(+\Delta E)$ . See why in the following slide.

# Memo: Excess demand for foreign currency in the flexible exchange rate market



If the Demand for \\$ shifts rightwards,  
the new equilibrium point moves from E to E',  
i.e. E depreciates.

# Total effects of monetary policy



- $(+\Delta MS)$
- Monetary policy is effective on  $Y$ .
- It tends to deteriorate BoP in both accounts ( $CA+FA$ ), i.e. the demand for foreign currency exceeds the supply.
- Consequently,  $E$  depreciates ( $+\Delta E$ ).

Exports are encouraged, imports are discouraged

This strengthens the initial effectiveness of monetary policy on  $Y$ . See why in the following slide.

# Memo: depreciation and foreign trade

$$X = f^X (EP^*/P, Y^*)$$

++ - +

$$M = f^M (P/EP^*, Y)$$

+ --- +

A rise of E (depreciation) encourages exports and discourages imports (if imports are elastic).

# The effects of policies when E is flexible

	Fixed exchange rate regime	Flexible exchange rate regime
Fiscal policy by the government (G, T)	Effective on Y. BoP may improve if capitals are very mobile.	Little effective on Y E appreciates
Monetary policy by the central bank (MS)	Little effective on Y. BoP worsens.	<b>Effective on Y. E depreciates</b>

With capital mobility through national borders

# Summing up on (short-run) effectiveness of macro-policies on production (Y)

- Fiscal policy is effective through the real channel, but if capitals are very mobile, and E is flexible, its effectiveness is reduced ( $+\Delta i, -\Delta E$ ).
- Monetary policy is effective through the real channel, but if capitals are very mobile, and E is NOT flexible, its effectiveness is reduced ( $-\Delta i, -\Delta BoP, -\Delta MS$ ).

# Summing up on tendential impact of macro-policies on the CA

- Fiscal policy tends to worsen the CA.

In case of a lot of capital inflows (since high  $i$ ) and currency appreciation, CA may worsen even further.

- Monetary policy tends to worsen the CA.

In case of a lot of capital outflows (since low  $i$ ) and currency depreciation, CA may even improve.

# Exchange rate policy

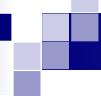
- The goal of this policy (central bank) is to:
  - counter the depreciation (rise of E) by buying domestic currency and giving foreign assets in exchange, but official reserves diminish,
  - counter the appreciation (drop of E) by selling domestic currency and accepting foreign assets in exchange, so that the official res. increase.
- No exchange rate policy is implied by the system of perfect flexible exchange rates.
- E policy is implied when E must be taken fixed.

# Advantages of fixed E system

- It avoids the day-to-day fluctuations of E, which creates uncertainty in planning production and real investments.
- It encourages fiscal policy.
- Fixed exchange rates impose a price discipline, by preventing devaluations.

# Advantages of flexible E system

- It corrects BoP disequilibria smoothly and continuously as they occur.
- It prevents some changes of prices ( $P/P^*$ ).
- It stabilizes speculation because E completely reflects the tendency towards the external surplus/deficit.
- It leaves fiscal and monetary policies to pursue internal goals (but discourages fiscal policy).
- It saves official reserves in case of tendency to depreciation.



# Performance under the 2 E systems

Country	Real GDP Growth		Inflation Rate		Unemployment Rate	
	1960–1973	1983–2011	1960–1973	1983–2011	1960–1973	1983–2011
United States	3.7%	3.1%	2.8%	2.9%	4.9%	6.3%
Japan	11.0	2.0	5.6	0.6	1.2	3.5
Germany	5.5	1.9	2.9	1.9	0.6	7.7
United Kingdom	2.9	2.1	4.5	3.3	2.8	7.5
France	6.0	1.9	4.3	2.7	1.8	9.9
Italy	5.7	1.4	3.8	4.3	3.1	9.2
Canada	5.0	2.8	2.8	2.8	5.1	8.8
Weighted average	5.7	2.2	3.8	2.6	2.8	7.6

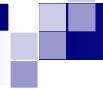
Sources: Organization for Economic Cooperation and Development, *Economic Outlook* (Paris: OECD, various issues); A. Ghosh, J. D. Ostry, and C. Tsangarides, *Exchange Rate Regimes and the Stability of the International Monetary System* (Washington, D.C.: IMF, 2010); and J. E. Gagnon, *Flexible Exchange Rates for a Stable World Economy* (Washington, D.C.: Peterson Institute for International Economics, 2011).

# Comments on the table

- The table shows a better performance under the fixed E system (1960-1973), than under the flexible E system (1983-2011): economic growth is higher, and unemployment is lower (mixed results for inflation).
- However, the table proves too much, because of other factors are at play (technological change, globalization, etc.).

# Accounting: GDP and the Current Account

- Gross domestic product of a country (GDP): the market value of all final goods and services produced inside its borders during a year.
- $GDP = C + I + G + X - M$   
 $C$  = consumption  
 $I$  = investments  
 $G$  = public expenditure  
 $X$  = exports of goods and services  
 $M$  = imports of goods and services



# Gross National Product (GNP) and CA

- $\text{GNP} = \text{GDP} +$ 
  - + income received from foreigners
    - income paid to foreigners
    - + transfers received from foreigners
    - transfers paid to foreigners (residence-based).

I.e.:

- $\text{GNP} = (\text{C} + \text{I} + \text{G}) + (\text{X} - \text{M} + \text{net primary income and secondary income or transfers})$
- $\text{GNP} = \text{C} + \text{I} + \text{G} + \text{CA}$   
(this is the *production version* of GNP)

# The balances identity

- GNP can also be expressed in *uses of income*. i.e.:

$$GNP = C + S + T$$

S = private saving

T = taxes

Combining the two versions of GNP:

- $GNP = C + I + G + CA = C + S + T$

Simplifying and re-arranging:

$$\rightarrow CA = (S - I) + (T - G)$$

external balance = private balance + public balance

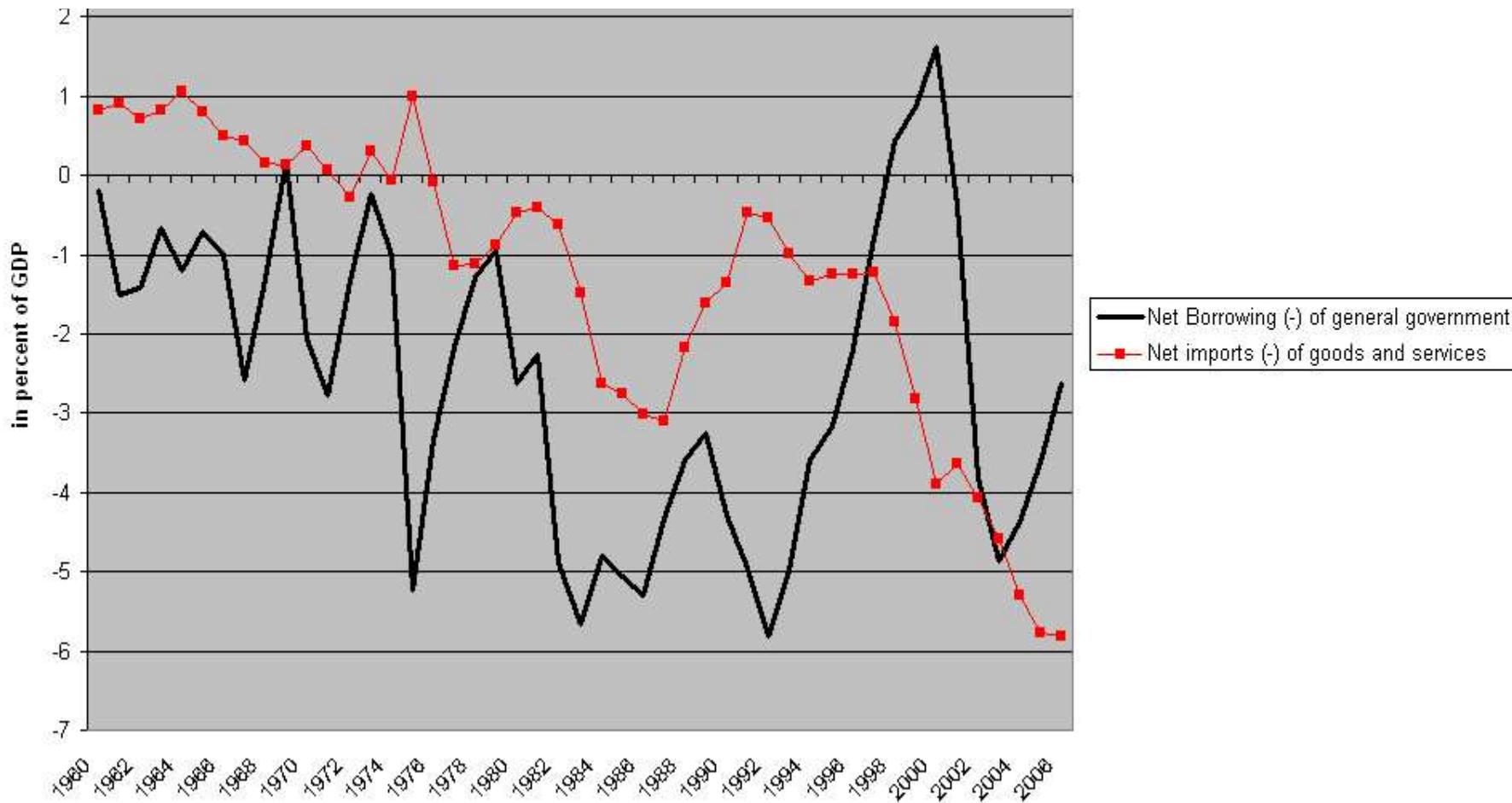
This is an identity, i.e. it is always true.

# The case of twin deficits

- $CA = (S - I) + (T - G)$
- In case of full employment,  $S$  is given by the propensity to save. Therefore, if the budget deficit increases, then:
  - 1) either investment ( $I$ ) must fall (crowding out):  
 $-Δ(T-G) \rightarrow -ΔI$
  - 2) or the current account ( $CA$ ) must fall (trade deficit)  
 $-Δ(T-G) \rightarrow -ΔCA$ 

→ A budget deficit can also lead to a trade deficit, causing the case of twin deficits.
- Public deficit is ‘financed’ by less investments or by foreign saving.

# The ‘twin deficit’ in the USA



# Exercises

# Exercise 1

If the programmed domestic real investments increase, does the trade balance improve or worsen? Explain each step to achieve the final answer according to the Keynesian view.

# Exercise 1 (solved)

If the programmed domestic real investments increase, does the trade balance improve or worsen? Explain each step to achieve the final answer according to the Keynesian view.

**Since**  $\Delta Y = k^* \Delta I^p$

**and since**  $\Delta M = m_2 * \Delta Y$

**then**  $\Delta M = m_2 * k^* \Delta I^p$

**so that**  $\Delta X - \Delta M = -m_2 * k^* \Delta I^p$

**The trade balance worsens.**

# Exercise 2 (solved)

If exports increase by 100€, does the trade balance rise by 100€ or more or less? Explain your answer. Explain each step to achieve the final answer according to the Keynesian view (fixed prices and E).

# Exercise 2 (solved)

If exports increase by 100€, does the trade balance rise by 100€ or more or less? Explain your answer. Explain each step to achieve the final answer according to the Keynesian view (fixed prices and E).

**Since**  $\Delta M = m_2 * \Delta Y$

**and since**  $\Delta Y = k * \Delta X$

**then**  $\Delta M = m_2 * k * \Delta X$

**so that** 
$$\begin{aligned}\Delta X - \Delta M &= 100\text{€} - m_2 * k * 100\text{€} \\ &= 100\text{€} (1 - m_2 * k) < 100\text{€}.\end{aligned}$$

# Exercise 3

If (price) inflation is lower in the EuroZone (EZ) than in the US and the exchange rate €/\$ is fixed, which is the effects on imports and exports of the EZ with respect to the US? (underline the right answer)

- a. the cost per unit of imports diminishes
- b. imports increase in the long-run
- c. exports diminish
- d. the trade balance worsens in the long-run
- e. none of the other answers are true

# Exercise 3 (solved)

If (price) inflation is lower in the EuroZone (EZ) than in the US and the exchange rate €/\$ is fixed, which is the effects on imports and exports of the EZ with respect to the US?

- a. the cost per unit of imports diminishes (NO, IS THE SAME)
- b. imports increase in the long-run (NO, ARE LESS COMPETITIVE)
- c. exports diminish (NO, ARE MORE COMPETITIVE)
- d. the trade balance worsens in the long-run (NO, IMPROVES)
- e. **none of the other answers are true**

# Exercise 4

Which of the following is the long-run most probable effect of the devaluation of the domestic currency (i.e. M-L condition holds)?

A decumulation of official reserves.

A worsening of the trade balance.

A reduction of the exchange rate (defined as price quotation).

Domestic inflation.

Nothing of the above.

# Exercise 4 (solved)

Which of the following is the long-run most probable effect of the devaluation of the domestic currency (i.e. M-L condition holds)?

A decumulation of official reserves.

A worsening of the trade balance.

A reduction of the exchange rate (defined as price quotation).

**Domestic inflation.**

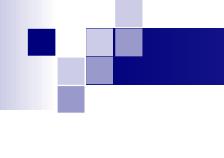
Nothing of the above.

# Exercise 5

- Which are the theoretical consequences of a reduction of money supply if the E are perfectly flexible and international capitals are very mobile?
  1. The Current Account definitely worsens
  2. The interest rate increases
  3. The Financial Account definitely worsens
  4. The demand for foreign currency exceeds its supply
  5. The exchange rate remains fixed
  6. Official reserves decumulate
  7. Monetary policy is not effective on income (Y)
  8. None of the above.

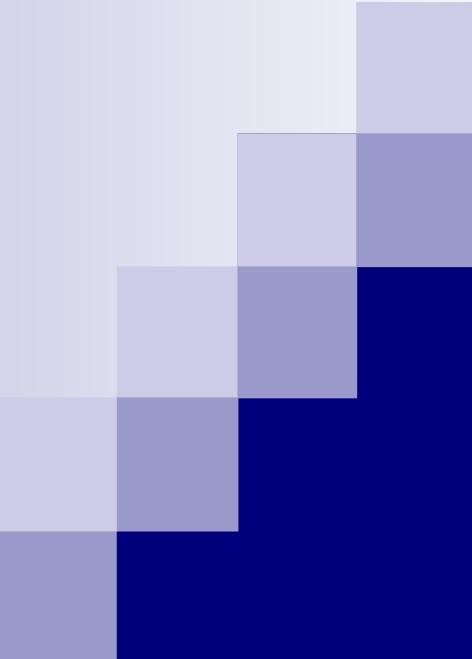
# Exercise 5 (solved)

- Which are the theoretical consequences of a reduction of money supply if the E are perfectly flexible and international capitals are very mobile?
  1. The Current Account definitely worsens
  2. **The interest rate increases**
  3. The Financial Account definitely worsens
  4. The demand for foreign curr. exceeds its supply
  5. The exchange rate remains fixed
  6. Official reserves decumulate
  7. Monetary policy is not effective on income (Y)
  8. None of the above.



# End of the 6th lecture of International Finance *M. Pugno*

*University of Cassino*  
*Economics and Business*  
Academic Year 2023/2024



# International Economics International Finance (International crises – chapter 12 - lecture 7)

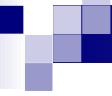
***Prof. Maurizio Pugno***  
University of Cassino

# The crises throughout the world

- Increasing international economic integration has created opportunities for growth and development, but it has also made it easier for crises to spread from one country to another.
- The greatest worldwide crises are:
  - the Great Depression in the 1930s,
  - the Great Recession that began in 2008,
  - the Covid-19 crisis
  - the Ukraine war crisis (?).

# Other regional international crises

- in 1992, currency speculation against the British pound and the Italian Lira caused the collapse of monetary arrangements (well before the Euro system);
- in late 1994, speculation against the Mexican peso led to its collapse and spread the crisis throughout South America;
- in 1997, several East Asian economies (Malaysia, S.Korea) were thrown into steep recession by a wave of sudden capital outflows;
- in 2009, the Greece's crisis put the country at risk of exiting the Eurozone.



# An overview on what the international crisis means

- Every historical international crisis has its own specificities.
- Here, we will look at the general characteristics of the international crises.

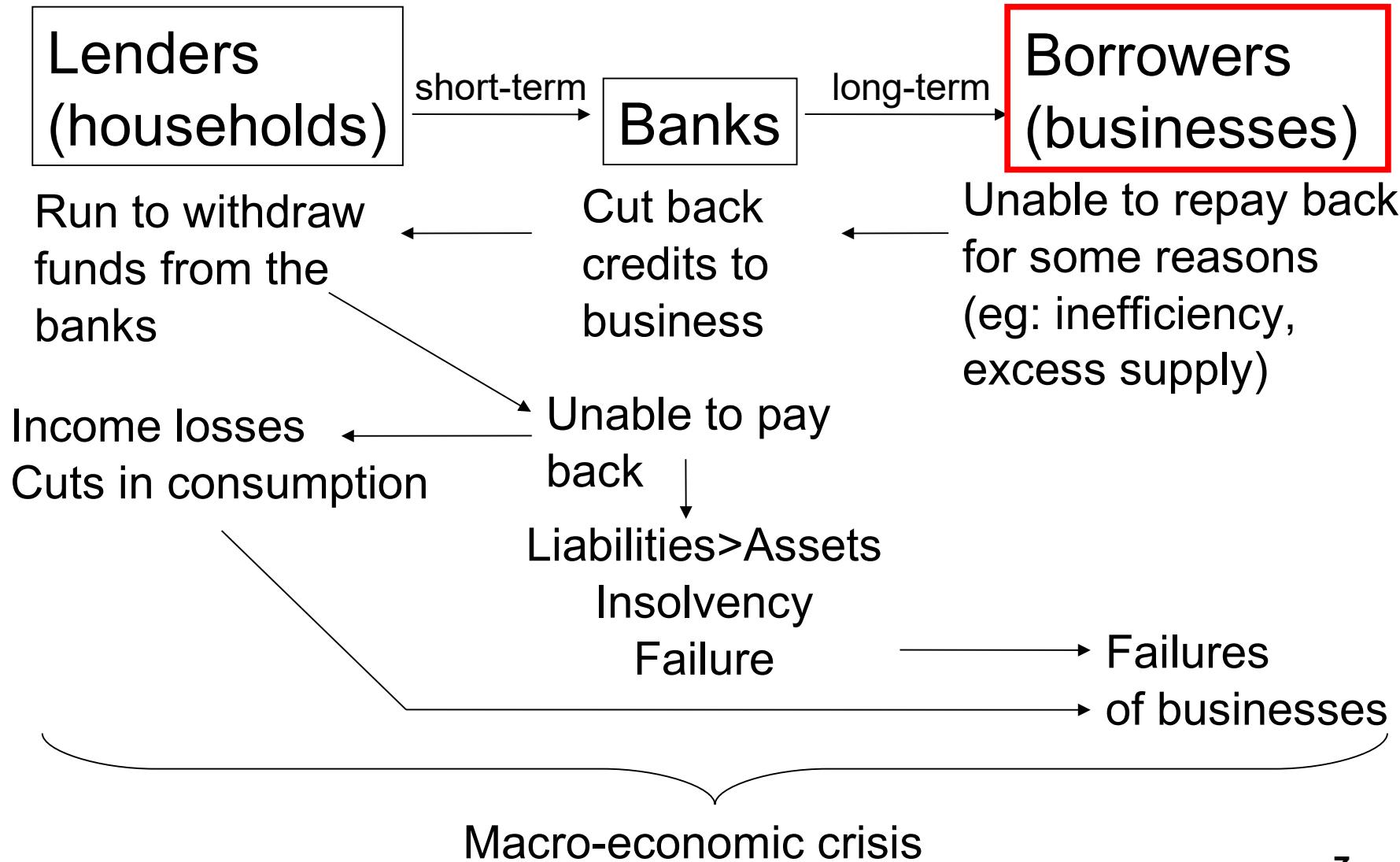
# When financial crises arise

- A financial crisis arises when borrowers do not repay back the debt.
- This is often the case when borrowers are also lenders, and their debt is short term, while their credit is long term.
- Therefore a crisis usually started as a result of a massive withdrawal of short-term liquid funds while credits cannot be paid back because they are long-term.

# Three types of financial crises

- (I) The banking crises
- (II) The exchange rate crises
- (III) The debt crises

# (I) The banking crises



# A run to withdraw funds from the bank (Northern Rock – US – 2007)



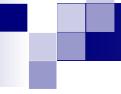
# When banking crises arise

- When banks want to attract capital by increasing:
  - interest rates,
  - their range of lending to risky businesses,in conditions of:
  - poor information on the repaying capacity of borrowers,
  - predicted economic stagnation.
- These weaknesses are especially apparent:
  - in emerging markets,
  - when a rapid financial liberalization occurs,
  - often after a period of authoritarian regimes.

## (II) The exchange rate crises

Premises:

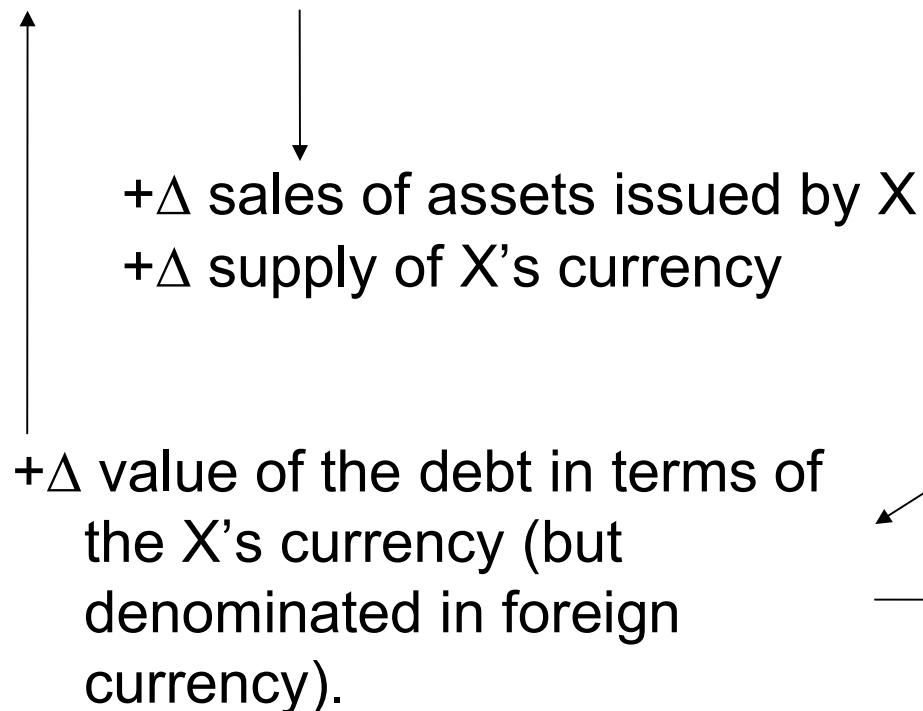
- The country X needs financial capital from abroad in order to finance excess imports (eg necessary key inputs for industrial development).
- The country X borrowes in a major foreign currency (eg the \$) because (foreign) lenders worry (based on past experience) about being repaid with a devalued currency of the nation.
- An external shock occurs (eg  $+\Delta i$  for internal reasons, change of government, international political or economic crisis)



# The exchange rate crises (BoP crises)

- $\Delta$  foreign financial lenders' belief that the country X is able to repay the funds

External shock



++ $\Delta E$ : devaluation of X's currency

Banking crisis

Macro-economic crisis

# When the E crises arise

- When the economy has “weak fundamentals”, ie:
  - an excessively appreciated real exchange rate, due to, e.g., a temporary increase in capital inflow that is unlikely to persist over time;
  - a weak banking system (see above).
- Together these two “weak fundamentals” multiply the vulnerability of the economy.
- Countries could adjust for weak fundamentals by having high net reserves relative to their short-term foreign debt obligations.
- This is however not the case of emerging market.

# (III) The debt crises

Premises (alternative or together):

- The public sector increases its debt for various reasons (ie it sells bonds to finance excess expenditure over revenues). →  $+Δ$  public debt/GDP
- The private sector borrows funds to buy assets in the expectation of future capital earnings. →  $+Δ$  private debt  
Excessive financial liberalisation. → The price of assets grows far more than the value they represent (BUBBLE).  
Lenders may ignore the risks of the assets.
- External shock → Asset price busts

# The debt crises (cont)

- Debtors cannot pay and must restructure their debt.

Restructuring debt means:

- lowering the rate of interest,
- lengthening the payback period,
- partial forgiveness,
- debt repudiation.

- The country loses credibility.
  - Foreign lenders cut back lendings (deleveraging).
  - The exchange rate tends to devalue.
  - Policies become restrictive ( $+\Delta T, +\Delta i$ ).
- Macroeconomic crisis.

# When the debt crises arise

- When a country borrows money from many foreign creditors over a long period, but without sound expectation on economic growth.
- Only at the beginning the lenders support the country (which might have problems of servicing their debt).
- When lenders fear to do not be repaid, then country *insolvency* may occur.
- But in the case of sound expectation of economic growth, only the problem of *illiquidity* arises.
- An international lending institution (World Bank, IMF) may help, but requiring reforms on budget policies.

# Stock market prices during the Great Depression (1929-1940)

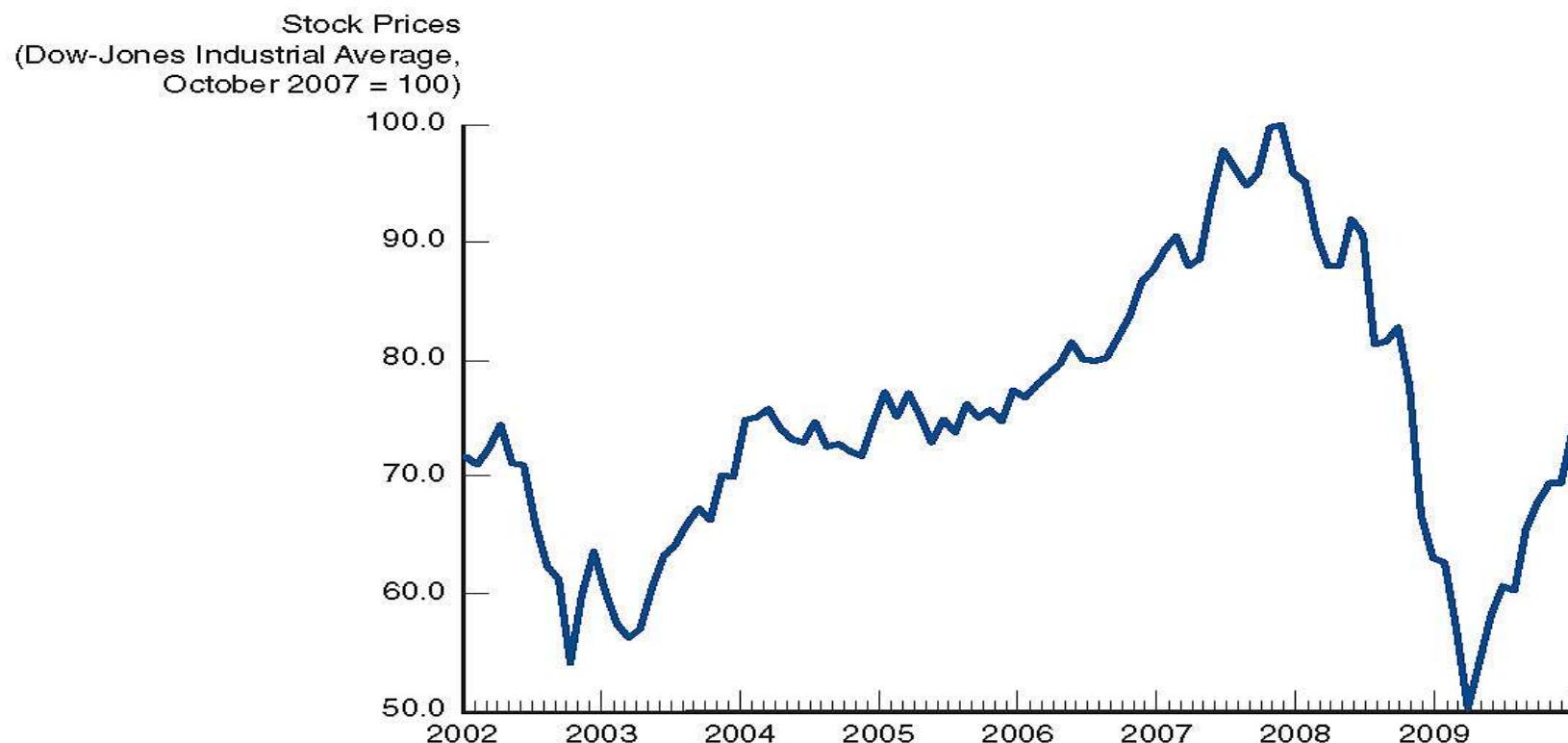


**FIGURE 8.2** Stock Price Data During the Great Depression Period

Stock prices crashed in 1929, falling by more than 60%, and then continued to fall to only 10% of their peak value by 1932.

Source: Dow-Jones Industrial Average (DJIA), <http://lib.stat.cmu.edu/datasets/djdc0093>.

# Stock market prices during the Great Recession (2007-2010)

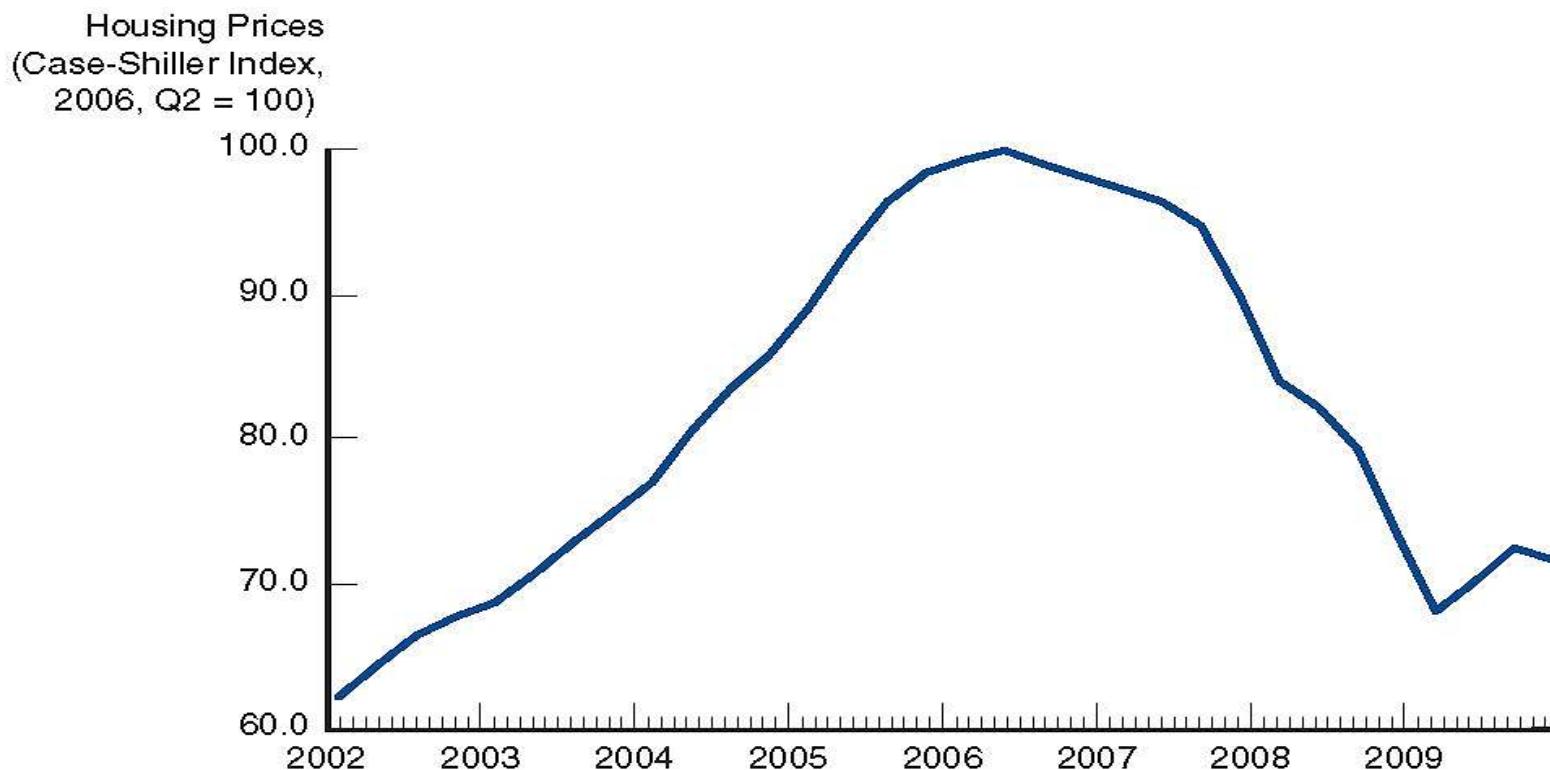


**FIGURE 8.5** Stock Prices and the Financial Crisis of 2007–2009

Stock prices fell by 50% from October 2007 to March of 2009.

Source: Dow-Jones Industrial Average (DJIA), available at <http://finance.yahoo.com/q/hp?s=%5EDJI>.

# The housing bubble in the US

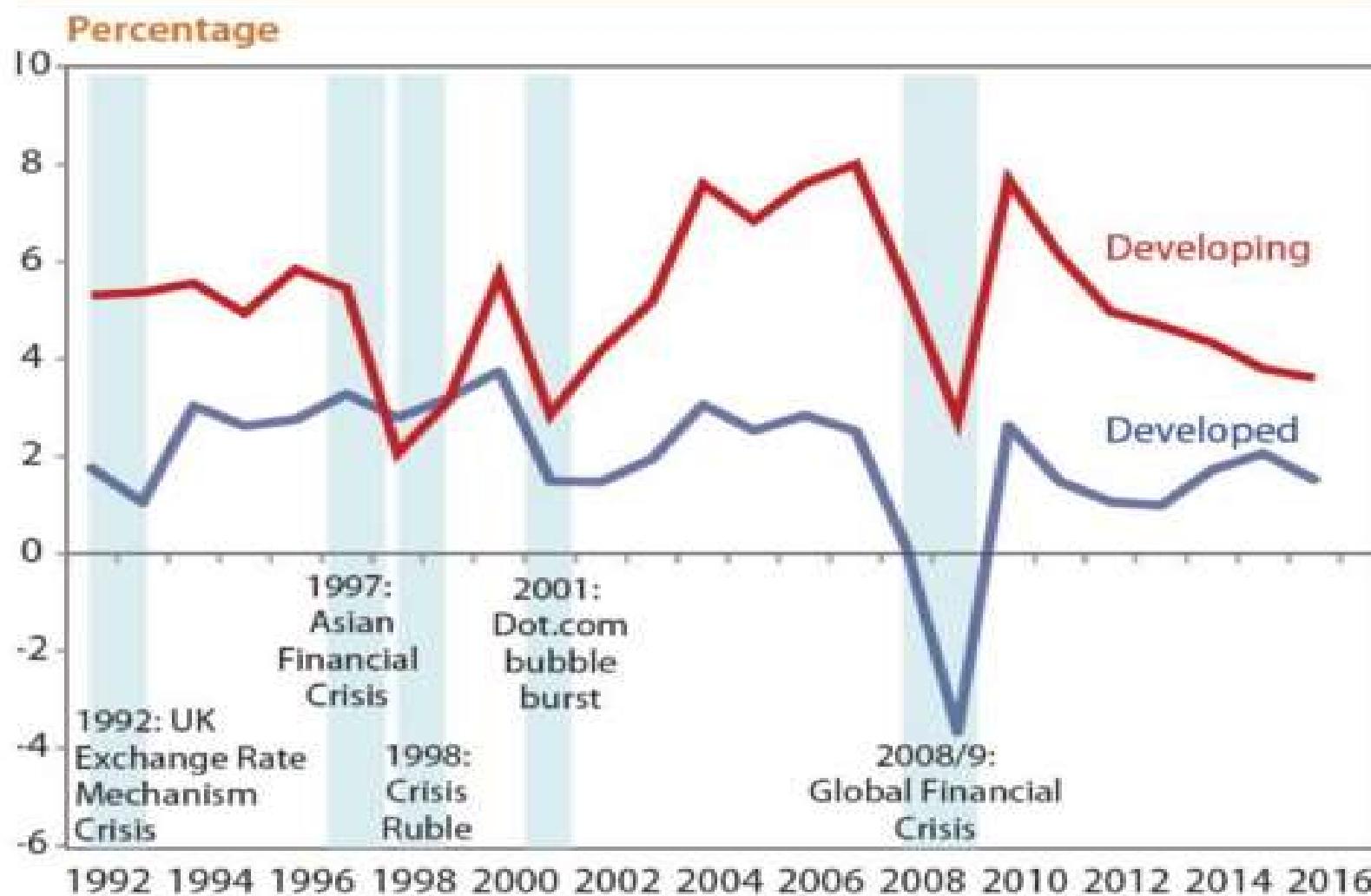


**FIGURE 8.4** Housing Prices and the Financial Crisis of 2007–2009

Housing prices boomed from 2002 to 2006, but then fell by more than 25% subsequently.

Source: Adapted from Case-Shiller U.S. national composite house price index, available from [http://www.macromarkets.com/csi\\_housing/index.asp](http://www.macromarkets.com/csi_housing/index.asp).

## World GDP growth, 1998-2015

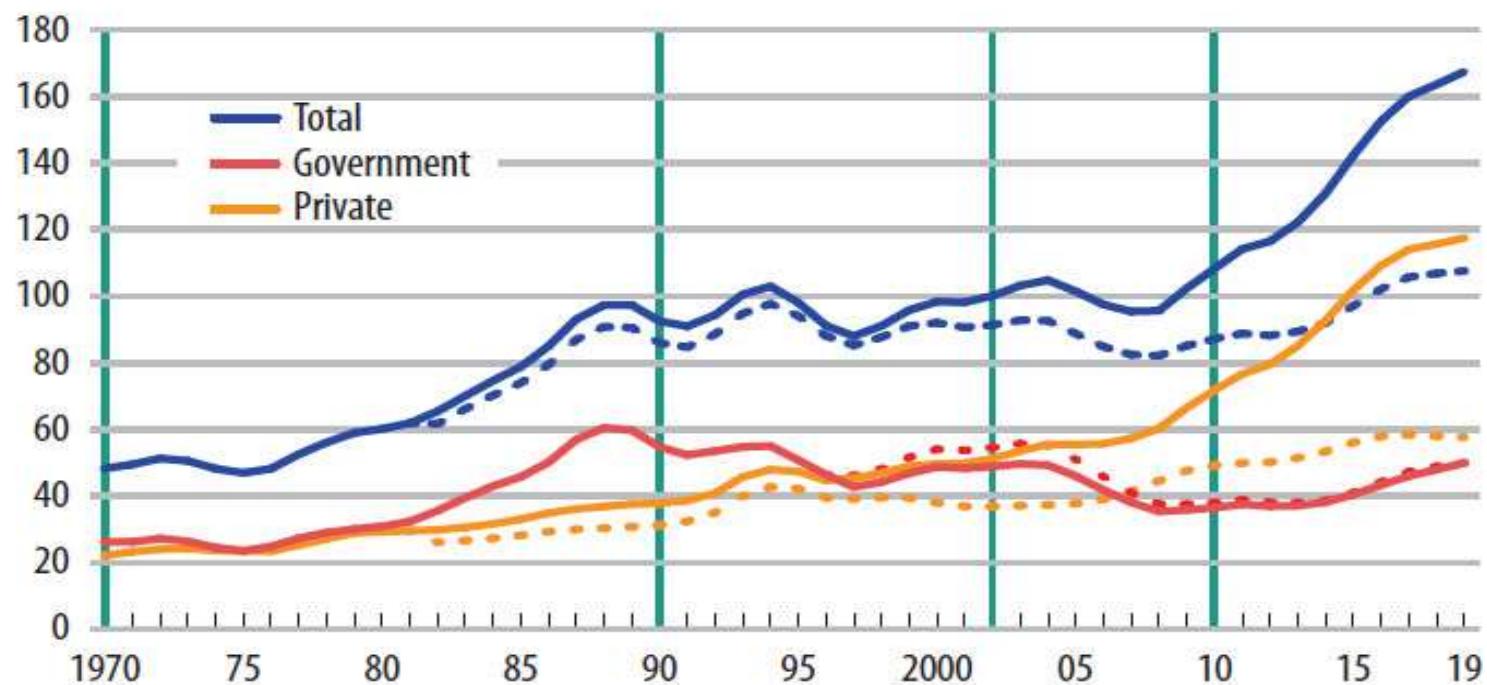


Source: UN/DESA.

## Ballooning debt (1970–2019)

During the past decade, total debt in emerging market and developing economies rose to a historic peak.

(percent of GDP)

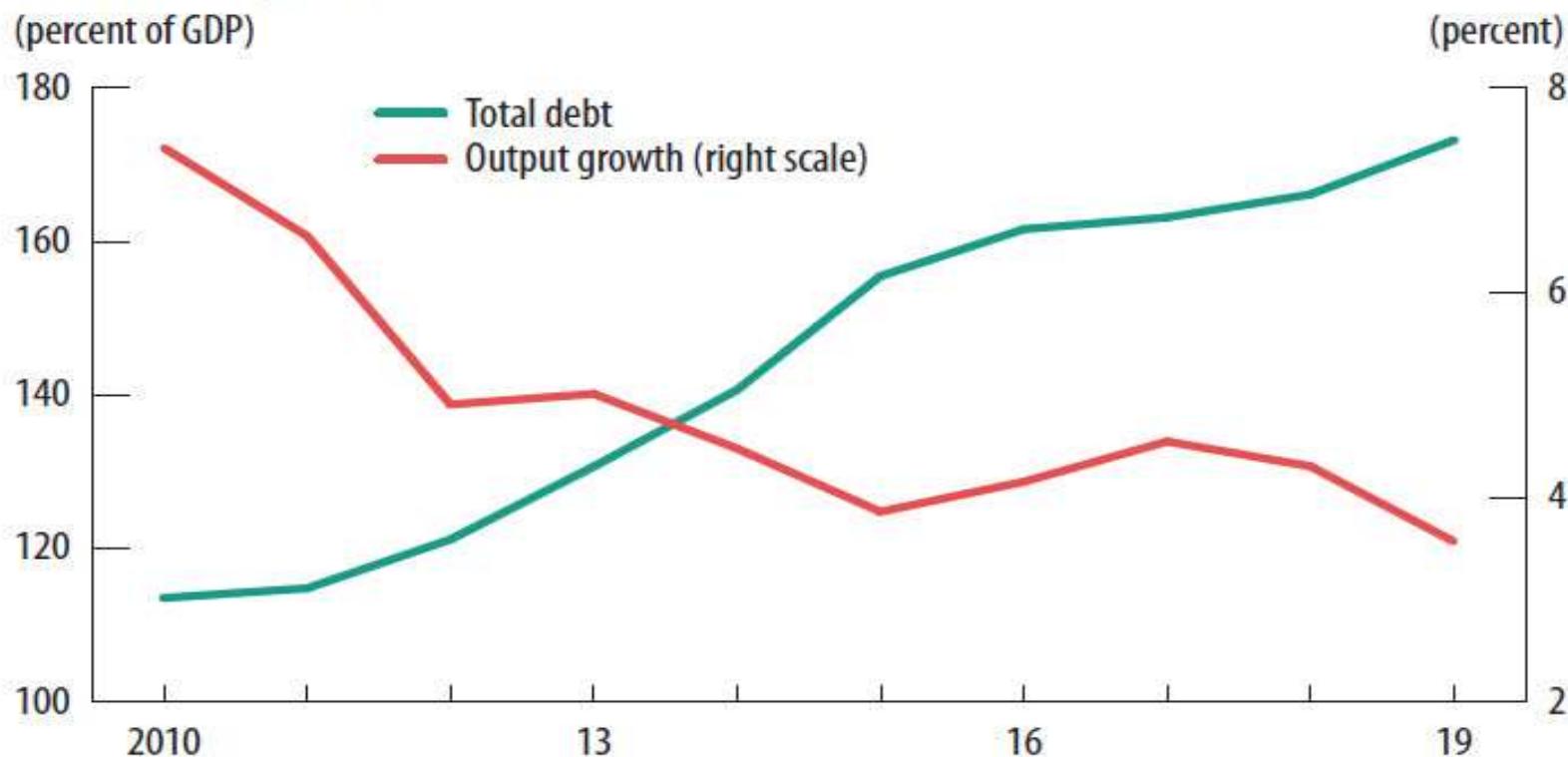


Sources: International Monetary Fund; Kose and others (2020); and World Bank.

Note: Aggregates are calculated using current US dollar GDP weight and are shown as a three-year moving average. Dashed lines show debt, excluding China. The vertical lines represent the beginning of debt waves in 1970, 1990, 2002, and 2010.

## Growth and debt (2010–19)

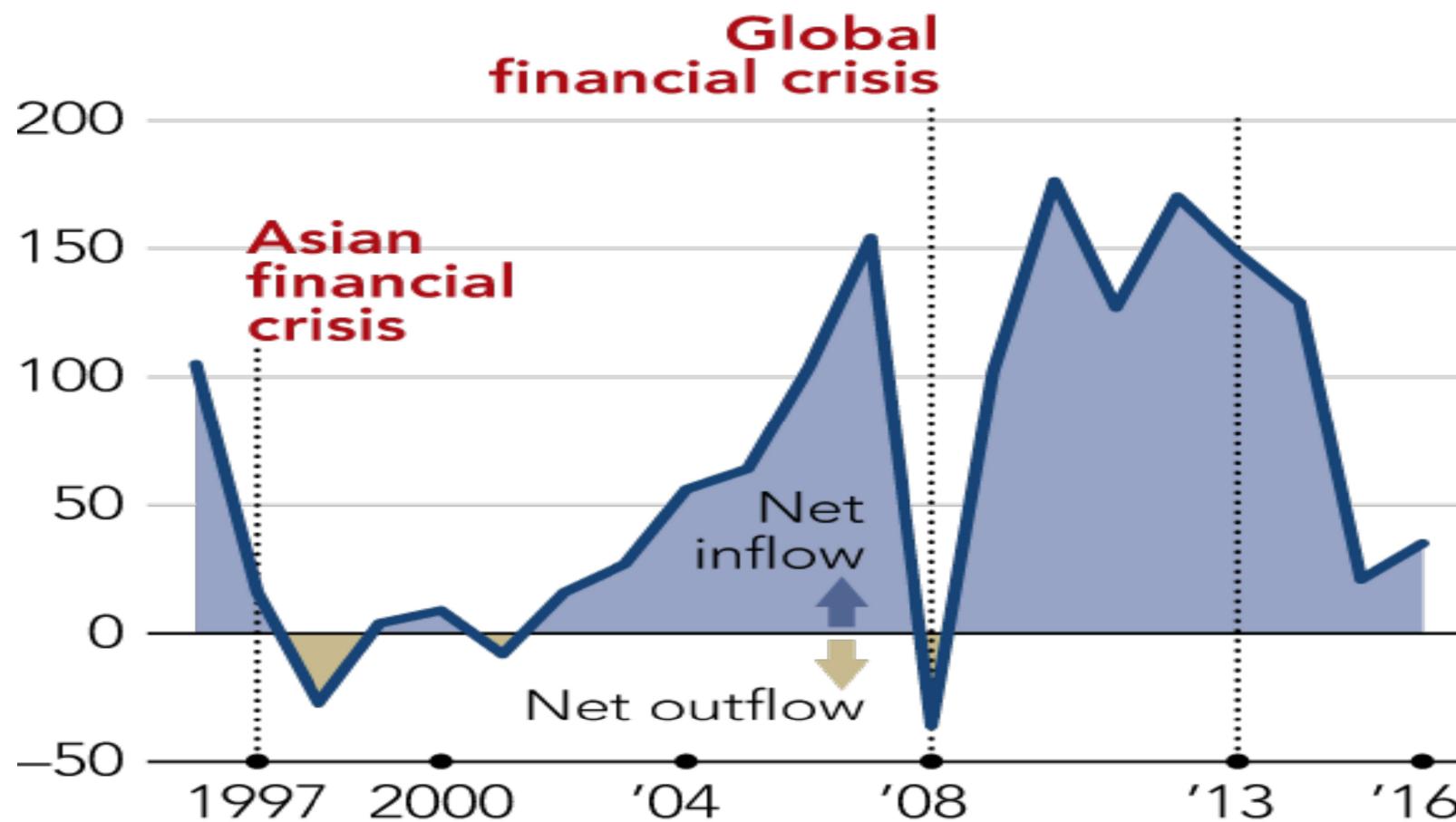
Accompanied by higher debt in emerging market and developing economies, growth has repeatedly disappointed.



**Sources:** International Monetary Fund; Kose and others (2020); and World Bank.

**Note:** Total debt (in percent of GDP) and real GDP growth (weighted by GDP at 2010 prices and exchange rates) in emerging market and developing economies.

# Capital flows for emerging Asian economies (in billions of dollars)



Figures for five countries: Thailand, Malaysia, Philippines, South Korea, Indonesia  
Source: Institute of International Finance

# Vulnerabilities to crises

- Banking, exchange rate, and debt crises are more likely when the economy is weak and vulnerable.
- However, economic vulnerabilities do not predict crises with certainty.
- The outbreak of the crisis is often unexpected.
- If lenders expect the crisis, they accelerate it by taking back their credits (self-fulfilling expectations).

# Vulnerability from macro-imbalances

- The main macroeconomic imbalances are:
  1. more public debt than economic growth ( $+Δdebt/Y$ ), due to recurrent  $T-G < 0$ ,
  2. large current account deficits ( $CA < 0$ ).
  3. overvalued  $E$ ,
  4. high levels of private sector debt (recurr.  $S-I < 0$ ).
- The case of both  $T-G < 0$  and  $CA < 0$  (twin deficits problem) is due to insufficient resources produced:  
 $I = (T-G) - CA + S$  If less  $I$ , then less  $T$ , more  $M$  and less  $S$ .

# Relative macro-imbalances

- Macro-imbalances are relative to the imbalances of other countries, or to international turmoils. Speculators attack the most vulnerable country.
- The moment of crisis onset is unpredictable, but unless the underlying conditions are corrected, it is almost certain to occur eventually.

# Vulnerability: the role of poor policy

- Poor fiscal or monetary policy may make the country vulnerable through large budget deficits or high rates of inflation.
  - The need to finance budget deficits can make governments vulnerable to a change in the perceptions of lenders about their probability of being repaid.
  - Inflation with a fixed exchange rate creates vulnerability through a real appreciation of the currency and a loss of competitiveness.

# Vulnerability from capital volatility

- Volatility of financial capitals means high and quick movements of in- and out-flows.
- Vulnerability arises when capital inflows build up a great stock of foreign liabilities, so that a sudden change in investor expectations may be a triggering factor of a financial crises.
- The underlying weakness is the need for such great stock.

# Causes of volatile capital flows

- Liberalisation of capital markets.
- Technological advances in communication and in moving capital flows.
- The discovery of large emerging markets.
- The need of financial investors in high-income countries to diversify their portfolios.
- The increasing availability of savings in some high-growing countries.

# Vulnerability from the financial sector

- A financial sector is in a weak position if:
  - it takes short-term loans from the international markets,
  - and uses them to fund long-term loans (such as real estate) on the local market.
- An outflow of funds from the country can be interpreted as bad news about the underlying economic conditions, and lead to an avalanche of capital flight.

# Why the crises are unpredictable

- First, there are multiple possible outcomes—or in economic terms, there are multiple equilibria—depending on the responses of international lenders.
- Second, one of the possible outcomes is a crisis, but the crisis is self-fulfilling. It is not predetermined, nor is it necessary.
- Third, the crisis can affect banks that are fundamentally sound, but that have mismatches between the maturities of their debts and their assets. In other words, they are illiquid, but not insolvent.

# Contagion

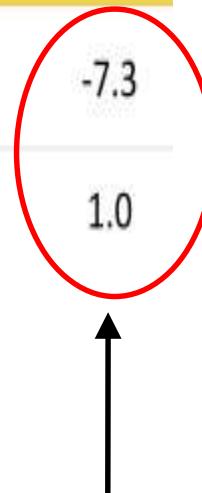
- Most crises are domestic. Only some of them become international.
- Many crises, however, spill into other countries, and even if they do not become a global crisis, they nevertheless affect more than just the country where it originates.
- Banking or other financial linkages may not be visible or known until a crisis begins, but ultimately they will be exposed if the crisis persists or is deep enough.

# Early warning signals of E crisis

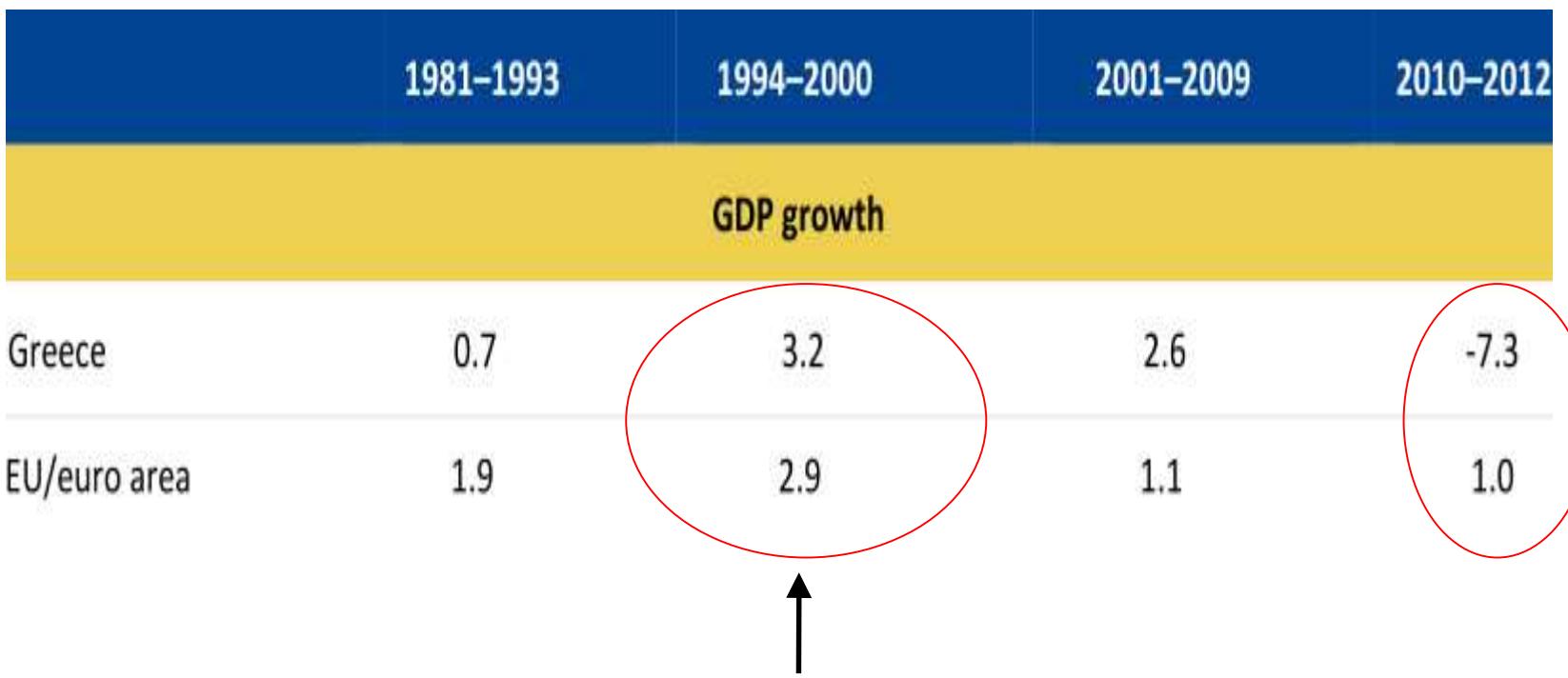
	<i>Signal</i>	<i>Warning is issued when:</i>
1	Real exchange rate	The domestic currency is overvalued
2	Trade deficit	The value of exports fall and/or the value of imports rise
3	Official reserves	Too small relative to domestic supply of money
4	Stock prices	The stock market index declines
5	Public debt	The debt/Y increases
6	Inflation	Poor policy
7	Foreign debt	Financial sector is weak

# An example: the Greek crisis

	1981-1993	1994-2000	2001-2009	2010-2012
GDP growth				
Greece	0.7	3.2	2.6	-7.3
EU/euro area	1.9	2.9	1.1	1.0



# An example: the Greek crisis

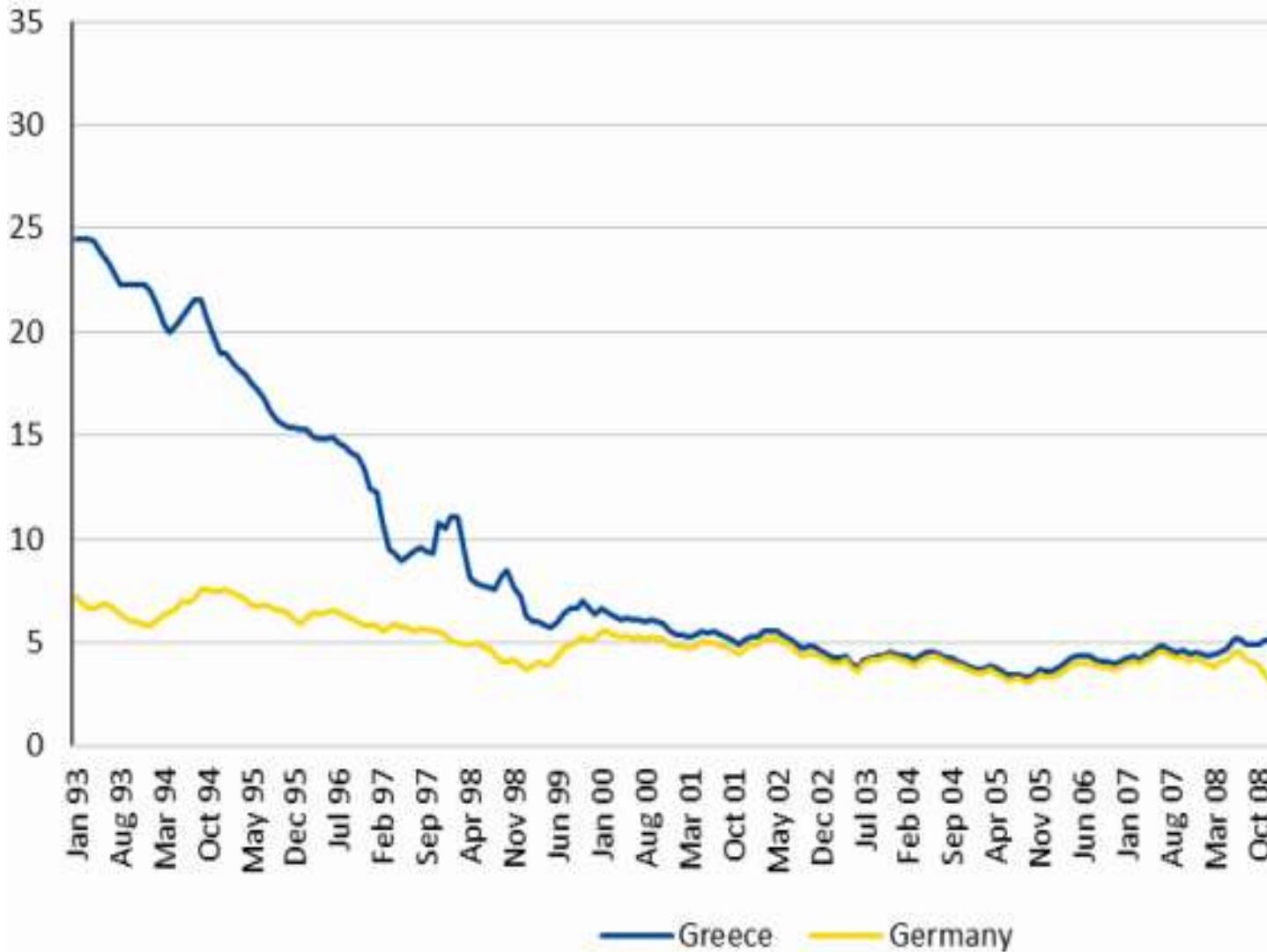


Expected growth was favorable before  
Greece's entry into the Eurozone (2001).

# An example: the Greek crisis

- When Greece entered the EuroZone (EZ) in 2001, foreign and domestic banks extended credit to households, enterprises and the state.
- They underestimated the risks involved.
- The common belief was that rising debt would continue to be rolled over under the same favourable conditions as those prevailing for Germany and other Eurozone members.
- Construction investment rapidly expanded, financed by EU transfers and relatively cheap foreign borrowing.

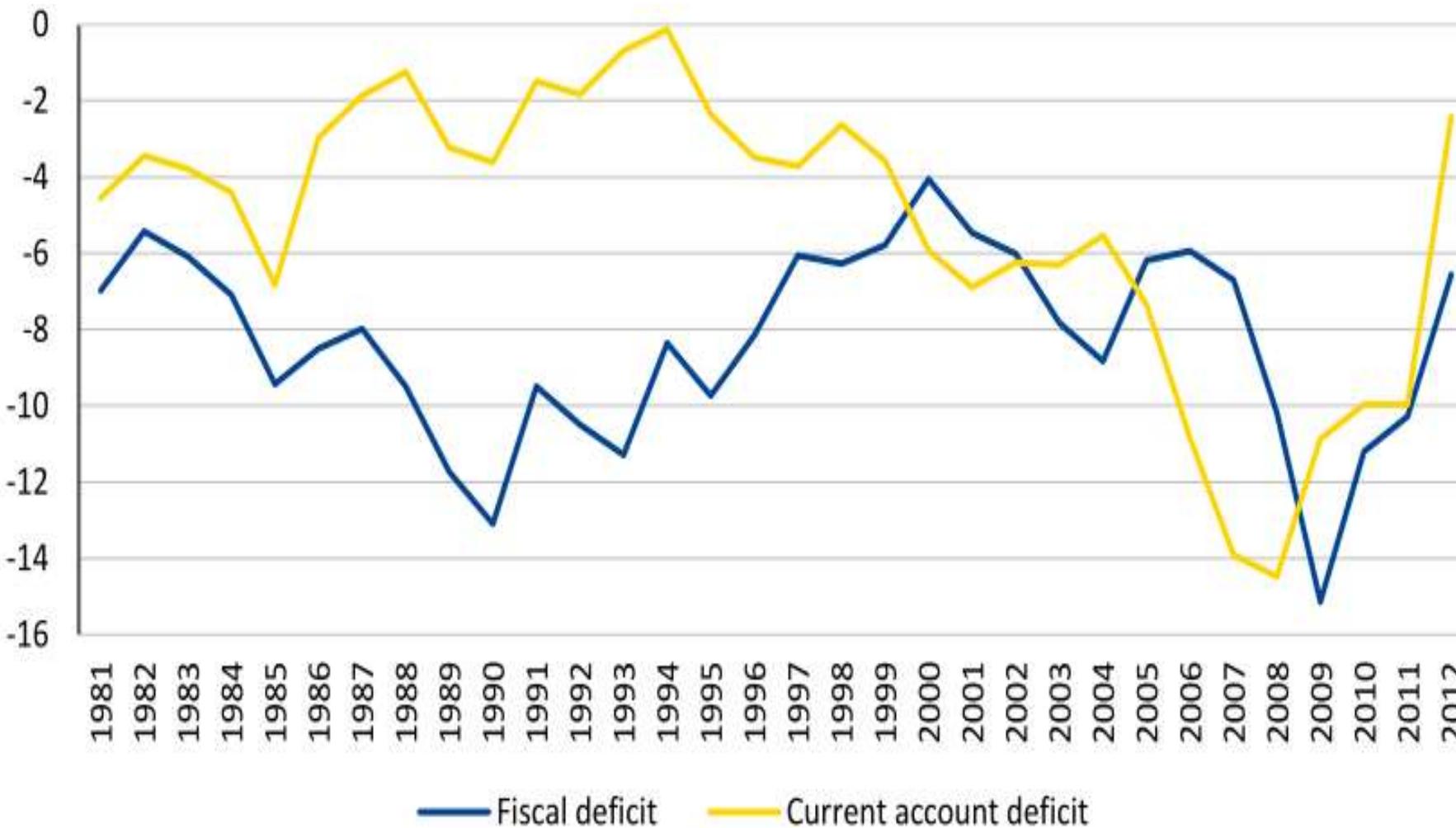
# 10-year government bond yield



# Greece's response to entry in EZ

- Public expenditure rose more rapidly:
  - spending for pensions, wages, and other transfers, while the public labour force expanded;
  - spending when Athens prepared for the 2004 Olympics.
- The revenue share fell to 39% of GDP from 42%, suffering from widespread tax evasion and an inability to collect overdue tax payments from large corporates.
- The shadow economy rose from 20% to 30% of GDP.  
→ Budget deficits worsened even in % of GDP.  
→ The current account (CA) deficits widened.

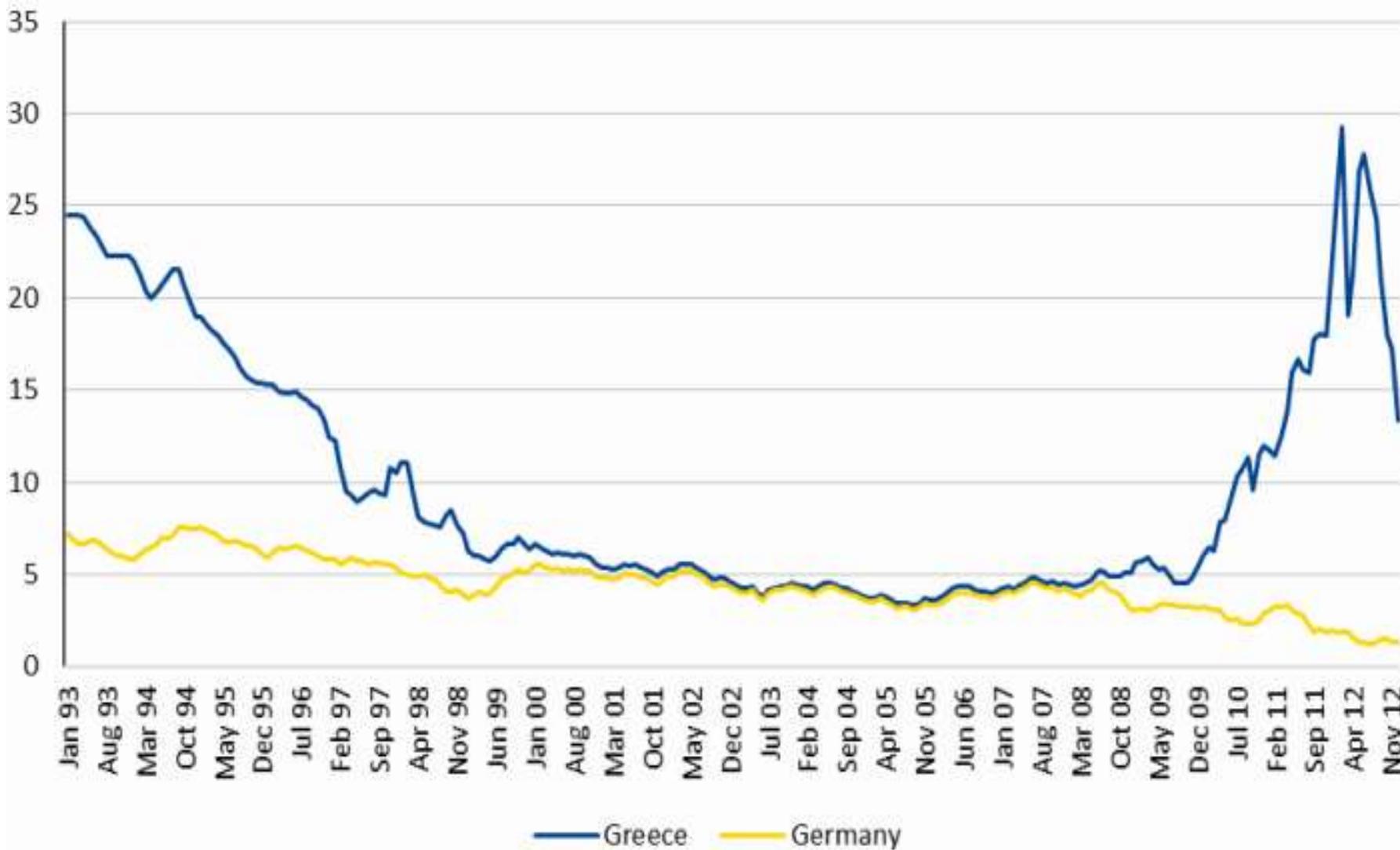
# Twin deficits in Greece



# The clue of the crisis

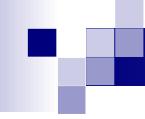
- In October 2009, the newly elected Pasok government announced the 2009 fiscal deficit would likely be 12.8% of GDP rather than a previously estimated 3.6%.
- Low productivity gains and wage increases outpacing those of euro partners convinced investors that future growth would be low.
- A speculative attack against Greek sovereign bonds and the euro erupted between December 2009 and January 2010.
- Speculators sold Greek sovereign bonds.

# 10-year government bond yield

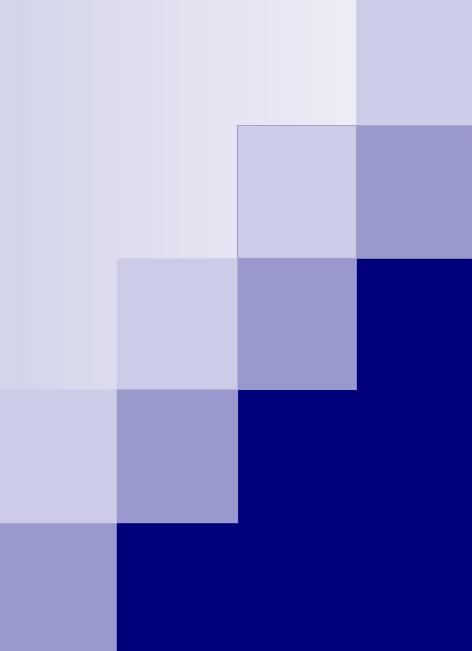


# Early consequences

- Greek policy-makers delayed timely action.
- EU institutions and the IMF intervene:
  - with bail-out loans to finance the government debt,
  - to repay creditors, to pay back interest and capital operations,
  - by imposing a policy mix including severe cuts in wages, pensions and asset prices.
- Greece remained in the EZ.
- GDP dropped by 25%. Unemployment, poverty and inequality increased.
- This was a debt-, and then a banking- and an E- crisis.



# End of the 7th lecture of International Finance *M. Pugno*



***University of Cassino***  
***Economics and Business***  
**Academic Year 2023/2024**

# International Economics

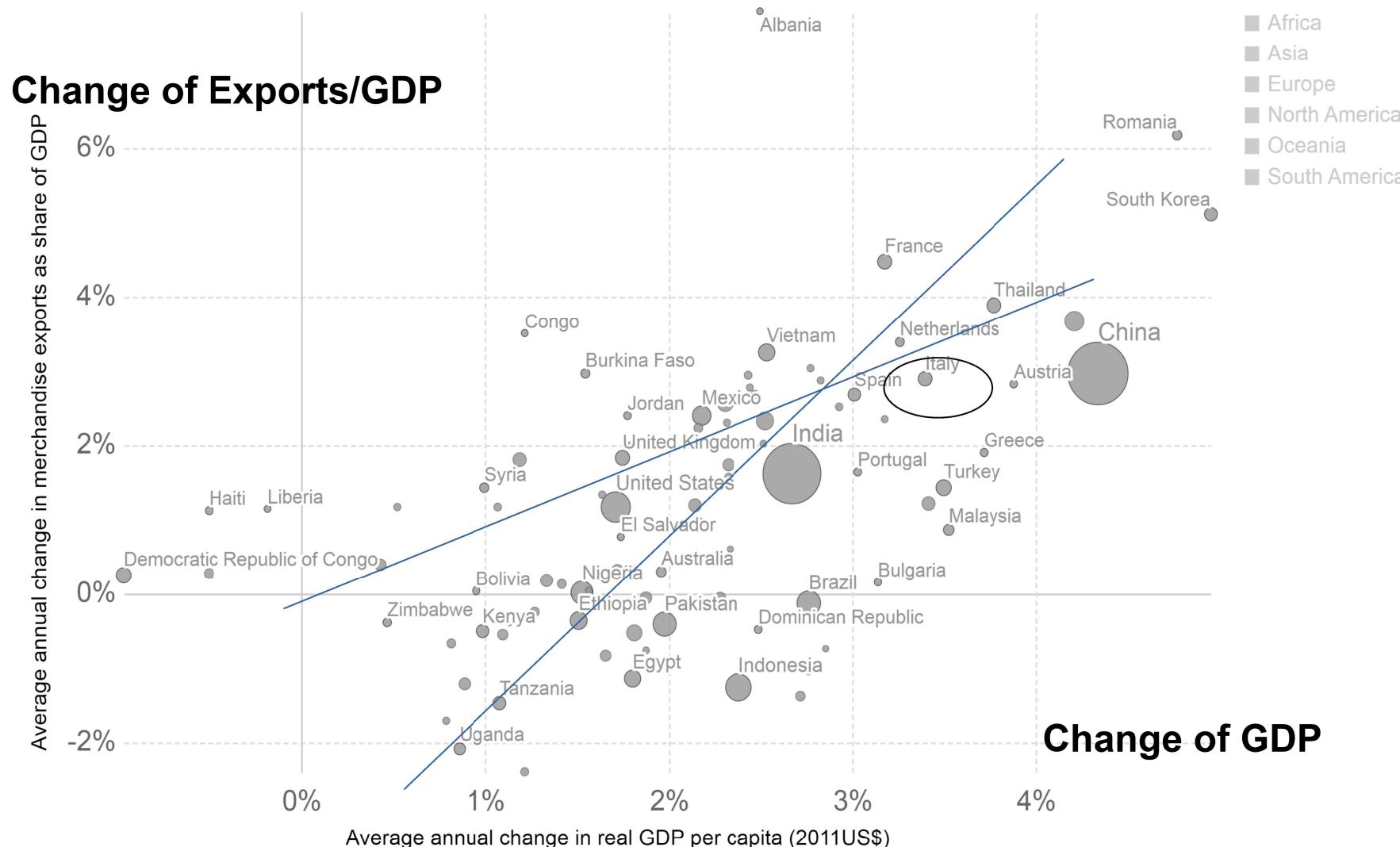
## International Finance

(Growth and Exports: two views  
– Gerber ch. 16 - lecture 8)

***Prof. Maurizio Pugno***  
University of Cassino

# Growth of GDP and trade, 1945 to 2014

Average annual change in real GDP per capita vs Average annual change in exports as share of GDP.

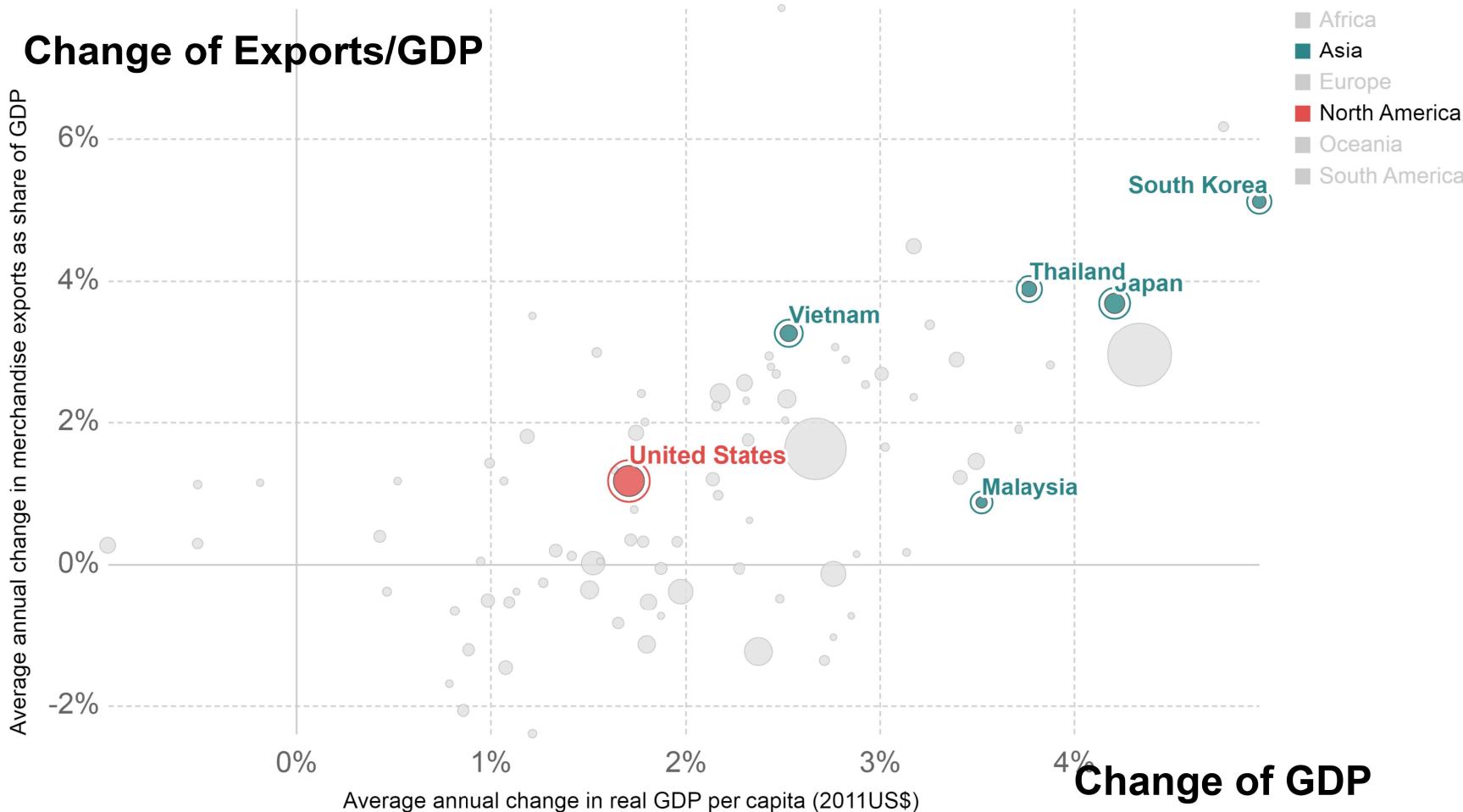


Source: Fouquin and Hugot (CEPII 2016), Maddison Project Database (2018), Population (Gapminder, HYDE(2016) & UN (2019))

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# Growth of GDP and trade, 1945 to 2014

Average annual change in real GDP per capita vs Average annual change in exports as share of GDP.



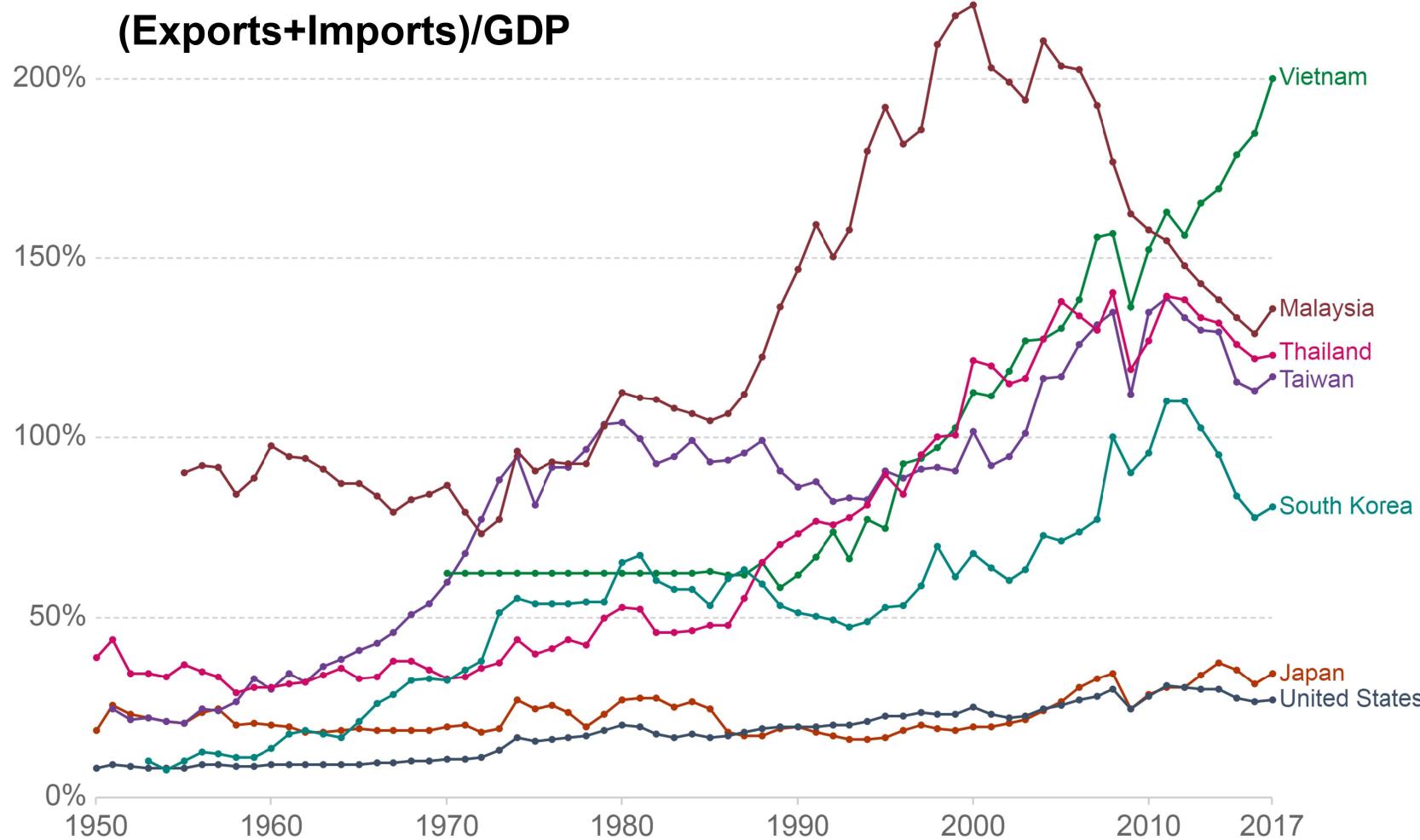
Source: Fouquin and Hugot (CEPII 2016), Maddison Project Database (2018), Population (Gapminder, HYDE(2016) & UN (2019)), Our World In Data  
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# Comments on the charts

- Countries with higher exports also exhibit higher economic growth.
- Some East-Asian countries do best in both accounts (Japan, South Korea, Malaysia, Thailandia, Vietnam).
- Hong Kong and Singapore are city-country and are not representative. For Taiwan data are difficult to find.
- By 2015, these East-Asian economies accounted for over 16 percent of world merchandise exports even though they had just over 10 percent of world GDP.

# Trade Openness, 1950 to 2017

Trade openness is measured as the sum of a country's exports and imports as a share of that country's GDP (in %).



Source: Feenstra et al. (2015) Penn World Tables version 9.1

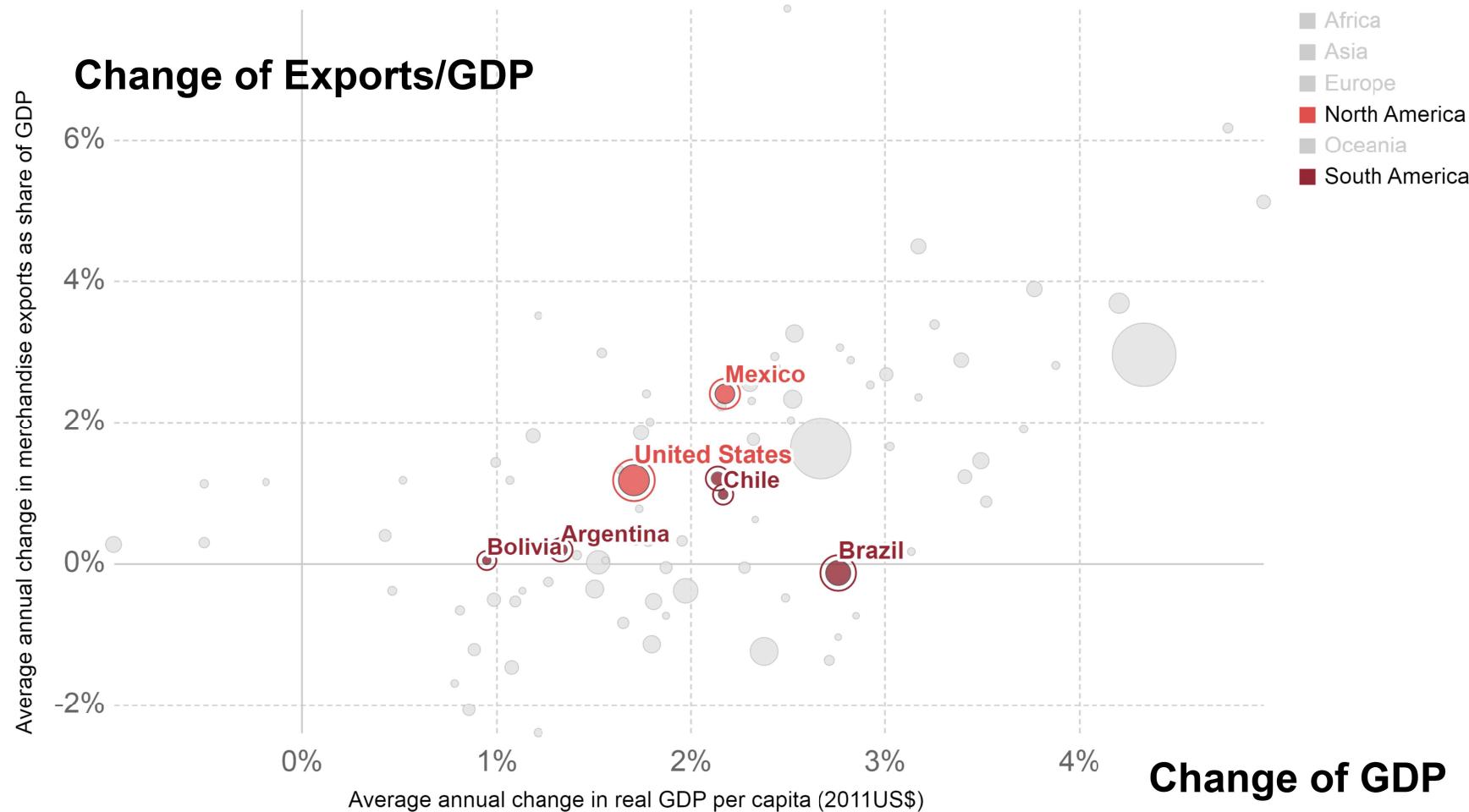
OurWorldInData.org/trade-and-globalization • CC BY

# Comments on the chart

- Such East Asian countries exhibit high growth of both exports and imports (as share of GDP).
- Japan in the 1960-1980 period.
- US is taken as reference.

# Growth of GDP and trade, 1945 to 2014

Average annual change in real GDP per capita vs Average annual change in exports as share of GDP.



Source: Fouquin and Hugot (CEPII 2016), Maddison Project Database (2018), Population (Gapminder, HYDE(2016) & UN (2019)), Our World In Data  
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# The contrast

- Latin American countries exhibit both inward orientation and low growth.
- Argentina and Chile are, in particular, rich of natural resources, and in the 1960s are expected to have high economic development.

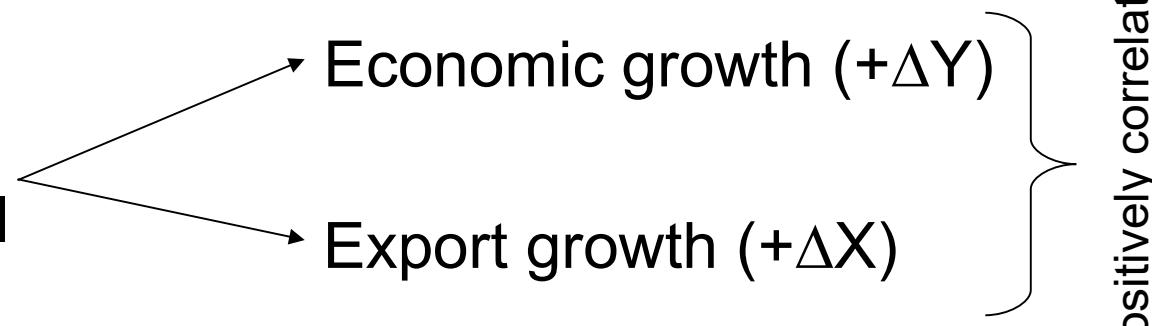
# The issue

- How to interpret the positive correlation between export and economic growth?
- Are investment and technical progress the engine of both economic growth and the competitiveness of exports? (*supply-side view*).
- Or the reverse. Are foreign demand for exports able to lead a country to economic growth by stimulating investments and technical progress? (*demand-side view*).
- Is the economy driven by the supply side or by the demand side?

# The two views

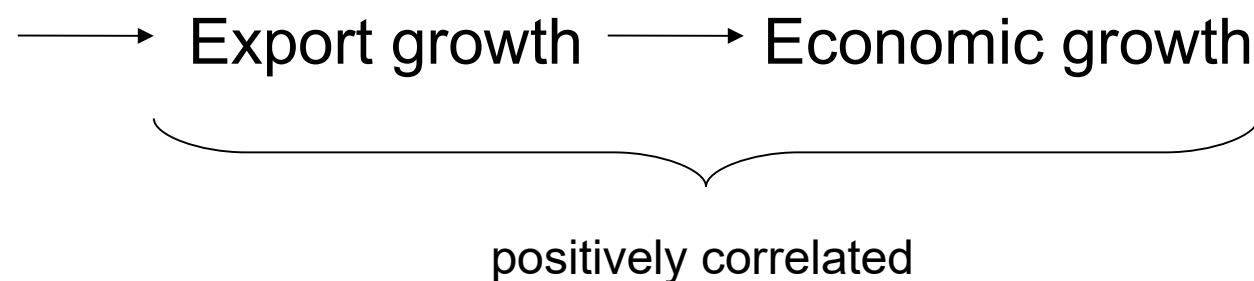
## Supply-side view:

High savings and  
High human capital



## Demand-side view:

Policies to open  
the economy



# The supply-side view (our textbook)

- Ending the demographic transition (few children wrt workers) → High savings → **high investments** → high technology:
  1. → economic growth ( $+ΔY$ ) (→high imports),
  2. → high competitiveness → higher exports.
- Moving from the illiterate population to basic (public) schooling → **high growth of human capital** → high increase of productivity → high exports.

# The economic argument

- There are no special autonomous or cultural productivity factor (A).
- But simply high investments (K) and education (H).
- This can be seen from Growth Accounting.

# Growth Accounting

- $Y = F(L, K, H) = A L^a K^b H^c$   
 $a+b+c=1$  constant returns to scale  
A represents technology or TFP  
i.e. the productivity of all factors, L, K and H
- Taking the logarithm ( $\ln$ ) of the equation:  
 $\ln Y = \ln A + a \ln L + b \ln K + c \ln H$
- Taking the derivative with respect to time ( $t$ ):  
 $d\ln Y/dt = (d\ln A/dt) + a (d\ln L/dt) + b (d\ln K/dt) + c (d\ln H/dt)$
- so that  $g_Y = g_A + ag_L + bg_K + cg_H$  (where  $g$  = growth rate)

# The Total Factor Productivity

- $g_Y = g_A + ag_L + bg_K + cg_H$  (where  $a+b+c=1$ )

This is the growth rate de-composition  
where  $g_A$  is the TFP growth.

# The Total Factor Productivity

- This is the growth rate de-composition:

$$g_Y = g_A + ag_L + bg_K + cg_H \quad (\text{where } a+b+c=1)$$

where  $g_A$  is the TFP growth.

- By re-arranging:

$$g_A = g_Y - ag_L - bg_K - cg_H$$

this is a residual because data are available only  
for  $g_Y$ ,  $g_L$ ,  $g_K$ ,  $g_H$

→ In the East-Asian countries,  $g_A$  is a small contributing factor to growth (like the US), and  $(g_K, g_H)$  are important factors.

# Additional institutionalist arguments

## (A) The policies aimed at promoting exports.

Typical policies (targeting industries & performance):

- tax benefits and subsidized credits to exports,
- providing tariff-free access to imports of capital equipment (and new technologies) used to manufacture exports.

All these are supply-side policies.

# Additional institutionalist arguments (cont)

(B) Policies aimed at stabilizing the macroeconomic environment. E.g.:

- strict control over inflation,
- sound management of government debts,  
→ no high interest rates  
→ no real appreciation of the currency

These are macroeconomic policies at the service of the supply-side policies.

# Additional institutionalist arguments (cont)

(C) Policies aimed at stabilizing the social environment. E.g.:

- secure property rights, and competent and well-paid/educated bureaucracies,
- good public services (free public education, free basic health care, rural infrastructures, land reform).

→ low economic and social inequalities.

However, the control of the economy sometimes penalised democracy (in South Korea, Singapore).

# Additional institutionalist arguments (cont)

## (D) Policies to stabilise the relationship between policy makers and businessmen.

*Deliberation councils*: quasi-legislative bodies that bring together representatives from the private and the public sectors.

- They deal with industry and policy issues, such as the government budget.
- Policy makers and businessmen bargain over public benefits in exchange to performance requirements (export targets) → little rent-seeking, high trust, much information flows.

# Conclusion

- There is no “East-Asian miracle” (ie idiosyncratic explanation of high growth and exports).
- The critical but unexceptional explaining factors:
  - (1) rapid accumulation of savings and high rates of investment,
  - (2) rapid increases in levels of schooling,
  - (3) increasing equality,
  - (4) stable macroeconomic environments,
  - (5) public-private bargainings and agreements.

# The demand-side view

## (Thirlwall's article on the BoP constrained growth model)

- It starts from:
  - a theoretical argument,
  - an empirical observation.
- It approaches a simple formula, suggesting how to enhance economic growth.
- Since it is subject to severe assumptions, it can be valid only in the long run.

# The demand-side view: theory

- Consumption growth implies import growth in open economies, because consumers like the most advanced and diversified products, which may not be domestically produced.
- Imports must be paid with exports or foreign debt.
- Debt must be temporary, because cumulating foreign debt makes the economy vulnerable to speculation.
- Devaluation to adjust the CA can also be temporary. Otherwise, inflation soars, and restrictive macroeconomic policies become necessary.

→ *Economic growth normally faces the external constraint (CA or BoP constraint).*

# The CA constrained long-run growth

- The CA is a long run constraint, because CA deficit in the short run can be financed with external debt only for a while.
  - Growth of exports helps to repay imports and, possibly, the debt that are necessary for investments and technology. This both enhances growth and maintains the CA balance .
- economic growth can be explained by growth of exports as a CA constrained long-run growth, since CA cannot run into persistent deficit or surplus.

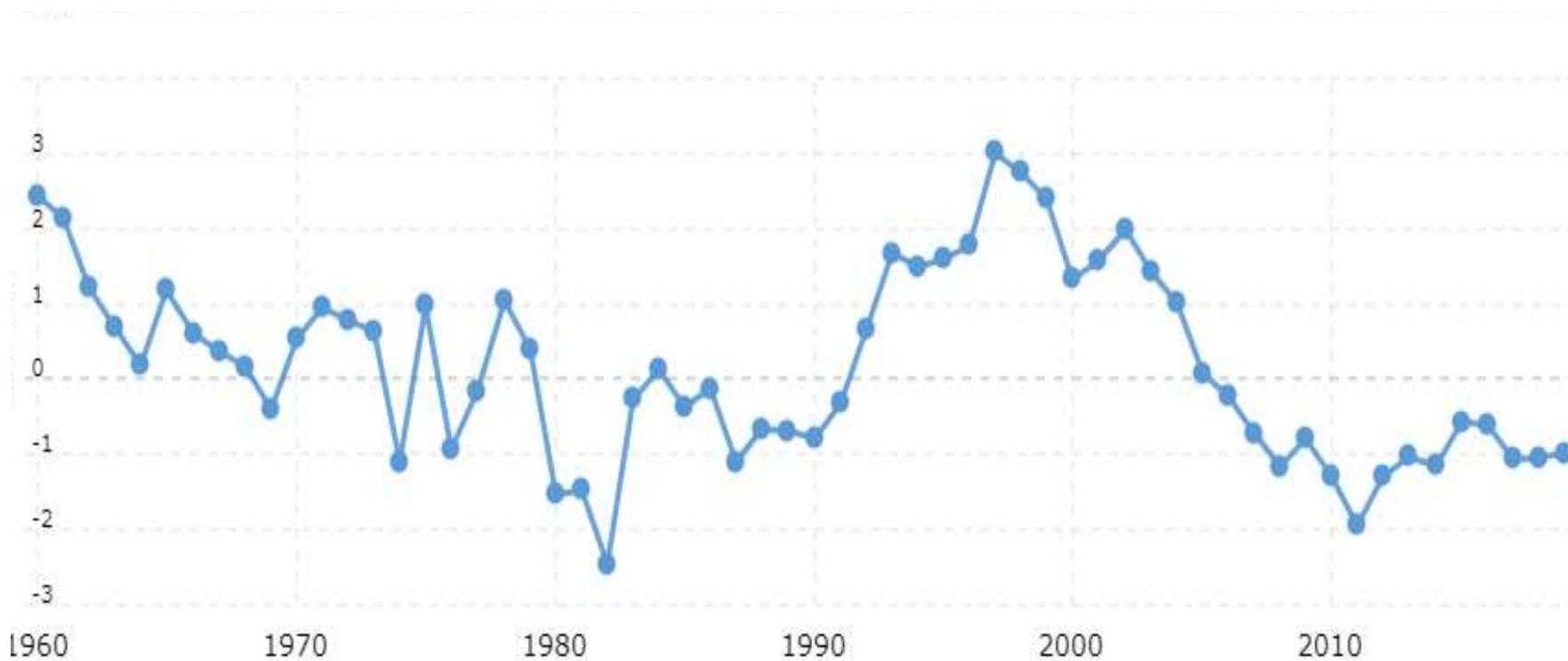
# Initial evidence: the Trade Balance

## Italy (1970-2015)



# France's Trade Balance 1970-2019

(Exports-Imports)/GDP\*100



# Spain's Trade Balance 1970-2019

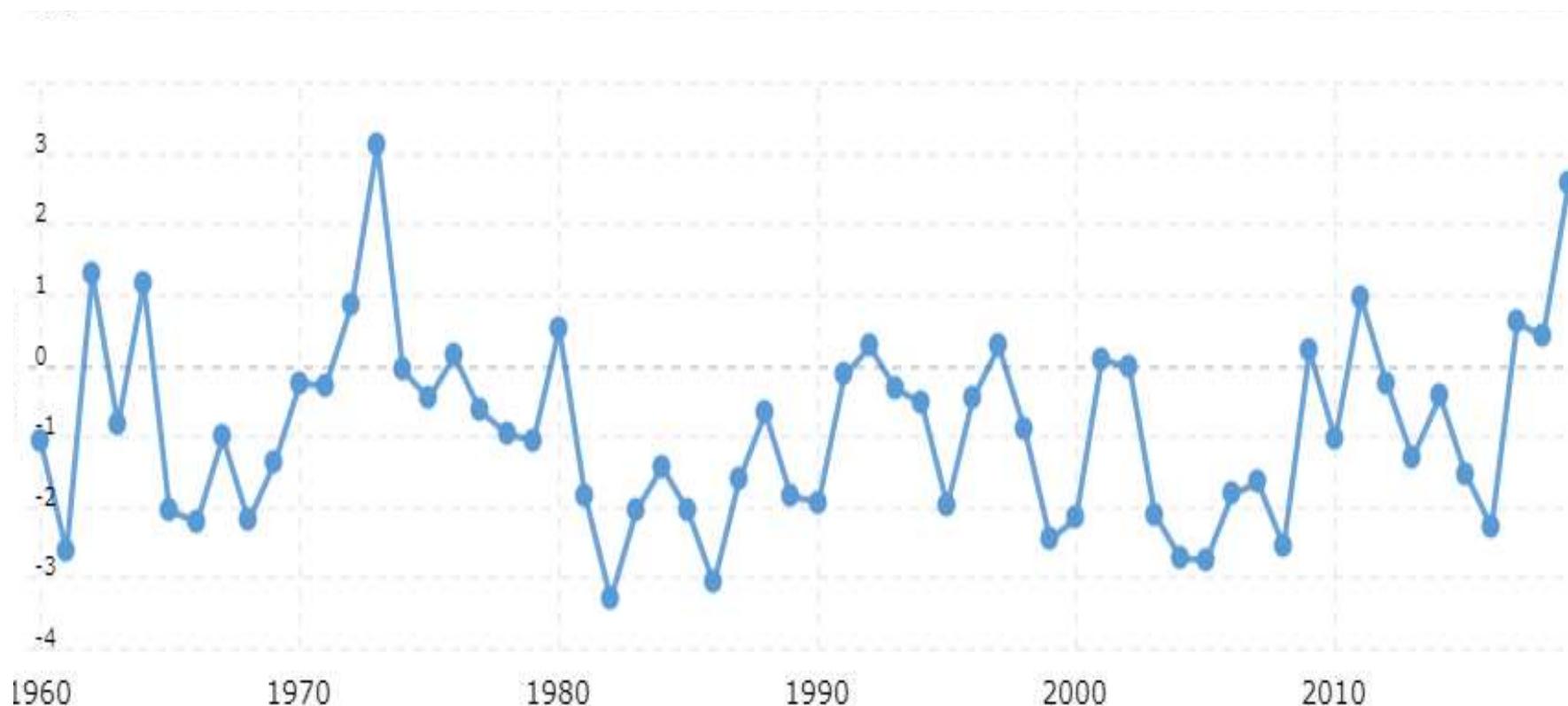
(Exports-Imports)/GDP\*100



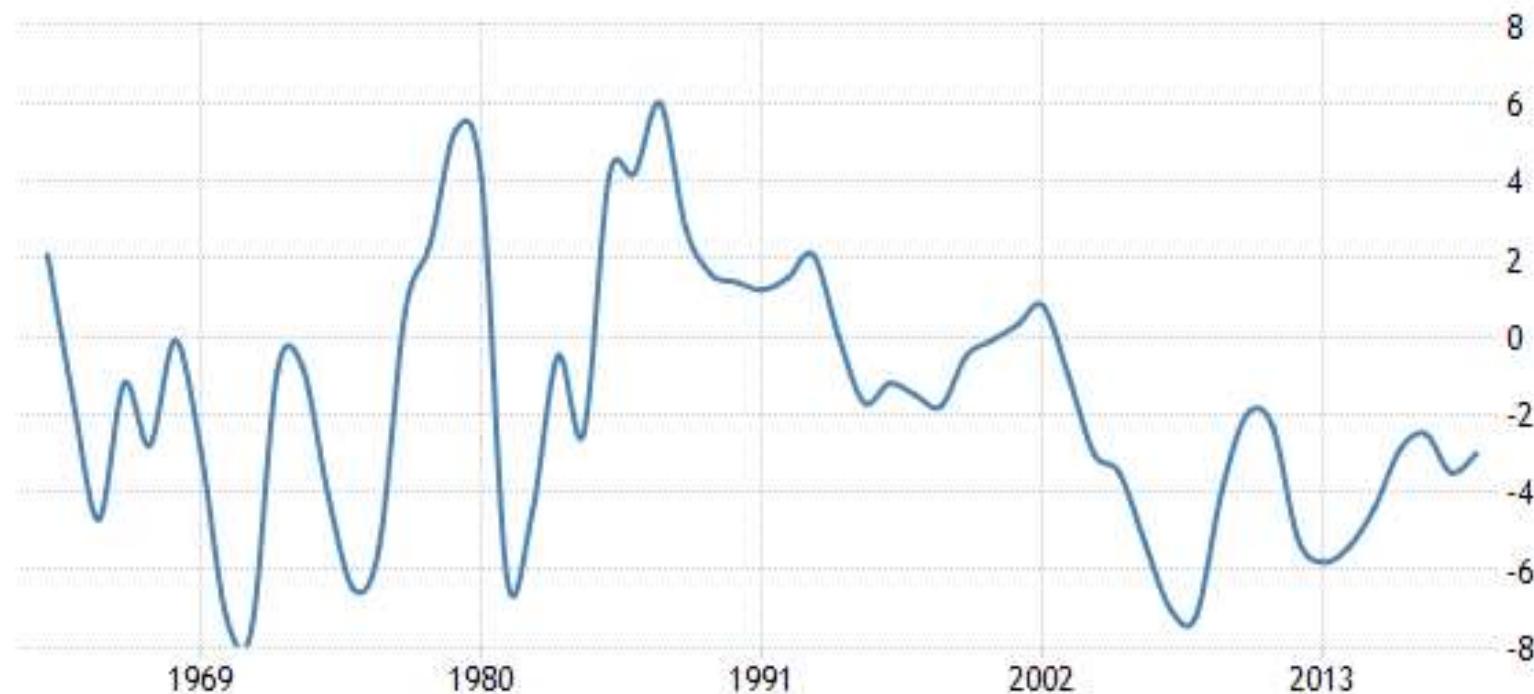


# Australia's Trade Balance 1960-2019

(Exports-Imports)/GDP\*100

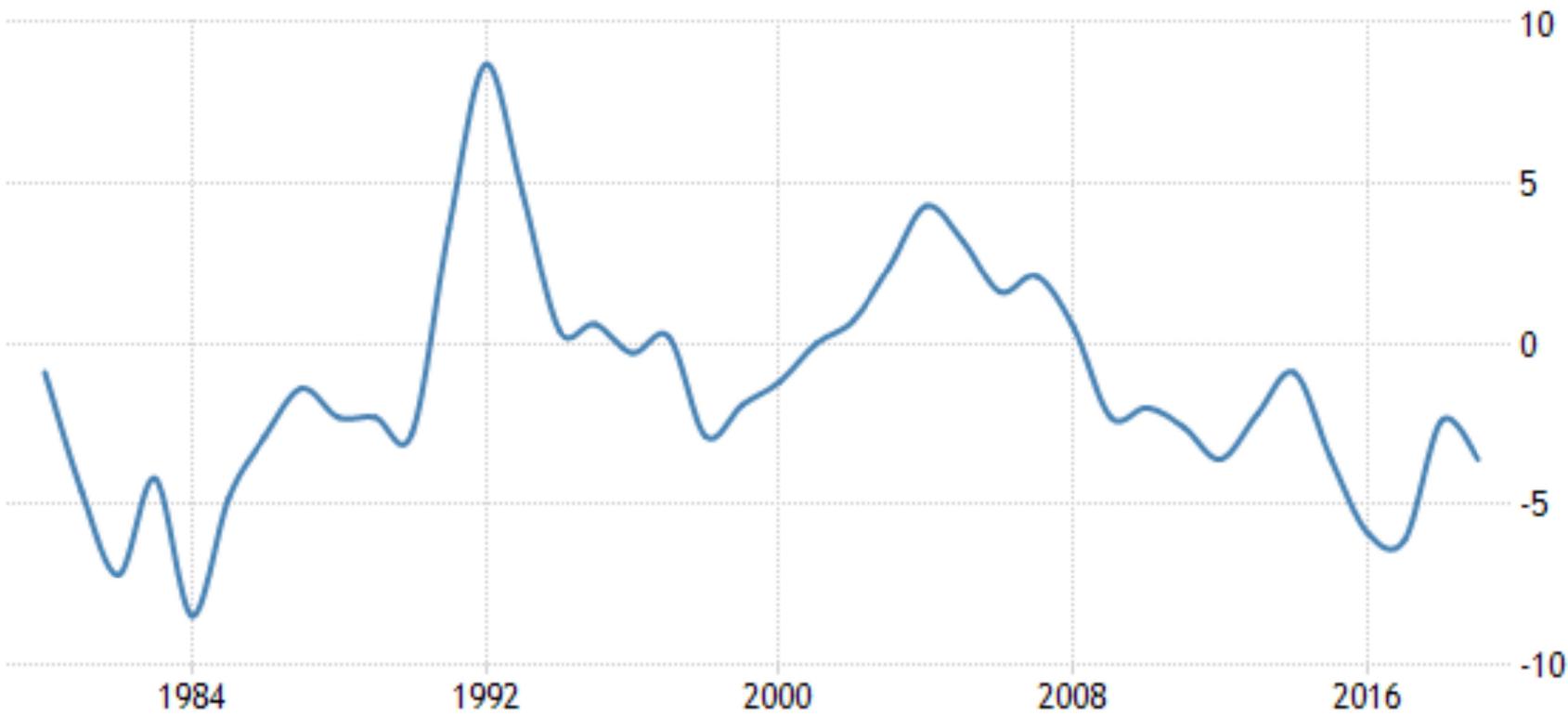


# Current Account /GDP in South Africa



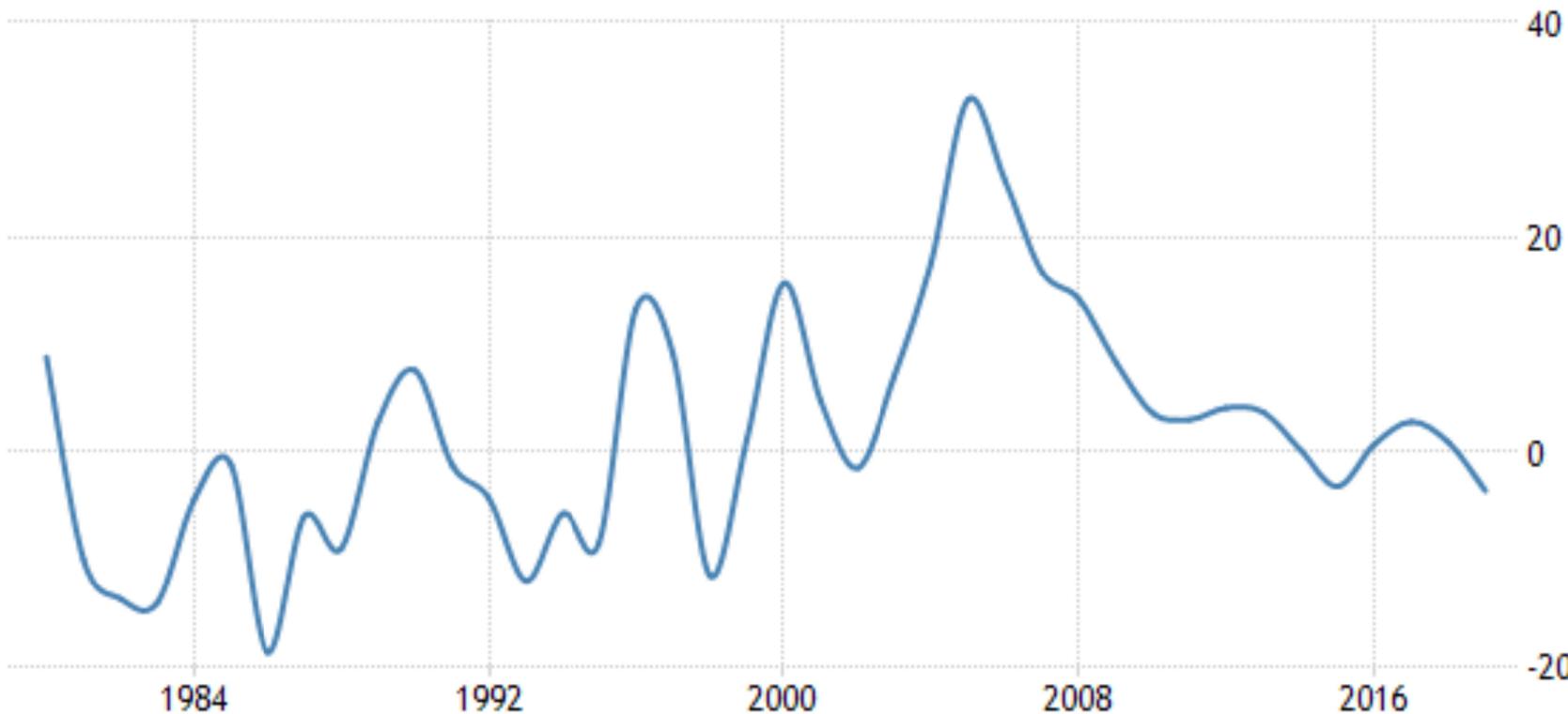
SOURCE: TRADINGECONOMICS.COM | SOUTH AFRICAN RESERVE BANK

# Current Account /GDP in Egypt



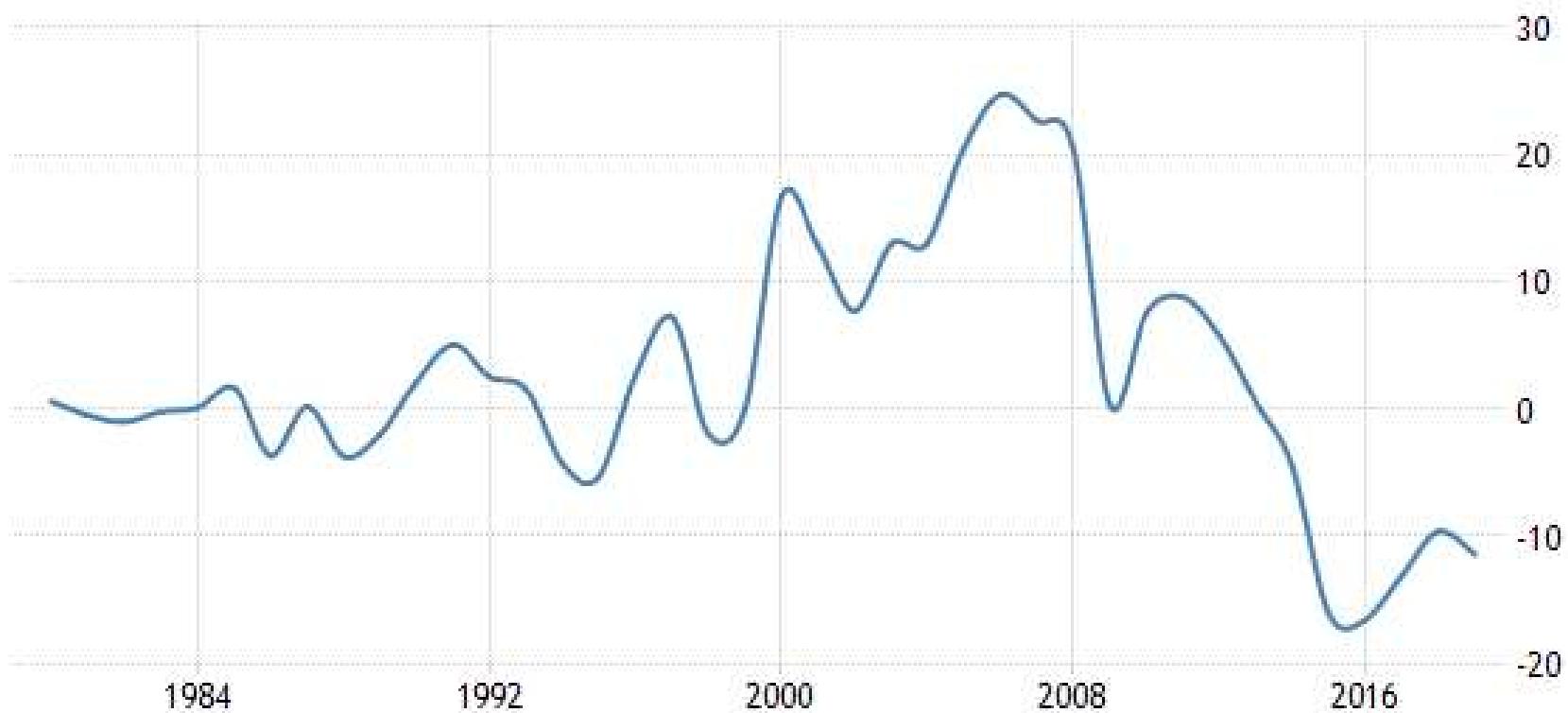
SOURCE: TRADINGECONOMICS.COM | CENTRAL BANK OF EGYPT

# Current Account /GDP in Nigeria



SOURCE: TRADINGECONOMICS.COM | CENTRAL BANK OF NIGERIA

# Current Account /GDP in Algeria



SOURCE: TRADINGECONOMICS.COM | BANK OF ALGERIA

# The demand-side view: the simple formula of growth

$$y = x/\pi$$

where:

$y$  = growth rate of domestic GDP

$x$  = growth rate of exports

$\pi > 0$  income elasticity of demand for imports,

i.e.:  $\pi$  = % change of imports due to one % change  
of GDP.

# Suggested policy

Since:

$$x = \varepsilon y^*$$

$\varepsilon > 0$  income elasticity of demand for exports

$y^*$  = growth rate of foreign demand,

then:

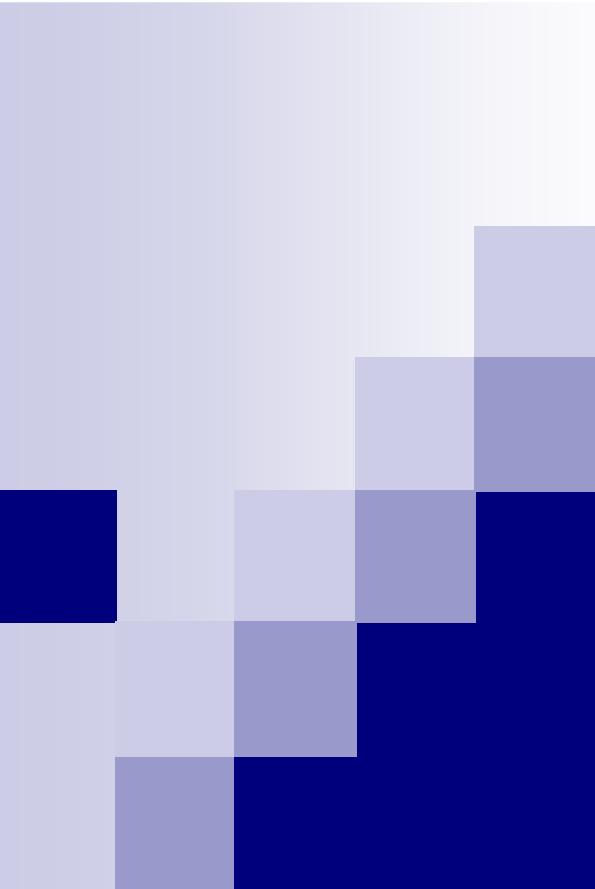
$$y = x/\pi = \varepsilon y^*/\pi$$

Suggested policy: *increasing  $\varepsilon$ , decreasing  $\pi$*

# Next final lecture

- How to obtain the simple formula
- The assumptions it requires
- How the formula is confirmed by evidence
- Discussion on the implied policy
- Overall evaluation of the demand-side view

End of the 8th lecture  
of  
International Finance  
*M. Pugno*



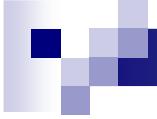
***University of Cassino***  
***Economics and Business***  
**Academic Year 2023/2024**

# International Economics

## International Finance

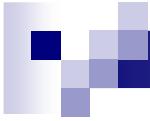
### Growth with Current Account equilibrium - Thirlwall - lecture 9

***Prof. Maurizio Pugno***  
**University of Cassino**



# An export-led view of economic growth

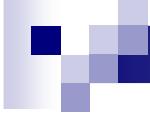
- Economic growth can be viewed as driven by:
  - either saving (and proper institutional factors) that determines investments, and then technical progress and exports,
  - or aggregate demand (exports or internal) (and proper institutional factors) that determines production (and then technical progress).
- The preceding lecture described the saving view (or supply-side), this lecture will describe the export-led view (or demand-side).



# The model of export-led and CA constrained growth

Procedure for the solution:

- set the condition for the balanced Current Account, i.e. exports=imports (in same unit of measurement)
- substituting exports with the export function
- substituting imports with the import function
- rewriting the condition for the balanced CA in growth rates
- putting in evidence the growth rate of GDP (which thus equalises import with export growth rates)
- simplifying the formula with the relative PPP theory.

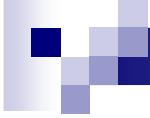


# The model of export-led and CA constrained growth

The CA constraint (i.e. balanced Current Account)

$$PX = P^* EM$$

$X$  = exports in real terms  
 $M$  = imports in real terms  
 $P$  = domestic (export) prices  
 $P^*$  = foreign (import) prices  
 $E$  = exchange rate (price of foreign currency)



# The export function

$$X = f^X \left( \frac{EP^*}{P}, Y^* \right) = \left( \frac{P}{P^* E} \right)^\eta Y^{*\varepsilon}$$

where

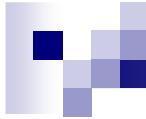
$f^X$  = general function for exports

$Y^*$  = foreign demand

(income of the Rest of the World)

$\eta < 0$  price elasticity of demand for exports

$\varepsilon > 0$  income elasticity of demand for exports



# The import function

$$M = f^M \left( \frac{P}{P^* E}, Y \right) = \left( \frac{P^* E}{P} \right)^\psi Y^\pi$$

where

$f^M$  = general function for imports

$Y$  = domestic demand (income or GDP)

$\psi < 0$  price elasticity of demand for imports

$\pi > 0$  income elasticity of demand for imports

# Rewriting the CA constraint

$$PX = P^*EM$$

$$P\left(\frac{P}{P^*E}\right)^\eta Y^{*\varepsilon} = P^*E\left(\frac{P^*E}{P}\right)^\psi Y^\pi$$

Re-arranging:

$$\left(\frac{P}{P^*E}\right)^{(1+\eta+\psi)} Y^{*\varepsilon} = Y^\pi$$

# Rewriting in terms of growth rates

$$\left( \frac{P}{P^* E} \right)^{(1+\eta+\psi)} Y^{*\varepsilon} = Y^\pi$$

Taking the logarithms:

$$(1+\eta+\psi) \ln \left( \frac{P}{P^* E} \right) + \varepsilon \ln Y^* = (1+\eta+\psi) (\ln P - \ln P^* - \ln E) + \varepsilon \ln Y^* = \pi \ln Y$$

Differentiating with respect to time, e.g.:  $\frac{d \ln Y}{dt} \equiv \frac{dY}{Y} \equiv y$

$$(1+\eta+\psi)(p - p^* - e) + \varepsilon y^* = \pi y$$

# The CA constraint in growth rates

$$\underbrace{x = (1 + \eta + \psi)(p - p^* - e) + \varepsilon y^*}_{\text{exports in the same terms as imports}} = \underbrace{\pi y = m}_{\text{imports in real terms}}$$

where lower-case letters stand for growth rates

$y$  = growth rate of GDP

$p$  = inflation of domestic prices

$p^*$  = inflation of import prices

$e$  = de/appreciation of the exchange rate

$y^*$  = growth of foreign demand

$\eta < 0$  price elasticity of demand for exports

$\psi < 0$  price elasticity of demand for imports

$\varepsilon > 0$  income elasticity of demand for exports

$\pi > 0$  income elasticity of demand for imports

# The CA constraint GDP growth rate

$$y_e = [(1 + \eta + \psi)(p - p^* - e) + \varepsilon y^*] / \pi$$

where lower-case letters stand for growth rates

$y$  = growth rate of GDP

$p$  = inflation of domestic prices

$p^*$  = inflation of import prices

$e$  = de/appreciation of the exchange rate

$y^*$  = growth of foreign demand

$\eta < 0$  price elasticity of demand for exports

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$\varepsilon > 0$  income elasticity of demand for exports

$\pi > 0$  income elasticity of demand for imports

# The CA constraint GDP growth rate

$$y_e = [(1 + \eta + \psi)(p - p^* - e) + \varepsilon y^*] / \pi$$

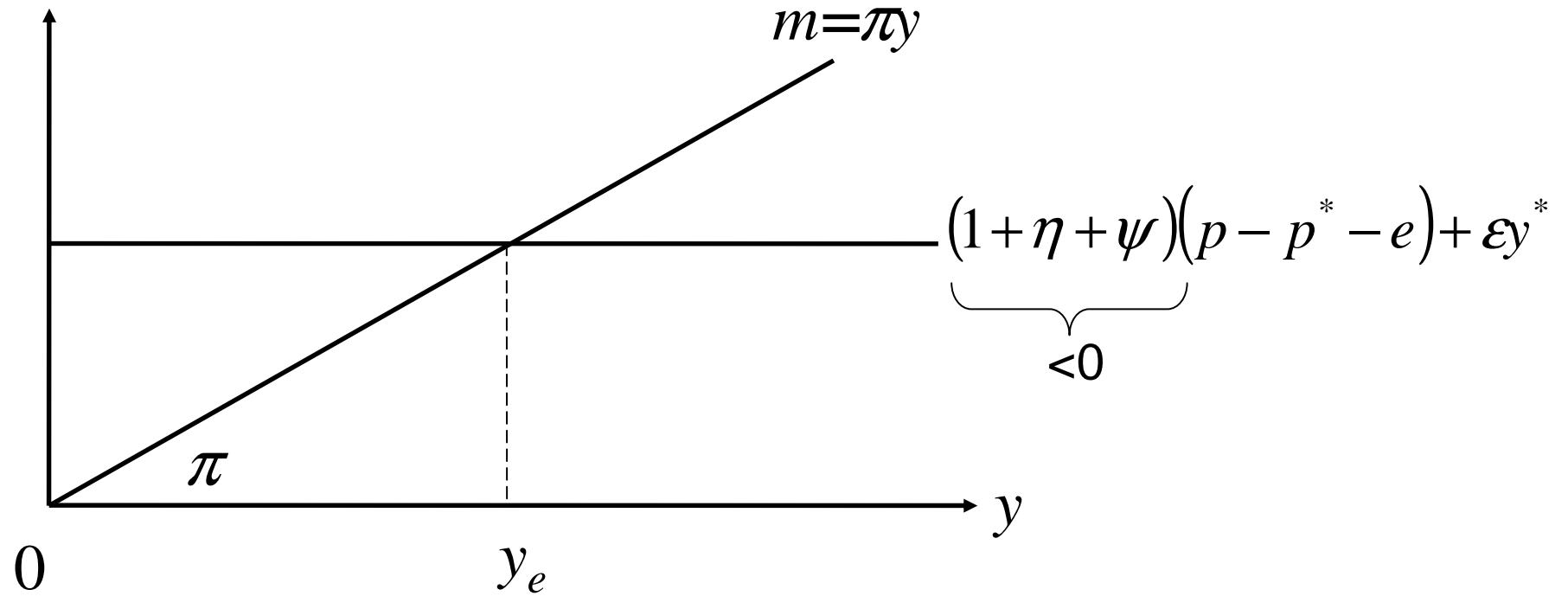
In the long run the Marshall-Lerner conditions hold,  
i.e.  $|\eta| + |\psi| > 1$  or  $(1 + \eta + \psi) < 0$ .

Therefore:

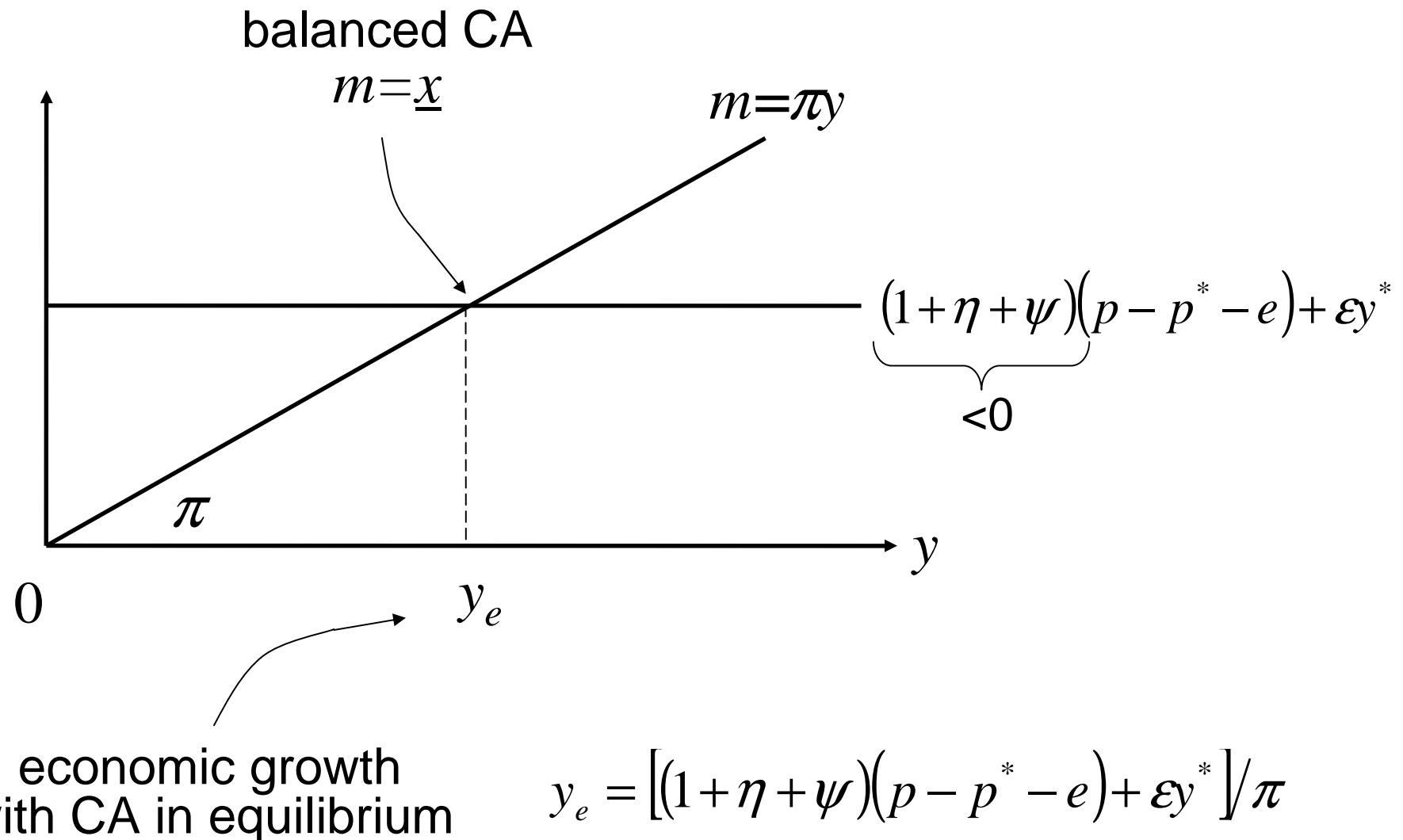
- a rise of relative domestic inflation:  $+ \Delta(p - p^*) \rightarrow - \Delta x \rightarrow - \Delta y_e$
- a rise of devaluation:  $+ \Delta e \rightarrow + \Delta x \rightarrow + \Delta y_e$
- a rise of foreign demand for exports:  $+ \Delta y^* \rightarrow + \Delta y_e$
- a rise of the elasticity of demand for imports:  $+ \Delta \pi \rightarrow - \Delta y_e$

# The CA constraint and growth: diagram

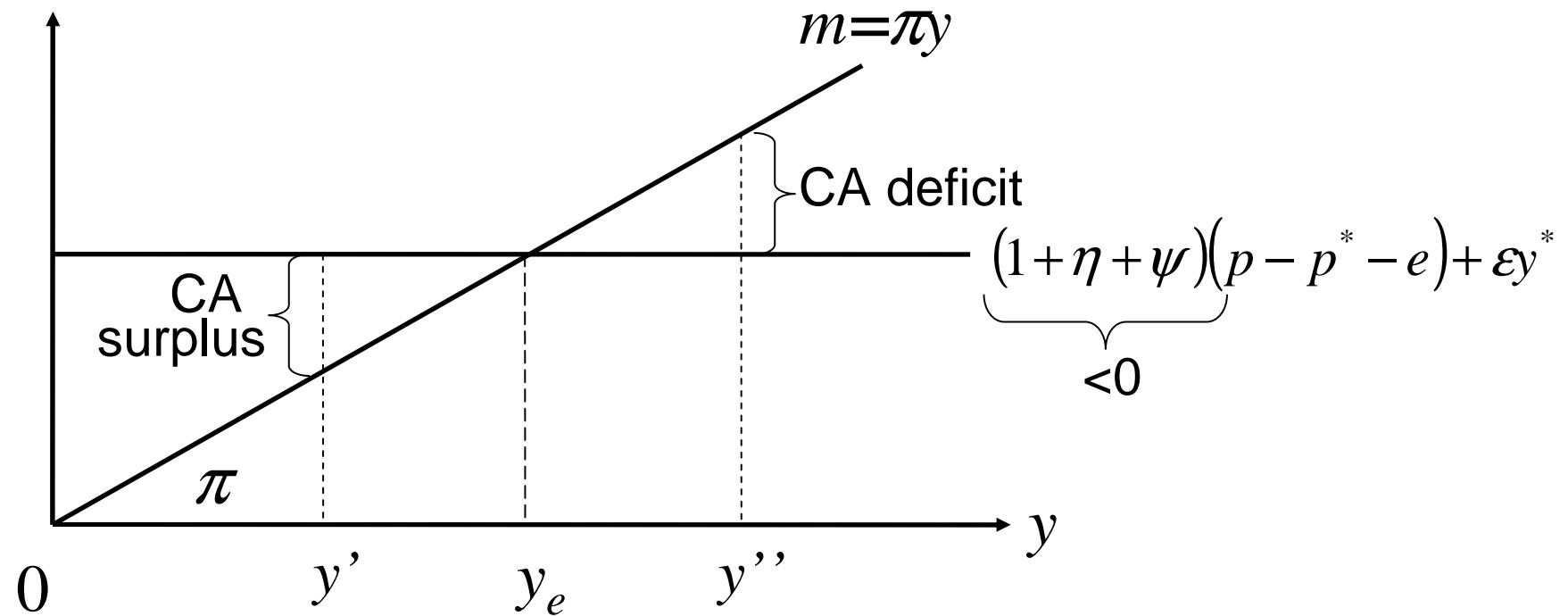
$$\underline{x} = (1 + \eta + \psi)(p - p^* - e) + \varepsilon y^* = \pi y = m$$



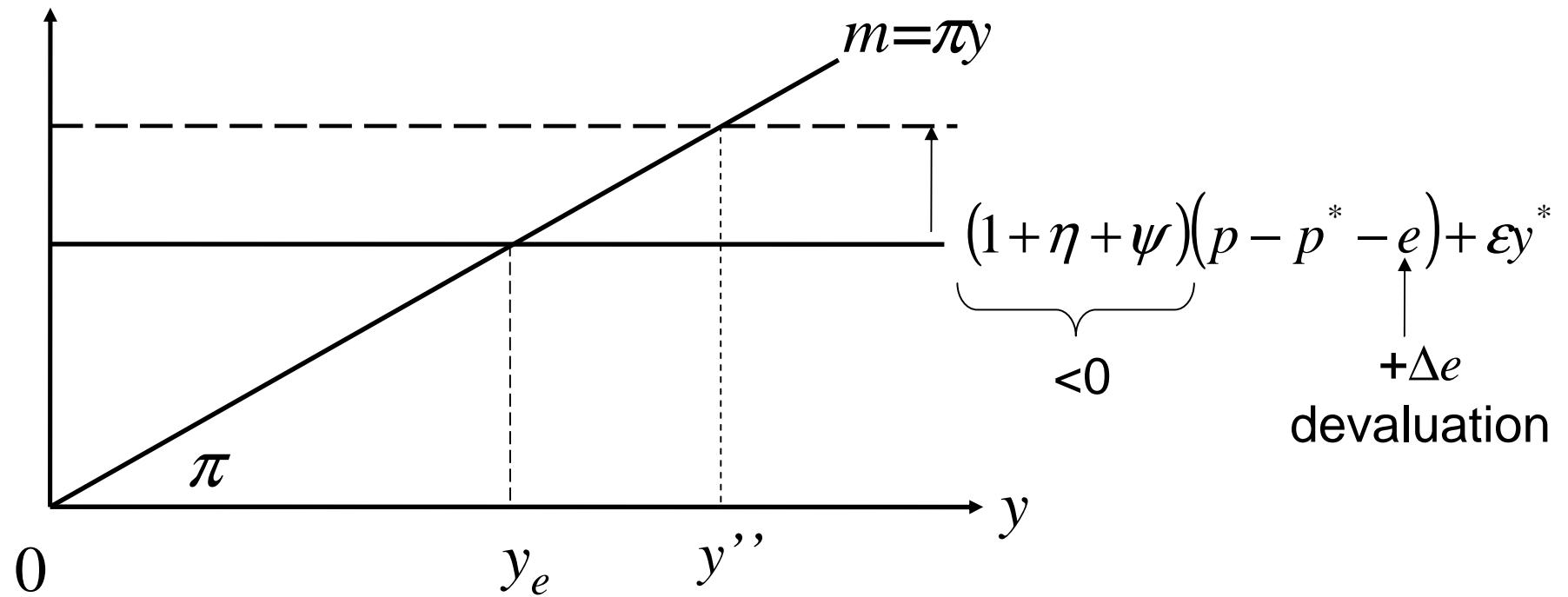
# Equilibrium growth rate



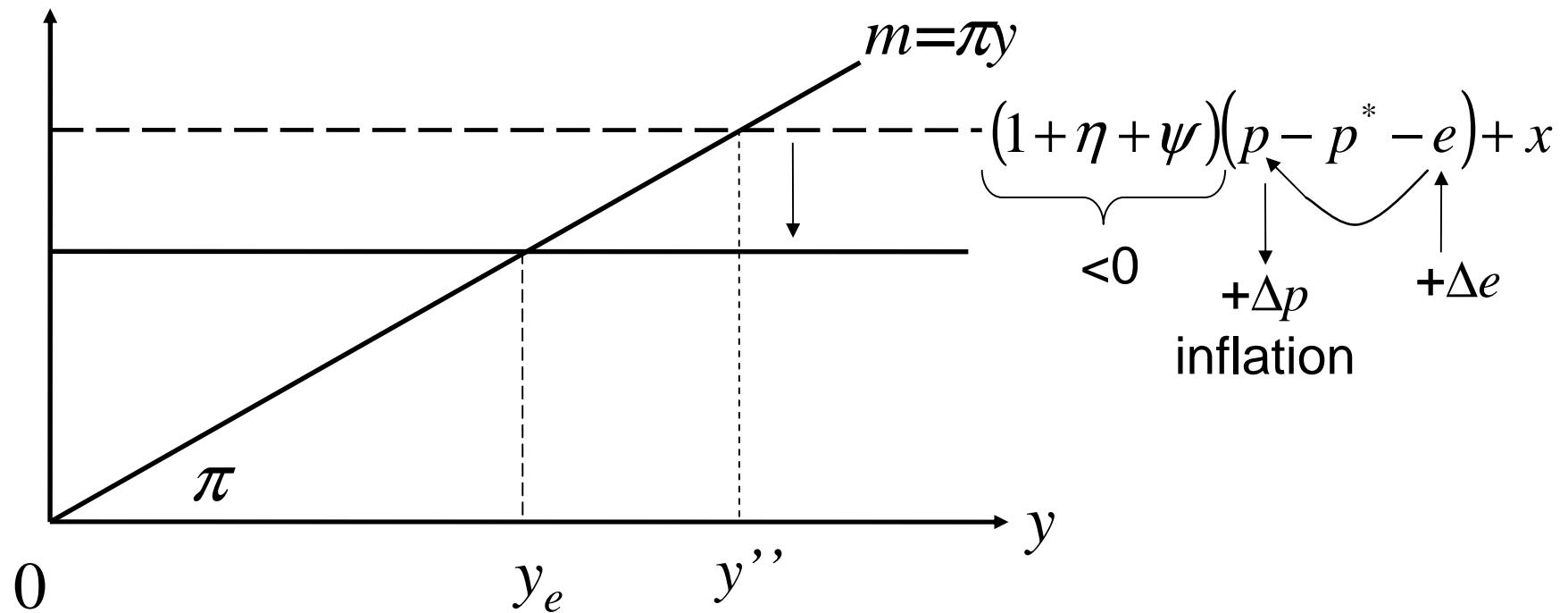
# CA surplus and CA deficit: diagram



# The temporary effects of a devaluation: first step



# The temporary effects of a devaluation: the second step



# Applying the *relative* PPP theory

- Formula of the relative Purchasing Power Parity theory of the exchange rate determination:

$$\frac{E_1}{E_0} = \frac{P_1/P_0}{P_1^*/P_0^*} \Rightarrow \frac{E_1 - E_0}{E_0} + 1 = \frac{\frac{P_1 - P_0}{P_0} + 1}{\frac{P_1^* - P_0^*}{P_0^*} + 1}$$

so that:  $e + 1 = \frac{p + 1}{p^* + 1}$

which gives:  $e \cong p - p^*$

Re-writing:  $p - p^* - e = 0$

# Special growth with CA equilibrium

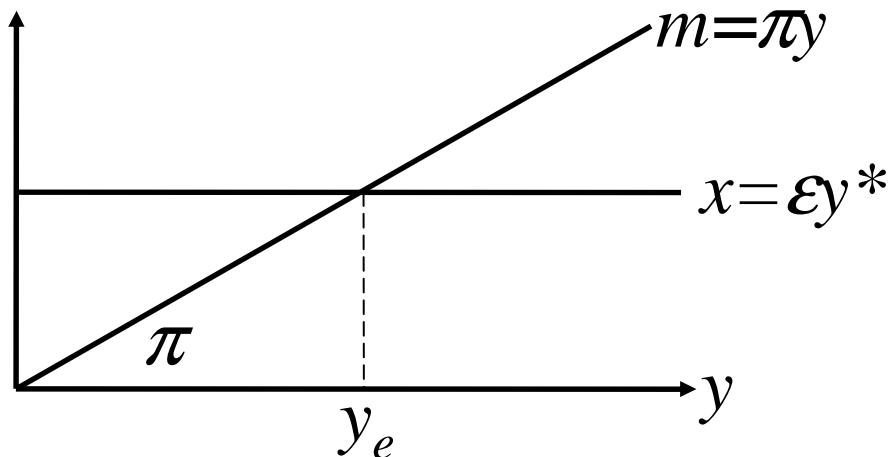
If:  $(p - p^* - e) = 0$  that is, if:  $(1 + \eta + \psi)(p - p^* - e) = 0$

then

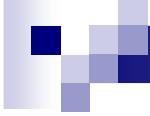
$$y = \varepsilon y^* / \pi$$

or

$$y = x / \pi$$



i.e.  $y$  depends on the growth rate of exports ( $x$ ), and, negatively, the elasticity of imports ( $\pi$ ).



# Final formula

- This model says that:

$$\varepsilon y^* = x = m = \pi y \quad \text{or} \quad y = x/\pi$$

- Growth with equilibrium CA is led by world demand for exports.

# BoP growth in advanced countries, 1951-1973

Country	Change in GDP %	Change in exports ( $x$ ) %	Income elasticity of demand for imports ( $\pi$ )	Balance of payments equilibrium growth rate %
Austria	5.1	10.7	n.a.	--
Belgium	4.4	9.4	1.94	4.84
Canada	4.6	6.9	1.20	5.75
Denmark	4.2	6.1	1.31	4.65
France	5.0	8.1	1.62	5.00
Germany	5.7	10.8	1.89	5.71
Italy	5.1	11.7	2.25	5.20
Japan	9.5	15.4	1.23	12.52
Netherlands	5.0	10.1	1.82	5.55
Norway	4.2	7.2	1.40	5.14
United Kingdom	2.7	4.1	1.51	2.71
U.S.A.	3.7	5.1	1.51	3.38

Source: Thirlwall (1979).

# Comments on the table

- The second and third columns provide the figures for the formula of the CA-constrained model to predict the economic growth (in the fourth column). E.g.:  $9.4/1.94=4.84$  for Belgium.
- The economic growth rate predicted by the formula of the CA-constrained model (in the fourth column) is rather closed to the actual growth rate (in the first column) in the most developed countries.
- However, in the period 1951-73 the exchange rates were mostly fixed, and the international capital flows rather small.

# BoP growth in less advanced countries, 1950/90-2010

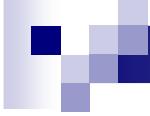
Source:

Khasawneh et al 2012

	$\pi$	$\epsilon$	$y - y_{trop}$
ALGERIA	0.90495	2.03529	-0.0519
BAHRAIN	0.7722	0.38977	-0.1202
EGYPT	1.10032	0.27722	-0.0639
IRAN	0.88659	1.69863	-0.0735
ISRAEL	0.50088	0.58284	-0.002
JORDAN	2.59612	0.77243	-0.0994
KUWAIT	1.04819	0.05246	-0.0585
LIBYA	0.77854	0.64727	-0.0724
MOROCCO	0.65897	1.10702	-0.0635
OMAN	0.88154	0.03141	-0.0239
QATAR	1.36893	0.38905	-0.0748
SAUDI ARABIA	2.44697	0.29462	0.12327
SYRIA	2.3218	1.81149	0.05235
TUNISIA	3.4742	0.97315	0.07842
UAE	2.238	0.4958	0.15627
YEMEN	2.4215	0.10774	-0.0983

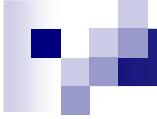
# Comments on the table

- The table provides the figures for two relevant elasticities (first two columns), thus showing the Marshall-Lerner condition.
- The third column shows the difference between the actual and predicted economic growth.
- The prediction is pretty good, except for oil exporting countries, for which the relative PPP theory does not hold.
- The prediction is regarded as pretty good with respect to a formula that is extremely simple.



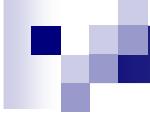
# Assumptions of the model

- Trade must be balanced in the long run.
- Relative PPP theory holds true.
- Goods are nationally differentiated, and imperfect substitutes.
- Supplies are infinitely elastic (prices fixed in seller's currency).
- Output (growth) is the adjusting variable in the long run.
- Price & income elasticities must be stable in the long run.



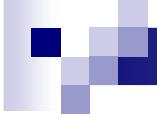
# Suggested export-led policies

- Extending credit to exporting firms.
- Simplifying export procedures.
- Training potential exporting firms.
- Strictly enforcing adherence to international quality standards
- Engaging in export promotion activities like trade fairs.
- Simplifying international banking procedures.
- Setting realistic foreign exchange rates.



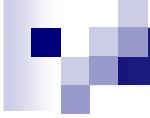
## Suggested export-led policies (cont)

- Developing the export facilitating infrastructure and services like roads, ports, security, reliable power and water supply.
- Negotiating free trade agreements with trading partners
- Allowing the import of needed raw materials
- Helping exporters to attain and sustain their competitive advantage through support for their R&D and the lowering of taxation and fees
- Encouraging the inflow of export promoting foreign investment.



# Benefits of export-led strategy

- Generating savings and revenues that improve the capacity to finance investments and foreign debt.
- Creating and sustaining jobs in export-active sectors.
- Improving export infrastructure (e.g. roads, ports, etc.).
- Attaining economies of scale by expanding production capacity and output, and by maintaining efficiency to be competitive in the domestic and foreign markets.
- Acquiring modern production technologies to achieve and maintain competitive advantage.
- Raising product quality to meet international export standards.
- Accelerating growth in export-related and export supportive sectors, and then GDP growth.



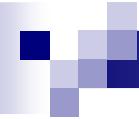
# Some drawbacks of the export-led model

- Export-led growth exposes national economy to ever more volatile external shocks.
- Export-led growth can be pursued by squeezing wage growth and maintaining poor workplace conditions and low workers' rights. Greater inequality may follow.



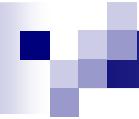
# The criticism due to globalization

- The export-led approach was firstly applied by Japan and Germany.
- Germany exhibited a chronic CA surplus. Not now.
- Then the approach has been successfully applied by some East Asian countries.
- Recently, the spatial divisibility of production discourages national growth strategies carried out with national resources. It appears more convenient for small open developing countries to take partnership with transnational corporations and advanced economies.
- Nations presently seek to industrialize by simply joining the bandwagon of already established but constantly evolving global supply chains, rather than (re)building their production capacities from scratch.



# A conclusion

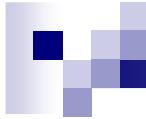
- Both the supply-side view and the demand-side view have sound arguments to explain the positive correlation between economic growth and export (and import) growth.
- Empirical evidence is also mixed. Some countries in the world still fit the CA-equilibrium growth rather well.
- The recent emergence of the Global Value Chain seem to strengthen the supply-side pattern of growth.
- But the recent re-shoring may further change things.
- The bottom conclusion shared by both views is that policies to be competitive in the international markets are welcomed for growth.



# Source

- These slides are drawn (with some elaboration) from:

A.P. Thirlwall, Balance of payments constrained growth models: history and overview,  
*PSL Quarterly Review*, vol. 64 n. 259 (2011),  
307-351



# Exercises

# Exercise (1)

- What is the effect of an increase in the exchange rate (defined as price quotation) on the value of imports?
  1. Import increases in any case.
  2. Import decreases in any case.
  3. Import remains the same in any case.
  4. Import of a rigid good (eg oil) increases.
  5. Import of a rigid good (eg oil) decreases.
  6. None of the above.

# Exercise (1) solved

- What is the effect of an increase in the exchange rate (defined as price quotation) on the value of imports?
  1. Import increases in any case.
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  5. Import of a rigid good (eg oil) decreases.
  6. None of the above.



## Exercise (2)

- What is the risk of a recurring exchange rate devaluation?
  1. A (further) decumulation of official reserves.
  2. World deflation.
  3. A reduction of the exchange rate (defined as price quotation).
  4. Domestic inflation.
  5. Nothing of the above.



## Exercise (2) solved

- What is the risk of a recurring exchange rate devaluation?
  1. A (further) decumulation of official reserves.
  2. World deflation.
  3. A reduction of the exchange rate (defined as price quotation).
  4. **Domestic inflation.**
  5. Nothing of the above.

# Exercise of the true/false type (3)

- Which of the following statements is true?
  1. Banks are in a vulnerable position if their borrowing is long term and their lending is short term.
  2. A country is vulnerable to a crisis if the amount of its debt is high.
  3. The contribution of Total Factor Productivity to economic growth in the East-Asian countries is similar to that of the US.
  4. The deliberation councils are bodies of large companies that decide over international location of their branches in the EA countries.
  5. None of the above statements are true.

# Exercise of the true/false type (3) solved

- Which of the following statements is true?
- 1. Banks are in a vulnerable position if their borrowing is long term and their lending is short term.
- 2. A country is vulnerable to a crisis if the amount of its debt is high.
- 3. **The contribution of Total Factor Productivity to economic growth in East-Asian countries is similar to that of the US.**
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- 5. None of the above statements are true.

# Exercise (4)

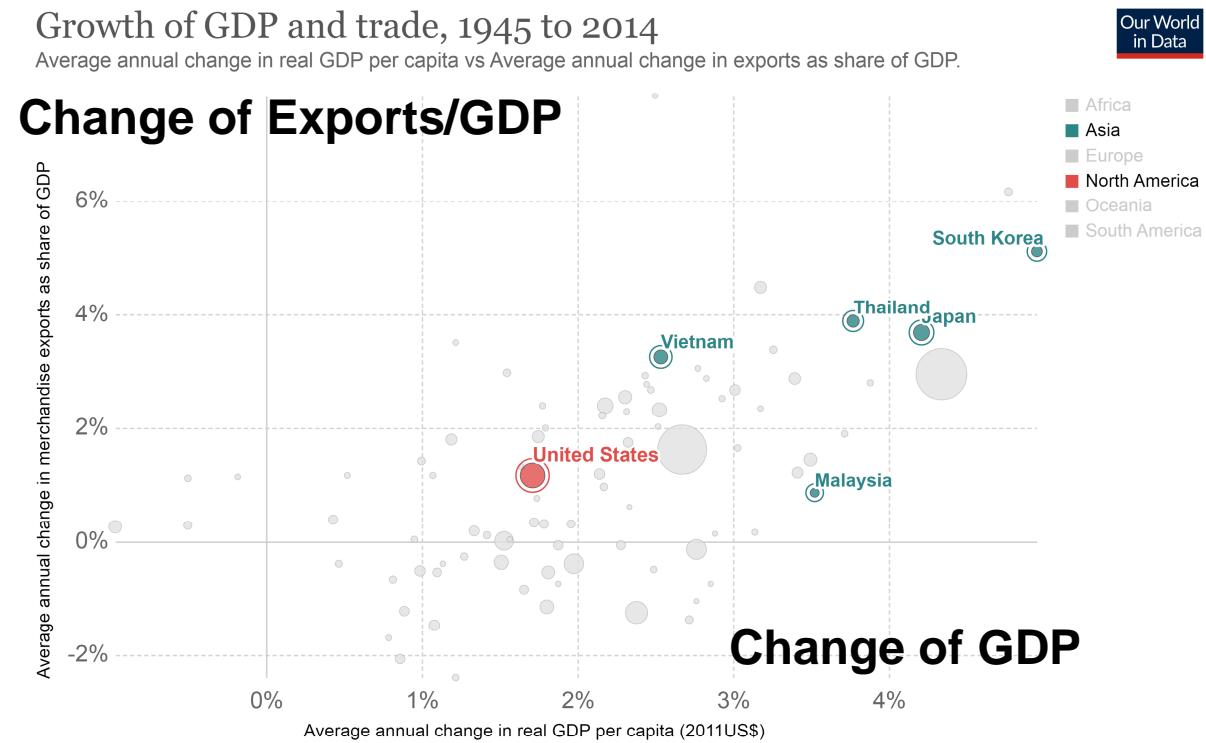
2. Growth of GDP in East-Asian countries causes growth of exports/GDP.

3. Some other factor in East-Asian countries causes growth of both GDP and exports/GDP.

4. None of the above.

■ The chart proves that:

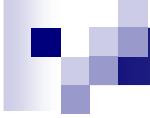
1. Growth of exports/GDP in East-Asian countries causes growth of GDP.



Source: Fouquin and Hugot (CEPII 2016), Maddison Project Database (2018), Population (Gapminder, HYDE(2016) & UN (2019)), Our World In Data  
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# Exercise (4) solved

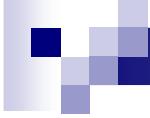
- The chart of the following slide proves that:
  1. Growth of exports/GDP in East-Asian countries causes growth of GDP.
  2. Growth of GDP in East-Asian countries causes growth of exports/GDP.
  3. Some other factor in East-Asian countries causes growth of both GDP and exports/GDP.
  4. **None of the above.**



## Exercise (5)

Which of the following statements is true?

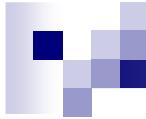
- a) The export-led model of growth recommends real appreciation of the domestic currency
- b) The export-led model of growth is a supply-side model.
- c) If lenders expect the crisis, then the crisis becomes more likely.
- d) The growth of East Asia is an undisputed miraculous fact.
- e) None of the other statements are true.



# Exercise (5) solved

Which of the following statements is true?

- a) The export-led model of growth recommends real appreciation of the domestic currency
- b) The export-led model of growth is a supply-side model.
- c) **If lenders expect the crisis, then the crisis becomes more likely.**
- d) The growth of East Asia is an undisputed miraculous fact.
- e) None of the other statements are true.



# End of the course of International Economics *M. Pugno*