

# Macroeconomic integration

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Spring 2018

## **Balassa's six stages of macroeconomic integration**

1. Preferential customs area
2. Free trade area
3. Customs union
4. Common market
5. Economic and monetary union
6. Political union

**EU** currently at stage 4

- ▶ All member countries part of the common market
- ▶ Some member of a monetary union (eurozone)

**Eurozone** member states at stage 5

Members of the eurozone can set **fiscal** policy but not **monetary** policy

- ▶ Autonomy over public spending and taxing
- ▶ Can't set interest rates or depreciate/appreciate currency

## **European debt crisis** illustrated limitations of integration

- ▶ Due to heterogeneity across member states

For future integration two options (besides status quo)

1. Abolish euro: move back to stage 4
2. Further integration: moving towards stage 6
  - i Banking union (2014)
  - ii Fiscal union
  - iii Political union

## **Briefly:** the EU's Banking Union

- ▶ Supervision of EU banks
- ▶ Response to EU financial crisis; deeper financial integration eurozone banking system

Mainly guidelines on

- i Prudential requirements for banks
- ii Depositor protection
- iii Managing failing banks

Two pillars in place

1. Single Supervisory Mechanism (SSM)
2. Single Resolution Mechanism (SRM)

Lacking: European deposit insurance scheme

## Political project

Two schools of thought on integration<sup>1</sup>

### 1. Intergovernmentalism

- ▶ National governments are in charge
- ▶ States can use EU for their own goals

### 2. Functionalism

- ▶ Integration pushed by elites and interest groups that transcend national boundaries
- ▶ Dynamic effect of transferring functions from national government to Brussels

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<sup>1</sup>Spoloare (2014), 'What is European integration really about? A political guide for economists', Journal of Economic Perspectives.

European integration therefore either

1. Follows from national economic interests
2. Or is a path towards political integration

Functionalism works through a **chain reaction**

1. Move functions in narrow areas from government to supranational body
2. Over time will lead to more integration

Further centralisation will follow through +ve/-ve mechanisms

- ▶ +ve: through learning, changing preferences
- ▶ -ve: generating problems and crises



Further centralisation through -ve mechanism implies that national politicians don't anticipate chain reaction

1. Short horizons
2. Asymmetric information
3. Democratic deficit

# Dutch take on Macron with 'red lines' over eurozone integration

Mark Rutte says countries need to 'get back into line' rather than seek deeper ties



Mark Rutte speaks on his vision of Europe at the Bertelsmann Foundation in Berlin

## **Economic responsibility**

*Its time to get back into line. The recipe for a larger cake is not centralised bailout funds and printing more money, but structural reforms and sound budgets*

## **EU project as a whole**

*the EU is not an unstoppable train speeding towards federalism*

## **Role of European Commission in context of crisis**

*the commission should work more for EU governments and not the other way round*

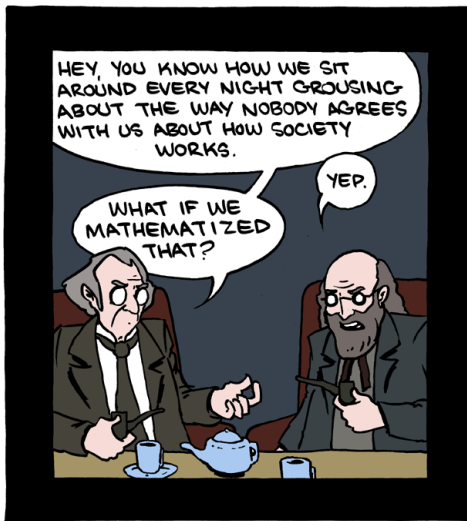
## **Concerning budget rules**

*There must be no political assessment*

Examining macroeconomics of European integration will focus on

1. Monetary policy
2. Fiscal policy
3. Economic growth

Start with some basic economics



Before Economics.

Source: Saturday Morning Breakfast Comics

## Closed economy

$$Y = C + I + G \quad (1)$$

Equilibrium GDP given by

$$Y = C(Y) + I + G \quad (2)$$

$C(Y)$

1. Consumers spend more when they earn more
2. Consumers earn more when firms produce more
  - 2.1 Firms invest borrowing at interest rate  $i$ : when  $i$  increases,  $I$  and  $C$  decrease

$$Y = C(Y) + I + G$$

Government can change spending  $G$

- ▶ e.g. increase spending in infrastructure

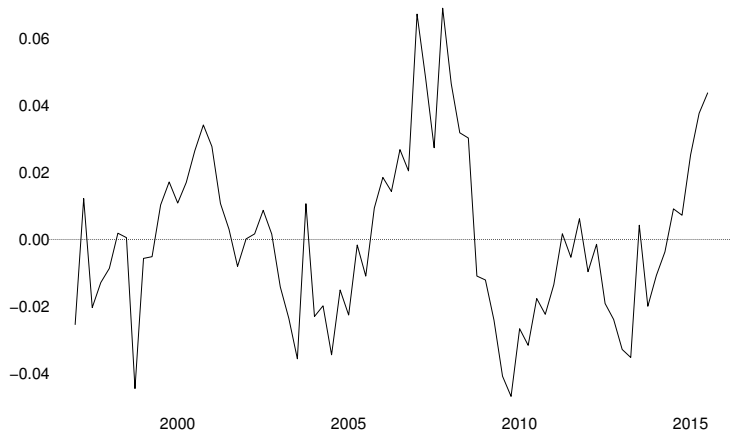
$G$  set by fiscal policy; relevant in business cycle context

- ▶ Expansionary policy will increase  $G$  & reduce taxes

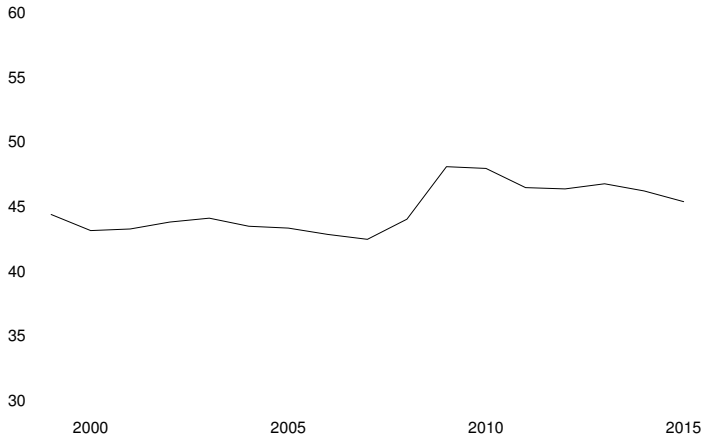




**Ireland GDP cycles**



### EU average government spending



## Role of **financial markets**

- ▶ Collect savings from households/firms
- ▶ Lend money to households/firm and public authorities

Number of feature of the financial market that are of interest

1. Most people rely on banks for savings deposits
2. Finance is associated with risk
3. Price associated with risk
4. Financial intermediaries deal with each other, continuously

Financial markets are subject to

1. Regulations
2. Monetary policy

Monetary policy is set by central bank, which generally has two objectives

1. Control inflation
2. Stabilise economy

## Open economy

$$Y = C + I + G + X - M \quad (3)$$

$X$  is exports

$M$  is imports

$X - M$  is current account.

- ▶ Goods and services markets become interdependent across countries

## Interest rate parity condition

$$1 + i_t = (1 + r^*) \frac{E_{t+1}^e}{E_t} \quad (4)$$

$i_t$ , domestic interest rate

$r^*$ , foreign bond return

$E_{t+1}^e$ , expected exchange rate

- ▶ Higher interest rate when exchange rate is expected to depreciate: to prevent capital outflows
- ▶ Lower interest rate when exchange rate is expected to appreciate

# Kevin De Bruyne's new Manchester City deal will pay him in euros because of Brexit

It is understood that a number of players feel that they have lost out on current contracts due to the effect on the currency after Britain voted to leave the European Union in June 2016

Miguel Delaney Chief Football Writer | @MiguelDelaney | Wednesday 20 December 2017 15:52 GMT | 50 comments



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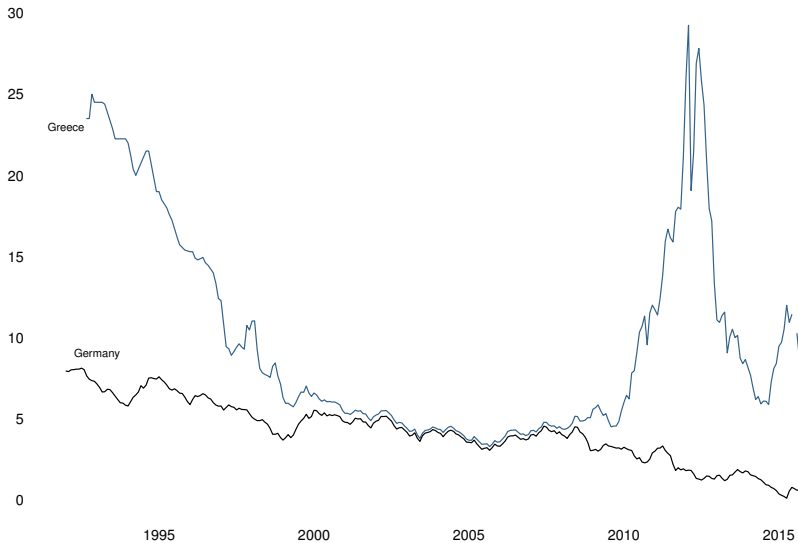
Can restate parity condition as

$$i_t = i_t^* + \frac{E_{t+1}^e}{E_t} \quad (5)$$

*Domestic interest rate = Foreign interest rate +  
Expected exchange rate depreciation*



## Government bond interest rates



## Interest rate parity condition and risk

Greek Drachma was a weak currency vis-a-vis Deutschmark

- ▶ Perennially depreciating
- ▶ Reflected by higher interest rates

2001 Greece joined eurozone: fixing Drachme-Deutschmark exchange rate

- ▶ IRP conditions predict convergence of interest rates

Divergence post-2009

1. Market expectation of Grexit
- 2.

$$i_t^{GRC} = i_t^{GER} + \Pi_t$$

Parity condition cannot be directly observed

- ▶  $E_{t+1}^e$  cannot be measured
- ▶ On whom does  $E_{t+1}^e$  depend?

Interest rate parity condition shows **market sentiment**, revealing market expectations

$$i_t = i_t^* + \frac{E_{t+1}^e}{E_t} \quad (6)$$
$$i_t - i_t^* = \frac{E_{t+1}^e}{E_t}$$

i.e. expected exchange rate depreciation equals Domestic interest rate minus Foreign interest rate

Given

$$i_t = i_t^* + \frac{E_{t+1}^e}{E_t} \quad (7)$$

a country can

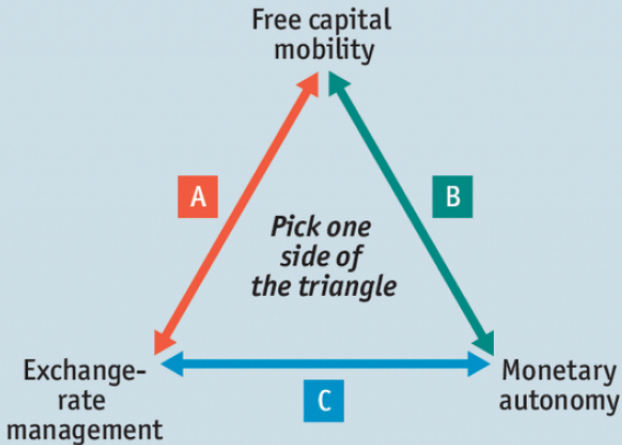
1. Adjust  $i$  to influence capital movement ( $E_t$  varies)
2. Adjust  $E_t$  and set  $i$  (no capital movement)
3. Have capital movement and set  $E_t$  (cannot set  $i$ )

## **Impossible trinity principle**

1. Monetary autonomy
2. Exchange-rate management
3. Free capital mobility

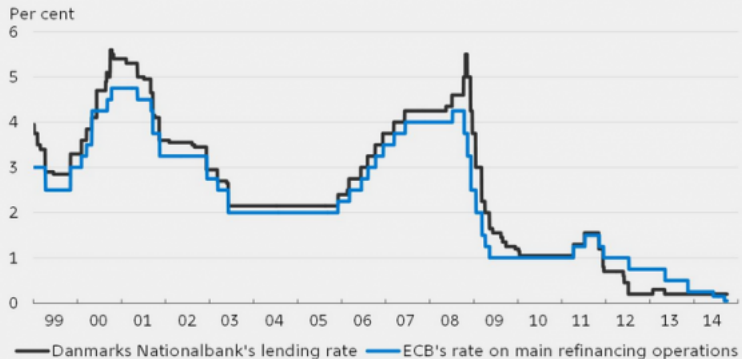
Picking only two of of three is possible.

## The policy trilemma



1. Full capital mobility and autonomous monetary policy, flexible exchange rate
  - ▶ Eurozone
  - ▶ Volatile exchange rates could harm competitiveness
2. Full capital mobility and fixed exchange rate
  - ▶ Bretton Woods system (1944-1973), Denmark
  - ▶ Risk of current account deficits
3. Fixed exchange rate and monetary policy autonomy, with capital controls
  - ▶ Brazil, China
  - ▶ Need to enforce restrictions

## Danmarks Nationalbank's and the ECB's lending rates



Note: The most recent observations are from 2 October 2014.

Source: Danmarks Nationalbank and the ECB.



**Interest rate** set by central bank will affect price levels

- ▶ Recall, lower  $i$  will increase spending

However, monetary policy loses influences after about 3 years

- ▶ Stronger demand leads to higher prices: erodes purchasing power
- ▶ Purchasing power inversely related to price level

### **Monetary neutrality**

*In the long run, monetary policy loses its effectiveness because the price level increases in the same proportion as the money stock*

Can define **real exchange rate** as

$$\frac{Ep}{p^*} \quad (8)$$

$p$ , price for domestic good

$p^*$ , price for foreign good

- ▶ Relative price of domestic goods expressed in foreign goods
- ▶ Prices matter for competitiveness just as  $E$

Rate appreciates when

- ▶ Nominal exchange rate  $E$  appreciates
- ▶  $\frac{p}{p^*}$  increases, i.e.  $p$  rises faster than  $p^*$

## Purchasing power parity (PPP) principle

$$\frac{E_t}{E_{t-1}} = \pi^* - \pi \quad (9)$$

$\pi$  is inflation rate.

- ▶ Rate of change of the nominal exchange rate is equal to the difference between inflation rates in two countries

Currency should appreciate when

$$\pi < \pi^* \quad (10)$$

Principle only holds in the long run (i.e. many many years)

Can also write PPP principle as

$$E = \frac{p}{p^*} \quad (11)$$

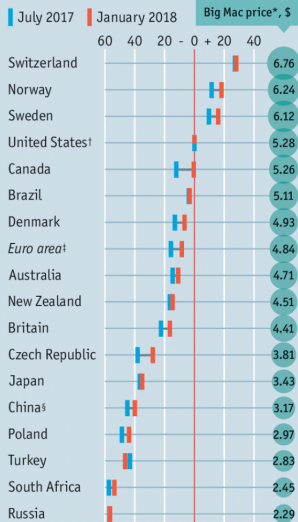
i.e. the exchange rate reflects the relative price levels.

PPP is based on the **Law of One Price**

- ▶ Does not hold in short-run
- ▶ Goods are not instantly tradeable (some are non-tradeable)

## The Big Mac index

Local currency under(-)/over(+) valuation against the dollar, %



\*At market exchange rates (Jan 17th 2018)

†Average of four cities ‡Weighted average of member countries

§Average of five cities

Sources: McDonald's; *The Economist*

## Equilibrium real exchange rate

PPP implies that  $\frac{Ep}{p^*}$  is constant.

Rate of change of real exchange rate can be given by

$$\frac{\Delta \frac{Ep}{p^*}}{\frac{Ep}{p^*}} = \frac{\Delta E}{E} + \frac{\Delta p}{p} - \frac{\Delta p^*}{p^*} \quad (12)$$

If follows that

$$\frac{\Delta \frac{Ep}{p^*}}{\frac{Ep}{p^*}} = 0 \quad (13)$$

when

$$\frac{\Delta E}{E} = \frac{\Delta p^*}{p^*} - \frac{\Delta p}{p} \quad (14)$$

Consider appreciation of real exchange rate

- ▶ e.g. introduction of Euro

Country becomes less competitive (increase in price level)

- ▶ Exports decline: domestic goods are more expensive on foreign markets
- ▶ Imports increase: foreign goods cheaper at home

$$X < M \quad (15)$$

Deficit needs to be financed through borrowing abroad

For real exchange rate to return to equilibrium one of two things need to happen

1. Depreciation of nominal exchange rate
  - ▶ Need to be able to manage exchange rate
2. Prices must move to re-establish competitiveness
  - ▶ Will have effect on wages

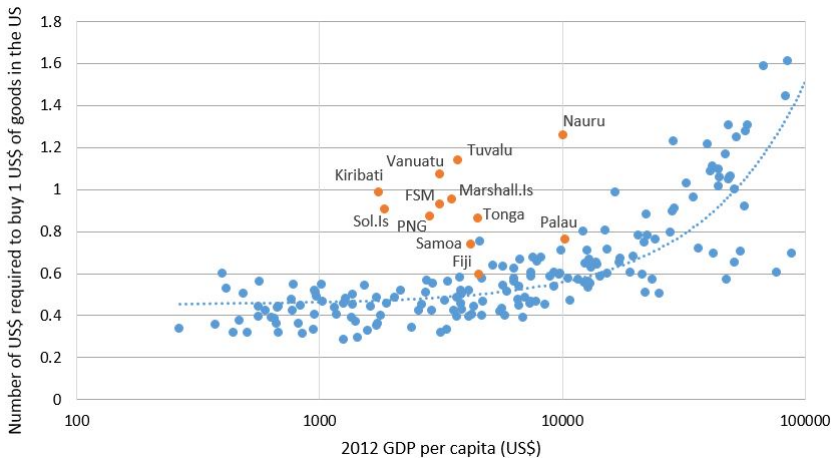


## Balassa-Samuelson effect

*Equilibrium real exchange rates of countries that enjoy lasting fast growth - because they are catching up from a lower level of development - follow an appreciating trend*

By-product of catch-up process

- ▶ Relatively underdeveloped countries gradually close the technology gap between themselves and advanced countries.



Source: [devpolicy.org](http://devpolicy.org)

The Balassa-Samuelson effect happens when

- ▶  $Ep/p^*$  is steadily increasing as domestic prices rise relative to foreign prices evaluated in domestic currency  $p^*/E$
- ▶ Or when domestic prices evaluated in foreign currency  $Ep$  rise relative to foreign prices  $p^*$

Real appreciation can happen due to

1. Higher inflation at home:  $p/p^*$  increasing
2. Continuous nominal appreciation: rising trend in  $E$

or combination of these two.