Lecture 3: Currency regimes, unions, debt and crises

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Quick refresher on fixed exchange rates

Fixed exchange rates

- We previously examined flexible exchange rate regimes
- In advance of discussing the Euro area we will briefly discuss fixed exchange rate regimes
  - Currency union or 'Dollarizations' are extreme cases
  - But some degree of fixity or management is prevalent in many countries
- Central bank stands ready to buy or sell foreign assets at a given rate of exchange
  - Assumes the CB has enough foreign reserves to sell!
  - Will imply fluctuations in the money supply unless offset with domestic asset transaction of opposite sign (sterilization)

Fixed exchange rates

- Interest parity (and a credible regime - so no expected depreciation) implies that interest rate is tied down to the 'global' (or currency union) rate
- Unless capital controls, this removes independence of monetary policy
  - Suppose CB attempts monetary expansion
  - Implemented by purchasing domestic assets so as to expand M^s
  - Under float, would require a depreciation (excess money supply, drives interest rate down)
  - But to maintain the peg the CB would then have to sell foreign assets in equal amount
  - Reverses the increase in M^s so return back to original equilibrium

Exchange rate regime classification

Table 1. Classification of Exchange Rate Arrangements

Type	Categories				
Hard pegs	Exchange arrangement with no separate legal tender	Currency board arrangement			
Soft pegs	Conventional pegged arrangement	Pegged exchange rate within horizontal bands	Stabilized arrangement	Crawling peg	Crawl-like arrangement
Floating regimes (market-determined rates)	Floating	Free floating			
Residual	Other managed arrangement				

IMF classification of various types of exchange rate regimes Source: IMF (2017) - Annual report on exchange arrangements and exchange restrictions

Exchange rate regime classification

Table 3. Exchange Rate Arrangements, 2009–17

(Percent of IMF members as of April 30)[1]

Exchange Rate Arrangement	2009[2]	2010[3]	2011[4]	2012[4]	2013	2014	2015	2016[5]	2017[5]
Hard peg	12.2	13.2	13.2	13.2	13.1	13.1	12.6	13.0	12.5
No separate legal tender	5.3	6.3	6.8	6.8	6.8	6.8	6.8	7.3	6.8
Currency board	6.9	6.9	6.3	6.3	6.3	6.3	5.8	5.7	5.7
Soft peg	34.6	39.7	43.2	39.5	42.9	43.5	47.1	39.6	42.2
Conventional peg	22.3	23.3	22.6	22.6	23.6	23.0	23.0	22.9	22.4
Stabilized arrangement	6.9	12.7	12.1	8.4	9.9	11.0	11.5	9.4	12.5
Crawling peg	2.7	1.6	1.6	1.6	1.0	1.0	1.6	1.6	1.6
Crawl-like arrangement	0.5	1.1	6.3	6.3	7.9	7.9	10.5	5.2	5.2
Pegged exchange rate within horizontal bands	2.1	1.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Floating	42.0	36.0	34.7	34.7	34.0	34.0	35.1	37.0	39.5
Floating	24.5	20.1	18.9	18.4	18.3	18.8	19.4	20.8	19.8
Free floating	17.6	15.9	15.8	16.3	15.7	15.2	15.7	16.1	16.1
Residual									
Other managed arrangement	11.2	11.1	8.9	12.6	9.9	9.4	5.2	10.4	9.4

IMF classification of various types of exchange rate regimes - evolution of prevalence over time Source: IMF (2017) - Annual report on exchange arrangements and exchange restrictions

The Euro

The Euro

- An extraordinarily ambitions monetary policy 'experiment'
  - No parallel in recent history (possibly ever - US?)
- Intersection of economic and political theory
  - 'Limiting' case of fixed exchange rate regime
  - Optimal Currency Areas (OCAs)
  - 'Ever closer union'
- Implications of the tensions between economics and politics
  - Lack of banking union, fiscal/monetary coordination
  - Rise of populism and threats to Euro (Grexit...)

Optimal currency areas

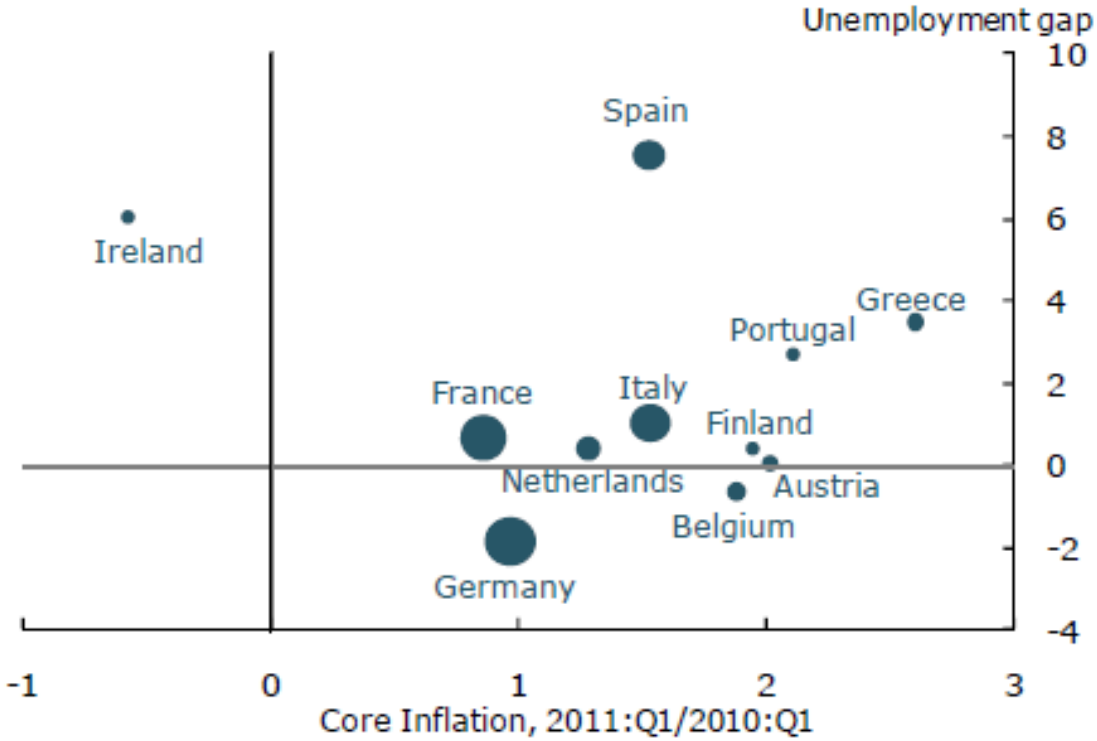
- Policy 'trilemma' - Cannot have all three of:
  - Free capital controls
  - Fixed exchange rate (currency union is extreme case)
  - Independent monetary policy
- In a currency area the choice is to drop the last leg
  - ECB has monetary policy responsibility
- Since Mundell (1961) people have thought of 'Optimal Currency Areas' as, ideally, satisfying most or all of the following criteria...
  - **Wage and price flexibility** - to allow timely REER adjustments in the absence of NEER fluctuations
  - **Labor mobility** - to allow people to leave (move to) areas where jobs are scarce (plentiful)
  - **Fiscal transfers and coordination** - to prevent free-riding on other countries' discipline (why might this occur - think of IS curve and think of debt spillovers?)
  - **Integrated capital markets** - to allow risk sharing and efficient funding of investment

Optimal currency areas

- OCA criteria satisfied $\Rightarrow$ costs from ceding independent monetary policy (nominal interest and exchange rate control) should be outweighed by
  - Reduced transaction costs
  - Elimination of currency and credibility risk (more important for some countries than others)
  - Greater product market integration - freer trade and greater efficiency
  - Enhanced capital market integration and, thus, risk sharing and investment boosted
- Fairly clear that despite the convergence criteria imposed under the Maastricht Treaty (1992), these were not met at Euro's inception
  - Some hoped that they would develop endogenously as time went on
  - See also Gordon Brown's 'Five Tests'

OCA? Monetary policy - one size does not fit all

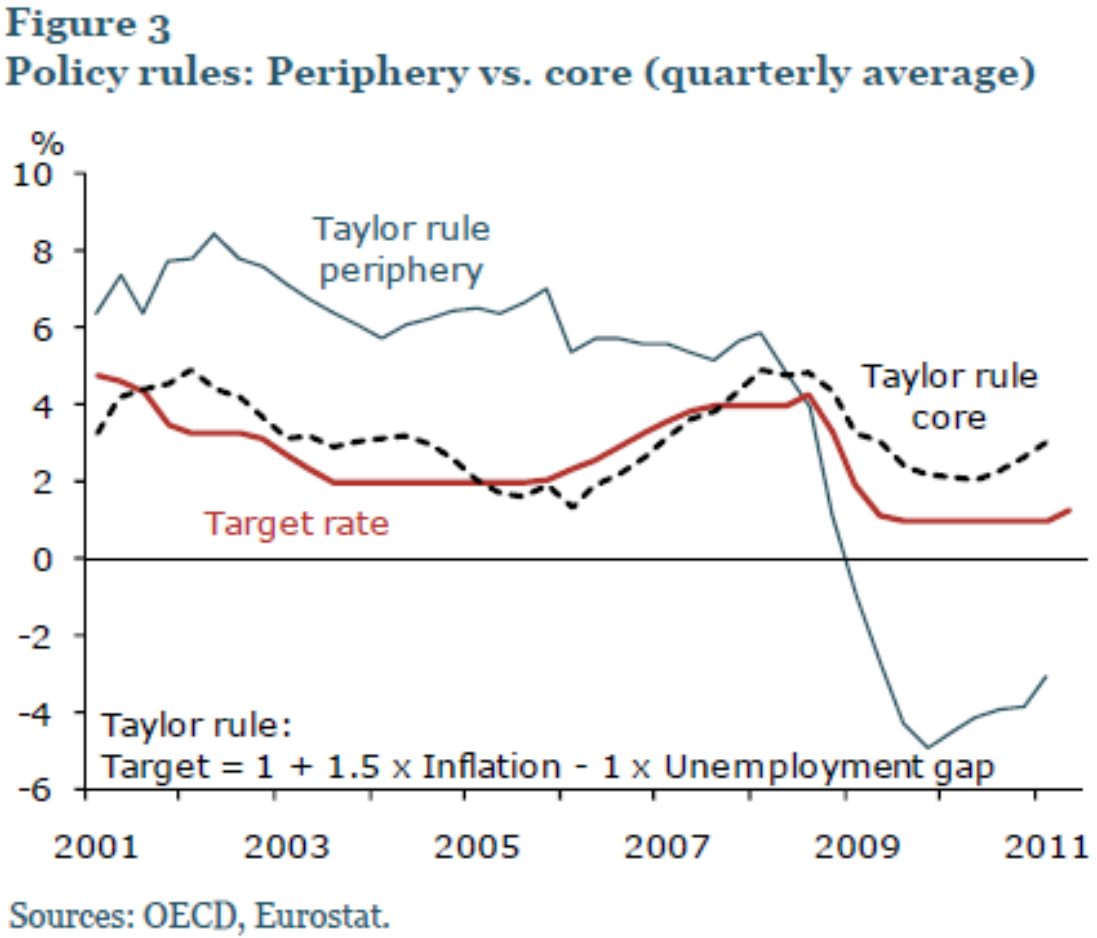
Figure 2
Euro-area unemployment gap and core inflation



Sources: International Monetary Fund and OECD.
Notes: Size of dots indicate country share of total euro-area GDP. OECD provides only the nonaccelerating inflation rate of unemployment for the above countries in the euro area.

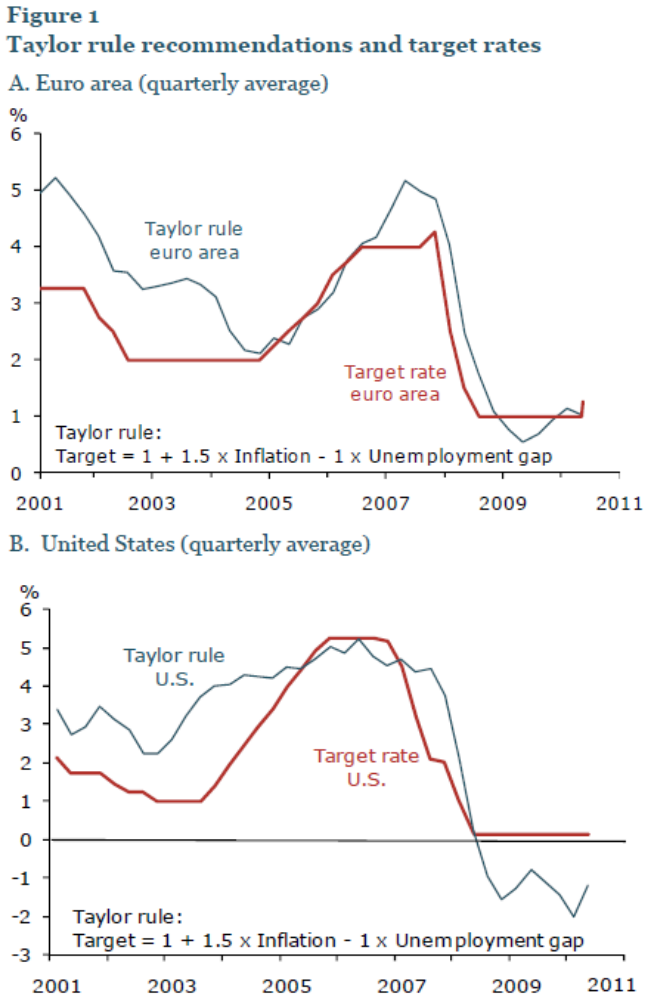
Unemployment gap and inflation in Eurozone. Source: *Nechio (2011)*

OCA? Monetary policy - one size does not fit all



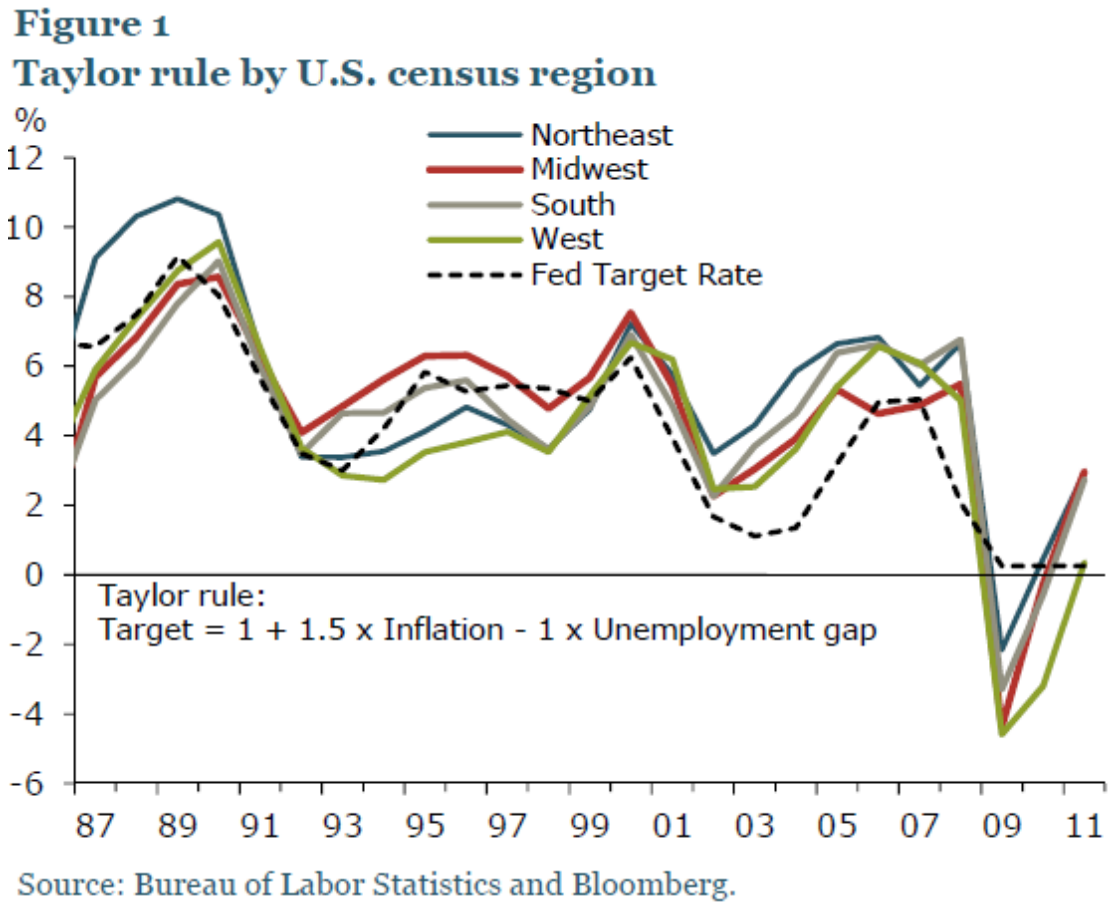
Target rate and Taylor-implied policy rates for Core and periphery of Eurozone. Source: *Nechio (2011)*

OCA? Comparing Eurozone and US



Target rate and Taylor-implied policy rates for Eurozone and US. Source: *Nechio (2012)*

OCA? Comparing Eurozone and US



Target rate and Taylor-implied policy rates US regions. Source: *Nechio (2012)*

OCA? Shock absorbers

- In the absence of a domestically 'tuned' monetary policy alternative adjustment mechanisms are
  - Integrated, deep and varied capital/credit markets
  - Labor market flexibility (esp. mobility)
  - Competitive adjustments (e.g. wage, price flexibility)
  - Fiscal coordination and transfers
- Unfortunately many of these are not satisfied for the Eurozone
  - Some may have deteriorated in recent times
  - Also, some types of integration may be problematic (e.g. convergence of spreads prior to crisis)

Stabilization in Eurozone without policy intervention

- Real exchange rate (competitiveness) channel
  - Consider a positive inflation shock in a member country initially in equilibrium
  - Assume also that the local inflation expectations are *anchored at the Eurozone target*
    - So we have $r = r^*$ since $i = i^*$ under fixed regime and Fisher equation holds
  - Reduction in competitiveness since (as a small country) its real exchange rate appreciates
    - NEER is fixed, price of its basket has increased and price of other members' basket is assumed unchanged
  - Real exchange rate shifts IS curve inwards (through NX effect)
    - Brings domestic inflation down (recall PC curve)
    - Restores competitiveness and ultimately return to equilibrium
- Likely a slow process and pace will vary across countries (see later)
  - Possible justification for fiscal policy

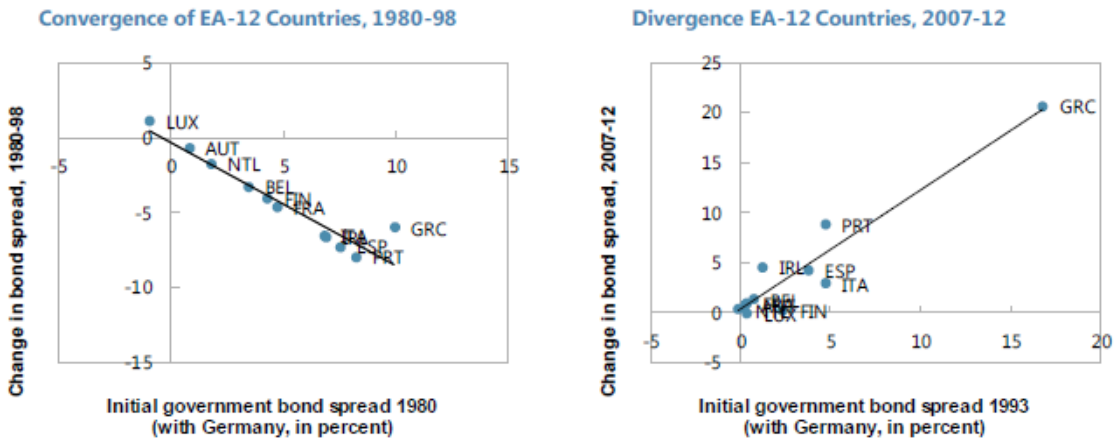
Stabilization through fiscal policy

- Suppose stabilization requires an expansionary fiscal impulse
  - In our earlier (flexible exchange rate) analysis, this would tend to push up interest rates
  - But here, under a fixed exchange rate and without capital controls UIP says this can't be!
    - Higher interest rate would require appreciation
    - CB must buy foreign assets with money (increasing M^s)
    - Then interest rate does not need to rise to clear market despite the higher money demand (from output expansion)
  - Like an 'automatic' accommodation of fiscal policy
- Fiscal policy particularly powerful here...
  - There is no crowding out from the exchange rate appreciation we would see with flexible exchange rate
  - That is, NX do not move to partly offset the IS curve shift

OCA? Capital and credit markets

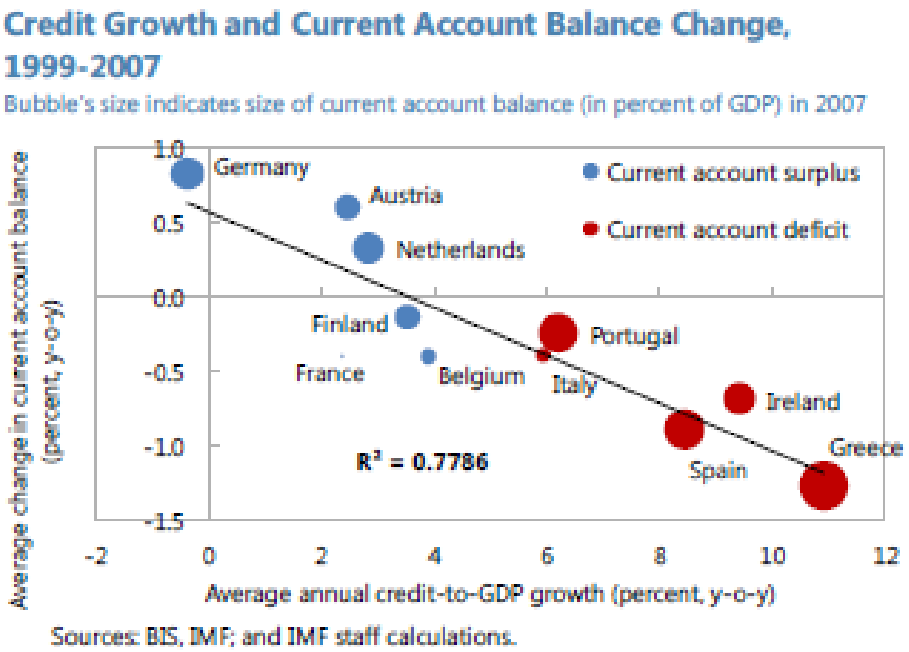
- Main aims are to enhance risk sharing and access to (correctly priced) funding for households and firms
- Pivotal to achieve better cross border saving and funding opportunities / capital flows
- Intermediate steps of enhancing and coordinating regulation and crisis response and reducing reliance on bank credit
- Difficult to replicate characteristics of domestic architecture (e.g. LOLR, deposit insurance)at supra-national level
- Concerns that unintended consequences / different types of risks might emerge - so deliberate (slow) progress - also disrupted by Brexit

OCA? Euro area spreads



Changes in spreads by initial conditions vs. Germany a) Pre-euro b) post-crisis. Source: Franks *et al* (2018)

OCA? Credit growth connected with CA 'excesses'

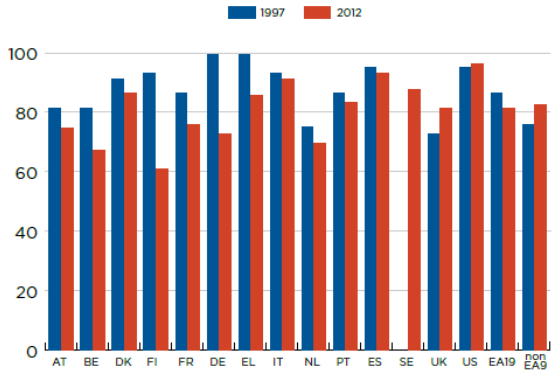


Source: Franks *et al* (2018)

- Funding flows from cross-border investments helped generate unsustainable credit growth
- Also helped postpone structural reforms
- Theory of the second best?

OCA? Home bias - market fragmentation

Figure 4. Degree of home bias in bond markets



Note: If the index equals 100, the domestic portfolio exclusively contains domestic assets, meaning maximum home bias. If the index equals 0, the actual share of foreign assets corresponds to the share of domestic market capitalization in total world market capitalization.
Source: Anderson et al., A European Capital Markets Union.

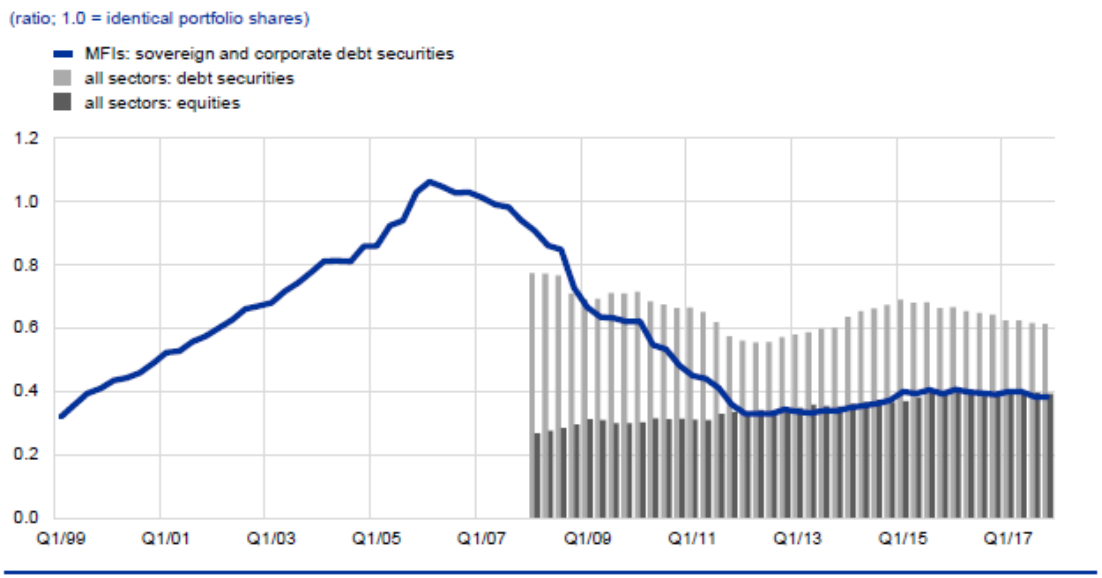
Home bias in bonds. Source: Kudrna (2016)

- Financial crisis increased tendency towards home bias (more familiar, flight to safety, loss of trust in S. Europe)
- Reduction in diversification
- Related to 'diabolical loop' - banks and sovereigns

OCA? Home bias - market fragmentation

Chart 9

Indicators of intra euro area cross-border portfolio allocations

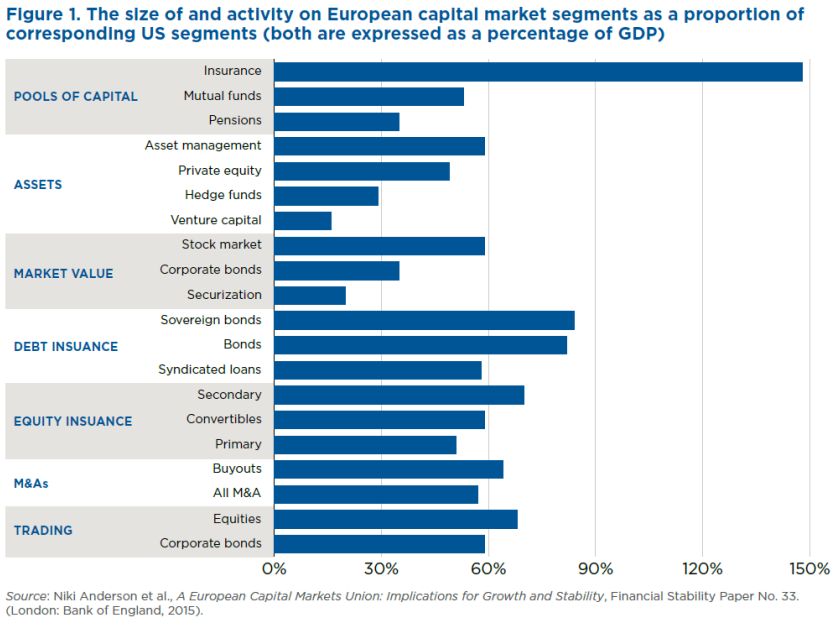


Source: ECB.
Notes: A rising ratio indicates that euro area investors are allocating an increasing portfolio share to euro area assets outside their domestic market relative to the portfolio share allocated to their domestic market. A higher ratio therefore indicates a higher degree of cross-border euro area financial market integration. MFIs exclude the Eurosystem.
Latest observation: Q4 2017.

Cross border bond holdings. Source: ECB (2018)

- Big reversion after crisis after 'improvement' pre-crisis

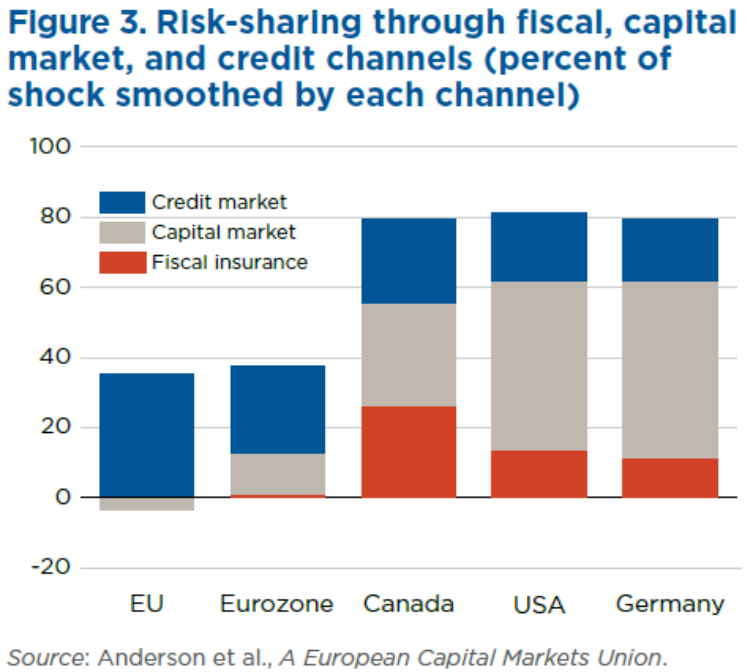
OCA? Limited breadth and depth of capital markets



Importance of different types of capital markets - comparison with US. Source: Kudrna (2016)

- Capital markets (non-bank) much less developed than in US
- Deters portfolio/fund investment and limits diversification
- Less 'runnable' than bank finance (and in short run, European banks are not in great shape - NPLs etc.)

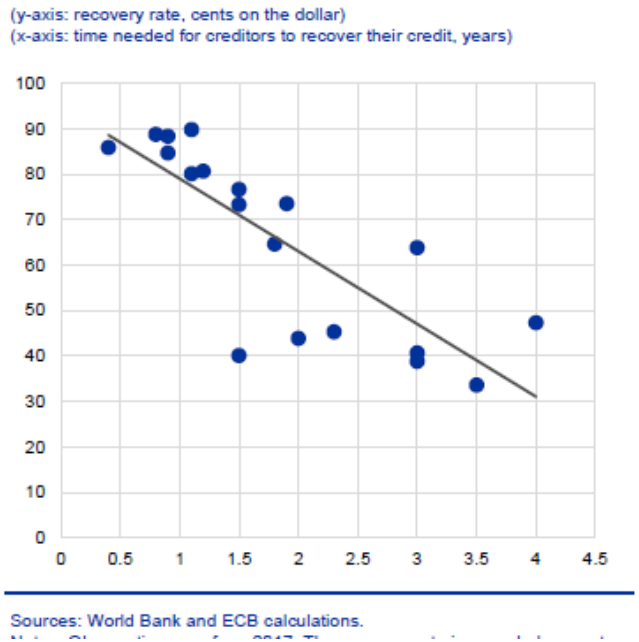
OCA? Under-developed capital markets may hinder risk sharing



Comparisons of sources of risk sharing. Source: Kudrna (2016)

- Ultimately not interested in integration for the sake of it - but for risk sharing and investment efficiency
- Strikingly bank-based in most of EU and Eurozone
- Note also the fiscal disparities (more later)

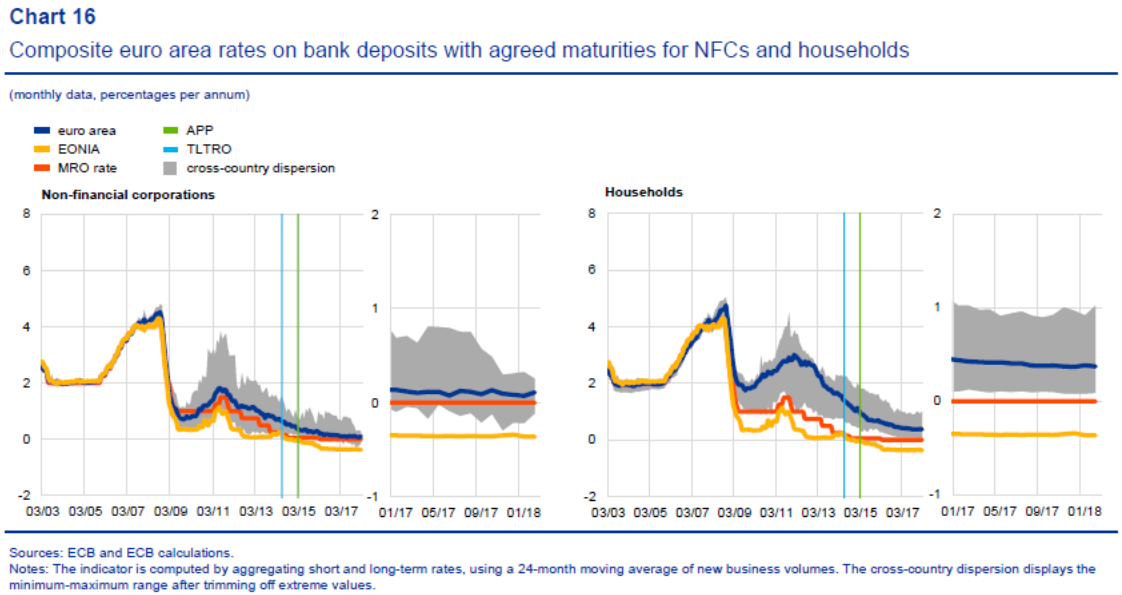
OCA? Under-developed capital markets may hinder risk sharing



Relationship between recovery rates and efficiency of judicial systems.
Source: ECB (2018); World Bank

- Can't simply flick a switch and enable cross-border flows
- Lack of 'trust' may stem from deep cultural/governance divergence

Some evidence of consequences of fragmentation



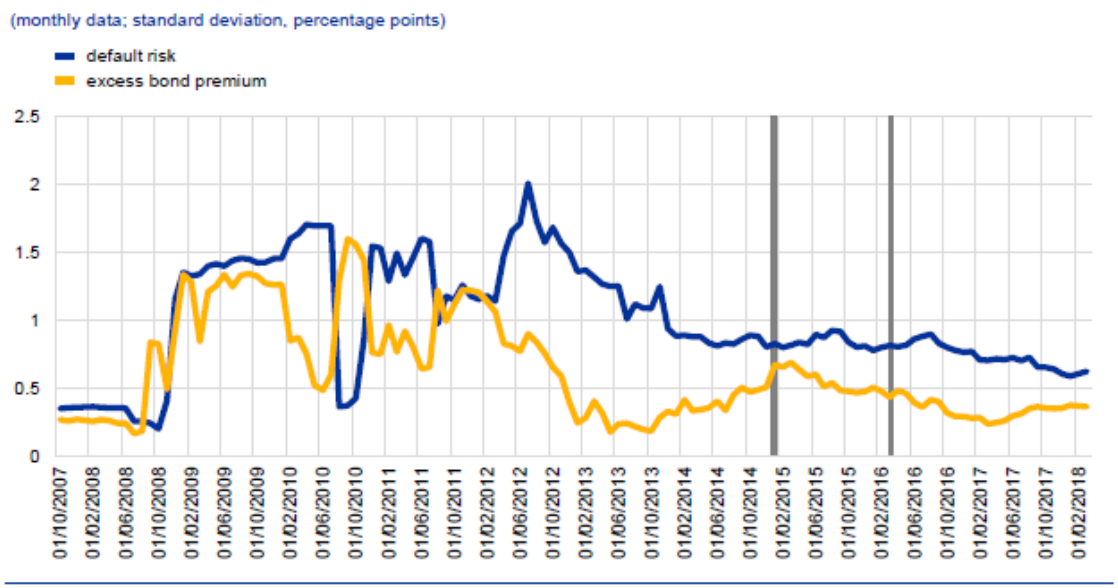
Dispersion in bank deposit rates for NFCs and households. Source: ECB (2018)

- Significant dispersion in deposit rates (even after crisis passed)
- Conditional on no unified deposit insurance / banking regulation, may be somewhat desirable
- Contrast with (likely misguided) uniformity pre-crisis

Some evidence of consequences of fragmentation

Chart 14

Cross-country dispersion of estimated excess bond premia and default risk across euro area Monetary Financial Institutions



Dispersion in financial institution spreads. Source: ECB (2018); BAML; Moody's; De Santis (2018)

- Investors distinguishing between institutions in different countries
- Again, not *per se* a bad thing, but possibly indicative of lack of harmonization

Multiple financial/bank/capital market reforms

- European System of Financial Supervision (ESFS) and Single Supervisory Mechanism (SSM)
  - Created in 2010 and 2013, respectively
  - ESFS intended to enhance supervisory convergence (umbrella over EBA - bankong, ESMA - securities and EIOPA - insurance/pensions)
  - SSM focusing on on enhancing bank supervision
- Banking Union project launched in 2012
  - Includes SSM but also Single Resolution Mechanism (SRM) for banks
  - Further proposals such as European deposit insurance scheme (EDIS) and approaches to dealing with banks' non-performing loans

Multiple financial/bank/capital market reforms

Banking union - pieces of the puzzle. Source: *European Commission*

Multiple financial/bank/capital market reforms

- Promotion of Sovereign bond-backed securities (SBBS) - backed by a diversified portfolio of euro area central government bonds
- Intended to...
  - Help banks diversify sovereign exposures to reduce 'doom loop' problem
  - Weak banks (and threat of bailout) weaken government finances, which reduce value of bonds, which reduces equity of banks etc. etc.
  - See various European countries in sovereign debt crisis
- Supposed to avoid 'mutualisation of risks and losses among euro area countries [so that o]nly private investors would share risk and possible losses.'
  - How would that work?

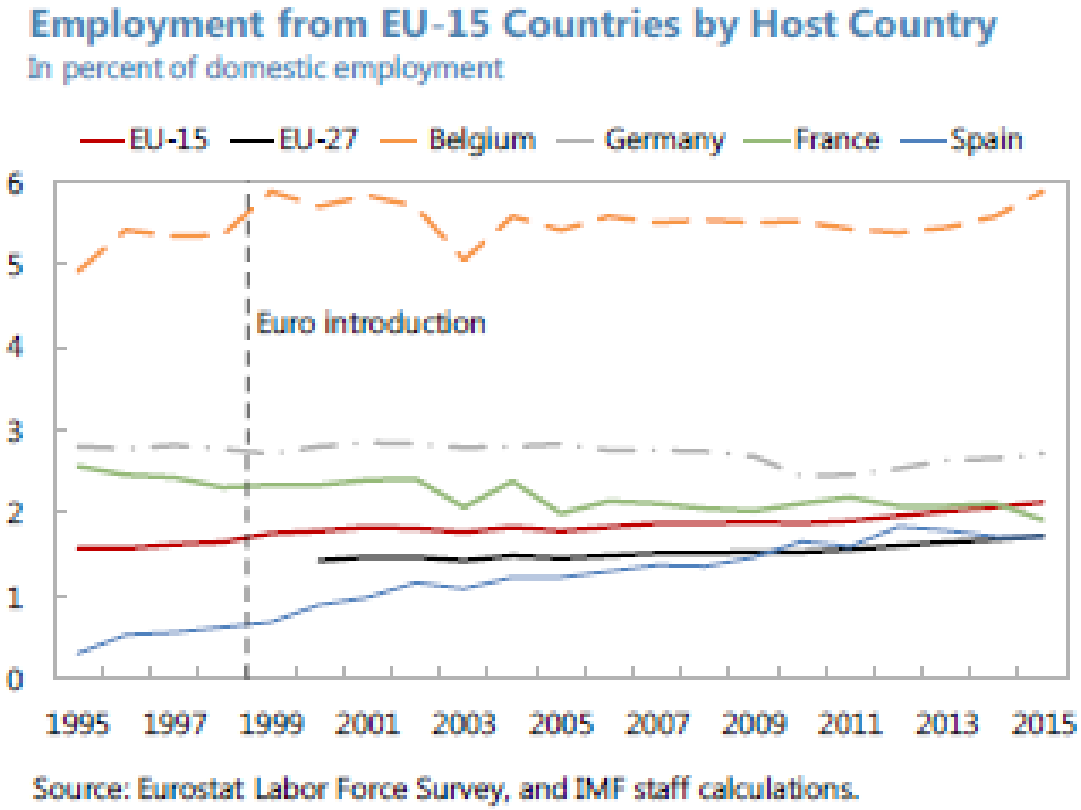
Multiple financial/bank/capital market reforms

- Capital Markets Union project launched in 2015
  - Aid development of capital markets as alternatives to bank credit
  - Enhance scope for portfolio investment from RoW
  - Promotion of 'Simple and Transparent Securitizations'
  - Simplification and harmonization of IPOs / prospectuses
- Brexit setback complicated and postponed implementation of CMU
  - Unclear how/whether London will remain as a financial hub
  - Jockeying for profitable (?) financial services as they leave (?) UK
  - Loss of important 'liberal' voice in the European debate
  - May allow greater supra-national regulation

OCA? Labor market

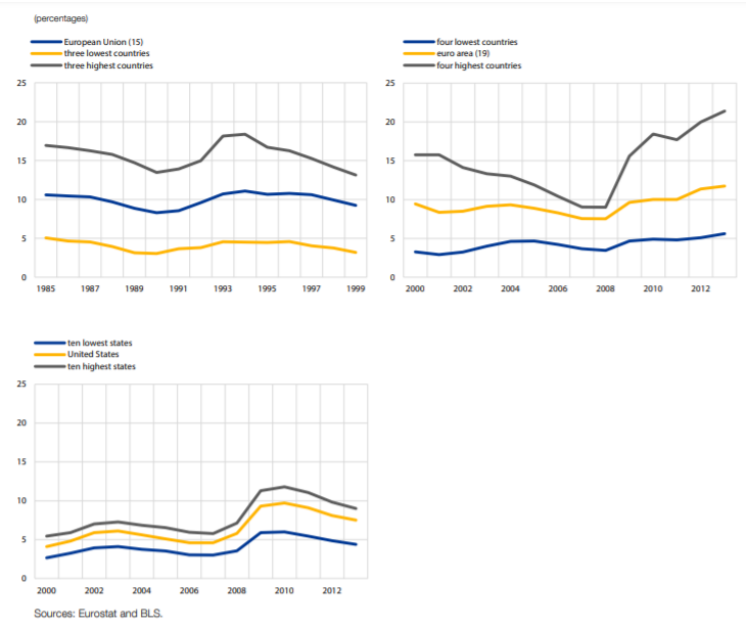
- Owing to diverse cultures/languages and historically distinct identities, labor mobility much lower than in, say, US
- One of the main divergences of the Eurozone from the ideals of an OCA
- Unfortunately, also paired with other inflexible labor market practices and competitiveness problems...

OCA? Limited labor mobility



Employment from EU-15, by host country. Source: Franks *et al* (2018)

OCA? Dispersion in unemployment rates



Dispersion of unemployment rates across countries in EU and Eurosone and across states in US. Source: *Boeri and Jimeno (2015)*

- Persistent divergence and dramatically higher than the U.S.
- Lack of effective equilibration or harmonization across Eurozone
- Structural differences also reflected in NAIRU...

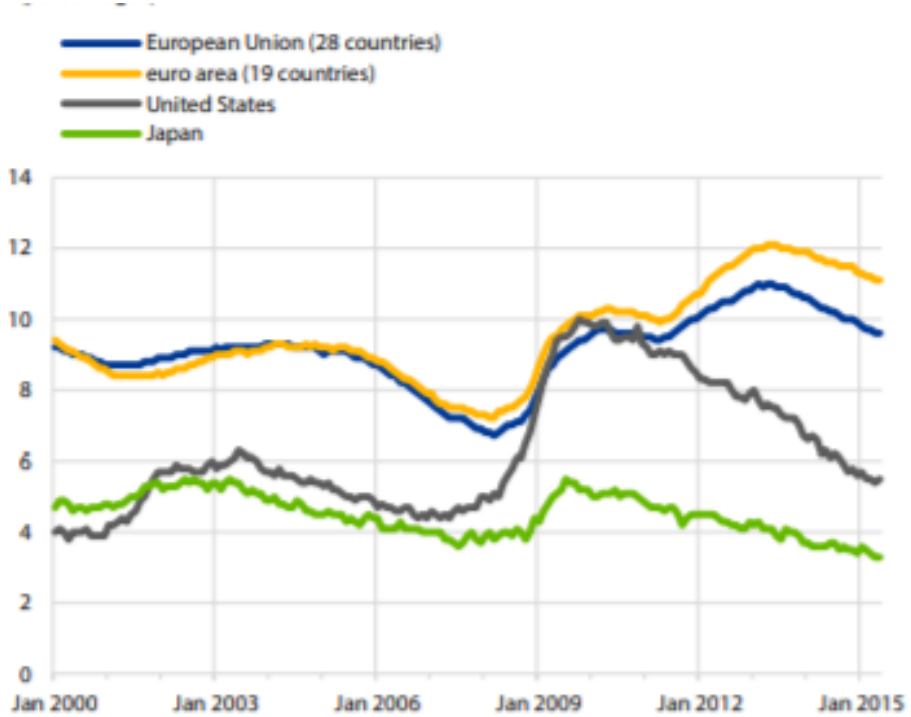
OCA? Dispersion in 'natural' unemployment rates

		Coefficient of variation		
	Mean	Overall	Between	Within
Belgium	7.89	3.6%	3.7%	0.5%
Czech Republic	7.38	9.7%	1.6%	9.6%
Denmark	4.91	6.1%	4.8%	3.9%
Germany	8.04	5.4%	4.8%	2.9%
Ireland	6.4	20.8%	19.8%	7.7%
Greece	9.88	6.2%	5.4%	3.3%
Spain	11.42	14.2%	11.5%	8.7%
France	8.59	3.0%	1.1%	2.8%
Luxembourg	3.65	15.4%	8.5%	13.0%
Hungary	6.85	9.6%	4.4%	8.5%
Netherlands	3.76	6.5%	3.5%	5.5%
Austria	4.57	10.0%	10.1%	1.8%
Poland	15.31	14.9%	3.5%	14.5%
Portugal	6.48	16.5%	13.3%	10.1%
Slovakia	15.59	10.6%	2.5%	10.4%
Finland	8.54	9.4%	3.8%	8.7%
Sweden	6.84	14.2%	14.5%	1.9%
United Kingdom	5.63	5.0%	3.0%	4.0%

Dispersion of estimated natural unemployment rates. Source: *Boeri and Jimeno (2015)*; OECD

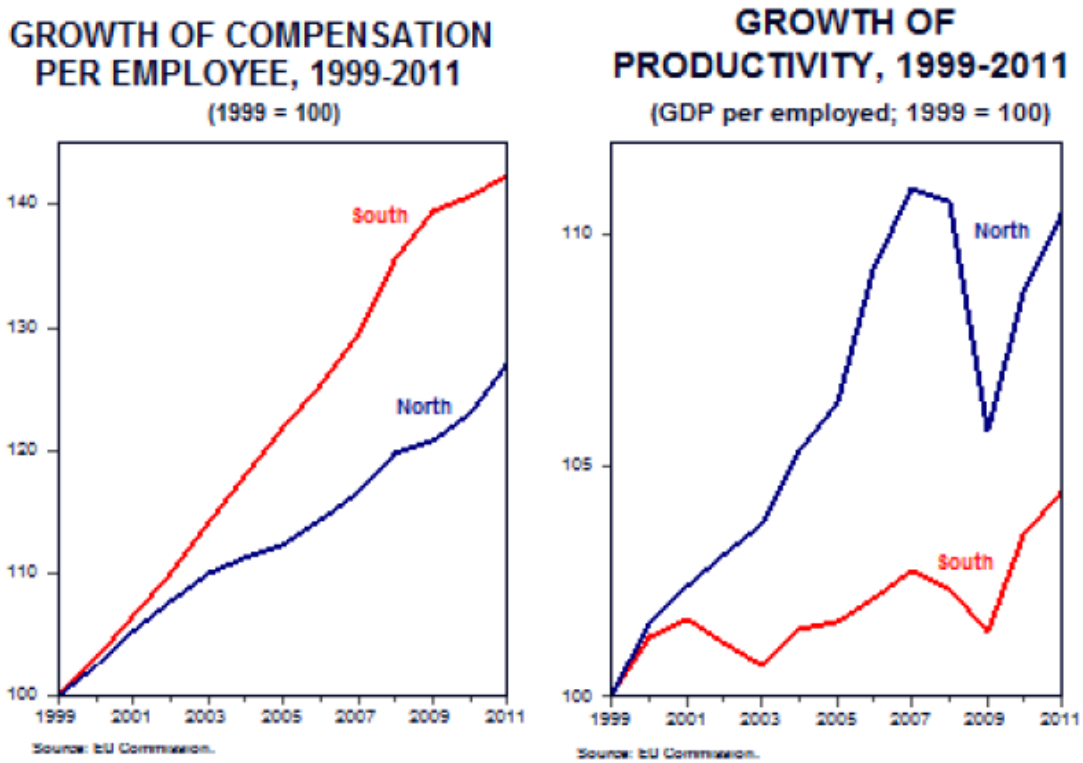
- Difficult to estimate but indicative of enormous structural differences
- Likely correlated with how countries respond to shocks differently...

OCA? Recent unemployment experience



Unemployment experience before and since recession. Comparing Europe, U.S. and Japan. Source: *Boeri and Jimeno (2015)*; Eurostat

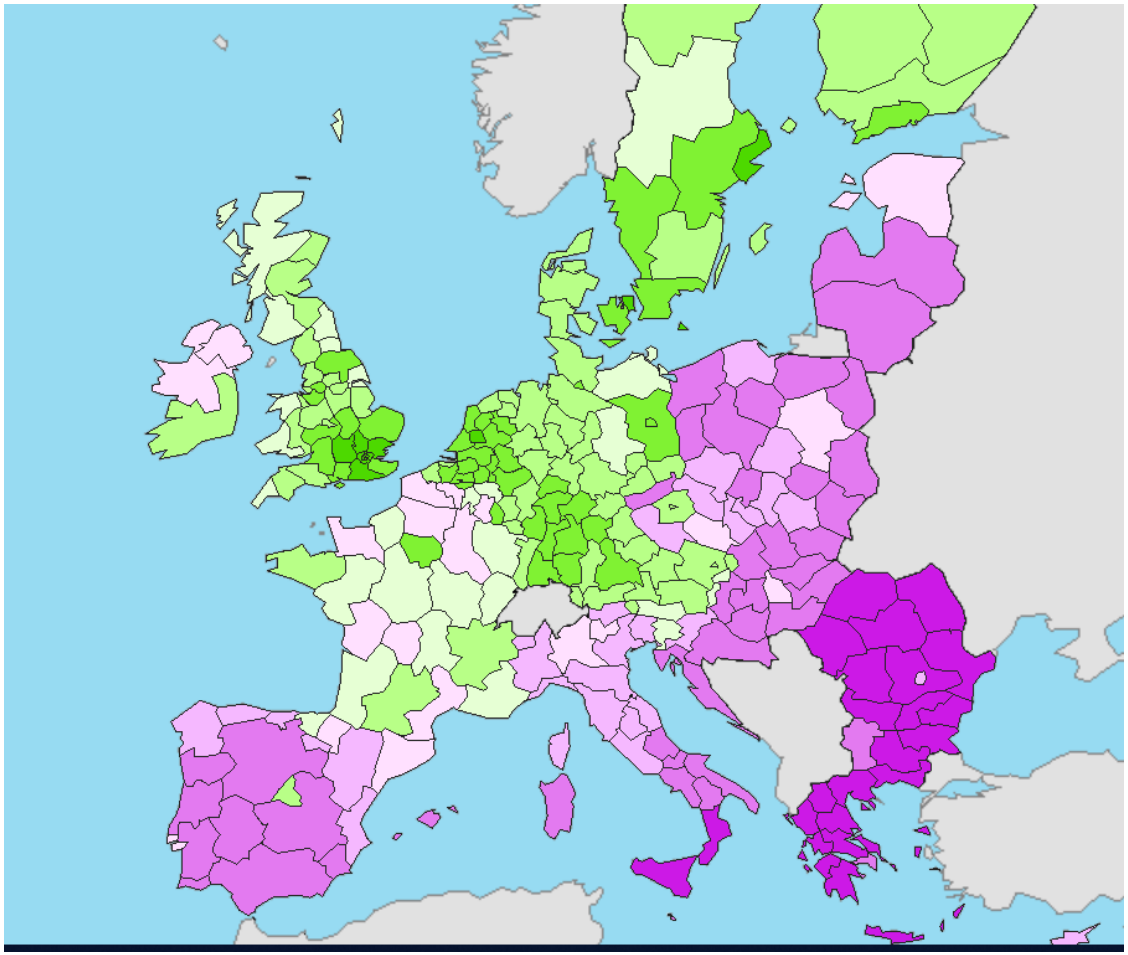
OCA? Recent unemployment experience



Wage costs and productivity comparisons - North vs South Europe.
Source: Boltho and Carlin (2012)

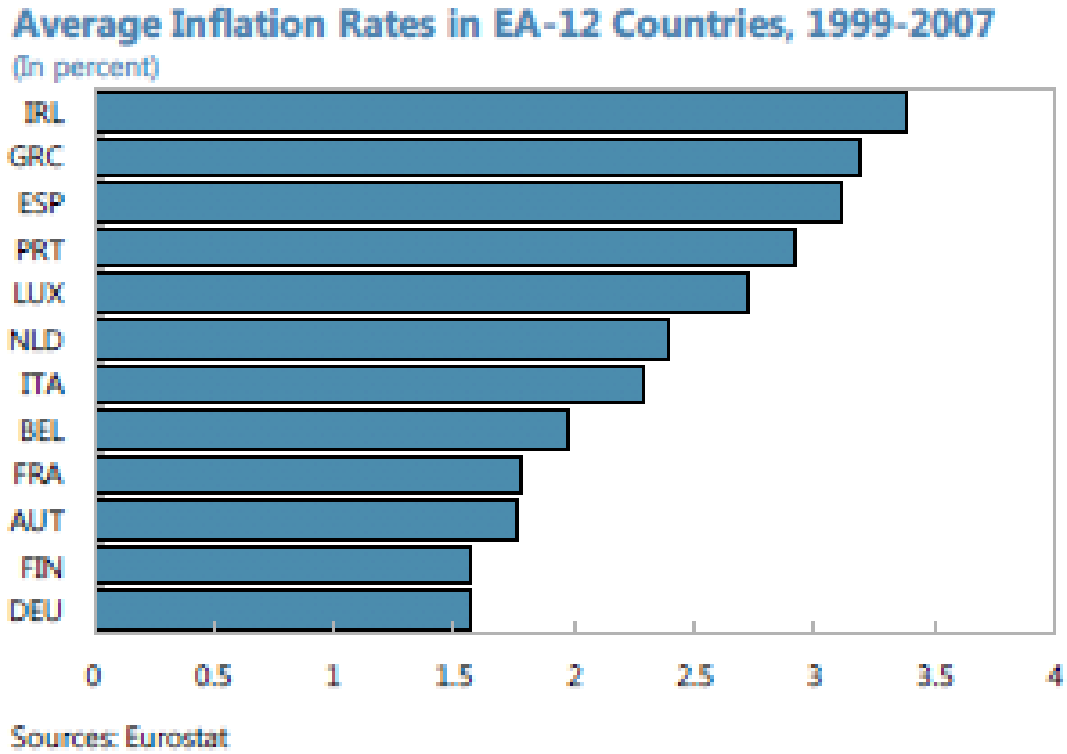
- Wage cost increases in 'South' Europe not justified by relatively high productivity growth
- Implies substantial loss of competitiveness

OCA? Competitiveness



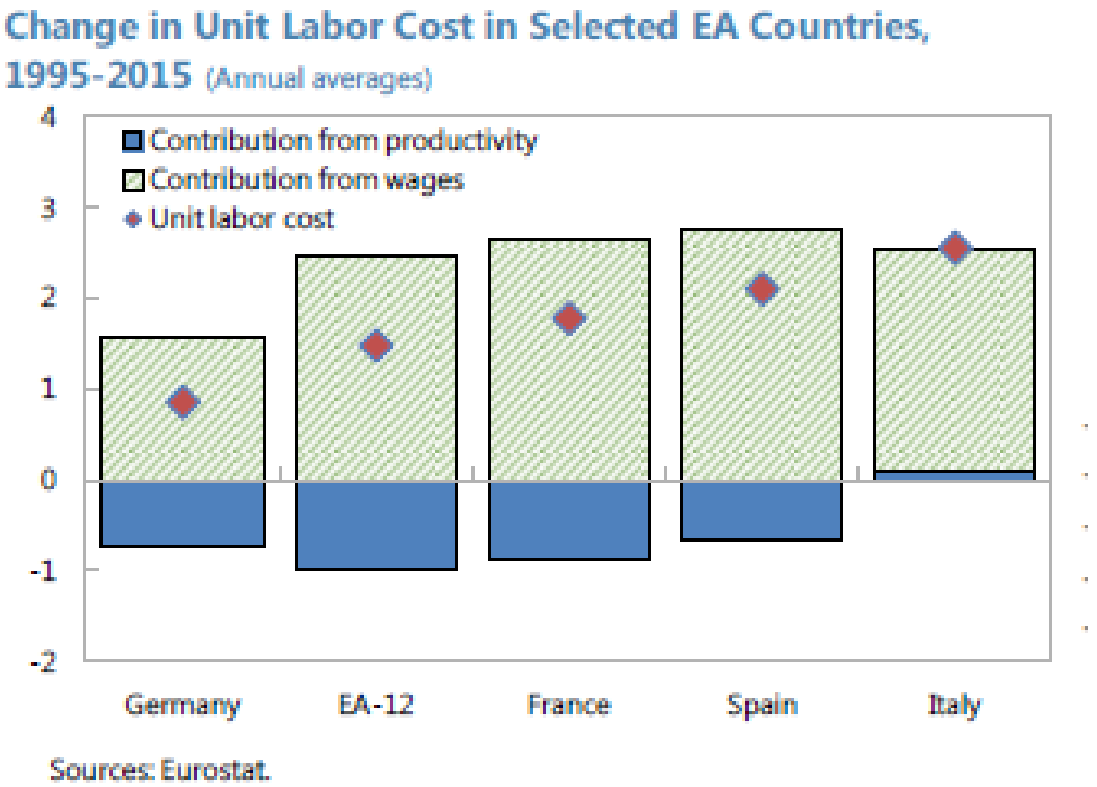
Competitiveness index. Source: European Commission

OCA? Competitiveness



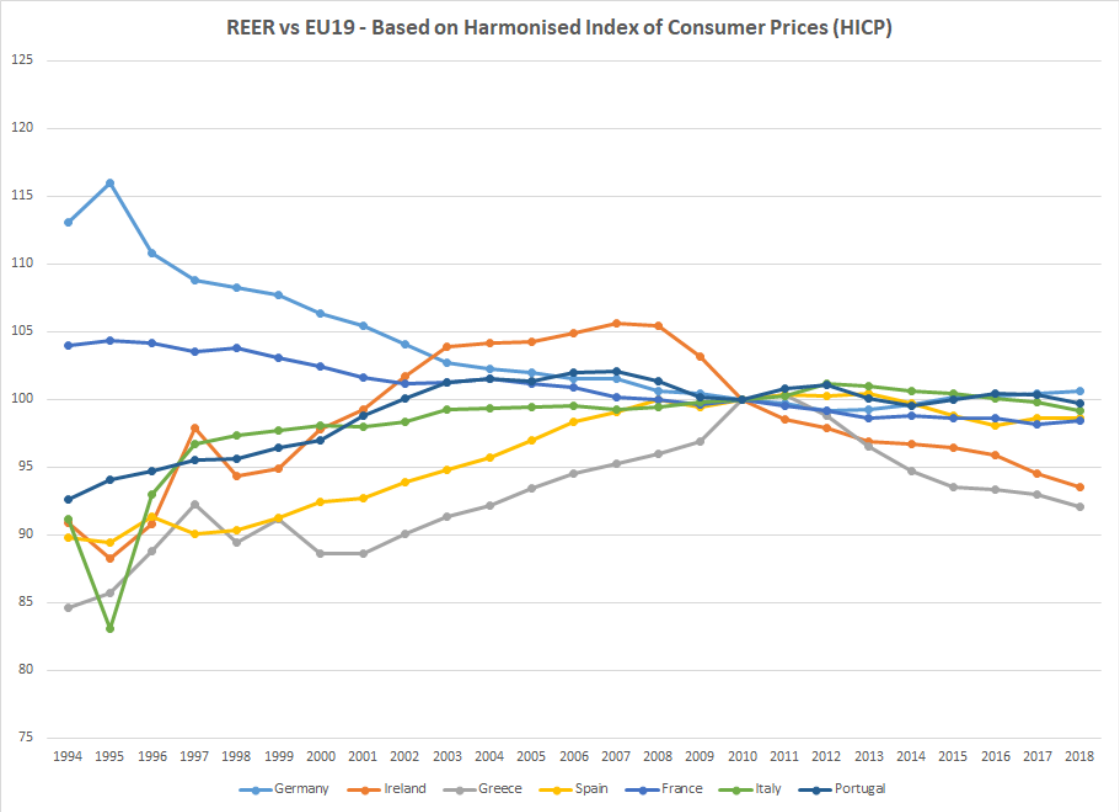
Average inflation rates in Eurozone countries 1999 - 2007. Source: Franks *et al* (2018)

OCA? Competitiveness



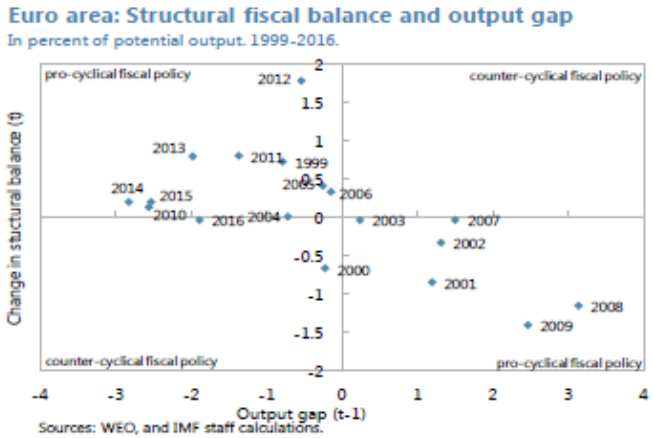
Average inflation rates in Eurozone countries 1999 - 2007. Source: Franks *et al* (2018)

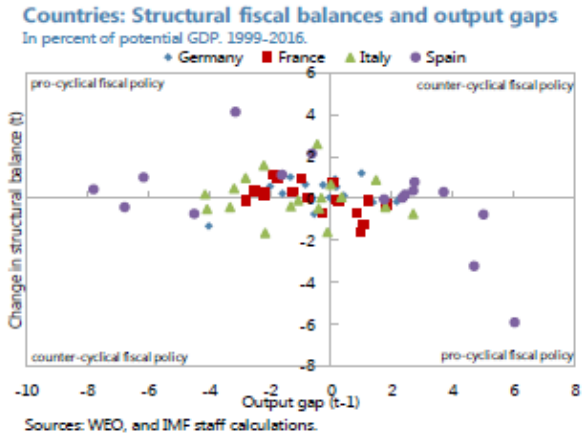
OCA? Competitiveness



Real exchange rate behavior - based on HICP price index (2010=100).
Source: European Commission

OCA? Fiscal policy aspects





Eurozone and Eurozone countries' structurel fiscal balance and output gaps. Source: Franks *et al* (2018)

- Unfortunate tendency for procylical fiscal policy
- Dissaving in good times, contracting in bad (partly allowed by flood of investment from surplus countries - spread convergence/uniformity)
- Despite mechanisms such as the Stability and Growth Pact

OCA? Fiscal policy aspects

- Some reforms being proposed...
  - Macroeconomic Imbalance Procedure (2011)
  - Arguments for sovereign-bond-backed securities
  - Credible?
- Little headroom to stimulate while implementing structural reforms
  - Social cohesion (within and across countries) is fraying
  - Difficult environment for arguing for further austerity and imposing 'painful' reforms (pensions, benefits, retirement age...)

OCA status can evolve - see U.S.A.

- Some (partial) hope that OCA status can be attained?

  So, how long did it take the United States to become an optimal currency area? Rockoff concludes that a reasonable minimum may be 150 years. It was not until the 1930s that all regions in the country could be said to be components of a single optimal currency area, the United States. Thus for a country debating whether to join a monetary union, it would be wise to examine the U.S. history first.

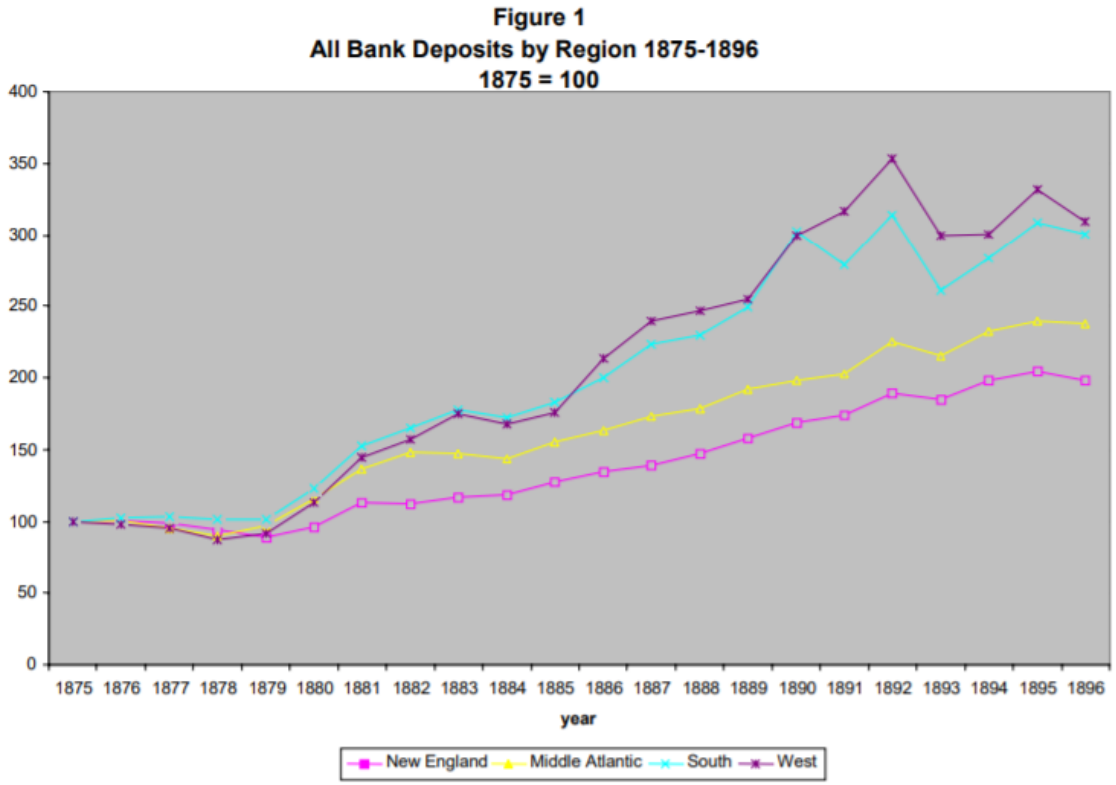
  – Marie A. Bussing-Burks (NBER) commenting on Rockoff (2010)

- But is there time?

OCA status can evolve - see U.S.A.

A Chronology of the U.S. Monetary Union	
1788	The Constitution is ratified. States are prohibited from issuing paper money. The U.S. monetary union is launched.
1791	The First Bank of the United States is chartered.
1811	The First Bank of the United States comes to an end.
1816	The Second Bank of the United States is chartered.
1832	President Andrew Jackson vetoes the bill to recharter the Second Bank, stressing the oppression of the West in his veto message.
1836	The Second Bank of the United States comes to an end.
1837	The nation is hit by a severe banking panic, inaugurating a period of hard times.
1857	The nation is hit by a severe banking panic. Southern firebrands and Northern Republicans both make political capital from the crisis.
1861	The Civil War begins. The United States is divided into three currency areas: Greenbacks in the Northeast, Confederate dollars in the South, and Gold in California.
1865	Lee surrenders. The Confederate dollar ceases to function.
1866	Congress passes the Contraction Act looking to a rapid return to the gold standard.
1873	The silver dollar is omitted from the list of official coins (The Crime of 1873). National Banks in California are permitted to issue notes backed by gold (yellowbacks.)
1879	Resumption of specie payments. The yellowback and greenback are reunited.
1896	William Jennings Bryan, an advocate of free silver, is nominated by the Populists and Democrats; William McKinley, an advocate of international bimetallism, is nominated by the Republicans. Bryan carries only a few states in the West and South
1900	The Gold Standard Act firmly commits the United States to the Gold Standard and symbolizes the end of the "Battle of the Standards."
1907	A Banking Panic leads to the establishment of the National Monetary Commission.
1913	The Federal Reserve System is established. Republican proposals for a

OCA status can evolve - see U.S.A.



Bank deposits by region - divergence in tightness of financial/funding conditions. Source: *Rockoff (2010)*