

# The internationalisation of R&D before, during and after the crisis

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## R&D internationalisation: before the crisis

- The share of foreign firms on total business R&D (BERD) has **increased in all countries** between the late 1990s and 2007
- The **US** is the most important host country for **EU** firms and vice versa
- R&D internationalisation **within Europe** has led to stronger ties between neighbouring countries
  
- The rise of **China, India**, and other Asian countries is slow but steady
- R&D of foreign firms is concentrated in **high-tech industries**
- There is a **de-concentration** in terms of host countries and sectors
  - Services and non-OECD countries

## R&D internationalisation and the crisis

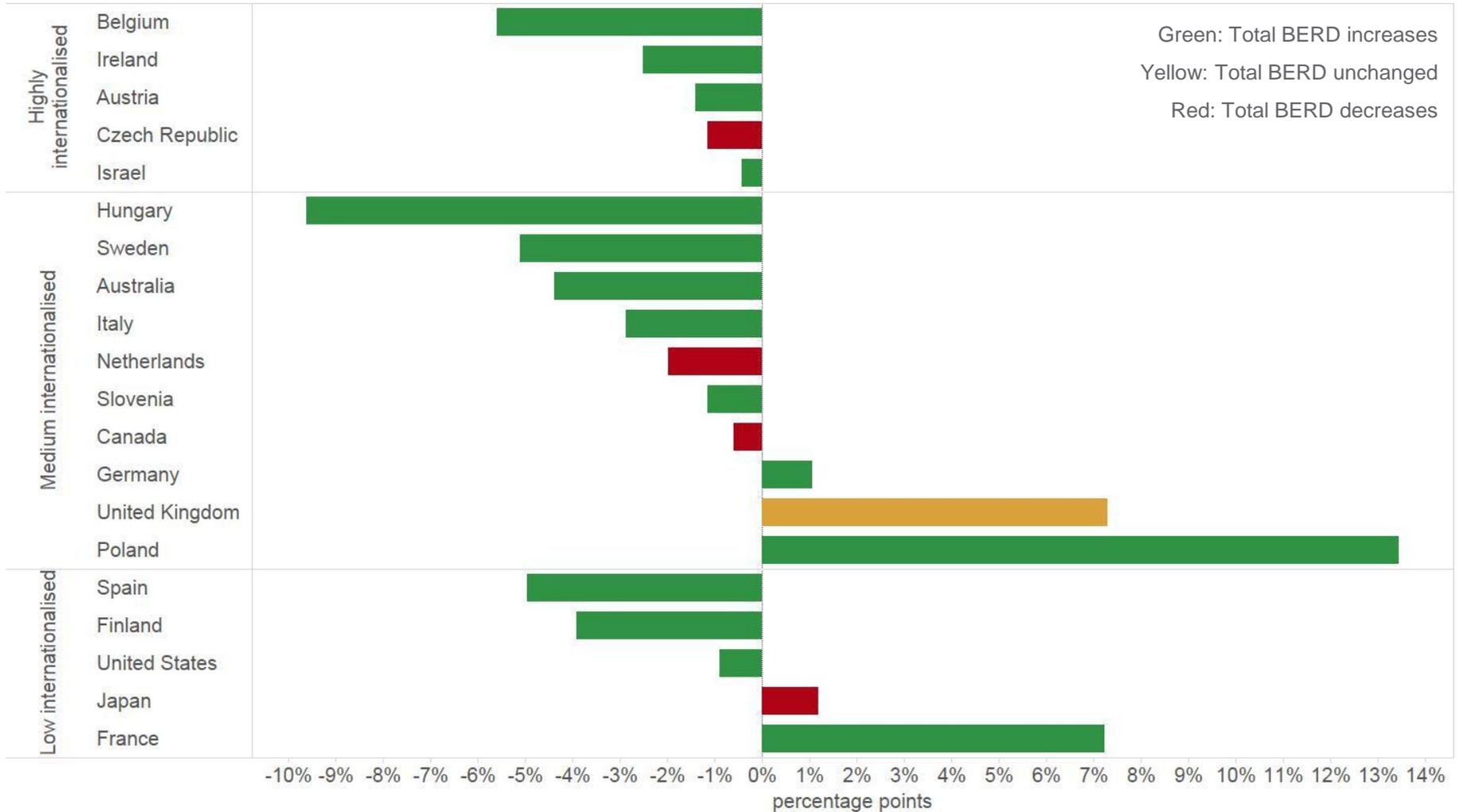
- The global financial crisis of 2008/09 has also hit research and development (R&D) in a number of countries
  - What was the impact of the crisis on internationalisation of R&D?
  
- Multinational enterprises (MNEs) are different
  - Larger, more exports, more often in high-tech sectors, higher skills intensity, internal networks, etc...
  - These differences may transform into a different R&D performance during the crisis

## Possible reactions of MNEs to the crisis

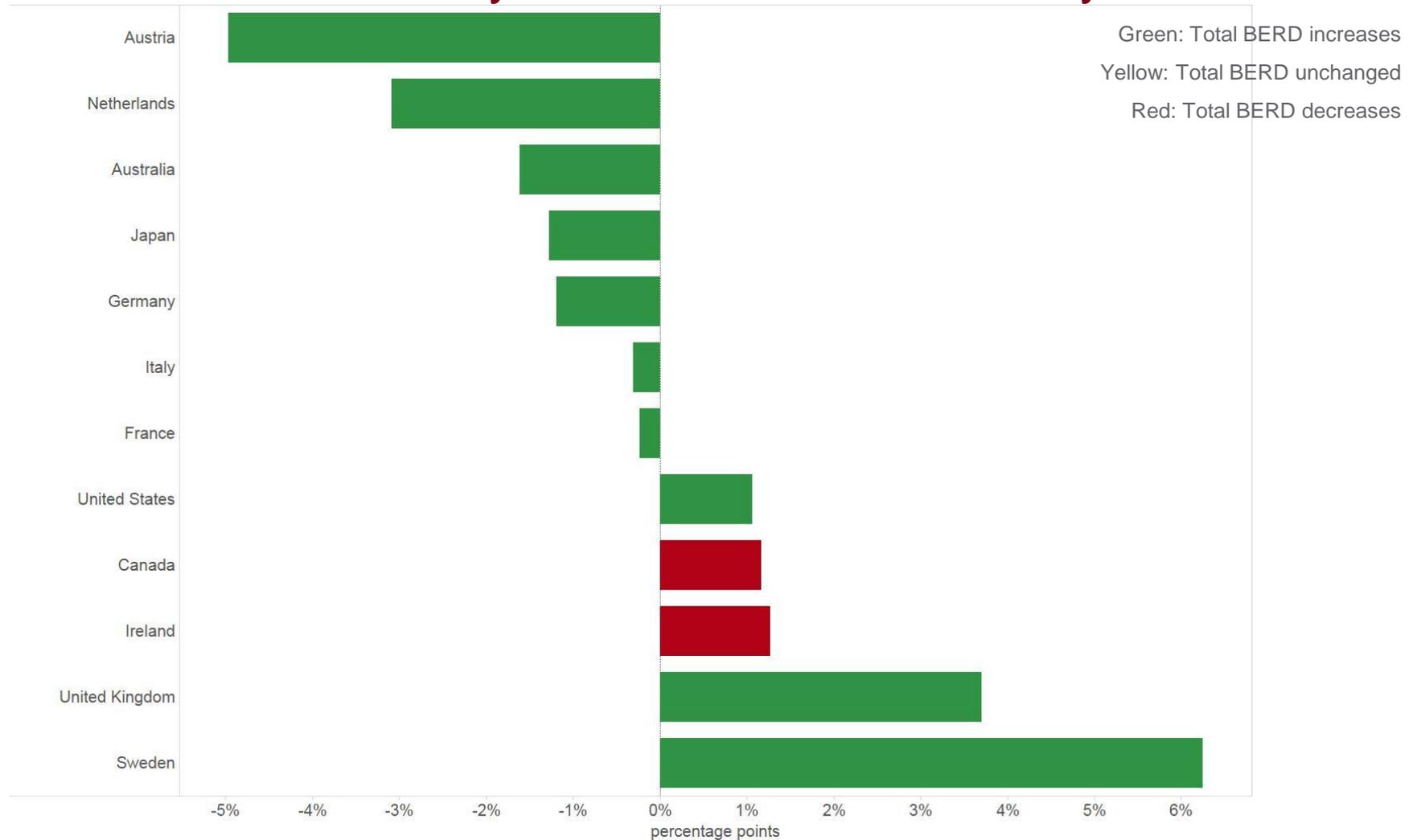
- MNE affiliates reduce their R&D expenditure globally
- MNEs concentrate R&D in the home countries to reduce uncertainty and for political reasons (cutting jobs abroad is easier than at home)
  - ⇒ R&D by foreign firms fell sharper than domestic R&D during the crisis
- Anti-cyclical behavior of MNEs due to better access to finance to fund long-term R&D and ,cherry-picking‘ take-overs
  - ⇒ Internationalisation of R&D has even increased during the crisis
- Re-distribution of R&D to countries that were less severely hit by the crisis
  - ⇒ higher growth of SO-Asia, less foreign R&D in Europe
  - ⇒ MNEs from emerging economies raise their presence in Europe

# Business Expenditure on R&D (BERD) intensities

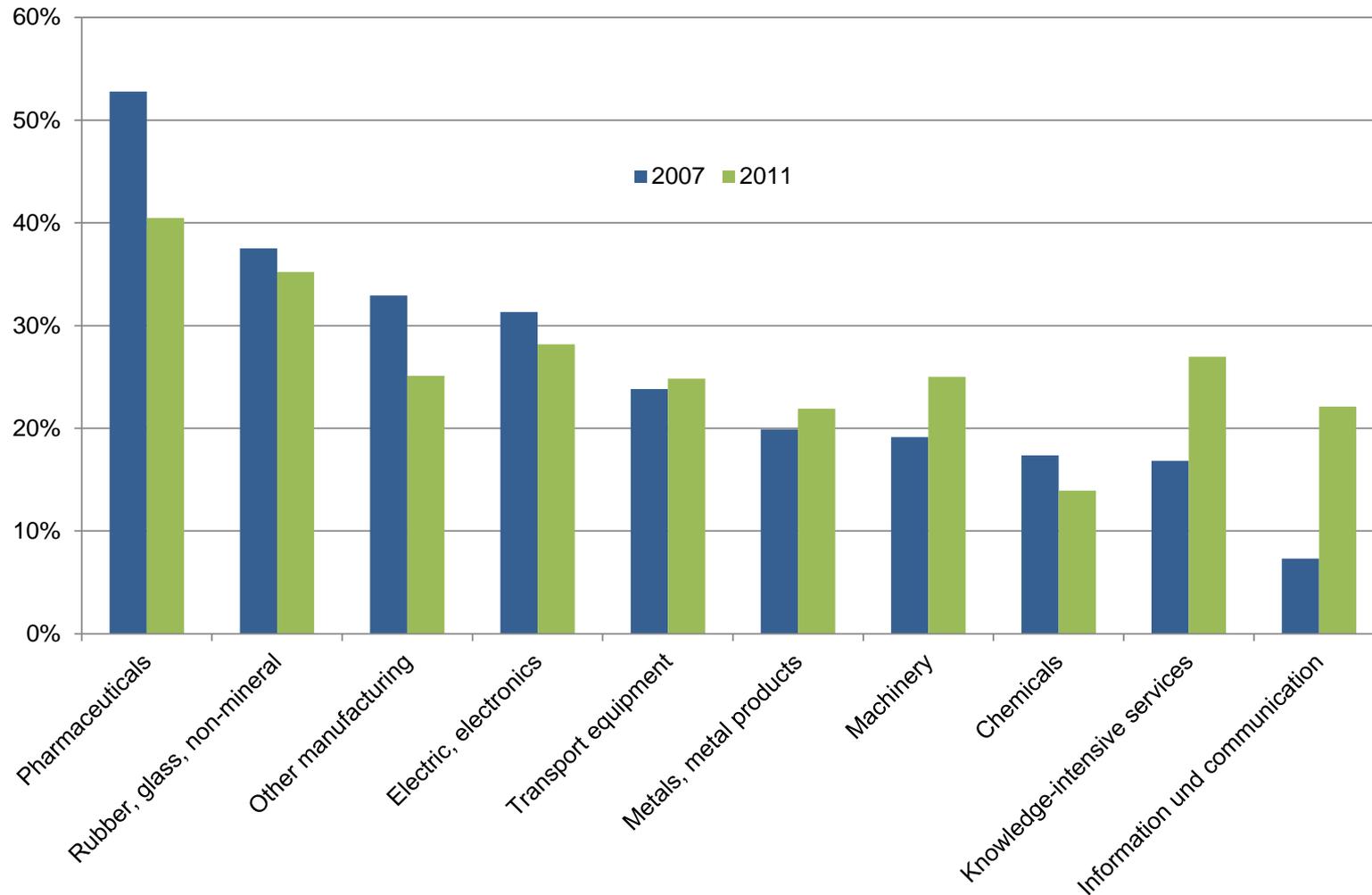
# Inward BERD as a percentage of total BERD, 2007-2009



# Inward BERD intensity 2009-2011 – no recovery

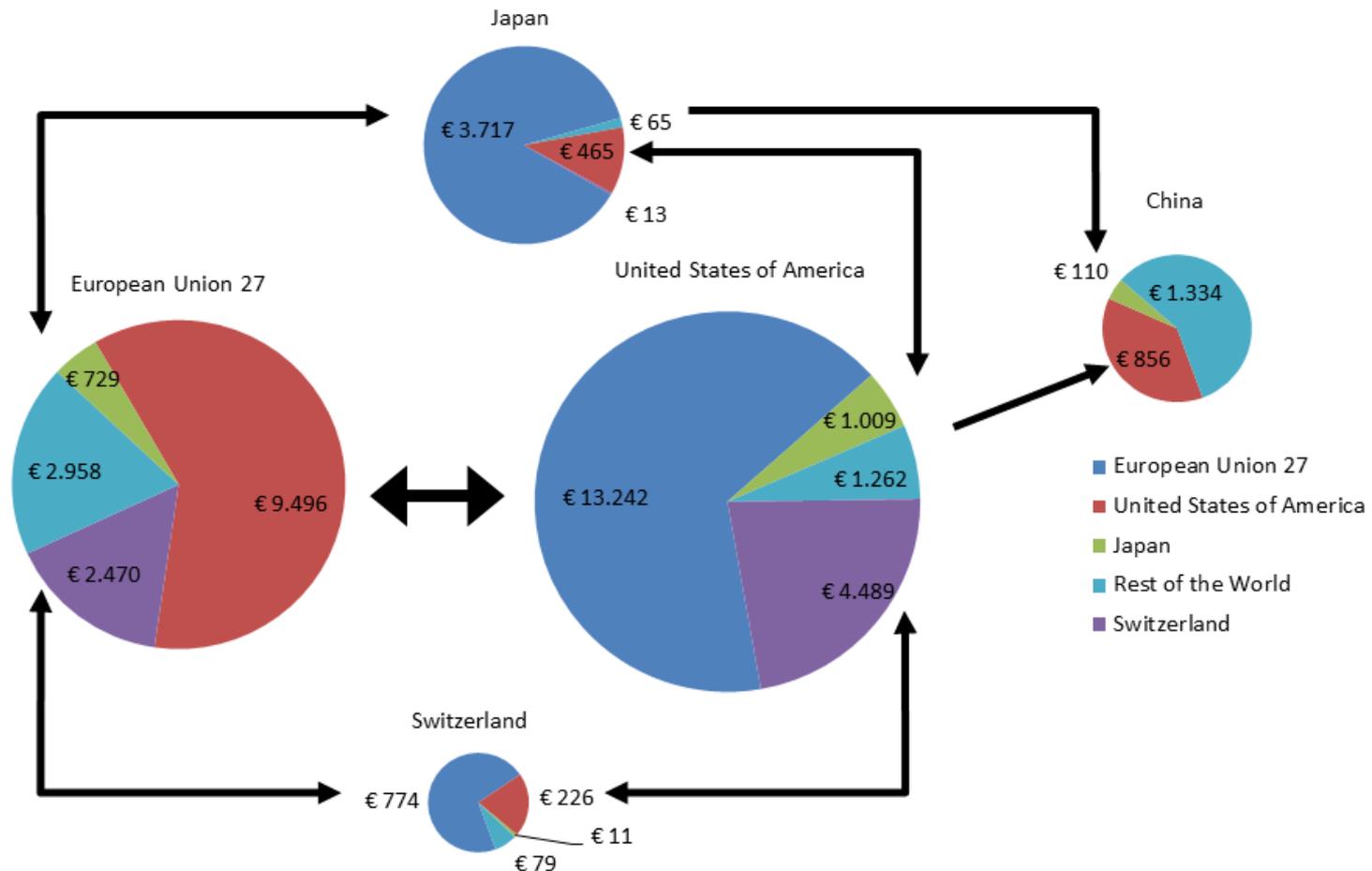


# Inward BERD intensity at sectoral level, Germany, 2007-11

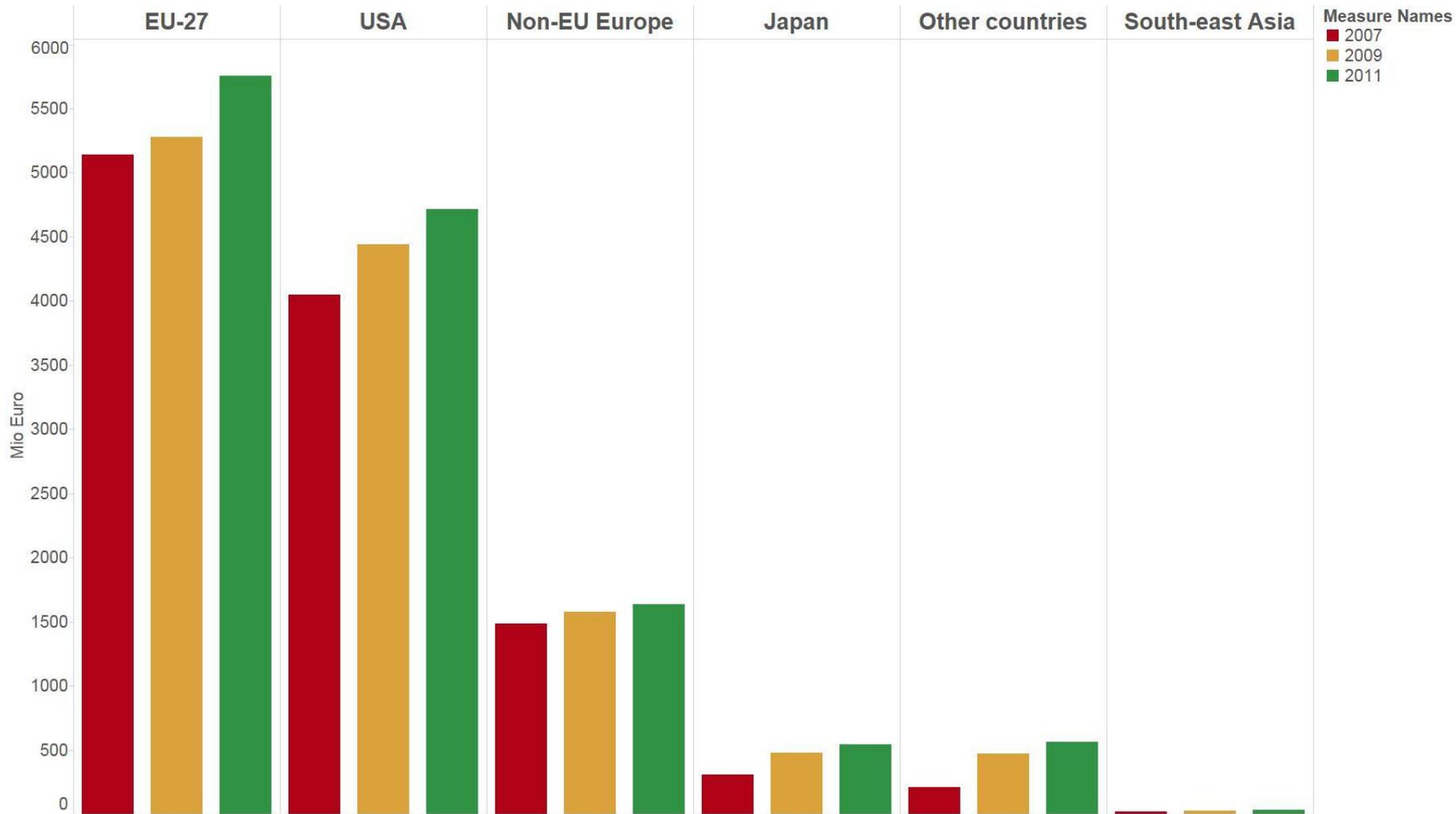


# The country mix

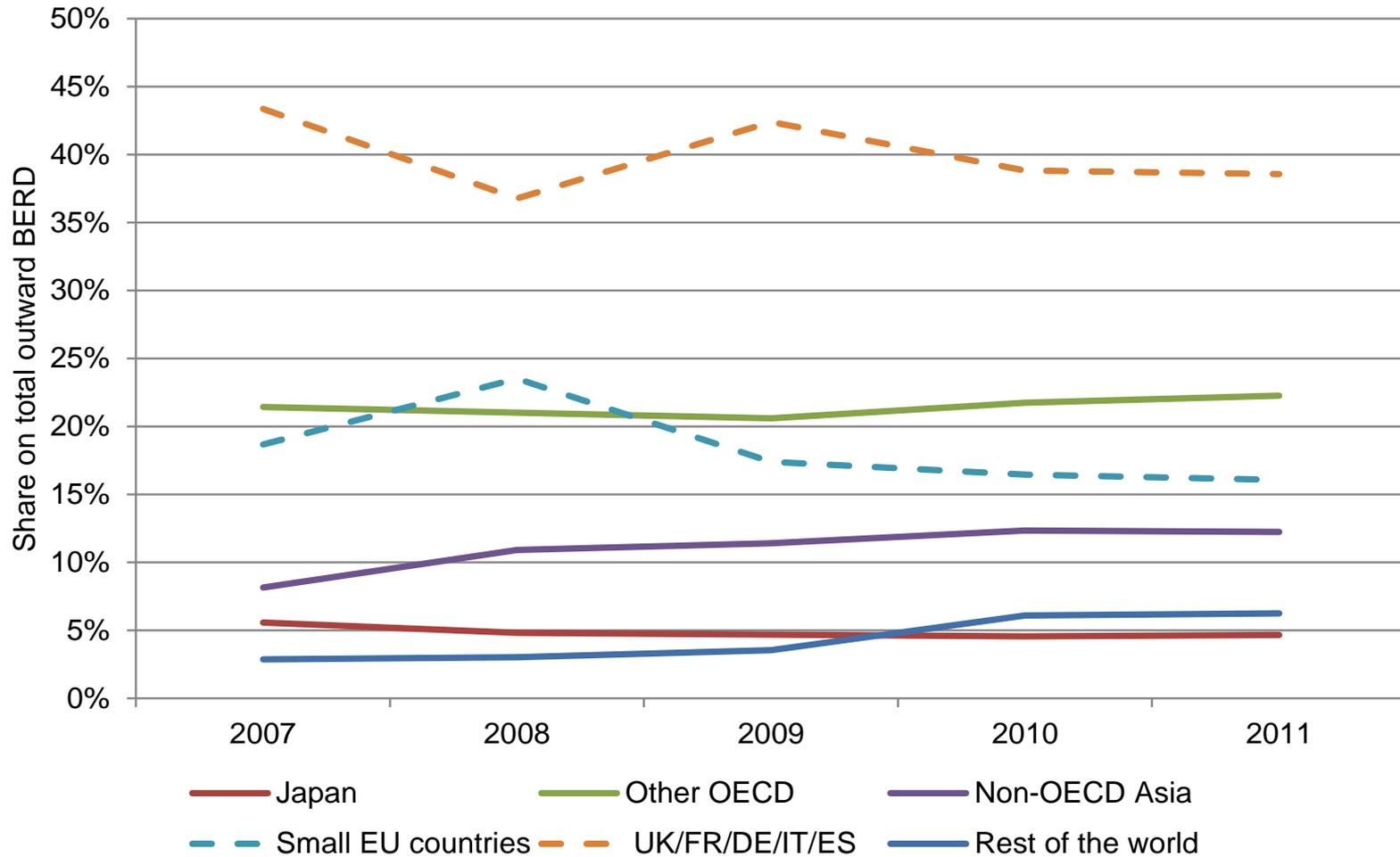
# Global relationships in the internationalisation of R&D, 2007, manufacturing, Mio EUR



# Inward BERD by home country, Germany, 2007-2011



# R&D of US firms abroad by host country, 2007-2011



## Summary

- Internationalisation of R&D was hit hard by the crisis
  - The **share** of foreign firms decreased on **total business R&D** decreased in the majority of countries during the crisis
  - Internationalisation did not recover in relative terms between 2009-2011
  - An exception is internationalisation of R&D in services
  
- The country mix was remarkable stable during and after the crisis
  - Relationship between the US and the EU is still strong after the crisis
  - Other OECD and non-OECD are gaining share
  - The rise of Asian countries as host and home countries is slow, and did not accelerate during the crisis
  
- However, we can only speculate on the reasons
  - More evidence is needed from micro-data

## Conclusions

- If we consider R&D internationalisation to be a benefit for host countries, less internationalisation is **a bad thing**
  - Less spillovers, Less employment opportunities for researchers, less technological upgrading for suppliers, in the long term less structural change towards higher tech intensity
  
- What can governments do to reverse this trend?
  - Very little; the reasons for the decline – changes in global aggregate demand and expectations - are exogenous to the host country
  - Special incentives to foreign firms are rejected by the literature as well as EU competition law
  
- More evidence is needed from micro-data, because based on aggregate data we can only speculate on the reasons for the decline