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## **The triggers of competitiveness**

Financing innovation: the role of innovation and financial systems in shaping competitive advantages

6 December 2011, 9.00-18.30

National Bank of Belgium, Brussels

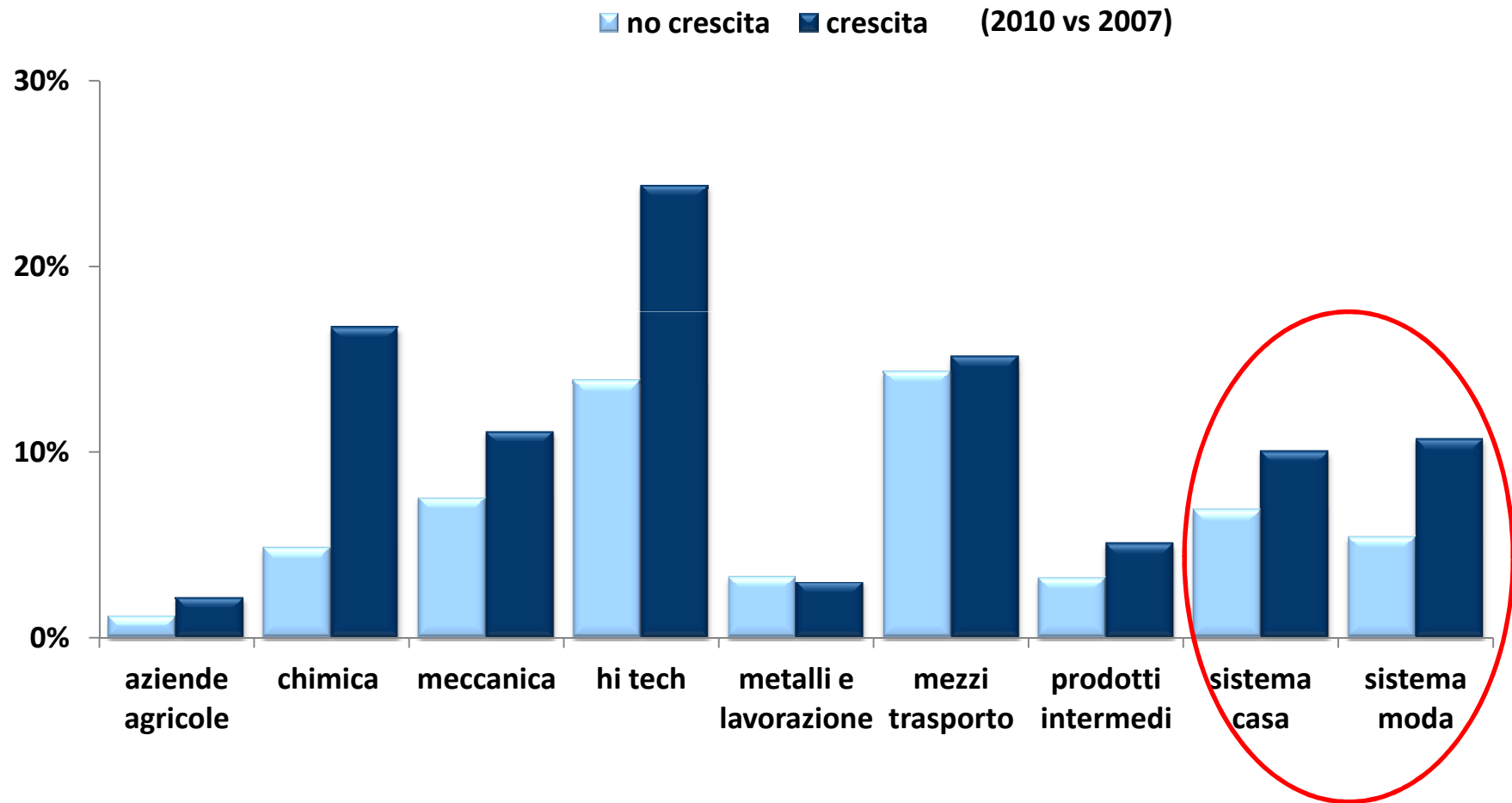
# How should we think about innovation? Just technology?

- Innovation allows a firm to stay ahead of competitors and increase margins
- Escape (unbearable) price competition with developing countries
- Important even in sectors with little technological innovation
- Successful firms invests not only in technological innovation, but also in trade mark, product development, marketing....
- Role of **Intangible capital**, of which innovation a component
- I will focus on innovation, but ideas more general

# Evidence from Italian firms

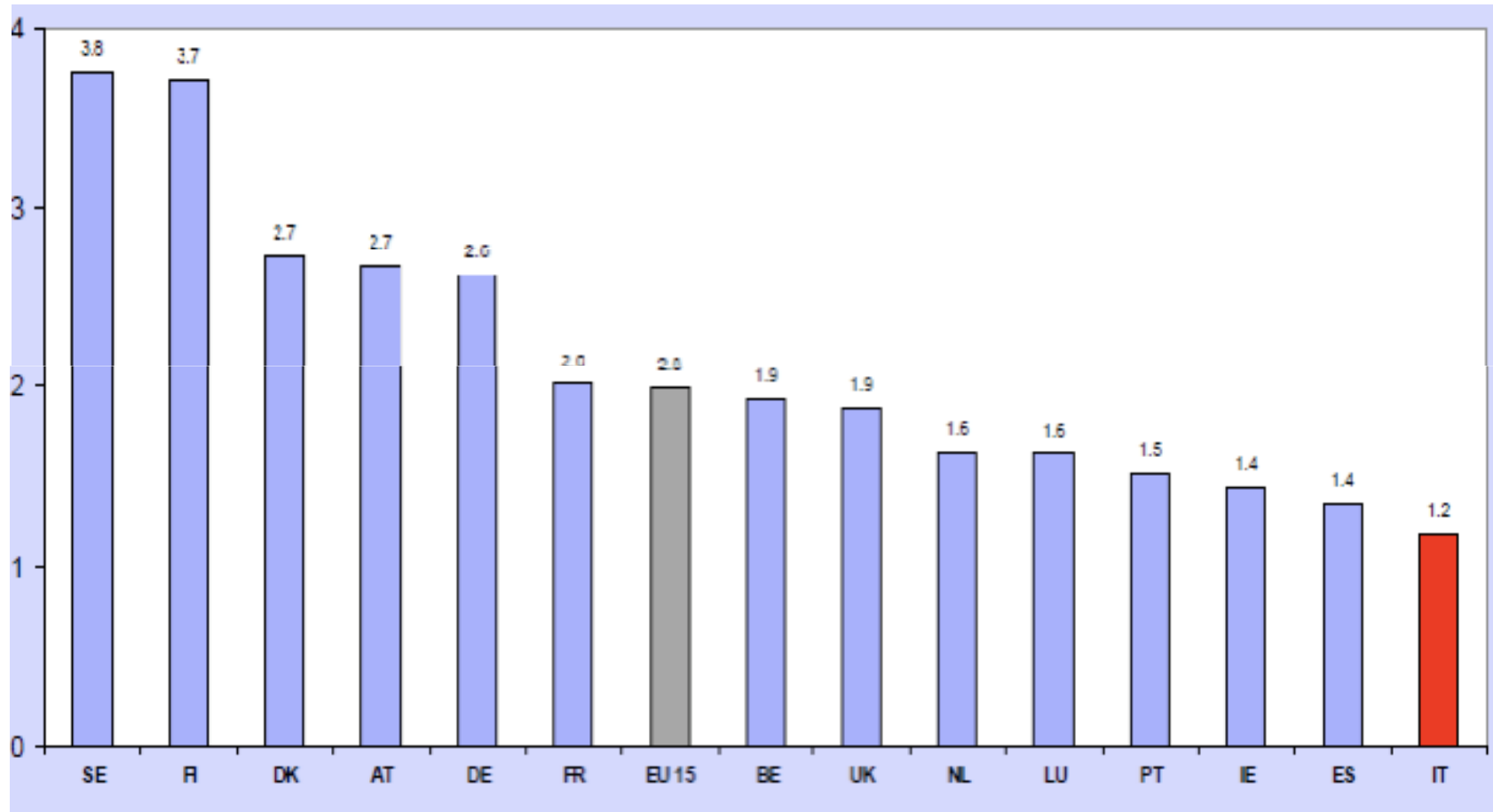
## Intangibles in SME (up to 250 m turnover)

Intangible over total assets



# Large differences in R&D expenditure across countries in Europe

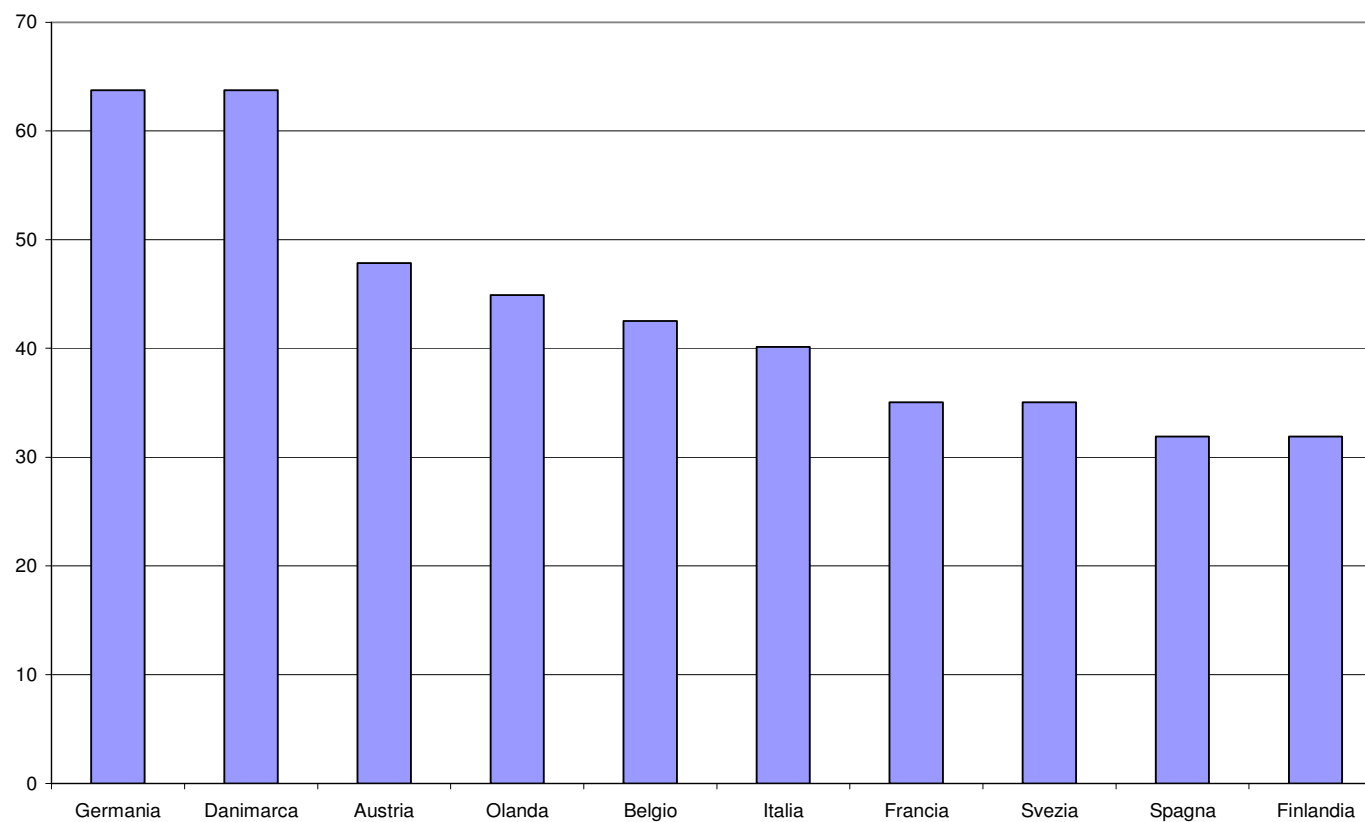
## R&D expenditure (share of GDP)



Source: OECD, 2008

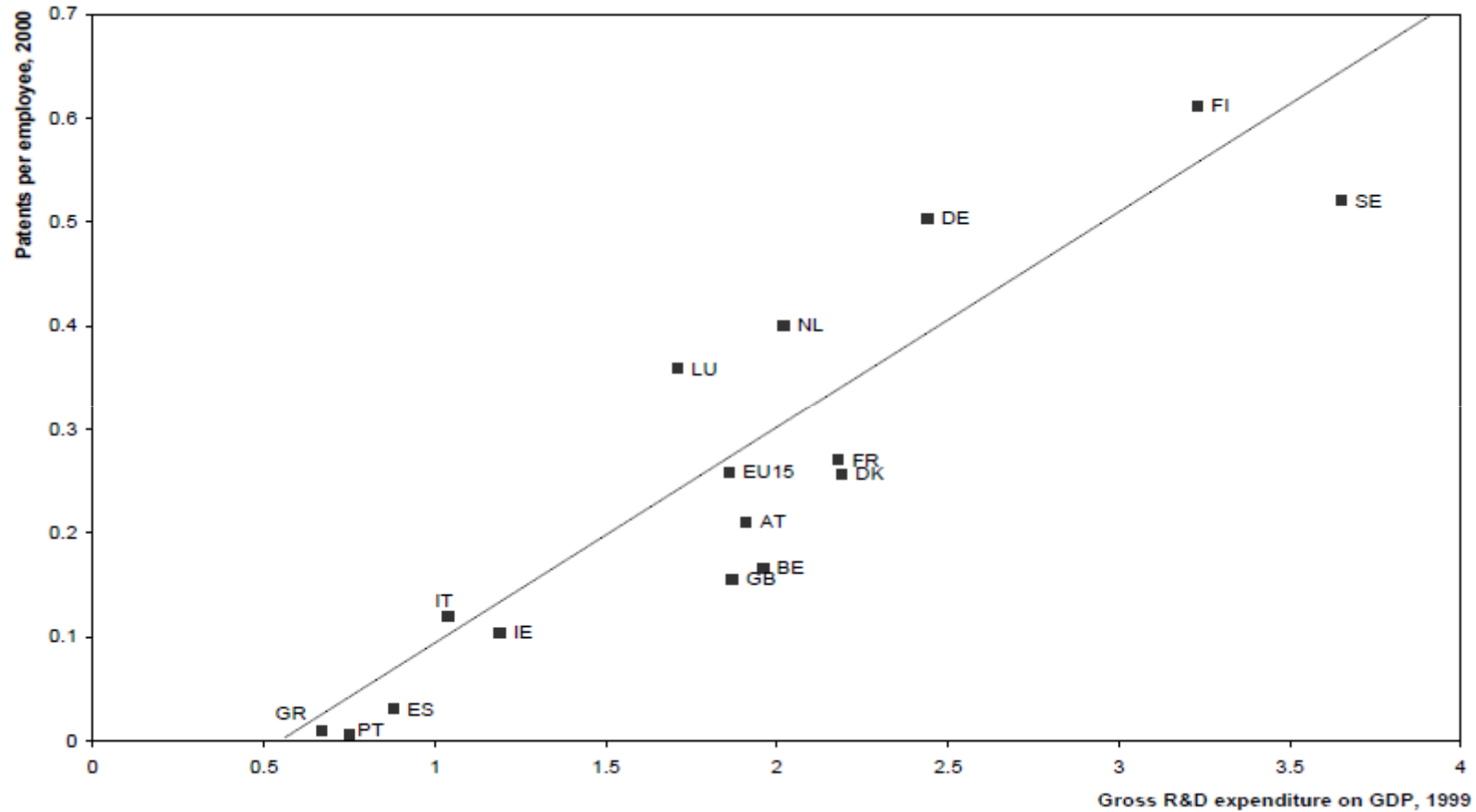
# More similarity in “innovativeness”

## Share of innovative firms



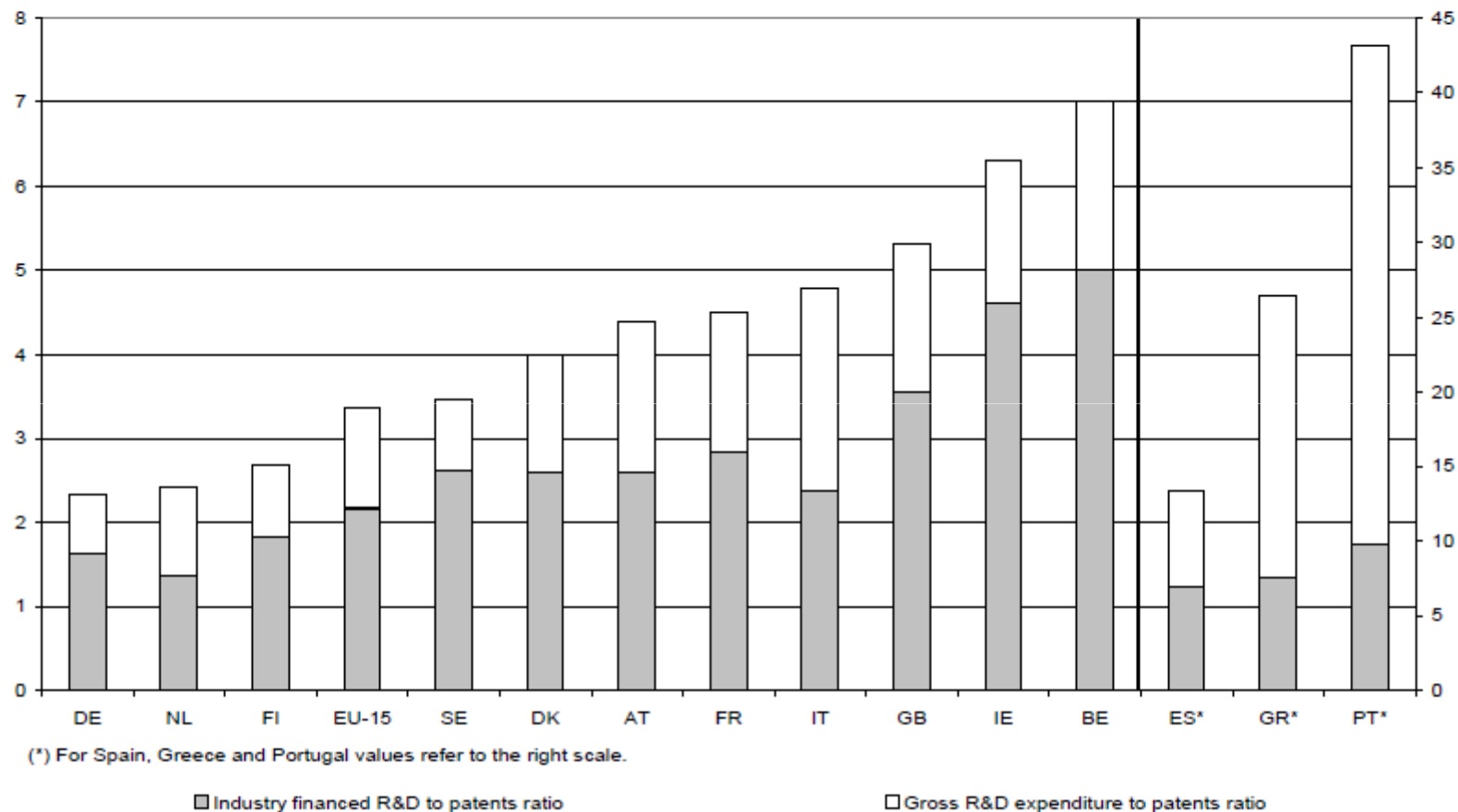
Source: CIS, 2008

# Patents and R&D positively related



Source: Lotti-Schivardi (2005). Patents data are from the EPO; employment and R&D personnel data from the OECD Main Science and Technology Indicators database.

# Large differences in efficiency of R&D



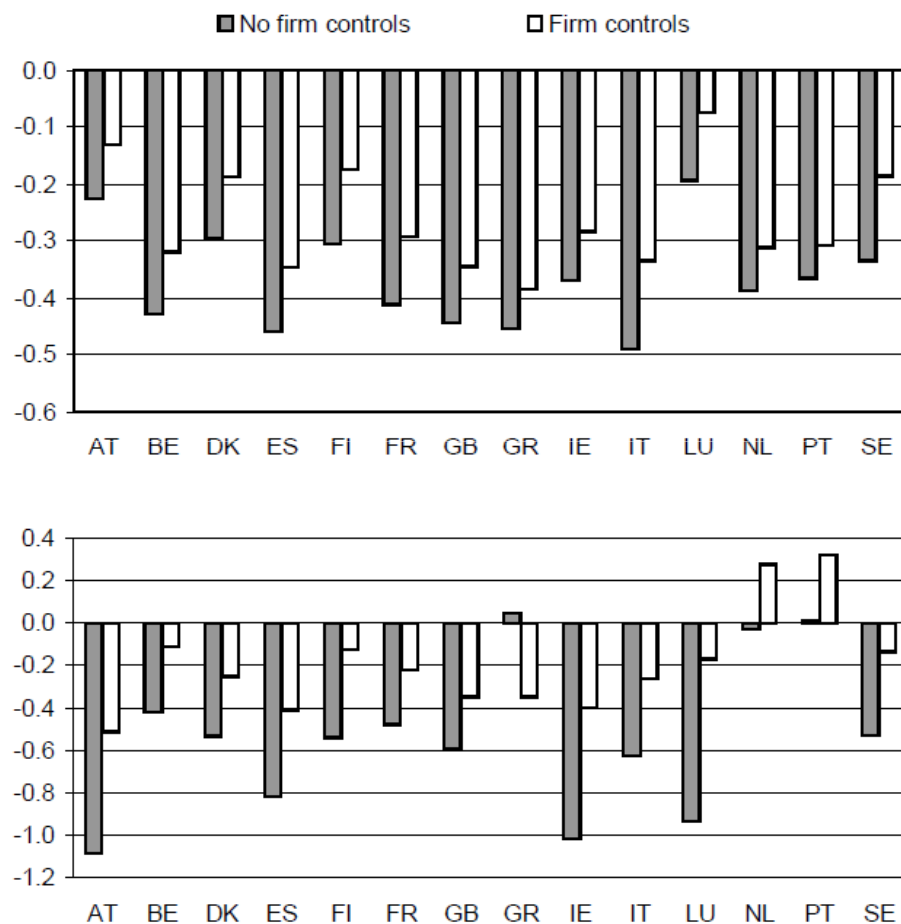
Source: Lotti-Schivardi (2005). Patents data are from the EPO; employment and R&D personnel data from the OECD Main Science and Technology Indicators database.

# Useful to think at two drivers of innovation:

- Country characteristics: financial system, education system, sectoral specialization....
- Firm characteristics: firm size distribution, ownership structure, financial structure



# Differences from Germany in patent propensity, firm data

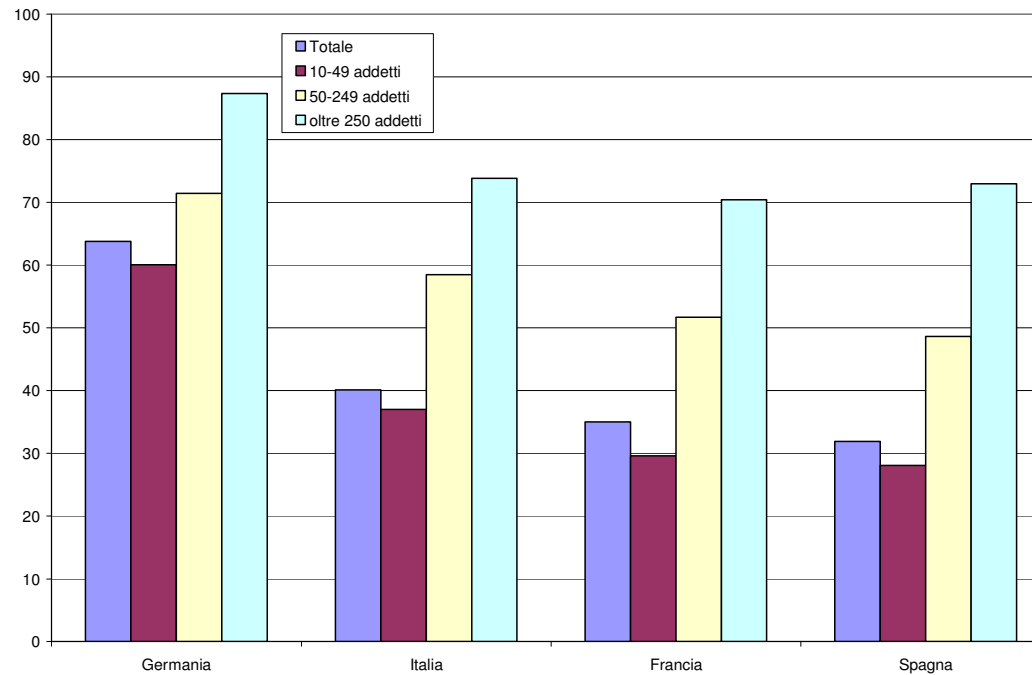


Panel A: Probability of having at least one patent. Panel B: number of patents.  
Source: Lotti-Schivardi (2005), EPO and Amadeus

# Role of firm size

- Old debate (Schumpeter): both needed

Share of innovative firms, by size



Source: CIS, 2008

# Obstacles to innovation activity

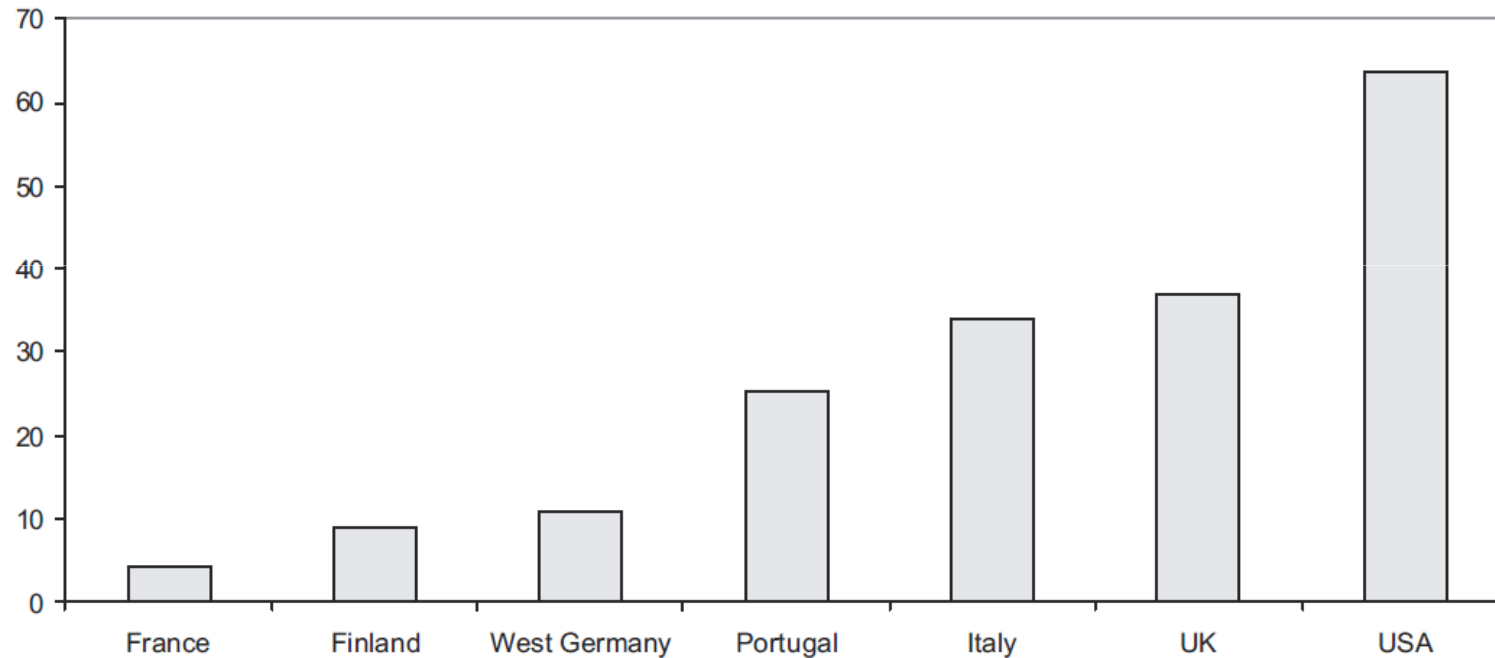
		Too risky	Fiancial constrains
France	10-49	11,8	24,8
	50-249	11,5	23,6
	> 250	6,2	18,7
	<b>totale</b>	<b>11,5</b>	<b>24,3</b>
Germany	10-49	28,6	43,9
	50-249	23,4	46,2
	> 250	31,8	34,3
	<b>totale</b>	<b>27,8</b>	<b>43,7</b>
Italy	10-49	47,1	56,5
	50-249	40,0	57,6
	> 250	44,0	46,4
	<b>totale</b>	<b>46,2</b>	<b>56,5</b>
Spain	10-49	51,0	54,9
	50-249	43,2	49,6
	> 250	43,8	39,9
	<b>totale</b>	<b>49,8</b>	<b>53,8</b>
UK	10-49	5,7	51,4
	50-249	7,9	40,3
	> 250	3,1	31,5
	<b>totale</b>	<b>6,1</b>	<b>48,0</b>

- The importance of financial constraints decreases with firm size

Source: Bugamelli ae al, 2011, Efige database

# Barriers to growth in Europe

Low propensity of young EU firms to grow: why?  
Finance and ownership structure?



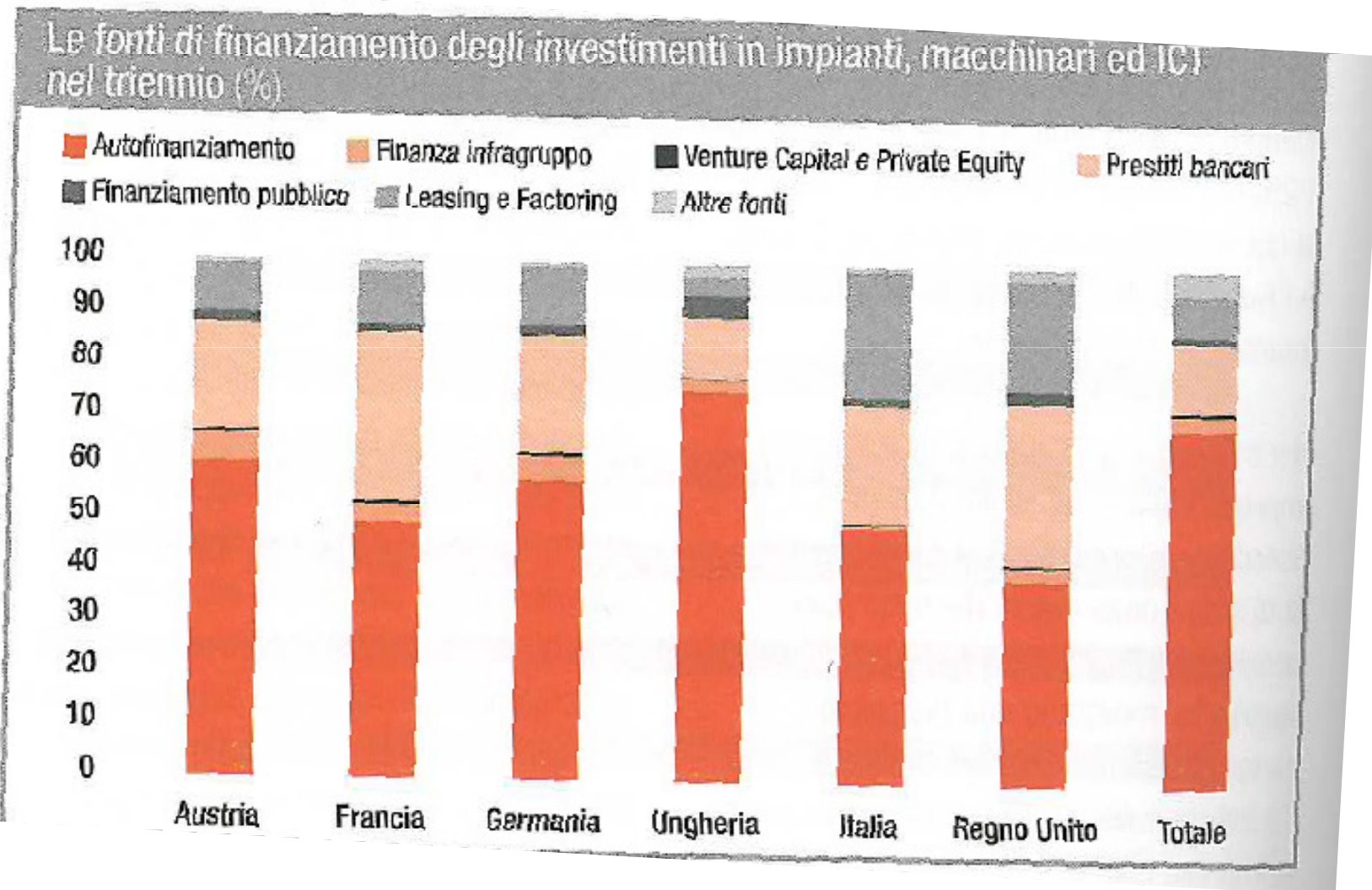
**Figure 5** Percentage increase in average firm size (at 7 years of age) relative to size at entry, manufacturing.

Source: Bartelsmann, Scarpetta and Schivardi, 2005

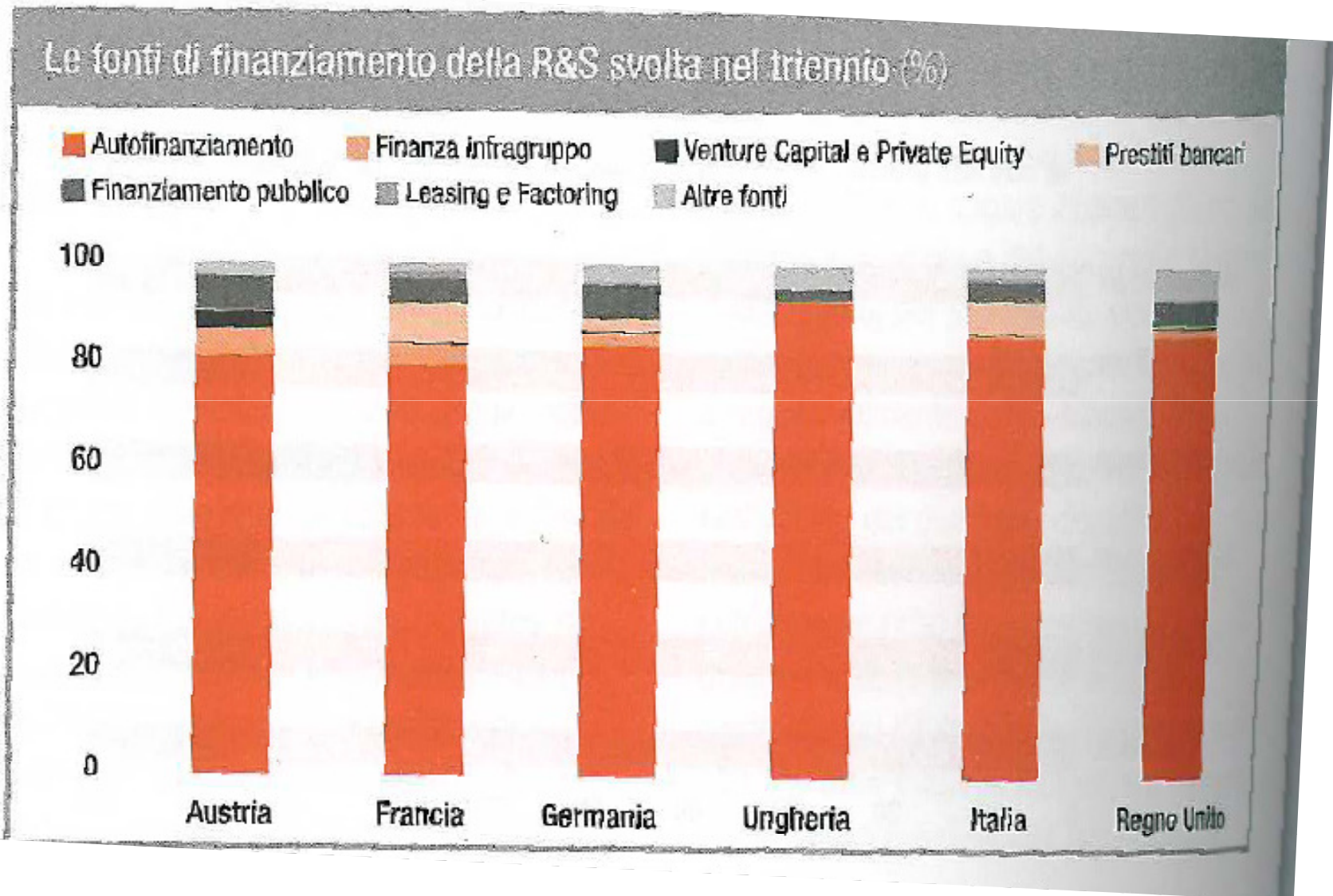
# Financing the innovation activity

- Innovation (intangibles in general) risky
- Debt contract not best instrument:  
importance of equity
- In continental Europe, large presence of family firms that finance their operations mostly through bank borrowing
- The absolute predominance of this mode of corporate ownership/control/finance might be a problem for innovation

# Bank finance OK for tangibles...



# Less for intangibles



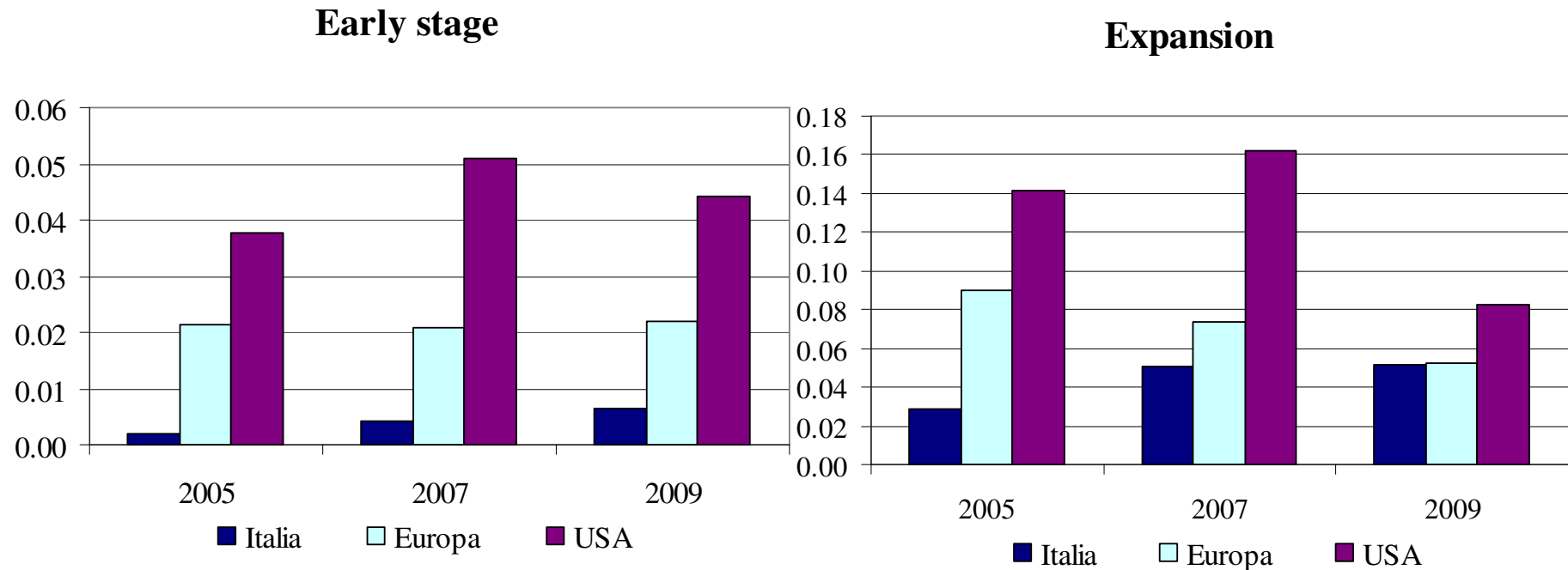
# Ownership, control and finance of European firms

Share of firms:	FRA	GER	ITA	SPA	UK
Family owned	80.0	89.8	85.6	83.0	80.5
Of which: Family managed	25.8	28.0	66.3	35.5	10.4
<i>Foreign ownership</i>	10.3	6.3	4.1	4.5	12.2
<i>Venture capital</i>	1.9	1.3	0.5	1.0	5.7
Share of bank debt over total debt	78.7	83.9	87.5	86.4	65.2

Source: Bugamelli et al., 2011, Bank of Italy. Data from the EFIGE survey



# VC investmetns in IT, EU and US



Source: Bugamelli et al, 2011

# Role of ownership

- Bugamelli et al. (2011), Efige data:
  - Family ownership not a problem in itself
  - But problematic when control confined to the family: less innovation (Bloom and Van Reenen, 2007)
- Michelacci-Schivardi (2011)
  - Owners of family firms undiversified, very concerned with maintaining control
  - More risk averse -- country with more family firms perform worse in more risky (innovative) activities

# Obstacles to innovation activity

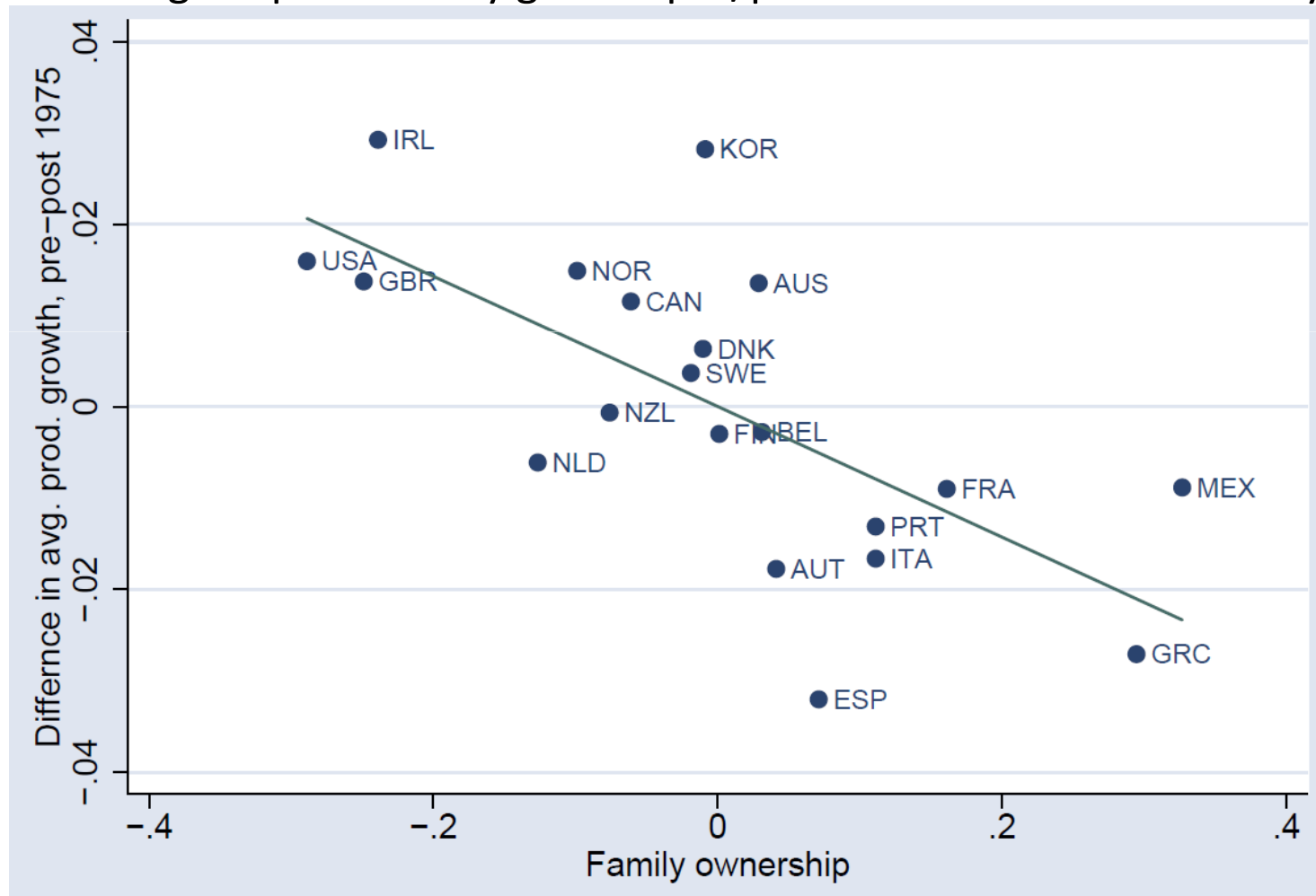
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- The importance of financial constraints decreases with firm size
- Riskiness much more relevant in Italy and Spain, more based on bank finance and less in the UK, with a more market based financial system

Source: Efige

# Needed: a more diversified ownership/finance/control structure

Change in productivity growth pre/post 1975 and share of family firms



Source: Michelacci and Schivardi, 2011

# What challenges for the European financial system for innovation?

- In Continental Europe, need for a more diversified supply of funds
- Role of equity
- Institutional investors – VE, PE. Pension funds
- Increase the contestability of control – no barriers to foreign acquisitions
- Increase the firm participation to the stock market
- .....