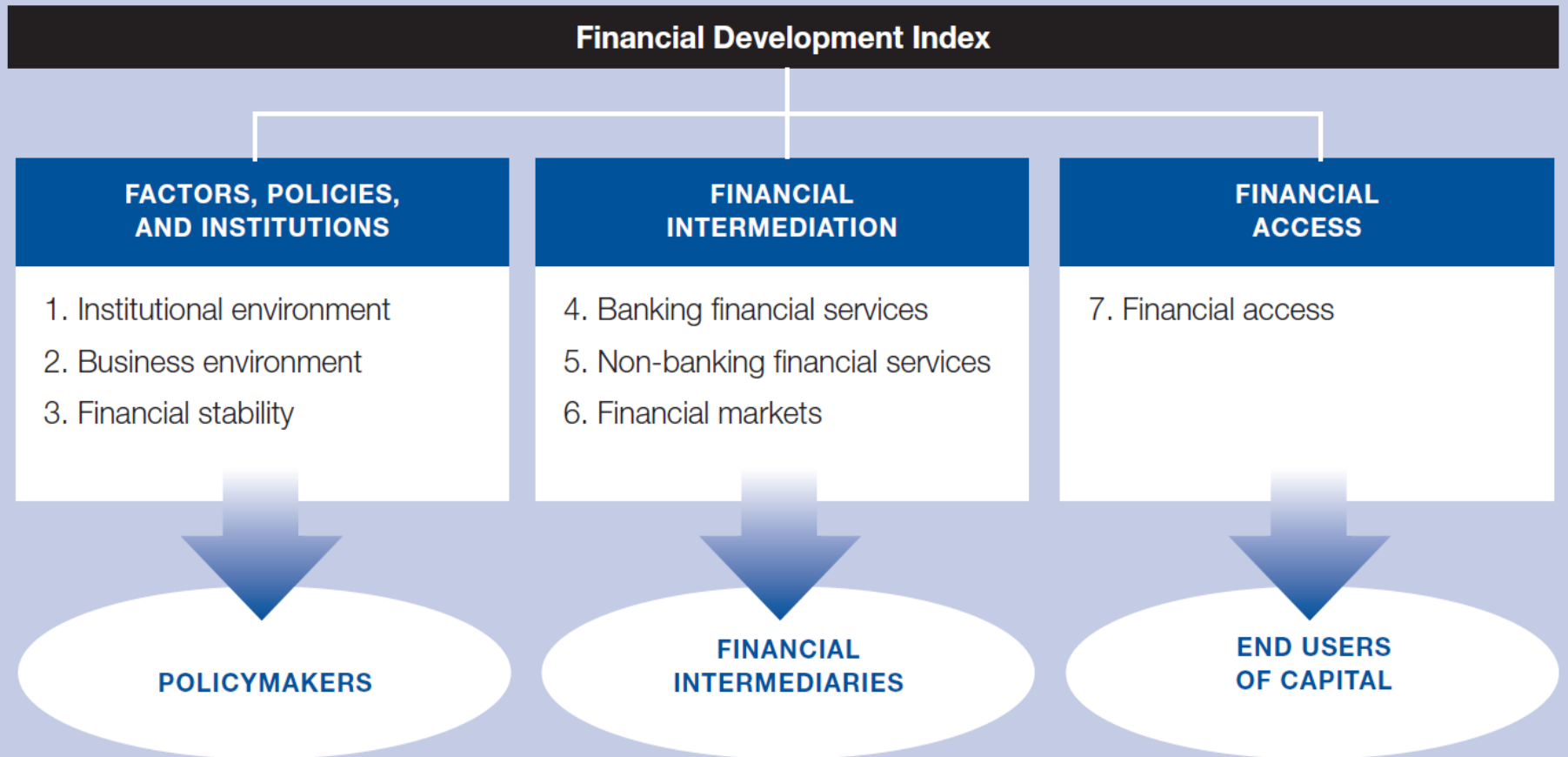


# Financial Development and Employment – Evidence from Transition Countries

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# What is financial development?



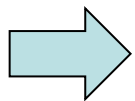
Source: Financial Development Report 2012, World Economic Forum.

# Motivation

- A large body of literature has shown that financial development is associated with higher output growth
  
- BUT global financial crisis starting in 2007/08
  - Serious recession in many countries
  - Massive job destruction
  - Sharp drop in bank lending
  
- ➔ Renewed interest in the economic effects of financial development, especially effects on employment

# Research question

1. Do firms in countries with a higher level of financial development experience more employment growth than firms in countries with a lower level of financial development?
2. Are different firm types affected differently?



Focus on transition countries

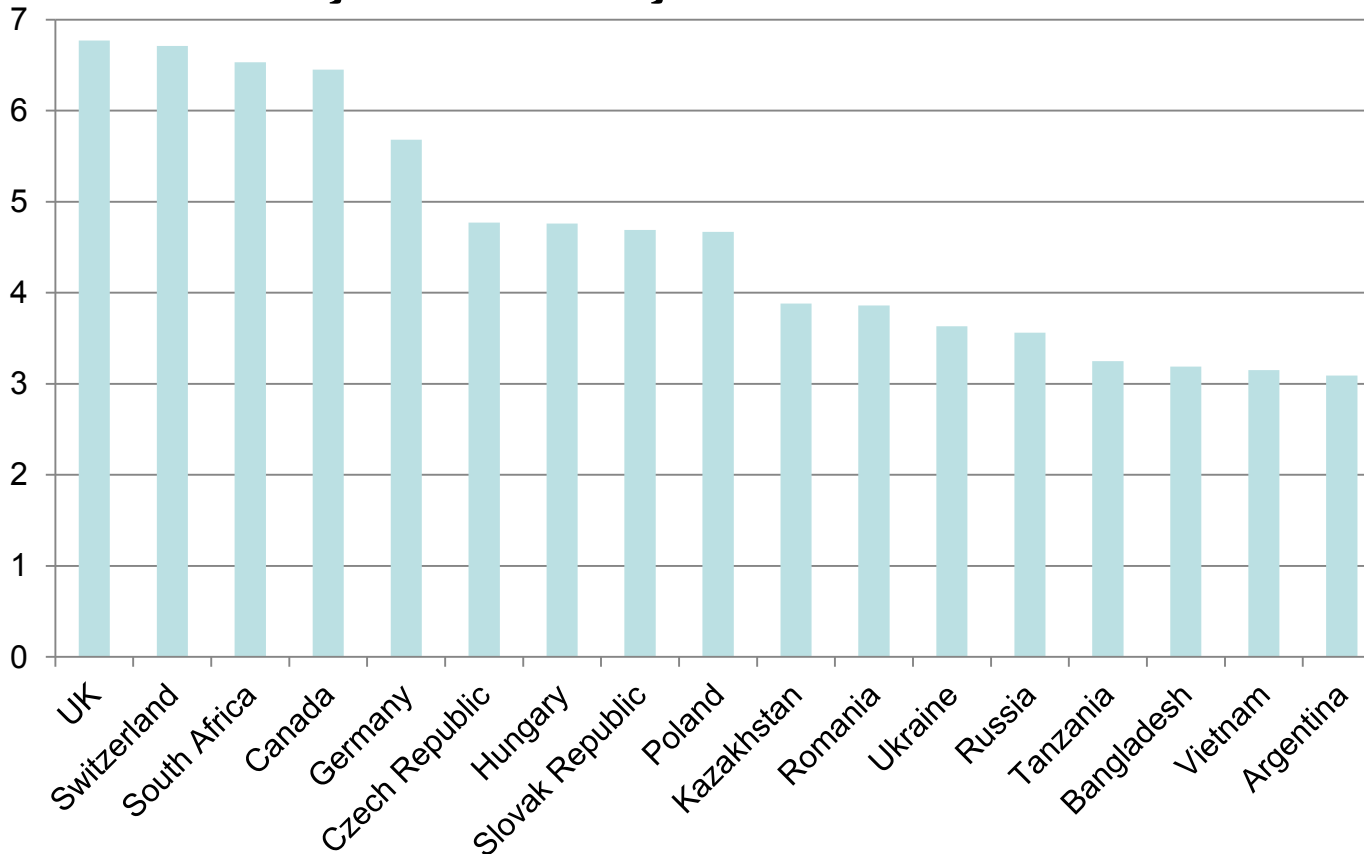
# Transition countries



Source: World Bank.

# Transition countries

„How would you assess the level of sophistication of financial markets in your country?“



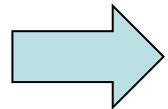
Source: World Economic Forum, Financial Development Report 2012.

## Previous literature

- **Pagano and Pica (2012, EP)**: financial development is positively associated with employment growth, but only in non-OECD countries
- **Aterido et al. (2011, EDCC)**: employment growth increases with better access to finance (measured locally) only for medium-sized and large firms

# Theoretical model

- Based on Pagano and Pica (2012): model of incomplete contracts at the industry-level



Prediction: Financial development should have a positive effect on employment and wages, particularly in industries that depend more on external finance.

- We adjust their model to individual firms and introduce managerial capital as an input factor in the production function



# Theoretical model

- What is managerial capital?
- Ability of firm-owners and managers to scale up the firm's output (Bruhn, Karlan, Schoar, 2010, AER)
  - It improves the marginal productivity of other inputs (labour, capital)
  - It affects the amount and type of inputs that a firm acquires

.

## Mechanic of the model

- Financial development increases the debt capacity of firms.
- So firms are, in principle, able to borrow more from banks.
- Because of better access to finance firms invest more in both production factors: capital and labour.

## Mechanic of the model (cont.)

- The additional demand for labour from all firms pushes the wage level in the labour market.
- Firms with low managerial capital cannot afford to pay the higher wages.
- As a consequence those firms with low managerial benefit less from higher development than firms with higher managerial capital.

# Theoretical model

**Hypothesis: Firms with low managerial capital react to an increase in financial development with lower employment growth than firms with high managerial capital.**

All firms have better access to finance with a higher level of financial development and so want to expand their physical investment and thus also employment. This increases the competitive pressure on the labour market. The resulting higher wages overcompensate the initial advantage from increased access to finance for firms with low managerial capital as they can no longer pay these wages.

## BEEPS data

- Business Environment and Enterprise Performance Survey (BEEPS) conducted by EBRD and World Bank
- Objective is to examine the quality of the business environment as determined by a wide range of interactions between firms and the state
- Five rounds of data collection (1999, 2002, 2005, 2009, 2012) in close to 30 countries
- Manufacturing and services sectors are covered
- Questions concern issues of infrastructure and services, sales and supply, competition, innovation, finance, business-government relations, land and permits, and labor
- We use data from 2005

# BEEPS data: countries covered

## Central and Eastern Europe (CEE)

- Czech Republic\*
- Estonia\*
- Hungary\*
- Latvia\*
- Lithuania\*
- Poland\*
- Slovak Republic\*
- Slovenia\*

## South Eastern Europe (SEE)

- Albania
- Bosnia and Herzegovina
- Bulgaria\*
- Croatia\*
- Macedonia
- Montenegro
- Romania\*
- Serbia

\* member state of the European Union

# BEEPS data: countries covered

## Commonwealth of Independent States (CIS)

- Armenia
- Azerbaijan
- Belarus
- Georgia
- Kazakhstan
- Kyrgyz Republic
- Moldova
- Russia
- Tajikistan
- Ukraine
- Uzbekistan

## Empirical strategy

$$\ln \left( \frac{emp_{ijt}}{emp_{ijt-1}} \right) = \alpha + \beta type_{ijt-1} + \delta type_{ijt-1} findev_{jt-1} + \vartheta X + \tau Z + \varepsilon_{ijt}$$

- $i$  represents the individual firm,  $j$  the country where the firm is located, and  $t$  the current time period
- $type$  is the level of managerial capital of a firm, proxied by firm size
- $findev$  is the level of financial development of a country
- $X$  are firm-level controls,  $Z$  are country controls
- OLS estimation



## Firm size

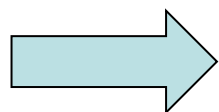
- Micro = 2-9 employees
- Small = 10-49 employees
- Medium = 50-249 employees
- Large = 250-10,000 employees

### Employment growth (in percent), by firm size

Firm size	Mean	25th percentile	75th percentile
micro	42.8	0	50
small	27.1	-8.7	36.4
medium	12.0	-15.7	18.3
large	-2.3	-18.2	6.9
total	27.7	-6.2	33.3

## Is firm size a good proxy for managerial capital?

- Lucas (1978, BellJE): managers have different levels of ability; the distribution of this ability transforms into a corresponding distribution of firm sizes because ability is a limiting factor in production
- Aterido et al. (2011): small firms are not necessarily more credit constrained than large firms; owners of smaller firms may instead have lower capabilities on average, which keeps them from growing their firms

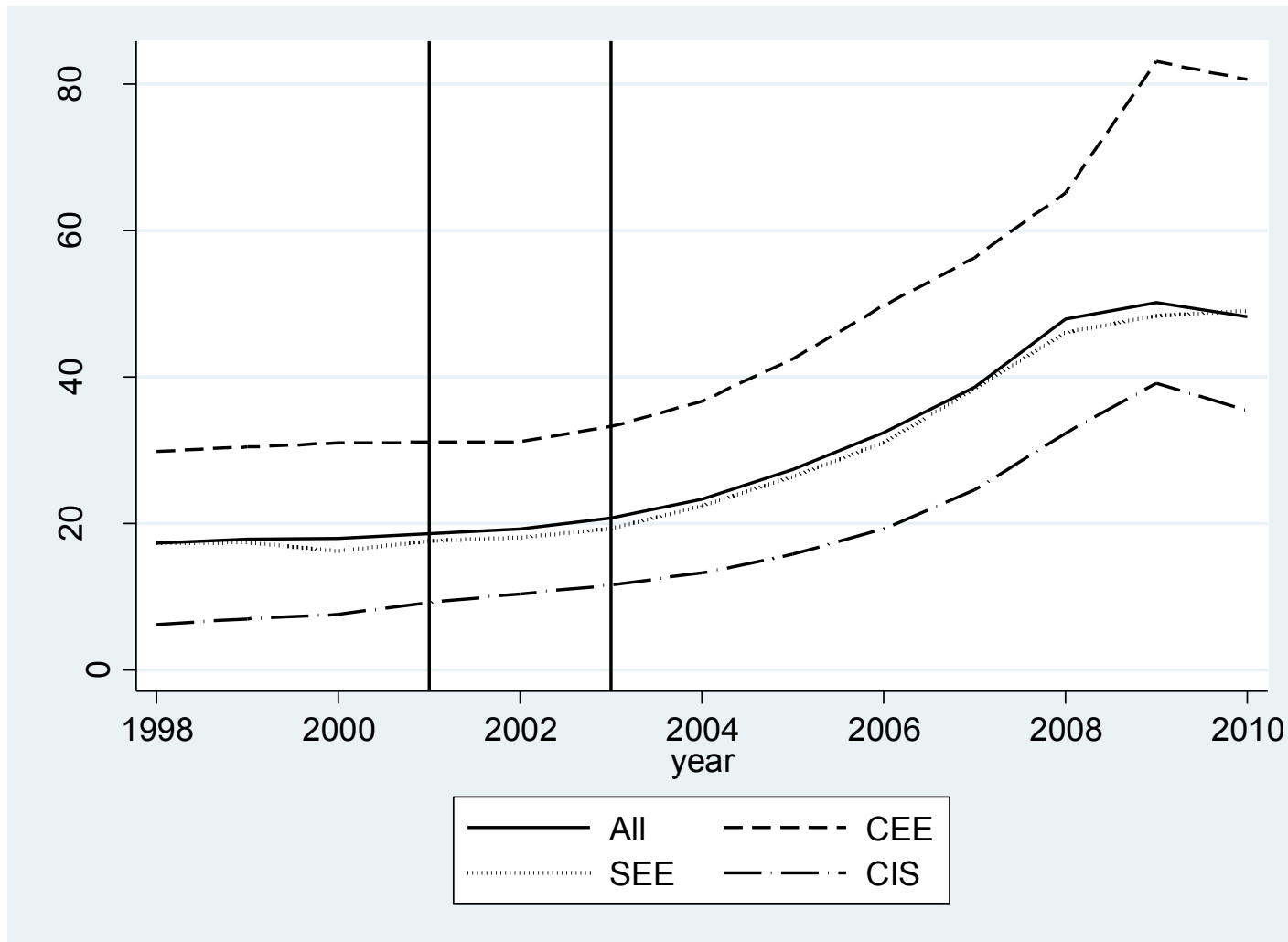


Controlling for age and sector, we argue that it is a good proxy.

# Financial development

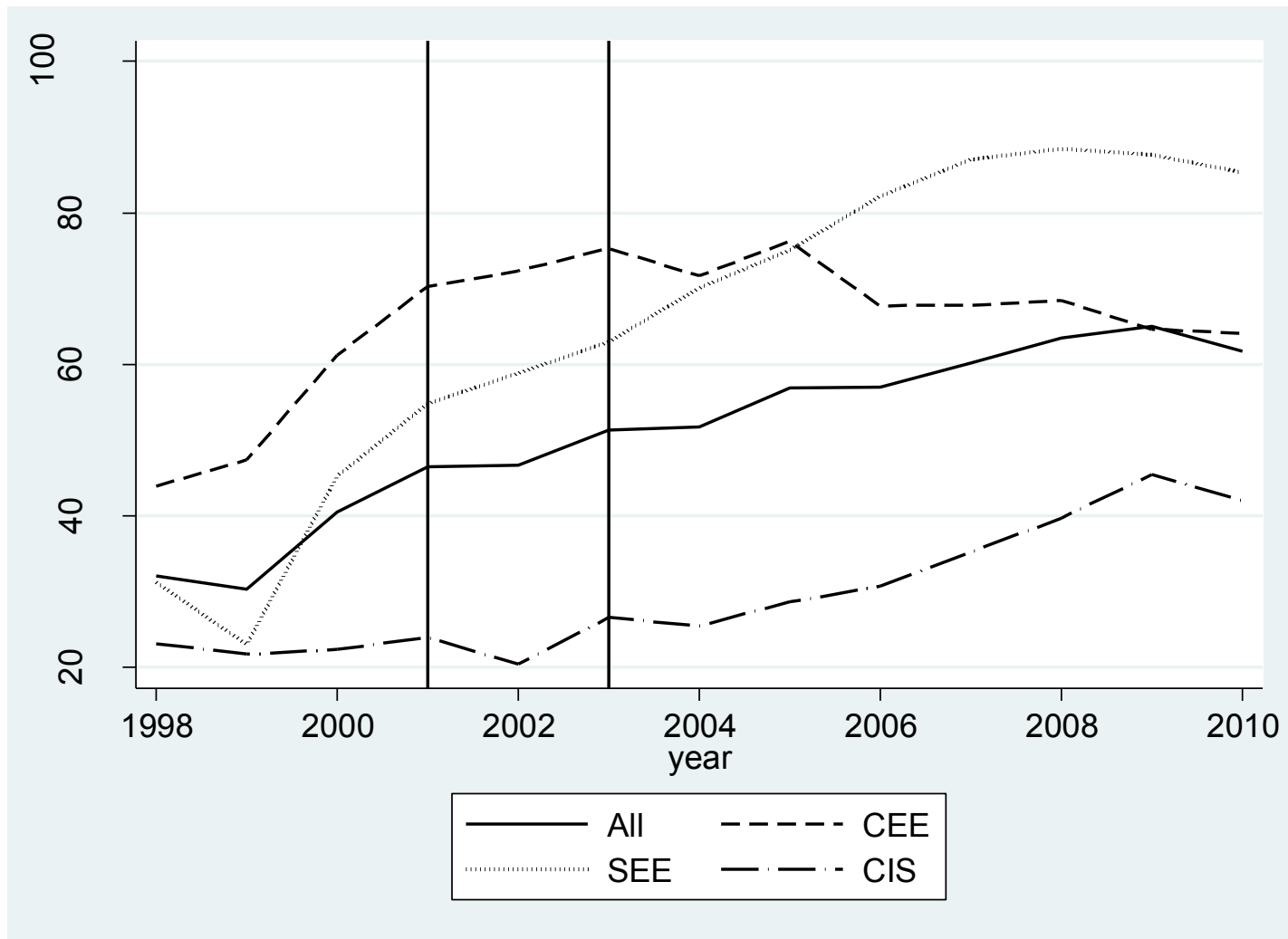
1. Private credit of money deposit banks and other financial institutions as a share of GDP (Financial Development and Structure Dataset, World Bank)
2. Share of banks with assets of foreign ownership of at least 50 percent (EBRD Banking Survey)

# Trend in private credit



Source: Authors' illustration, data from World Bank.

# Trend in foreign ownership



Source: Authors' illustration, data from EBRD.

## Firm-level controls:

1. Invest =  $(100 + \text{percent change in physical investment over last 3 years}) / 100$
2. Government = government owns more than 25% of the firm
3. Foreign = a foreign entity owns more than 25%
4. Exporter = firm sells at least 25% abroad
5. City = firm is located in capital or city larger than 1 mio.
6. Age = age and age squared of the firm
7. Sector = dummies for mining, construction, manufacturing, transport, trade, real estate, hotel and restaurant, and other service sectors

# Control variables

## Country-level controls:

1. GDP (million current US\$)
2. GDP growth (%)
3. Inflation (%)
4. Employment protection legislation (range from 0 = least restrictions to 6 = most restrictions)

# Estimation results I

	Findev = private credit	Findev = foreign ownership
Investment	0.351***	0.351***
Government	0.039*	0.040*
Foreign	0.079***	0.080***
Exporter	0.075***	0.071**
City	0.048***	0.044***
Age	-0.005***	-0.005***
Age squared	0.000***	0.000***
GDP	0.000	0.000
GDP growth	0.009***	0.011***
Inflation	0.000	-0.000
Employment protection	0.023*	0.041*



## Estimation results II (ctd.)

	Findev = private credit	Findev = foreign ownership
Micro	0.295***	0.294***
Small	0.180***	0.182***
Medium	0.088***	0.089***
Privcred	-0.003***	-
Forshare	-	-0.001**
Sector dummies	YES	YES
No. observations	7,400	7,400
R-squared	0.108	0.107

# Estimation results II (part)

	Findev = private credit	Findev = foreign ownership
Micro*privcred	-0.004***	-
Small*privcred	-0.004***	-
Medium*privcred	-0.000	-
Large*privcred	0.004*	-
Micro*forshare	-	-0.001**
Small*forshare	-	-0.001**
Medium*forshare	-	-0.000
Large*forshare	-	0.001
Control variables	YES	YES
Sector dummies	YES	YES
No. observations	7,400	7,400
R-squared	0.111	0.109

# Interpretation

- $\frac{emp_{ijt}}{emp_{ijt-1}}$  is on average 47% (40%) higher for micro firms compared with large firms
- Increase in private credit as a share of GDP by 10 percentage points  $\rightarrow \frac{emp_{ijt}}{emp_{ijt-1}}$  is on average 43% larger for micro compared with large firms
- Increase in foreign ownership of bank assets by 10 percentage points  $\rightarrow \frac{emp_{ijt}}{emp_{ijt-1}}$  is on average 39% larger for micro compared with large firms

## Robustness checks

Result generally confirmed for:

- Estimating for sub-regions: South Eastern Europe and Commonwealth of Independent States
- Excluding outliers in the dependent variable
- Estimating for different sectors: manufacturing and service sectors separately
- Estimating for 2009 BEEPS data

Deviations for:

- Central and Eastern Europe
- Foreign ownership of bank assets as the FinDev measure

## Robustness: sub-regions

	Central Europe	Southeastern Europe	Commonwealth of Independent States
Micro*privcred	0.001	-0.006***	-0.009***
Small*privcred	-0.001	-0.000	-0.012**
Medium*privcred	-0.008**	0.001	-0.005
Large*privcred	-0.004	0.004**	0.010
Control variables	YES	YES	YES
Sector dummies	YES	YES	YES
No. observations	2,844	1,698	2,858
R-squared	0.092	0.140	0.108

## Robustness: sub-regions

	Central Europe	Southeastern Europe	Commonwealth of Independent States
Micro*forshare	-0.000	-0.002*	-0.000
Small*forshare	-0.001	-0.003***	0.001
Medium*forshare	-0.001	-0.000	-0.001
Large*forshare	-0.002****	0.000	0.004
Control variables	YES	YES	YES
Sector dummies	YES	YES	YES
No. observations	2,844	1,698	2,858
R-squared	0.091	0.137	0.105

## Conclusion

- Our findings are
  - in contrast to Beck et al. (2005, JFin; 2008, JMCB) who propose particular benefits – in terms of sales and value added – for smaller firms from a more developed financial system
  - in line with Aterido et al. (2011) who find more benefits for larger firms from better access to finance
  - in line with experimental evidence: Karlan and Zinman (2011, Science) show that micro-enterprises with access to credit have a lower number of employees than those without access
- Financial development may have distributional consequences: there may be some firms which benefit less than others from a higher level of financial development
- We suggest that those are the ones that do not lack financial capital but managerial capital