

# Financial asymmetries, risk sharing, and growth in the EU

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*Conference on the Single Market, Brussels 2024*

# Research questions

- Is a **financial divide** refraining growth and convergence in the EU?
  - Pitfalls in the financial integration process after the GFC
  - **Heterogeneous resilience** of EU financial systems
  
- **What features of financial systems and financial integration matter for stable growth and effective risk sharing ?**
  - **Thresholds to financial deepening** (Arcand *et al.*, 2015)
  - **Volatile cross-border flows increase vulnerability to global shocks** (Kose *et al.*, 2009; Emter *et al.*, 2019)

# The Background

- **After the GFC the focus shifts from financial development and openness** (Beck and Levine, 2004) **to financial structures** (Beck *et al.*, 2016; Kremer and Popov, 2018; Hoffmann *et al.*, 2022)
  
- **Banks and markets operate in a different way, which affects their ability to absorb shocks** (Bats and Houben, 2020)
  - **Banks take on risks on their own balance sheets**
  - **Banks are more conservative:** they finance mature technologies at a lower cost (Minetti, 2010); invest in tangible assets that can be easily collateralized (Brown *et al.*, 2017; De Haas and Popov, 2023)
  - **Banks are more vulnerable to shocks due to assets-liabilities mismatches** during economic upturns and downturns (Pagano *et al.*, 2014)
  - **Banks are highly leveraged and interconnected: banking channel in the propagation of risk** (Badarau and Leveuge, 2011)
  - **Banks are essential:** some services are not readily substitutable

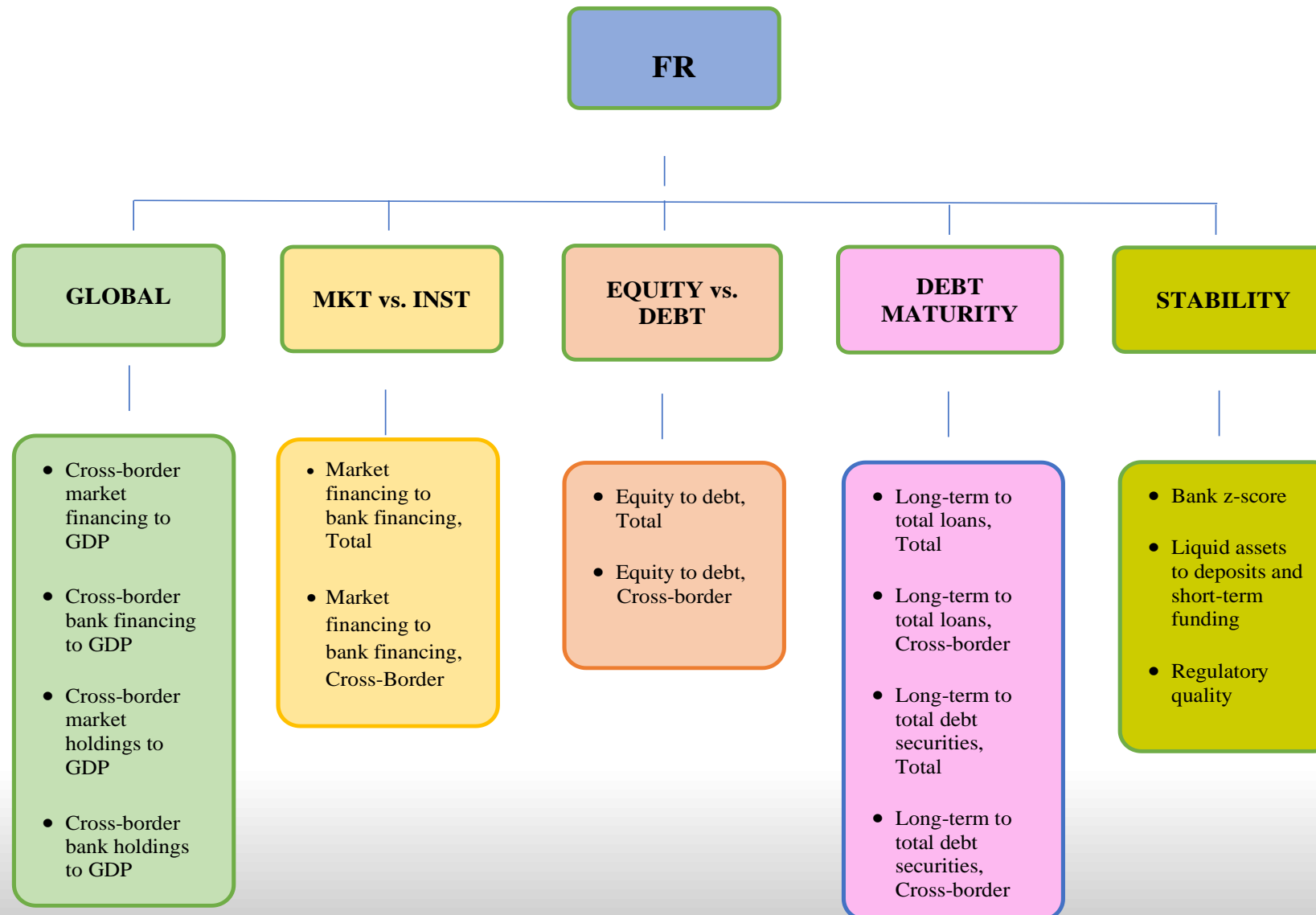
# Our contribution

- We introduce a novel **broad-based measure of financial resilience** (FR index) and benchmark EU economies against their potential to enhance stable growth and effective risk sharing
- **We test convergence** across financial systems for the EU 28 over 2000-2019 and **identify convergence clubs** based on the Phillips and Sul (2007) nonlinear latent factor model
- We **address the finance-growth puzzle** (Arcand *et al.*, 2015) and run panel estimations to assess significance of FR for growth
- We uncover the implications of EU financial systems heterogeneity for consumption smoothing and effective risk-sharing (Sørensen *et al.*, 2007; Furceri and Zdzienicka, 2013; Alcidi *et al.* 2023) employing the variance decomposition methodology proposed by Asdrubali *et al.* (2009)

# Results

- **The financial integration process in the EU is not completed: clustered pattern of financial resilience over 2000-2019**
- **The expansion of financial systems along the dimensions captured by the FR index benefits long-run growth**
- **Financial asymmetries are reflected into heterogeneous vulnerabilities to idiosyncratic shocks. In less resilient economies:**
  - **unsmoothed consumption is larger**
  - **the contribution of the credit channel to consumption smoothing is significantly reduced after the GFC**

# The Financial Resilience Index



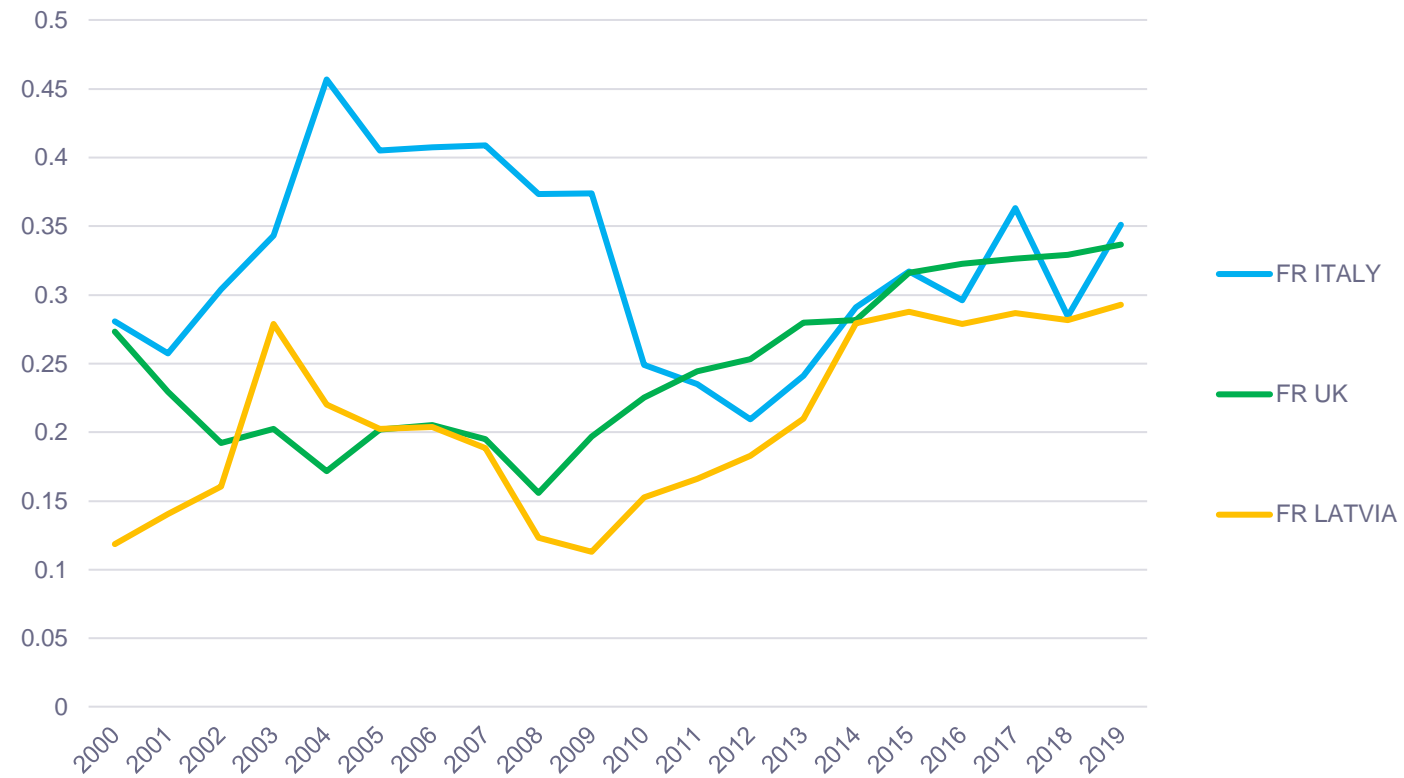
# Features of the FR index

- **Global diversification of asset ownership and debt finance reduces dependence on domestic sources of finance** (Beck *et al.*, 2016; Hoffman *et al.*, 2022)
- **Markets promote risk-taking investment on innovation** (Hsu *et al.*, 2014); they facilitate adoption of cleaner technologies and investment in green-industries (Aghion *et al.*, 2022; De Haas and Popov, 2023); they shelter firms in case of domestic credit market distress
- **Equity financing is less prone to runs than debt** because of state-contingent repayment flows; it is provided for an unlimited period of time, i.e. no rollover risk (Artis and Hoffmann 2012)
- **Longer debt maturities shield** against capital flows reversals and sudden stops (Beck *et al.*, 2016)
- **Strong institutions and above-average quality of regulation and supervision** attenuate the “too much finance” effect, thus provide “enabling environments for durable growth” (Sahay *et al.* 2015)

## Results of logt test for the FRINDEX

	No. of Countries	$\hat{b}$	$t_{\hat{b}}$	SE	FR index 2000 (Average)	FR index 2019 (Average)
<b>WHOLE SAMPLE</b>	28	-1.3824	-30.9158	0.0447	0.32	0.41
<b>Club 1</b> Cyprus, Ireland, Luxembourg, Malta	4	0.0467	0.4439	0.1053	0.36	0.76
<b>Club 2</b> Austria, Denmark, Estonia, Finland, France, Latvia, Netherlands, Sweden, United Kingdom	9	0.1112	1.7351	0.0641	0.36	0.44
<b>Club 3</b> Belgium, Bulgaria, Czechia Germany, Hungary, Italy, Lithuania, Slovenia, Spain	9	0.0798	0.7582	0.1052	0.29	0.35
<b>Club 4</b> Croatia, Poland, Portugal, Slovakia	4	0.1817	1.3677	0.1328	0.28	0.25
<b>Club 5</b> Greece, Romania	2	0.5332	0.2760	1.9317	0.27	0.17





*Notes:* FR index is the Financial Resilience Index (authors' calculations on EUROSTAT and World Bank data).

## Comment

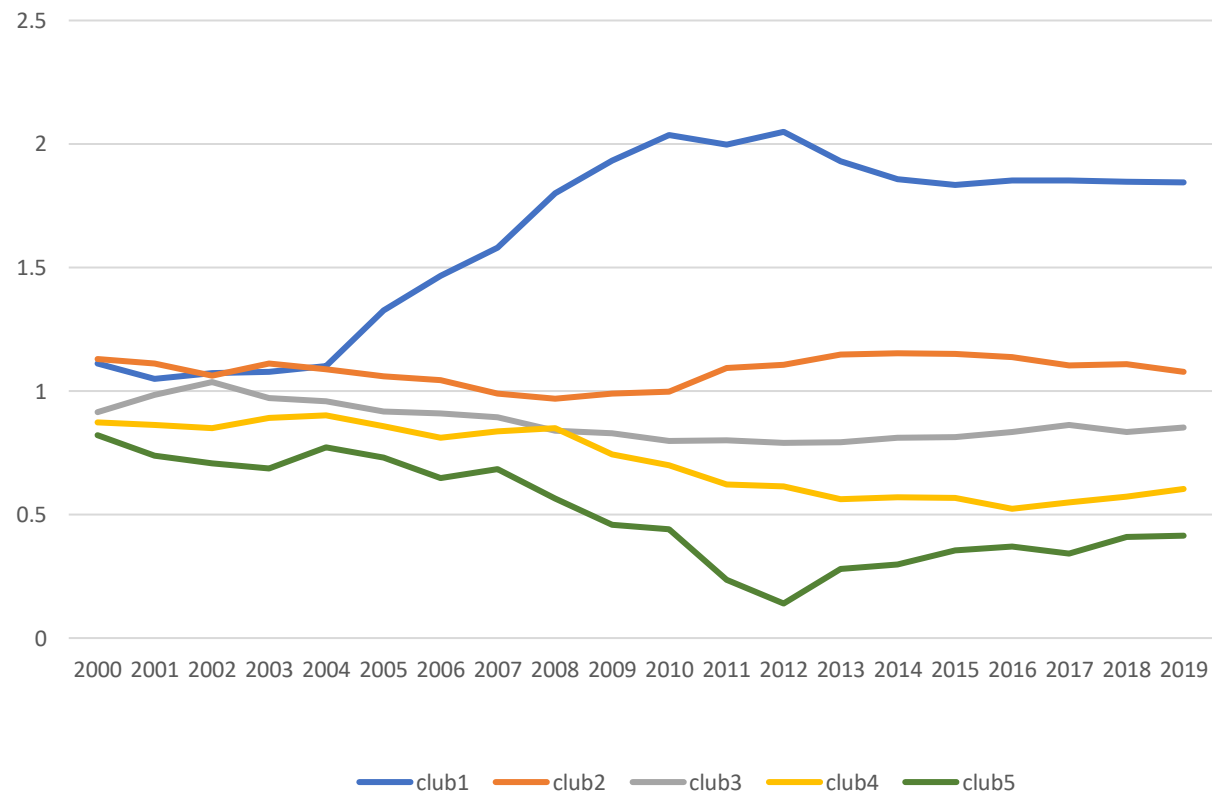
### **Clustering is driven by geographical factors**

**Northern European countries approach the higher levels of the FR index - Club 1 and Club 2 - with a few exceptions**

**Peripheral Southern and Eastern European economies converge towards the intermediate and low FR clusters.**

**Countries in Club 1 (Cyprus, Ireland, Malta, and Luxembourg) are offshore centres.**

**The time of accession to the EU is also a distinguishing feature of the identified groupings. Economies approaching the high FR clusters are a sub-group of the old EU Member States, except for Estonia and Latvia. Among the remaining old EU members, Belgium and Germany gather in Club 3, together with Italy and Spain, while Portugal belongs to Club 4 and Greece to Club 5.**



**Note:** The graph plots the relative transitions curves (club averages) over 2000-2019.

**Club 1:** Cyprus, Ireland, Luxembourg, Malta. **Club 2:** Austria, Denmark, Estonia, Finland, France, Latvia, Netherlands, Sweden, United Kingdom. **Club 3:** Belgium, Bulgaria, Czechia, Germany, Hungary, Italy, Lithuania, Slovenia, Spain. **Club 4:** Croatia, Poland, Portugal, Slovakia. **Club 5:** Greece, Romania.

**The finance-growth nexus.  
System GMM regression  
results, 2000-2019**

Variable	(1)	(2)	(3)	(4)	(5)
GDP0	-0.219*** (0.053)	-0.176*** (0.023)	-0.186** (0.084)	-0.107*** (0.033)	-0.169*** (0.026)
Inflation	0.153 (0.214)	0.207 (0.24)	0.064 (0.376)	0.066 (0.233)	0.22 (0.233)
Trade	0.083 (0.051)	0.035 (0.021)	0.023 (0.041)	0.050** (0.023)	0.041** (0.016)
GovExp	0.042 (0.095)	0.085 (0.122)	-0.001 (0.105)	-0.108 (0.064)	0.070 (0.103)
Education	0.071* (0.039)	0.109*** (0.034)	0.113** (0.050)	0.102*** (0.031)	0.062 (0.055)
FD	0.064 (0.076)		0.009 (0.108)		
FR		0.108*** (0.031)	0.124*** (0.043)	0.101*** (0.031)	0.080** (0.031)
GrossCapital				-0.29*** (0.100)	
LabourForce					0.140 (0.235)
Constant	0.000 (0.008)	-0.002 (0.006)	-0.005 (0.010)	0.001 (0.009)	-0.001 (0.006)
Obs.	140	140	140	140	140
Countries	28	28	28	28	28
Instr.	26	17	22	27	22
AR (2) test <sup>a</sup>	0.014	0.099	0.088	0.179	0.083
Hansen J test <sup>b</sup>	0.254	0.275	0.144	0.545	0.470

## Comment

**The estimated coefficient of FD in the growth regression is positive, but not significant, in line with the vanishing effect result of the literature. FR has the expected positive sign and is always statistically significant**

**The expansion of financial systems along the dimensions captured by the FR index are key to long-run growth for European economies, over the twenty years considered**

# Financial resilience and risk sharing

## Channels of consumption smoothing:

- **capital markets**, whenever *GDP* changes while *GNI* remains constant
- **capital depreciation**, whenever *GNI* changes while *NNI* stays constant
- **government transfers**, whenever in the face of shocks to *GDP*, *NNI* varies and *DI* stays constant
- **credit markets**, when *DI* varies while *C* remains unchanged

The estimated  $\beta$  coefficients reflect the different roles played by international income transfers (capital markets), capital depreciation, international transfers (EU funds), and savings (credit markets) in hedging against output shocks

We estimate the system of equations adding a dummy variable for the periods of financial crisis (Furceri and Zdzienicka, 2013)

We run within regressions with panels corrected standard errors, as the literature indicates this is the best solution with small  $N$  and large  $T$ , serial heteroskedasticity, and serial correlation (Beck and Katz, 1995, 1996)

# Channels of risk sharing, 1995-2019

	HIGH FR	MIDDLE FR	LOW FR
<b>Unsmoothed (<math>\beta^u</math>)</b>	0.736*** (0.044)	0.815*** (0.026)	0.921*** (0.035)
<b><math>\Delta</math>Financial Crisis (<math>\delta^u</math>)</b>	0.127** (0.059)	0.230*** (0.028)	0.006 (0.083)
<b>Capital_markets (<math>\beta^m</math>)</b>	0.078** (0.034)	-0.080*** (0.014)	-0.036** (0.017)
<b><math>\Delta</math>Financial Crisis (<math>\delta^m</math>)</b>	-0.084 (0.068)	0.115*** (0.016)	0.133*** (0.038)
<b>Depreciation (<math>\beta^d</math>)</b>	0.016 (0.024)	-0.028*** (0.010)	-0.050*** (0.018)
<b><math>\Delta</math>Financial Crisis (<math>\delta^d</math>)</b>	-0.059* (0.034)	0.032*** (0.011)	-0.014 (0.049)
<b>Intern_transfers (<math>\beta^g</math>)</b>	0.004 (0.008)	0.009 (0.007)	0.002 (0.012)
<b><math>\Delta</math>Financial Crisis (<math>\delta^g</math>)</b>	0.006 (0.016)	-0.006 (0.009)	-0.014 (0.029)
<b>Saving (<math>\beta^s</math>)</b>	0.169*** (0.049)	0.288*** (0.032)	0.185*** (0.042)
<b><math>\Delta</math>Financial Crisis (<math>\delta^s</math>)</b>	-0.00 (0.097)	-0.373*** (0.035)	-0.073 (0.099)

## Financial resilience and risk sharing. 1995-2007 and 2008-2019

	HIGH FR		(MID + LOW) FR	
	1995-2007	2008-2019	1995-2007	2008-2019
Unsmoothed ( $\beta^u$ )	0.906*** (0.041)	0.515*** (0.087)	0.825*** (0.027)	0.914*** (0.048)
$\Delta$ Financial Crisis ( $\delta^u$ )	0.072 (0.075)	0.261*** (0.094)	0.218*** (0.030)	0.033 (0.074)
Capital_markets ( $\beta^m$ )	0.016 (0.026)	0.156*** (0.055)	-0.088*** (0.016)	0.037 (0.032)
$\Delta$ Financial Crisis ( $\delta^m$ )	-0.108** (0.048)	-0.078 (0.074)	0.124*** (0.018)	0.021 (0.047)
Depreciation ( $\beta^d$ )	-0.067*** (0.020)	0.118** (0.049)	-0.031** (0.013)	-0.044*** (0.013)
$\Delta$ Financial Crisis ( $\delta^d$ )	-0.005 (0.048)	-0.13** (0.051)	0.036*** (0.013)	-0.026 (0.013)
Intern_transfers ( $\beta^g$ )	0.007 (0.013)	0.001 (0.011)	0.007 (0.005)	0.005 (0.015)
$\Delta$ Financial Crisis ( $\delta^g$ )	0.00 (0.030)	0.010 (0.016)	-0.005 (0.006)	0.025 (0.023)
Saving ( $\beta^s$ )	0.163** (0.065)	0.183*** (0.067)	0.294*** (0.034)	0.095* (0.056)
$\Delta$ Financial Crisis ( $\delta^s$ )	0.043 (0.117)	-0.045 (0.110)	-0.377*** (0.038)	-0.058 (0.096)



## Comment

**Increased financial resilience reduces vulnerability to idiosyncratic output shocks**

**Capital markets contribute to risk sharing only in the HIGH FR group; dis-smoothing for the remaining groups. Credit markets play a remarkable role in economies of MIDDLE FR**

**In the aftermath of the global financial crisis (2008-2019) unsmoothed consumption is considerably reduced in the HIGH FR group while it increases sharply in the (MID+LOW) FR clubs.**

**The dis-smoothing occurred through credit markets in the (MID+LOW) FR clubs reflects the fragility of the banking system in the peripheral EU economies, following the deleveraging initiated by the global financial crisis**

# Conclusions

- **EU countries approach different long-run levels of financial resilience**
- **The dynamics of consumption is more disconnected with respect to the dynamics of output in the high-resilience group of economies: these are less vulnerable to idiosyncratic output shocks. Capital and credit markets show a greater role in consumption smoothing**
- **Overall, the financial structure matters: market-oriented economies with strong institutions feature higher long-run growth**
- **Need to implement pan-European policy actions that increase the opportunities for risk diversification, enhance capital raising and channel large-scale financing to firms, as outlined in the 2020 CMU plan action.**
- **This is crucial to the challenges of the Single Market: a more green, resilient, inclusive growth in all EU economies, as well as increased global competitiveness and autonomy**

**Thank you for your attention!**