Workshop on Banking and Institutions, May 15-16, 2017, Helsinki
Bank of Finland Institute for Economies in Transition (BOFIT), Center for Research in Contemporary Finance at the Gabelli School of Business of Fordham University and LaRGE Research Center, University of Strasbourg

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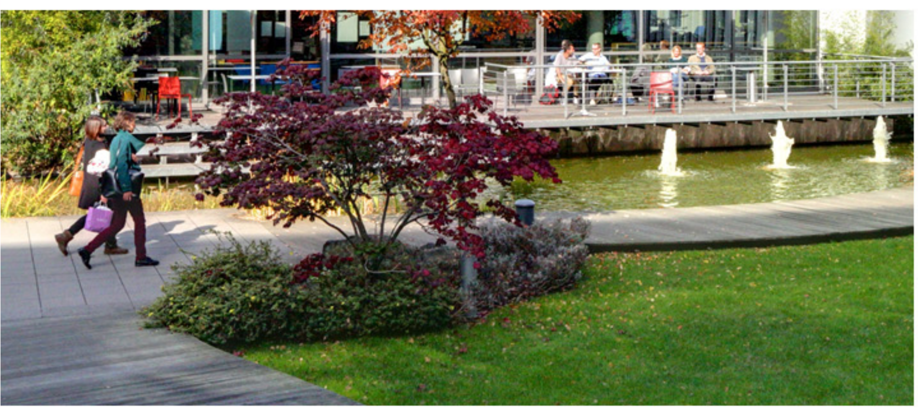
More inclusive, more stable?

The financial inclusion - stability nexus in the global financial crisis



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This paper

Does financial inclusion contribute to financial stability?

Outline

- Motivation
- Literature review
- Data and methodology
- Results
- Discussion

Motivation

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Policymakers (Rahman 2014, Dema 2015) and financial inclusion advocates (GPFI, CGAP, AFI):

Financial inclusion

- not only beneficial for development and growth
- but also for financial stability

- Is there evidence for this claim?
- Does raising financial inclusion represent a policy approach for increasing financial resilience?

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Diversification

- Loans: a diversified loan portfolio is robust to adverse shocks (Diamond 1984)
- Deposits: retail deposits more stable than wholesale deposits
  (however: more depositors does not necessarily imply less wholesale deposits – mature economies)

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Literature review

Level versus change

- However, a (rapid) rise in financial inclusion might also lead to financial instability.
- Inclusion of new and unknown customers with little prior financial experience and low levels of financial literacy (Dell'Ariccia and Marquez 2006, Klapper et al. 2013, Boz and Mendoza 2014, Example: Microfinance crises)
- Does a rapid rise in financial inclusion mitigate or reinforce the destabilizing effect of a rapid rise in credit growth?

Empirical evidence

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- is scarce due to a lack of data
- early evidence: a higher level of financial inclusion is associated with more stability (Han and Melecky 2013, Morgan and Portines 2014)
- More recent evidence: early findings are subject to caveats, i.e. proper banking supervision (Sahay et al. 2015) or non-robust (Čihák et al. 2016)
- no test of financial stability implications of *changes* in inclusion

➢ We contribute to this literature

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Key challenges

- Appropriate variables depicting inclusion and stability. No consensus on this.
- Inclusion: range of indicators
  (# of accounts, depositors and borrowers, ATMs, bank branches, loans to specific target groups (SMEs) etc.)
- Stability: range of indicators
  (Z-score, NPL-ratio, financial crisis indicators)

Contribution

- Financial instability: boom and bust
  (Mendoza and Terrones 2008, Schularick and Taylor 2012)
- Global financial crisis as example
- Our financial instability variable:
  - depth of the credit crunch after the Lehman default
  - dependent variable: drop in credit growth from 07 to 09

Contribution

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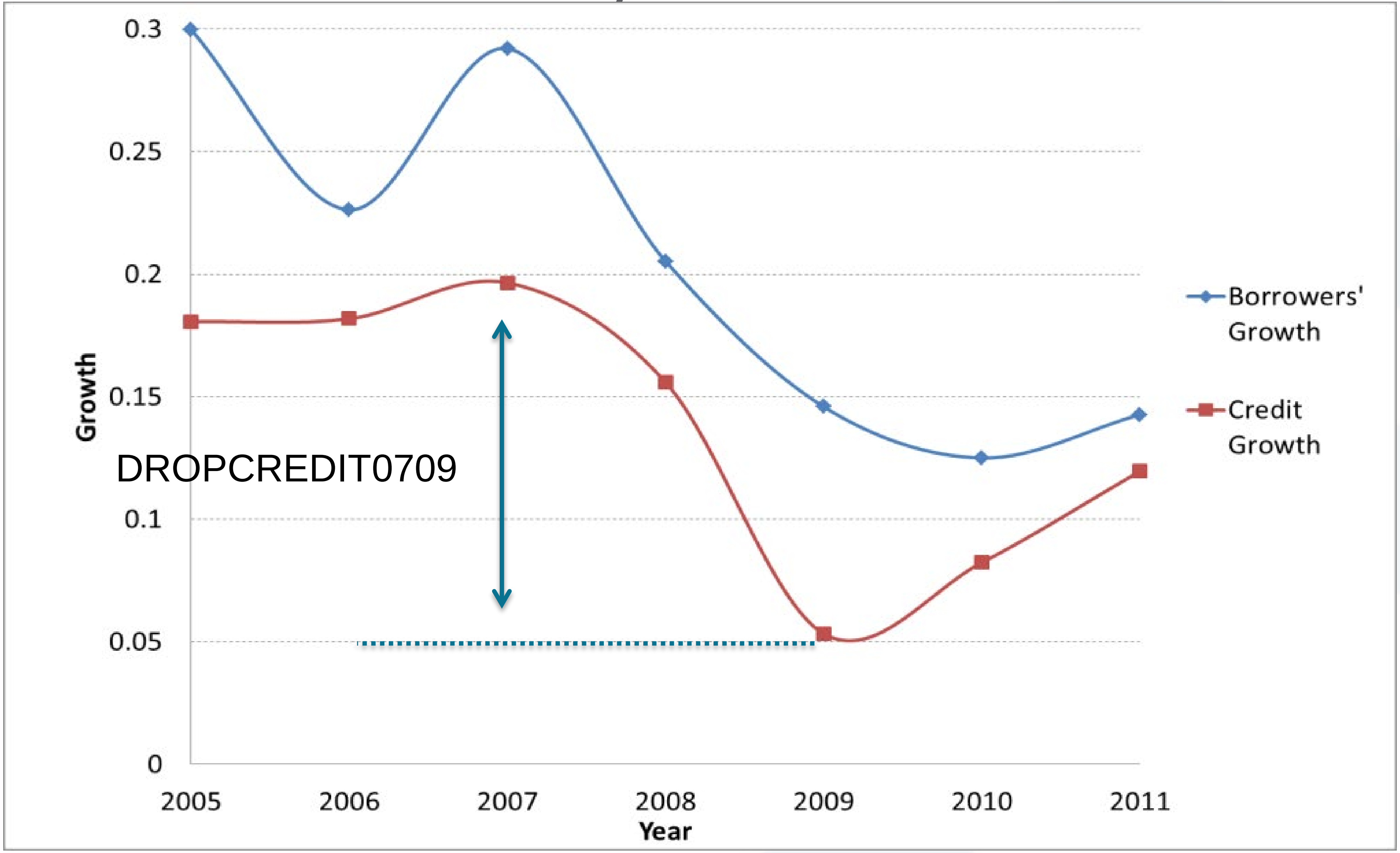
- Financial instability variable



Data and methodology

Data

- IMF Financial Access Survey (FAS), 189 economies over the period 2004-2014, but much less countries with financial inclusion information for 2004 – 2010
- Sample of 60 countries when studying the impact of the pre-crisis *change* in financial inclusion over the pre-crisis period
- Sample of 75 countries when analyzing the stability impact of the pre-crisis *level* of financial inclusion

Variables

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Financial inclusion variables

- Level: number of borrowers served by the banking sector (percentage of the adult population)
- Change: Growth in the number of borrowers served by the banking sector

Key control variables:

- Compound pre-crisis (04-07) credit growth rate
- Interaction terms (Pre-crisis credit growth * Pre-crisis level of financial inclusion, Pre-crisis credit growth * Pre-crisis growth in financial inclusion)

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Variables

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Other controls

- Banking sector indicators
  Pre-crisis Z-SCORE, LIQUIDITY, CONCENTRATION, LOANS-TO-DEPOSIT ratio
- Macroeconomic Variables
  Pre-crisis GDP growth, inflation
- Structural Variables
  POPULATION, GDPPERCAPITA, Capital Account Openness (KAOPEN)

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Methodology

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- Cross section analysis, OLS models (applying robust standard errors)
- Focus here on two questions [Boom-bust relationship of financial inclusion also covered in the paper]

Question 1:

- Does a higher level of financial inclusion enhance financial stability?
- $DROPCREDIT0709_i = \beta_1 + \boldsymbol{\beta_2}$ **$SHAREBORROWERS08_i$** $+$

β_3 CreditGrowth0407 + β_4 Interaction term + $\beta_5 X_i + \varepsilon_i$

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Question 2:

- What is the impact of a rapid rise in financial inclusion on financial stability?

- $DROPCREDIT0709_i = \beta_1 + \boldsymbol{\beta_2}$ **$INCLUSION0407_i$** $+ \beta_3 \, CreditGrowth0407 + \beta_4 \, Interaction\ term + \beta_5 X_i + \varepsilon_i$

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Results

Results - level of FI

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- A higher level of financial inclusion does not have a stabilizing effect as such
- Some evidence that a higher level of financial inclusion is associated with a mitigating impact on the destabilizing effects of higher credit growth in the pre-crisis period

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Results – level of FI

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Table 6: Credit growth drop in the financial crisis and the level of financial inclusion

	DROPCREDITGROWTH 0709		
SHARE BORROWERS 08	-0.0766	-0.1100	0.1350
	(-0.67)	(-1.03)	(1.23)
Financial Stability Indicators (pre-crisis)			
CREDIT GROWTH 0407		0.977***	1.197***
		(6.10)	(6.87)
INTERSHARE 08CREDIT GRW			-1.603***
			(-2.99)

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Results - level of FI

- Result is fairly robust with one exception
- Interaction term fails to be significant in IV specification
- Endogeneity concerns

Results – change in FI

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- A rapid rise in financial inclusion does not impact financial stability if controlling for credit growth
- The financial instability implications of a rapid rise in credit growth are neither mitigated nor enhanced if rapid credit growth is accompanied by a rapid rise in financial inclusion

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Results – change in FI

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Table 7: Credit growth drop in the financial crisis and pre-crisis borrower growth

	DROPCREDITGROWTH 0709		
INCLUSION0407	0.247**	-0.048	-0.242
	(2.40)	(-0.41)	(-0.59)
Financial Stability Indicators (pre-crisis)			
CREDIT GROWTH 0407		1.121***	0.929**
		(3.69)	(2.05)
INTERCREDITBORRW0407			0.582
			(0.57)

- Robustness checks

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Other robustness checks

- parsimonious approach
- orthogonalization of pre-crisis borrower and credit growth
- Different samples (countries > 1 million population, excluding advanced economies)
- Different financial inclusion variable and financial instability proxies
- Instrumental Variable

➢ Results remain fairly robust

Discussion

Discussion

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Limited evidence that a more inclusive system is more stable, which is in line with more recent studies (Sahay et al. 2015, Čihák et al. 2016)

Key takeaways:

1) Non-robust positive level effects of financial inclusion. Possibility that countries with more inclusive financial systems engage in larger efforts to limit instability than countries with a less inclusive system

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2) Credit booms associated with rising financial inclusion do not indicate that “this time is different” (Reinhart and Rogoff 2008)
   - Raising financial inclusion does not represent a policy option for increasing financial resilience when confronted with a credit boom

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Thank you very much for your attention

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Additional slides

Results

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- Financial inclusion has been subject to a boom-bust cycle

Table 5: Borrower growth in the financial crisis

	DROP IN BORROWER GROWTH 0709		
INCLUSION0407	1.129***	0.970***	1.035*
	(4.69)	(3.21)	(1.86)
Financial Stability Indicators (pre-crisis)			
CREDIT GROWTH 0407		0.4590	0.5240
		(1.55)	(1.11)
INTERCREDITBORRW0407			-0.1980
			(-0.13)

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