More inclusive, more stable?
The financial inclusion - stability nexus in the global financial crisis

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Does financial inclusion contribute to financial stability?
Motivation

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 option for increasing financial resilience?
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)
• 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

- is scarce due to a lack of data
- suggests that a higher level of financial inclusion is associated with more stability (Han and Melecky 2013, Morgan and Portines 2014, and – with a caveat – Sahay et al. 2015)
- no test of financial stability implications of changes in inclusion

➢ We contribute to this literature
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
• Financial instability variable

![Graph showing financial instability variable over years](image-url)
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)
Methodology

- 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?
- \[ \text{DROP}CREDIT0709_i = \beta_1 + \beta_2 \text{SHAREBORROWERS08}_i + \beta_3 \text{CreditGrowth0407} + \beta_4 \text{Interaction term} + \beta_5 X_i + \varepsilon_i \]
Question 2:

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

• $\text{DROPREDIT0709}_i = \beta_1 + \beta_2 \text{INCLUSION0407}_i + \beta_3 \text{CreditGrowth0407} + \beta_4 \text{Interaction term} + \beta_5 X_i + \epsilon_i$
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
• 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)
Results

- A higher level of financial inclusion does not have a stabilizing effect as such.
- 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.
### Table 6: Credit growth drop in the financial crisis and the level of financial inclusion

<table>
<thead>
<tr>
<th></th>
<th>DROP</th>
<th>CREDITGROWTH 0709</th>
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<tbody>
<tr>
<td>SHARE BORROWERS 08</td>
<td>-0.0766</td>
<td>-0.1100</td>
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<tr>
<td></td>
<td>(-0.67)</td>
<td>(-1.03)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.1350</td>
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<td>(1.23)</td>
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</tbody>
</table>

**Financial Stability Indicators (pre-crisis)**

| CREDIT GROWTH 0407     | 0.977***   | 1.197***          |
|                        | (6.10)     | (6.87)            |

| INTERSHARE 08CREDIT GRW | -1.603***  |
|                        | (-2.99)    |
Results

• 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.
Results

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

<table>
<thead>
<tr>
<th>DROP</th>
<th>CREDITGROWTH 0709</th>
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<tbody>
<tr>
<td>INCLUSION0407</td>
<td>0.247**  (-0.048  (-0.242</td>
</tr>
<tr>
<td>(2.40)  (-0.41)  (-0.59))</td>
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</table>

Financial Stability Indicators (pre-crisis)

<table>
<thead>
<tr>
<th>CREDIT GROWTH 0407</th>
<th>1.121***  0.929**</th>
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<tr>
<td>(3.69)</td>
<td>(2.05)</td>
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</table>

<table>
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<tr>
<th>INTERCREDITBORRW0407</th>
<th>0.582</th>
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<td></td>
<td>(0.57)</td>
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Robustness checks
A more inclusive system is more stable

• This is in line with previous studies

A word of caution

• 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
Discussion

A word of caution

• Omitted variable bias: countries with more inclusive financial systems might engage in extra efforts to limit instability which we might not have properly accounted for
• More research is needed to disentangle the direct from the indirect effects of financial inclusion on financial stability
Thank you very much for your attention
References


Results

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

<table>
<thead>
<tr>
<th>Financial Stability Indicators (pre-crisis)</th>
<th>DROP IN BORROWER GROWTH 0709</th>
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<tbody>
<tr>
<td>CREDIT GROWTH 0407</td>
<td>0.4590</td>
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<td>(1.55)</td>
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<td>INTERCREDITBORRW0407</td>
<td>-0.1980</td>
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<td></td>
<td>(-0.13)</td>
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</table>
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

➢ Results remain fairly robust