Bank Lending for Inclusive Growth: Incentives Matter

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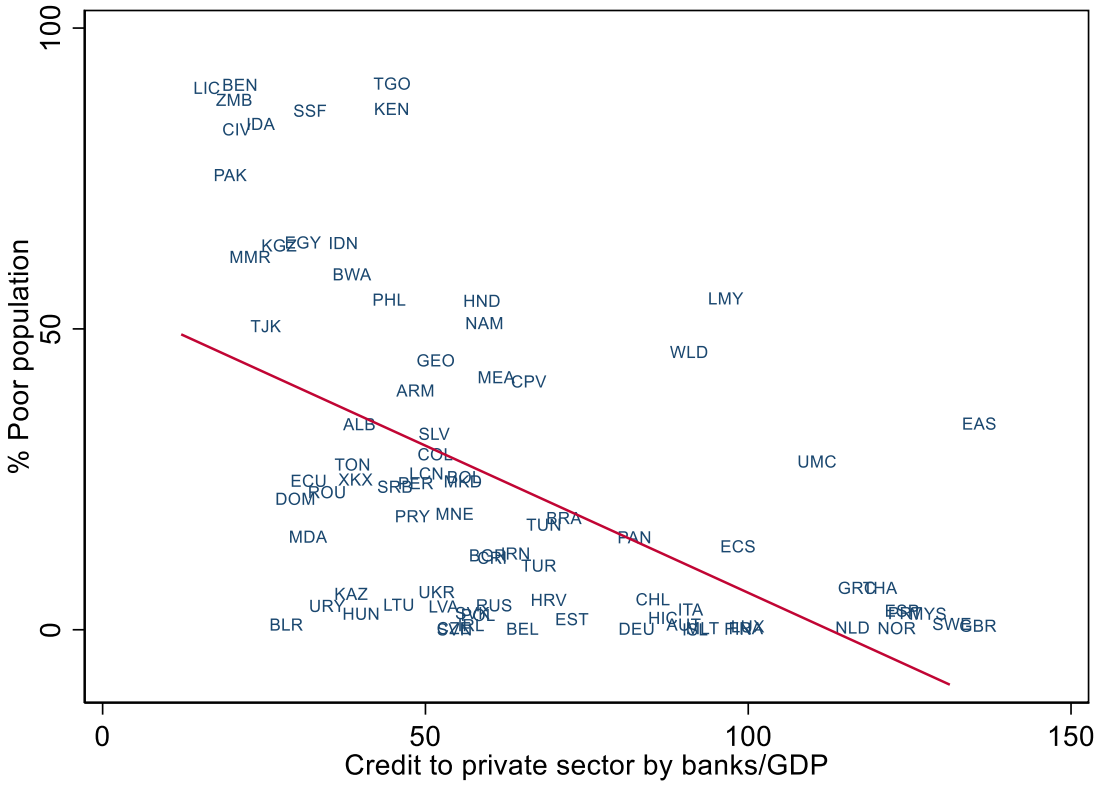
DECRG

November 17, 2020

Financial Development and Inclusive Growth

Credit to private sector and GDP per capita

Credit to private sector and share of poor population



Source: World Development Indicators (year 2015)

Financial Development Promotes Inclusive Growth

- Extensive research documenting that greater financial development:
  - Reduces cost of external finance to firms, increases economic output, opening of new firms

    Jayaratne and Strahan, 1996; Levine et al., 1999; Rajan and Zingales, 1998; Black and Strahan, 2002; Guiso et al, 2004; Demirgüç-Kunt et al., 2007

  - Relaxes credit constraints, reduces poverty and inequality

    Burgess and Pande, 2005; Cetorelli and Strahan, 2006; Demirgüç-Kunt et al., 2007; Beck et al., 2010; Bruhn and Love, 2013

- Main mechanism being that more efficient credit markets:

Encourage savings

Promote an efficient allocation of capital

→

Stimulate entrepreneurship

Increase employment

How can regulation help improve efficiency of credit markets?

Large body of evidence highlighting policies that work (GFDRs 2013-2020)

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Promote an efficient allocation of capital

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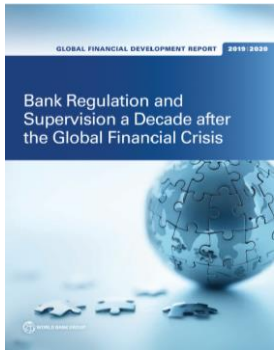

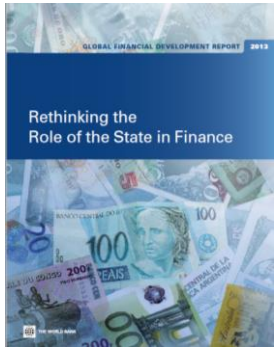

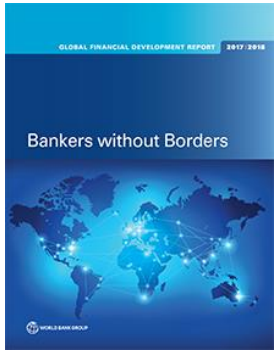

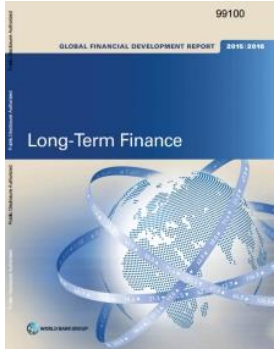

How can regulation help improve efficiency of credit markets?

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Encourage savings

Promote an efficient allocation of capital

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Stimulate entrepreneurship

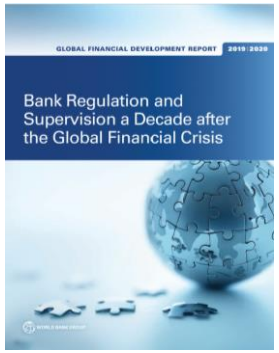
Increase employment

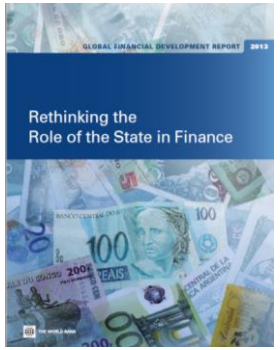
Promote financial stability

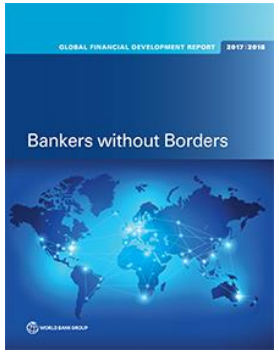
Strengthen creditor rights

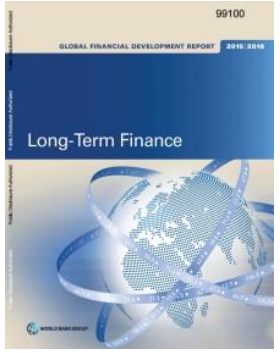
Promote transparency

Address market failures









How can regulation help improve efficiency of credit markets?

Large body of evidence highlighting policies that work (GFDRs 2013-2020)

Regulation should align private incentives with public interest:

Discourage banks from undertaking profitable—yet socially harmful—investments (Levine, 2011)

Encourage savings

Promote an efficient allocation of capital

→ **Stimulate entrepreneurship**

Increase employment

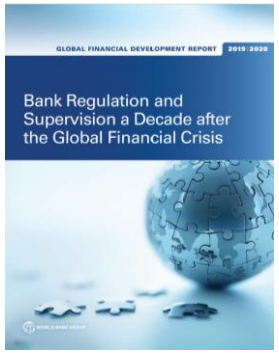
Promote financial stability

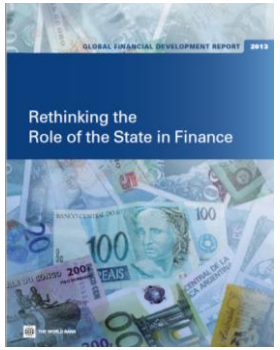
Strengthen creditor rights

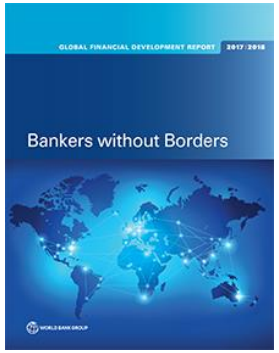
Promote transparency

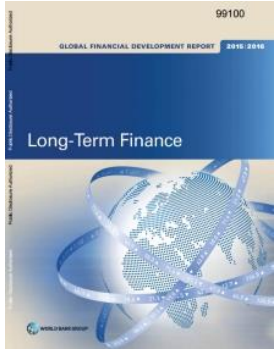
Address market failures

→ **Incentives of banks matter**









Bank Lending for Inclusive Growth

This Talk

- I focus on the banking sector
  - Main source of credit in developing economies

- Four case studies — How banks' incentives shape credit supply and financial stability
  1. Incentives to lend to the government
  2. Incentives to invest in screening SMEs
  3. Incentives for risk taking
  4. Incentives to participate in government credit programs

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  1. Incentives to lend to the government
     - Is the government crowding-out firms from credit markets?
     - If so, what is the impact of undoing this crowding-out?

Morais, Perez-Estrada, Peydro, Ruiz-Ortega (2020). Expansionary Austerity Amid Fiscal Consolidation

Restrictions on Local Public Debt

Financial Discipline Law (FD Law) in Mexico

Subnational government debt increased since GFC

- Private commercial banks are main lender
- Central government implicit guarantor

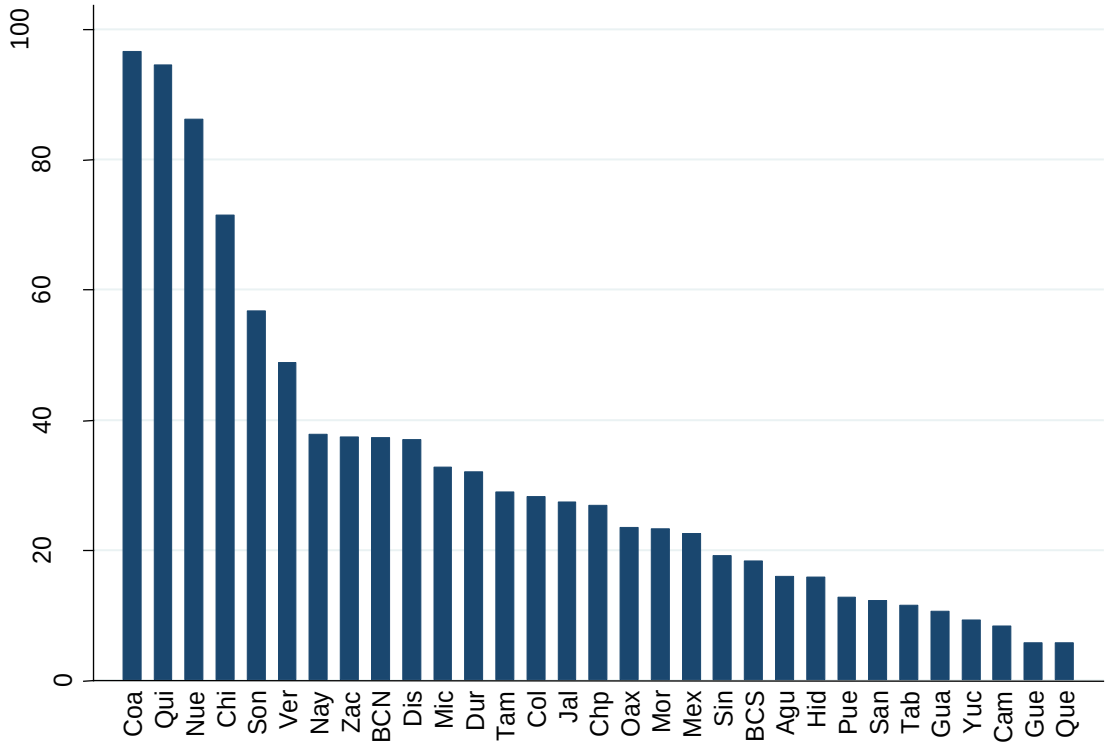
In 2016, FD Law limited debt of subnational governments

- Ceilings above which subnational debt was banned

Pre-Law: state governments' debt varied significantly

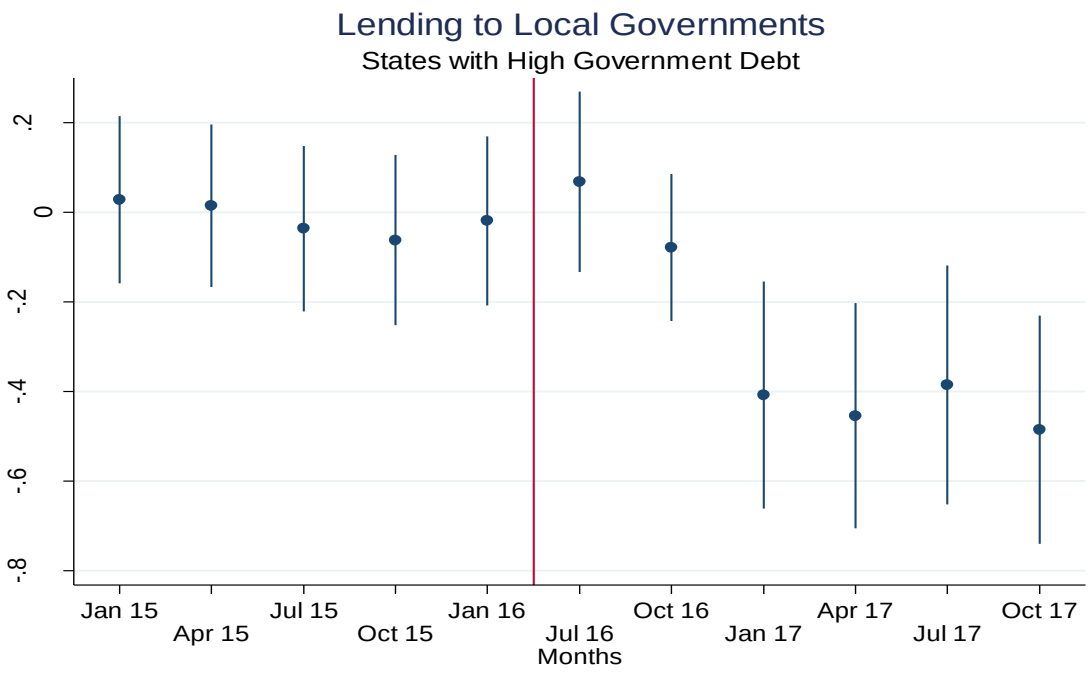
We use the universe of bank loans to firms to study bank lending before and after the FD Law

Debt/Income of State Governments in 2016Q1
(one quarter prior to the FD Law)



Restrictions on Local Public Debt

Financial Discipline Law (FD Law) in Mexico

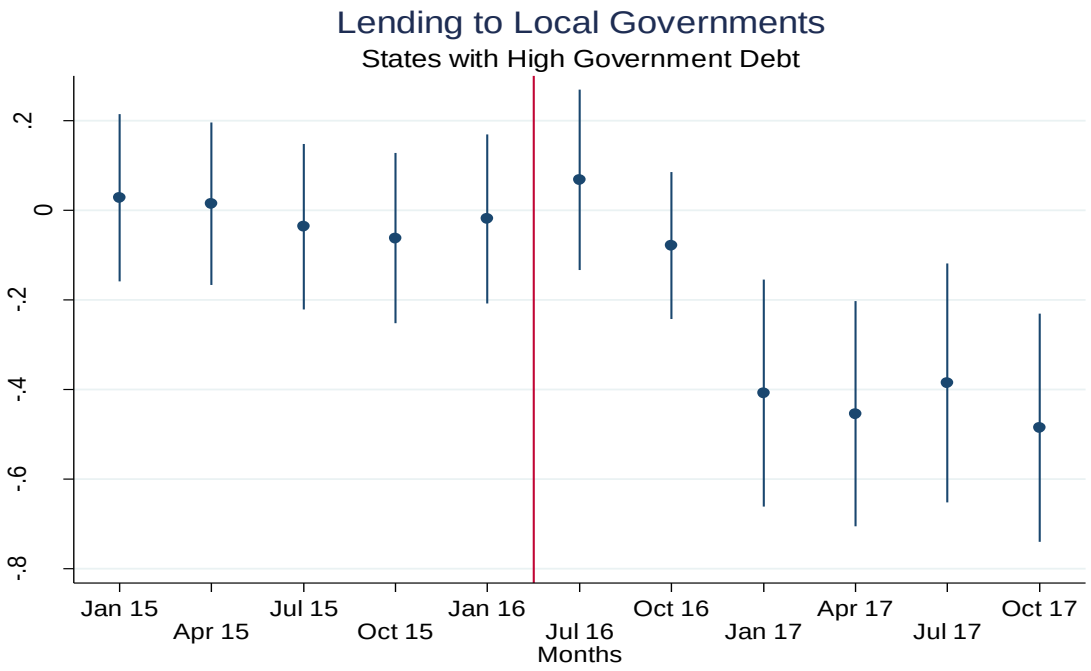


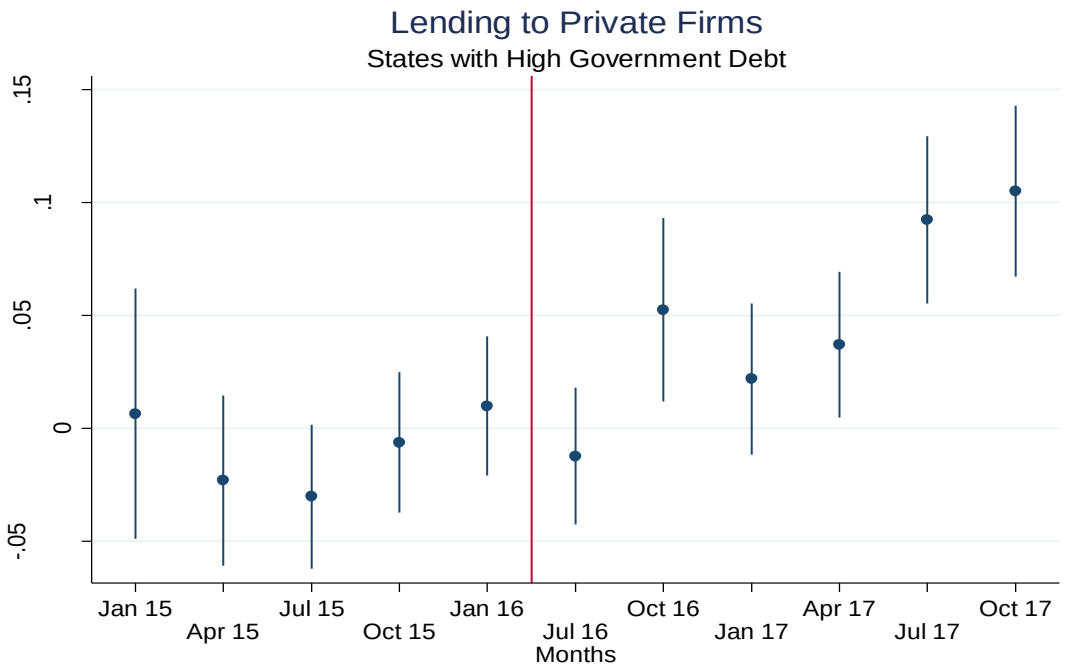
After the Law, bank lending to highly indebted state governments declines

Restrictions on Local Public Debt

Financial Discipline Law (FD Law) in Mexico

Evidence consistent with unwinding of crowding out





After the Law, bank lending to highly indebted state governments declines

Banks that cut lending to governments increase lending to local private firms

Restrictions on Local Public Debt

Financial Discipline Law (FD Law) in Mexico

After the Law, states with more indebted governments:

- contracted public expenditure
- *increased* GDP, *reduced* unemployment and moderate poverty
  - consistent with expansion of activity from private-sector firms
- *but increased* extreme poverty
  - likely resulting from the contraction in public expenditure

	$GDP_{s,q}$	$Unemployment_{s,q}$
$Post_q$*$DebtState_{s,16Q1}$	0.05***	-0.01***
	(0.02)	(0.00)
Observations	600	600
R-squared	0.74	0.85
State FE	Yes	Yes
Quarter FE	Yes	Yes

What we learned

Government as a Customer of Banks

- Weak limits on accumulation of local public debt and (implicit) guarantees by central government:
  - Incentivizes banks to lend to local governments given low delinquency and high interest rates
    - Local (smaller) private firms are crowded out from the debt market

- Policy recommendation
  - Limits on local public debt helps channel bank lending to private sector triggering economic growth
  - Implicit central government guarantees can lead to higher-than-optimal levels of local public debt
  - Result on extreme poverty highlights the need to identify/correct disruptions of social programs

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  2. Incentives to invest in screening SMEs
     - Do banks have incentives to expand credit supply to underserved firms?

Arraiz, Bruhn, Roth, Ruiz-Ortega, Stucchi (2019). Free Riding in Loan Approvals: Evidence from SME Lending in Peru. WPS 9072

Banks' may lack incentives to screen SMEs

Evidence from Peru

We worked with a bank interested in lending to Small and Medium Enterprises (SMEs)

- Segment dominated by other banks and non-bank financial institutions (NBFIs)

Our partner bank piloted a new tool to screen SMEs applying for a loan

- Based on psychometrics, yielded a 3-digit score

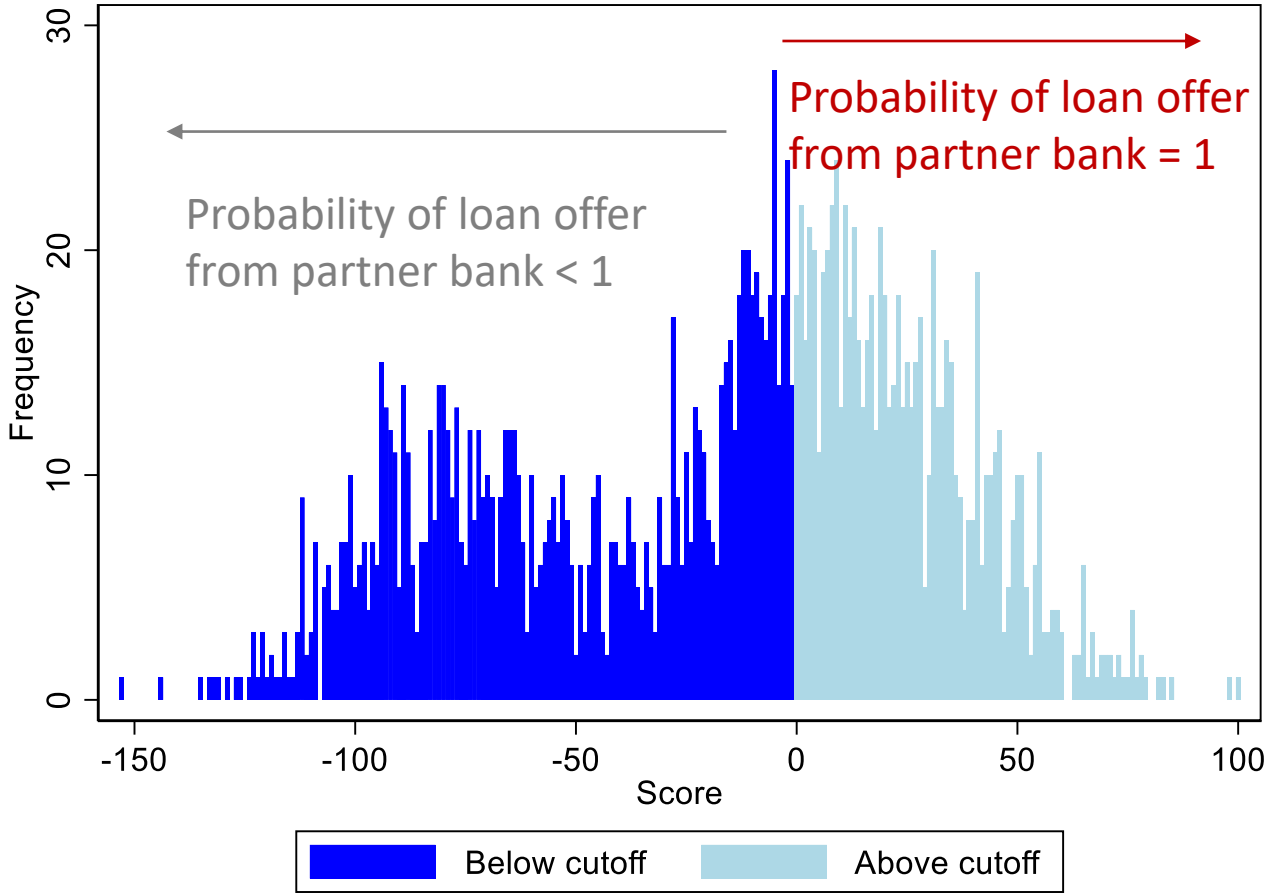
The tool was used to screen 1883 SMEs that applied for a working capital loan

- SMEs above the cutoff were offered a loan, SMEs below were offered a loan only if officer approved

We use data from our partner bank and Peru's credit bureau Equifax

- To study changes in credit supply of the 1883 SMEs that applied for a loan

Exploit Discontinuity of Loan Offer around the Cutoff



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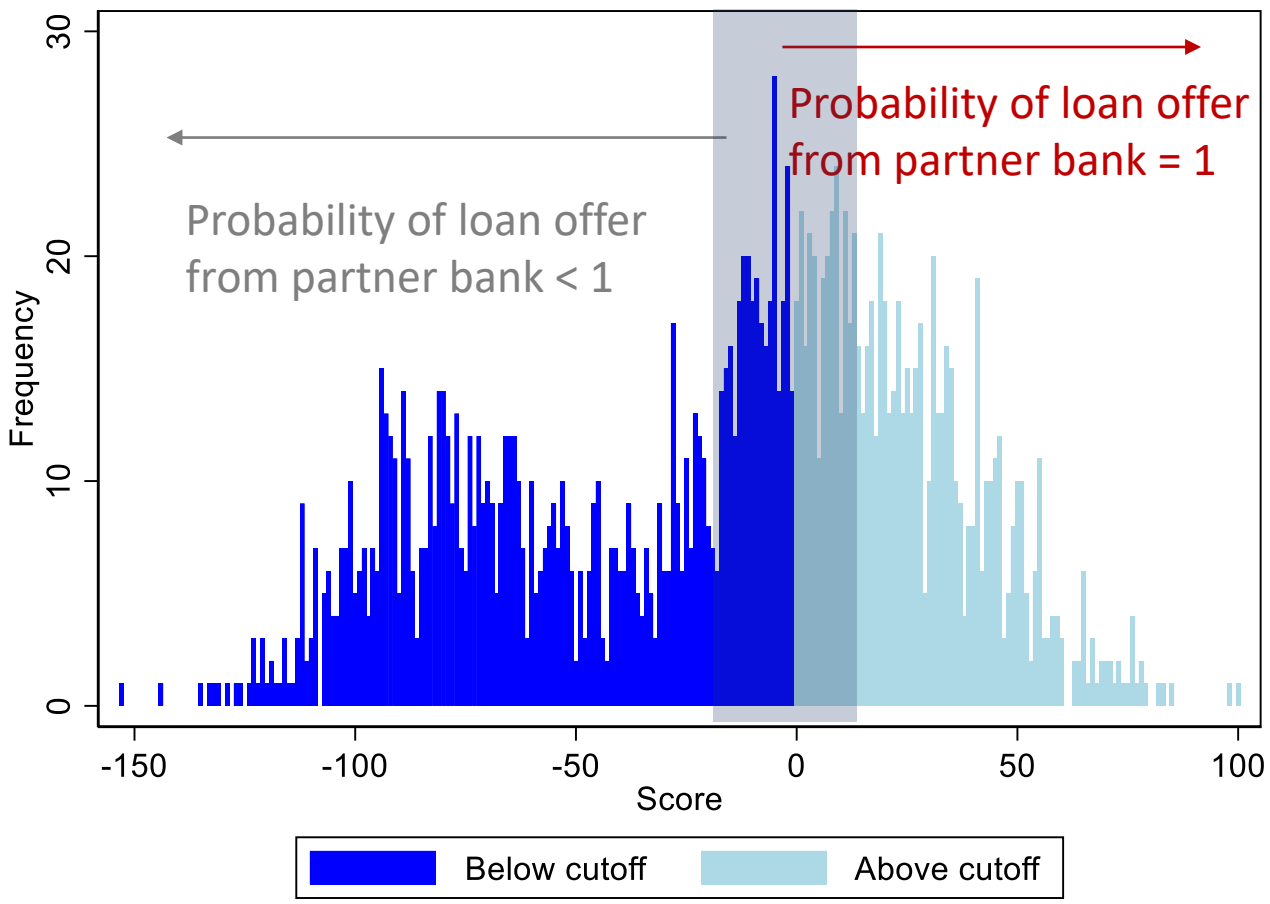
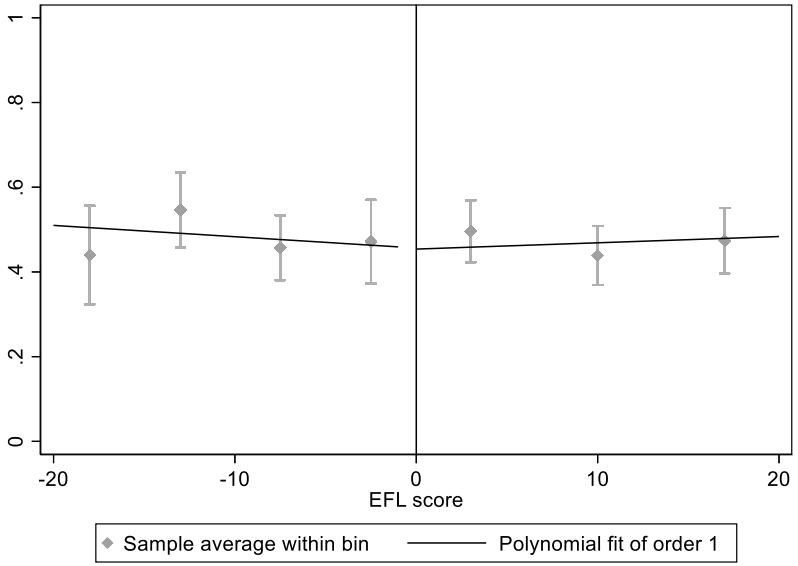


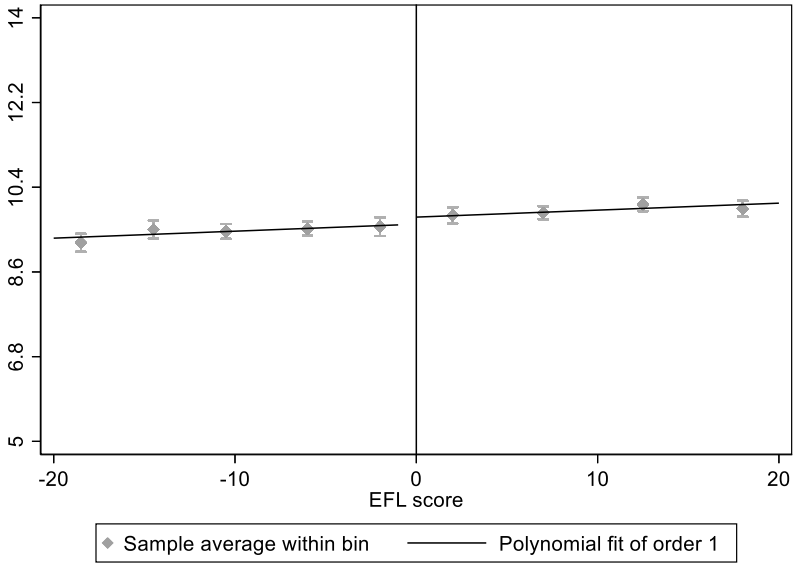
Applicants around the threshold

SMEs around the cutoff were statistically similar

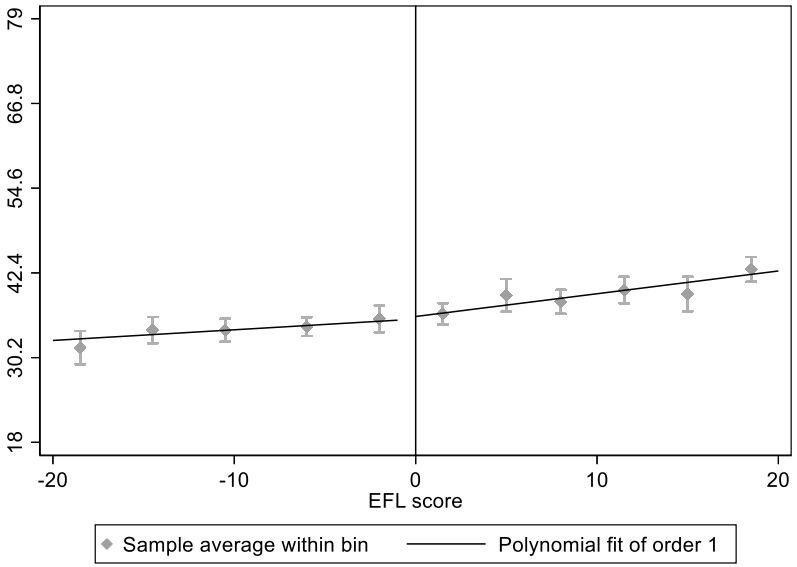
New loan 6 months prior to application



Log Sales of SME at time of application



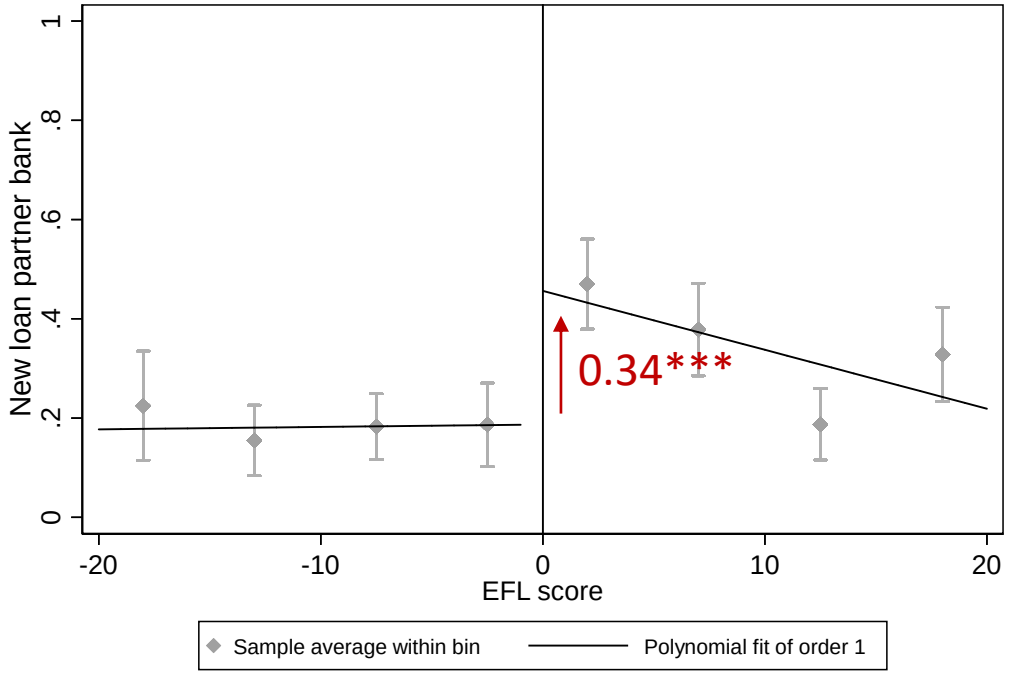
Age of SME owner at time of application



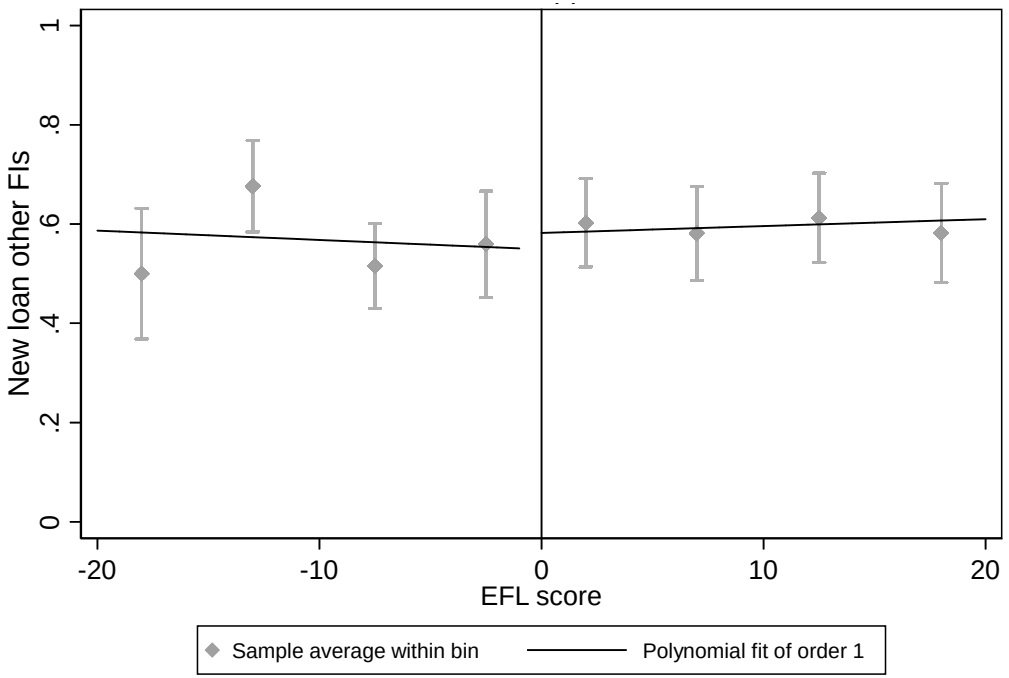
Loans to SMEs with Established Credit History (thick files)

Majority of new loans for those above the cutoff were issued by our partner bank

From partner bank



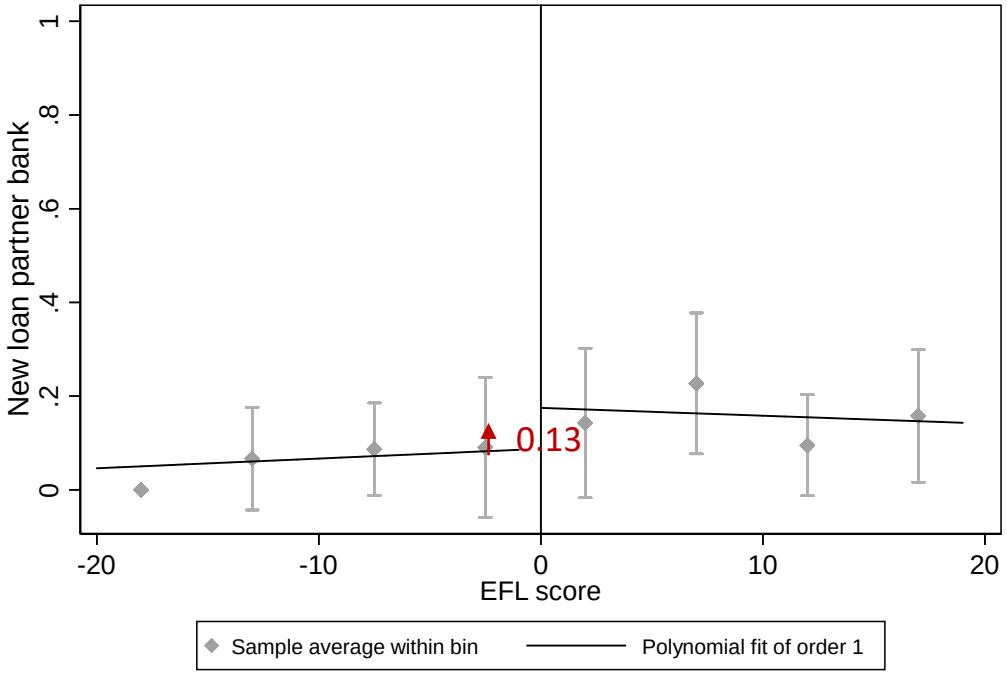
From other financial institutions (other banks + NBFIs)



Loans to SMEs without Established Credit History (thin files)

Majority of new loans for those above the cutoff were issued by other lenders

From partner bank



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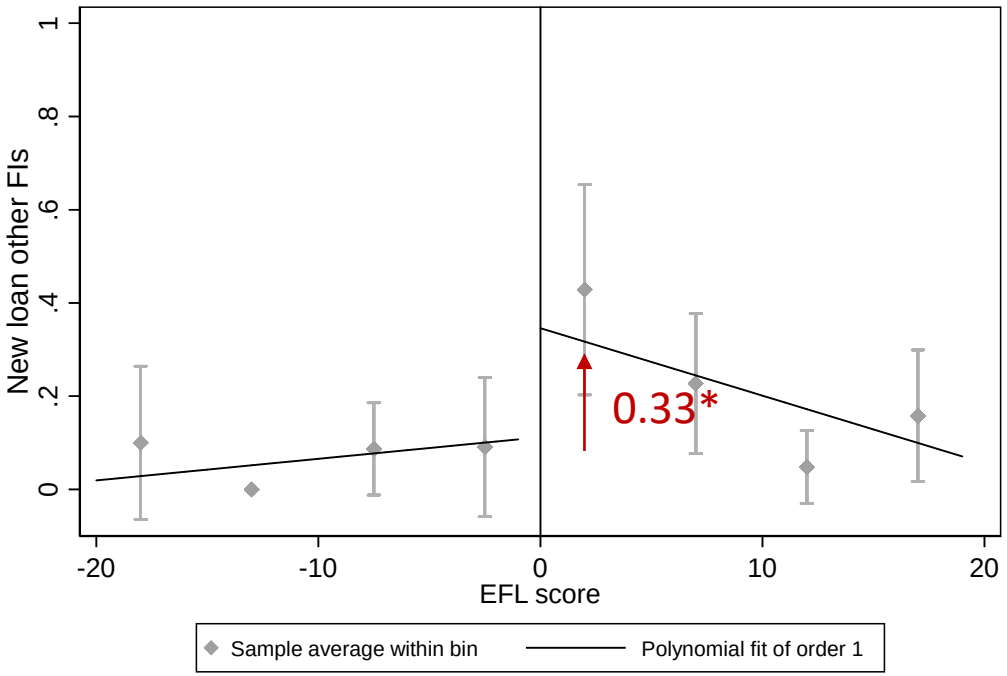

Profits of thin-file SMEs were captured by other lenders

Loan approvals for borrowers without established credit history led to an increase in the profits of competing financial institutions but not our partner bank

		Thin-file applicants
Partner bank	Coeff	0.879
	P-value	(0.243)
	# Obs	151
Other financial institutions	Coeff	2.996
	P-value	(0.041)
	# Obs	107

What we learned

Incentives to screen SMEs without established credit history

- Investing in screening underserved borrowers entails a private cost but produces a public good
  - Banks may underinvest in expanding credit supply to underserved borrowers

- Policy recommendation
  - Subsidize private efforts to screen customers with no credit history

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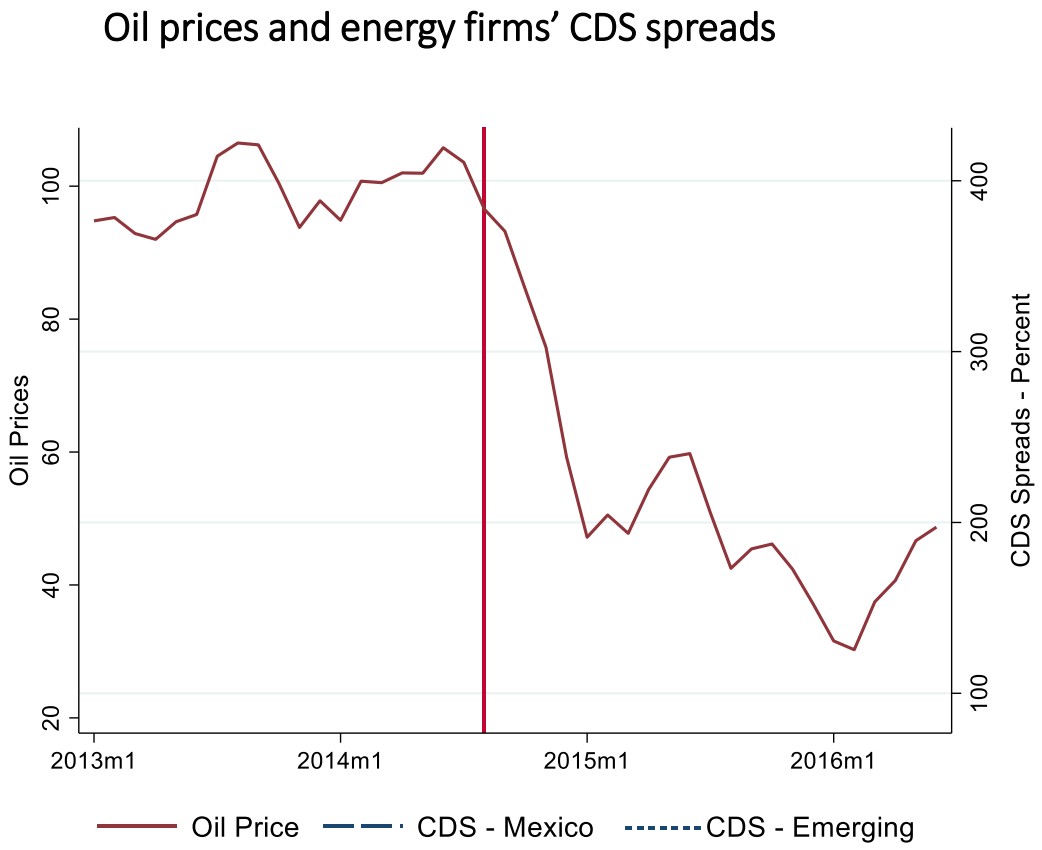
  3. Incentives for risk-taking
     - How do banks amplify sector-specific shocks to other firms in the economy?

Agarwal, Correia, Morais, Roldan, Ruiz-Ortega (2020). Owe a Bank Millions, the Bank Has a Problem: Credit Concentration in Bad Times. WPS 9202

Banks' response to a negative sectoral shock

Evidence from the energy price collapse

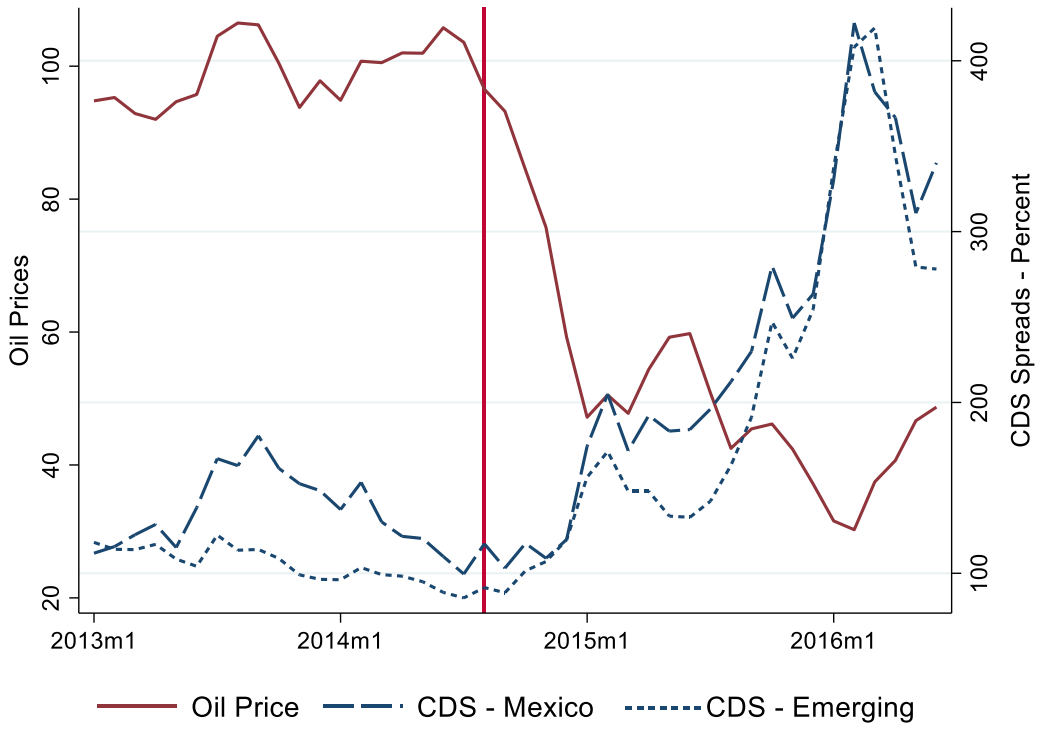


- Sharp decline in energy prices in mid-2014 driven by a positive supply shock (fracking in U.S.)

Banks' response to a negative sectoral shock

Evidence from the energy price collapse

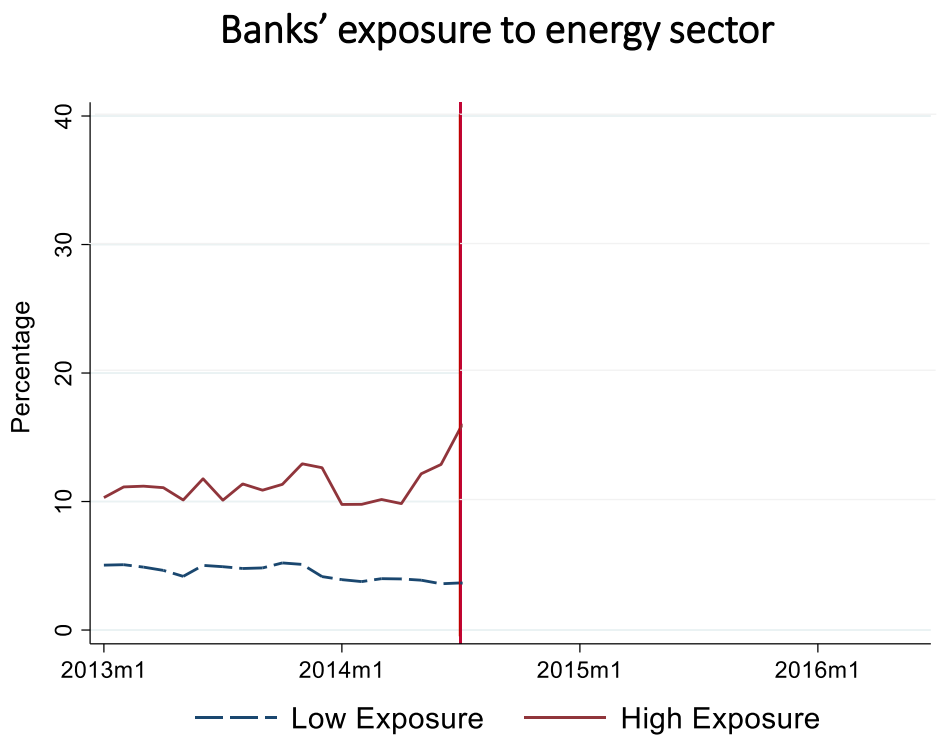
Oil prices and energy firms' CDS spreads



- Energy firms severely hit as a result of the collapse in oil prices
- We use the universe of bank loans in Mexico to study how banks responded to this shock
- We exploit banks' pre-shock exposure to firms in the energy sector

Banks' response to a negative sectoral shock

More exposed banks ex-ante increased exposure ex-post



$$\text{Exposure to energy sector} = \frac{\text{Lending to firms in energy sector}}{\text{Tier 1 Capital}}$$

Banks' response to a negative sectoral shock

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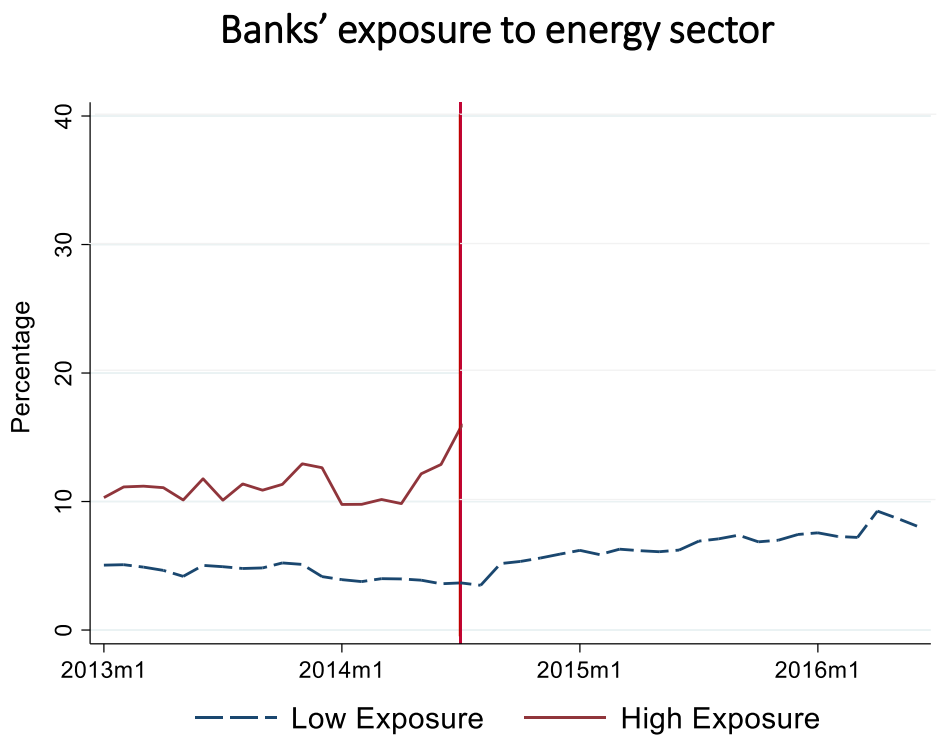

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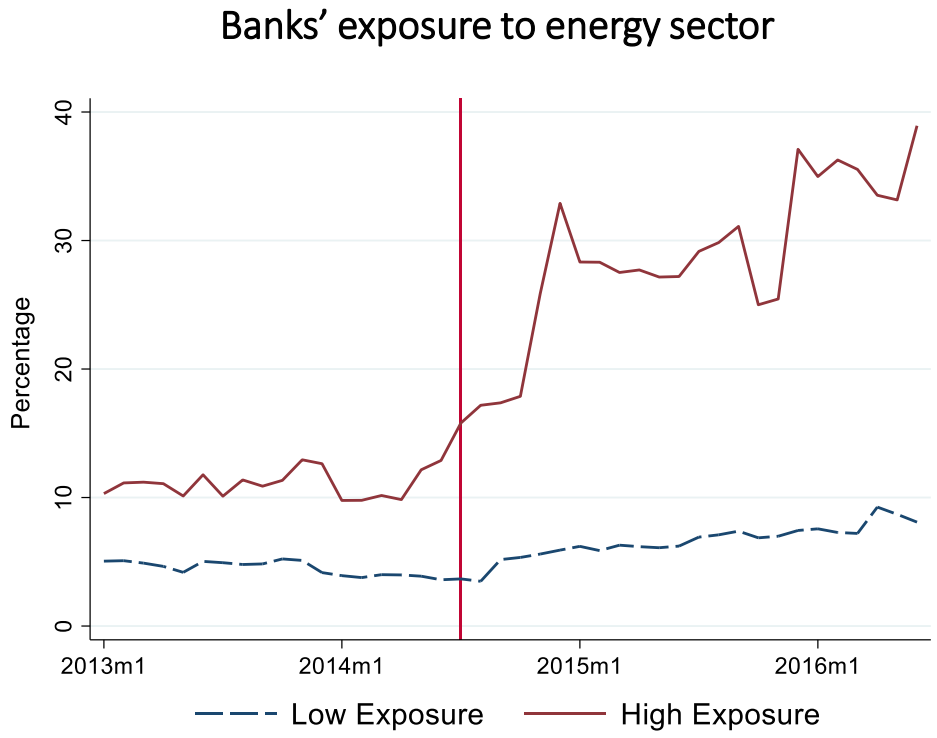

- Banks with larger ex-ante exposure to the energy sector:
  - Increased their exposure ex-post
    - By extending new loans to large energy-sector borrowers with looser credit standards
  - Consistent with a strategy to contain losses and preserve capital requirements
  - Banks take on risky investments. Profits are privately captured, but losses are often publicly covered (GFDR 2020)

Banks' response to a negative sectoral shock

More exposed banks ex-ante increased exposure ex-post

- More exposed banks did not expand overall lending
  - Lending reallocated away from non-energy firms
- Contraction in bank lending was concentrated:
  - Among small borrowers in non-energy sectors
  - In loans towards investment projects
- **Bank credit channel:** After shock in energy prices, and consequent contraction in lending, otherwise healthy firms/sectors had to contract their real outcomes

Loan size$_{f,b,m}$ (sample: non-energy firms)

	All	Small	Large
ExposureEnergy$_{b,Aug14}$*Post$_m$	-0.017***	-0.027***	-0.005
	(0.005)	(0.007)	(0.005)
Observations	573,544	1,026,135	236,519
R-squared	0.897	0.766	0.847
Bank*firm FE	Yes	Yes	Yes
Month FE	Yes	Yes	Yes

What we learned

Incentives for risk-taking

- We document a case where banks have incentives to increase their exposure to a troubled sector
  - To avoid recognizing credit losses and preserve regulatory capital ratios
- Increasing risky exposures can negatively impact aggregate economic output
  - By misallocating capital
  - By increasing financial risk
- Policy recommendation
  - Limits on sectoral exposures to prevent amplification of shocks via banks

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  3. Incentives for risk-taking
  4. Incentives to participate in government credit programs
     - What strategies banks use when channeling government-sponsored loans at below-the-market interest rates?

Ornelas, Pedraza, Ruiz-Ortega and Silva (2019). Winners and Losers when Private Banks Distribute Government Loans: Evidence from Earmarked Credit in Brazil. WPS 8952

Government Credit Programs through Private Banks

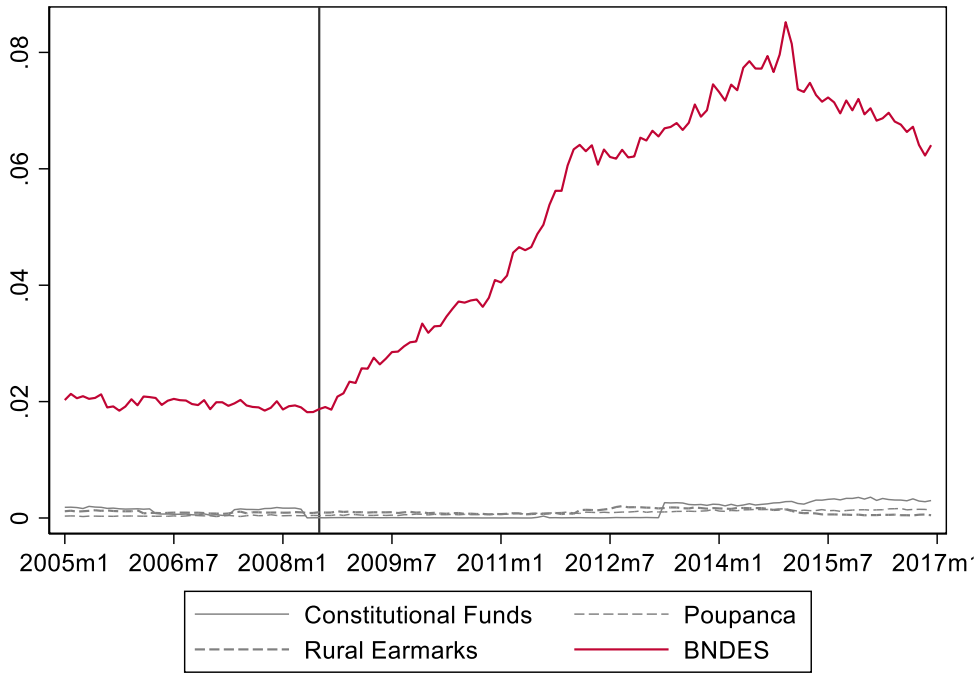
Earmarked lending in Brazil

- Government-driven lending programs channeled via private banks common in Brazil
  - Referred to as earmarked lending
  - Various interventions target different areas

- Characteristics of earmarked loans
  - Interest rates regulated and set below market rates
  - Public funds are transferred to private banks
  - Private banks select loan recipients and bear credit risk

- Large expansion of earmarked lending by BNDES in 2008
  - Launch of the Investment Support Program
  - Promote investment and capital expenditures among firms (MSMEs)
  - Facilitate low-cost financing of fixed assets (e.g., machinery, vehicles)

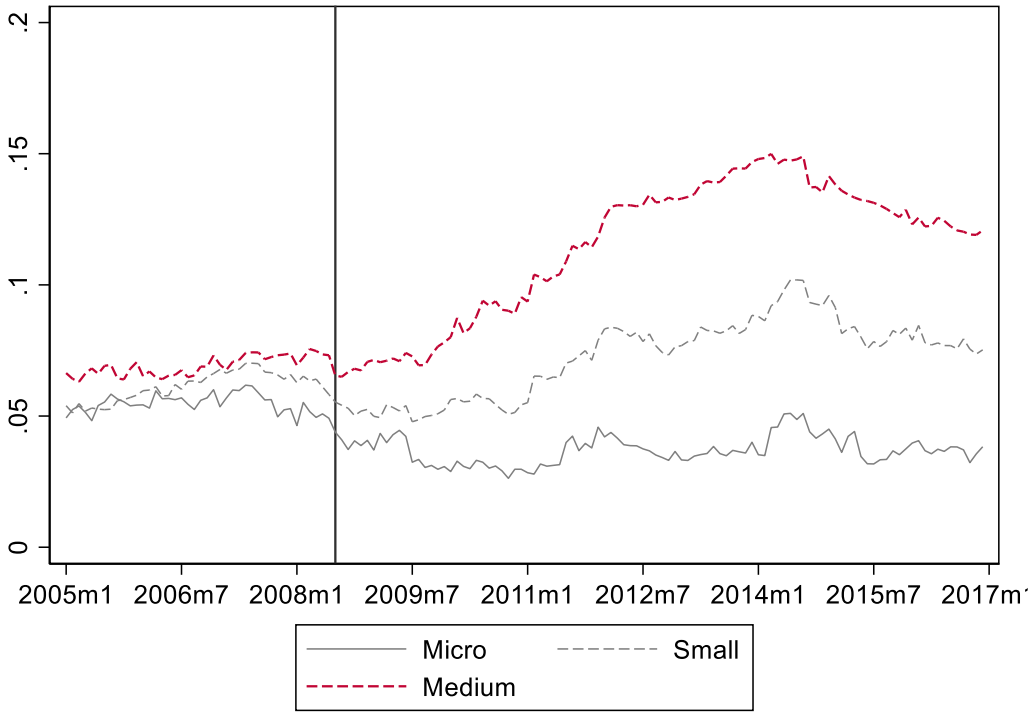
Share of earmarked credit received by firms (by funding source)



Earmarked Credit to Firms

By Borrower Size

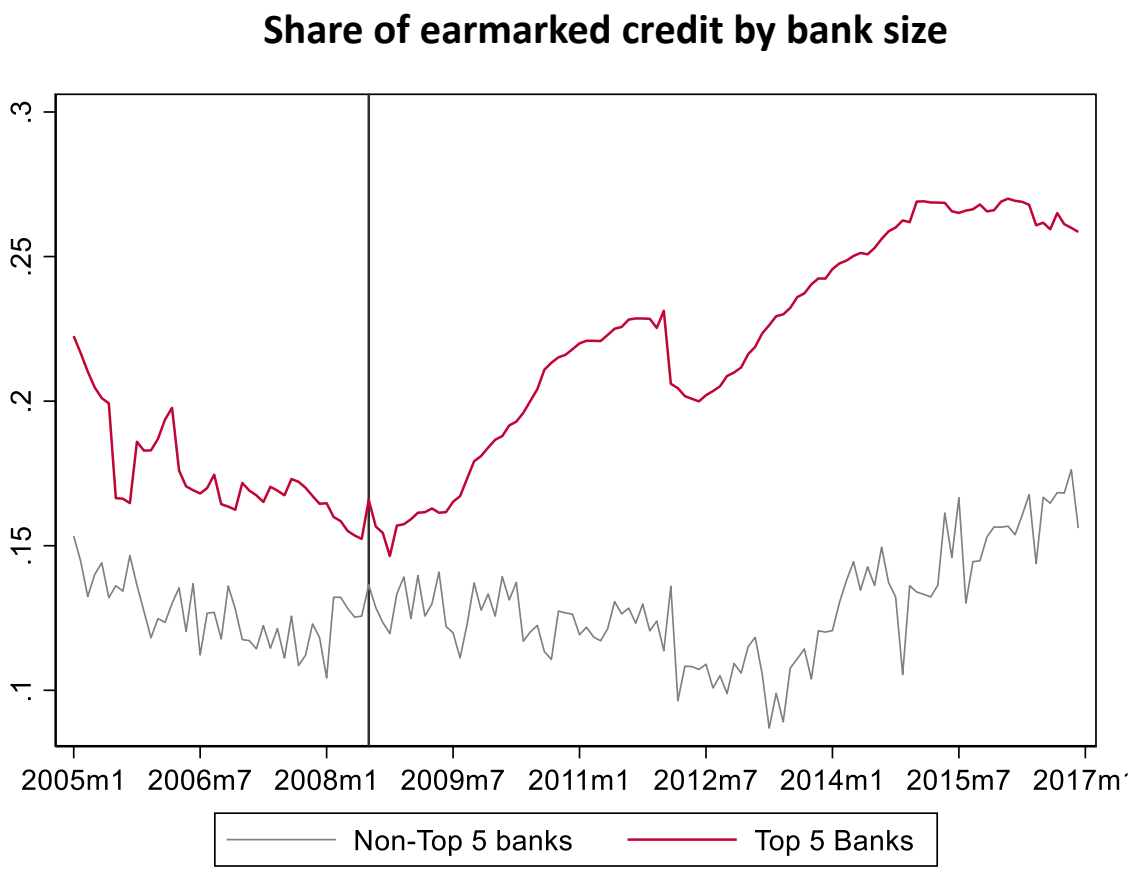
Share of earmarked credit received by size of firm



Among MSMEs, the program had a larger impact on medium firms

Earmarked Credit to Firms

By Bank Size

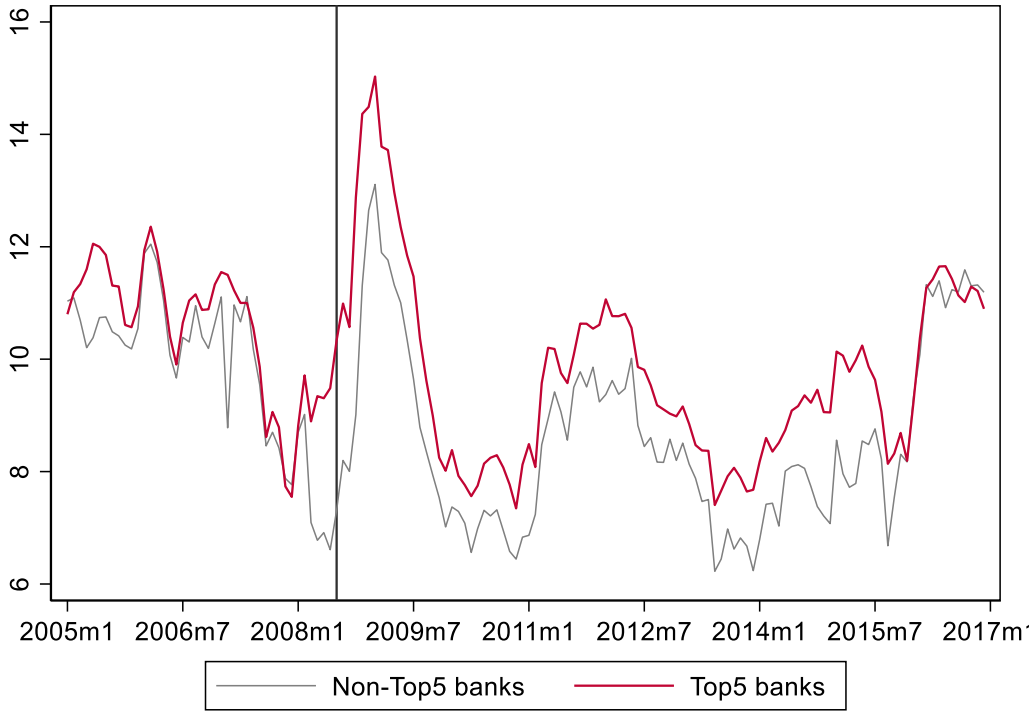


Earmarked loans were mainly extended by the largest banks

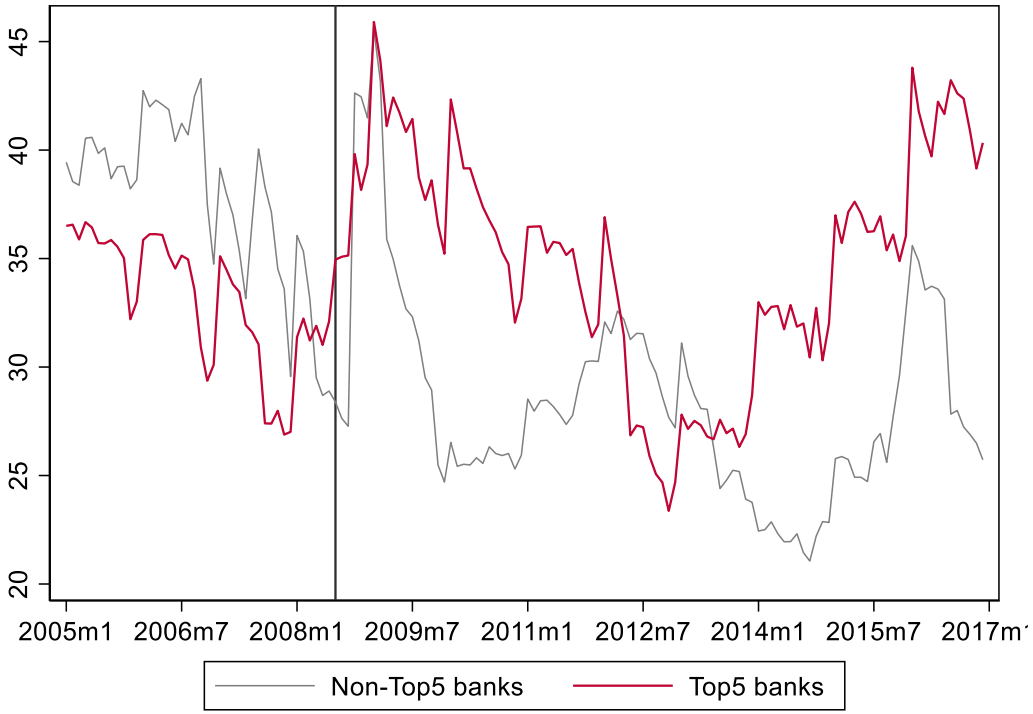
Earmarked Credit to Firms

Are Large Banks Adjusting Pricing of Other Loans when Providing Earmarked loans?

Interest rates of vehicle loans
(earmarked lending product)



Interest rates of working capital loans
(non-earmarked lending product)



Evidence of Cross-Selling

Increase in Interest Rates Concentrated among Riskier Firms

Interest rate of a loan after a firm receives an earmarked loan

	Vehicle Finance Loans	**Working Capital Loans**
	(1)	**(2)**
$EarmarkRelation_{fbt}$=1	-0.024	**0.326*** **
	(0.093)	**(0.109)**
Observations	24,824	**265,647**
R-squared	0.817	**0.837**
Firm*Bank FE	Yes	**Yes**
Bank*Year FE	Yes	**Yes**
Firm*Year FE	Yes	**Yes**

- Interest rates on working capital loans increase after a firm-bank pair start an earmarked relationship
  - Effect concentrated in smaller, riskier firms (not shown)
- Strategy suggests that banks offset risk of an earmarked loan by adjusting the price of other loans

What we learned

Banks' Incentives to Participate in Government Programs

- Loans at below-market rates do not compensate lending to riskier borrowers
  - Banks compensate for this risk by adjusting interest rates in other loan products

- Policy recommendation
  - Channeling public funds to private banks will disproportionately benefit safer, larger borrowers
  - For riskier borrowers, banks may adopt strategies to compensate for their risk
    - Banks may use these strategies to further gain profitable business, particularly in less-competitive markets (e.g., product cross-selling)

Bank Lending for Inclusive Growth

This Talk

- Implicit in these case studies is the role that bank lending has on the economy
- The banking sector has played a major role in alleviating the negative impact of the COVID-19 crisis
  - By supplying funding to the private sector (Acharya & Steffen, 2020)
- What do we know about the performance of the banking sector during the pandemic?

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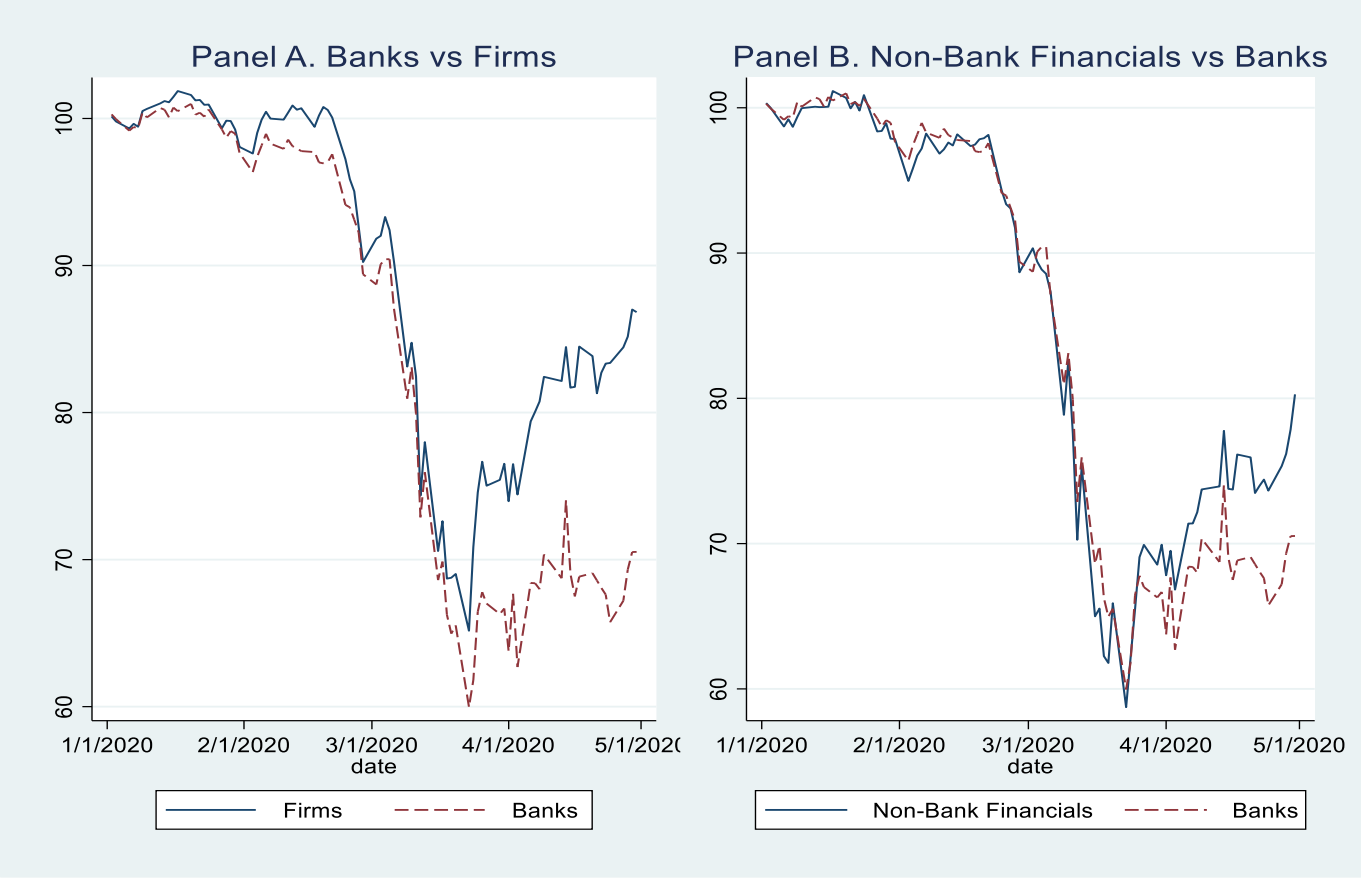
Demirgüç-Kunt, Pedraza and Ruiz-Ortega (2020). Banking Sector Performance During the COVID-19 Crisis. WPS 9363

Impact of the Pandemic on the Banking Sector

Stock Prices of Banks

- Data on all publicly-traded banks
  - 896 commercial banks in 53 countries
- Globally, bank stocks have underperformed relative to:
  - Other publicly traded companies
  - Non-bank financial institutions

Stock returns from January to April 2020



Policy Announcements targeting the Financial Sector

COVID-19 Crisis

- Wide range of financial sector interventions have been implemented
  - 1) Monetary policy, 2) liquidity measures, 3) prudential policies, 4) borrowing support programs
- Interventions may impact the resilience of the banking sector in the longer term
  - Deterioration of asset quality
- We assess the impact of the announcements of such measures on the performance of banks
  - Exploit a global dataset collected by the WB FCI GP on around 400 financial sector initiatives across 45 countries

Policy Announcements targeting the Financial Sector

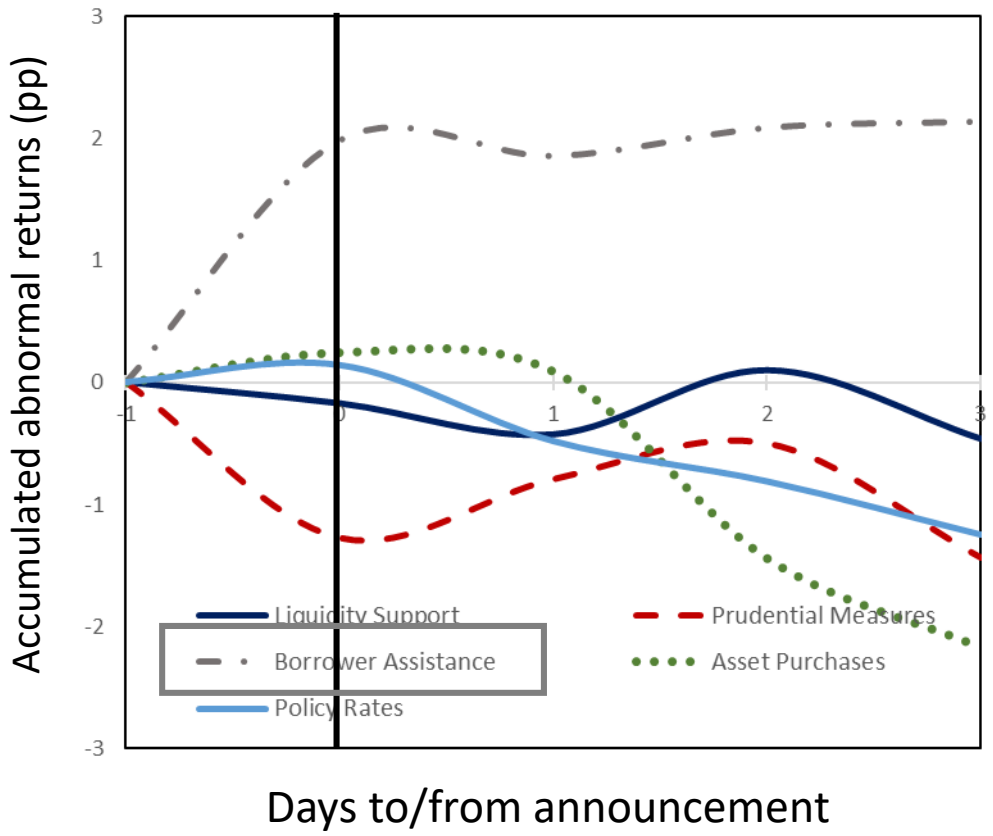
COVID-19 Crisis

1. Prudential measures: temporary relaxation of regulatory requirements
   - Loan deferment programs for 6 months for the financially vulnerable individuals (South Korea)
   - Regulatory flexibility so that banks can use their capital buffers (Mexico)

2. Borrower assistance programs: government-sponsored guarantees for firms/households
   - Package of $15 billion for small business loans (Japan)
   - Ministry of Finance guarantees up to 80% of the value of financing provided to SMEs (Romania)

Announcements of Government Programs and Bank Returns

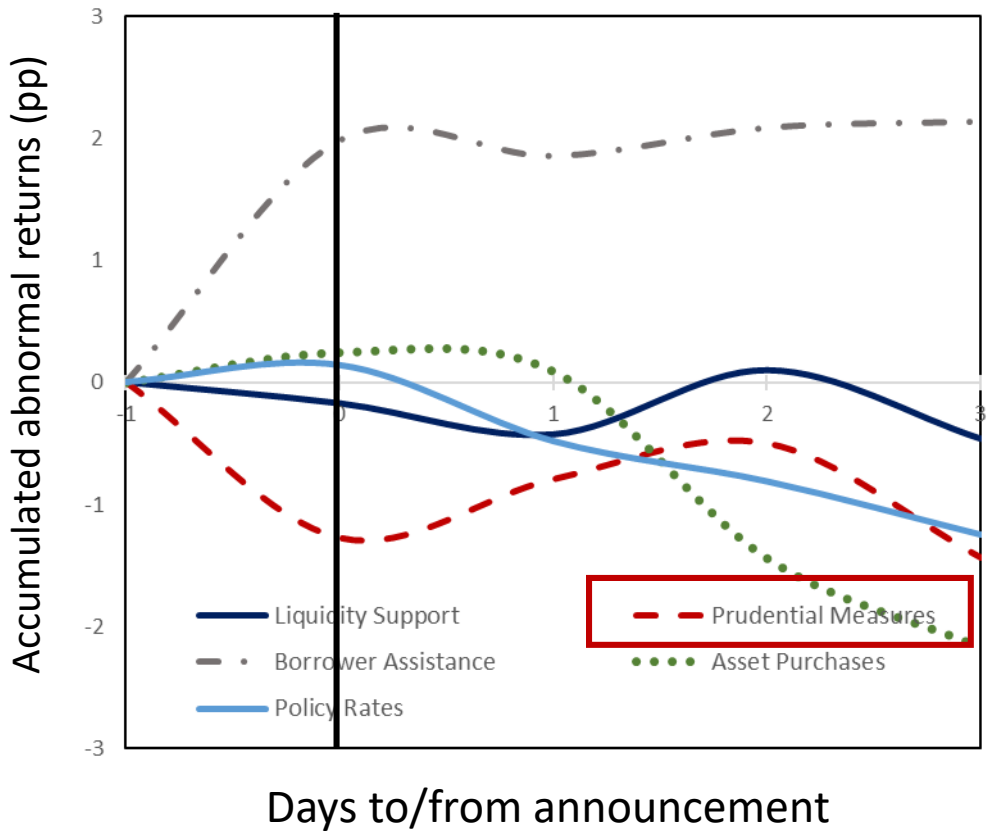
Event Study Methodology



- Announcements of borrower assistance policies have the strongest impact on bank stock prices

Announcements of Government Programs and Bank Returns

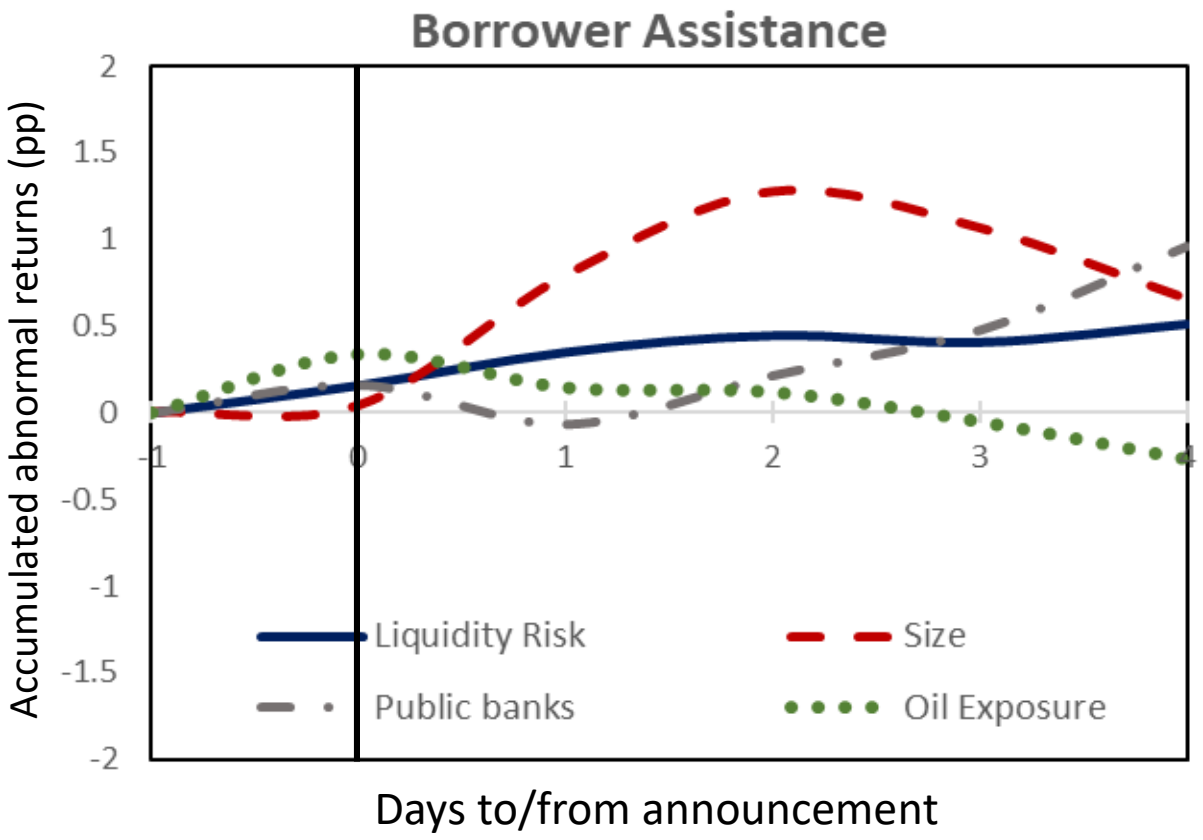
Event Study Methodology



- Announcements of borrower assistance policies have the strongest impact on bank stock prices
- Announcements of prudential measures result in negative abnormal returns in bank stocks

Announcements of Government Programs and Bank Returns

Borrower Assistance



- Borrower assistance programs benefit larger banks and banks with lower liquidity provisions
- These measures require significant fiscal commitments
- Heterogeneity across countries:
  - Positive impact in developed countries
  - No effect in developing countries, where there is less room for fiscal expansion

What we learned

Performance of the Banking Sector during the COVID-19 Crisis

- The impact of the COVID-19 pandemic on banks was more pronounced than on other corporates

- Policy recommendation
  - Some policy measures moderated this adverse impact for some banks
    - But not all measures work for all banks or in all circumstances

  - Borrower assistance programs had largest impact on bank abnormal returns
    - But due to their reliance on fiscal expenditures, these policies do not appear to work for all

Final thoughts

- Access to granular data has been key to understanding mechanisms
  - Novel data repositories from banks, credit bureaus and credit registries are increasing our understanding on how banks' incentives can shape credit supply and financial stability
- Incentives of banks matter
  - Banks will be discouraged from investments entailing private costs but only yielding public goods
  - Policies may unintendedly incentivize banks to take on riskier investments or alter credit supply
- Key challenge for regulators (GFDR 2013-2020)
  - Design policies that align private incentives with the public interest to minimize distortions
  - Identify and correct market failures in the credit markets

Thank you!

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