Cheap Credit and Incentives in Financial Institutions: The Case of Global Microfinance

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(Joint with **Mark Garmaise**, UCLA Anderson)

"Cheap credit," an increasingly common reality
The age of bailouts ... but any real effect?

- ▶ Governments and central banks routinely provide credit on easy terms to financial institutions to influence lending and investment activities
- ▶ This paper studies the impact of cheap credit on the global microfinance industry
- ▶ We make use of shifting international political relationships to analyze the impact of political shocks to the supply of finance on below-market terms

Three Questions

Impact of cheap credit on financial institutions

1. Do subsidized financial institutions **expand their lending**?

   Bernanke and Blinder (1988), Kashyap and Stein (2000)

2. Do financial institutions receiving cheap credit **become more profitable**?

   Saunders, Strock and Travlos (1990), Acharya and Yorulmazer (2008)

3. Do **employees** of subsidized financial institutions **appropriate rents**?
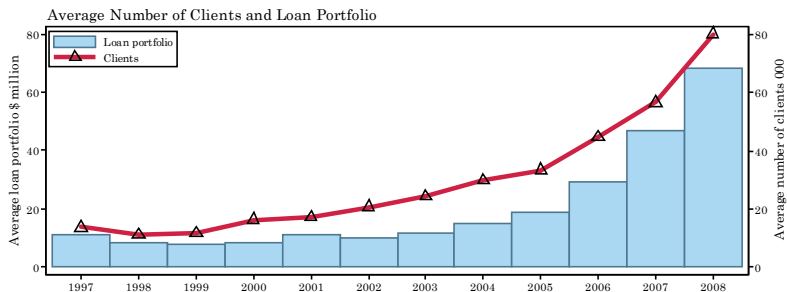
   Lazear (2000), Black and Strahan (2001)

Questions of great topical interest, long-standing theories, little evidence.

Endogeneity of cheap credit makes inference hard.

Global Microfinance

MFIs: A rising type of financial institution in the developing world

Average Number of Clients and Loan Portfolio

Source: MicroRate. Data based on Africa and Latin America.

Global Microfinance

MFIs: How they finance themselves

- Microfinance institutions (MFIs) are lenders in emerging economies that make small loans to poor borrowers
- MFIs are typically financed by institutional lenders that are often based in other countries (little use of deposits)
- Non-market considerations are important in determining the terms of financing (e.g., 15% of the loans are made at rates below those of U.S. government securities, "social loans").

Curious about Microfinance? Please read Garmaise and Natividad (RFS 2010).
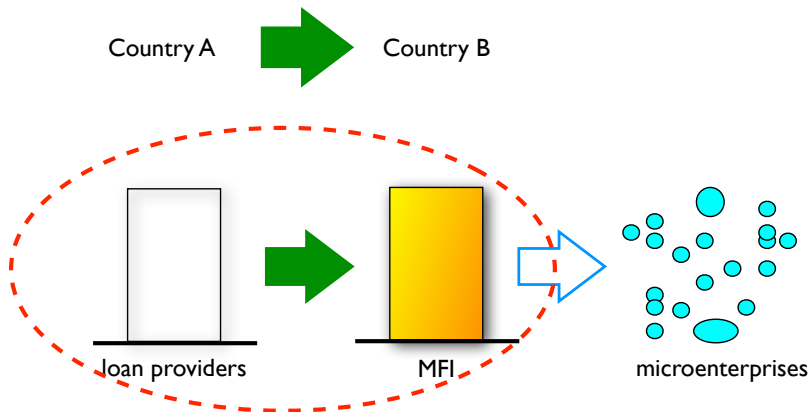
Global Microfinance

Most scholarly interest (and data) very local

loan providers   MFI   microenterprises
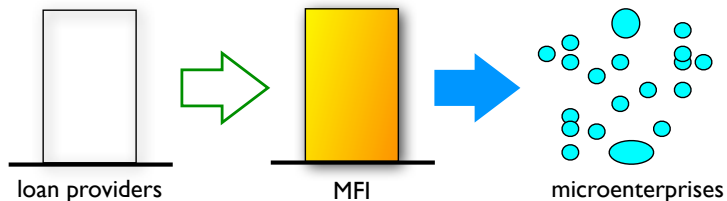
Global Microfinance

Our broad focus is at international level yet provides micro-evidence

Empirical Strategy

- **Goal:** Identify the effect of cheap credit on the efficiency of MFIs.

$$MFIcharacteristic_{i,t+1} = \psi + \chi*(\text{Cheap Credit}_{i,t}) + \rho*controls_{i,t+1} + \tau_i + \upsilon_{I,t+1} + \phi_{i,t+1},$$

(1)

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$$(1)$$

1. Cheap credit is endogenous to country-wide or FI-specific factors

2. We need exogenous variation to see the effect of cheap credit

3. **Advantage**: We see <u>terms</u> and <u>nationality</u> of each loan received by MFIs

4. Find exogenous shifter of cheap credit at the level of each loan relationship

5. Show that shifter generates a supply-curve "shock" inside each MFI

6. Use that exogenous shifter directly in equation (1).

Global Microfinance

Macro exogenous variation, 'extremely micro' within-relationship regressions
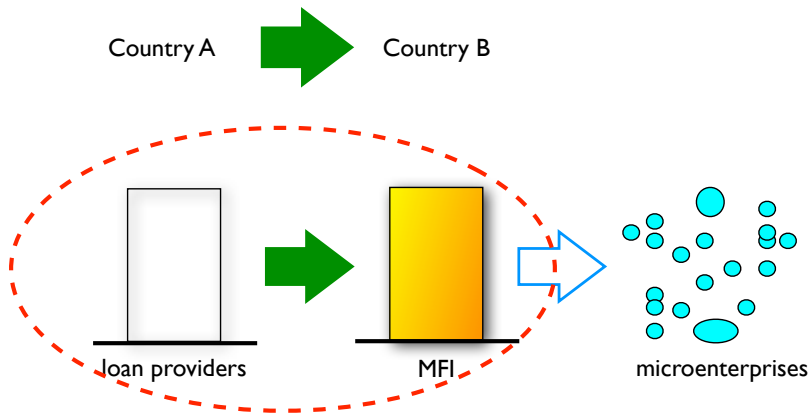
# Exogenous Variation in International Affinity

Create shocks based on "S" (from political science)

Signorino and Ritter (1999): $S_{I,J,t}$:=A measure of **country similarity** based on detailed roll call votes in U.N. General Assembly.

Exogenous Variation in International Affinity

"S": Bilateral, Time-varying, Independent from specific MFI actions

International Affinity with El Salvador
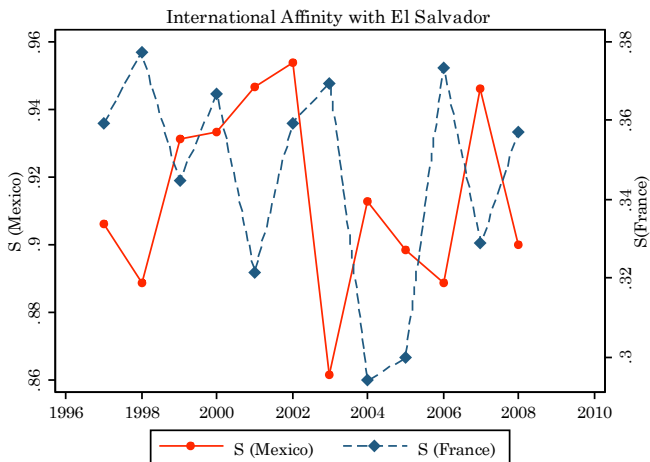
Exogenous shifter of Cheap Credit within a Relationship
Loan-level specification

Consider borrower MFI i and fund provider j in year t:

$$LoanRate_{i,j,t} = \alpha + \beta * (S_{I,J,t-1}) + \gamma * controls_{i,t} + \delta_{i,j} + \lambda_{i,t} + \epsilon_{i,j,t}$$

- ▶ $\delta_{i,j}$: Lender-Borrower Relationship pair fixed effect
- ▶ $\lambda_{i,t}$: MFI-year fixed effect.
- ▶ $\epsilon_{i,j,t}$: double-clustering by i and by country J
- ▶ also $LoanQuantity_{i,j,t}$ as DV
    - ▶ Price and quantity: "Supply Shock inside MFI"

Exogenous shifter of Loan terms within a Relationship
Loan-level regressions

	Social Loan (0/1)	Interest rate decimal points	Quantity in $ 000
		Dependent Variable:	
S_{t-1}	0.333***	−0.040**	1513.039***
	(3.19)	(−2.02)	(2.58)
MFI age	Yes	Yes	Yes
Relationship strength (n.semesters)	Yes	Yes	Yes
Age of MFI	Yes	Yes	Yes
MFI-Lender Pair fixed effects	Yes	Yes	Yes
MFI-Year fixed effects	Yes	Yes	Yes
R^2	0.64	0.61	0.63
n	13265	13265	13265
Clusters (MFI)	130	130	130
Clusters (country of lender)	47	47	47

(Robust double-clustered t-statistics in parentheses.)

Do cheap credit supply shocks occur at the MFI-year level?
How to Aggregate over Loan-Relationships

- MFI-level analysis does not allow for relationship-level fixed effects.
- Average S cannot be used as a shock for two reasons:
  1. Selection of new lenders in period t.
  2. Correlation between $S_{j,t-1}$ and lender-specific propensity to provide cheap credit cannot be ruled out, no relationship pair fixed effects.
- **Solution:** average political shock as proxy for cheap credit supply shock

$$\tilde{\Omega}_t = \left(\frac{1}{N}\right) \sum_{j=1}^{N} \omega_{j,t}$$

$$MFI characteristic_{i,t+1} = \psi + \chi * (\Omega_{i,t}) + \rho * controls_{i,t+1} + \tau_i + \upsilon_{I,t+1} + \phi_{i,t+1}$$

- τ_i: MFI fixed effect
- $\upsilon_{I,t+1}$: Country-year fixed effect.

Yes, cheap credit supply shocks occur at the MFI-year level
MFI-level regressions

| | Dependent Variable: | |
	Average Interest rate in decimal points	**Total Loans Received** in $ millions
Average political shocks	-0.094^{**}	19.180^{**}
	(-2.40)	(2.09)
MFI controls (port.herfindahl,leverage,age)	Yes	Yes
MFI fixed effects	Yes	Yes
Country of MFI-year fixed effects	Yes	Yes
R^2	0.80	0.75
n	596	596
N clusters (MFI)	109	109

(Robust clustered t-statistics in parentheses.)

Recall: Three Questions
Impact of cheap credit on financial institutions

1. Do subsidized financial institutions **expand their lending**?
2. Do financial institutions receiving cheap credit **become more profitable**?
3. Do **employees** of subsidized financial institutions **appropriate rents**?

⇒Use exogenous variation that creates cheap credit shock. Assess timing.

Results (1): Cheap Credit and Expansion
More hiring, more investment, not at the same pace

Dependent Variable:	Number of Credit Officers	Portfolio in $ millions	$ Loans per Credit Officer
Average political shocks$_{t-1}$	385.478**	67.882	−2.527*
	(2.28)	(0.74)	(−1.73)
Average political shocks$_{t-2}$	423.206**	117.792	−1.435*
	(2.04)	(1.58)	(−1.97)
Average political shocks$_{t-3}$	235.235**	76.836**	−0.789***
	(2.16)	(2.24)	(−4.01)
MFI-year controls	Yes	Yes	Yes
Fixed effects:			
MFI	Yes	Yes	Yes
Country of MFI×Year	Yes	Yes	Yes
n	418	418	418
N clusters (MFI)	89	89	89

(Robust clustered t-statistics in parentheses.)

Results (2): Cheap Credit and Profitability
Initial disruption/adjustment, higher gross profits, trickle down to clients

Dependent Variable:	Portfolio Quality	Gross Margin	Av.Rate Charged	Average Loan Size
Average political shocks$_{t-1}$	−0.573**	31.247**	0.694	−0.592
	(−2.08)	(2.30)	(1.62)	(−0.62)
Average political shocks$_{t-2}$	−0.258*	30.378**	0.454**	−0.232
	(−1.67)	(2.16)	(2.10)	(−0.26)
Average political shocks$_{t-3}$	0.042	15.083*	−0.133*	0.085
	(0.56)	(1.97)	(−1.79)	(0.18)
MFI-year controls	Yes	Yes	Yes	Yes
Fixed effects:				
MFI	Yes	Yes	Yes	Yes
Country of MFI×Year	Yes	Yes	Yes	Yes
n	411	418	418	414
N clusters (MFI)	89	89	89	88

(Robust clustered t-statistics in parentheses.)

Results (3): Cheap Credit and Employee Incentives
Initial disruption/adjustment, higher gross profits, trickle down to clients

Dependent Variable:	Employee Turnover	Separations/ Total staff	Average Wages	Incentive Pay
Average political shocks$_{t-1}$	0.070	0.012	0.894	4.835
	(0.13)	(0.04)	(0.20)	(0.82)
Average political shocks$_{t-2}$	1.105	0.559	2.058	0.584
	(1.41)	(1.07)	(0.60)	(0.31)
Average political shocks$_{t-3}$	-0.869^{***}	-0.460^{***}	-1.520	1.562^{***}
	(-4.46)	(-3.85)	(-0.98)	(3.21)
MFI-year controls	Yes	Yes	Yes	Yes
Fixed effects:				
MFI	Yes	Yes	Yes	Yes
Country of MFI×Year	Yes	Yes	Yes	Yes
n	288	288	411	418
N clusters (MFI)	75	75	89	89

(Robust clustered t-statistics in parentheses.)

Conclusions

Impact of cheap credit on financial institutions

1. International affinity between countries shifts micro loan terms.
   - **Greater** affinity, **greater** supply of "cheap credit."
   - Plausibly **exogenous**, intuitive channel in **microfinance**.
   - Politics affects **global financial integration** at the micro level.

2. FIs with cheap credit expand investment, but **slowly**.

3. FIs with cheap credit "suffer" in efficiency, **adjust**, pass on gains.

4. FIs with cheap credit **do not** increase wages, shift to **incentive pay.**

Thank you for being here. Comments most welcome.