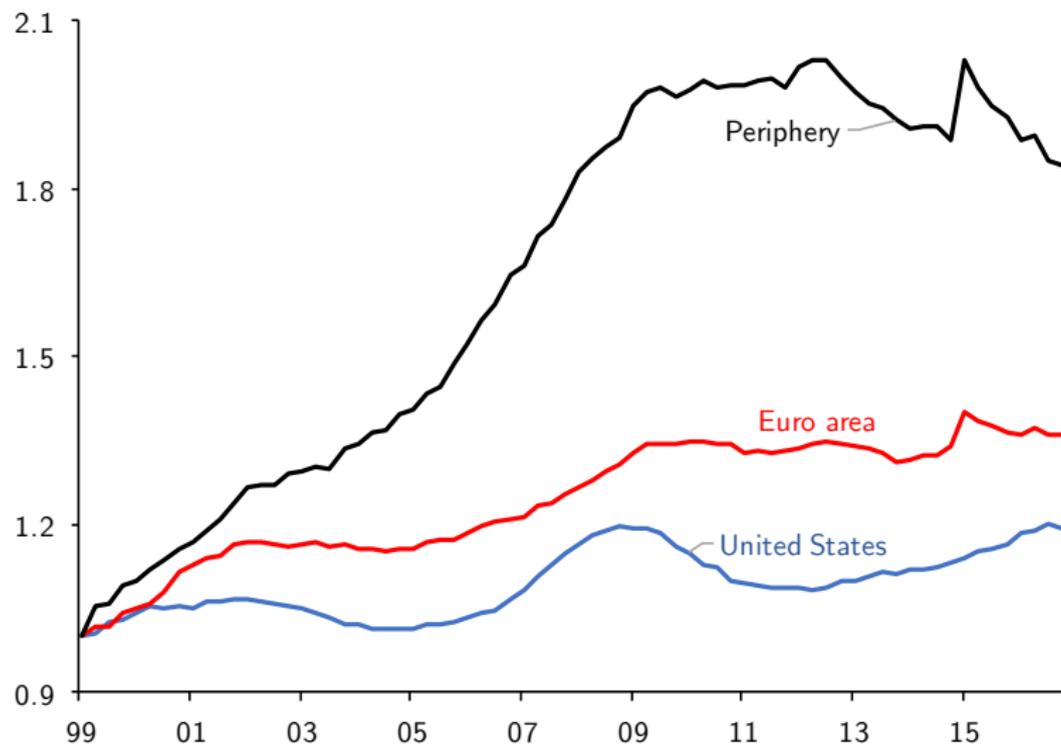


CORPORATE DEBT: LESSONS OF EUROPE FOR ASIA

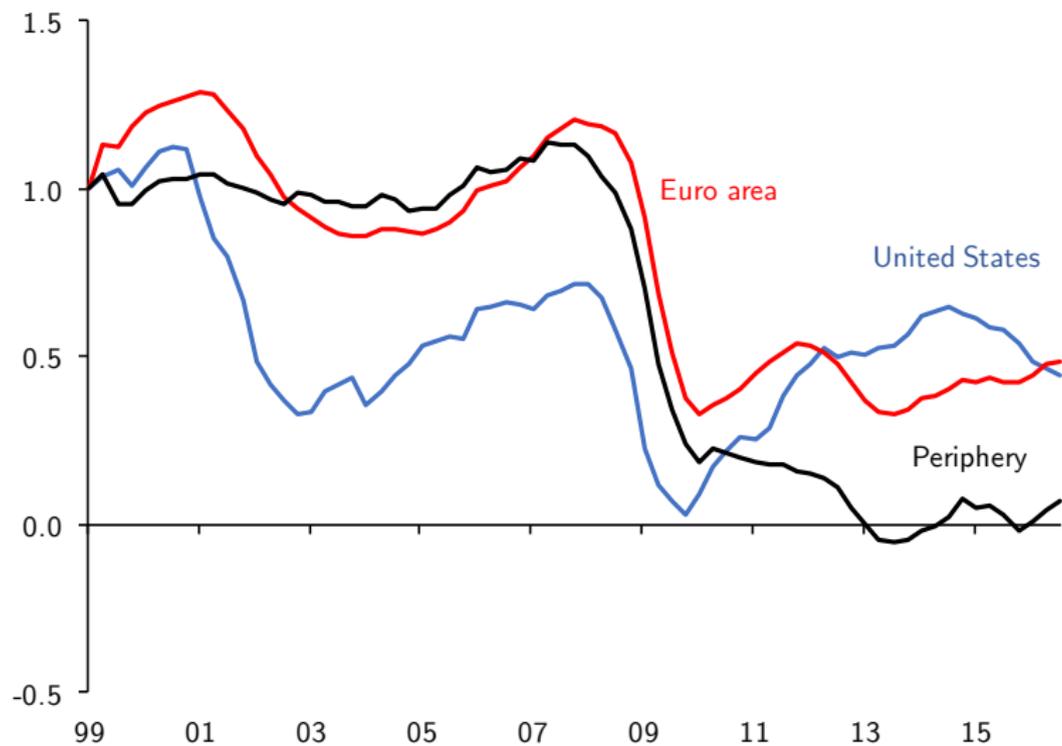
Şebnem Kalemli-Özcan

March 2019
World Bank

CORPORATE DEBT TO GDP



CORPORATE INVESTMENT TO GDP



RESEARCH AGENDA: EFFECTS OF CORPORATE LEVERAGE ON BOOM-BUST CYCLES AND THE MACROECONOMY WITH A FOCUS ON INTERNATIONAL LINKAGES

Today's talk is based on:

1. **Debt Overhang, Rollover Risk, and Corporate Investment: Evidence from the European Crisis** (with Luc Laeven, David Moreno)
2. **Capital Allocation and Productivity in South Europe** (with Gopinath, Karabarbounis, Villegas-Sanchez)
3. **Leverage over the life cycle of U.S. Firms** (with Dinlersoz, Hyatt, Penciakova)
4. **International Spillovers and Local Credit Cycles** (with di Giovanni, Ulu, Baskaya)
5. **Gross Capital Flows by Banks, Corporates, and Sovereigns** (with Avdjiev, Hardy, Kalemli-Ozcan, Serven)
6. **Exchange Rate Appreciations and Corporate Risk Taking** (with Liu, Shim)

UNDERSTANDING INVESTMENT BUST IN EUROPE: APPROACH

- **Big Data:** Match firms to their banks and banks to their sovereigns in 8 European countries that share a common monetary policy (2m+ observations)
- Firm-level datasets that are nationally representative covering SMEs
- Exploit variation in **sovereign risk** during the crises that affects **banks' balance sheets** and hence **credit supply to firms** who borrowed from these banks during the boom
- Account for all existing explanations for low investment in Europe

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- Exploit variation in **sovereign risk** during the crises that affects **banks' balance sheets** and hence **credit supply to firms** who borrowed from these banks during the boom
- Account for all existing explanations for low investment in Europe
 1. Low aggregate demand/high future uncertainty (affects all firms)
 2. Low bank credit supply (affects all firms unless some banks do not reduce credit supply)
 3. **Firm leverage and rollover risk** (affects firms differentially as a function of their short-term debt)

A BIG DATA APPROACH

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1. Balance sheets and profit/loss account (advantage over Census)
2. Need small and private firms (advantage over Compustat/Worldscope)
3. Mimic official size distribution where less than 250 employee firms account for 60 - 70 percent of economic activity.

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- ORBIS/AMADEUS database provided by Bureau van Dijk–Moody's
 - Collected from official business registers, and annual reports

COVERAGE RELATIVE TO EUROSTAT (WAGE BILL)

	Spain	Italy	Portugal	Germany	France	Norway
1999	0.69	0.59				
2000	0.71	0.63			0.70	
2001	0.73	0.62			0.72	
2002	0.75	0.69			0.75	
2003	0.74	0.68			0.73	
2004	0.75	0.71			0.71	0.66
2005	0.74	0.72			0.71	0.67
2006	0.74	0.73	0.91	0.34	0.72	0.71
2007	0.74	0.73	0.94	0.34	0.73	0.73
2008	0.72	0.84	0.97	0.28	N/A	0.65
2009	0.72	0.81	0.96	0.28	0.71	0.85
2010	0.73	0.83	0.96	0.30	0.73	0.82
2011	0.74	0.86	0.97	0.78	0.75	0.82
2012	0.75	0.86	0.96	0.75	0.74	0.87
2013	0.74	0.85	0.97	0.76	0.74	0.88
2014	0.76	0.87	0.97	0.75	0.76	0.88
2015	0.76	0.88	0.98	0.79	0.77	0.89

SHARE OF TOTAL WAGE BILL BY SIZE CLASS

	Spain	Italy	Portugal	Germany	France	Norway
ORBIS-AMADEUS						
1-19 employees	0.19	0.11	0.18	0.01	0.08	0.14
20-249 employees	0.47	0.53	0.50	0.33	0.30	0.43
250+ employees	0.34	0.36	0.32	0.67	0.61	0.43
Eurostat (SBS)						
1-19 employees	0.20	0.22	0.21	0.07	0.14	0.15
20-249 employees	0.43	0.44	0.49	0.26	0.31	0.41
250+ employees	0.37	0.34	0.30	0.67	0.55	0.44

FINDINGS

1. Investment stays low in Europe due to corporate **debt overhang**
2. Debt overhang works via rollover risk in the short-run and de-leveraging over the medium-run

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3. **Interaction between weak banks and weak firms is important**
 - Firms who entered the crisis with high leverage decrease investment more
 - Firms who borrow from weak banks decrease investment more and if these firms have high leverage they decrease investment even more
 - Firms with more short-term debt decrease investment more due to an increase in rollover risk and if they borrow from a weak bank, they decrease investment even more

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4. Debt overhang and rollover risk channels explain 60 percent of the actual aggregate corporate sector investment decline in Europe

FINDINGS

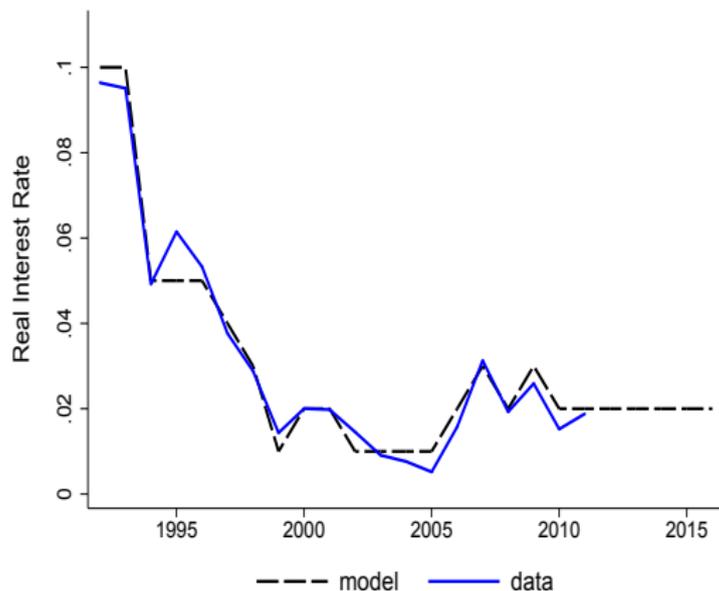
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4. Debt overhang and rollover risk channels explain 60 percent of the actual aggregate corporate sector investment decline in Europe

Policy Implication: Bank recapitalization and dealing with legacy debt will help but not completely solve the investment problem.

WHY FIRMS ACCUMULATE DEBT AND INCREASE LEVERAGE DURING THE BOOM IN EUROPE?

Declining interest rates with the EU integration incentivized firms to finance investment with short-term debt

DECLINE IN REAL INTEREST RATE IN THE EU



- lending rate for ≤ 1 year loans minus expected inflation

DIFFERENTIAL RESPONSE OF FIRM LEVERAGE TO LOWER INTEREST RATES

Heterogeneity at firm-level in accessing finance can have implications on aggregate productivity when all firms face a lower interest rate

- decline in real interest rate \implies increase in desired capital **for all firms**
- firms with high net worth: increase investment, face lower return
- firms with low net worth: cannot expand, face higher return
- dispersion of capital returns increases and TFP declines
- importance of size-dependent borrowing constraint

HETEROGENEITY IN FIRM LEVERAGE

Two types of borrowing constraints for firm i :

1.

$$b_i \leq \theta \times k_i$$

2.

$$b_i \leq \theta(k_i) \times k_i$$

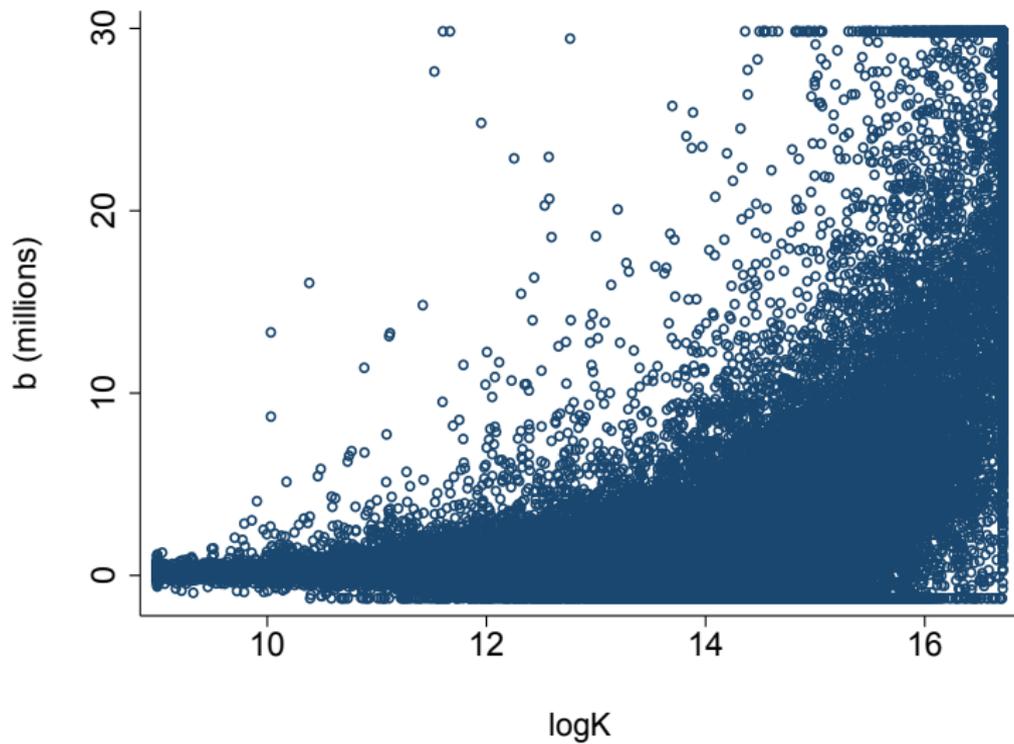
Link to aggregate shocks:

$$b_i \leq \theta \times P \times k_i$$

b : debt, k : capital, $P=1/R$: interest rate or $P=1/E$: exchange rate

Which one data supports?

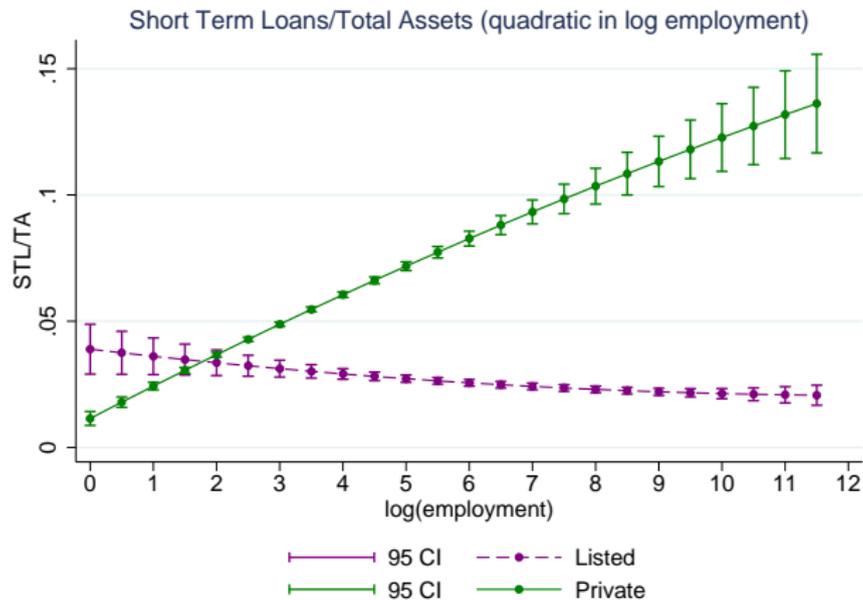
LEVERAGE AND FIRM SIZE IN EUROPE



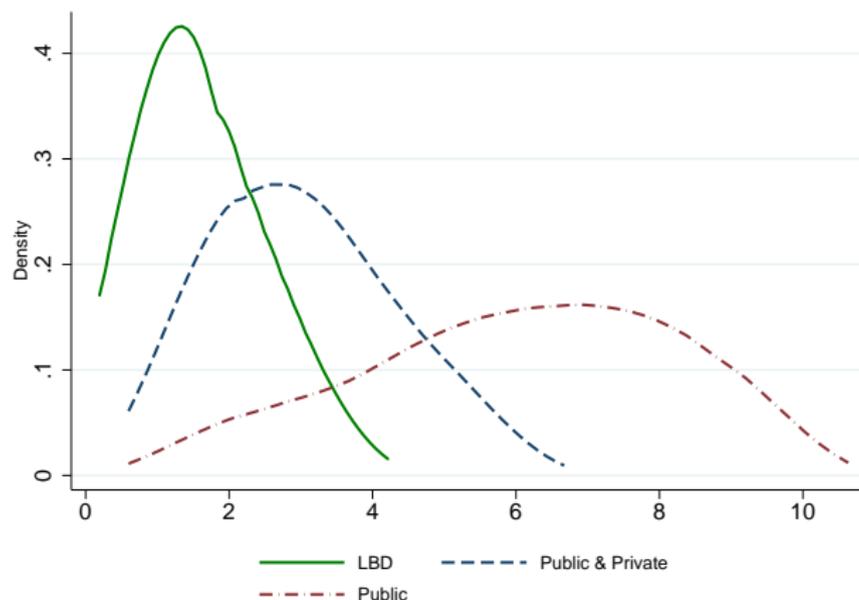
IS EUROPE UNIQUE?

Similar picture in the US though one needs data on small firms

LEVERAGE AND FIRM SIZE IN THE US



FIRM SIZE DISTRIBUTION IN US

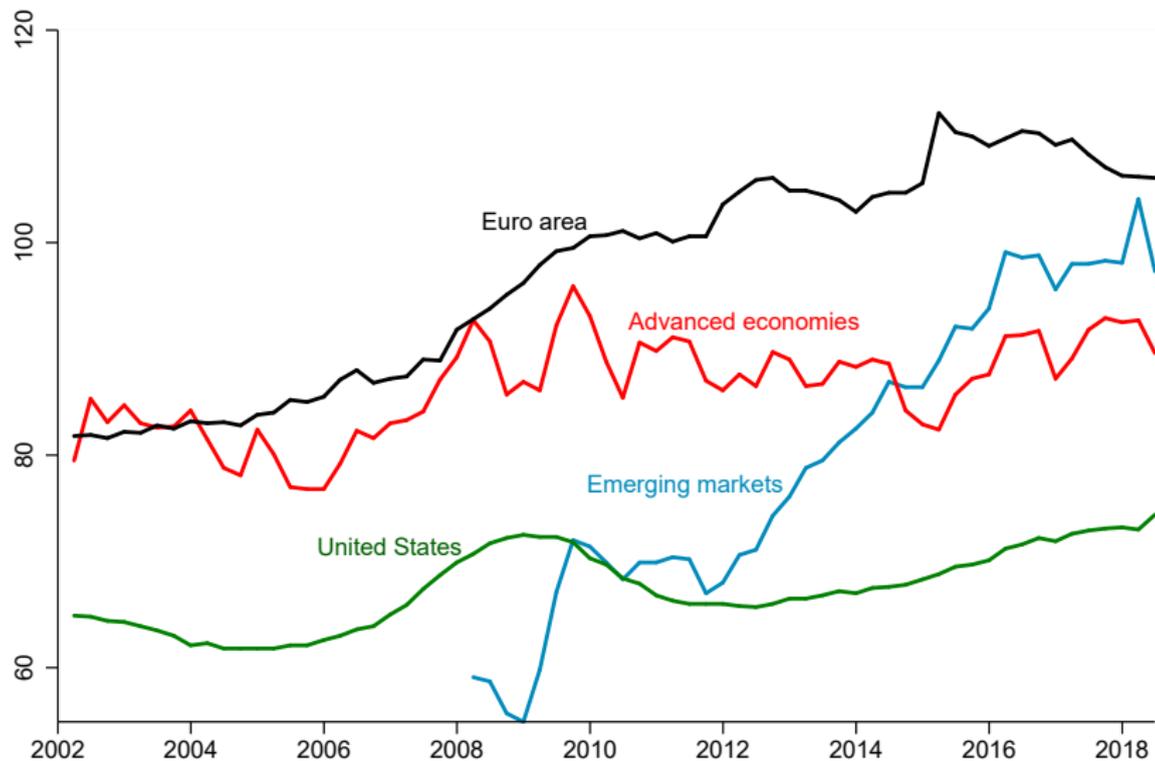


Public firms are 36 times larger employment and 64 times higher revenue than private firms and not represent the aggregate economy

LESSONS FOR EMERGING MARKETS

...Especially for Asian countries where corporate debt has been on the rise recently

CORPORATE DEBT/GDP: ADVANCED AND EMERGING COUNTRIES



IN EMERGING MARKETS...

Corporate Leverage will be driven by:

- Low borrowing costs as in advanced economies
- But also by external shocks and capital flows
- Important role for domestic banks who intermediate capital flows
- Important role for foreign currency debt
- Emerging market corporates can borrow:
 - in local and in foreign currency
 - externally and domestically
 - in bonds and loans

CAPITAL FLOWS AND CORPORATE LEVERAGE

1. Exchange rate/balance sheet channel:

Capital flows \downarrow \Rightarrow exchange rate depreciates

\Rightarrow Firms with FX debt face (-) networth shock, cannot borrow

\Rightarrow Banks with FX debt face (-) networth shock, cannot lend

- Requires FX borrowing that creates balance sheet mismatch (unhedged)

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2. Interest rate/funding cost channel:

Capital flows $\downarrow \Rightarrow$ funding/borrowing costs \uparrow

- Does not require balance sheet mismatch
- All banks can cut lending and all firms can decrease borrowing

CAPITAL FLOWS BY SECTOR

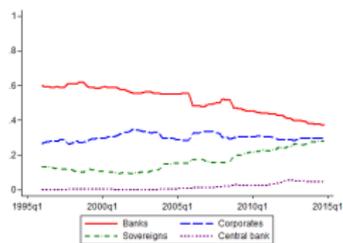


FIGURE: Debt, AE

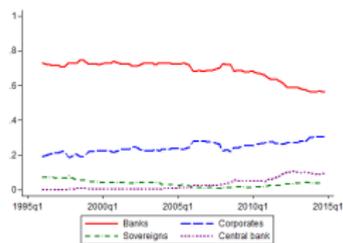


FIGURE: OID, AE

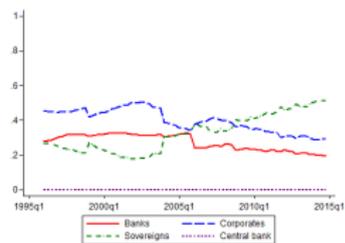


FIGURE: PD, AE

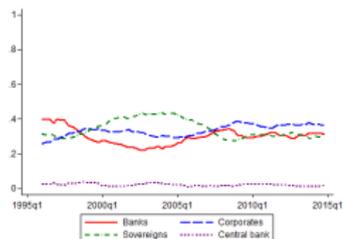


FIGURE: Debt, EM

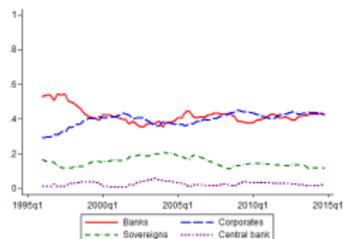


FIGURE: OID, EM

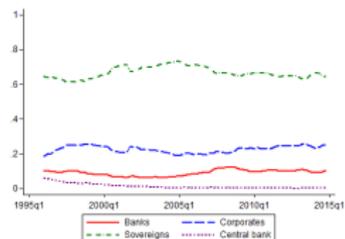
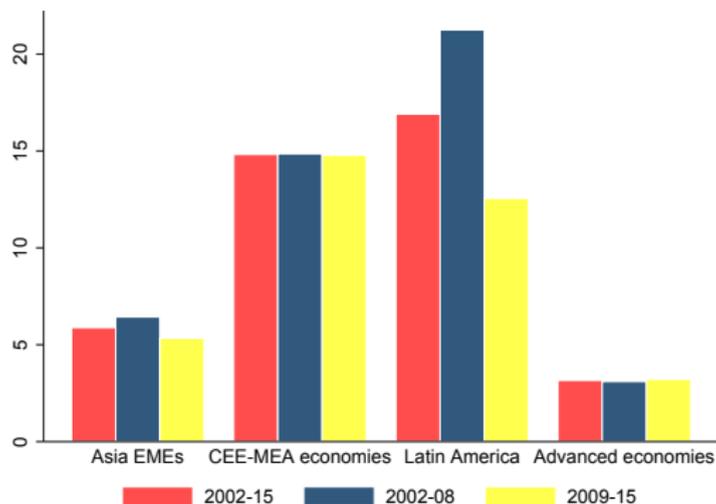


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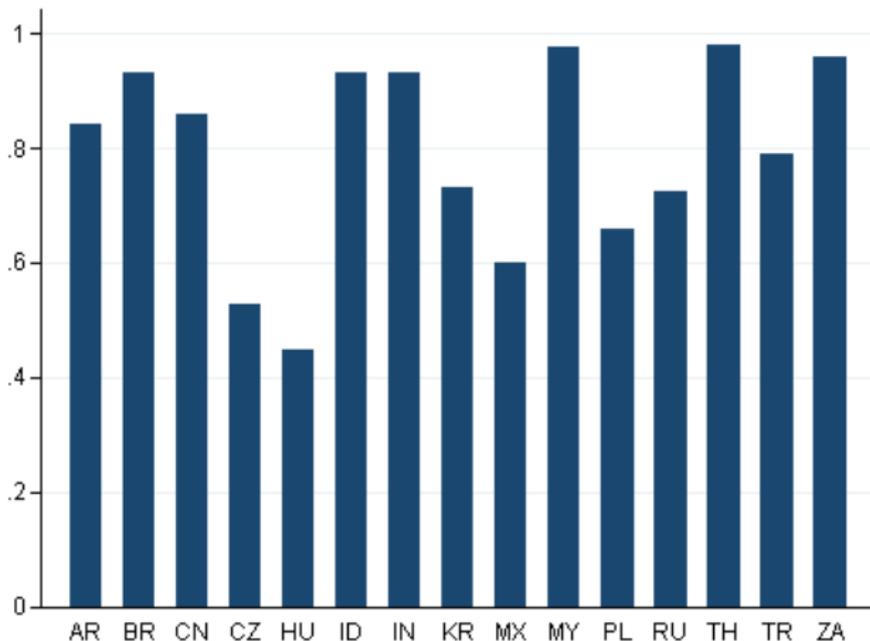
FOREIGN CURRENCY DEBT/NON-FINANCIAL SECTOR DEBT



DOMESTIC BANK CREDIT/CORPORATE DEBT

FIRMS MOSTLY BORROW FROM THEIR DOMESTIC BANKS IN EM

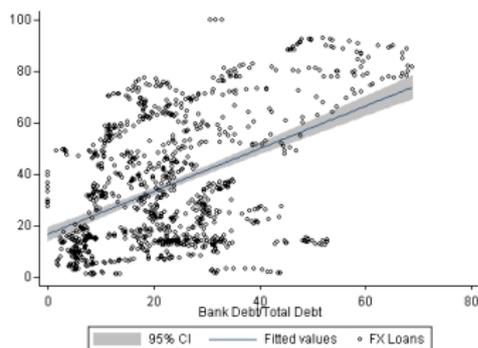
Average Share of Credit from Domestic Banks, 2006-2013



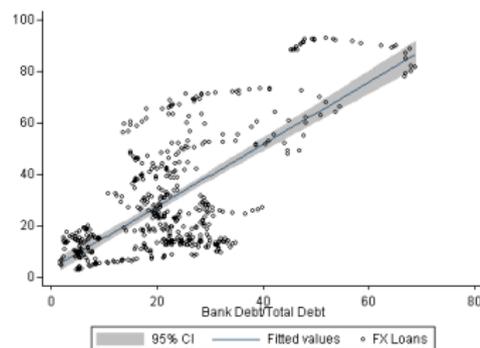
BANK EXTERNAL DEBT AND FIRM FX DEBT

IF DOMESTIC BANKS INTERMEDIATE CAPITAL FLOWS, THERE IS MORE FX FIRM DEBT (HARDY, 2017)

Domestic FX Loans and Bank External Debt



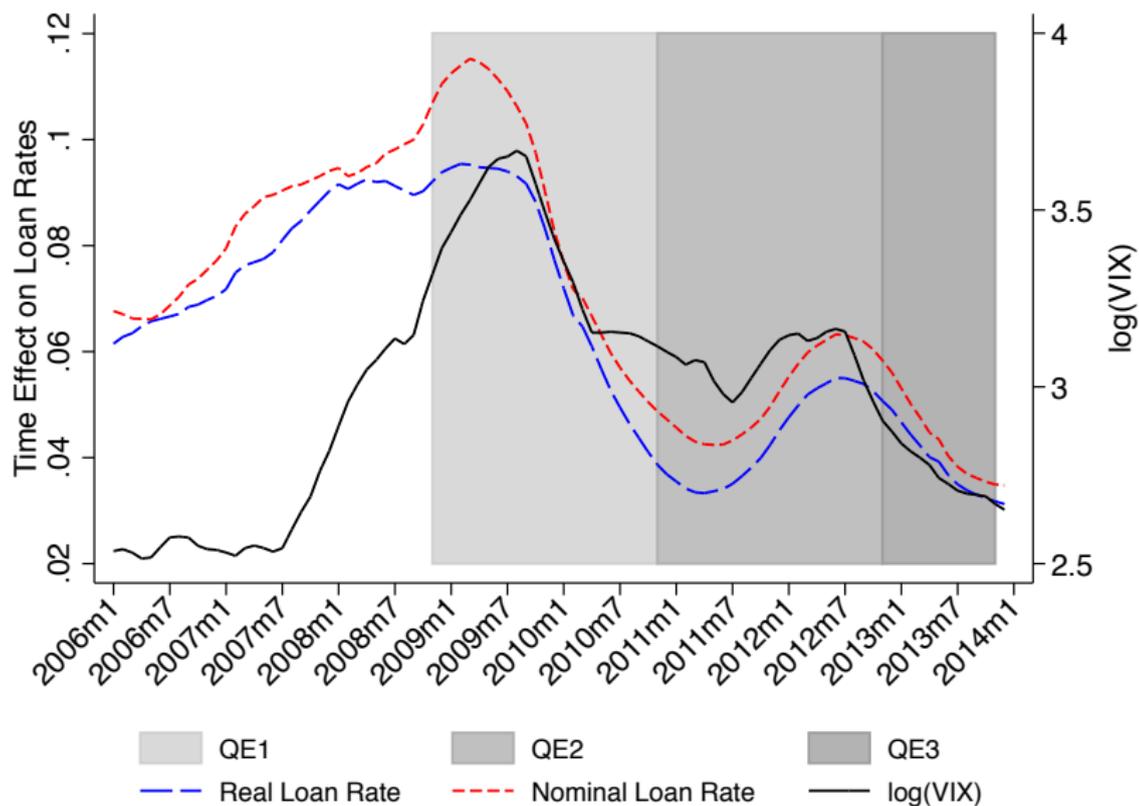
(a) Full EM Sample (unbalanced)



(b) Balanced EM Sample

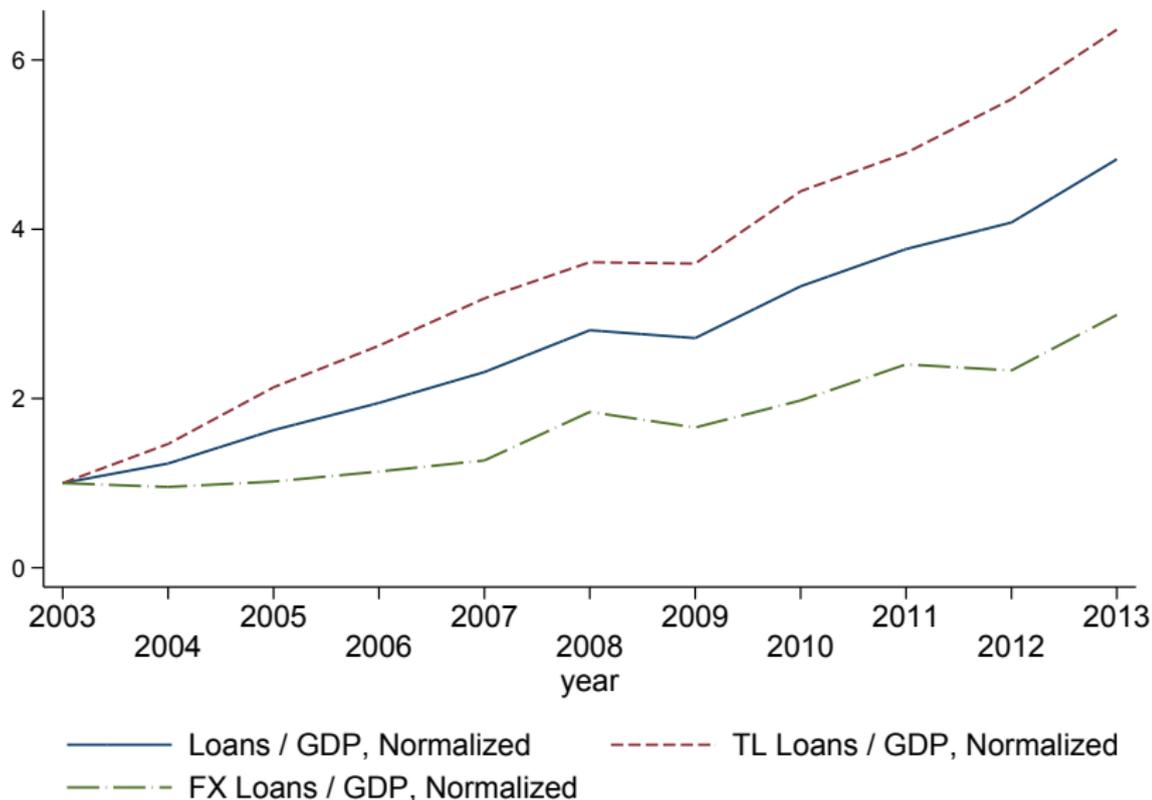
FUNDING COST CHANNEL—EVIDENCE FROM TURKEY, 2000–2012

LOWER US INTEREST RATES AND LOWER VIX PUSHES CAPITAL FLOWS INTO EM AND LOWER BORROWING COSTS



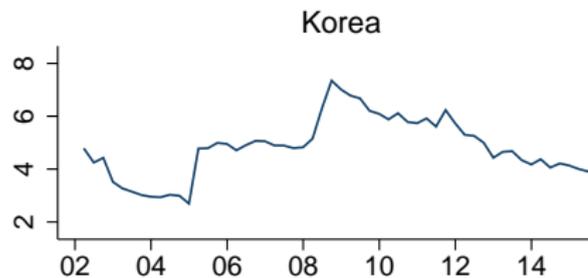
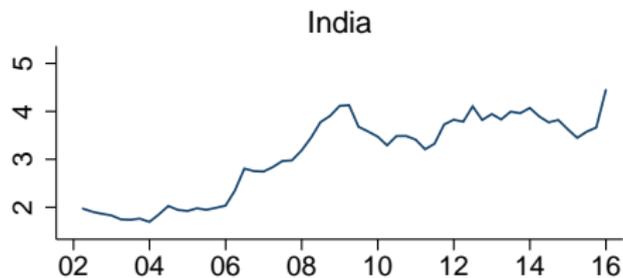
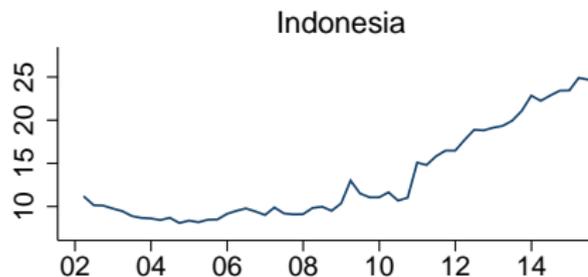
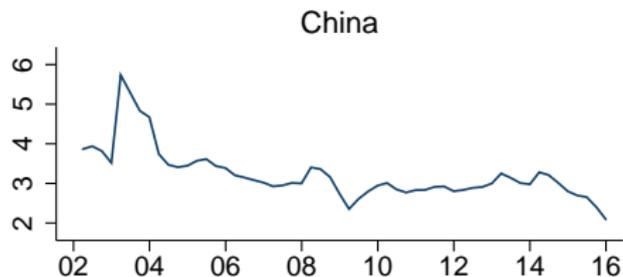
FUNDING COST CHANNEL—EVIDENCE FROM TURKEY, 2000–2012

DURING A BOOM, BOTH LOCAL CURRENCY AND FX CREDIT WILL INCREASE



EXCHANGE RATE/BALANCE SHEET CHANNEL—EVIDENCE FROM ASIA

A GOOD LABORATORY WITH EXTENSIVE COUNTRY HETEROGENEITY IN LEVELS OF FX DEBT AND DIFFERENT TRENDS



- Large literature that works with **depreciations** focusing on Latin American countries (IDB data on firm-level FX debt)
- This literature shows that, firms with with FX debt and related currency mismatch on balance sheets, suffer in terms of investment and employment during large depreciations
- We use representative firm level data on private and public firms from 10 Asian emerging markets during 2000–2015 and show that **appreciations** over 10% leads to **risk-taking** by firms:
 - Firms increase **leverage** if they operate in countries whose corporate sectors have a large share of their total debt in FX, when exchange rate appreciates.

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5. Larger firms can borrow more, and such heterogeneity in access to finance has implications for aggregate productivity and growth
6. To be able to observe these patterns empirically one needs to use firm-level data that is nationally representative and can deliver firm heterogeneity in financial constraints