Nonbank Lenders as Global Shock Absorbers: Evidence from US Monetary Policy Spillovers

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Monetary policy spillovers and bank lending

- ▶ US monetary policy spillovers
  - ▶ Capital flows and credit growth are strongly correlated across countries (Rey 2015)
  - ▶ Largely driven by US monetary policy (Miranda-Agrippino and Rey 2020)
  - ▶ Particularly big effects on emerging economies (Kalemli-Ozcan 2019)

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- ▶ But nonbanks increasingly important in credit markets
  - ▶ Scant evidence on how *global nonbank lending* responds to US monetary policy

This paper: What about nonbanks?

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  - How does US monetary policy affect lending by nonbanks to non-US corporates?
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- ▶ **Reinforcement?**
  - ▶ Tighter US monetary policy leads to <u>higher volatility</u> and hence tighter VaR limits (Bruno and Shin 2015a)
  - ▶ <u>Dollar strength</u> weakens balance sheets of non-US borrowers (Bruno and Shin 2015b)
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- **Attenuation?**
  - Recent literature on domestic US monetary transmission emphasises bank vs nonbank <u>funding markets</u>
    - When monetary policy tightens, deposits flow out of banks (Drechsler, Savov and Schnabl 2017)...
    - ...and into shadow banks such as MMFs (Xiao 2020)...
    - ...leading to relative increase in nonbank lending (Elliott et al 2022)
  - Banks typically have lower <u>risk tolerance</u> than nonbanks (Buchak et al 2018; Irani et al 2021; Aldasoro et al 2022)

Overview of results

- ▶ Identification:
  - ▶ Loan-level data from global syndicated lending market
  - ▶ US monetary policy surprises (Jarocinski and Karadi 2020)
- ▶ When US monetary policy tightens, nonbank lenders <u>increase</u> supply of dollar credit to non-US borrowers, relative to banks
- ▶ Substitution stronger for:
  - ▶ Borrowers in emerging markets
  - ▶ Riskier borrowers
- ▶ But no evidence of destabilising or zombie lending
- ▶ Substitution consistent with bank vs nonbank differences in funding structure & risk tolerance
- ▶ Real effects
  - ▶ Borrowers with past nonbank relationships relatively increase total debt, investment, and employment
- ▶ Implications:
  - ▶ Nonbanks absorb shocks from US monetary policy spillovers
  - ▶ Better access to nonbank credit reduces volatility in capital flows

Contributions to literature

- ▶ US monetary policy spillovers & Global Financial Cycle
  - ▶ Rey 2015; Bruno and Shin 2015; Bernanke 2017; Kalemli-Ozcan 2019; Avdjiev and Hale 2019; Miranda-Agrippino and Rey 2020
  - ▶ We provide micro evidence demonstrating heterogeneity across financial intermediaries

- ▶ International transmission of shocks to financial intermediaries
  - ▶ Peek and Rosengren 1997; Cetorelli and Goldberg 2012; Gianetti and Laeven 2012; de Haas and van Horen 2013; Morais et al 2019; Brauning and Ivashina 2020
  - ▶ We link to recent evidence on domestic transmission of monetary policy shocks (Drechsler, Savov and Schnabl 2017, 2022; Xiao 2020)

- ▶ Drivers and implications of growth in nonbank lending
  - ▶ Ivashina and Sun 2011; Pozsar et al 2013; Moreira and Savov 2017; Buchak et al 2018; Irani et al 2021; Aldasoro et al 2023
  - ▶ We provide cross-country evidence, highlighting important differences in developed vs emerging economies
  - ▶ Highlight a setting where nonbank credit supply is more stable

Outline

Data

- ▶ Global syndicated lending market
  - ▶ Loans extended to one borrower by multiple lenders
  - ▶ Bank and nonbank lenders
  - ▶ Important source of cross-border funding, particularly for EMEs
- ▶ DealScan data
  - ▶ Loan-level data for *primary* market
  - ▶ Includes identities of borrowers and lenders, allowing us to classify lenders as banks or nonbanks
  - ▶ Main nonbank lenders in primary market: investment banks & finance companies
- ▶ Matched to Compustat Global data on borrowers
- ▶ Main sample:
  - ▶ <u>Dollar loans</u> from <u>lenders in all countries</u> to <u>non-US borrowers</u>
  - ▶ 1990 - 2019
- ▶ Also compare:
  - ▶ Dollar vs non-dollar loans
  - ▶ US vs non-US lenders
  - ▶ US vs non-US borrowers

Outline

Identification

- Monetary policy likely to affect both credit supply and demand
    - Syndicated loan market allows us to identify impact on credit *supply*
    - Multiple lenders to one borrower, so can use borrower-quarter fixed effects to control for credit demand (Khwaja and Mian 2008)
    - Apart from lead arranger, members of syndicate not chosen by borrower (Bruche, Malherbe and Meisenzahl 2020)

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- Monetary policy reflects economic conditions
    - Instrument US monetary policy using monetary policy *surprises* of Jarocinski and Karadi (2020)
        - High-frequency changes in interest rate derivatives purged from 'Fed information effect'
    - Control for local economic conditions of borrower and lender
        - GDP growth, inflation, monetary policy, exchange rate
    - Also control for other important global factors
        - Strength of dollar, VIX

Global lending by banks

- Collapse dataset to borrower-lender-currency-quarter level
- Restrict sample to <u>dollar loans</u> from <u>banks</u> to <u>non-US borrowers</u>
- Loan-level regression:

$$\text{Log(New credit)}_{b,l,t} = \alpha_b + \delta_l + \beta \text{Fed Funds}_{t-1} + \gamma \text{Macro controls}_{b,l,t-1} + \varepsilon_{b,l,t}$$

  where b = borrower, l = lender, t = quarter
- Fed Funds rate instrumented by Jarocinski-Karadi shocks
- Macro controls for both borrower and lender countries

Global lending by banks

Dependent variable:				Log(New credit amount)			
	(1)	(2)	(3)	(4)	(5)	(6)	7)
Fed Funds	-0.141***	-0.119***	-0.130***	-0.124***	-0.088***	-0.128***	-0.124***
	(0.014)	(0.010)	(0.016)	(0.022)	(0.032)	(0.023)	(0.022)
Fed Funds × EME borrower					-0.062*		
					(0.037)		
Dollar index						-0.004	
						(0.003)	
VIX							-0.001
							(0.004)
Lender fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Borrower country fixed effects	No	Yes	-	-	-	-	-
Borrower industry fixed effects	No	Yes	-	-	-	-	-
Borrower fixed effects	No	No	Yes	Yes	Yes	Yes	Yes
Lender macro controls	No	No	No	Yes	Yes	Yes	Yes
Borrower macro controls	No	No	No	Yes	Yes	Yes	Yes
Observations	55,798	53,055	54,924	35,723	35,723	35,723	35,723
Kleibergen-Paap F-statistic	3,989.0	3,706.4	1,213.0	735.3	348.1	818.3	793.1

▸ First-stage results

Global lending by nonbanks relative to banks

▶ Add nonbank lenders to sample

▶ Loan-level regression:

$$\text{Log(New credit)}_{b,l,t} = \alpha_{b,t} + \delta_l + \beta \left(\text{Nonbank}_l \times \text{Fed Funds}_{t-1}\right)$$
$$+ \gamma \left(\text{Nonbank}_l \times \text{Macro controls}_{b,l,t-1}\right) + \varepsilon_{b,l,t}$$

where $b =$ borrower, $l =$ lender, $t =$ quarter

▶ Fed Funds rate instrumented by Jarocinski-Karadi shocks

▶ Macro controls for both borrower and lender countries

Dependent variable:	Log(New credit amount)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Nonbank lender $\times$ Fed Funds	0.066***	0.105***	0.104***	0.188***	0.185***	0.182***	0.115**	0.114**
	(0.024)	(0.020)	(0.019)	(0.057)	(0.055)	(0.055)	(0.051)	(0.054)
Nonbank lender $\times$ Dollar index					-0.003			
					(0.003)			
Nonbank lender $\times$ VIX						0.004		
						(0.003)		
Fed Funds								-0.126***
								(0.022)
Lender fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Borrower country fixed effects	Yes	-	-	-	-	-	-	-
Borrower industry fixed effects	Yes	-	-	-	-	-	-	-
Quarter fixed effects	Yes	Yes	-	-	-	-	-	No
Borrower fixed effects	No	Yes	-	-	-	-	-	Yes
Borrower $\times$ Quarter fixed effects	No	No	Yes	Yes	Yes	Yes	Yes	No
Lender country $\times$ Quarter fixed effects	No	No	No	Yes	Yes	Yes	Yes	No
Lender macro controls	No	No	No	-	-	-	-	Yes
Borrower macro controls	No	No	-	-	-	-	-	Yes
Lender macro controls $\times$ Nonbank	No	No	No	Yes	Yes	Yes	Yes	Yes
Borrower macro controls $\times$ Nonbank	No	No	No	Yes	Yes	Yes	Yes	Yes
Sample end	2019	2019	2019	2019	2019	2019	2006	2019
Observations	55,949	57,990	57,495	36,954	36,954	36,954	24,102	38,226
Kleibergen-Paap F-statistic	230.2	256.0	248.1	36.4	51.3	40.0	84.2	12.4

▸ First-stage results

Global lending by nonbanks - further robustness tests

Dependent variable:	Log(New credit amount)			
Loan share:	Actual	Actual	Actual	Imputed
	(1)	(2)	(3)	(4)
Investment bank lender $\times$ Fed Funds	0.208**			
	(0.083)			
Finance company lender $\times$ Fed Funds	0.185***			
	(0.069)			
Nonbank lender $\times$ Fed Funds $\times$ Credit line		0.124**		
		(0.057)		
Nonbank lender $\times$ Fed Funds $\times$ Term loan		0.100*		
		(0.055)		
Nonbank lender $\times$ Fed Funds $\times$ Lead arranger			0.217***	
			(0.065)	
Nonbank lender $\times$ Fed Funds $\times$ Participant			0.147***	
			(0.057)	
Nonbank lender $\times$ Fed Funds				0.083**
				(0.033)
Lender fixed effects	Yes	Yes	Yes	Yes
Borrower $\times$ Quarter fixed effects	Yes	Yes	Yes	Yes
Lender country $\times$ Quarter fixed effects	Yes	Yes	Yes	Yes
Lender macro controls $\times$ Nonbank lender	Yes	Yes	Yes	Yes
Borrower macro controls $\times$ Nonbank lender	Yes	Yes	Yes	Yes
Lower-order interactions	-	Yes	Yes	-
Observations	36,615	31,301	36,954	128,722
Kleibergen-Paap F-statistic	9.8	8.2	17.4	29.6

Alternative monetary policy measures

Dependent variable:			Log(New credit amount)			
Estimation:	OLS	OLS	OLS	OLS	IV	IV
	(1)	(2)	(3)	(4)	(5)	(6)
Nonbank lender × Fed Funds	0.049***	0.037**				
	(0.014)	(0.017)				
Nonbank lender × Wu-Xia			0.046***	0.035***		
			(0.011)	(0.013)		
Nonbank lender × Fed Funds × Tightening					0.130***	0.210***
					(0.041)	(0.079)
Nonbank lender × Fed Funds × Loosening					0.132***	0.132*
					(0.042)	(0.070)
Lender fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Borrower × Quarter fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Lender country × Quarter fixed effects	No	Yes	No	Yes	No	Yes
Lender macro controls × Nonbank lender	No	Yes	No	Yes	No	Yes
Borrower macro controls × Nonbank lender	No	Yes	No	Yes	No	Yes
Lower-order interactions	-	-	-	-	Yes	Yes
Observations	57,872	37,129	57,856	37,123	27,349	17,639
R^2	0.878	0.892	0.878	0.892	-	-
Kleibergen-Paap F-statistic	-	-	-	-	171.5	24.2

Variation by currency and nationality

Dependent variable:	Log(New credit amount)			
	(1)	(2)	(3)	(4)
Nonbank lender × Fed Funds × Dollar loan	0.086***			
	(0.030)			
Nonbank lender × Fed Funds × Non-dollar loan	0.039			
	(0.029)			
Nonbank lender × Fed Funds × US borrower		0.344***		
		(0.086)		
Nonbank lender × Fed Funds × Non-US borrower		0.334***		
		(0.085)		
Nonbank lender × Fed Funds × US lender			0.239***	
			(0.062)	
Nonbank lender × Fed Funds × Non-US lender			0.153***	
			(0.058)	
Nonbank lender × Fed Funds × Within-border loan				0.145***
				(0.054)
Nonbank lender × Fed Funds × Cross-border loan				0.201***
				(0.057)
Lender fixed effects	Yes	Yes	Yes	Yes
Borrower × Quarter fixed effects	Yes	Yes	Yes	Yes
Lender country × Quarter fixed effects	Yes	Yes	Yes	Yes
Lender macro controls × Nonbank lender	Yes	Yes	Yes	Yes
Borrower macro controls × Nonbank lender	Yes	Yes	Yes	Yes
Lower-order interactions	Yes	Yes	Yes	Yes
Observations	124,171	140,999	36,954	36,954
Kleibergen-Paap F-statistic	21.5	13.0	17.0	18.5

Variation by risk

- ▶ Bank-to-nonbank substitution stronger for *riskier* borrowers `▶ Results`
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  - ▶ No difference for (ex-ante or ex-post) unprofitable firms

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- ▶ And no evidence of 'zombie' lending `▶ Results`
    - ▶ No difference for (ex-ante or ex-post) unprofitable firms

- ▶ Substitution stronger for borrowers in countries with stronger capital controls `▶ Results`
    - ▶ Financial credit inflow restrictions, using measure of Fernandez, Klein, Rebucci, Schindler and Uribe (2016)

Outline

Nonbank Lenders as Global Shock Absorbers   **17**

How complete is substitution?

- ▶ What happens to total firm-level syndicated credit?
- ▶ Collapse dataset to firm-quarter level
- ▶ Specification:

$$\text{Outcome}_{b,t} = \alpha_b + \beta \text{Fed Funds}_{t-1} + \gamma \text{Macro controls}_{b,t-1} + \varepsilon_{b,t}$$

- ▶ Fed Funds rate instrumented by Jarocinski-Karadi shocks
- ▶ Outcomes:
    - ▶ Total dollar credit for the firm
    - ▶ Total dollar credit from banks
    - ▶ Total dollar credit from nonbanks
    - ▶ Nonbank share of total

Impact of US monetary policy on firm-level syndicated credit

Dependent variable:	Bank borrowing		Nonbank borrowing		Nonbank share		Total borrowing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fed Funds	-0.109***	-0.066**	0.031*	0.070$^+$	0.003*	0.007**	-0.022**	-0.052***
	(0.018)	(0.026)	(0.018)	(0.043)	(0.002)	(0.003)	(0.010)	(0.013)
Country fixed effects	Yes	-	Yes	-	Yes	-	Yes	-
Borrower fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Macro controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,578	2,891	6,578	2,891	6,578	2,891	22,543	13,672
Kleibergen-Paap F-statistic	225.0	302.9	225.0	302.9	225.0	302.9	206.5	250.4

Information and relationships

- ▶ Firm-level results on total credit suggest imperfect substitution
  - ▶ Could reflect reduced demand
  - ▶ Could also reflect informational frictions (Sufi 2007)
- ▶ Previous relationships with nonbank lenders should mitigate frictions
  - ▶ Support ability to borrow when US monetary policy tightens
  - ▶ Hence support real activity
- ▶ Measure of past nonbank relationships:
  - ▶ Indicator variable equal to one if firm has borrowed from a nonbank in previous syndicated loan
- ▶ Regressions at borrower-year level:

$$\text{Outcome}_{b,t} = \alpha_b + \delta_{c,t} + \beta \left(\text{Nonbank relation}_{b,t} \times \text{Fed Funds}_{t-1}\right)$$
$$+ \gamma_1 \left(\text{Nonbank relation}_{b,t} \times \text{Macro controls}_{b,t-1}\right)$$
$$+ \gamma_2 \text{Borrower controls}_{b,t-1} + \varepsilon_{b,t}$$

Past nonbank relationships and firm-level outcomes

Dependent variable:	Loan indicator	Loan size	Total debt	Leverage	Total assets	PP&E	Employment
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Nonbank relation $\times$ Fed Funds	0.021***	0.017	0.046***	0.006**	0.008**	0.014*	0.014*
	(0.007)	(0.029)	(0.015)	(0.002)	(0.004)	(0.008)	(0.008)
Borrower fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Borrower controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country $\times$ Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macro controls $\times$ Nonbank relation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	110,347	4,854	104,608	109,305	109,310	108,864	79,954
Kleibergen-Paap F-statistic	16.8	239.8	17.1	16.7	16.7	16.8	14.2

Outline

Suggestive evidence on mechanism

▶ US evidence (Drechsler, Savov and Schnabl 2017; Xiao 2020):

　　▶ When monetary policy tightens, banks raise deposit rates by less than Fed Funds rate, in order to benefit from higher net interest margins

　　▶ So MMF yields increase relative to bank deposit rates

　　▶ So deposits flow from banks to MMFs

　　▶ MMFs provide short-term wholesale funding to 'downstream' nonbank lenders (e.g. CP and repo)

▶ Could a similar mechanism be driving our (international) results?

▶ Country-level panel regressions:

$$\Delta\text{Log(Funding)}_{c,t} = \alpha_c + \beta\Delta\text{Fed Funds}_t + \gamma\text{Macro controls}_{c,t-1} + \varepsilon_{c,t}$$

▶ How does short-term dollar funding of (non-US) banks and nonbanks respond to US monetary policy?

Bank and nonbank funding flows

Dependent variable:	ΔLog(Bank dollar deposits)		ΔLog(Nonbank dollar debt)		ΔLog(Nonbank non-dollar debt)	
	(1)	(2)	(3)	(4)	(5)	(6)
ΔFed Funds	-0.010	-0.011	0.114***	0.110***	0.000	-0.015
	(0.009)	(0.009)	(0.029)	(0.036)	(0.117)	(0.125)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country macro controls	No	Yes	No	Yes	No	Yes
Observations	1,627	1,080	1,747	1,636	1,377	1,330
Kleibergen-Paap F-statistic	168.2	178.5	21.9	20.8	18.7	23.2

Outline

Conclusions and policy implications

▶ Nonbank lenders attenuate international spillovers from US monetary policy

▶ Also attenuate international risk-taking channel of monetary policy

▶ Substitution stronger for borrowers with existing relationships, leading to real effects

▶ Several recent papers emphasise *fragility* of nonbank credit supply (Fleckenstein et al 2021; Irani et al 2021; Aldasoro et al 2023)...

▶ ...we highlight a setting where nonbank credit supply is *more stable*

▶ Access to nonbank credit reduces volatility in capital flows and economic activity associated with US monetary policy spillovers

ADDITIONAL SLIDES

First-stage regressions for banks

Dependent variable:	Fed Funds			
	(1)	(2)	(3)	(4)
JK monetary policy shocks	3.980***	4.002***	4.340***	4.295***
	(0.219)	(0.216)	(0.211)	(0.244)
Lender fixed effects	Yes	Yes	Yes	Yes
Borrower country fixed effects	No	Yes	-	-
Borrower industry fixed effects	No	Yes	-	-
Borrower fixed effects	No	No	Yes	Yes
Lender macro controls	No	No	No	Yes
Borrower macro controls	No	No	No	Yes
Observations	55,798	53,055	54,924	35,723
R^2	0.750	0.780	0.919	0.930
Kleibergen-Paap F-statistic	3,989.0	3,706.4	1,213.0	735.3

▸ Back

First-stage regressions for nonbanks

Dependent variable:	Nonbank lender $\times$ Fed Funds			
	(1)	(2)	(3)	(4)
Nonbank lender $\times$ JK monetary policy shocks	3.862***	3.990***	3.993***	2.214***
	(0.339)	(0.336)	(0.344)	(0.443)
Lender fixed effects	Yes	Yes	Yes	Yes
Borrower country fixed effects	Yes	-	-	-
Borrower industry fixed effects	Yes	-	-	-
Quarter fixed effects	Yes	Yes	-	-
Borrower fixed effects	No	Yes	-	-
Borrower $\times$ Quarter fixed effects	No	No	Yes	Yes
Lender country $\times$ Quarter fixed effects	No	No	No	Yes
Lender macro controls $\times$ Nonbank lender	No	No	No	Yes
Borrower macro controls $\times$ Nonbank lender	No	No	No	Yes
Observations	55,949	57,990	57,495	36,954
R^2	0.764	0.795	0.809	0.902
Kleibergen-Paap F-statistic	230.2	256.0	248.1	36.4

▶ Back

Variation by borrower risk

Dependent variable:			Log(New credit amount)			
	(1)	(2)	(3)	(4)	(5)	(6)
Nonbank lender × Fed Funds	0.078***	0.165***	0.146***	0.081***	0.187***	0.181***
	(0.021)	(0.061)	(0.052)	(0.018)	(0.062)	(0.059)
Nonbank lender × Fed Funds × EME borrower	0.040*	0.079***	0.086***			
	(0.022)	(0.029)	(0.027)			
Nonbank lender × Fed Funds × High yield borrower				0.039**	0.039*	0.020
				(0.018)	(0.023)	(0.023)
Lender fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Borrower × Quarter fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Lender country × Quarter fixed effects	No	No	Yes	No	No	Yes
Lender macro controls	No	Yes	-	No	Yes	-
Lender macro controls × Nonbank lender	No	Yes	Yes	No	Yes	Yes
Borrower macro controls × Nonbank lender	No	Yes	Yes	No	Yes	Yes
Lower-order interactions	Yes	Yes	Yes	Yes	Yes	Yes
Observations	57,495	37,753	36,954	47,845	30,331	29,597
Kleibergen-Paap F-statistic	165.6	14.5	19.4	143.4	15.2	20.8

▸ Back

No evidence of destabilising or zombie lending

Dependent variable:	Log(New credit amount)			
	(1)	(2)	(3)	(4)
Nonbank lender × Fed Funds	0.178***	0.162***	0.166**	0.156**
	(0.055)	(0.050)	(0.069)	(0.068)
Nonbank lender × Fed Funds × Unstable nonbank lender	0.020			
	(0.044)			
Nonbank lender × Fed Funds × Log(Maturity)		0.021		
		(0.014)		
Nonbank lender × Fed Funds × RoA_{t-1}			-0.002	
			(0.002)	
Nonbank lender × Fed Funds × RoA_{t+1}				-0.002
				(0.003)
Lender fixed effects	Yes	Yes	Yes	Yes
Borrower × Quarter fixed effects	Yes	Yes	Yes	Yes
Lender country × Quarter fixed effects	Yes	Yes	Yes	Yes
Lender macro controls × Nonbank lender	Yes	Yes	Yes	Yes
Borrower macro controls × Nonbank lender	Yes	Yes	Yes	Yes
Lower-order interactions	Yes	Yes	Yes	Yes
Observations	36,954	36,300	14,924	15,570
Kleibergen-Paap F-statistic	14.1	17.9	7.8	10.9

▸ Back

Impact of borrower-country capital controls

Sample:		Bank lenders only		Bank and nonbank lenders	
Dependent variable:		Log(New credit amount)			
		(1)	(2)	(3)	(4)
Fed Funds		-0.066**	-0.076**		
		(0.030)	(0.034)		
Fed Funds × Capital inflow restrictions		-0.102***	-0.085**		
		(0.035)	(0.036)		
Nonbank lender × Fed Funds				0.060***	0.126**
				(0.016)	(0.057)
Nonbank lender × Fed Funds × Capital inflow restrictions				0.068***	0.094***
				(0.024)	(0.028)
Lender fixed effects		Yes	Yes	Yes	Yes
Borrower fixed effects		Yes	Yes	-	-
Borrower × Quarter fixed effects		No	No	Yes	Yes
Lender country × Quarter fixed effects		No	No	Yes	Yes
Lender macro controls		No	Yes	-	-
Borrower macro controls		No	Yes	-	-
Lender macro controls × Nonbank lender		No	No	No	Yes
Borrower macro controls × Nonbank lender		No	No	No	Yes
Lower-order interactions		Yes	Yes	Yes	Yes
Observations		41,127	31,071	42,289	32,035
Kleibergen-Paap F-statistic		380.2	359.0	116.1	11.9

▸ Back

Annual international dollar issuance

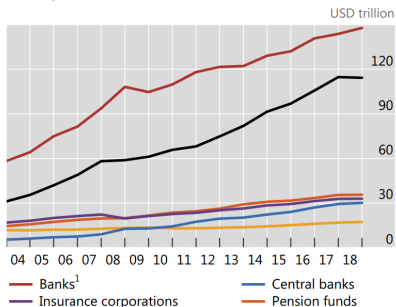Legend: Fed Funds rate (LHS) — Total lending (RHS)
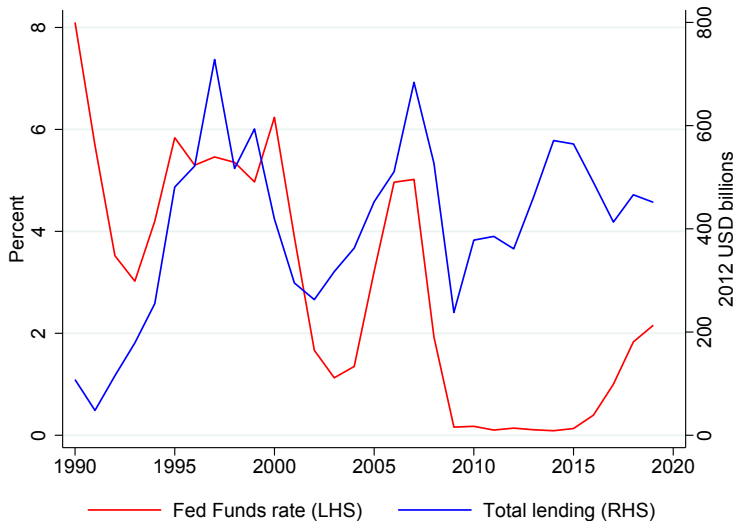
Nonbank share of lending
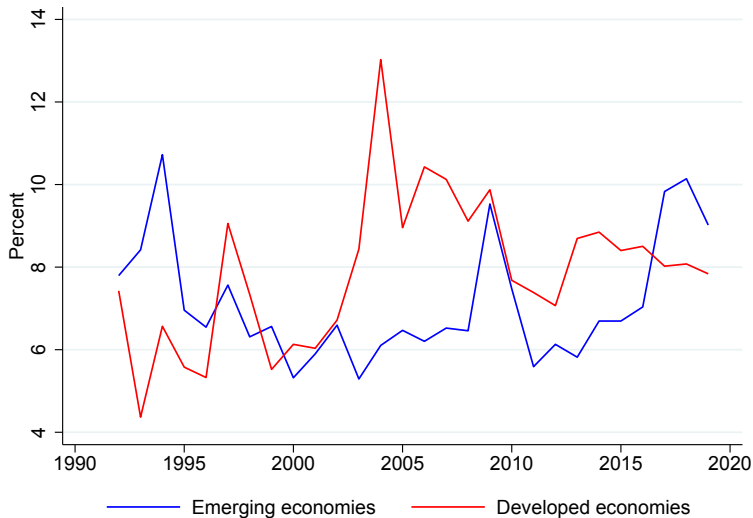
Global nonbank asset growth (FSB)

Assets of financial intermediaries
21+EA-Group

Exhibit 2-2

Total global financial assets

USD trillion

Share of total global financial assets[2]

Per cent

Banks[1]

Central banks

Public financial institutions

Insurance corporations

Pension funds

Other financial intermediaries (OFIs)