Bank Lending Margins and The Exchange Rate Uncertainty Channel

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Job Talk

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Main Question

1. How are US Banks exposed to ER uncertainty?
   - Banks sell large portion of the loans they originate[1]
   - To foreign banks and institutional investors in secondary market
   - ↑ ER Uncertainty $\implies$ Foreign banks 'retrench' (pull back)

   'Pipeline Risk' through Syndicated Loans Market

[1] especially the riskier loans, within 30 days of origination

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2. How do US Banks respond to this ER Uncertainty?
   - **Identification**: Heterogenous Exposure (Loans/Assets)
   - Effect on US bank balance sheets (Q) and lending margins (P)
   - Large US banks tighten their credit standards, ↑ loan margin

   Propose "The ER-Uncertainty Channel" for Bank Margins

[1] especially the riskier loans, within 30 days of origination

Overview

Empirical Evaluation

1. Qualitative Evidence
   - DealScan: What happens in the SLM?
   - SLOOS: What is the opinion of Senior Officers' at US Banks?
2. Quantitative Estimation
   - Call Reports: Effect on Bank Margins, Balance Sheet
   - Identification using heterogenous exposure
   - USD as a 'Global Risk Indicator'

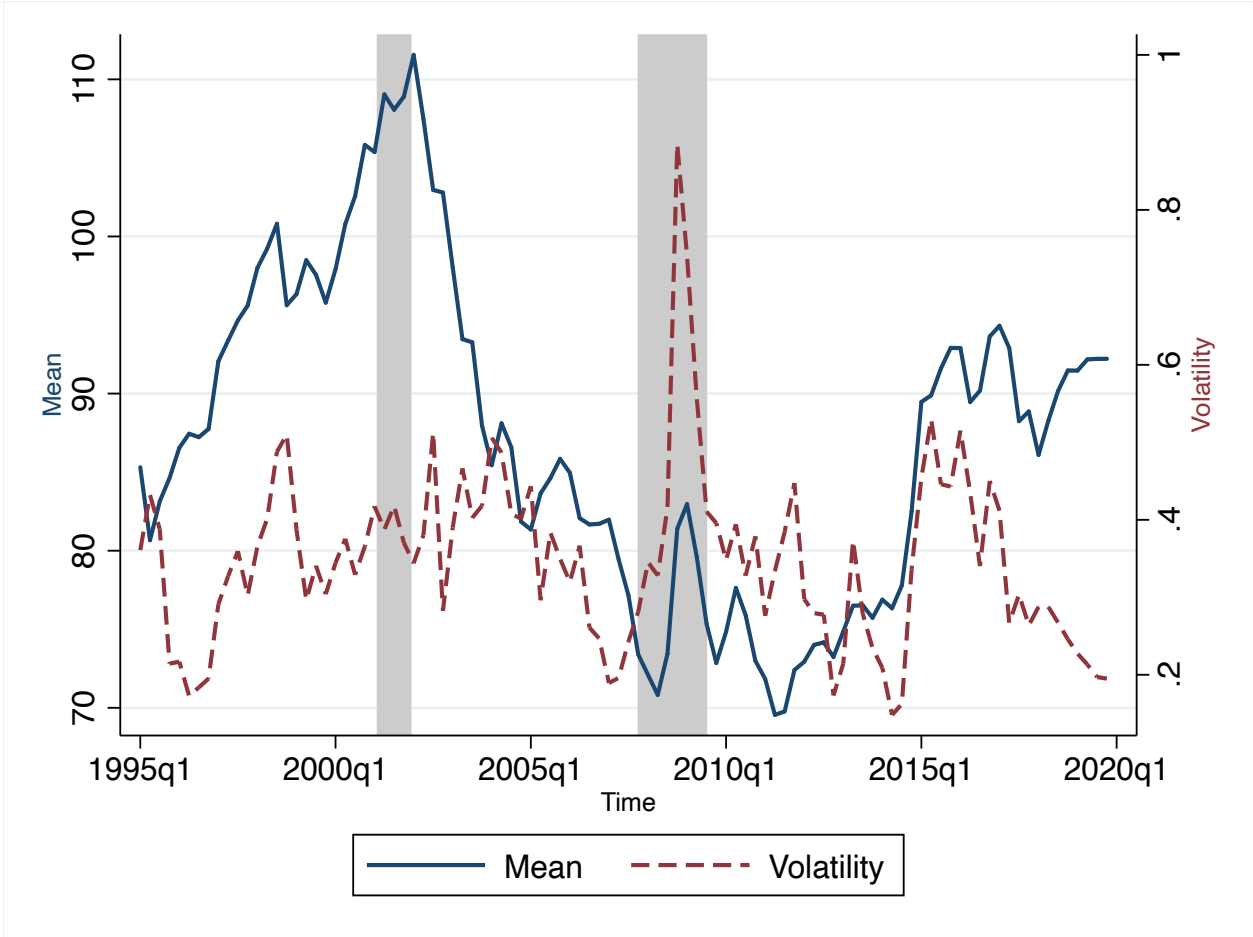
Model

1. Foreign Bank's Problem
   - Currency Mismatch
   - Uncertainty leads to 'Retrenchment'
2. US Bank's Problem
   - 'Pipeline Risk' reduces Loan Issuances, increases Margins
   - Consistent with market power

Exchange Rate Uncertainty

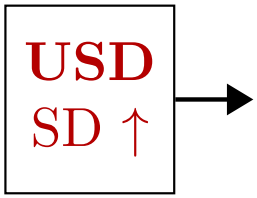
Standard Deviation of daily returns within each Quarter

Trade Weighted U.S. Dollar Index for Major Currencies[2]



[2]Includes Euro, Canada, Japan, UK, Switzerland, Australia, Sweden

The Exchange Rate Uncertainty Channel



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   - USD: "barometer of risk-taking capacity in the global capital markets"[3]

[3] (Avdjiev et al. 2018)

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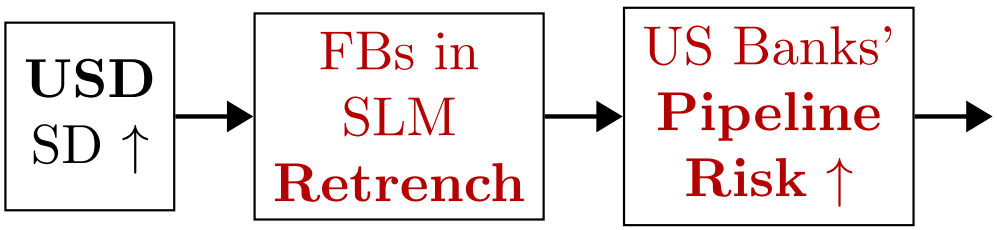

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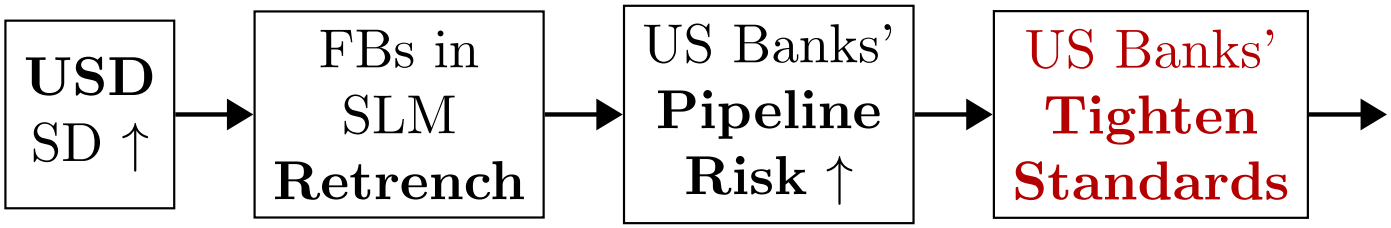

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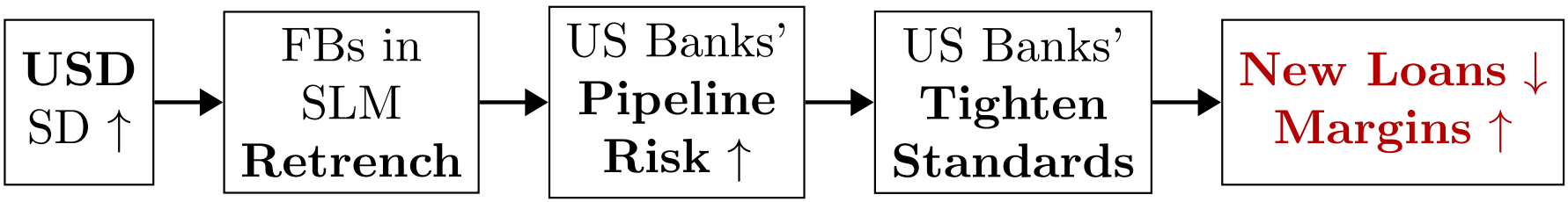

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4. Banks with larger loans are more sensitive to this uncertainty.
   - The effects are large and persistent.

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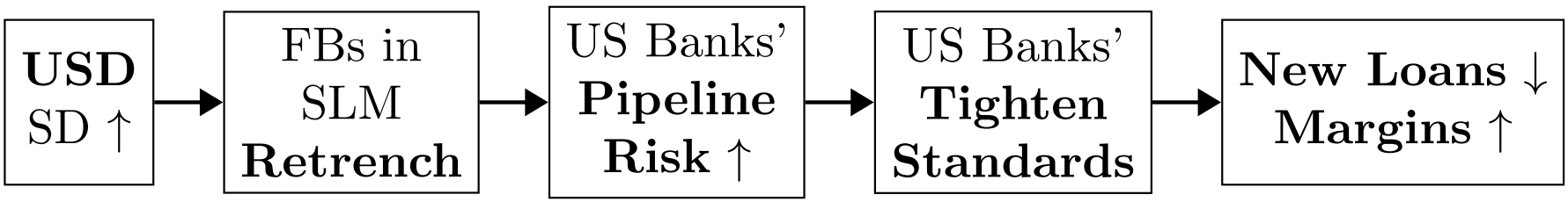

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Empirics: Part 1

Qualitative Evidence: DealScan and SLOOS

DealScan

WRDS Thomson Reuters Loan Pricing Corporation DealScan Database

- Comprehensive historical information on loan pricing and contracts' details in the Syndicated Loans Market
- Quarterly data from 1990-2018 on Syndicated Loans[4]
- Provides a good average of the US Loans Market
- Gather suggestive evidence for a mechanism that may affect US Banking: 4 main insights
- Limits to the analysis: cannot get detailed borrower and bank characteristics

[4] including Sole Lender loans

1: USD Exposure

- 99% of the loans in my sample are denominated in USD.

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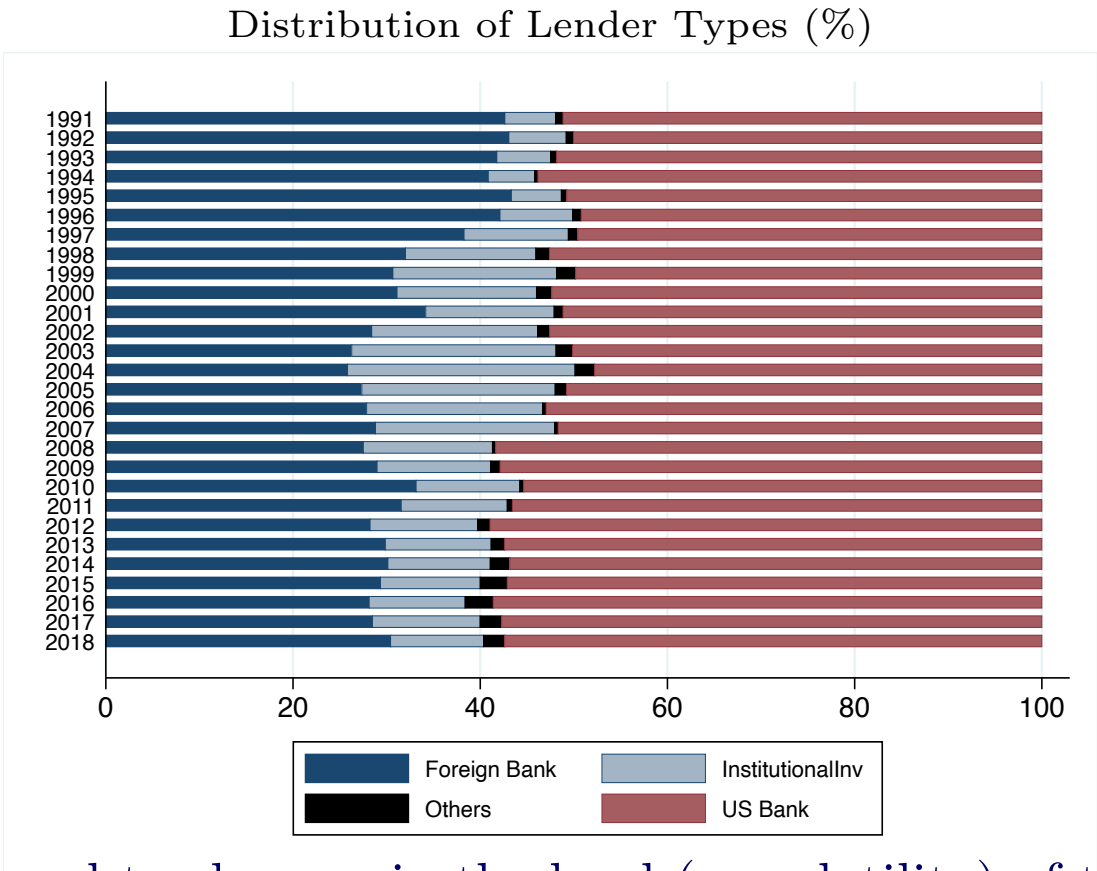
- 99% of the loans in my sample are denominated in USD.
- 30% of the loans are held by foreign banks (FBs)

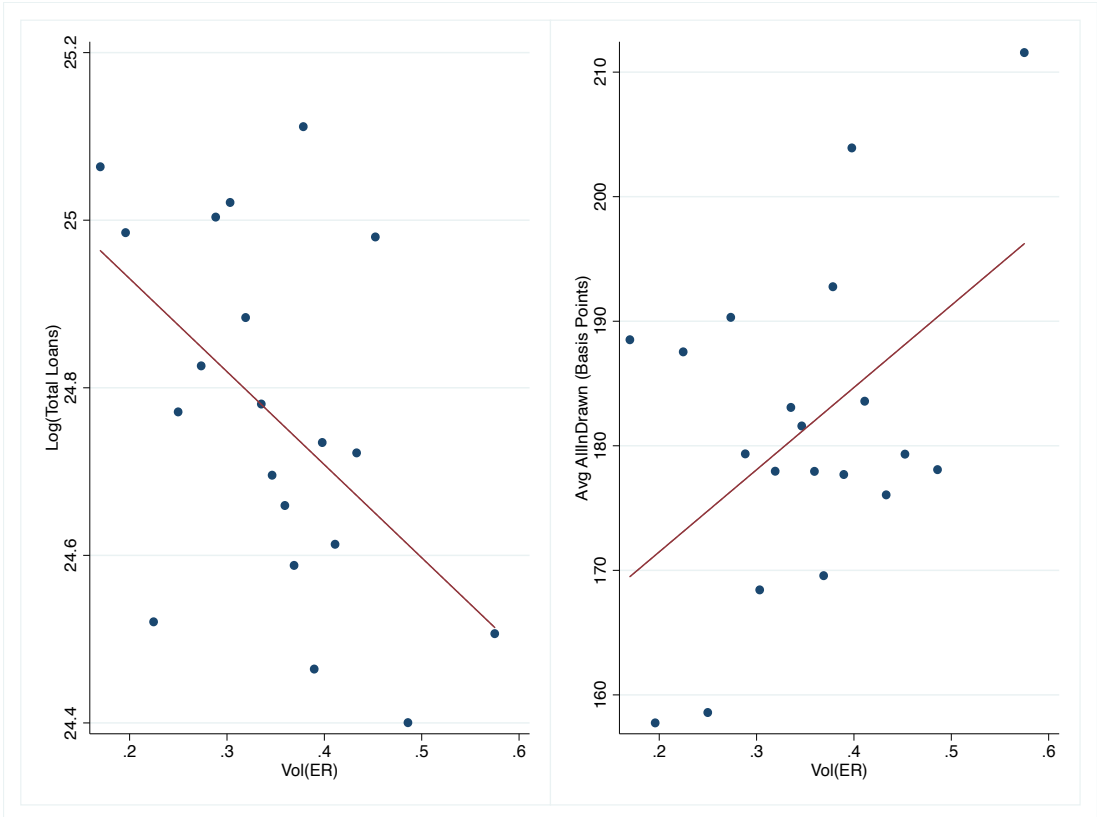


FBs are exposed to changes in the level (or volatility) of the 'foreign value of USD' through their stake in the syndicates.

2: ER Uncertainty v/s Loan Volumes and Spreads

Aggregate Correlations

Quantity and Price effect of Higher ER Uncertainty



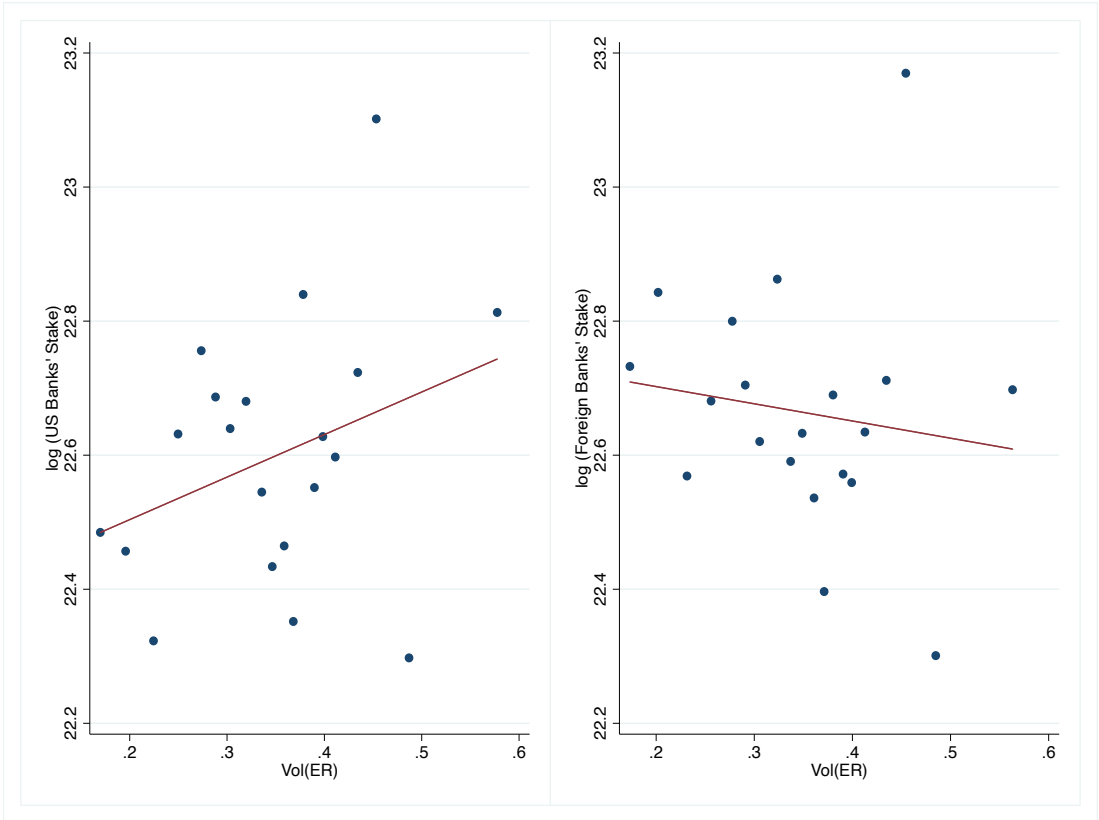
Higher ER uncertainty associated with lower log level of total loans in SLM, Higher AllInDrawn spreads

- Controlling for USD appreciation, absorb loan type

3: Change in Lender Stake

Lender Stake = Loan Amount * Bank Allocation

US v/s Foreign Banks' Stake during high ER uncertainty



US Banks face 'Pipeline Risk', FBs 'Retrench'

- Controlling for USD appreciation, absorb loan type

4: Effect on AllInSpread by Lead Arrangers' Exposure

$$\text{AllInDrawn}_{it} = FE + \beta\left(E_{ibt} \times Vol(ER)_t\right) + \gamma\left(E_{ibt} \times \Delta_1(ER)_t\right) + E_{ibt} + \epsilon_{it},$$

$$E_{bt} = \log(\text{Lender Stake}_{ibt}), b \in \{\text{Lead US Bank}, \text{Lead Foreign Bank}\}$$

Effect of ER Uncertainty on AllInDrawn

Lender_Type	Lead_USBank	Lead_ForBank
$\text{Expo}_t \times \text{Vol(ER)}_t$	24.42***	36.60**
Interpretation	52bps***	79bps**
	(7.510)	(15.23)
$\text{Expo}_t \times \Delta(ER)_t$	-0.495*	-0.0921
	(0.285)	(0.597)
Expo	-48.43***	-43.63***
	(2.675)	(5.553)
Observations	16128	3407
Adjusted R^2	0.361	0.334

Source: DealScan (1990Q1-2018Q4)

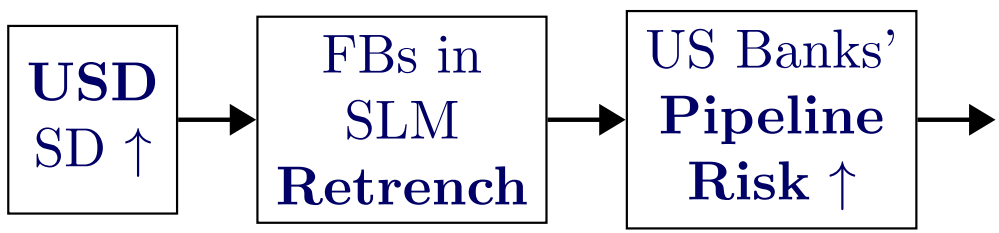
Robust SE in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

A one sd ↑ in ER volatility is associated with a 52-79 basis points ↑ in the AllInDrawn spreads for an average level of lender stake among US Lead Banks, and Foreign Lead Banks respectively.

DealScan Evidence

For US Syndicated Loans Market

1. Foreign Banks are significantly exposed to USD fluctuations.
2. Higher ER volatility leads to lower volume of loans transacted.
3. Foreign Banks 'Retrench', US Banks face greater 'Pipeline Risk'.
4. All lead bank charge higher spreads + fees in times with greater volatility in the foreign value of USD.



SLOOS

Senior Loan Officer Opinion Survey (SLOOS) Data

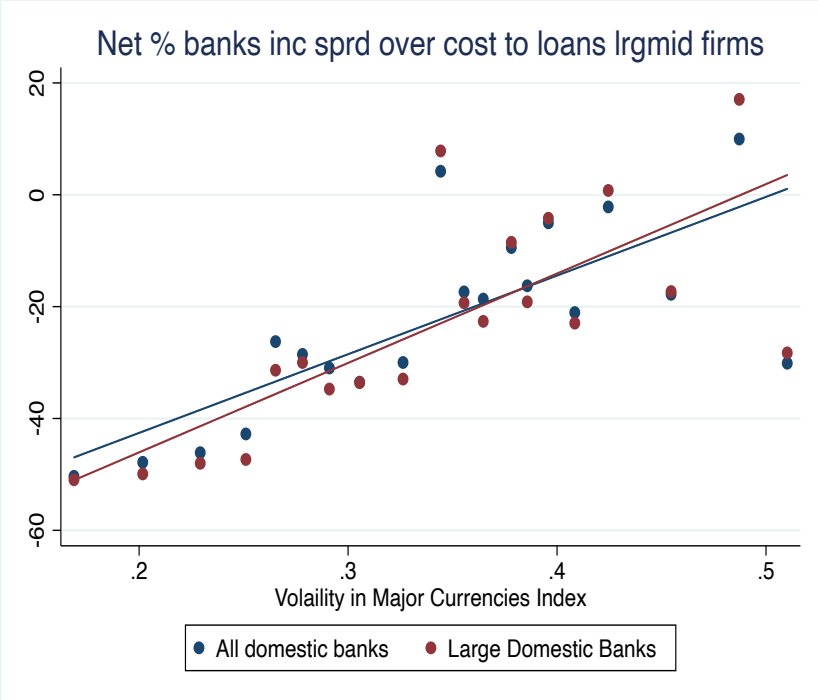
- Time Series data on Bank Lending Practices from 1992Q1-2018Q4 for US Banks.
- Panel of 80 banks with substantial assets and CI Loans[5], Conducted 4-6 times in a year.
- Questions on changes in demand and supply of loans, including credit standards and reasons for changes.
- Without imposing undue reporting burden.
- 3 relevant questions: suggestive evidence for
  1. Tightening of credit standards
  2. Increase in Spreads over cost of loans
  3. Increase in Premium charged for Riskier Loans

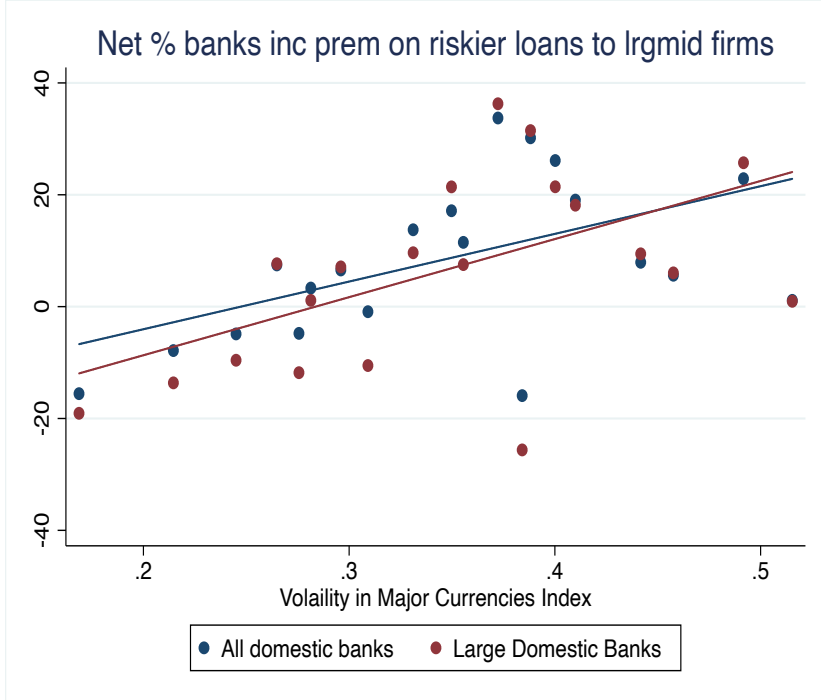
  in times with higher ER uncertainty.

[5] assets (> \$2bn) and CI Loans/Assets $\geq$ 5%

Tighter credit standards

Higher Spreads, Higher Premium on Risky Loans





1 sd ↑ in ER Volatility is associated with

1. Quarterly ↑ Tighter credit standards for CI loans by 2 pp
2. ↑ Higher spread over cost of loans by 3-5 pp[6]
3. ↑ Higher premium on riskier loans by 3-4.5 pp

[6] Controlling for level changes, ruling out recessions

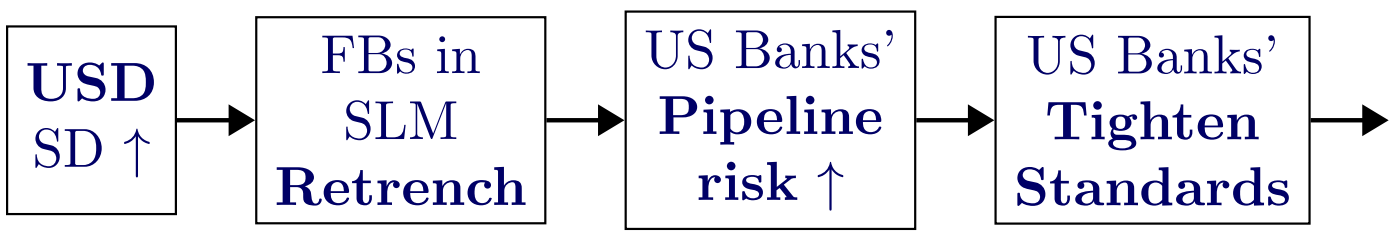
3: Higher Premium on Riskier Loans

	Large Banks				All Domestic Banks			
$Vol(ER)_t$	41.97**	44.00**	48.15*	45.31*	27.16**	26.86*	29.97*	28.00*
	(19.34)	(21.01)	(25.28)	(23.40)	(13.12)	(14.52)	(16.60)	(16.00)
$\Delta_1(ER)_t$	0.0345	-0.0356	-0.00419	-0.200	0.0820	0.0207	0.0383	-0.0540
	(0.749)	(0.821)	(0.853)	(0.833)	(0.573)	(0.583)	(0.602)	(0.583)
X_{t-1}	0.611***	0.592***	0.593***	0.635***	0.619***	0.650***	0.647***	0.686***
	(0.108)	(0.127)	(0.129)	(0.131)	(0.147)	(0.151)	(0.153)	(0.146)
$\Delta_1 l(VIX)_t$		-7.526	-7.530	-8.949		-6.271	-6.306	-7.310
		(8.361)	(8.468)	(9.028)		(5.601)	(5.559)	(5.120)
$\Delta_1 EBP_t$		3.357	4.196	10.32		6.886	7.418	11.03
		(11.57)	(11.69)	(12.75)		(7.144)	(7.029)	(7.795)
$\Delta_1 FFR_t$			-2.707	-7.096			-1.929	-4.327
			(7.048)	(7.837)			(3.961)	(4.209)
$\Delta_1 TS_t$				-12.51*				-7.075
				(6.976)				(4.227)
$\Delta_1 UO_t$				8.409				5.721
				(27.86)				(16.52)
_cons	-17.37***	-18.24***	-19.19**	-18.54**	-10.88**	-10.68**	-11.42**	-11.00**
	(5.809)	(6.431)	(7.417)	(6.950)	(4.103)	(4.559)	(4.979)	(4.856)
N	39	39	39	39	39	39	39	39
Adj. R^2	0.479	0.459	0.445	0.485	0.493	0.493	0.480	0.508

Source: SLOOS (2005Q1 - 2018Q4, excludes gfc), Robust SE in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

SLOOS Evidence

1. Higher ER uncertainty correlated with tightening of credit standards by the US Banks.
2. The effect is stronger and more robust for large banks.
3. US Banks increase spreads over cost of loans to large and middle market firms.
4. In particular, US Banks do not want to hold riskier loans. They charge a higher premium on riskier loans.



Empirics: Part 2

Quantitative Estimation: Call Reports and VAR

Call Reports

- Assets $>$ \$10 bn (Unbalanced Panel of 40-70 banks) from 1995Q1-2018Q1
- Balance Sheet and Income Statements

Typical Large US Bank Balance Sheet

Assets	**Liabilities**
Loans (60%) Securities (20%)	Deposits (80%) Equity (10%)
Cash (5%) Interest Earning Assets (90%)	 Core Deposits (70%)

- 60% of the assets of all US commercial banks

Identification Strategy

- ER Uncertainty is a source of exogenous variation in SLM
- US Banks have substantial stake in SLM
  - Most of their loans are off-loaded within 30 days of origination.
  - Exploit heterogeneity in bank "Loans/Interest Earning Assets" ratio to identify the differential response

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- Key Prediction:
  - Large banks use their "Market Power" in loan originations to respond to 'Pipeline Risk' with Higher Lending Margins.
  - Quantity Effects are less obvious: find that Loan/Deposit ratio $\downarrow$.

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  - Quantity Effects are less obvious: find that Loan/Deposit ratio $\downarrow$.
- Directly control for other macroeconomic and financial effects using time and bank fixed effects
  - Robust to excluding recessions, alternate exposure definitions.
  - Not driven by overall US economic uncertainty.

1: Price Effects Regression Framework

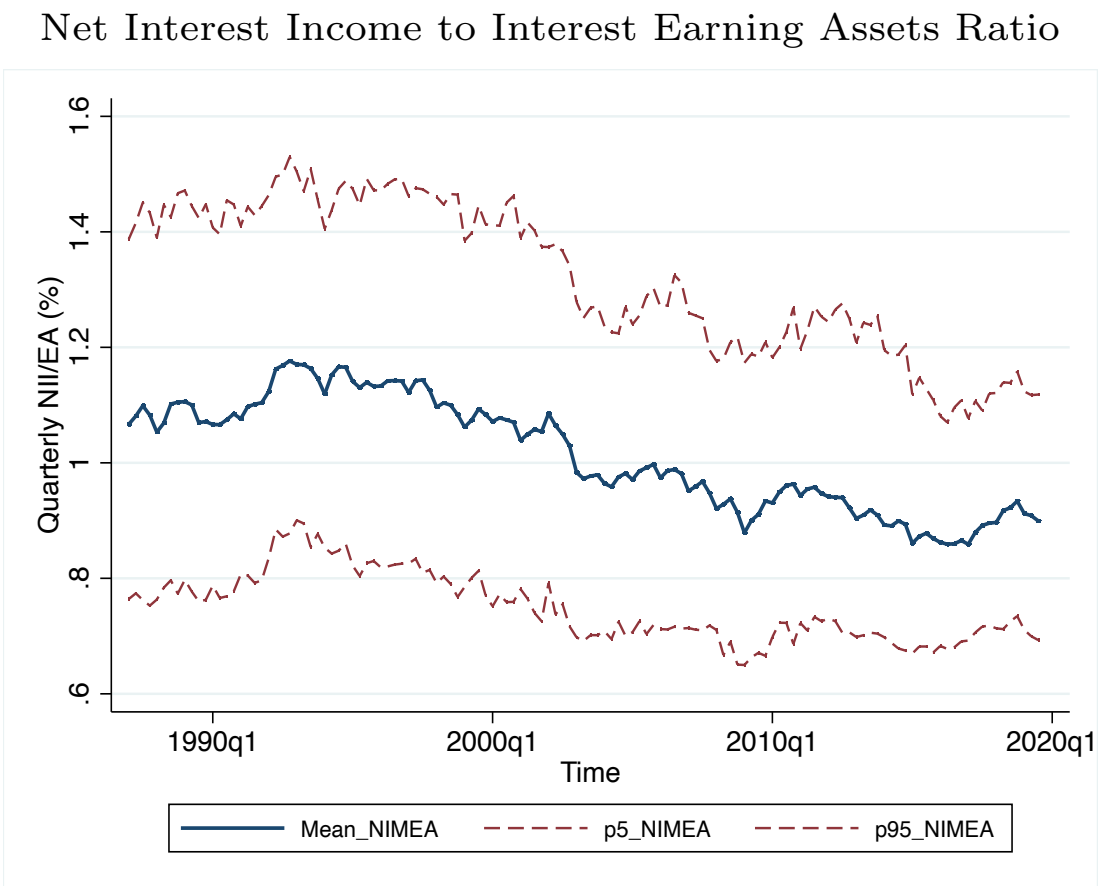
- Net Interest Income (NII) =
  Interest Income on Assets (IIA) - Interest Expense (IE)
- $\Delta_h \mathrm{Y}_{i,t} = \frac{\mathrm{Y}_{i,t+h} - \mathrm{Y}_{i,t-1}}{\text{Interest Earning Assets}_{i,t-1}} * 100, \qquad \forall Y \in \{NII, IIA, EA\}$
- Exposure $E_{it^-} = \frac{1}{4} \sum_{l=1}^{4} \frac{\text{Loans}_{i,t-l}}{\text{Interest Earning Asset}_{i,t-l}}$

$$\Delta_h Y_{it} = \alpha_i + \delta_t + \beta(E_{i,t^-} * Vol(ER)_t) + \gamma(E_{i,t^-} * \Delta_1 ER_t)$$
$$+\theta E_{i,t^-} + \sum_{l=0}^{l=3} \psi^l \Delta_0 Y_{i,t-l} + \epsilon_{it}, \qquad \forall Y \in \{NII, IIA, EA\}$$

- Bank and Time Fixed Effects, Control for 4 lagged differences
- Asset Weighted Panel Regressions, Clustered SE by banks

Bank Margins are very Slow Moving

Small but Statistically Significant Changes are also Economically Significant



1: Effect on Bank Margin

	Δ_1NII	Δ_2NII	Δ_3NII	Δ_4NII
$E_{i,t^-} \times Vol(ER)_t$	0.30	1.21***	1.16***	1.40**
Annual (bp) Effect	**05**	**13****	**10****	**09****
	(0.25)	(0.37)	(0.40)	(0.53)
$E_{i,t^-} \times \Delta_1 ER_t$	0.02**	-0.01	-0.01	-0.01
	(0.01)	(0.02)	(0.03)	(0.02)
E_{i,t^-}	-0.09	-0.36***	-0.31***	-0.40**
	(0.08)	(0.10)	(0.11)	(0.20)
#Obs	3294	3252	3216	3172
Time FE	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y

Clustered SE in parentheses ($^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$)

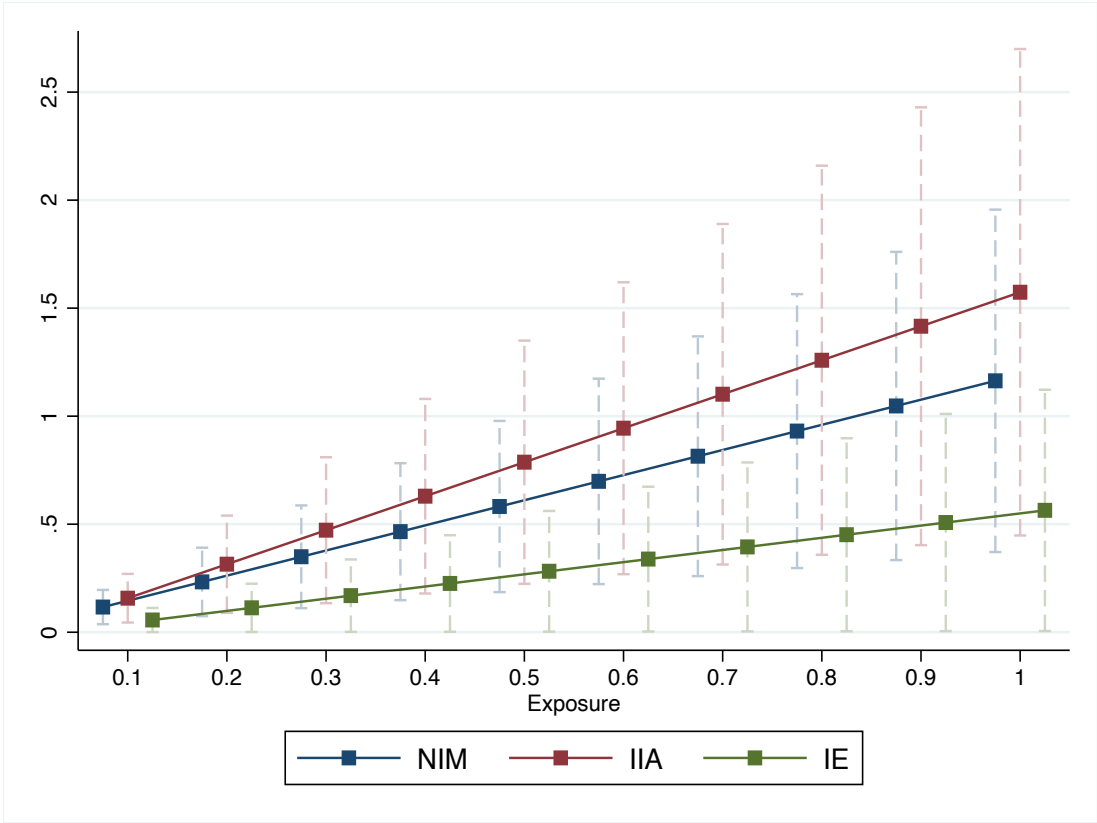
$\uparrow$ ER Uncertainty $\implies \uparrow$ US Bank Lending Margins

- Effect is half of the sd for the dependent variable, $R^2 \approx 0.40$
- Response at $E_{(95)} - E_{(05)} = 5$ bps

1: Price Effect of ER Uncertainty

Interest Income on Assets versus Interest Expenses

Call Reports: Marginal Effect of Vol(ER) on NII, IIA and IE by Exposure



Interest Income ↑ >> Interest Expense ↑

- For Average Exposure US Bank, IIA ↑≈ 14 bps, IE ↑≈ 4bps

2: Quantity Effects Regression Framework

- Effect on growth in Assets, Loans, Securities, Core Deposits, Managed Liabilities, Equity
- $\Delta_h \log Z_{it} = \log(Z_{i,t+h}) - \log(Z_{i,t-1}) \quad \forall Z \in \{A, L, S, CD, E\}$

$$\Delta_h \log Z_{it} = \alpha_i + \delta_t + \beta(E_{i,t-} * Vol(ER)_t) + \gamma(E_{i,t-} * \Delta_1 ER_t) + \theta E_{i,t-} + \sum_{l=0}^{l=3} \psi^l \Delta_0 \log Z_{i,t-l} + \epsilon_{it}, \qquad \forall Z \in \{A, L, S, CD, E\}$$

- Bank and Time Fixed Effects, Control for 4 lagged differences
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2: Quantity Effects

Call Reports: Effect on Loans/ Deposits ratio for US Banks

	Δ_1L/D	Δ_2L/D	Δ_3L/D	Δ_4L/D	Δ_5L/D	Δ_6L/D
$E_{i,t^-} \times Vol(ER)_t$	-0.36***	-0.45***	-0.62***	-0.51**	-0.58***	-0.85***
Annual(%) Effect	**-5.7*****	**-4.8****	**-4.9*****	**-3.2****	**-3.1*****	**-3.8*****
	(0.123)	(0.163)	(0.202)	(0.212)	(0.209)	(0.206)
$E_{i,t^-} \times \Delta ER_t$	0.001	-0.005	-0.0	-0.013	-0.010	-0.009
	(0.003)	(0.009)	(0.013)	(0.014)	(0.013)	(0.012)
E_{i,t^-}	0.027	-0.009	-0.015	-0.081	-0.146	-0.091
	(0.047)	(0.085)	(0.116)	(0.138)	(0.168)	(0.173)
# Obs	2855	2821	2796	2771	2751	2726
Time FE	Y	Y	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y	Y	Y

Clustered SE in parentheses ($^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$)

- US Banks try to minimize their exposure to 'Pipeline Risk'
- Loan/Deposit $\downarrow$ as banks rely more on internal funding sources
- and $\downarrow$ Loan Origination $\implies$ $\uparrow$ **Bank Lending Margins**

2: Quantity Effects: US Bank Balance Sheet shrinks

Call Reports: Effect on Asset Growth for US Banks

	Δ_1A	Δ_2A	Δ_3A	Δ_4A	Δ_5A	Δ_6A
$E_{i,t-} \times Vol(ER)_t$	-0.09**	-0.10	-0.25*	-0.28*	-0.61***	-0.60**
Annual (%) Effect	**-1.43****	**-1.02**	**-1.96***	**-1.75***	**-3.2*****	**-2.72****
	(0.04)	(0.07)	(0.13)	(0.15)	(0.21)	(0.28)
$E_{i,t-} \times \Delta ER_t$	0.003	0.002	0.008**	0.008	0.006	0.005
	(0.003)	(0.004)	(0.004)	(0.006)	(0.009)	(0.013)
$E_{i,t-}$	0.05**	0.06*	0.12**	0.13**	0.28***	0.32***
	(0.02)	(0.03)	(0.06)	(0.06)	(0.08)	(0.09)
# Obs	3001	2951	2924	2881	2847	2813
Time FE	Y	Y	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y	Y	Y

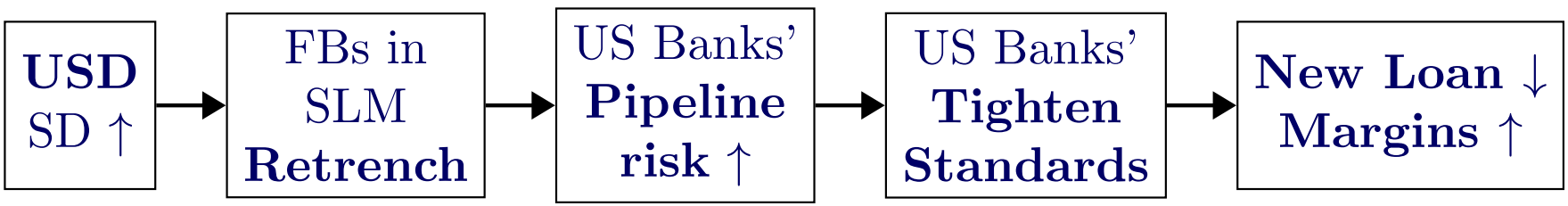
Clustered SE in parentheses (*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$)

$\uparrow$ ER Uncertainty $\Longrightarrow \downarrow$ Asset Growth ($\downarrow$ Loans, $\downarrow$ Securities)

$\uparrow$ ER Uncertainty $\Longrightarrow \uparrow / \sim$ Core Deposits, $\downarrow$ Equity

Call Reports Evidence

- US Banks with more loans are exposed more to SLM.
- Large US Banks with "market power" reduce risk exposure.
- Banks shrink and rely less on secondary markets.
- Higher bank margins for more exposed banks.
- Effects are significant and persistent.



- Spills over to the entire Banking System.
- Has real economics implications!

USD as Global Risk Indicator

- Perhaps the underlying channel is greater aversion of Foreign Banks to volatility in US financial markets?
- What is so special about ER Uncertainty?
- Allow for volatility and level changes in S&P 500
- Study how uncertainty is inter-twined with financial shocks: the mechanism is distinct from being driven by changes in EBP

ER Uncertainty Channel is distinct as USD is a Global Risk Indicator

Robustness to Stock Market Volatility

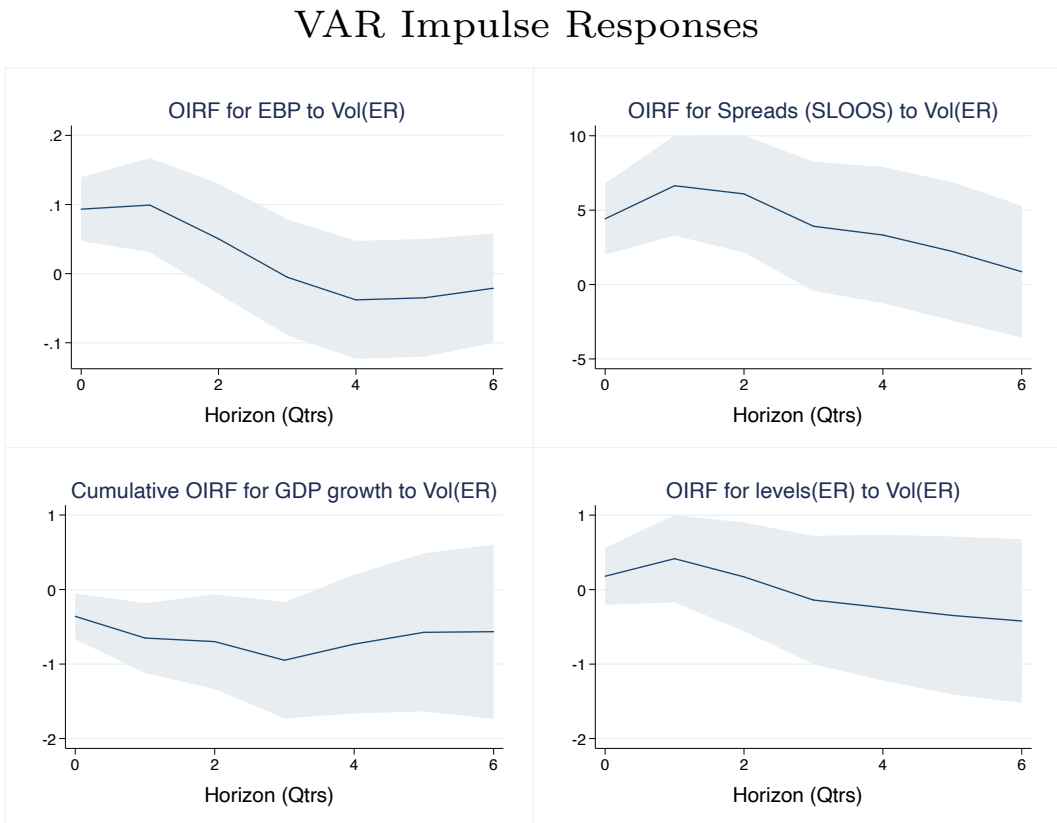
Call Reports: NIM (not driven by US Stock Market Volatility)

	Δ_1NII	Δ_2NII	Δ_3NII	Δ_4NII
$E_{i,t-} \times Vol(ER)_t$	0.112	1.097***	0.888***	1.560***
Annual (bp) Effect	**02**	**12*** **	**7*** **	**10****
	(0.27)	(0.38)	(0.28)	(0.38)
$E_{i,t-} \times Vol(SP500)_t$	0.008	0.003	0.008	0.016
$E_{i,t-} \times \Delta_1 ER_t$	0.022	-0.007	-0.022*	-0.012
$E_{i,t-} \times \Delta_1 SP500_t$	0.001**	0.00	0.00	0.002*
$E_{i,t-}$	-0.230	-0.391***	-0.290*	-0.692*
	(0.240)	(0.113)	(0.163)	(0.357)
Observations	3272	3228	3188	3145
Time FE	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y

Clustered SE in parentheses ($^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$)

- Significant correlation of 0.44 between ER and SP500 volatilities.
- ER effects do not change with domestic stock market volatility
- Similar results for ΔEBP, Also Robust Balance Sheet effects

Exchange Rate Uncertainty and EBP



$\uparrow$ ER Uncertainty $\implies \uparrow$ EBP, $\uparrow$ Spreads, $\downarrow GDP$ for 4 quarters

- Higher EBP captures shift in risk attitude and willingness to intermediate credit [7]

[7] Consistent with "The macroeconomic impact of financial and uncertainty shocks", Caldara, Albero, Gilchrist and Zakrajsek

Model

Simple 3 period Model of Foreign and US Banks

Model

- Static Model, with 3 subperiods:

  $t = 0$ (Origination), $t = 1$ (Secondary Market), $t = 2$ (Liquidation)

- Large US Bank (with Market Power)
  - Issue new loans (N_0) at a commission c
  - Off-loads Q_1 of them in secondary market (holding cost otherwise)
  - Maximizes profits, distributed as dividends in the end

US Bank Balance Sheet

Assets	**Liabilities**
Loans (L_0) Securities (S_0)=0(wlog)	Deposits and Debt (B_0) Equity (E_0)
Assets (A_0)	Liabilities (A_0)

- Foreign Banks $\in [0, 1]$ optimize allocation of funds F in SLM

Banks' Problem

US Bank's Problem

$$\pi^U(L_0, B_0) = \max_{N_0 \geq 0} \left\{ \underbrace{(c - P_0(N_0))N_0}_{\text{New Loans Issuance}} + \max_{0 \leq Q_1 \leq N_0} \left[\underbrace{(N_0 - Q_1)1}_{\text{Retained Loans}} - \right. \right.$$

$$\left. \left. - \underbrace{r(B_0 + N_0 - Q_1)}_{\text{funding cost}} - \underbrace{\Phi(L_0 + N_0 - Q_1)}_{\text{Holding Cost}} + \underbrace{P_1 Q_1}_{\text{Offloading in SLM}} \right] \right\} \tag{1}$$

Banks' Problem

US Bank's Problem

$$\pi^U(L_0, B_0) = \max_{N_0 \geq 0} \Bigg\{ \underbrace{(c - P_0(N_0))N_0}_{\text{New Loans Issuance}} + \max_{0 \leq Q_1 \leq N_0} \Bigg[\underbrace{(N_0 - Q_1)1}_{\text{Retained Loans}} - \underbrace{r(B_0 + N_0 - Q_1)}_{\text{funding cost}} - \underbrace{\Phi(L_0 + N_0 - Q_1)}_{\text{Holding Cost}} + \underbrace{P_1 Q_1}_{\text{Offloading in SLM}} \Bigg] \Bigg\} \tag{1}$$

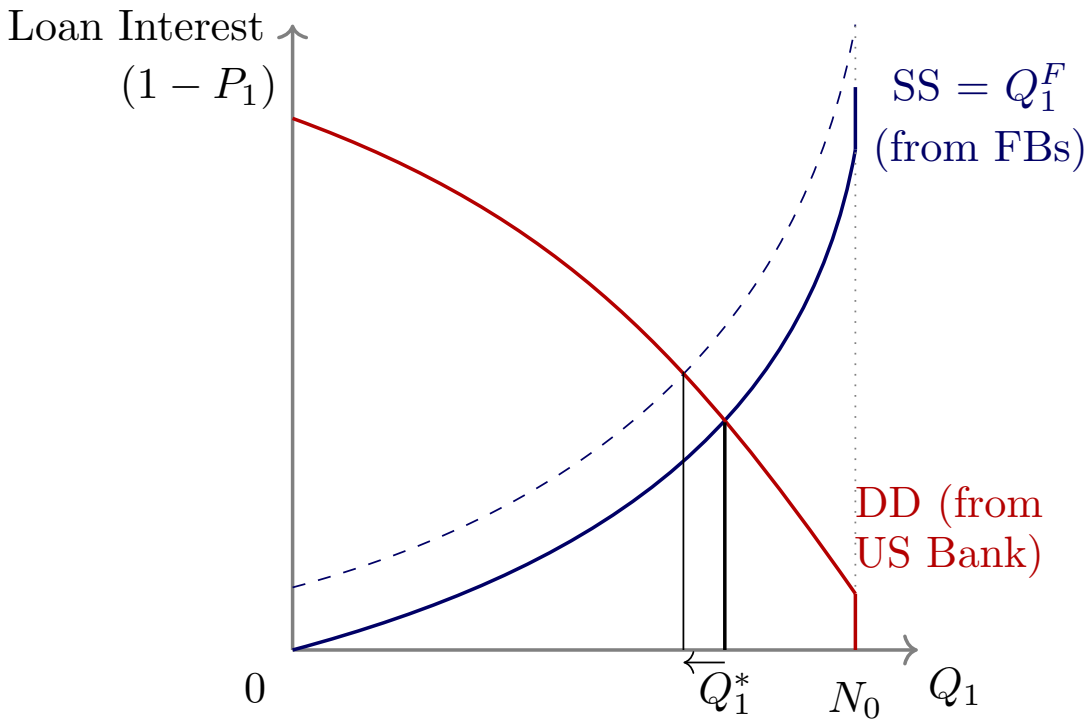
Foreign Banks' Problem ($f \in [0, 1]$)

$$\Pi^f(F, \Lambda^f) = \max_{0 \leq Q_1^f \leq F} \mathbb{E}_E \left[\underbrace{\pi^f(r_E, Q_1^f)}_{\text{SLM Return}} - \underbrace{\Lambda^f \max\{0, r^* F - \pi^f(r_E, Q_1^f)\}}_{\text{Penalty for negative profits}} \right]$$

$$\pi^f(r_E, Q_1^f) = (r_E + 1 - P_1)Q_1^f + r^*(F - Q_1^f) \tag{2}$$

Secondary Market Equilibrium

Demand and Supply of Loanable Funds in SLM



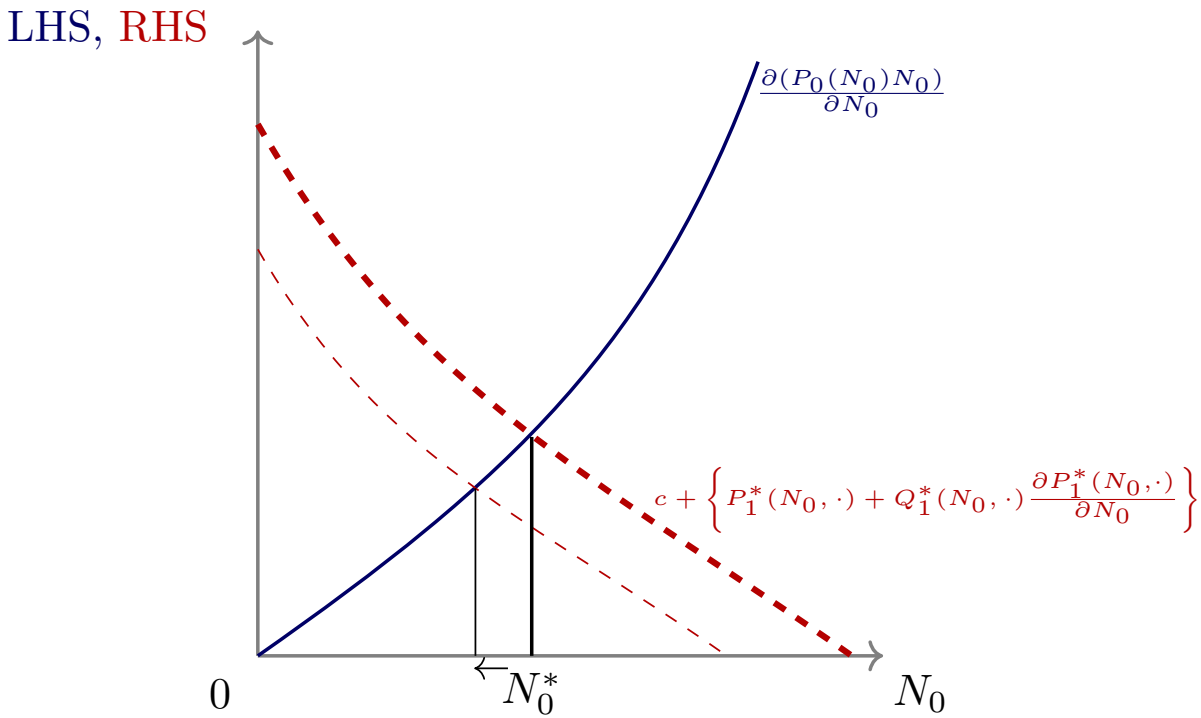
Proposition 1 and 2

$$\forall \Lambda^f \geq 0, \uparrow \bar{r}_E \implies \uparrow Q_1^f \forall f \implies \uparrow Q_1^F \tag{3}$$

$$\text{If } \Lambda^f > 0, \uparrow \sigma(r_E), \text{ given } \bar{r}_E \implies \downarrow Q_1^f \forall f \implies \downarrow Q_1^F \tag{4}$$

Equilibrium New Loans Origination

LHS and RHS for FOC w.r.t N_0 in period 0



Proposition 3

$$\uparrow \sigma(r_E) \implies \downarrow RHS \implies \downarrow N_0^* \implies \downarrow P_0(N_0^*) \implies \uparrow (1 - P_0(N_0^*)) \quad (5)$$

$$\uparrow \text{ER Uncertainty} \implies \downarrow \text{Loans}, \uparrow \text{US Bank Lending Margins}$$

Novel and Distinct Channel

1. Foreign Banks retrenchment is driven by increased global risk indicated by greater volatility in foreign value of USD
2. Not driven by increased domestic volatility in the US financial markets
   - Shows that indeed "USD is a barometer of risk taking capacity in global capital markets"
3. Not driven merely by the appreciation of USD
   - Second moments changes matter
4. USD volatility affects US Economy
   - Seems counterintuitive at first, but it is true!

Contribution to the Literature

1. **Exchange Rates & Syndicated Loan Market Channel**
   - Neipman and Eisenholer (2019)
   - Irani et al. (2018), Lee et al. (2015), Lee at al. (2017), Bruche et al. (2017)
2. **Bank Margin Channels**
   - Deposit Channel: Dreschler, Savov and Schnabl
3. **First Order Effects of Second Moments**
   - VAR: Caldara, Albero Gilchrist, Zakrajšek (2016,EER)
   - Ludvigson, Ma, Ng (2015 AER, 2020 AEJ)
4. **Funding Constraints**
   - Regulatory Capital: Skander J. van Den Heuvel (2002)
   - Borrowing: Schneider (2001), Gilchrist ét al (2017, AER)
   - Maturity Mismatch

Appendix

Robustness to Change in EBP

Call Reports: NIM (not driven by US Corporate Risk Aversion)

	Δ_1NII	Δ_2NII	Δ_3NII	Δ_4NII
$E_{i,t^-} \times Vol(ER)_t$	0.32	1.24***	1.19***	1.43**
Annual (bp) Effect	**05**	**13*****	**9.4*****	**9.1****
	(0.23)	(0.38)	(0.42)	(0.55)
$E_{i,t^-} \times \Delta_1 ER_t$	0.033**	0.0006	-0.007	0.005
	(0.014)	(0.019)	(0.027)	(0.018)
$E_{i,t^-} \times \Delta EBP_t$	-0.211**	-0.158*	-0.125	-0.244
	(0.086)	(0.084)	(0.125)	(0.160)
E_{i,t^-}	-0.10	-0.37***	-0.31***	-0.42**
	(0.084)	(0.105)	(0.118)	(0.206)
# Obs	3294	3252	3216	3172
Time FE	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y

Clustered SE in parentheses ($^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$)

- Significant correlation of 0.12 between Vol(ER) and Δ EBP.
- ER effects do not change with changes in investor risk sentiments
- Also Robust Balance Sheet effects

Back