The Safe Side of Shadow Banking

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CONFERENCE IN RESEARCH IN ECONOMIC THEORY & ECONOMETRICS· 2026

Motivation & Research Question

- "Our largest risk is geopolitical risk" — Jamie Dimon, April 2025 shareholder letter
- Shadow banks now hold over half of global financial assets · narrow bank-like credit intermediation: $76 trillion · grew at double the pace of banks in 2024 (FSB, 2025)
- Bank exposure to geopolitical risk is well studied; the shadow banking response remains unexplored (Irani et al. 2021; Caldara & Iacoviello 2022; Jiang 2023)

RESEARCH QUESTION

"How do shadow banks reallocate their lending portfolios when geopolitical risk rises?"

Key Results & Contribution

- **Novel Lender and Borrower specific GPR.** *The literature uses aggregate country-specific GPR Index (Caldara & Iacoviello 2022).*

- **Shadow banks rebalance toward safer borrowers, four times more than commercial banks.** A one-SD rise in lender-specific GPR raises new borrowers' Log(Z-Score) by 0.045 (0.19 SD); portfolio quality improves and risk dispersion falls. *In contrast, the literature reports that migration raises shadow bank risk (Irani et al. 2021; Plantin 2015).*

- **Competitive pricing wedge.** Commercial-bank-only facilities reprice +10.2 bps per SD of GPR; shadow banks' participation offsets −14.5 bps, attracting the safe borrowers that banks reprice away. *Prior works show that commercial banks reduce the supply of credit during heightened GPR stress periods (Niepmann & Shen 2025; Avril et al. 2025).*

- **Asymmetric funding squeeze.** Shadow bank wholesale funding costs rise ~28 bps per SD; the rebalancing is strongest where funding binds and fades by the third quarter. We *extend the funding-chain transmission mechanism to geopolitical shocks (Jiang 2023); new lender- and borrower-specific GPR indices vs Caldara & Iacoviello (2022).*

The Four-Step Chain

1. SHOCK

Lender-specific GPR rises

Earnings-call indices vary across lenders within a quarter

→

2. SQUEEZE

Shadow bank funding tightens

Banks raise the cost of warehouse, repo & credit lines

→

3. REBALANCE

Selectivity, 4× stronger

Safer borrowers, larger volumes, bigger syndicate shares

→

4. WEDGE

Spreads compress

Shadow-heavy facilities hold spreads as banks reprice

Each link is tested separately.

Related Literature

Shadow Banking & Regulatory Spillovers

Regulation pushes lending and risk to nonbanks; nonbank credit is more cyclical

(Buchak et al. 2018; Chernenko et al. 2022; Fleckenstein et al. 2026; Jiang 2023)

Geopolitical Risk & Bank Lending

Country-level GPR cuts volumes and cross-border credit; portfolio composition unexamined

(Caldara & Iacoviello 2022; Niepmann & Shen 2025; Avril et al. 2025; De Haas et al. 2025)

Most closely related:

IRANI et al. (2021) · PLANTIN (2015)	*vs*	THIS PAPER
Chronic regulatory tightening displaces the riskiest borrowers. Shadow bank risk rises during stress periods .		*Acute geopolitical stress displaces moderate-risk borrowers, quality upgrades for shadow banks. Risk falls.*
— Migration increases risk		**— Under GPR, migration reduces risk**

The risk prediction is conditional on the nature of the displacing shock.

How the Shock Transmits Asymmetrically

- Commercial banks: buffers (deposit insurance, capital, discount window) absorb the shock; they adjust via pricing and broad tightening
- Shadow banks: no buffers, and their funding is controlled by the very commercial banks experiencing the same shock, a double exposure
- At a higher cost of capital, only borrowers whose return clears the bar are originated (He & Krishnamurthy 2013)

The transmission chain from geopolitical shock to safer portfolios:

1		2		3		4
Regulatory Cost	+	**Broad Tightening**	+	**Funding Squeeze**	+	**Selective Origination**
Banks' shadow cost of balance-sheet capacity rises		*Banks displace moderate-risk (BB) borrowers*		*Warehouse, repo & credit-line terms tighten for shadow banks*		*Shadow banks fund only the safest deals*

Displaced moderate-risk borrowers are quality upgrades for shadow portfolios concentrated in leveraged lending.

Testable Predictions

The funding-channel mechanism yields four testable hypotheses, each mapped to a set of tables:

1	H1 Differential rebalancing: shadow banks shift toward safer borrowers more strongly than commercial banks when GPR rises.	**Tables 2–7** *Selection, Volume, Portfolio*
2	H2 Geopolitical-risk avoidance: shadow banks cut exposure to borrowers with high firm-level GPR more strongly.	**Tables 2, 7** *Borrower-GPR Triple Interactions*
3	H3 Differential spread response: facilities with greater shadow bank participation reprice less under GPR shocks.	**Table 8** *Equilibrium Facility Pricing*
4	H4 Persistence: the effect builds over the shock quarter, peaks one quarter later, and fades by the third quarter.	**Tables 11–12** *Stacked DiD & Local Projections*

Data & Sample Construction

DealScan	Compustat	Earnings Calls	FR Y-9C / FDIC / SEC
US syndicated loans: spreads, terms, full syndicate composition	*Borrower financials & Altman Z″-Scores (Chava–Roberts link)*	*Transcripts for lender- & borrower-specific GPR indices*	*Lender classification: commercial vs shadow banks*

Filters: USD facilities to US non-financial borrowers, non-missing AISD & controls, positive Z-Scores · 2000–2024, ten geopolitical events · shadow banks: 34.7% of observations

73,142
Deal-by-Lender Observations
(13,487 Facilities)

447
Unique Lenders
(Clustering Level)

2,518
Unique Borrowers
(Matched to Compustat)

The Lender-Specific Geopolitical Risk Index

KEYWORD FREQUENCY — LI et al. (2021)

- Source: earnings call transcripts (Refinitiv)
- 14 seed words → Word2Vec → 117-term dictionary
- Share of sentences mentioning geopolitical risk: how often the institution discusses it
- **Transparent & replicable · tone-blind**

&

FINBERT SENTIMENT — HARFORD et al. (2026)

- Source: same transcripts, fine-tuned on 5,000 labeled sentences
- Transformer classifies each sentence; average probability of geopolitical concern per firm-quarter
- Captures how concerned the tone of the discussion is
- **Sentiment-aware · calibration-sensitive**

PCA extracts the common signal (correlation 0.52; first component explains 76% of variance). Standardized, lagged one quarter. Unlike Caldara & Iacoviello (2022), the index varies across lenders and borrowers within the same quarter.

Empirical Strategy: Deal-Level Specification

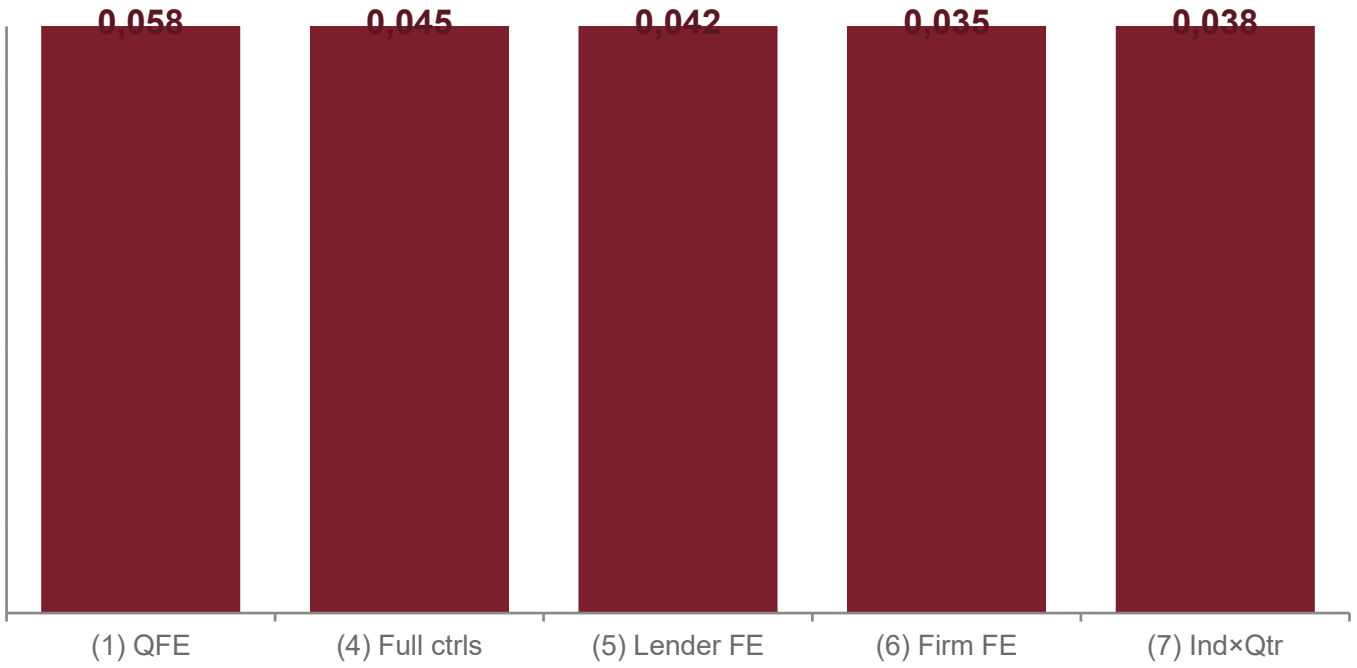
$$Y = \beta_1 \cdot GPR(Lender)_{t-1} + \beta_2 \cdot GPR(Lender)_{t-1} \times Shadow + \beta_3 \cdot Shadow + \gamma \cdot X + FE + \varepsilon \quad (1)$$

Y: Log(Z-Score), GPR(Borrower), Log(Tranche), Facility Share, AISD · β_1 = commercial response, $\beta_1+\beta_2$ = shadow response · GPR lagged one quarter, predetermined

Column 1	Columns 2–4	Column 5	Column 6	Column 7
Quarter FE only	+ Borrower, loan & lender controls	+ Lender FE	**+ Firm FE**	Ind.×Qtr / Borr.×Qtr FE

(1) **Identification from the interaction: both lender types in every regression.** Firm FE identifies within-borrower, across-lender variation (Khwaja & Mian 2008). Standard errors clustered by lender (447 clusters); robust to two-way lender × quarter.

Shadow Banks Select Safer Borrowers



GPR(Lender) × Shadow coefficient on Log(Z-Score), Table 2 Panel A

+0.045

Log(Z-Score) of new borrowers per 1-SD rise in lender GPR (0.19 SD)

Table 2, Panel A · Column 4 baseline

4.8×

Shadow bank response relative to commercial banks $(\beta_1+\beta_2)/\beta_1$

Table 2 · ratio stable at 4.7–4.9× across specifications

*Mean dep. var: 0.953 · Significant in all seven specifications · Panel B: exposed borrowers cut (−0.152**)*

Table 2 — Borrower Risk Selection and Geopolitical Risk

Dep. var — Panel A: Log(Z-Score), higher = safer; Panel B: GPR(Borrower). β_1 = commercial response; $\beta_1+\beta_2$ = shadow response. SE clustered by lender (447).

	(1)	(4) ★ Baseline	(5)	(6)	(7)
Panel A — GPR(L) × Shadow	0.058** (0.025)	0.045*** (0.015)	0.042** (0.018)	0.035** (0.017)	0.038** (0.019)
Total shadow effect ($\beta_1 + \beta_2$)	0.073*** (0.026)	0.057*** (0.017)	0.053*** (0.019)	0.044** (0.018)	0.048** (0.020)
Ratio ($\beta_1 + \beta_2$) / β_1	4.87×	4.75×	4.82×	4.89×	4.80×
Panel B — GPR(L) × Shadow	−0.188* (0.098)	−0.152** (0.072)	−0.142* (0.080)	−0.118* (0.071)	−0.128* (0.077)
Full borrower, loan & lender controls	No	Yes	Yes	Yes	Yes
Fixed effects	Quarter	Qtr + Industry	+ Lender	+ Firm	Ind × Qtr
Observations (Panel A)	71,240	71,240	71,240	58,450	65,830
R^2 (Panel A)	.018	.162	.195	.452	.228

What it tests — H1 at the deal level: whether shadow banks select safer (Panel A) and less geopolitically exposed (Panel B) borrowers than commercial banks when lender-specific GPR rises.

What it shows — GPR × Shadow is positive and significant throughout: +0.045 Log(Z-Score) per 1-SD GPR at the baseline, a stable 4.8× multiple of the commercial-bank response; shadow banks also cut geopolitically exposed borrowers (Panel B: −0.152**).

Table 3 — The Quintile Gradient of the Rebalancing

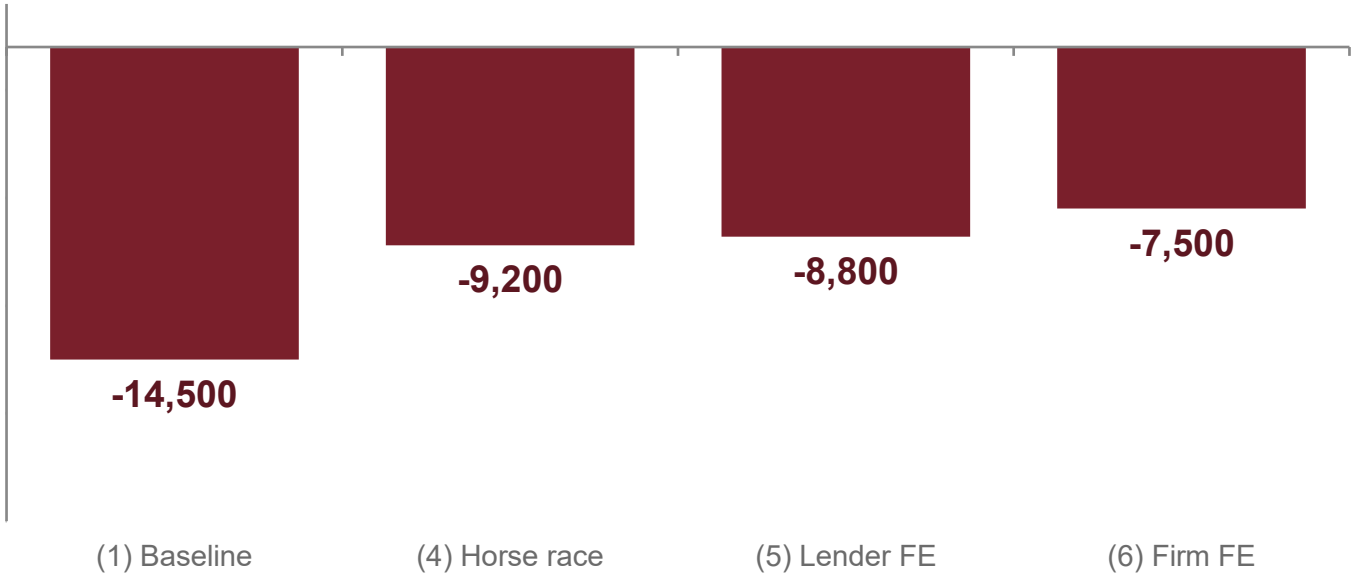
Q1 — RISKIEST	Q2	Q3	Q4	Q5 — SAFEST
−0.008	**−0.002**	**+0.005**	**+0.015***	**+0.028****
Volume cut; not significant	*Flat; not significant*	*Reference segment; flat*	*Volume expands, marginal*	*Strongest expansion, 1% level*

What it tests — whether the rebalancing spans the whole distribution: GPR(L) × Shadow on volume within each Z-Score quintile.
What it shows — a monotonic gradient from −0.008 (Q1) to +0.028 (Q5).***

*Pooled interactions (Table 3, Col. 6) confirm the ordering formally: Q5 +0.022*** vs Q1 −0.015, with Q3 as reference. Firm FE in all columns; quintile estimates plotted in Figure 5.*

Result: Larger Volumes, and a Pricing Wedge

Panel A: shadow banks commit larger tranches when their GPR rises, 3.4× the commercial response. Panel B: commercial banks reprice; shadow-heavy facilities do not.



GPR(Lender) × Shadow on AISD across specifications, Table 4 Panel B

+0.022**

Log(Tranche Amount) per 1-SD GPR — shadow banks expand volume (total effect +0.031***, 3.4×)

Table 4, Panel A · baseline

−14.5 bps

GPR × Shadow spread offset vs +10.2 bps commercial repricing — net shadow effect ≈ 0

Table 4, Panel B · baseline

*The compression is directed at safer borrowers (Z-Score triple −8.5***): the wedge through which displaced safe borrowers flow to shadow banks.*

Table 4 — Lending Amount, Spread, and Geopolitical Risk

Dep. var — Panel A: Log(Tranche Amount/Size); Panel B: AISD (bps). Full controls throughout; Col. 7 Borrower × Quarter FE (Panel A only). SE clustered by lender.

	(1) Baseline	(4) Horse race	(5) Lender FE	(6) Firm FE	(7) B.×Q. FE
Panel A — GPR(L) × Shadow [volume]	0.022** (0.010)	0.013* (0.007)	0.014* (0.008)	0.011* (0.006)	0.009* (0.005)
Panel B — GPR(L) × Shadow [AISD]	−14.5** (6.8)	−9.2* (5.5)	−8.8* (5.3)	−7.5* (4.5)	N/A
Panel B — GPR(L) [commercial]	10.2** (4.5)	9.6** (4.5)	9.2** (4.4)	8.5* (4.8)	N/A
Panel B — GPR(L) × Sh × Log(Z)	—	−7.8*** (2.8)	−7.2** (3.0)	−6.2** (2.8)	N/A
Total shadow effect ($\beta_1 + \beta_2$)	0.031*** (0.011)	0.020** (0.010)	0.019** (0.009)	0.016* (0.009)	0.014 (0.009)
Observations	71,240	68,650	68,650	56,480	48,920
R^2 (Panel A)	.385	.389	.415	.520	.658

What it tests — The intensive margin of H1 and the pricing side of H3: conditional on participating, do shadow banks commit more capital, and does facility pricing respond asymmetrically?

What it shows — Shadow banks expand tranche size (+0.022**, total effect 3.4× the commercial response) while commercial banks reprice (+10.2 bps per SD) and shadow participation offsets it (−14.5 bps); the compression is directed at safer borrowers (Z-triple −8.5***).

Table 5 — Capital Allocation Within Syndicates

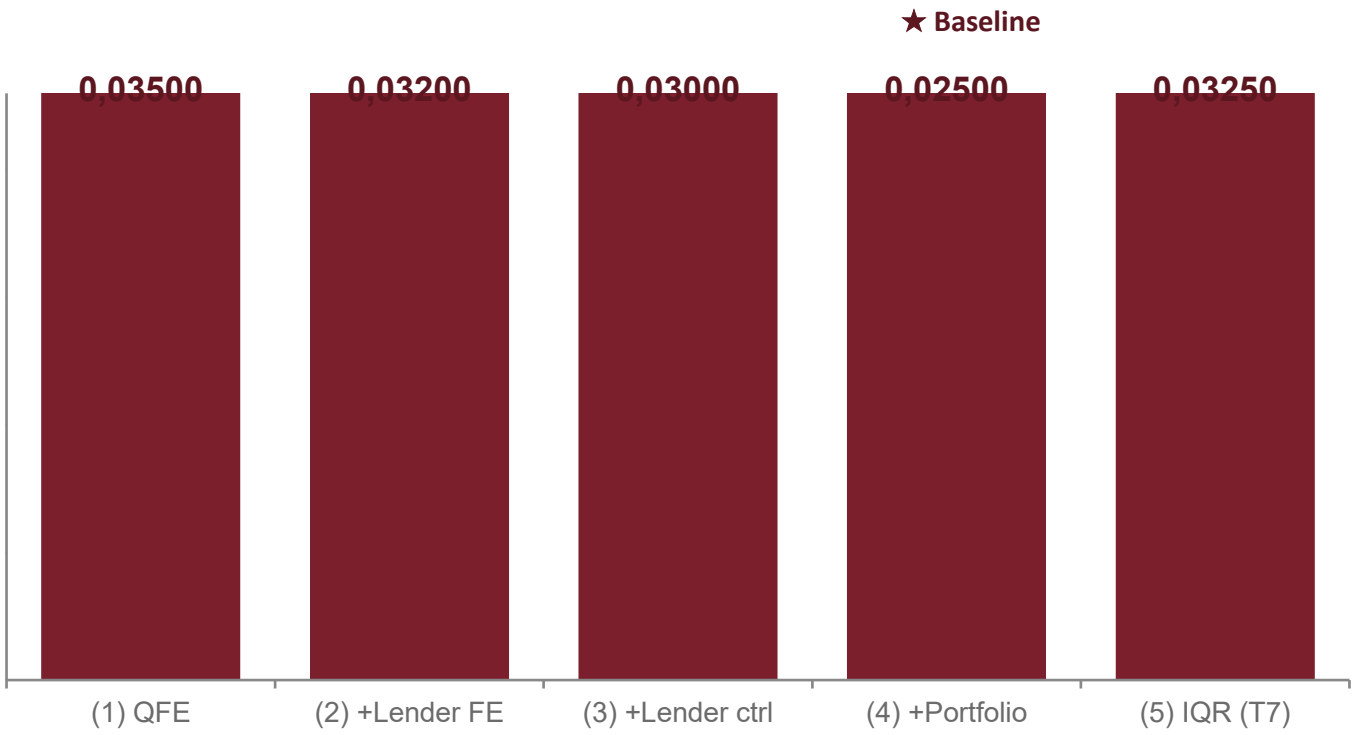
Dep. var: lender's facility share (committed amount / facility amount; mean 12.5%). Estimable under Borrower × Quarter FE because shares vary within deal. SE clustered by lender.

	(1) Baseline	(4) Horse race	(5) Lender FE	(6) Firm FE	(7) B.×Q. FE
$GPR(L)_{t-1}$ × Shadow	0.008** (0.004)	0.004* (0.0024)	0.005* (0.003)	0.004* (0.0024)	0.003* (0.0018)
GPR(L) × Sh × $Log(Z)_{t-1}$	—	0.004*** (0.001)	0.004** (0.002)	0.003** (0.001)	—
GPR(L) × Sh × $GPR(B)_{t-1}$	—	−0.002* (0.001)	−0.002* (0.001)	−0.002 (0.001)	—
$GPR(L)_{t-1}$ [commercial]	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)	0.001 (0.002)	0.001 (0.002)
Controls / fixed effects	Yes	Yes	+ Lender FE	+ Firm FE	Borr. × Qtr FE
Observations	71,240	68,650	68,650	56,480	52,800
R^2	.148	.157	.282	.352	.558

What it tests — The third margin of H1: whether shadow banks also concentrate more of their capital within the syndicates they join, taking larger positions in safe deals under GPR stress.

What it shows — GPR × Shadow is positive throughout (+0.8pp of facility share at the baseline) and largest for safe borrowers (Z-triple +0.004***); the commercial-bank main effect is a precise zero — banks adjust selection and price, not position size.

Portfolios Get Safer and Tighter



+0.025**

Portfolio-average Log(Z-Score) per 1-SD GPR (+2.6% of mean), with full portfolio controls

*Table 6, column 4 · total shadow effect +0.032**, 4.57×*

−0.032**

IQR of borrower Log(Z-Score) compresses; dispersion falls beyond the mean shift

Table 7, column 5 · StdDev −0.018 with Avg Z control*

GPR × Shadow on portfolio-weighted Log(Z-Score), Table 6; bar (5): |IQR compression|, Table 7

Matches the raw divergence in Figure 1 during event windows · Borrower-GPR dispersion also compresses (−0.095) · A concentration in a narrower, safer segment*

Tables 6 & 7 — Portfolio Composition and Dispersion

Lender × quarter panel (≥5 active facilities), facility-amount-weighted. T6: portfolio means; T7: dispersion (T7-4 controls for Avg Z). SE clustered by lender.

	T6: Avg Z (1)	T6: Avg Z (4)	T6: Avg GPR(B) (7)	T7: SD Z (4)	T7: IQR Z (5)	T7: IQR GPR(B) (7)
$GPR(L)_{t-1}$ × Shadow	0.035** (0.016)	0.025** (0.012)	−0.098* (0.058)	−0.018* (0.010)	−0.032** (0.014)	−0.095* (0.052)
$GPR(L)_{t-1}$ [commercial]	0.011* (0.006)	0.007* (0.004)	0.005 (0.028)	0.001 (0.005)	0.002 (0.007)	0.008 (0.028)
Lender FE / portfolio controls	QFE only	Yes	Yes	Yes	Yes	Yes
Observations	4,520	4,520	4,180	4,520	4,520	4,180
R^2	.048	.652	.548	.552	.505	.275

What it tests — Whether the deal-level choices aggregate: does the portfolio mean improve (Table 6) and the risk distribution compress around it (Table 7)?

What it shows — The portfolio mean rises (+0.025**, +2.6% of mean) and both Z-Score and borrower-GPR dispersion compress; the IQR falls beyond what the mean shift explains — a concentration in a narrower, safer segment. Commercial banks show no dispersion response.

The Competitive Wedge in Facility Pricing

Facility-level equilibrium: does the spread on a syndicated loan depend on how much of the syndicate is shadow banks when GPR is elevated? (Table 8)

COMMERCIAL-HEAVY SYNDICATES		vs	SHADOW-HEAVY SYNDICATES	
Syndicate GPR main effect	**+8.2 bps****		ShadowShare × GPR (Firm FE)	**–14.5***
ShadowShare premium (normal times)	**+22.8*****		Investment-grade subsample	**–20.5****
Facilities reprice under GPR stress			**≈40% stronger where capital concentrates**	

Geopolitical stress partially closes the shadow-bank pricing premium in the safe segment: the equilibrium wedge through which displaced safe borrowers migrate to shadow banks.

Table 8 — Facility Spreads and Shadow Bank Participation

Dep. var: AISD (bps). Unit: facility (~13,500). Cols 1–3: aggregate GPR (absorbed by Quarter FE); cols 4–5: syndicate-weighted lender GPR. SE clustered by borrower.

	(1) QFE	(3) +Firm FE	(4) Synd. GPR	(5) +Borr. GPR	(6) IG sample
ShadowShare × GPR	−18.5** (8.5)	−14.5* (7.8)	−12.8* (7.5)	−11.2* (6.7)	−20.5** (9.2)
ShadowShare [premium]	28.5*** (5.5)	22.8*** (5.0)	21.5*** (4.8)	20.8*** (4.8)	15.2** (6.5)
GPR [syndicate-weighted]	Absorbed	Absorbed	8.2** (3.8)	7.8** (3.8)	Absorbed
ShadowShare × GPR × GPR(B)	—	—	—	6.8* (3.8)	—
Firm (borrower) FE	No	Yes	Yes	Yes	Yes
Loan & syndicate controls	Yes	Yes	Yes	Yes	Yes
Observations	13,520	13,520	13,520	13,520	5,850
R^2	.452	.722	.728	.730	.558

What it tests — H3 in equilibrium: whether facilities with greater shadow bank participation carry a smaller spread increase under geopolitical stress (interpreted as pricing associations, not causal effects).

What it shows — ShadowShare × GPR is negative in every specification, partially offsetting the +22.8 normal-times shadow premium; the compression is ~40% stronger in the investment-grade subsample (−20.5 vs −14.5), where shadow banks concentrate their capital.

An Asymmetric Funding Squeeze (Table 9)

FUNDING COST	EQUITY / ASSETS	ASSET GROWTH	CASH / ASSETS
GPR × Shadow **+0.28pp****	GPR × Shadow **−0.5pp****	GPR × Shadow **−1.20pp****	GPR × Shadow **+0.8pp***
vs mean **+5.8%**	coverage **−0.25****	leverage **−0.35****	commercial **≈ 0 (n.s.)**
WHOLESALE FUNDING TIGHTENS	CONSTRAINTS BIND	BALANCE SHEETS CONTRACT	PRECAUTIONARY LIQUIDITY

≠

The reconciliation: *funding costs rise yet spreads on shadow-heavy facilities compress — because multiple shadow banks redirect capital into the same safe segment, thickening the bidding pool exactly where the wedge is widest. Commercial banks, insulated by insured deposits, show no comparable response.*

Table 10 — When Does the Rebalancing Intensify?

Dep. var: Log(Z-Score), as in Table 2. Each column adds GPR(L) × Shadow × Proxy; all proxies lagged (t−1), predetermined. Lender FE + Firm FE; SE clustered by lender.

	(2) High Funding Cost	(1) High Leverage	(4) High VIX	(5) Military Conflict
GPR(L) × Shadow × Proxy	0.030** (0.014)	0.025** (0.012)	0.028** (0.012)	0.032** (0.015)
GPR(L) × Shadow [Proxy = 0]	0.018* (0.010)	0.022** (0.010)	0.018* (0.011)	0.028*** (0.010)
Total effect: Proxy = 1	0.048***	0.047***	0.046***	0.060***
Total effect: Proxy = 0	0.018*	0.022**	0.018*	0.028***
Observations	56,480	56,480	56,480	56,480
R^2	.526	.525	.525	.524

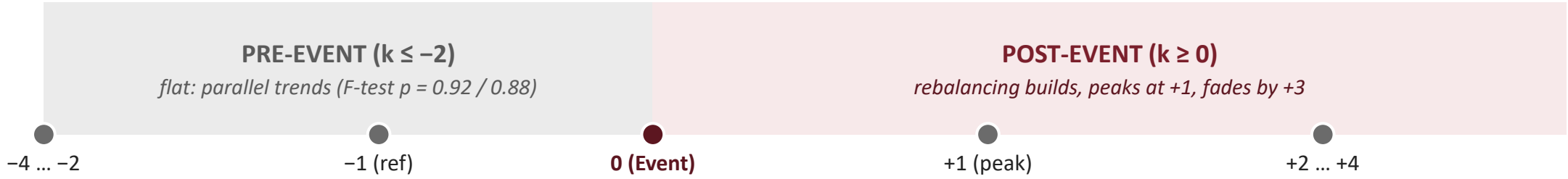
What it tests — The cross-sectional signature of the funding channel: the rebalancing is strongest where the funding constraint binds hardest and shocks are most severe?

What it shows — All triple interactions are positive: rebalancing roughly doubles for high-funding-cost shadow banks (0.048 vs 0.018) and is strongest in military-conflict quarters (0.060) — the mechanism operates in the cross-section, not just on average.

Dynamic Design: Ten Named Geopolitical Events

$$Y = \Sigma_k \beta_k \cdot D(k) \times \text{PreGPR}(b,e) \times \text{Shadow} + \gamma X + \text{Event}\times\text{Qtr} + \text{Event}\times\text{Industry} + \text{Event}\times\text{Lender FE} + \varepsilon \quad \textbf{(4)}$$

Ten events, pre-specified rule (largest quarterly jumps in Caldara–Iacoviello GPR): 9/11, Iraq 2003, Russia–Georgia, Arab Spring, Crimea, Brexit, US–China trade war, US–Iran, Russia–Ukraine, Israel–Hamas. Treatment PreGPR(b,e) is predetermined (4 pre-event quarters). Stacking per Cengiz et al. (2019); k = −1 is the reference.

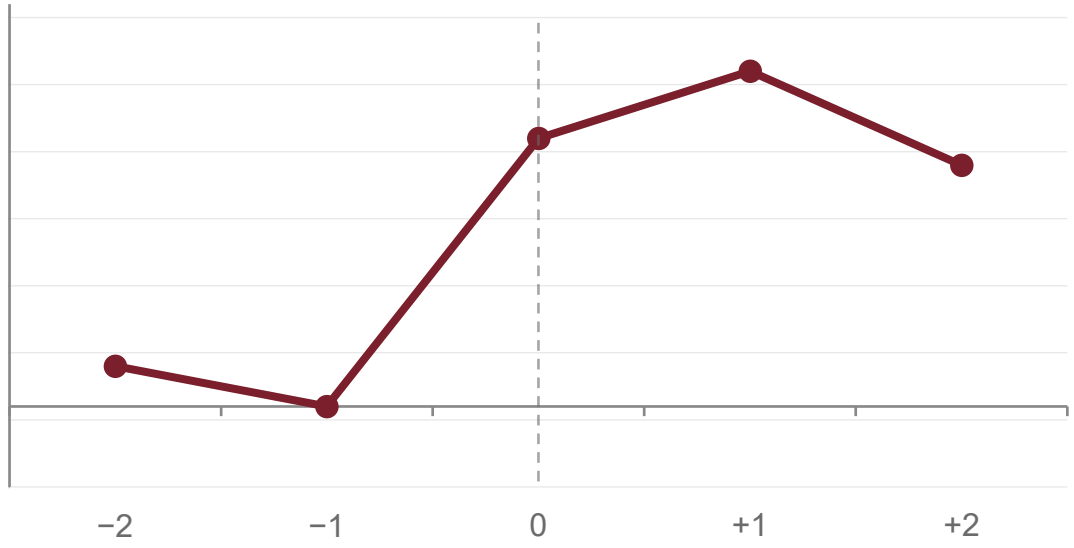


*Pooled post-event effects: volume +0.018** and spreads −12.2* on high-PreGPR shadow lending, matching the continuous-GPR estimates.*

Complement: Jordà (2005) local projections on continuous GPR variation trace the same hump-shaped response (Table 12, Figure 5) — two independent designs, one persistence pattern.

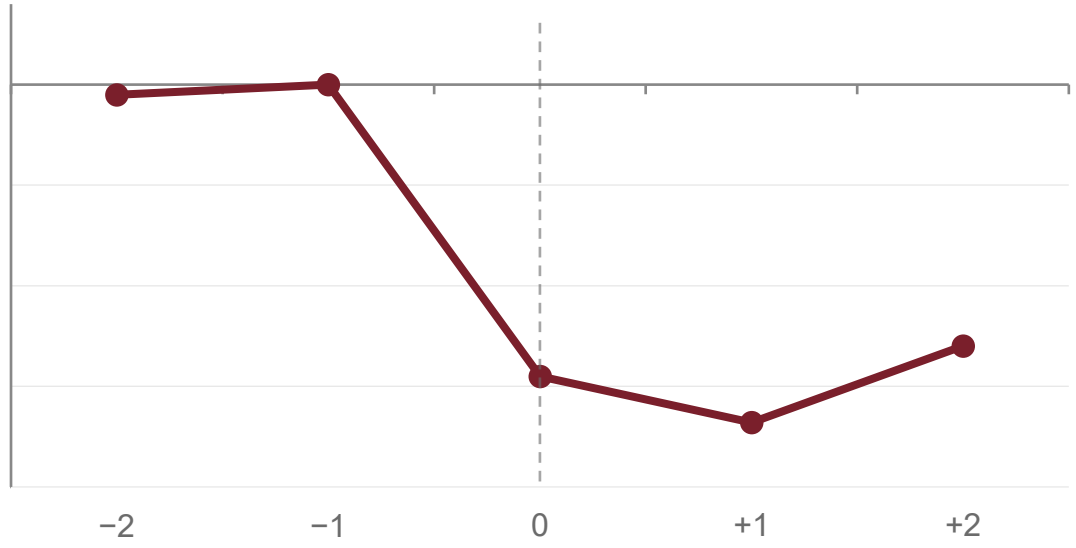
Event Study: Volume Builds, Spreads Compress (Table 11)

LOG(AMOUNT) × PreGPR × Shadow · Table 11, col. 2



*Pooled post-event: +0.018**. Pre-trends flat (F-test p = 0.92).*

AISD (bps) × PreGPR × Shadow · Table 11, col. 4

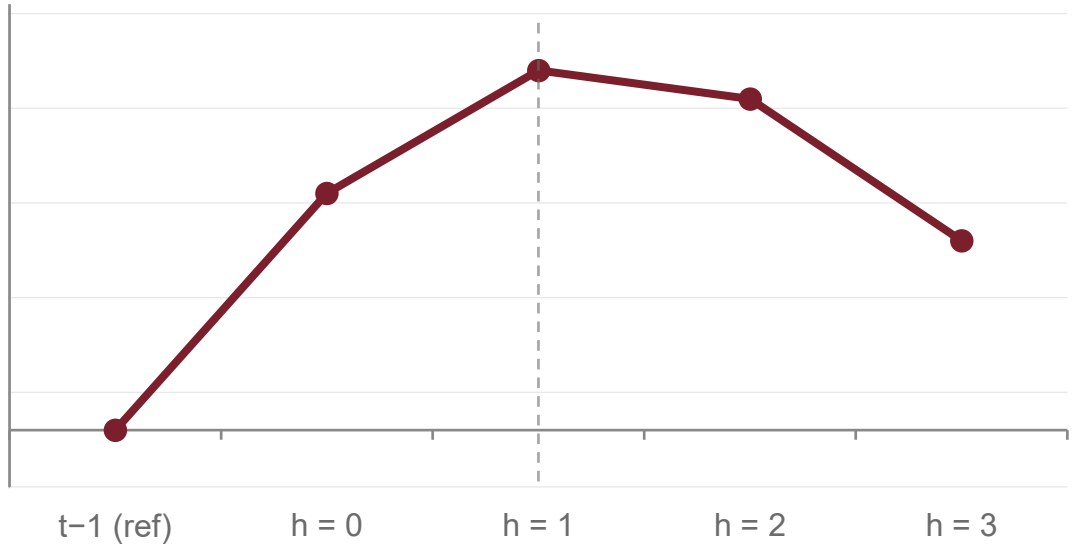


Pooled post-event: −12.2. Pre-trends flat (F-test p = 0.88).*

What it tests — H4: event-time dynamics with predetermined exposure. What it shows — flat leads, then volume rises to +0.025 and spreads compress to −16.8** at k = +1, fading by +3–+4: the hump the local projections reproduce.***

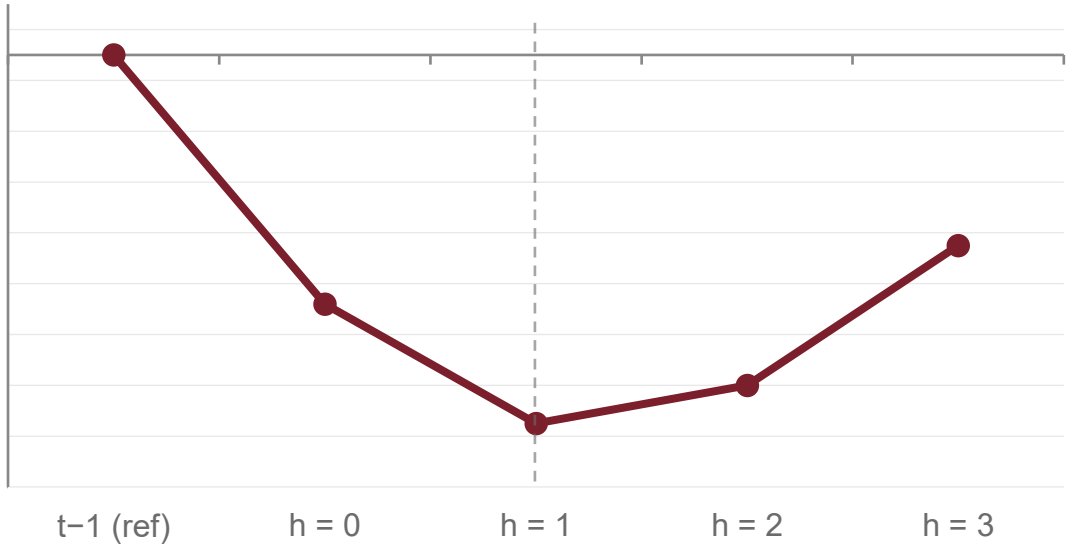
Jordà Local Projections: The Same Hump (Table 12, Figure 5)

Δ AVG Z-SCORE (cumulative) · Table 12, Panel A



*Peak at h = 1: +0.038*** per 1-SD GPR; fades to insignificance by h = 3.*

Δ AVG GPR(BORROWER) (cumulative) · Table 12, Panel B



*Mirror image: −0.145** at h = 1; geopolitical exposure sheds in step.*

What it tests — persistence on continuous GPR variation, independent of event selection (Newey–West SEs, h+1 lags). What it shows — the same hump as the stacked DiD: build, peak at one quarter, decay by three. Two designs, one dynamic pattern.

Demand-Side Identification: Five Strategies, One Coefficient

1. DEMAND PROXIES	2. DEMAND × SHADOW	3. IND.×QTR + LENDER FE	4. RATING × QTR FE	5. PS-MATCHED SAMPLE
0.012*	**0.011***	**0.010***	**0.013****	**0.015****
CapEx, sales growth, M/B: no attenuation	*Differential demand: interactions n.s.*	*Sector-level demand shocks absorbed*	*Rating-segment demand shifts absorbed*	*Matched on size, leverage, Z, industry, qtr*

The GPR × Shadow coefficient on volume sits in a tight 0.010–0.015 band across all five strategies (baseline 0.011) and is largest in the matched sample: shadow banks are choosing safer borrowers, not being chosen by them. Spreads mirror it (−6.8 to −11.0, Panel B).

Sixth check: permutation placebos — GPR reshuffled across lenders and Shadow labels reassigned (1,000 draws each); the true estimate lies beyond the 95th percentile of both placebo distributions (Figure 6).

Table 13 — Demand-Side Identification

Panel A: Log(Tranche); Panel B: AISD (bps). All columns Firm FE; demand proxies at t−1. Last column: Table 4 baseline for reference. SE clustered by lender.

	(1) Proxies	(2) Dem.×Shadow	(3) Ind.×Qtr+L. FE	(4) Rating×Qtr	(5) Matched	Baseline (T4)
Panel A — GPR(L) × Shadow [volume]	0.012* (0.007)	0.011* (0.006)	0.010* (0.006)	0.013** (0.007)	0.015** (0.007)	0.011*
Panel B — GPR(L) × Shadow [AISD]	−8.0*	−7.5*	−6.8*	−9.0*	−11.0**	−7.5*
Demand × Shadow interactions	—	n.s.	—	—	—	—
Demand proxies significant?	Yes	Yes	Yes	Yes	Yes	—
Observations (Panel A)	54,200	54,200	54,200	54,200	28,500	56,480
R^2 (Panel A)	.525	.526	.555	.538	.510	.520

What it tests — Supply vs demand: is the rebalancing shadow banks choosing safer borrowers, or safe borrowers choosing shadow banks? Five strategies, from direct proxies to a matched sample.

What it shows — The treatment coefficient is unchanged across all five strategies (0.010–0.015) and largest in the matched sample; demand proxies are themselves significant, so the tests have power. The rebalancing is supply-driven.

Falsification: Domestic-Only Lenders (Table A10)

Lenders with purely domestic operations — no foreign subsidiaries, no international syndication, no foreign borrowers — whose GPR index should capture noise, not genuine geopolitical exposure.

	(1) Log(Amount)	(2) AISD (bps)
$GPR(L)_{t-1}$ × Shadow	0.002 (0.015)	−1.5 (10.5)
$GPR(Lender)_{t-1}$	0.000 (0.008)	1.2 (6.5)
Shadow	−0.055** (0.028)	18.0 (20.0)
Full controls + Firm FE	Yes	Yes
Sample	Domestic-only lenders	Domestic-only lenders
Precision of the zero (SE)	0.015	10.5
Memo — full sample, Table 4 col. 6	0.011*	−7.5*
Memo — permutation placebo (Fig. 6)	true est. > 95th pct	true est. > 95th pct
Observations	8,420	8,420

What it tests — Whether the results could be an artifact of the text-based index or of generic lender-level time variation: if so, the same correlation should appear among lenders with no geopolitical exposure.

What it shows — A precisely estimated zero on both margins (0.002 on volume, −1.5 bps on spreads), against significant full-sample estimates. The mechanism requires genuine geopolitical exposure.

Implications

FOR FINANCIAL STABILITY

What migrates matters, not just how much. Whether shadow bank risk rises or falls depends on the nature of the displacing shock: chronic regulatory pressure sheds the riskiest borrowers; acute geopolitical stress displaces quality upgrades.

FOR REGULATORS

Commercial bank stress is shadow bank stress: the funding chain (warehouse lines, repo, credit lines) transmits geopolitical shocks to the unregulated sector. Monitoring should track the funding linkages, not just each sector in isolation.

FOR RISK MEASUREMENT

Institution-specific geopolitical risk indices from earnings calls — varying across lenders and borrowers within a quarter — are a reusable tool wherever aggregate indices are too blunt.

Bottom line: *shadow banks sit on the safe side — but only under acute geopolitical stress, and only because their funding forces them there.* ***The safe side of shadow banking.***

Conclusion: The Four-Step Chain

1. SHOCK	2. SQUEEZE	3. REBALANCE	4. WEDGE
Lender-Specific GPR Rises	**Shadow Funding Tightens**	**Safer, Tighter Portfolios**	**Spreads Compress**
✓ New indices, 91% / 62% coverage	**✓ +28 bps funding cost / SD**	**✓ +0.045 Log(Z) / SD, 4–5×**	**✓ −14.5 bps vs +10.2 repricing**
Section 4	*Tables 9–10*	*Tables 2–7*	*Tables 4, 8*

From the dynamic designs: *ten stacked events and Jordà local projections trace the same hump — build, peak at one quarter, fade by three — with flat pre-trends, a null for domestic-only lenders, and a coefficient unchanged across five demand-side strategies (Tables 11–13).*

Thank You

QUESTIONS & DISCUSSION · The Safe Side of Shadow Banking

Economic Magnitudes: Full Summary

Step	Effect	Magnitude	Table
1. SHOCK	Lender-specific GPR indices	**vary across lenders within quarter**	*Section 4*
2. SQUEEZE	Shadow funding cost / SD GPR	**+28 bps (+5.8% of mean)**	*Table 9*
2. SQUEEZE	Balance sheets	**asset growth −1.20 pp; leverage −0.35**	*Table 9*
3. REBALANCE	Borrower Log(Z-Score) / SD	**+0.045 (0.19 SD), 4.8× commercial**	*Table 2*
3. REBALANCE	Portfolio mean / dispersion	**+0.025; IQR −0.032**	*Tables 6–7*
3. REBALANCE	Quintile gradient (volume)	**−0.008 (Q1) → +0.028*** (Q5)**	*Table 3*
4. WEDGE	Spread response / SD GPR	**+10.2 bps banks; −14.5 shadow offset**	*Tables 4, 8*
CAUSAL	Stacked DiD, ten events	**volume +0.025***; spreads −16.8** at +1**	*Table 11*
CAUSAL	Jordà local projections	**peak +0.038*** at h = 1, gone by h = 3**	*Table 12*
IDENTIFICATION	Five demand-side strategies	**0.010–0.015, unchanged**	*Table 13*
IDENTIFICATION	Domestic-only lender placebo	**0.002 (n.s.); −1.5 bps (n.s.)**	*Table A10*

Every row ties back to the four-step chain (slides 4 & 30). All effects per one standard deviation of lender-specific GPR; standard errors clustered by lender unless noted.

Alternative Borrower Risk Measures (Table A1)

Robustness

LOG(Z-SCORE) (baseline)	INVESTMENT GRADE (0/1)	GPR(BORROWER) — PCA	GPR(BORROWER) — FINBERT
+0.045* **	**+0.012** **	**−0.152** **	**−0.105***
of mean	*of mean*	*of mean*	*of mean*
GPR × Shadow	**+1.2pp IG probability**	**exposure avoided**	**same sign, same size**
Table 2, col. 4	*Table A1, col. 3*	*Table 2, Panel B*	*Table A1, col. 3 (Panel B)*

The rebalancing does not hinge on the Log(Z-Score) construction: shadow banks are 1.2pp more likely to fund an investment-grade borrower per 1-SD GPR, and the geopolitical-exposure avoidance survives a FinBERT-only borrower index (−0.105). Full controls and Lender + Firm FE throughout.*

Table A11 — Alternative Index Constructions

Six core specifications re-estimated with each text component individually instead of the PCA combination. Same sign everywhere; the individual estimates bracket the PCA estimate.

GPR(L) × Shadow in …	PCA (baseline)	FinBERT only	Li et al. (2021) only
Table 2: Log(Z-Score)	0.045*** (0.015)	0.038** (0.018)	0.042** (0.017)
Table 4A: Log(Amount)	0.022** (0.010)	0.018* (0.010)	0.020* (0.011)
Table 4B: AISD (bps)	−14.5** (6.8)	−12.0* (7.2)	−13.5* (7.5)
Table 6: Portfolio Log(Z)	0.025** (0.012)	0.020* (0.012)	0.022* (0.013)
Table 11: Stacked DiD (k = +1)	0.032*** (0.011)	0.026** (0.013)	0.029** (0.012)
Table 12: Jordà LP (h = 1)	0.038*** (0.014)	0.031** (0.015)	0.035** (0.015)
Precision (SE vs PCA)	—	+10–20% larger	+10–20% larger

What it tests — Whether the findings depend on how the two text signals are combined: each core specification re-estimated with FinBERT-only and dictionary-only indices in place of the PCA.

What it shows — The individual components bracket the PCA estimate in every specification (Table 2: 0.038 / 0.042 vs 0.045); PCA is preferred only for precision, with SEs 10–20% smaller.

Horse Race: Lender GPR vs Aggregate Uncertainty Measures

GPR(L) × SHADOW	VIX × SHADOW	OIL VOL. × SHADOW	EPU × SHADOW	vs CALDARA–IACOVIELLO	SPREADS (PANEL B)
0.036* **	**0.004**	**−0.001**	**0.006**	**ρ = 0.78**	**−0.122***
Survives all three competitors jointly	*Market volatility: not significant*	*Commodity risk: not significant*	*Policy uncertainty (BBD 2016): n.s.*	*Same events; 3.2× more cross-sectional dispersion*	*GPR(B) avoidance also survives*

With VIX, oil volatility, and EPU each interacted with Shadow in the same regression (Table A1, col. 2), only lender-specific GPR moves shadow bank portfolios: the effect is geopolitical and institution-specific, not generic uncertainty — and identification comes from within-quarter dispersion the aggregate index cannot provide.

Table A7 — GPR-Threshold Event Study (Endogenous Shocks)

Shock: lender-quarters where GPR(Lender) exceeds its 90th percentile — shocks defined endogenously, not by the ten named events. Reference k = −1. SE clustered by lender.

	(1) Volume — D(post)	(2) Volume — leads/lags	(3) AISD — D(post)	(4) AISD — leads/lags
D(−2) × Shadow	—	−0.002 (0.009)	—	1.0 (6.8)
D(0) × Shadow	—	0.016* (0.008)	—	−11.5* (6.5)
D(+1) × Shadow	—	0.022** (0.009)	—	−15.0** (6.8)
D(+2) × Shadow	—	0.015* (0.009)	—	−11.2* (6.7)
D(+3) / D(+4) × Shadow	—	0.008 / 0.003	—	−6.5 / −3.0
Post-shock (pooled)	0.015** (0.007)	—	−10.5* (6.2)	—
Pre-trend F-test (p)	—	0.95	—	0.90
Observations	68,650	68,650	68,650	68,650

What it tests — Whether the dynamics hinge on the selection of the ten named events: shock quarters defined endogenously as GPR(Lender) above its own 90th percentile.

What it shows — Flat pre-trends (p = 0.95 / 0.90) and the same hump: volume +0.022** and spreads −15.0** at k = +1, pooled +0.015** / −10.5*. The rebalancing is not an artifact of event selection.

Bartik Shift-Share: Predetermined Exposure × Aggregate Shock

Robustness

LOG(Z-SCORE)

PreGPR(2000–05) × AggGPR(CI) × Shadow

0.034**

vs 0.045 continuous

Borrower selection survives

Table A1

LOG(TRANCHE)

PreGPR(2000–05) × AggGPR(CI) × Shadow

0.018**

vs 0.022 continuous

Safe-deal triple: +0.006*

Table A2

AISD (BPS)

Same Bartik interaction, Panel B

−12.0*

vs −14.5 continuous

Directed compression: −5.5*

Table A2

Sample Construction & Transcript Coverage (Table IA.A.2)

FACILITY WATERFALL (PANEL A)

- 44,826 DealScan US facilities (2000Q1–2024Q4) → USD only 42,158 → drop financials 34,712 → term loans & revolvers 31,485 → non-missing AISD 27,614
- → Compustat match (Chava–Roberts) 18,523 → Z-Score components 16,248 → borrower controls 15,174 → lender GPR available: 13,487 final (30.1%)

DEAL-BY-LENDER WATERFALL (PANEL B)

- 94,258 deal-by-lender observations for the 13,487 facilities → classified lenders 89,614 → GPR(Lender) available 81,327
- → lender controls 76,518 → relationship & HHI Segment 73,142 final (77.6%)

TRANSCRIPT COVERAGE

- Earnings calls cover 91% of commercial and 62% of shadow bank lender-quarters; gaps reflect private CLOs, hedge funds & PE credit arms without public calls
- Exclusion of non-transcript lenders biases against finding shadow bank effects (the most opaque nonbanks are dropped)
- Cross-sectional mean of GPR(Lender) correlates 0.78 with Caldara–Iacoviello

LENDER CLASSIFICATION

- FR Y-9C / FDIC filers = commercial; SEC filings = shadow (CLOs, BDCs, finance cos., hedge funds, PE)
- GS & MS reclassified commercial from 2008Q4
- Shadow banks: 34.7% of observations
- 447 lenders · 2,518 borrowers · 2000–24

The Ten Named Geopolitical Events

2001–2008

- 9/11 attacks — 2001Q3 · Iraq invasion — 2003Q1 · Russia–Georgia war — 2008Q3
- Each event window: k = −4 … +4 quarters around the event quarter; k = −1 is the reference period

2011–2016

- Arab Spring — 2011Q1 · Crimea annexation — 2014Q1 · Brexit referendum — 2016Q2
- Treatment: PreGPR(b,e) × D(k,e) × Shadow, with PreGPR averaged over the four pre-event quarters (predetermined)

2018–2023

- US–China trade war — 2018Q2 · US–Iran tensions — 2020Q1 · Russia–Ukraine invasion — 2022Q1 · Israel–Hamas war — 2023Q4
- Events chosen by a pre-specified rule: the largest quarterly increases in the Caldara–Iacoviello aggregate GPR index
- Overlapping windows excluded; stacking follows Cengiz et al. (2019)

DESIGN

- Event × Quarter, Event × Industry, and Event × Lender fixed effects within each stack
- 42,500 stacked observations; SE clustered by lender
- Lender-specific index around each event plotted in Internet Appendix Figure IA.B.4; event details in Table IA.C.1
- Results: Table 11 · Figure 4