# Shadow Always Touches the Feet: Implications of Bank Credit Lines to Non-Bank Financial Intermediaries

Viral V. Acharya, Manasa Gopal, Maximilian Jager, Sascha Steffen

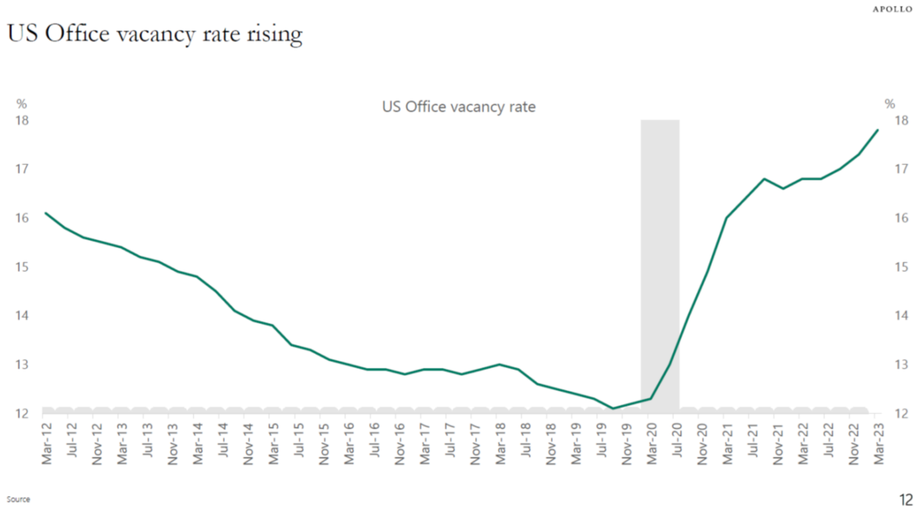
May 28, 2024

# Motivation

- An increasing share of bank credit lines gets issued to NBFI borrowers (25% in 2010, 34% in 2022)
- These credit lines expose banks to idiosyncratic risks inherent in NBFIs' asset and liability choice
- Since NBFI financing is, however, highly cyclical, these credit lines amplify banks' exposure to aggregate liquidity shortages

$\Rightarrow$ In this paper, we use credit lines to REITs as a laboratory to analyze these risks

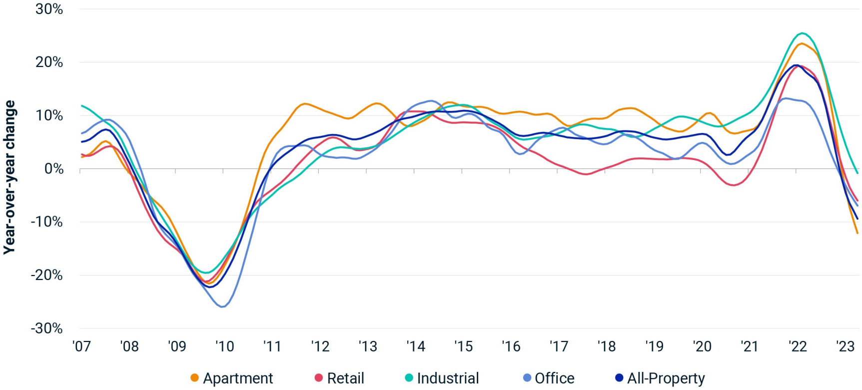
# COVID-19 to Commercial Real Estate Crisis




Source: Apollo Global Management

# COVID-19 to Commercial Real Estate Crisis

Property Values




Source: Apollo Global Management

# Commercial Real Estate Crisis

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## The Clearest Sign Yet That Commercial Real Estate Is in Trouble

Lenders are issuing a record number of foreclosure notices related to risky property loans

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## Commercial Property Losses Hammer Banks on Three Continents

Banks in the U.S., Japan and Switzerland announced losses tied to troubled real-estate lending

*By Margot Patrick* Follow *, Eliot Brown* Follow *and Gina Heeb* Follow

Analysis

## FSOC Says CRE Is Big Financial Risk

The 2023 annual report said banks hold about half of $6 trillion in commercial real estate loans with signs of stress having emerged.

By **Erik Sherman** | December 18, 2023 at 08:12 AM

In its **2023 annual report**, the Financial Stability Oversight Council — a legacy of the Dodd-Frank Act that includes a broad array of federal banking regulators and others — pointed to multiple financial risks for the U.S. First on the list, commercial real estate.

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# Regional Banking Crisis?

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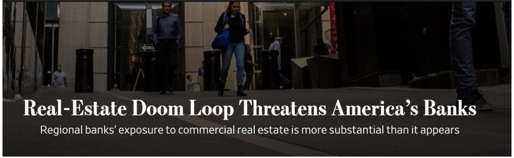


## Real-Estate Doom Loop Threatens America's Banks

Regional banks' exposure to commercial real estate is more substantial than it appears

240 million loan on 61 Broadway, its 33-story office tower in New York City. MICHAEL BUCHER/THE WALL STREET JOURNAL

*By Shane Shifflett* Follow *and Konrad Putzier* Follow
Sept. 6, 2023 8:07 am ET

FINANCE · ANALYSIS | NEW YORK CITY

## How CRE Loans Threaten New York Community Bank and Other Regionals in 2024

*NYCB's losses show that banks probably can't extend commercial real estate loans long enough to avoid enormous fallout*

BY BRIAN PASCUS FEBRUARY 26, 2024 10:03 AM REPRINTS

The New York Times

## *The Real Estate Crisis Looming Over Banks*

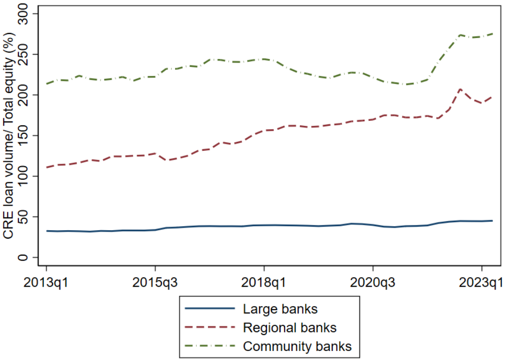
A year after the collapse of Silicon Valley Bank, investors are fearing for regional lenders saddled with a mountain of souring commercial mortgages.

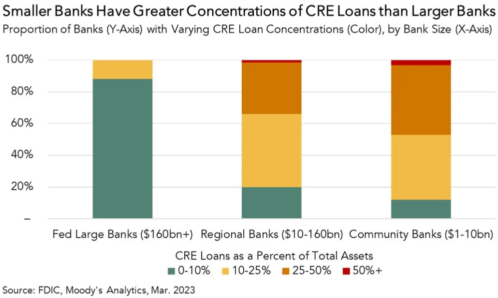
Share full article 8

By Andrew Ross Sorkin, Ravi Mattu, Bernhard Warner, Sarah Kessler, Michael J. de la Merced, Lauren Hirsch and Ephrat Livni
Feb. 7, 2024

To summarise the latest takeaway from UBS: If smaller regional banks cut back on lending because of CRE pressures, they still aren't responsible for a large enough share of credit provision that they would single-handedly slow the broader US economy.

# Regional Banking Crisis?



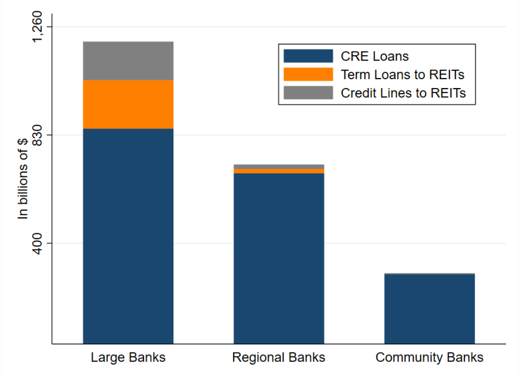



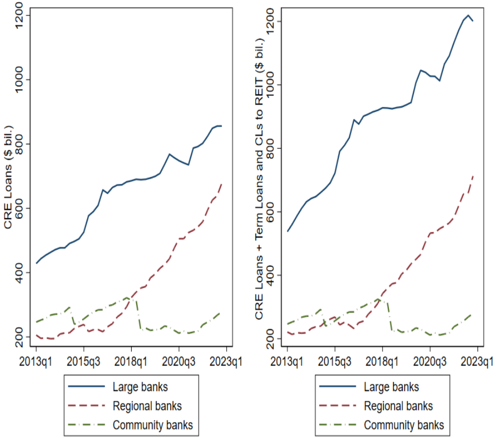
# But is this the full story?

- Popular narrative seems to be commercial real estate risks are not a big concern for banks
- If banks are at risk, most of the risks seem to be at smaller banks
- And small bank losses may not impact the overall economy?

- But we show in this paper that this is not the whole story
- Banks have exposure to commercial real estate indirectly through credit lines that seem to have been ignored

# Banks' Total Exposure to CRE



# Credit Lines and Bank Performance

# Credit Lines

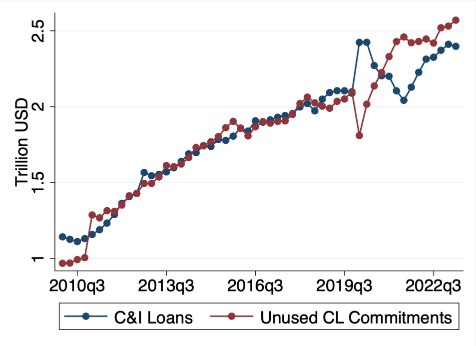
Banks serve a big role in the economy as providers of credit lines

What is a credit line?

- Lender commits to provision of credit at pre-arranged terms (interest rate etc.)
- Borrower decides if and when to use the provided credit ("drawdown")
- Borrower decides when to repay the provided credit
- Usual properties: 5 year maturity, complex fee structure, often syndicated

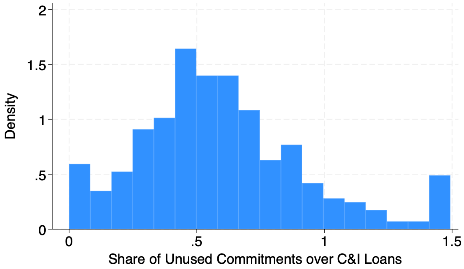
Firms use credit lines as a primary defense against financing stress and negative shocks that hinder access to financial markets

# Credit Lines - relevance for banks




Source: FR Y-9C.

**(a)** US-wide loans and commitments



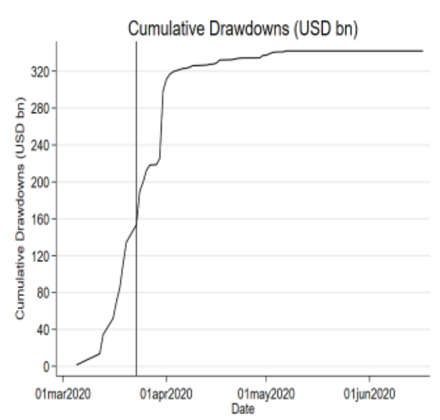

Source: FR Y-9C.

**(b)** Cross-section as of 2019Q4

- Banks have roughly as much corporate credit committed (off-balance sheet) as they have on their balance sheet

# Use of credit lines by firms

Credit Line Drawdown - COVID-19

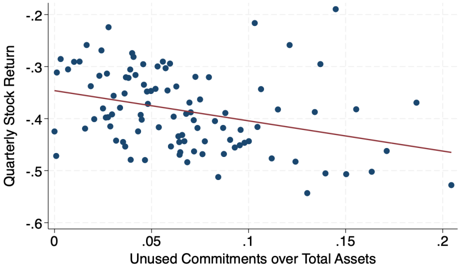



Source: Acharya and Steffen (2020)

# What happens when firms draw down on their credit lines?

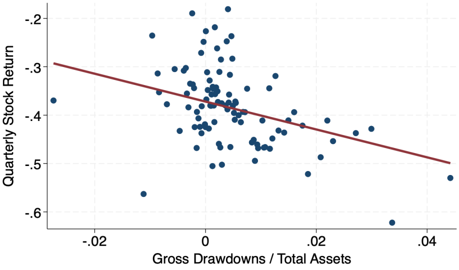
- Credit line commitments are reported "off-balance sheet"
- When credit lines are drawn, it becomes a loan on the bank's balance sheet
- Banks have to finance these loans - increase liabilities or reduce other assets
- Also, banks need to hold additional capital when loans come on-balance sheet
- If there are correlated drawdowns (like during COVID-19), it may put pressure on bank balance sheets and affect bank performance

# Credit lines and bank performance




Sources: FR Y-9C, CRSP.

**(a)** Stock return vs. commitments




Sources: FR Y-9C, CRSP.

**(b)** Stock return vs. drawdowns

# Bank exposure to commercial real estate

- Banks are exposed directly to the commercial real estate market through loans
- This risk seems to be concentrated among smaller banks
- But, banks are also exposed to CRE through credit lines to *non-banks* that hold commercial real estate

# Background

Financial system has two broad categories of financial institutions - banks and nonbanks

Banks - Regulated institutions that (typically) take deposits to finance lending

Nonbanks or shadow banks - lightly regulated financial institutions

- Do many of the same activities as banks - e.g. lending to consumers, small businesses, large corporations
- But, do not take deposits

After the 2008 financial crisis, increased bank regulation led to growth in unregulated nonbanks - across multiple markets

## Background - REITs

Real Estate Investment Trust (REIT) - own or finance real estate; anyone can invest in the REIT and get exposure to real estate markets – organized like a mutual fund

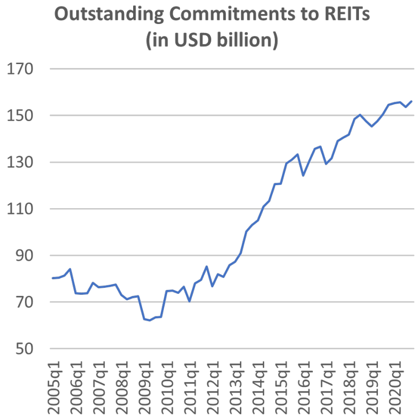
- 1100 REITs own more than $4 trillion in assets across the U.S
- Investors can purchase stock of an individual company or through an exchange-traded fund
- 170 million Americans have exposure to REITs through retirement/ investment accounts

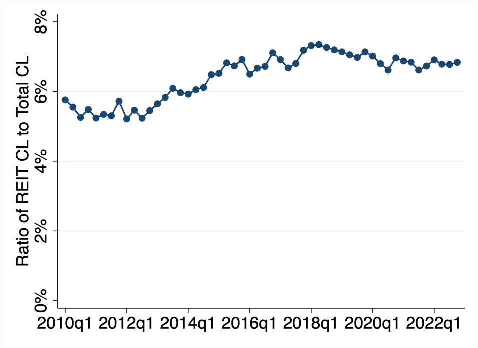
REITs make money through rent or interest income

Distributes profits as dividends (min. 90% of profits need to be paid out)

>95% of REIT holdings are in commercial real estate

# Bank exposure to REITs



## Research question(s)

What are the implications of banks providing credit lines to REITs (and other financial institutions)?

- ... for banks themselves (risk management, profits)?
- ... for financial stability (contagion, systemic risk)?

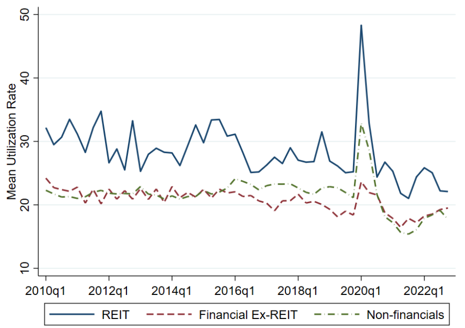
$\Rightarrow$ Important to understand the contingent/insurance-type linkages from banks to non-banks to understand how risks can be transmitted

# Related literature

- Credit line business poses substantial risks for banks (Acharya and Mora, 2015; Ippolito, Peydró, Polo and Sette, 2016; Kapan and Minoiu, 2021; Chodorow-Reich, Darmouni, Luck and Plosser, 2022; Acharya, Engle, Jager and Steffen, forthcoming) → We show that these risks are amplified for credit lines to REITs
- NBFIs growth in many (credit) markets (Buchak, Matvos, Piskorski and Seru, 2018; Fleckenstein, Gopal, Gutierrez and Hillenbrand, 2023; Chernenko, Erel and Prilmeier, 2022; Gopal and Schnabl, 2022) was to a large extent made possible by liquidity insurance through banks (Acharya, Cetorelli and Tuckman, 2024; Cetorelli and Prazad, 2024) → We show a specific linkage between banks and REITs that transmits CRE risk to the banking sector
- CRE markets present a risk to banks both historically (Cole and White, 2012) and recently because of WFH policies and interest rate hikes (Gupta, Mittal and Van Nieuwerburgh, 2022; Jiang, Matvos, Piskorski and Seru, 2023) → We show that particularly large banks are indirectly exposed to the CRE market and its risks

# Credit Line Utilization of REITs

# Differential drawdowns of REITs




Sources: Capital IQ, Compustat.

- REITs draw down more than non-financial corporations on average
- REITs have other spikes and cyclicality as well

# Differential drawdowns of REITs - Summary Statistics

| | All | AAA-A | BBB | Non-IG | Unrated |
|---|---|---|---|---|---|
| Number of REITs in a quarter | 92.55 | 6.92 | 46.13 | 27.07 | 125.05 |
| REIT - Total CL commitments ($ mil.) | 634.14 | 2,089.38 | 996.33 | 725.87 | 412.33 |
| REIT - Avg. Utilization (%) | 29.87 | 8.15 | 20.89 | 26.37 | 34.97 |
| REIT - Wt. Avg. Utilization (%) | 28.19 | 11.91 | 23.17 | 31.29 | 32.96 |
| Number of Financial Ex-REIT in a quarter | 830.53 | 56.07 | 75.59 | 39.22 | 964.78 |
| Financial Ex-REIT - Total CL commitments ($ mil.) | 553.32 | 2,639.54 | 1,574.40 | 932.02 | 285.11 |
| Financial Ex-REIT - Avg. Utilization (%) | 21.58 | 11.02 | 17.64 | 23.25 | 22.62 |
| Financial Ex-REIT - Wt. Avg. Utilization (%) | 22.37 | 13.92 | 20.11 | 32.76 | 27.83 |
| Number of Non-financials in a quarter | 1,647.47 | 141.02 | 293.43 | 546.37 | 2,218.80 |
| Non-financial - Total CL commitments ($ mil.) | 496.01 | 1,780.32 | 1,369.49 | 571.78 | 229.72 |
| Non-financial - Avg. Utilization (%) | 22.47 | 5.20 | 10.04 | 19.40 | 26.79 |
| Non-financial - Wt. Avg. Utilization (%) | 17.00 | 3.25 | 9.89 | 26.16 | 24.26 |

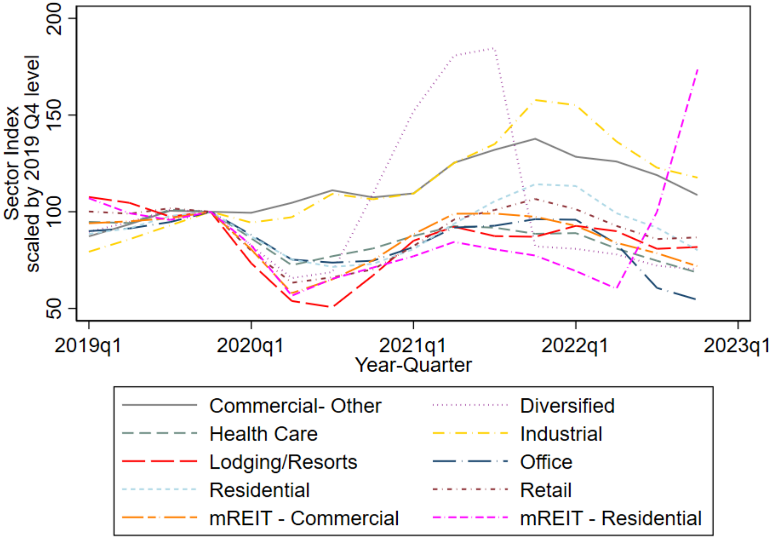
# Differential drawdowns of REITs - Crisis vs. Normal Times

| | All | AAA-A | BBB | Non-IG | Unrated |
|---|---|---|---|---|---|
| REIT - Utilization (%) - normal times | 28.77 | 6.99 | 19.98 | 25.52 | 33.94 |
| REIT - Utilization (%) - GFC | 38.04 | 20.43 | 27.18 | 32.05 | 41.81 |
| REIT - Utilization (%) - Covid-19 | 48.30 | 24.04 | 43.88 | 56.29 | 51.36 |
| Financial Ex-REIT - Utilization (%)- normal times | 21.14 | 10.31 | 16.48 | 22.88 | 22.26 |
| Financial Ex-REIT - Utilization (%) - GFC | 25.30 | 16.29 | 29.19 | 25.80 | 25.69 |
| Financial Ex-REIT - Utilization (%) - Covid-19 | 23.64 | 9.44 | 22.50 | 29.75 | 24.26 |
| Non-financial - Utilization (%) - normal times | 21.73 | 4.37 | 8.90 | 18.23 | 26.35 |
| Non-financial - Utilization (%) - GFC | 27.24 | 12.38 | 19.08 | 27.06 | 29.33 |
| Non-financial - Utilization (%) - Covid-19 | 32.89 | 12.48 | 18.43 | 39.62 | 35.30 |

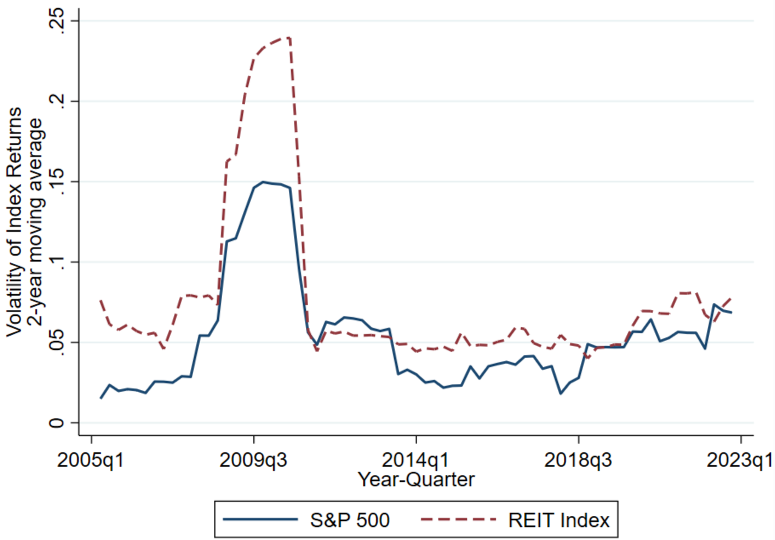
# Differential drawdowns of REITs

| | Utilization Rate (%) | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| REIT Dummy | 7.606*** | 9.569*** | 9.590*** | 9.552*** | 10.207*** |
| | (0.276) | (2.040) | (2.090) | (2.092) | (2.519) |
| Log(Assets in mil.) | | −3.336*** | −3.353*** | −3.362*** | −3.581*** |
| | | (0.323) | (0.294) | (0.294) | (0.427) |
| Cash/Assets | | −43.414*** | −43.040*** | −43.066*** | −43.518*** |
| | | (7.224) | (7.398) | (7.372) | (8.093) |
| Debt/Equity | | 0.457*** | 0.448*** | 0.429*** | 0.404*** |
| | | (0.127) | (0.125) | (0.126) | (0.121) |
| Rating Notch FE | N | Y | Y | N | N |
| Rating Group FE | N | N | N | Y | Y |
| Year-Quarter FE | N | N | Y | Y | Y |
| Sample | | | | | 2010-2019 |
| Obs. | 246,872 | 217,281 | 217,281 | 217,281 | 124,821 |
| $R^2$ | 0.003 | 0.108 | 0.115 | 0.113 | 0.118 |

# Differential performance across REITs - COVID-19



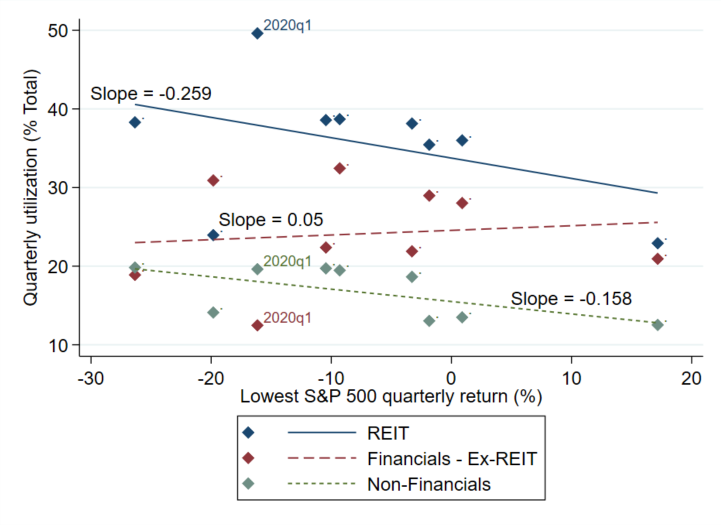
# Co-movement of S&P500 and REIT Index



# Differential drawdowns of REITs as a function of stock performance

| | Utilization Rate (%) | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| REIT | 9.768*** | 9.798*** | 9.280*** | 9.452*** | 9.459*** |
| | (1.585) | (1.583) | (1.708) | (1.814) | (1.815) |
| REIT x S&P 500 return | -1.429*** | | | -0.335 | -1.344** |
| | (0.553) | | | (0.763) | (0.606) |
| REIT x VIX | | 1.333* | | | |
| | | (0.722) | | | |
| REIT x Crisis | | | 4.007* | | |
| | | | (2.355) | | |
| REIT x Sub-sector return | | | | -2.108*** | |
| | | | | (0.776) | |
| REIT x Sub-sector return (orthogonolized to S&P500) | | | | | -2.108*** |
| | | | | | (0.776) |
| Controls | Y | Y | Y | Y | Y |
| Rating Group FE | Y | Y | Y | Y | Y |
| Year-Quarter FE | Y | Y | Y | Y | Y |
| Obs. | 211,042 | 211,042 | 211,042 | 142,228 | 142,228 |
| $R^2$ | 0.112 | 0.112 | 0.112 | 0.094 | 0.094 |

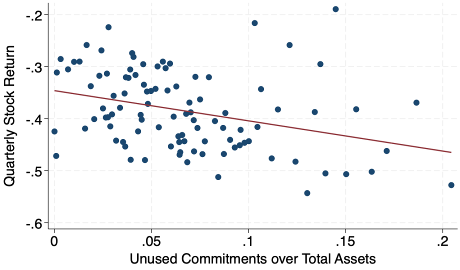
# Utilization rates of REITs vs non-financials in crises



# Take-Aways

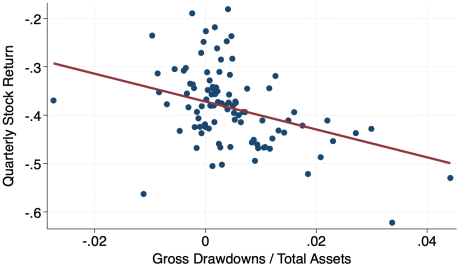
- REITs draw down more than other firms, in general
- REITs are more sensitive to market stress than others, and have greater sensitivity to their own performance compared to non-financial firms

# Effect on banks




Sources: FR Y-9C, CRSP.

**(a)** Stock return vs. commitments




Sources: FR Y-9C, CRSP.

**(b)** Stock return vs. drawdowns

# Impact on Banks

# Effect on banks

The Benchmark from Acharya et. al. (2023):

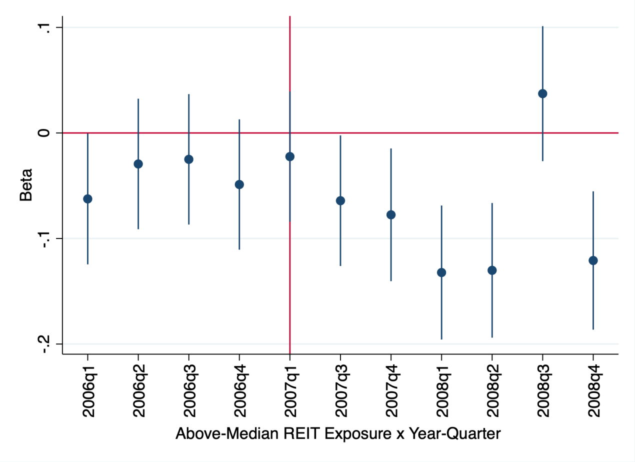
| | (1) Stock Return | (2) Stock Return | (3) Stock Return |
|---|---|---|---|
| Overall Commitment Above Median | 0.00346 | 0.00442* | 0.00427* |
| | (0.138) | (0.060) | (0.068) |
| Crisis Dummy | -0.0613*** | -0.0165*** | -0.0195*** |
| | (0.000) | (0.001) | (0.000) |
| Overall Commitment Above Median x Crisis Dummy | -0.0260*** | -0.0199*** | -0.0196*** |
| | (0.000) | (0.002) | (0.003) |
| Constant | 0.0358*** | 0.00509*** | 0.00704*** |
| | (0.000) | (0.005) | (0.000) |
| R-squared | 0.232 | 0.234 | 0.236 |
| Number obs. | 30994 | 30994 | 30994 |
| Specification | OLS | FF-3 Factors | FF-5 Factors |

# Effect on banks

| | Quarterly bank stock returns (%) | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| High REIT CL Share | 1.087** | -0.189 | -0.288 | -0.430 | -0.219 | 0.166 |
| | (2.57) | (-0.48) | (-0.72) | (-1.01) | (-0.52) | (0.34) |
| High REIT CL Share x Crisis | -4.348*** | -3.256*** | -2.824** | -3.021** | -5.889*** | -3.832*** |
| | (-2.73) | (-2.88) | (-2.36) | (-2.41) | (-4.47) | (-2.62) |
| High Overall Commitments | | | 0.334 | 0.336 | 0.197 | -0.195 |
| | | | (1.50) | (1.51) | (0.91) | (-0.87) |
| High Overall Commitments x Crisis | | | -1.360* | -1.345* | -0.556 | -0.818 |
| | | | (-1.81) | (-1.78) | (-0.76) | (-1.03) |
| High REIT TL Share | | | | -0.626 | -0.428 | -0.462 |
| | | | | (-0.93) | (-0.65) | (-0.60) |
| High REIT TL Share x Crisis | | | | -1.727 | -2.567 | -2.587 |
| | | | | (-0.86) | (-0.98) | (-0.98) |
| High CRE Exposure | | | | | 0.854*** | 2.112*** |
| | | | | | (3.70) | (8.78) |
| High CRE Exposure x Crisis | | | | | -9.752*** | -7.102*** |
| | | | | | (-14.61) | (-10.22) |
| Constant | 13.40*** | 0.642 | 0.758 | 1.214 | -1.345 | -5.636*** |
| | (9.29) | (0.49) | (0.57) | (0.89) | (-1.05) | (-2.79) |
| Controls (small set) | Y | Y | Y | Y | Y | Y |
| Controls (large set) | N | N | N | N | N | Y |
| Fama-French 3 Factor | N | Y | Y | Y | Y | Y |
| Obs. | 27,291 | 27,291 | 27,251 | 27,251 | 27,251 | 23,492 |
| $R^2$ | 0.029 | 0.228 | 0.229 | 0.229 | 0.239 | 0.259 |

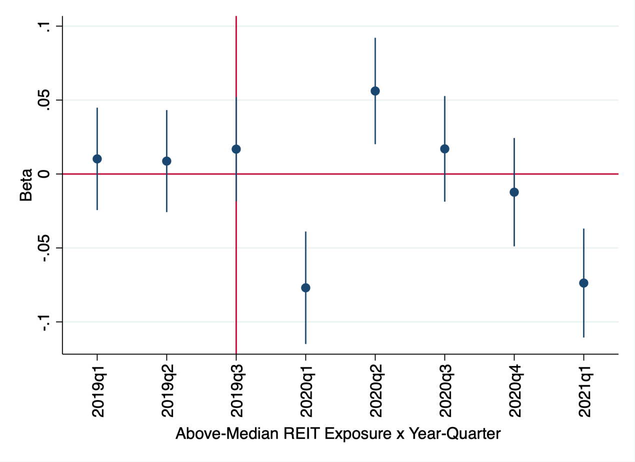
# Bank Performance by REIT Exposure - GFC

$$\text{BankStockReturn}_{it} = \beta_{it}\text{High REIT CL Share}_i \times \mathbf{1}_t + X_{it} + \alpha_i + \gamma_t + \epsilon_{it},$$



# Bank Performance by REIT Exposure - COVID-19

$$\text{BankStockReturn}_{it} = \beta_{it}\text{High REIT CL Share}_i \times \mathbf{1}_t + X_{it} + \alpha_i + \gamma_t + \epsilon_{it},$$



# Pass-through to and effect on banks

Take-Aways:

- Banks with higher REIT exposure face higher drawdowns
- Banks with higher REIT exposure suffer more in crisis times
- This effect goes beyond the general systemic/aggregate drawdown risk
- REIT exposure does not boost stock returns outside of crises!

$\Rightarrow$ If credit lines to financial borrowers (REITs) hurt banks they should be more expensive!

# Are banks pricing the risk they are exposed to?

| | All in drawn spread (bps) | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| REIT | -51.03*** | -23.75*** | -14.11*** | -12.24*** | -27.51*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Financial (Ex-REIT) | -52.87*** | -48.46*** | -34.22*** | -29.26*** | -29.14*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Constant | 219.2*** | 190.3*** | 182.9*** | 188.8*** | 190.9*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Rating Group FE | N | Y | Y | Y | Y |
| Loan Controls | N | N | N | Y | Y |
| Lender x Year-Quarter FE | N | N | Y | Y | Y |
| Obs. | 74,941 | 47,008 | 37,424 | 35,805 | 35,805 |
| $R^2$ | 0.021 | 0.093 | 0.507 | 0.532 | 0.533 |

- Financial borrowers pay less, even though they pose more risk and are, regulatorily speaking, more expensive!

# Systemic Risk

# SRISK

**Panel A – Estimated parameters**

| $E[Utilization^{REIT} \mid Crisis]$ | $E[Utilization^{Non-REIT} \mid Crisis]$ | $\gamma^{REIT}$ | $\gamma^{Non-REIT}$ |
|---|---|---|---|
| 0.448 | 0.294 | -2.35 | -0.26 |
| $E[Utilization^{All} \mid Crisis]$ | | $\gamma^{All}$ | |
| 0.301 | | -0.26 | |

**Panel B – No heterogeneity in borrowers**

| Bank (Group) | $\text{SRISK}^{LRMES}$ | $\text{SRISK}^{CL}$ | $\text{SRISK}^{Total}$ |
|---|---|---|---|
| JPMORGAN CHASE & CO. | 10.0 | 6.6 | 16.6 |
| BANK OF AMERICA CORPORATION | 9.2 | 7.5 | 16.7 |
| WELLS FARGO & COMPANY | 4.3 | 4.8 | 9.1 |
| MORGAN STANLEY | 2.5 | 1.9 | 4.4 |
| GOLDMAN SACHS GROUP, INC., THE | 4.1 | 2.7 | 6.8 |
| Top 10 | 44.6 | 35.2 | 79.8 |
| All | 54.1 | 41.8 | 95.8 |

# SRISK

**Panel A – Estimated parameters**

| $E[Utilization^{REIT} \mid Crisis]$ | $E[Utilization^{Non-REIT} \mid Crisis]$ | $\gamma^{REIT}$ | $\gamma^{Non-REIT}$ |
|---|---|---|---|
| 0.448 | 0.294 | -2.35 | -0.26 |
| $E[Utilization^{All} \mid Crisis]$ | | $\gamma^{All}$ | |
| 0.301 | | -0.26 | |

**Panel C – Reflecting REIT vs non-REIT borrowers**

| Bank (Group) | $\text{SRISK}^{LRMES}$ | $\text{SRISK}^{CL}$ | $\text{SRISK}^{Total}$ |
|---|---|---|---|
| JPMORGAN CHASE & CO. | 14.0 | 6.6 | 20.6 |
| BANK OF AMERICA CORPORATION | 13.6 | 7.6 | 21.2 |
| WELLS FARGO & COMPANY | 6.4 | 4.8 | 11.3 |
| MORGAN STANLEY | 4.9 | 1.9 | 6.9 |
| GOLDMAN SACHS GROUP, INC., THE | 5.7 | 2.7 | 8.4 |
| Top 10 | 69.0 | 35.6 | 104.6 |
| All | 88.9 | 42.4 | 131.3 |

# SRISK

**Panel A – Estimated parameters**

| $E[Utilization^{REIT} \mid Crisis]$ | $E[Utilization^{Non-REIT} \mid Crisis]$ | $\gamma^{REIT}$ | $\gamma^{Non-REIT}$ |
|---|---|---|---|
| 0.448 | 0.294 | -2.35 | -0.26 |
| $E[Utilization^{All} \mid Crisis]$ | | $\gamma^{All}$ | |
| 0.301 | | -0.26 | |

**Panel D – Percentage increase from considering REITs**

| Bank (Group) | $SRISK^{LRMES}$ | $SRISK^{CL}$ | $SRISK^{Total}$ |
|---|---|---|---|
| JPMORGAN CHASE & CO. | 40.12% | 0.06% | 24.22% |
| BANK OF AMERICA CORPORATION | 48.60% | 0.82% | 27.12% |
| WELLS FARGO & COMPANY | 48.79% | 0.80% | 23.60% |
| MORGAN STANLEY | 98.78% | 2.37% | 57.06% |
| GOLDMAN SACHS GROUP, INC., THE | 39.96% | 0.67% | 24.38% |
| Top 10 | 54.61% | 1.14% | 31.06% |
| All | 64.28% | 1.52% | 36.94% |

# Why do REITs draw down on Credit Lines?

## Credit Line Use by REITs

- REITs have to pay out at least 90% of income in the form of dividends (SEC regulations)
- Have very low cash buffers – credit lines important source of short-term liquidity
- Local projections to estimate why REITs use credit lines

$$Y_{i,t+h} - Y_{i,t-1} = \alpha Drawdown_{i,t} + \beta Drawdown_{i,t} * Crisis_t + \alpha_t + \alpha_i + \epsilon_{i,t},$$

- When REIT drawdowns increase, their investments increase, cash falls, dividends go up

# Investments

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | h=0 | h=1 | h=2 | h=3 | h=4 |
| Drawdown/ Assets | 0.00836*** | 0.00531*** | 0.00444 | 0.00519** | 0.00784*** |
| | (0.000) | (0.006) | (0.134) | (0.021) | (0.004) |
| Drawdown/Assets x Crisis | 0.0162 | -0.00282 | 0.00558 | 0.00324 | -0.00150 |
| | (0.554) | (0.883) | (0.659) | (0.789) | (0.876) |
| Constant | 0.0212*** | 0.0411*** | 0.0615*** | 0.0802*** | 0.0999*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Obs. | 11,418 | 11,039 | 10,711 | 10,461 | 10,098 |
| $R^2$ | 0.079 | 0.113 | 0.144 | 0.165 | 0.203 |

# Cash

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | h=0 | h=1 | h=2 | h=3 | h=4 |
| Drawdown/ Assets | -0.0690*** | -0.0499*** | -0.0461*** | -0.0477*** | -0.0374*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Drawdown/Assets x Crisis | 0.161*** | 0.0826*** | 0.0455* | 0.0301 | 0.0744*** |
| | (0.000) | (0.001) | (0.098) | (0.294) | (0.008) |
| Constant | 0.0124*** | 0.0304*** | 0.0465*** | 0.0668*** | 0.0883*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Obs. | 12118 | 11753 | 11427 | 11115 | 10806 |
| $R^2$ | 0.0422 | 0.0445 | 0.0580 | 0.0695 | 0.0775 |

# Dividends

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | h=0 | h=1 | h=2 | h=3 | h=4 |
| Drawdown/ Assets | 0.00779*** | 0.00599*** | 0.00618** | 0.00588** | 0.00594** |
| | (0.003) | (0.006) | (0.025) | (0.017) | (0.014) |
| Drawdown/Assets x Crisis | 0.00997 | -0.000111 | -0.00760 | 0.00119 | -0.0124 |
| | (0.583) | (0.995) | (0.690) | (0.958) | (0.577) |
| Constant | 0.00730*** | 0.0144*** | 0.0200*** | 0.0206*** | 0.0171*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Obs. | 10,123 | 9,774 | 9,431 | 9,220 | 8,865 |
| $R^2$ | 0.064 | 0.093 | 0.130 | 0.165 | 0.194 |

# Recent Examples of REIT Drawdowns

- High redemption by BREIT and Sreit investors in recent months
- BREIT $>$ 100 bill. in assets, Sreit - 25 bil. in assets
- 2022- BREIT was hit with large redemption requests. BREIT (not publicly traded) limited redemptions at 2% of (NAV) per month.
- May 2024, FT reported Sreit had used 84% of its credit line to satisfy redemptions
- More broadly, redemptions of fund shares can impact the drawdown behavior of REITs

## REIT Redemptions and Credit Line Utilization

| | Δ Drawn CL Volume | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Δ Shareholder Equity | -0.330** | -0.407** | -0.381** | -0.451** |
| | (0.160) | (0.178) | (0.174) | (0.198) |
| Controls | N | N | N | Y |
| REIT FE | N | Y | Y | Y |
| Year-Quarter FE | N | N | Y | Y |
| Obs. | 6,589 | 6,583 | 6,583 | 2,408 |
| $R^2$ | 0.003 | 0.026 | 0.057 | 0.133 |

## Conclusion and Outlook

- Banks are exposed to (systemic) risks through intra-financial credit lines
- CRE crisis can impact banks through their exposure to REITs (in addition to direct bank exposure to CRE)
- This risk for large banks seems to have been ignored in recent discussions in the press and by policymakers
- This slide deck focuses on REITs, but credit lines to NBFIs can transfer risks to the banking sector more broadly (hedge funds, broker dealers, mutual/pension funds etc.)
- The links between the banking and shadow banking system need to be more tightly scrutinized for financial stability

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