Pricing Government Contract Risk Premia: Evidence from the 2025 Federal Lease Terminations

Soon Hyeok Choi
Rochester Institute of Technology

Cameron LaPoint
Yale SOM

FSU-UF-UGA Critical Issues in Real Estate Symposium

Terry College of Business, University of Georgia

March 6th, 2026

Are government contracts a safe investment?

Earn Yields Up to 9% From U.S. Government Properties With These REITs

Investing in real estate investment trusts (REITs) that own and manage U.S. government properties offers a unique blend of stability and potential returns. These REITs lease space to federal agencies, ensuring a steady flow of rental income.

Source: *Yahoo Finance,* June 11, 2024

- OECD spending on govt. contracts estimated at 12-13% of 2023 GDP (OECD 2025)
- **This paper:** DOGE federal lease terminations as a natural experiment to isolate repricing of govt. contract tail risk
- Reasons to focus on CRE markets:
  - Market price through CMBS + regular cash flow reporting
  - Location-specific shock
  - Financial stability concerns post-COVID

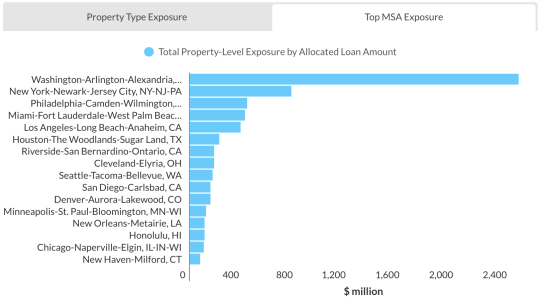
Shifting opinions on govt. exposure in CRE

FITCH WIRE

U.S. CMBS with Govt Lease Exposure Face Increased Default, Loss Risk

Fri 21 Feb, 2025 - 1:11 PM ET

Fitch-Rated CMBS GSA Exposure by Largest MSA Concentration and Property Type

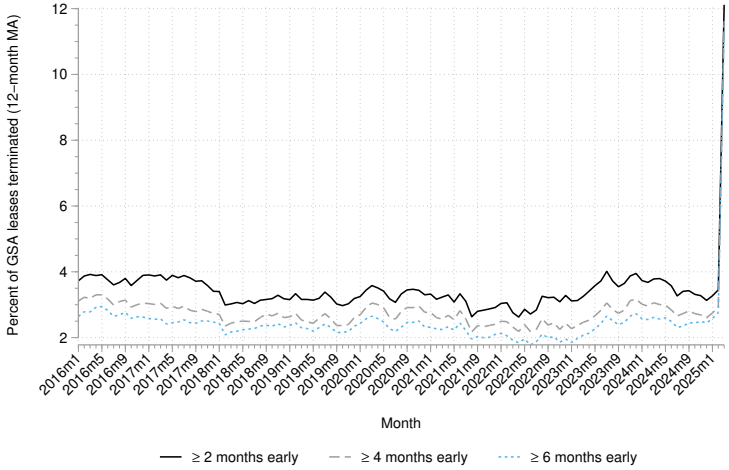


Source: *Fitch Ratings*, February 21, 2025

- Are these concerns well-founded? If so, why wasn't the risk sufficiently diversified?
  - Public contract payments stable and usually continue during shutdowns
  - Still, risk that political regime can change
- **New fact:** federally leased offices $\approx$ 2x more likely to be securitized, suggesting they were perceived as safer than private-tenant leases
  - Safer CRE properties are more likely to be securitized
  - Black, Krainer, Nichols (2020 *RFS*)

Case Study: Easterly

Spike in (implied) govt. lease cancellation rate



Sources: GSA Lease Inventory and DOGE website.

- Annualized cancellation rate went from historical avg. of 3% to 12% by March 2025

Findings: DOGE as a "wake-up call" to the CRE market

- We exploit DOGE's activation of an **early termination option (ETO)** in federal leases as a natural experiment to show...

1. **First-loss CMBS bonds linked to canceled leases experience 3-4% price decline**
   - Persistent effects so far (up to 2025Q4) despite partial rescission
   - Not driven by spillovers within the bond pool

2. **Deteriorating performance** of canceled, ETO-eligible, and privately-leased properties
   - 21% NOI and 15% DSCR declines among canceled leases, with large spatial spillovers
   - Production spillovers through procurement contracts, not driven by consumption externalities

3. Drop in NOI $\implies \approx$ **9.5% 5-year loss** for D.C. office market in median risk case
   - Most of the losses generated by occupancy $\downarrow\downarrow$ in nearby offices
   - One-year govt. spending multiplier: for every \$1 of canceled payments, \$0.64 in lost income

Contributions to literature

1. **Political risk and securities markets**

   Pástor & Veronesi (2012,13); Goodell & Vähämaa (2013); Pasquariello & Zafeiridou (2014); Brogaard & Detzel (2015); Kelly, Pástor, Veronesi (2016); Col, Durnev, Molchanov (2017); Hassan et al. (2019)

   → Pricing of political uncertainty in debt markets + CRE context

2. **Real economic fallout from govt. shutdowns**

   Julio & Yook (2012); Baker, Bloom, Davis (2016); Baker & Yannelis (2017); Herpfer et al. (2023)

   → Clear timing and definition of political shock through contractual clauses

3. **Agglomeration effects and local economic spillovers**

   Benmelech et al. (2018); Rosenthal & Strange (2020); Choi et al. (2025); Miyauchi, Nakajima, Redding (2025); Gupta, Mittal, Van Nieuwerburgh (2025); Anenberg, Kim, Moszkowski (2025)

   → Evidence of production externalities + market-wide contagion in office market

4. **Local fiscal multipliers**

   Nakamura & Steinsson (2014); Suárez Serrato & Wingender (2016); Dupor & Guerrero (2017); Chodorow-Reich (2019); Auerbach et al. (2020); Barnichon et al. (2022); Park et al. (2025)

   → Govt. investment also generates a (large) local real asset value multiplier

Background: Federal Government Leases

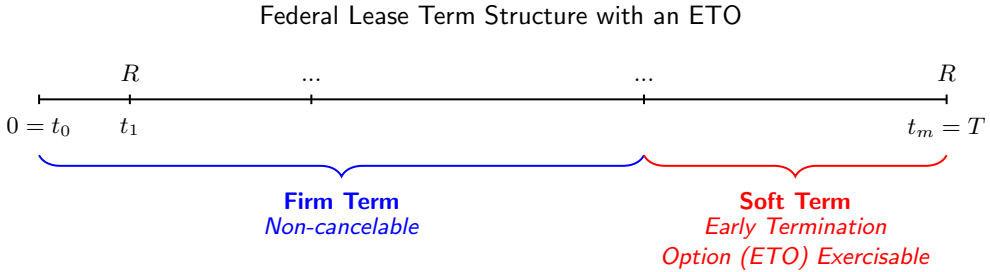
Early termination option (ETO) clause in govt. leases

- General Services Administration (GSA) negotiates federal contracts on behalf of the govt.
  - Acts as the "nation's landlord" by renting out federally owned buildings
  - Negotiates procurement (e.g., w/defense contractors) and leases offered by private landlords renting space to federal agencies
  - Well-defined contract format $\longrightarrow$ negotiation is on prices and whether to include clauses

- Key difference for federal leases relative to private ones is the prevalence of an **early termination option (ETO)** Example #1 Example #2
  - Private leases typically have a penalty paid by the lessee to the landlord
  - ETO is a no-fault option that vests once a termination right date (TRD) is reached
  - Time before the TRD is called the "firm term" of the lease, anything after is the "soft term"

- 85% of leases notified by DOGE were already in the soft term
  - Remaining 15%: non-renewals or cases where agency disbanded (e.g., USAID)

Sample timeline for ETO clause in govt. leases



- Median firm term length = 10 years, soft term length = 5 years Plot
- Define GSA lease as "ETO-eligible" if in soft term as of Jan. 2025
- Not-yet-eligible control group: those which will enter the soft term in the next few years
  - Robustness: try various bandwidths for time window defining "not yet"

Example: GSA lease template with termination rights

ACTION REQUIRED: USE IF TERMINATION RIGHTS ARE NEGOTIATED. OTHERWISE, DELETE.
1.05 TERMINATION RIGHTS (OCT 2016)

The Government may terminate this Lease, in whole or in parts, at any time effective after the Firm Term of this Lease, by providing not less than **XX** days' prior written notice to the Lessor. The effective date of the termination shall be the day following the expiration of the required notice period or the termination date set forth in the notice, whichever is later. No rental shall accrue after the effective date of termination.

Source: GSA Global Lease Template L100 (Oct. 2023)

- Grace period is also negotiable, but standard is 90 to 120 days $\implies$ "zombie leases" not yet removed from GSA inventory
- Private leases: longer advance notice period (6-12 months) + cost recovery/penalties
- Embed ETO contingencies into standard arbitrage pricing framework for CRE leases
  - Derive testable implications and the govt. risk premium

Arbitrage pricing framework – summary

- Extend contingency option pricing model of Jarrow (2018,21); Choi et al. (2025)
  - Continuous trading model with finite horizon T (lease expiration date)
  - Two traded assets: default-free money market account and default-free zero-coupon bond
  - Properties priced as discounted sum of future cash flows + terminal value
- **Federal lease contingency components:**
  - ETO exercised at stopping time $\tau \in [0, T]$, with expiration date $T \longrightarrow$ Poisson λ_τ
  - α advance notice period to the landlord
  - η time at which point rental losses stop and vacant space gets re-occupied $\longrightarrow$ Poisson λ_η
- **Thought experiment:** compare two properties with different ETO salience
  - Landlord who ignores ETO underprices rents $\implies$ CMBS bond price (claim to pool of properties) adjusts down when ETO exercise intensity $\lambda_\tau \uparrow$

Underpricing Hypotheses Comp. statics Insurance Contagion

Data & Empirical Designs

- Headline # gives total savings across leases + contracts + grants canceled
- More on where the "savings" come from later... Jump

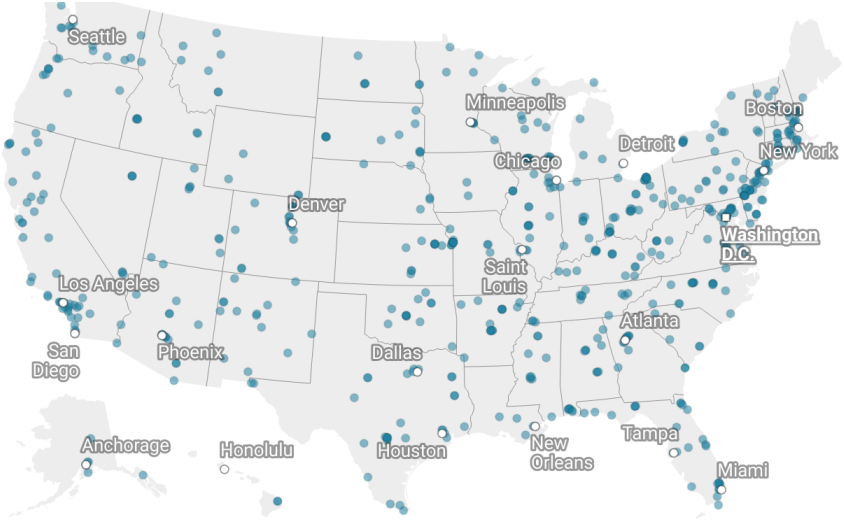
Leases

Displaying 384 lease terminations totaling ~$140M in savings.

Savings | Total Value ↓ | Date

AGENCY	LOCATION	DESCRIPTION	DATE	SQ FT	VALUE
LD BUR LAB STAT	WASHINGTON, DC	True Termination- Consolidation	1/30/2025	845,389	$26,357,330
FEDERAL BUREAU OF INVESTIGATION	WASHINGTON, DC	True Termination- Agency Closed ...	5/23/2025	200,432	$9,535,356
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT	WASHINGTON, DC	Termination via Mass Mod	3/4/2025	76,200	$3,639,020
LD MINE SAFE HEALTH	ARLINGTON, VA	True Termination- Move to Federal...	2/20/2025	88,469	$3,016,102
OFFICE OF THE SECRETARY	DENVER, CO	Termination via Mass Mod	2/26/2025	86,809	$2,905,174
DHS UNDERSEC FOR MGM	WASHINGTON, DC	True Termination- Move to Federal...	2/13/2025	59,681	$2,774,013
DHS UNDERSEC FOR MGM	ARLINGTON, VA	True Termination- Consolidation	1/29/2025	55,043	$2,595,912
DEPT OF TREASURY-BUREAU OF THE FISCAL SERVICE	HYATTSVILLE, MD	True Termination- Move to Federal...	2/25/2025	76,372	$2,568,071
CENTER FOR DISEASE CONTROL	ATLANTA, GA	True Termination- Agency Direct L....	1/27/2025	119,812	$2,490,197
DHS UNDERSEC FOR MGM	ARLINGTON, VA	True Termination- Consolidation	1/29/2025	49,662	$2,440,578

DOGE Federal Lease Termination Footprint by State

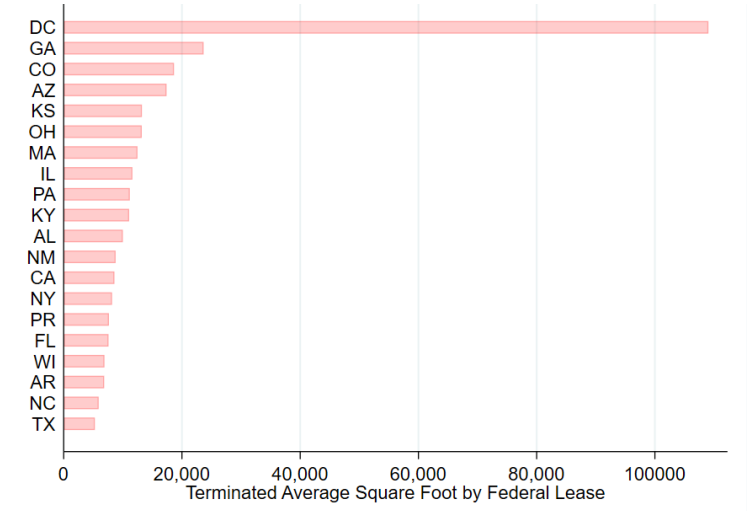


Notes: The map plots a snapshot of the DOGE-terminated federal leases as of March 24, 2025.

Panel of property-loan-bonds matched to GSA inventory

- **DOGE website snapshots**: twice daily scrapes of the lease cancellation tables Time series
  - Backfilled to website's inception using JLL/Arco market reports + Wayback Machine
- **Trepp CMBS monthly price data** Tranches Sum stats Letter
  - When no price observed, Trepp imputes bond value using hazard model of default rates
  - Check against daily TRACE CMO trade data (WRDS missing $\approx 15\%$ Trepp CUSIPs)
  - Match to Trepp property/loan/bond deal characteristics via CUSIP
- **GSA lease inventory panel**: hand-match to DOGE and Trepp Sum stats Flows
  - FOIA'ed + compiled from monthly updates to GSA real estate webpage
  - Needed to recover lease contract terms and identify units with ETO exposure
- Data for spillovers: **Advan Weekly Patterns** retail and non-retail foot traffic data + `USAspending.gov` for procurement Coverage

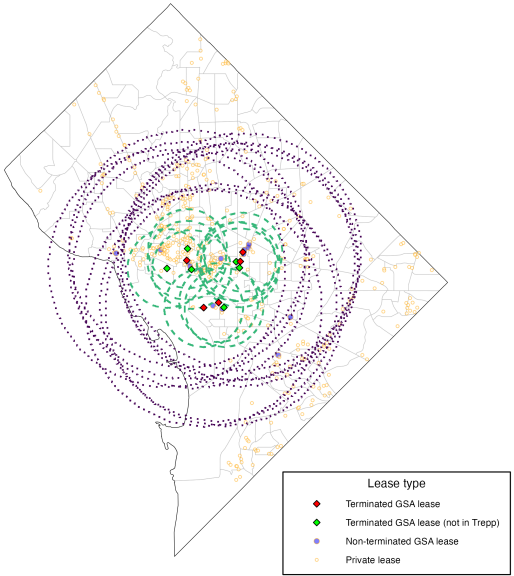
Top 20 States in Terminated Average Square Footage by Federal Lease



Notes: Average square foot of terminated federal leases of top 20 states in descending order as of March 24, 2025. *Sources*: Department of Government Efficiency, Arco Real Estate Solutions, JLL Federal Lease Termination Tracker.

Constructing the sample for Washington, D.C.

- Focus on D.C. because... More stats
  - Greatest density of canceled leases
  - $\approx$ 50% of D.C. GSA leases are securitized compared to 28% of offices in Moody's CRE
  - Large control group of not-yet-eligible
- Seven terminated leases spanning 74 CMBS CUSIPs Targeting?
  - ETO-eligible leases span 285 CUSIPs
- Agencies: GSA, HUD, VA, DHS, FEMA, Treasury, IRS, Department of Energy, Federal Energy Regulatory Commission, Federal Aviation Administration (FAA)



Canceled vs. not-yet canceled diff-in-diff strategy

$$Y_{i,c,t} = \beta \cdot DOGE_{i,c} \times Post_t + \gamma \cdot Post_t + \eta \cdot DOGE_{i,c} + \underbrace{\xi' \cdot \mathbf{X_{i,c}}}_{\text{bond pool controls}} + \underbrace{\delta_{i,y}}_{\text{issue date FEs}} + \varepsilon_{i,c,t}$$

- Compare DOGE-canceled to bonds entering the soft term during DJT 2.0
- **Combines elements of staggered DiD and regression discontinuity**
  - Setting has limited data due to thinness of securitized office market
  - Standard bandwidth selection criteria would pick too few obs.
  - We pick a broader bandwidth w.r.t. distance to termination right date
- Test for contamination bias using `multe` test (Goldsmith-Pinkham, Hull, Kolesár 2024)
  - Control group consists of not-yet-treated and never-treated
  - With controls (sq. ft., occ. rate, issuance month), DOGE-canceled bonds, no contamination
  - Still, results go through if we just restrict to soon-eligible but never during sample

Estimating spatial spillovers + contagion effects

- **Contagion effects:** repricing of risk associated with already ETO-eligible properties that were not canceled
  - Already eligible means already past termination right date as of Jan. 2025
  - Run the same specifications using ETO-eligible as the "treatment" group

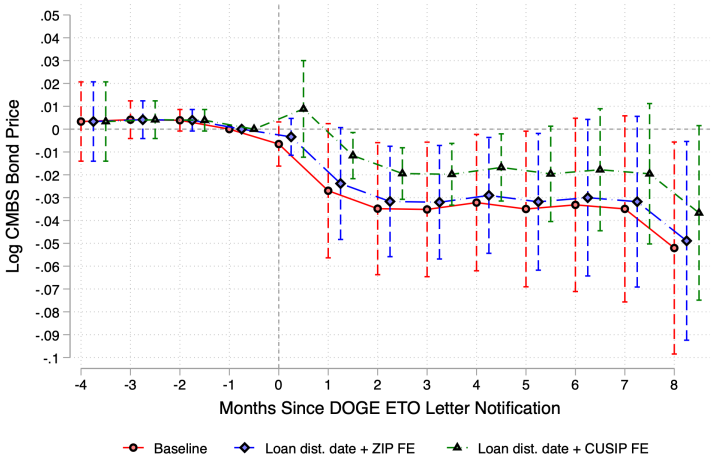
- **Spatial spillovers:** performance of nearby properties with no GSA leases might suffer
  - Production externalities, retail foot traffic, reallocation of federal workforce, loan repricing

$$Y_{i,c,r,t} = \beta \cdot (Ring_{i,c,r} \times Private_{i,c} \times Post_t) + \gamma_1 \cdot Post_t + \gamma_2 \cdot Private_{i,c} + \gamma_3 \cdot Ring_{i,c,r} + \gamma_4 \cdot (Private_{i,c} \times Post_t) + \gamma_5 \cdot (Ring_{i,c,r} \times Post_t) + \gamma_6 \cdot (Ring_{i,c,r} \times Private_{i,c}) + \mu_{(i,c)} + \chi_{r,t} + \varepsilon_{i,c,r,t}$$

- Test for whether being close to a DOGE lease matters relatively more for private leases using $Ring_{i,c,r}$ to indicate location within inner ring

Reduced-Form Results on Office Performance

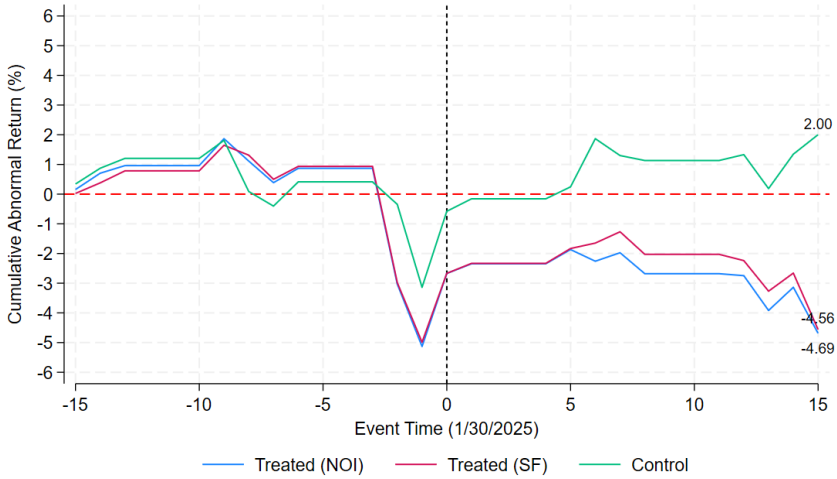
3-4% drop in DOGE CMBS prices, persistent up to 2025Q3



Notes: We restrict our sample to the first-loss group of tranches. Standard errors clustered at the bond CUSIP level. Pooled

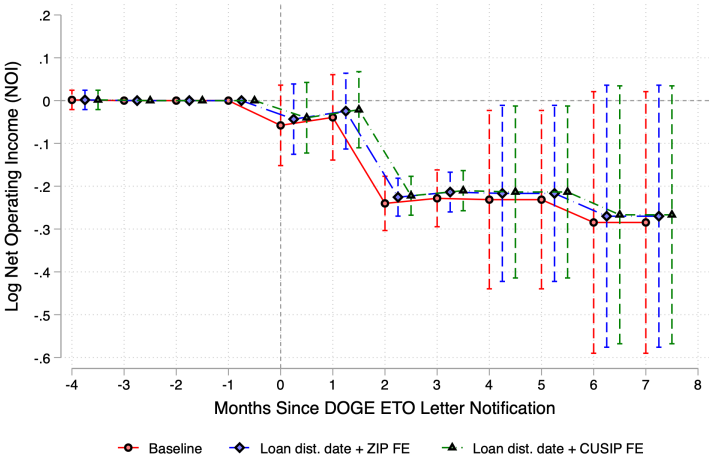
- CUSIP FEs account for restructuring of bond pool $\longrightarrow$ some attenuation for this reason

Mirrored in abnormal returns for REITs



- Compare office REITs with more (treated) vs. less (control) GSA D.C. tenants Horizons

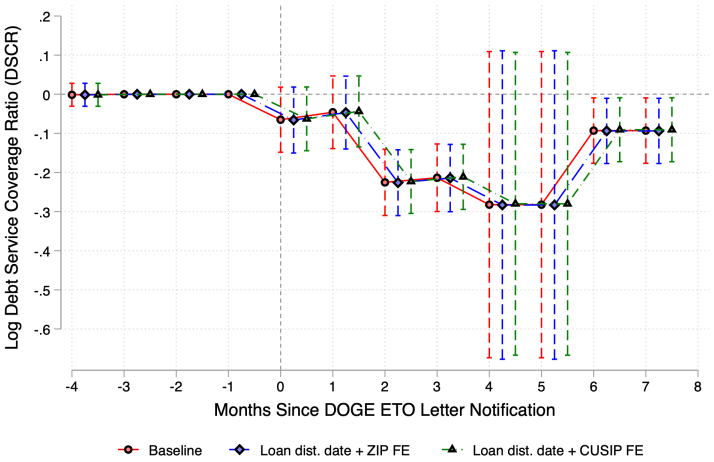
21% drop in NOI for DOGE-notified properties



Notes: NOI is defined at the loan level. Standard errors clustered at the Trepp loan id level.

- Timing: drop occurs at months 3-4 due to grace period ending Pooled Vacancy clause

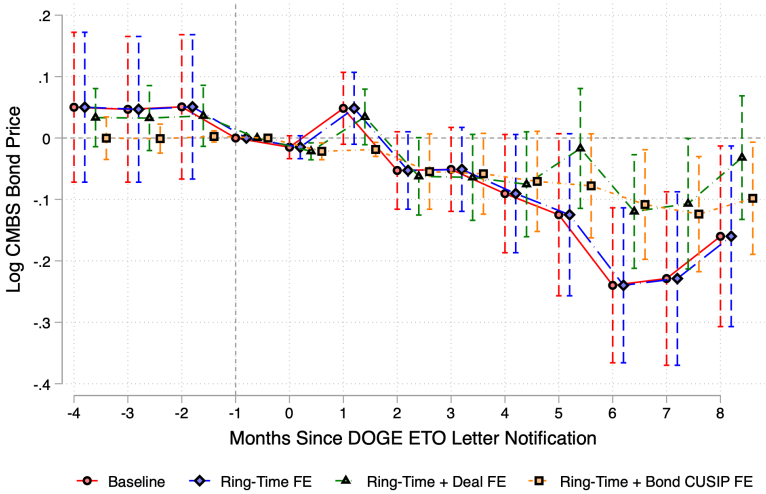
Similar drop in DSCR for DOGE-notified properties



Notes: DSCR is defined at the loan level. Standard errors clustered at the Trepp loan id level.

- All ETO-notified properties have delinquent loans as of 2025Q3 Pooled

Dynamic spatial DiD: spillovers to CMBS with no direct GSA exposure



No clear effect of proximity for non-GSA spillovers

	(1)	(2)	(3)	(4)
$Private \times Post$	-0.179***	-0.179***	-0.146***	-0.106***
	(0.066)	(0.067)	(0.043)	(0.037)
$Ring \times Post$	-0.188***	-0.187***	-0.158***	-0.113***
	(0.063)	(0.063)	(0.048)	(0.041)
$Ring \times Private \times Post$	0.065	0.067	0.055	0.020
	(0.091)	(0.090)	(0.061)	(0.047)
Adj-R^2	0.025	0.030	0.439	0.985
Observations	14,833	14,833	14,833	14,833
Ring-Time FE		✓	✓	✓
Deal FE			✓	
Bond CUSIP				✓

Notes: Standard errors clustered by CUSIP.

- Large negative spillover to relatively nearby private leases within 3-mile outer ring
- No additional effect of being in 1-mile inner ring
- Similar result of β on $Ring \times Post =$ 11% for NOI as outcome (column 4)
- Bias-variance tradeoff in choice of distance bandwidth
- Motivates test for hyperlocal spillovers using foot traffic data

Mechanisms: How is the shock propagating?

Possible channels for office market deterioration

1. **Consumption externalities**
   - In dense cities, workers make several trips to and from the office (Miyauchi et al. 2025)
   - Example: federal employees working at a terminated agency office no longer go to lunch across the street
2. **Production externalities**
   - Spillovers to providers of local goods/services to terminated agencies (e.g., law firms)
3. **Strategic responses of landlords**
   - Prices (rent psf) do not adjust for ETO-eligible leases given contracts set in advance $\longrightarrow$ annual escalation clauses of $\approx$ 1-2%, on avg.
4. **Salience/information shock**
   - Landlords and CMBS investors perceive ETO clauses as newly activated
   - If so, landlords may avoid GSA tenants or negotiate higher rents for new GSA tenants

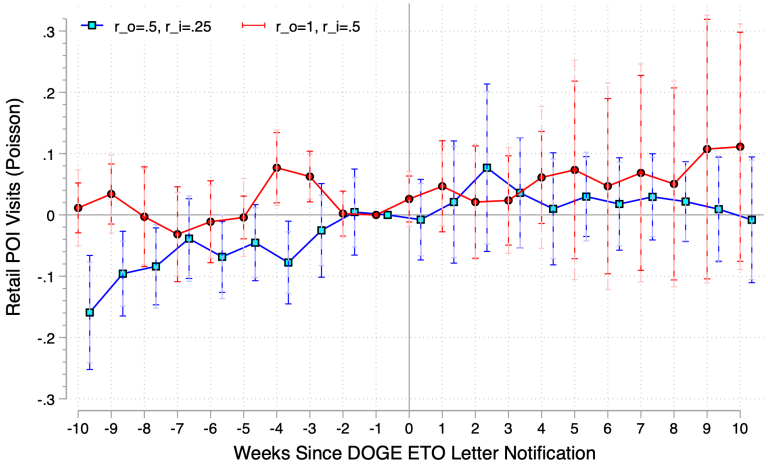
Test for consumption externalities in foot traffic data

- Standard inner (close) vs. outer (far) ring design, with radii $(\mathfrak{r}_{inner}, \mathfrak{r}_{outer})$

$$Y_{j,r,s,t} = \sum_{t=-10, t\neq -1}^{+10} \beta_t \cdot Spillover_{j,t} + \mu_j + \chi_{r,t} + \delta_{s,t} + \epsilon_{j,t,r,s}$$

- Establishment j, DOGE outer ring r, 3-digit NAICS s, and week t
  - Ring-by-time $\chi_{r,t}$ and subsector-by-time $\delta_{s,t}$ FEs
  - Check: $(\mathfrak{r}_{inner}, \mathfrak{r}_{outer})$ from $(0.25, 0.5)$ to $(0.5, 1)$ miles
- Check robustness to specifying visit Y to be log-normally or Poisson distributed
  - Even with $Y > 0, \forall j$ (balanced panel of POIs), fixed effects worsen the bias for log-linear regression (Cohn, Liu, Wardlaw 2022)
- Alternatively, compare properties in rings defined by early vs. late DOGE notifications (Callaway & Sant'Anna 2021) $\longrightarrow$ not just driven by contamination of outer ring

No impact on retail foot traffic



Notes: Solid bars indicate 95% Conley CIs with maximal SAC cutoff, dashed bars are those clustered by Census block group.

- Also null for non-retail foot traffic, or early vs. late ring design Jump OLS Office

Could RTO policies at D.C. agencies play a role?

Status	Agency	Days/Week In-Office
DOGE-notified	Department of Veterans Affairs (VA)	2.5
DOGE-notified	Federal Energy Regulatory Commission (FERC)	2
DOGE-notified	Department of Homeland Security (DHS)	3 (est.)
DOGE-notified	General Services Administration (GSA)	1-2 (est.)
DOGE-notified	Federal Emergency Management Agency (FEMA)	2
DOGE-notified	Department of Housing and Urban Development (HUD)	1
DOGE-notified	Department of the Treasury	2.5
DOGE-notified	Internal Revenue Service (IRS)	2.5
DOGE-notified	Department of Energy (DOE)	3
DOGE-notified	Federal Aviation Administration (FAA)	2
ETO-eligible	GSA National Capital Region 11	2 (est.)
ETO-eligible	U.S. Navy	3
ETO-eligible	Department of Housing and Urban Development (HUD)	1
ETO-eligible	U.S. Federal Labor Relations Authority	3 (est.)
ETO-eligible	The Public Defender Service	3 (est.)
ETO-eligible	U.S. Chemical Safety Board	3 (est.)
ETO-eligible	United States Postal Service (USPS)	3
ETO-eligible	AmeriCorps	3 (est.)
ETO-eligible	Federal Mediation and Conciliation Service	4 (est.)
ETO-eligible	U.S. Office of Government Ethics	1-2 (est.)
ETO-eligible	National Aeronautics and Space Administration (NASA)	2.5 (est.)
ETO-eligible	NASA Office of Inspector General	3 (est.)
ETO-eligible	Office of the Comptroller of the Currency (OCC)	3 (est.)
ETO-eligible	Federal Housing Finance Agency (FHFA)	1-2 (est.)
ETO-eligible	Federal Trade Commission (FTC)	3 (est.)
ETO-eligible	National Endowment for the Humanities (NEH)	1-2 (est.)
ETO-eligible	National Endowment for the Arts (NEA)	2.5 (est.)
ETO-eligible	National Institute for Occupational Safety and Health (NIOSH)	2.5 (est.)
ETO-eligible	Networking and Information Technology Research and Development	2.5 (est.)
ETO-eligible	National Transportation Safety Board (NTSB)	1-2 (est.)
ETO-eligible	Argonne National Laboratory	2.5 (est.)
ETO-eligible	Court Services and Offender Supervision Agency (CSOSA)	1-2 (est.)
ETO-eligible	Pretrial Services Agency for the District of Columbia (PSA)	2.5 (est.)
ETO-eligible	Public Defender Service for the District of Columbia (PDS)	2.5 (est.)
ETO-eligible	Federal Retirement Thrift Investment Board (FRTIB)	3 (est.)
ETO-eligible	U.S. Agency for International Development (USAID)	3
ETO-eligible	National Science Foundation (NSF)	2

- **RTO mandates/policies for federal agencies**
  - Flex Index (as of July 2024) and hand-collected from 2024 Congressional Report
  - All agencies have some WFH activity prior to DOGE
- Very little variation in RTO policies at the agency level $\longrightarrow$ unlikely that DOGE targeting leases based on WFH behavior

Test for production externalities

- **Idea**: construct govt. business-dependence variables to proxy for **production externality**
- Sample construction
  1. Obtain the property addresses for 1-mi ring private-tenant buildings
  2. Use CoStar to obtain, as of Nov 2025, bldg-level quarterly rent and occupancy, tenant-level name, sqft, lease start, end, industry
     - Trepp doesn't provide price-quantity decomposition of NOI, largest 5 tenants' names only
     - Of 343 unique tenants, 300 tenants (**87%**) have lease commencement date prior to January 30, 2025
  3. Merge CoStar bldg-level quarterly data with Trepp's loan-level data
  4. Hand-match contractors in `USASpending.gov` w/CoStar tenant name to collect FY 2015-2024 federal govt. award information

Procurement contract exposure measures

1. DOGE Contract Exposure

- Tenant j's award shares:

$$DOGEShare_j,\ NonDOGEShare_j.$$

- SF-weighted building shares:

$$Share_i^D = \sum_j w_{i,j} DOGEShare_j$$

$$Share_i^N = \sum_j w_{i,j} NonDOGEShare_j.$$

- DOGE tilt:

$$Tilt_i = Share_i^D - Share_i^N.$$

- **HighDogeExp**$_i$: $\mathbb{1}\{Tilt_i > 0\}$.

2. Government Contract Exposure

- Tenant-level award exposure

$$GovExp_j = \frac{1}{10} \sum_{\tau=2015}^{2024} \frac{\mathsf{Award}_{j,\tau}}{10^6}$$

- Pre-DOGE SF weights in building i:

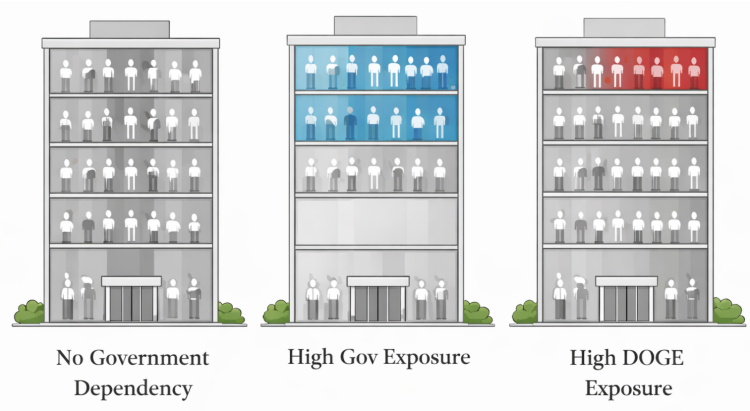
$$w_{i,j} = \frac{\mathsf{SF}_{ij}^{\mathsf{Pre}}}{\sum_{k \in \mathcal{J}_i} \mathsf{SF}_{ik}^{\mathsf{Pre}}}.$$

- Building-level dependence:

$$GovDep_i = \sum_{j \in \mathcal{J}_i} w_{i,j}\, GovExp_j.$$

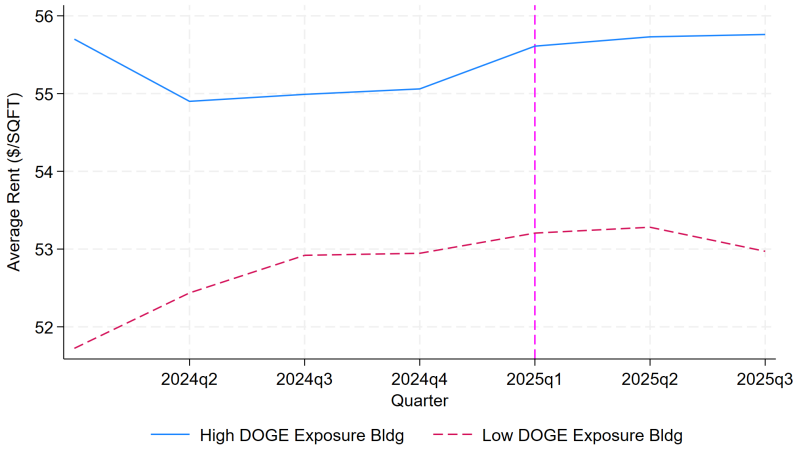
- **HighGovExp**$_i$: top 20% of $GovDep_i$.

What we are doing in a picture



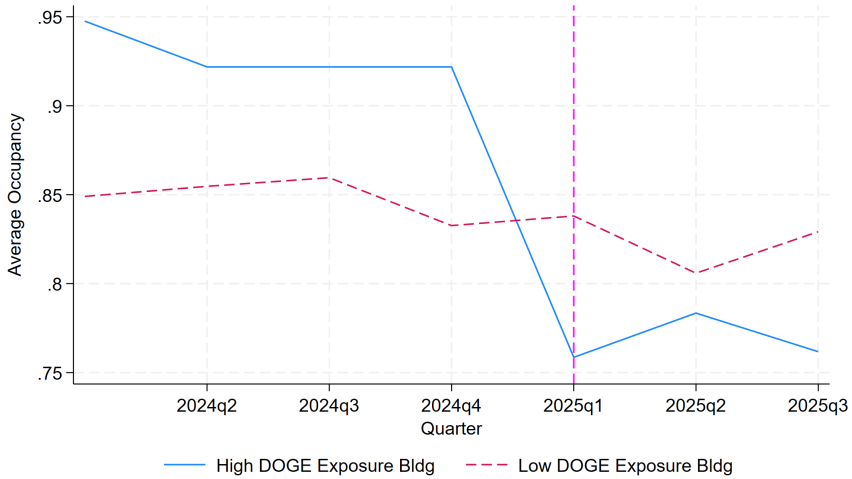
- $HighDogeExp$: contract exposure to agencies targeted by DOGE
- $HighGovExp$: broader federal govt. contract exposure other than DOGE (placebo)
- Decompose building-level occupancy and rent adjustments

Small rent ↑ for tenants in most-exposed buildings



- Landlords reprice contract termination risk by raising rents on tenants who stay

Sharp drop in occupancy for DOGE-exposed, private-tenant spillover bldgs



DiD exposure estimates: occ. ↓↓, rent ↑

$$Y_{i,t} = \beta^{DOGE} \cdot \left(HighDogeExp_i \times Post_t\right) + \mu_i + \delta_t + \Gamma' \cdot \mathbf{Z_{i,t}} + \varepsilon_{i,t}$$

Panel (A)	Occupancy				Log Rent Per Square Foot			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post	-0.009				0.014*			
	(0.015)				(0.008)			
HighDogeExp	0.078***	0.078***	-0.009		0.034	0.034	0.046	
	(0.024)	(0.024)	(0.078)		(0.030)	(0.030)	(0.089)	
HighDogeExp × Post	-0.147***	-0.147***	-0.151***	-0.151***	0.029**	0.029**	0.025**	0.026*
	(0.019)	(0.019)	(0.019)	(0.020)	(0.012)	(0.012)	(0.011)	(0.014)
Adj-R^2	0.062	0.054	0.111	0.164	0.064	0.051	0.306	0.420
Observations	151	151	123	123	151	151	123	123
Time FE		✓	✓	✓		✓	✓	✓
Loan Vintage FE			✓	✓			✓	✓
Hedonic Controls			✓	✓			✓	✓
Property Zip FE				✓				✓

- **NOI drop due to occupancy reduction**, not landlords strategically lowering rents to retain tenants due to concerns about market unraveling NLRB case

Placebo regressions: HighGov exposure bldgs

$$Y_{i,t} = \beta^{GOV} \cdot \left(HighGovExp_i \times Post_t\right) + \mu_i + \delta_t + \Gamma' \cdot \mathbf{Z_{i,t}} + \varepsilon_{i,t}$$

Panel (B)	Occupancy				Log Rent Per Square Foot			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post	-0.011				-0.011			
	(0.016)				(0.016)			
HighGovExp	0.013	0.013	-0.017	0.093	0.013	0.013	-0.064	-0.190***
	(0.071)	(0.072)	(0.082)	(0.097)	(0.071)	(0.072)	(0.044)	(0.051)
HighGovExp × *Post*	-0.031	-0.031	-0.035	-0.034	-0.031	-0.031	0.012	0.013
	(0.051)	(0.052)	(0.055)	(0.057)	(0.051)	(0.052)	(0.012)	(0.015)
Adj-R^2	0.058	0.050	0.097	0.160	0.058	0.050	0.311	0.478
Observations	151	151	123	123	151	151	123	123
Time FE		✓	✓	✓		✓	✓	✓
Loan Vintage FE			✓	✓			✓	✓
Hedonic Controls			✓	✓			✓	✓
Property Zip FE				✓				✓

- Suggests spillover effects are not due to broader concerns about reductions in federal govt. footprint after new presidential administration

Simulation: What are the implied value losses?

Loss simulation procedures

- Jump-diffusion processes for govt. cancellation risk: Full model

$$dV_t = \mu V_t^- dt + \sigma V_t^- dW_t + V_t^- (J_g - 1)\, dC_t, \quad \text{for } g \in \{DOGE, ETO, SPILL\}$$

- For each group g calibrate jump size to DiD estimates: $J_g = \log(1 - \beta_g)$
  - Omitted reference (i.e., control) group is not-yet ETO-eligible as in DiD setting

- Apply group-specific jump multiplier impact β_g, yielding the jump-affected terminal value

$$V_{i,T}^{(g)} = V_{i,T}^{(0)} \exp(J_g\, N_T) = V_{i,T}^{(0)} (1 - \beta_g)^{N_T}$$

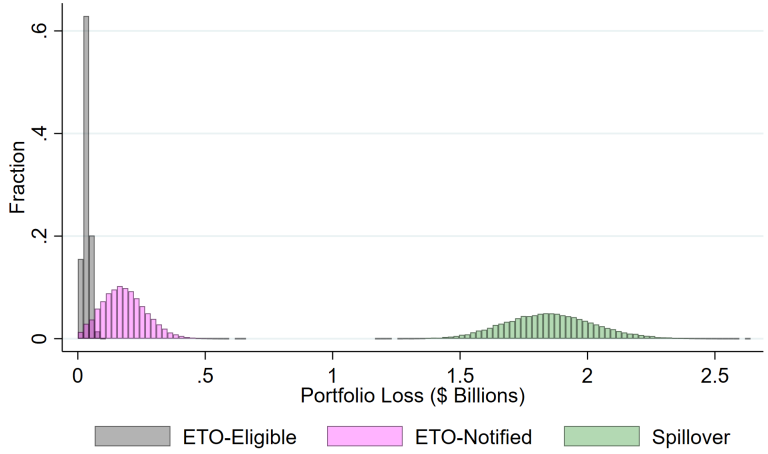
- Compare to a "no-jump" counterfactual to compute loss L_i Paths
  - Approximate pre-DOGE market value based on hedonically-adjusted loan-appraised values to fill in initial conditions $V_{i,0}$ Hedonics

Calibration to DiD estimates

Symbol	Parameter	Value	Description
μ	Drift rate	0.020	Annual baseline growth in property values
σ	Valuation volatility	0.100	Annualized standard deviation of value (market risk)
β_{DOGE}	Jump size	0.213	Average proportional loss per jump for ETO-notified
β_{ETO}	Jump size	0.016	Average proportional loss per jump for ETO-eligible
β_{SPILL}	Jump size	0.119	Average proportional loss per jump for private-tenant
λ	Jump intensity	0.150	Annual probability of ETO execution (Poisson)
T	Simulation horizon	$\{1, 2, 3, 4, 5\}$	Horizon in years (shock persistence parameter)
N	Monte Carlo iterations	50,000	Number of random draws per group and horizon

- Jump intensity $\lambda = 0.15 \implies$ average annualized 15% chance of ETO execution
  - Reflects conditions as of March 2025 $\longrightarrow$ could be lower in the end
  - Average waiting time of $1/\lambda = 6.67$ years, beyond typical soft term length
- Other parameters based on CoStar reports for post-COVID D.C. office market
- T controls DOGE shock persistence (e.g., $T = 5$ is soft term length)

Tail-risk losses dominated by the spillover group



VaR (20/50/75/95) in USD Billions
ETO-Eligible (0.024/ 0.033/ 0.042/ 0.057) ETO-Notified (0.110/ 0.177/ 0.237/ 0.334) Spillover (1.700/ 1.849/ 1.971/ 2.158)

- Private-tenant properties account for 85% of the total losses 1-year estimates Table

Tail risk: $\approx 6\%$ destruction of D.C. office market value

$$\mathrm{ES}_{1-\alpha}(L) = \mathbb{E}\left[L \mid L \geq \mathrm{VaR}_{1-\alpha}(L)\right]$$

5-Year Persistence	Value at Risk (VaR)				Expected Shortfall (ES)			
$1-\alpha =$	20%	50%	75%	95%	20%	50%	75%	95%
ETO-eligible	0.024	0.033	0.042	0.057	0.039	0.045	0.051	0.064
	[0.033]	[0.047]	[0.059]	[0.079]	[0.054]	[0.062]	[0.071]	[0.089]
ETO-notified	0.107	0.176	0.236	0.333	0.210	0.251	0.296	0.378
	[0.158]	[0.260]	[0.348]	[0.491]	[0.310]	[0.369]	[0.436]	[0.557]
Spillover	1.700	1.849	1.971	2.158	1.915	1.996	2.085	2.240
	[2.876]	[3.128]	[3.334]	[3.650]	[3.238]	[3.376]	[3.526]	[3.788]
Total ($ Billions)	1.831	2.058	2.249	2.548	2.164	2.292	2.432	2.682
	[3.067]	[3.434]	[3.741]	[4.220]	[3.602]	[3.807]	[4.034]	[4.435]

- **Median-risk loss of $2.3 B, or 5.7%** at $40 billion valuation of D.C. office market based on recent transactions (BNP Paribas 2025; Cushman & Wakefield 2025)
  - If mark-to-market unsold properties (hedonic), value destruction slightly bigger
  - 1-year estimates: 1-2% of office market value destroyed

Tail risk: ≈ 6% destruction of D.C. office market value

$$\mathsf{ES}_{1-\alpha}(L) = \mathbb{E}\left[L \mid L \geq \mathsf{VaR}_{1-\alpha}(L)\right]$$

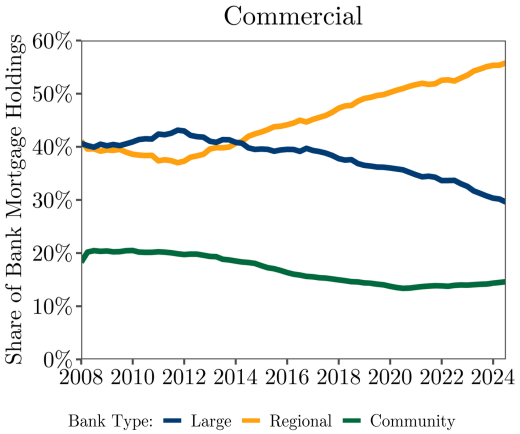
5-Year Persistence	Value at Risk (VaR)				Expected Shortfall (ES)			
$1-\alpha =$	20%	50%	75%	95%	20%	50%	75%	95%
ETO-eligible	0.024 [0.033]	0.033 [0.047]	0.042 [0.059]	0.057 [0.079]	0.039 [0.054]	0.045 [0.062]	0.051 [0.071]	0.064 [0.089]
ETO-notified	0.107 [0.158]	0.176 [0.260]	0.236 [0.348]	0.333 [0.491]	0.210 [0.310]	0.251 [0.369]	0.296 [0.436]	0.378 [0.557]
Spillover	1.700 [2.876]	1.849 [3.128]	1.971 [3.334]	2.158 [3.650]	1.915 [3.238]	1.996 [3.376]	2.085 [3.526]	2.240 [3.788]
Total ($ Billions)	1.831 [3.067]	2.058 [3.434]	2.249 [3.741]	2.548 [4.220]	2.164 [3.602]	2.292 [3.807]	2.432 [4.034]	2.682 [4.435]

- Scale up estimates to include **non-securitized** properties using estimated securitization rates for each group ⟶ 9.5% total market value loss [brackets] Details

Losses dwarf savings for federal taxpayers

- **DOGE savings** = non-discounted value of all future payments, assuming no force majeure events and that all renewal options are exercised
  - This is a maximal measure because historically 2-3% of leases get canceled each year and not all renewals get exercised
- At height of cancellations in March 2025, DOGE reported $660 M in lease savings nationwide (Politico 2025)
  - We still cannot replicate this directly $\longrightarrow$ obtain $433 M if we total individual savings from the DOGE website
  - Many $0 savings (in theory, possible if lease paid in advance until its expiration) Targeting
- Ignoring renewals and using the GSA official payment roster, we get **$220 M in nationwide savings**, or $76 M for just D.C. metro
  - $\Longrightarrow$ Even in 5% best-case scenario, value losses still exceed savings
  - Additional 5-year losses of $43 M from erosion of property tax base Details Multipliers

Systemic banking sector risk implications of DOGE



Source: Hinzen, Severino, Van Nieuwerburgh (2025): "Too-Many-to-Ignore: Regional Banks and CRE Risks"

- Office CMBS delinquency rate reached all-time high of 12.34% (Jan. 2026 Trepp)
- Major life insurers hold 16% of their portfolio in CRE debt
  - 1/3 of CRE exposure is CMBS bonds (Brown et al. 2024)
  - D.C. ranks third among metros for life insurers' CRE exposure
- Collecting more data to scale up shock to nationwide losses $\longrightarrow$ political stress tests

Takeaway: govt. procurement risk important for CRE

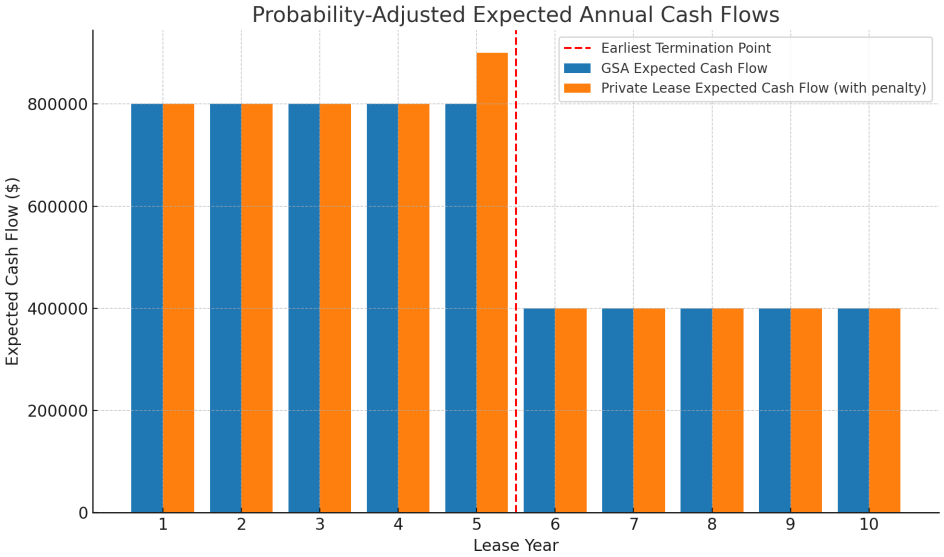
- We identify a new risk factor in commercial real estate: **government contract exposure**
  - CMBS prices, NOI, DSCR ↓ after DOGE reactivates dormant early termination clause
  - **Production externalities:** service providers to govt. agencies scaling back office footprint
- On top of fiscal multipliers, **valuation multiplier** propagating through debt markets
  - Long-run response of landlords and lenders to move away from govt. tenants altogether given lack of price negotiating power?
- **Wake-up call** to diversify away from public funding sources goes beyond CRE
  - DOGE ramped up cancellation of private contracts with federal agencies in Summer 2025
  - Largest canceled grant amounts were to flagship state schools
- Future work: persistence of the shock, CRE performance effects of state and local procurement changes around elections

THANK YOU!

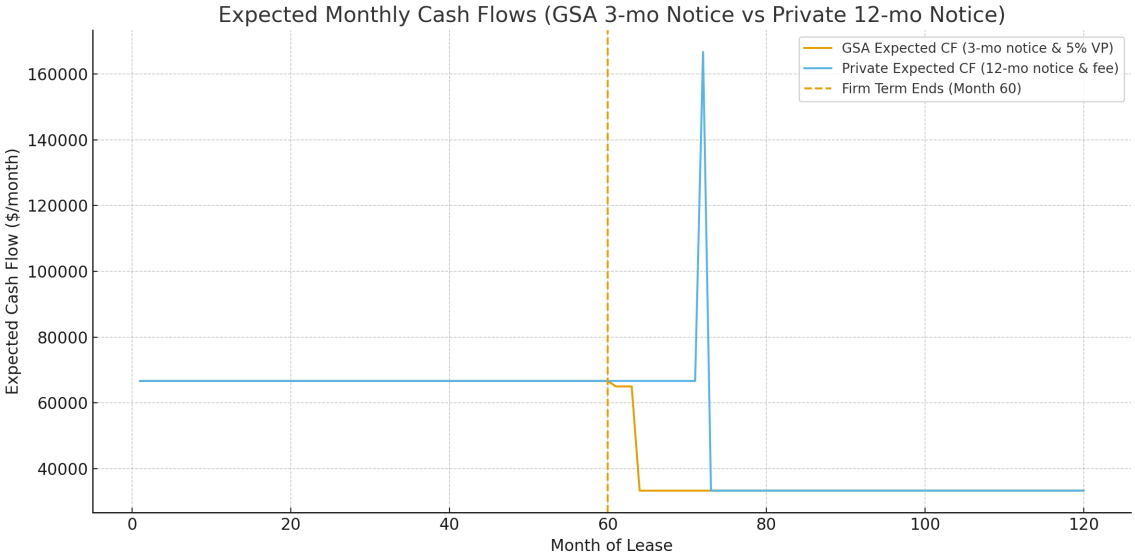
SSRN paper downloadable here

↓↓

Empirical Appendix


Probability-Adjusted Expected Annual Cash Flows
Earliest Termination Point
GSA Expected Cash Flow
Private Lease Expected Cash Flow (with penalty)
Expected Cash Flow ($)
0
200000
400000
600000
800000
1
2
3
4
5
6
7
8
9
10
Lease Year

Go back


Expected Monthly Cash Flows (GSA 3-mo Notice vs Private 12-mo Notice)
GSA Expected CF (3-mo notice & 5% VP)
Private Expected CF (12-mo notice & fee)
Firm Term Ends (Month 60)
Expected Cash Flow ($/month)
160000
140000
120000
100000
80000
60000
40000
0
20
40
60
80
100
120
Month of Lease

Go back

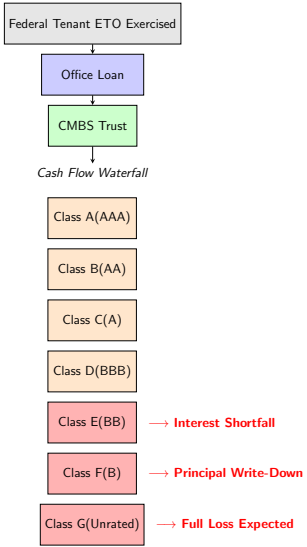
Isolating tranches + leases in Trepp data

Go back

- **Advantage to Trepp:** cash flows updated more frequently for securitized properties
  - Typically every 1-3 months $\longrightarrow$ OCC recommends loan servicers request monthly updates
  - In progress: cross-checking with Moody's CRE which is based on lease listings
- Problem: in most cases cannot separate out leases (treated unit) from individual properties (finest unit in Trepp)
- Many-to-many join across all the Trepp FEED tables to determine exposure
  - CUSIP corresponds to tranche of bond deal, representing a pool of loans
  - Each loan corresponds to a property, with the top 5 tenants recorded
- Sort CUSIPs into senior, mezzanine, first-loss group (FLG) tranches using bond ratings (Flynn & Ghent 2018)
  - Senior = AAA-rated, FLG = CCC/CCC+/unrated, mezz. = everything else

ETO Notification and Cash Flow Waterfall

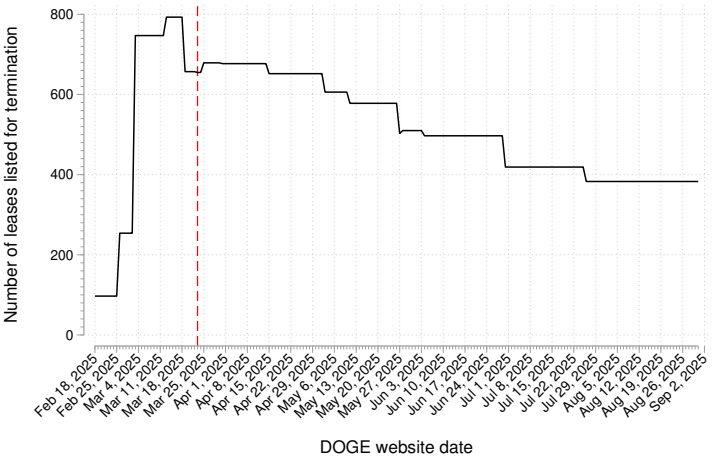
Go back



- Senior and upper mezzanine tranches are least exposed to losses in the event of mortgage default
  - "Redeem up, foreclose down"
  - We only find effects on prices of first-loss tranches
- B-piece buyers act as gate-keepers in CMBS
  - Re-underwrite all the loans in the underlying pool
  - Lowest tranches are the most sensitive to new information (Ashcraft, Gooriah, Kermani 2019)

of DOGE-canceled GSA leases since 2/18/2025

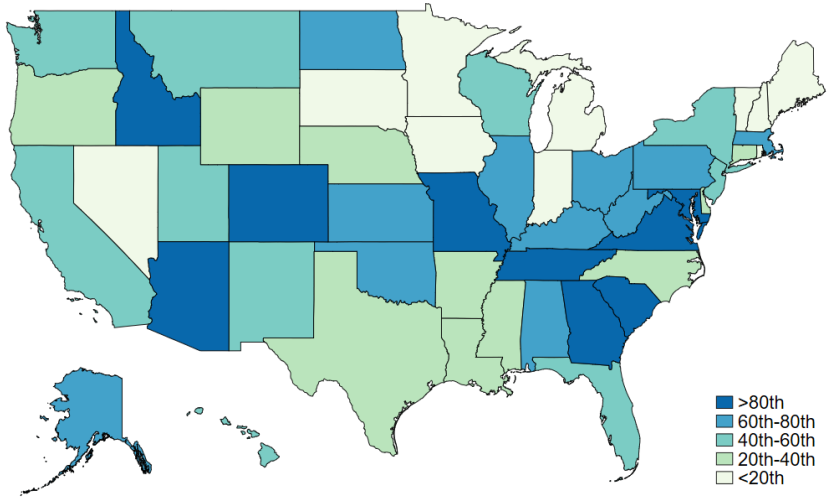
Go back



- Set of 7 canceled + securitized GSA leases in Washington, D.C. were all **notified** between Jan. 30th and Feb. 13th $\longrightarrow$ set Feb. 2025 as $t = 0$

Fraction of Total Square Footage Terminated by State

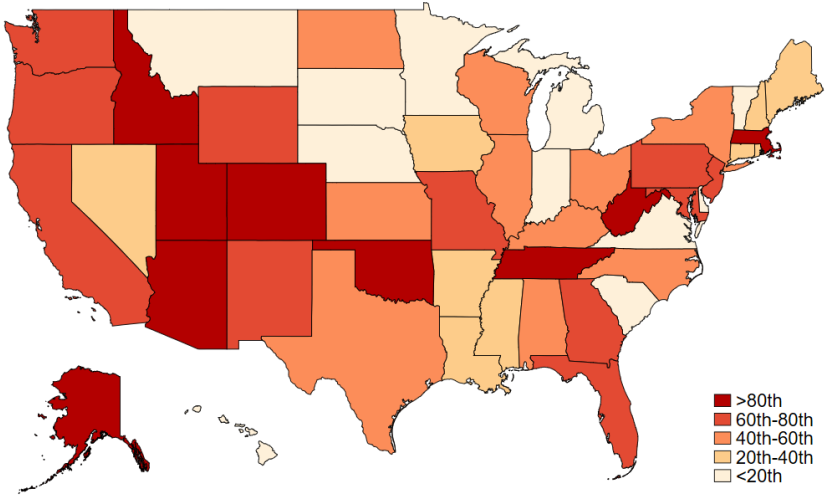
Go back



Notes: The map displays the fraction of total square footage in terminated federal leases by state in quintiles as of March 24, 2025. *Sources*: Department of Government Efficiency, Arco Real Estate Solutions, JLL Federal Lease Termination Tracker.

Fraction of Total Savings due to Terminated Federal Leases by State

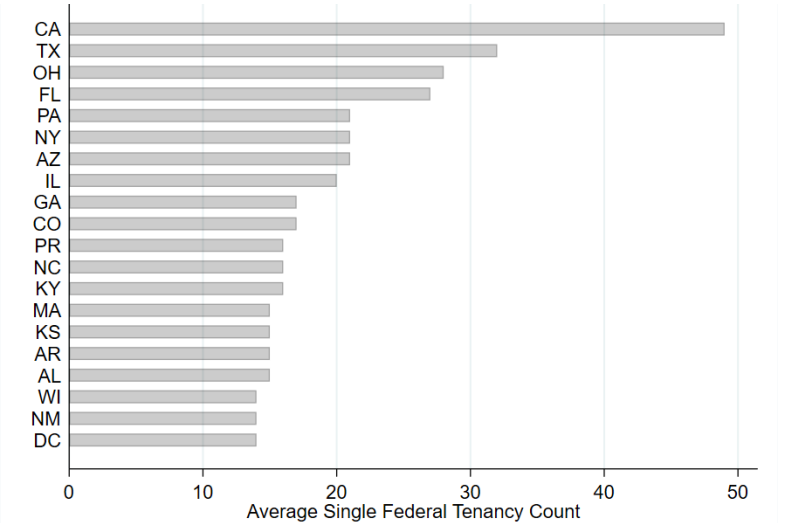
Go back



Notes: The map displays the fraction of total savings reported by the Department of Government Efficiency (DOGE) due to federal lease terminations by state in quintiles as of March 24, 2025. *Source*: Department of Government Efficiency, Arco Real Estate Solutions, JLL Federal Lease Termination Tracker.

Top 20 States in Single-Tenancy Federal Lease Concentration

Go back



Notes: The bar plot shows the average number of single-tenancy federal leases of top 20 states in descending order as of March 24, 2025. *Sources*: Department of Government Efficiency, Arco Real Estate Solutions, JLL Federal Lease Termination Tracker.

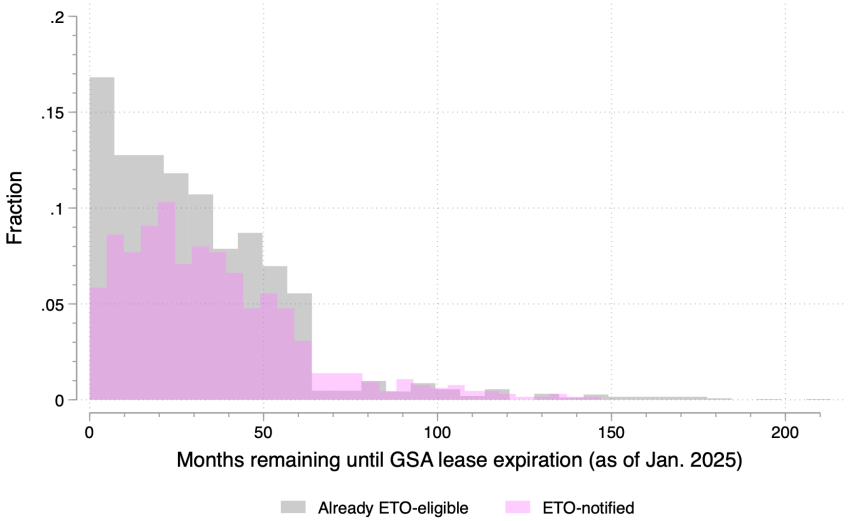
Distribution of firm and soft term lengths

Go back

Median firm term length: 10.00; Median soft term length: 5.00

DOGE targeted leases with more months remaining

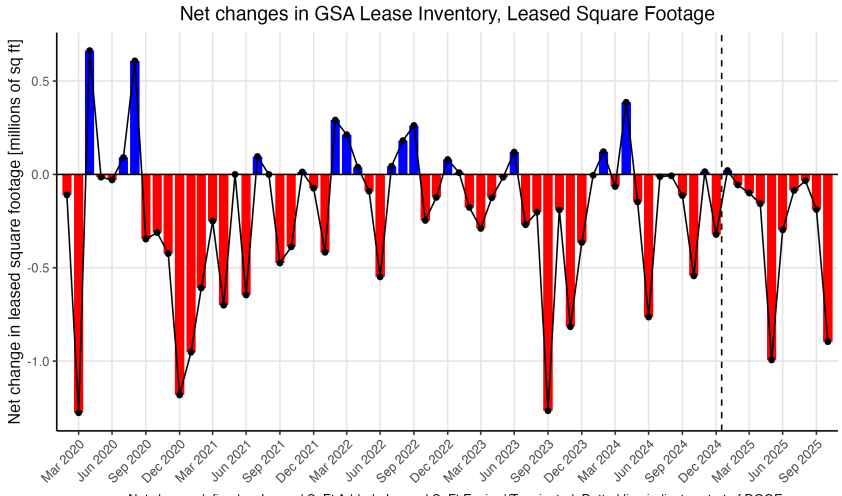
Go back



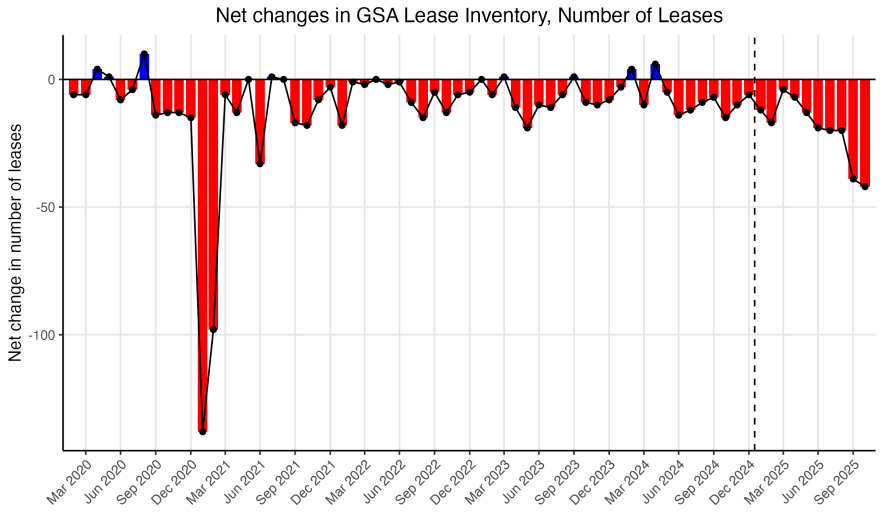
Average months remaining -- ETO-eligible: 30.95; ETO-notified: 34.99; t-stat on diff = -3.44

Lag in GSA lease inventory due to grace period

Go back



Net change defined as Leased SqFt Added - Leased SqFt Expired/Terminated. Dotted line indicates start of DOGE program.
Source: GSA monthly lease inventory.

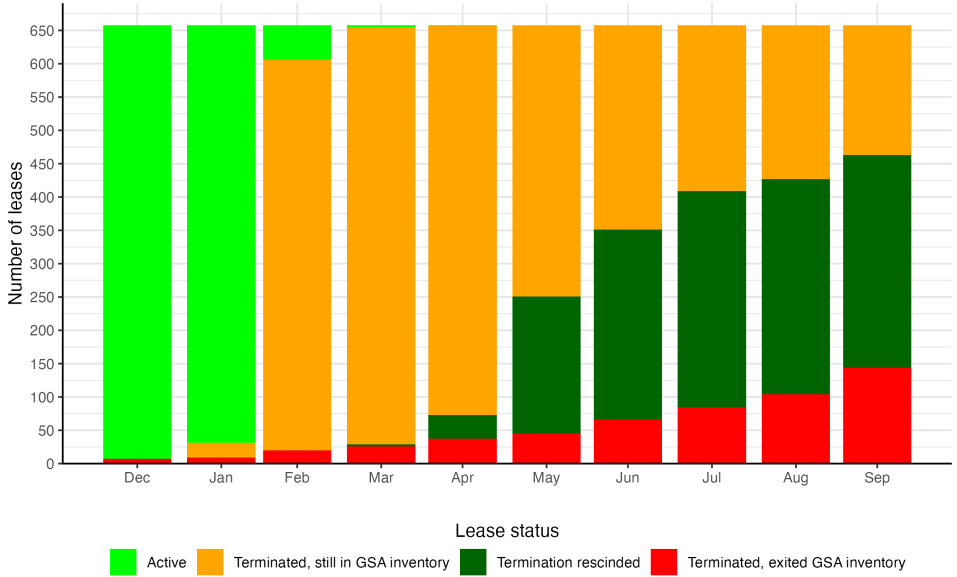


Net change defined as Leases Added - Leases Expired/Terminated. Dotted line indicates start of DOGE program.
Source: GSA monthly lease inventory.

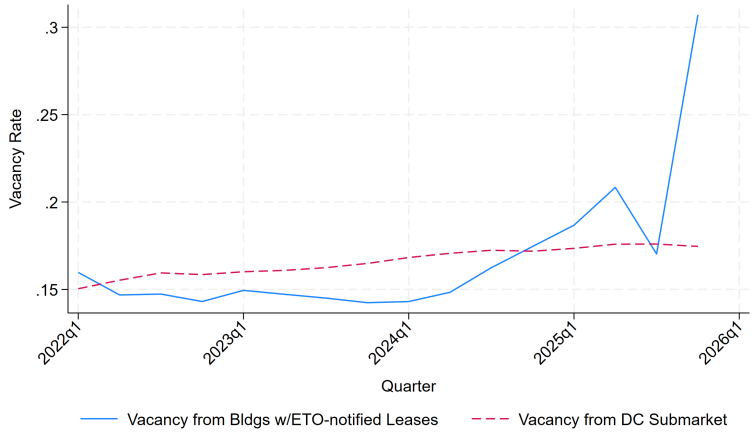
Go back

Full decomposition of GSA lease inventory flows

Go back



DOGE didn't target *ex ante* "weak" office properties



Notes: Quarterly vacancy rates for ETO-notified buildings (sqft-weighted; blue) versus the D.C. office submarket (red)

- ETO-notified buildings track the broader D.C. submarket pre-DOGE, then vacancy rises sharply post-DOGE Go back

Vacant premises clause ⟶ immediate drop in NOI

Go back

ACTION REQUIRED: USE IF THERE IS A NEGOTIATED AMOUNT FOR THE VACANT LEASED PREMISES.
NOTE: ALWAYS ATTEMPT TO NEGOTIATE AN ADJUSTMENT FOR VACANT PREMISES PRIOR TO LEASE AWARD. IDEALLY, NEGOTIATE OUT ALL NON-REQUIRED SERVICES AND UTILITIES IN THE VACANT SPACE.

1.15 RATE FOR ADJUSTMENT FOR VACANT LEASED PREMISES (SEP 2013)

In accordance with the paragraph entitled "Adjustment for Vacant Premises," if the Government fails to occupy or vacates the entire or any portion of the Premises prior to expiration of the term of the Lease, the operating costs paid by the Government as part of the rent shall be reduced by $**XX.XX** per ABOA SF of Space vacated by the Government.

NOTE: ALWAYS ATTEMPT TO NEGOTIATE SOME KIND OF ADJUSTMENT FOR VACANT PREMISES PRIOR TO LEASE AWARD. IDEALLY, NEGOTIATE OUT ALL NON-REQUIRED SERVICES AND UTILITIES IN THE VACANT SPACE.

2.08 GSAR 552.270-16 ADJUSTMENT FOR VACANT PREMISES (DEVIATION) (SEP 2022)

(a) If the Government fails to occupy any portion of the leased premises or vacates the premises in whole or in part prior to expiration of the term of the lease, the rental rate and the base for operating cost adjustments will be reduced using the figure specified in the "Rate for Adjustment for Vacant Leased Premises" paragraph of this Lease.

(b) If no rate reduction has been established in this lease, the rate will be reduced by that portion of the costs per ABOA square foot of operating expenses not required to maintain the space.

(c) Said reduction shall occur after the Government gives 30 calendar days' prior notice to the Lessor and shall continue in effect until the Government occupies the vacant premises or the lease expires or is terminated.

- Even if within grace period, NOI can fall immediately due to this haircut
- Avg. haircut $\approx$ \$1.50 – \$2 rent psf $\implies$ about 2-3% drop in NOI

Details on Trepp's valuation model

Go back

Trepp, Inc.
600 Fifth Avenue, 7th Floor · New York, NY 10020
212-754-1010 · www.trepp.com

To Cameron LaPoint,

Our evaluated prices are derived using a robust, market-driven framework designed to reflect fair value based on observable market activity, validated models, and ongoing expert oversight. Prices are informed by a broad set of market inputs, including recent transaction data, dealer quotations, and market color collected from a diverse network of active market participants. When direct observable data is limited, prices are supplemented by internally developed pricing models that incorporate security structure, collateral performance, prevailing market conditions, and relative value relationships across comparable instruments.

A key component of our validation framework is an active price challenge process. Our client base includes a large roster of institutional investors and market participants who actively trade these securities. Clients are able to challenge evaluated prices at any time, and challenges are reviewed against trade data, external market sources, and contemporaneous market information. Where warranted, prices are adjusted to reflect new or superior information. This continuous feedback loop provides an additional, real-world check on price accuracy and relevance.

Summary Statistics (Announcement, Rescission, Notification Dates)

Go back

Date (Lessee #)	Earliest	Latest	Min Rent Area	Max Rent Area	Avg Rent Area	Obs.
Announcement Date 1	2/16/2025	2/16/2025	229699	725317	456214	15194
Announcement Date 2	2/16/2025	2/16/2025	1410049	1410049	1410049	5178
Announcement Date 3	2/16/2025	2/16/2025	264325	272006	271754	2862
Rescission Date	3/25/2025	3/25/2025	1410049	1410049	1410049	5178
Notification Date 1	1/30/2025	3/4/2025	721604	725317	722871	15194
Notification Date 2	2/12/2025	2/12/2025	264325	272006	271754	2862

Notes: The table reports the summary statistics of the DOGE announcement, rescission, and notification dates for the Washington D.C area. Each row documents the earliest and latest corresponding dates and associated minimum, maximum, and average rent area.

CMBS Summary Statistics by CRE Exposure Group

Go back

	First-loss	Mezzanine	Senior	All
Panel A: ETO Exercisable (Not Notified)				
$Log(P_{bond})$	3.017	3.614	3.476	3.499
$StdDev$	(1.957)	(1.374)	(2.284)	(1.881)
N	2,756	13,935	12,753	29,444
$Log(NOI)$	15.556	15.886	15.898	15.860
$StdDev$	(0.761)	(0.862)	(0.935)	(0.891)
N	2,756	13,386	12,551	28,693
$Log(DSCR)$	0.576	0.502	0.531	0.522
$StdDev$	(0.551)	(0.390)	(0.402)	(0.414)
N	2,714	13,314	12,430	28,458
Panel B: ETO Exercisable (Notified)				
$Log(P_{bond})$	3.019	3.741	3.600	3.566
$StdDev$	(1.232)	(1.407)	(2.113)	(1.731)
N	3,090	8,146	7,940	19,176
$Log(NOI)$	16.697	16.341	16.357	16.406
$StdDev$	(0.149)	(0.433)	(0.434)	(0.421)
N	3,090	8,083	7,665	18,838
$Log(DSCR)$	1.004	0.619	0.663	0.701
$StdDev$	(0.229)	(0.360)	(0.406)	(0.387)
N	3,090	7,969	7,551	18,610
Panel C: Non-GSA Leases				
$Log(P_{bond})$	3.136	3.889	3.547	3.707
$StdDev$	(1.923)	(1.244)	(2.206)	(1.734)
N	92,893	736,294	506,606	1,335,793
$Log(NOI)$	14.682	15.239	15.131	15.155
$StdDev$	(1.605)	(2.080)	(1.915)	(1.988)
N	86,861	619,231	479,258	1,185,350
$Log(DSCR)$	0.390	0.613	0.535	0.565
$StdDev$	(0.502)	(0.628)	(0.522)	(0.582)
N	86,502	599,613	465,892	1,152,007

Pooled DiD results for DOGE CMBS prices

Go back

Control Group	Jan. 2025–Jan. 29 TRD			Jan. 2026–Jan. 29 TRD		
	(1)	(2)	(3)	(4)	(5)	(6)
$Post$	0.031*			0.032**		
	(0.016)			(0.016)		
$DOGE$	-0.409	-0.344*		-0.353	-0.678*	
	(0.274)	(0.176)		(0.325)	(0.342)	
$DOGE \times Post$	-0.033*	-0.030*	-0.019	-0.034*	-0.034*	-0.034*
	(0.018)	(0.016)	(0.012)	(0.018)	(0.018)	(0.018)
Adj-R^2	0.029	0.133	0.999	0.018	0.154	0.999
Observations	1,621	1,621	1,621	1,248	1,248	1,248
Property Zip FE		✓			✓	
Deal Year FE		✓	✓		✓	✓
Bond Time FE			✓			✓
Bond CUSIP FE			✓			✓

Pooled DiD results for DOGE property NOI

Go back

Control Group	Jan. 2025–Jan. 29 TRD			Jan. 2026–Jan. 29 TRD		
	(1)	(2)	(3)	(4)	(5)	(6)
Post	-0.006	-0.018		0.060	0.063	
	(0.072)	(0.071)		(0.109)	(0.110)	
DOGE	0.440	-0.738***		1.47*	-0.064	
	(0.644)	(0.218)		(0.800)	(0.157)	
DOGE × *Post*	-0.209**	-0.195**	-0.192**	-0.275**	-0.275**	-0.275**
	(0.072)	(0.070)	(0.068)	(0.109)	(0.109)	(0.110)
R^2	0.021	0.944	0.984	0.295	0.979	0.982
Observations	1,621	1,621	1,621	1,248	1,248	1,248
Property Zip FE		✓			✓	
Deal Year FE		✓	✓		✓	✓
Loan Time FE			✓			✓
Bond CUSIP FE			✓			✓

Pooled DiD results for DOGE bond pool DSCR

Go back

Control Group	Jan. 2025–Jan. 29 TRD			Jan. 2026–Jan. 29 TRD		
	(1)	(2)	(3)	(4)	(5)	(6)
$Post$	-0.062	-0.059		-0.011	-0.007	
	(0.058)	(0.060)		(0.093)	(0.095)	
$DOGE$	0.239	0.176		0.421	0.778	
	(0.211)	(0.277)		(0.362)	(0.578)	
$DOGE \times Post$	-0.154**	-0.155**	-0.152**	-0.206*	-0.206*	-0.206*
	(0.058)	(0.059)	(0.056)	(0.094)	(0.094)	(0.094)
Adj-R^2	0.059	0.229	0.861	0.116	0.463	0.870
Observations	1,621	1,621	1,621	1,248	1,248	1,248
Property Zip FE		✓			✓	
Deal Year FE		✓	✓		✓	✓
Loan Time FE			✓			✓
Bond CUSIP FE			✓			✓

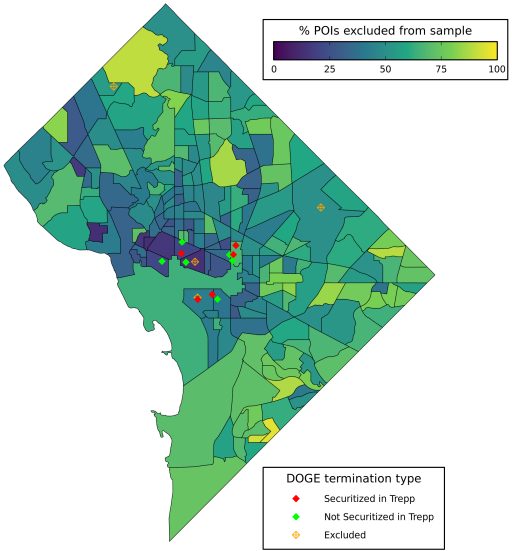
Private spillovers: pooled spatial DiD results

Go back

	(1)	(2)	(3)	(4)
Post	-0.114**			
	(0.057)			
Spillover	-0.442***	-0.441***	0.080***	0.072***
	(0.130)	(0.130)	(0.029)	(0.019)
Spillover × *Post*	-0.124*	-0.121*	-0.104***	-0.093***
	(0.067)	(0.066)	(0.037)	(0.024)
Adj-R^2	0.020	0.025	0.446	0.983
Observations	13,446	13,446	13,446	13,446
Ring-Time FE		✓	✓	✓
Deal FE			✓	
Bond CUSIP				✓

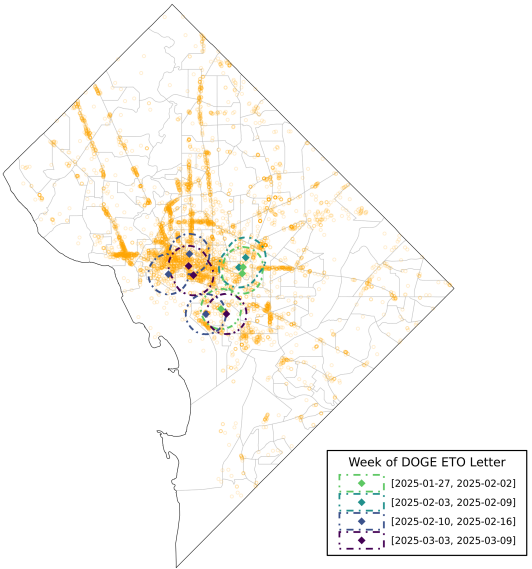
Advan foot traffic data coverage – balanced panel

Go back



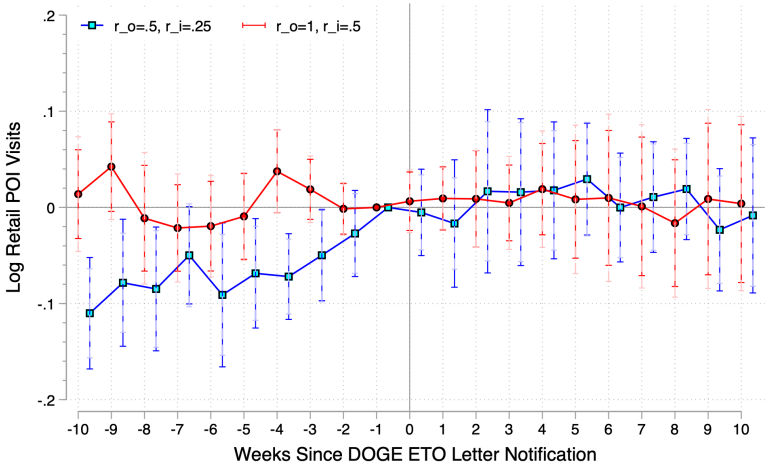
Retail POIs around early vs. late DOGE lease rings

Go back



Retail foot traffic: OLS results

Go back

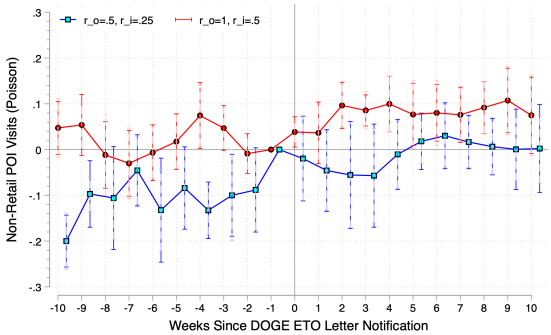


Notes: Solid bars indicate 95% Conley CIs with maximal SAC cutoff, dashed bars are those clustered by Census block group.

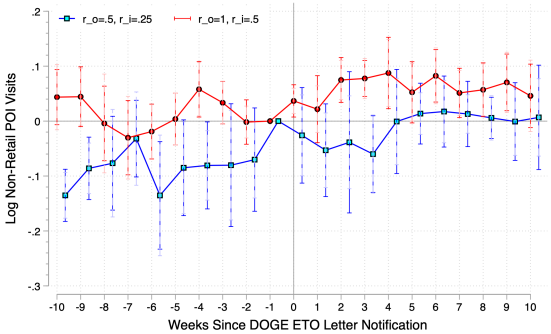
No clear impact on non-retail foot traffic either

Go back

A. Poisson Regression Results



B. OLS Estimation Results



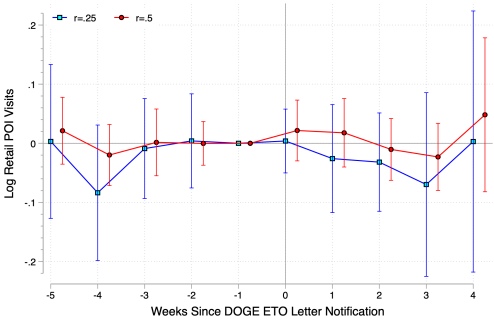
Notes: Solid bars indicate 95% Conley CIs with maximal SAC cutoff, dashed bars are those clustered by Census block group.

Null effect on foot traffic: early vs. late rings

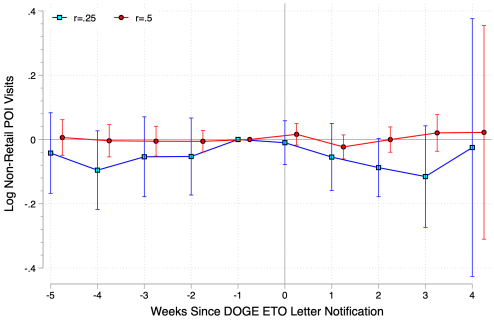
Go back

$$Y_{j,r,s,t} = \sum_{t=-5, e\neq -1}^{+4} \beta_t \cdot Spillover_{i,t} + \mu_i + \delta_{s,t} + \epsilon_{j,r,s,t}$$

A. Retail POI Visits



B. Non-Retail POI Visits



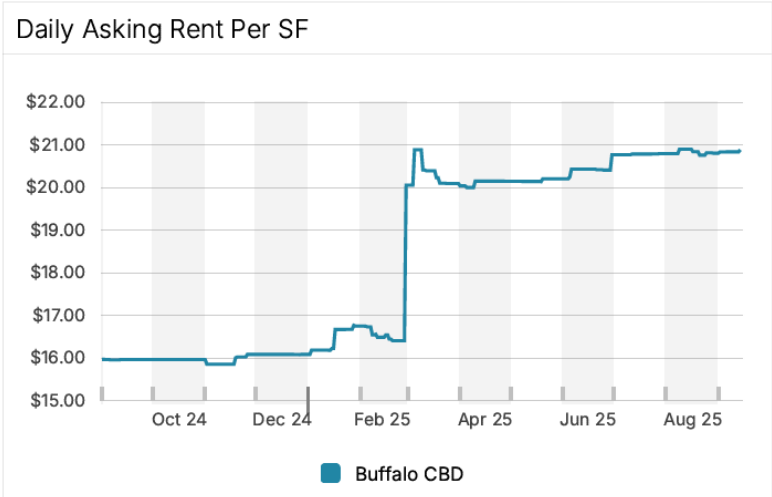
Govt. REITs: Pricing Contract Risk Premia? Go back

- The case of Easterly Government Properties, Inc.
  - DOGE notification on 130 S. Elmwood Ave, Buffalo, NY
  - Dates: 2/5/2025 & 3/11/2025
  - Agency: NATIONAL LABOR RELATIONS BOARD
  - Rentable space: 37,644 sq. ft.

Govt. REIT: Easterly Government Properties, Inc. Go back

Impact of NLRB lease cancellation on Buffalo office rents

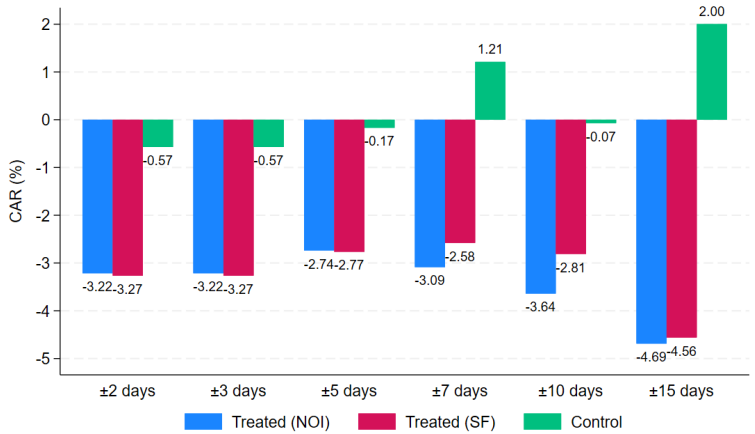
Go back



Source: CoStar submarket report for Buffalo, NY

CARs for D.C. office REITs at different horizons

Go back



- Matched DiD + standard CAR analysis comparing total returns of high/low D.C. office exposure REITs to S&P 500

Summary stats for procurement exposure measures

Go back

	Obs/Count	Mean	Std Dev	Fraction
Panel (A): Tenant-level				
Total obligations ($M)	356	8.172	132	
DOGE obligations ($M)	356	0.897	15.8	
Non-DOGE obligations ($M)	356	7.276	130	
High gov. exposure	352	0.142	0.350	
High DOGE exposure	352	0.063	0.242	
Panel (B): Building-level				
Total obligations ($M)	47	2.925	15.8	
DOGE obligations ($M)	47	0.312	1.97	
Non-DOGE obligations ($M)	47	2.613	15.6	
High gov. exposure	43	0.070	0.258	
High DOGE exposure	43	0.023	0.152	
Panel (C): Building-level overlap (High Gov vs. High DOGE)				
High gov exposure only	10			0.052
High DOGE exposure only	-			-
Both	5			0.026
Neither	179			0.923

Simulation Appendix

Simulation: hedonic regression results

Go back

Variable	Coefficient	Std. Error	t-Stat	p-Value
Rentable Building Area ('000s sq. ft.)	0.0030***	0.0007	4.10	0.000
Star Rating	0.3214**	0.1347	2.39	0.018
Year Built	0.0069***	0.0024	2.89	0.004
Number of Stories	0.0721**	0.0293	2.46	0.015
# Properties	136			
Adj-R^2	0.657			

Notes: Dependent variable is the natural logarithm of property value. Rentable area and prior-year NOI are expressed in thousands. Regression results are estimated using the sample of Washington, D.C. Trepp properties with non-missing covariates. Property characteristics obtained from CoStar. Robust standard errors are clustered at the property level. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

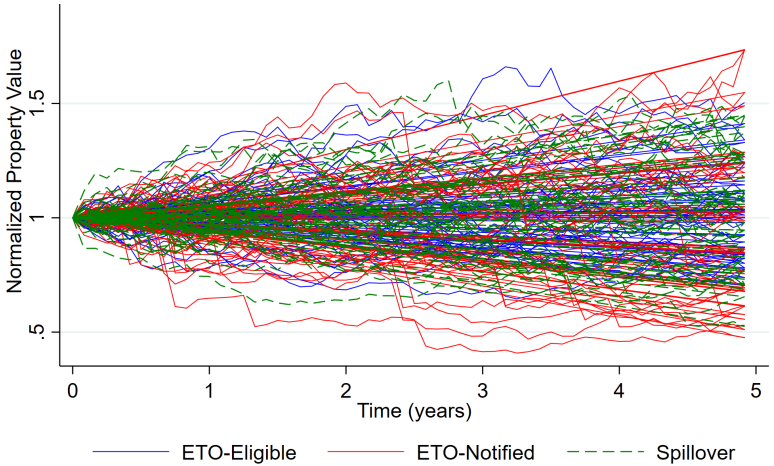
Full simulated losses by horizon and group

Go back

	Value at Risk (VaR)				Expected Shortfall (ES)			
Group	20%	50%	75%	95%	20%	50%	75%	95%
Panel A: Horizon $T = 1$ year								
ETO-eligible	0.002	0.006	0.009	0.016	0.008	0.010	0.013	0.019
ETO-notified	0.000	0.032	0.058	0.111	0.036	0.066	0.090	0.136
Spillover	0.288	0.351	0.405	0.487	0.380	0.416	0.456	0.527
Panel B: Horizon $T = 2$ years								
ETO-eligible	0.007	0.012	0.018	0.026	0.015	0.019	0.023	0.031
ETO-notified	0.028	0.064	0.105	0.172	0.089	0.115	0.146	0.203
Spillover	0.623	0.712	0.788	0.903	0.753	0.803	0.859	0.956
Panel C: Horizon $T = 3$ years								
ETO-eligible	0.012	0.019	0.026	0.037	0.023	0.027	0.032	0.042
ETO-notified	0.048	0.102	0.150	0.231	0.130	0.162	0.199	0.266
Spillover	0.970	1.083	1.177	1.318	1.133	1.195	1.263	1.380
Panel D: Horizon $T = 4$ years								
ETO-eligible	0.018	0.026	0.034	0.047	0.031	0.036	0.042	0.053
ETO-notified	0.077	0.138	0.194	0.281	0.170	0.206	0.248	0.321
Spillover	1.333	1.460	1.571	1.740	1.521	1.594	1.675	1.818
Panel E: Horizon $T = 5$ years								
ETO-eligible	0.024	0.033	0.042	0.057	0.039	0.045	0.051	0.064
ETO-notified	0.107	0.176	0.236	0.333	0.210	0.251	0.296	0.378
Spillover	1.700	1.849	1.971	2.158	1.915	1.996	2.085	2.240

Simulated paths for three exposure groups

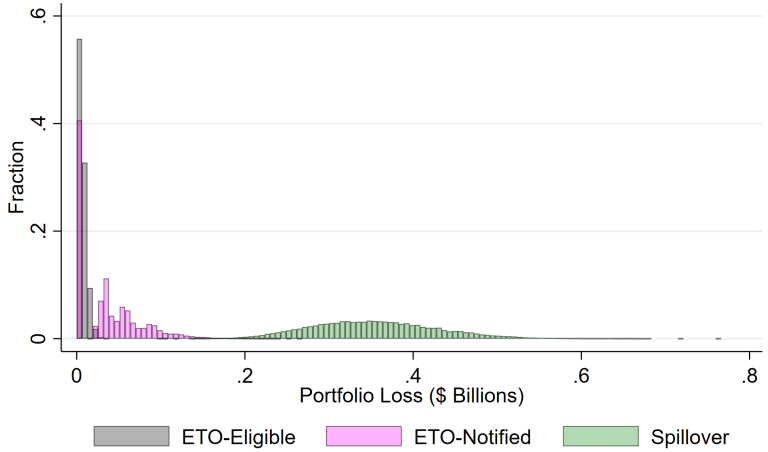
Go back



Normalized V(0) = 1; 5-year horizon with DOGE shock, 35 paths per group

1-year portfolio loss distributions

Go back



- Spillover loss distribution shifts right and becomes more skewed as $T \uparrow$

Scaling securitized losses to the full office market

Go back

- Smaller offices usually have fewer loans in the capital stack, and safer, larger buildings with major tenants are more likely to be securitized
- **Size adjustment:** non-securitized offices are about 19.5% the size of securitized offices; assuming that, *conditional on size*, losses are similar for securitized and non-securitized buildings, we scale losses by relative average size
- **Securitization rates (Moody's vs. Trepp):** Moody's CRE is the full office universe; Trepp contains only securitized properties, so for each group g we define the securitization rate as $sr_g = \#\text{securitized}/\#\text{total}$
- **Total loss multiplier:** for each group g we inflate securitized losses using $\text{Multiplier}_g = 1 + 0.195/sr_g$
- **Numerical example (Spillover, 5y, 50% ES):** securitized ES_{50} for spillovers is 1.996 B; total-market ES_{50} is $1.996 \times (1 + 0.195/0.282) \approx 3.38$ B
  - ETO-eligible $sr = 50.0\%$; ETO-notified $sr = 41.2\%$; compared to 28.2% for private-tenant bldgs $\longrightarrow$ govt. tenants considered safer

Other sources of fallout from DOGE Go back

- Our estimates of total value losses are **conservative** for several reasons:
  1. Attenuation bias in the diff-in-diff β_g due to some quarterly reporting of NOI
  2. Losses are only for securitized properties for which we observe frequently reported cash flows
     - ⋆ Extend this to non-securitized properties using Moody's CRE
     - ⋆ But non-securitized properties are much smaller, on average
  3. Omitted reference category: GSA leases which will become ETO eligible within next 4 years

- Headline estimates also exclude several other possible costs:
  - **Property tax revenues:** at 1.89% rate and 100% assessment ratio for D.C. offices $\longrightarrow$ **additional loss of $33 M** (5-year PDV, $r = 3\%$)
    - ⋆ Savings for federal taxpayers come at expense of local taxpayers in high-GSA density areas
  - GE forces: cascading vacancies within the same building, spillovers through job losses, real production externalities through contractors

What to do with these estimates? Go back

- Estimates based on defense contract spending fall between 1 and 2
  - Due to procurement contracts involving supply chain links across locations, true multiplier may be larger (Park, Zhou, Zubairy 2025)
  - Multipliers tend to be bigger during contractions than expansions (Barnichon et al. 2022)
- We find a *local asset value multiplier* of 10.6 = ($810 M/$76 M)
  - Or, in terms of RE cash flows, one-year multiplier of 0.64x
- To translate this into a government real estate spending multiplier would need...
  - Mapping from real estate inputs into production
  - How much of the multiplier is due to realized shock vs. changes in agents' expectations?
  - Re-leasing hazard rates for long-time govt. office buildings $\longrightarrow$ as of January 2026, none of the terminated spaces in our sample have been re-occupied
- Not clear that DOGE announcements are welfare-reducing: relative multiplier from rebating federal vs. state + local tax dollars?

Theory Appendix

Model building blocks Go back

- Extend contingency option pricing model of Jarrow (2018,21); Choi et al. (2025)
- Standard model ingredients:
  - Continuous trading model with finite horizon T (lease expiration date)
  - Two traded assets: default-free money market account and default-free zero-coupon bond
  - Time value of money market account as $B(t) = e^{\int_0^t r_u du}$
  - Filtered probability space: $(\Omega, \mathscr{F}, \mathcal{F} = (\mathscr{F}_t)_{t\in[0,T^*]}, \mathbb{P})$, $\mathscr{F}$ σ-algebra of events
- First + Third Fundamental Theorems of Asset Pricing $\Longrightarrow$ $\exists$ risk-neutral prob. measure $\mathbb{Q}$ s.t. discounted price $p(t,\mathbb{T})$ of risk-free bond is a martingale for $\mathbb{T} \in [0,T]$
- **Federal lease contingency components:**
  - ETO exercised at stopping time $\tau \in [0,T]$, with expiration date $T \longrightarrow$ Poisson λ_τ
  - α advance notice period to the landlord
  - η time at which point rental losses stop and vacant space gets re-occupied $\longrightarrow$ Poisson λ_η

Key result: underpricing of ETO risk

Go back

- Consider two landlords with otherwise identical GSA-leased properties: one places zero probability on ETO exercise, and the other assumes it could happen

$$\frac{V(t)}{B(t)} = \mathbb{E}_Q\left[\sum_{s=t+1}^{T} \frac{R}{B(s)} + \frac{V(T)}{B(T)}\right] \quad \textbf{(Dormant ETO property)} \quad (1)$$

$$\frac{\widetilde{V}(t)}{B(t)} = \mathbb{E}_Q\left[\sum_{s=t+1}^{\tau} \frac{\widetilde{R}}{B(s)} + \underbrace{\sum_{s=\eta+1}^{T} \frac{\widetilde{R}}{B(s)}}_{\text{Cash flows after re-leasing}} + \frac{V(T)}{B(T)}\right] \quad \textbf{(ETO-salient property)} \quad (2)$$

Proposition 1: Underpriced Rents for Non-Salient ETO Leases

The rent payments ($\widetilde{R}$) associated with a lease that has a strictly positive probability of ETO exercise are higher than the rents under a lease without an ETO (R).

Transition to a high-intensity termination regime (DOGE)

- Regime-switching process $X_t \in \{L, H\}$ follows: Go back

$$Q = \underbrace{\begin{pmatrix} -q_{LH} & q_{LH} \\ q_{HL} & -q_{HL} \end{pmatrix}}_{\text{transition matrix}}, \quad \lambda_\tau(t) = \underbrace{\begin{cases} \lambda_\tau^L & X_t = L \\ \lambda_\tau^H & X_t = H \end{cases}}_{\text{lease termination rates}} \tag{3}$$

  - $q_{L,H}$ prob. of switching to more aggressive cancellation policy (early 2025 DOGE creation)
  - $q_{H,L}$ prob. of reversion to baseline regime (recent partial rescissions of DOGE terminations)

Proposition 4: CMBS Price Comparative Statics

Let $\widehat{\phi}(t,i)$ be the arbitrage-free price of a CMBS bond backed by a pool of N properties in regime $i \in \{H, L\}$, where a fraction θ_1 are subject to ETO risk under a regime-switching intensity process given by (1). Then we obtain the following comparative statics:

$$\frac{\partial \widehat{\phi}(t,i)}{\partial q_{LH}} < 0, \qquad \frac{\partial \widehat{\phi}(t,i)}{\partial q_{HL}} > 0, \qquad \frac{\partial \widehat{\phi}(t,i)}{\partial \lambda_\tau^i} < 0$$

Modeling contagion effects through CMBS markets

- Suppose nearby properties, including those without any direct ETO exposure, suffer adverse impacts from federal terminations Go back
- Fraction of non-ETO properties θ_0 within the pool get penalty $\varsigma > 0$

Proposition 5: Exposure Share Effects on Bond Prices

Denote $\widehat{\phi}_c(t,i)$ the arbitrage-free price of a CMBS bond at time t, conditional on starting in regime $i \in \{H, L\}$, in the presence of regime-switching ETO risk and spillover effects at rate $\varsigma > 0$. Then:

1. The bond price is strictly decreasing in the spillover parameter ς:

$$\frac{\partial \widehat{\phi}_c(t,i)}{\partial \varsigma} < 0.$$

2. The bond price is strictly increasing in the per-period adjustment factor $\Xi = 1 - \varsigma(1 - \pi(s,i))$ (i.e., the share of unaffected non-ETO cash flows):

$$\frac{\partial \widehat{\phi}_c(t,i)}{\partial \Xi} > 0.$$

Insurance against ETO risk

Go back

- Suppose landlords could purchase a contract to insure against ETO risk
- Value of insurance depends on grace period length α and (inverse) probability of finding a new tenant η

Proposition 6: ETO Insurance Premium

Suppose there is one landlord and one federal tenant. Consider a soft term in which the tenant can exercise an early termination option (ETO). Suppose the tenant sends its ETO notification at τ with the grace period α and the random time η at which a replacement tenant can occur. Then the ETO insurance premium is:

$$c = \frac{R\,\mathbb{E}_{\mathbb{Q}}\left[\sum_{h=\lceil\tau\rceil+\alpha+1}^{\min\left(\lceil\eta\rceil,\,t_m\right)} \mathbf{1}_{\{\,t_0<\tau\leq t_m\,\}}\, e^{-\int_0^{t_h} r_u\,du}\right]}{\mathbb{E}_{\mathbb{Q}}\left[\sum_{k=1}^{\lceil\tau\rceil+\alpha} p(0,t_k)\right]}$$

Arbitrage pricing framework $\Longrightarrow$ 3 testable hypotheses

- **Hypothesis 1:** More aggressive govt. lease cancellation policy $\Longrightarrow$ property-level value losses $\uparrow$ and CMBS prices $\downarrow$ Go back Simulation
- **Hypothesis 2:** Properties receiving an ETO cancellation exhibit a decline in NOI, relative to otherwise similar properties which did not receive a notification
- **Hypothesis 3:** Through contagion effects, properties located nearby ETO-notified buildings exhibit similar declines in NOI, property values, and CMBS bond prices.
  - Propose separate tests to pinpoint underlying mechanism for these contagion effects
- Motivates a diff-in-diff analysis in which we compare GSA properties with a vested ETO option to those not-yet eligible
  - **Idea:** risk of contamination is low for govt. leases with at least a few years left before the ETO option vests
  - Assumes that govt. will not try to cancel early through non-ETO means going forward...

Sketch of the input-output matrix channel

Go back

Leontief-Based Production Externalities

$$\Delta x \;=\; (I - A)^{-1}\Delta d$$

- $x \in \mathbb{R}^J$: vector of gross output / activity by contractors
- $d \in \mathbb{R}^J$: vector of final demand by contractors.
- Δd: DOGE shock to demand (ETO $\Rightarrow$ disrupt agency activity, procurement)
- $I \in \mathbb{R}^{J\times J}$: identity matrix, $A \in \mathbb{R}^{J\times J}$: IO coefficient matrix
- $(I - A)^{-1}$: **Leontief inverse**; maps the DOGE shock Δd through supply chain
- **Application: Tenant-based exposure** (tenant k in bldg i)

$$Exposure_i \;=\; \sum_{k\in\mathcal{T}(i)} w_{i,k}\cdot\left[(I - A)^{-1}\Delta d\right]_k \;\approx\; -\theta \sum_{k\in\mathcal{T}(i)} w_{i,k}\, G_k$$

1. $\mathcal{T}(i)$: set of tenants located in building i
2. $w_{i,k}$: tenant weight (e.g., leased sqft share).
3. G_k: reduced-form proxy for tenant k's exposure to govt. contract dm'd shock
   $\rightarrow$ Empirically construct G_k, test impact on rent (price) or occupancy (q'ty)