Insurers Monitor Shocks to Collateral: Micro Evidence from Mortgage-backed Securities[1]

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[1]The views expressed herein do not necessarily reflect those of the Bank of England or its committees.

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- Relevant for institutional investors in CMBS market
- Unclear **if** and **how** investors react to cash flow risks in their CMBS portfolio

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Key Results:

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2. Insurers **more likely to sell** CMBS more exposed to **cash flow risks**
3. Large increase in number of **small banks** holding private CMBS after COVID-19

Contribution

Risks in securitized assets: DeMarzo and Duffie (1999), DeMarzo (2005), Demiroglu and James (2012), Begley and Purnanandam (2017), Ghent, Torous and Valkanov (2019), Flynn, Ghent and Tchistyi (2020), Aiello (2022)

- Investors monitor underlying CMBS characteristics that predict risks

Insurers asset portfolio: Ellul, Jotikasthira and Lundblad (2011), Chen et al. (2020), Becker, Opp and Saidi (2022), Ellul et al. (2022), Sen (2023)

- Insurers react to underlying cash flow risks in securitized assets

CRE risks and loan default: Van Nieuwerburgh (2022), Gupta, Mittal and Nieuwerburgh (2023), Jiang et al. (2023),Acharya et al. (2024) Glancy and Wang (2024), Glancy and Kurtzman (2024),

- How CMBS risks evolve during COVID-19 and are transferred across intermediaries

Data

- CMBS data from Trepp
  - Loan, bond and deal level information at distribution date frequency (monthly)
  - Relevant collateral (property) information such as location and type (e.g. office, retail)
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- Insurance Companies' Asset Portfolio from NAIC:
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- Data from 2017 until 2022 (June 2022 for Trepp)

Cash flow shocks and delinquency rates

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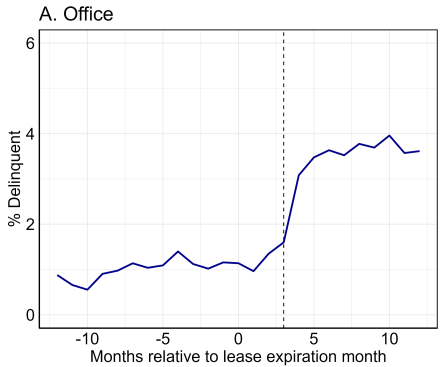

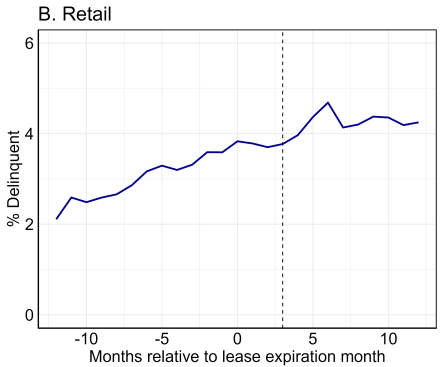

Cash flow shocks and delinquency rates - WFH Impact

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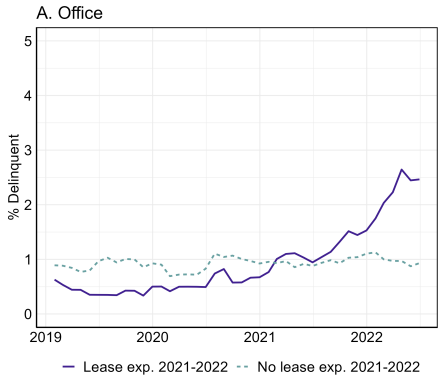

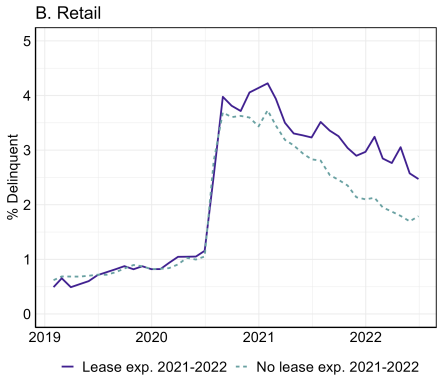

- Stronger effect of lease expiration on CRE mortgage default after COVID-19

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- Define $Treat_{jt}^{Exp\ \ Office} = 1$ if j has office mortgages expiring in 6 yrs at the end of t

$$I_{ijt}^{sold} = \alpha_{it} + \alpha_{ij} + \alpha_{j(coupon)t} + \alpha_{j(NAIC)t} + \gamma_1 \times Treat_{jt}^{Exp\ \ Office} + \beta_1 Post\ \ Covid_t \times Treat_{jt}^{Exp\ \ Office} + \varepsilon_{ijt},$$

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- Compare bonds exposed (treatment) and not exposed (control) to short/medium term cash flow shocks

Do insurers monitor cash flow risks of their CMBS?

	I^{sold}_{ijt}
	(1)
$Treat^{Exp\ \ Office}_{jt}$	0.0040
	(0.0043)
$Post\ \ Covid_t \times Treat^{Exp\ \ Office}_{jt}$	0.0242***
	(0.0048)
$Post\ \ Covid_t \times I^{Office}_{jt}$	
$Post\ \ Covid_t \times I^{Exp}_{jt}$	
$Post\ \ Covid_t \times I^{Exp\ \ Retail}_{jt}$	
$Post\ \ Covid_t \times I^{Exp\ \ Other}_{jt}$	
$Post\ \ Covid_t \times I^{Retail}_{jt}$	
Observations	219,731
R^2	0.60756
Year-Insurer ID fixed effects	✓
CUSIP-Insurer ID fixed effects	✓
Year-Coupon Type fixed effects	✓
Year-NAIC Designation fixed effects	✓

Do insurers monitor cash flow risks of their CMBS?

	(1)	(2)
		I^{sold}_{ijt}
$Treat^{Exp\ Office}_{jt}$	0.0040	0.0055
	(0.0043)	(0.0045)
$Post\ Covid_t \times Treat^{Exp\ Office}_{jt}$	0.0242***	0.0205***
	(0.0048)	(0.0059)
$Post\ Covid_t \times I^{Office}_{jt}$		0.0085
		(0.0078)
$Post\ Covid_t \times I^{Exp}_{jt}$		
$Post\ Covid_t \times I^{Exp\ Retail}_{jt}$		
$Post\ Covid_t \times I^{Exp\ Other}_{jt}$		
$Post\ Covid_t \times I^{Retail}_{jt}$		
Observations	219,731	219,731
R^2	0.60756	0.60757
Year-Insurer ID fixed effects	✓	✓
CUSIP-Insurer ID fixed effects	✓	✓
Year-Coupon Type fixed effects	✓	✓
Year-NAIC Designation fixed effects	✓	✓

Do insurers monitor cash flow risks of their CMBS?

	I^{sold}_{ijt}		
	(1)	(2)	(3)
$Treat^{Exp\ Office}_{jt}$	0.0040	0.0055	0.0026
	(0.0043)	(0.0045)	(0.0066)
$Post\ Covid_t \times Treat^{Exp\ Office}_{jt}$	0.0242***	0.0205***	0.0254***
	(0.0048)	(0.0059)	(0.0087)
$Post\ Covid_t \times I^{Office}_{jt}$		0.0085	0.0084
		(0.0078)	(0.0078)
$Post\ Covid_t \times I^{Exp}_{jt}$			-0.0066
			(0.0089)
$Post\ Covid_t \times I^{Exp\ Retail}_{jt}$			
$Post\ Covid_t \times I^{Exp\ Other}_{jt}$			
$Post\ Covid_t \times I^{Retail}_{jt}$			
Observations	219,731	219,731	219,731
R^2	0.60756	0.60757	0.60757
Year-Insurer ID fixed effects	✓	✓	✓
CUSIP-Insurer ID fixed effects	✓	✓	✓
Year-Coupon Type fixed effects	✓	✓	✓
Year-NAIC Designation fixed effects	✓	✓	✓

Do insurers monitor cash flow risks of their CMBS?

	I^{sold}_{ijt}			
	(1)	(2)	(3)	(4)
$Treat^{Exp\ Office}_{jt}$	0.0040	0.0055	0.0026	0.0020
	(0.0043)	(0.0045)	(0.0066)	(0.0054)
$Post\ Covid_t \times Treat^{Exp\ Office}_{jt}$	0.0242***	0.0205***	0.0254***	0.0123*
	(0.0048)	(0.0059)	(0.0087)	(0.0072)
$Post\ Covid_t \times I^{Office}_{jt}$		0.0085	0.0084	0.0075
		(0.0078)	(0.0078)	(0.0079)
$Post\ Covid_t \times I^{Exp}_{jt}$			-0.0066	
			(0.0089)	
$Post\ Covid_t \times I^{Exp\ Retail}_{jt}$				0.0047
				(0.0094)
$Post\ Covid_t \times I^{Exp\ Other}_{jt}$				0.0022
				(0.0050)
$Post\ Covid_t \times I^{Retail}_{jt}$				0.0155*
				(0.0086)
Observations	219,731	219,731	219,731	219,731
R^2	0.60756	0.60757	0.60757	0.60768
Year-Insurer ID fixed effects	✓	✓	✓	✓
CUSIP-Insurer ID fixed effects	✓	✓	✓	✓
Year-Coupon Type fixed effects	✓	✓	✓	✓
Year-NAIC Designation fixed effects	✓	✓	✓	✓

Where are risky CMBS flowing to? Small Banks Exposure

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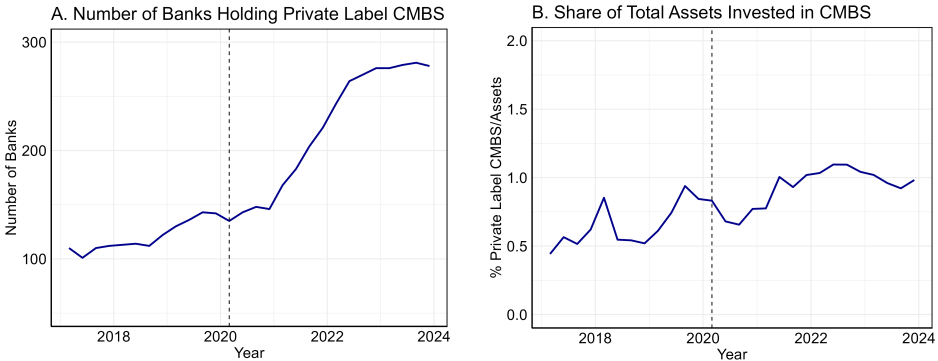

- Small banks are less sophisticated, but $\Downarrow$ exposure to large office mortgages (Glancy and Kurtzman, 2024)

Conclusion

- Document heterogeneous impact of COVID driven cash flow shocks across CRE mortgages
  - Lease expiration predicts deliquency for office-linked mortgages, $\Uparrow$ effects post-COVID
- Insurers seem to monitor risks to CMBS collateral which arise from cash flow shocks
  - CMBS more sensitive to these risks more likely to be sold by insurers after the pandemic
- Document an increase in the number of small banks holding private CMBS
  - Private label CMBS appears to flow to less exposed, less sophisticated investors

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