

Perspectives on US Multifamily and CRE

Key Dynamics and Predictions for the Near Term

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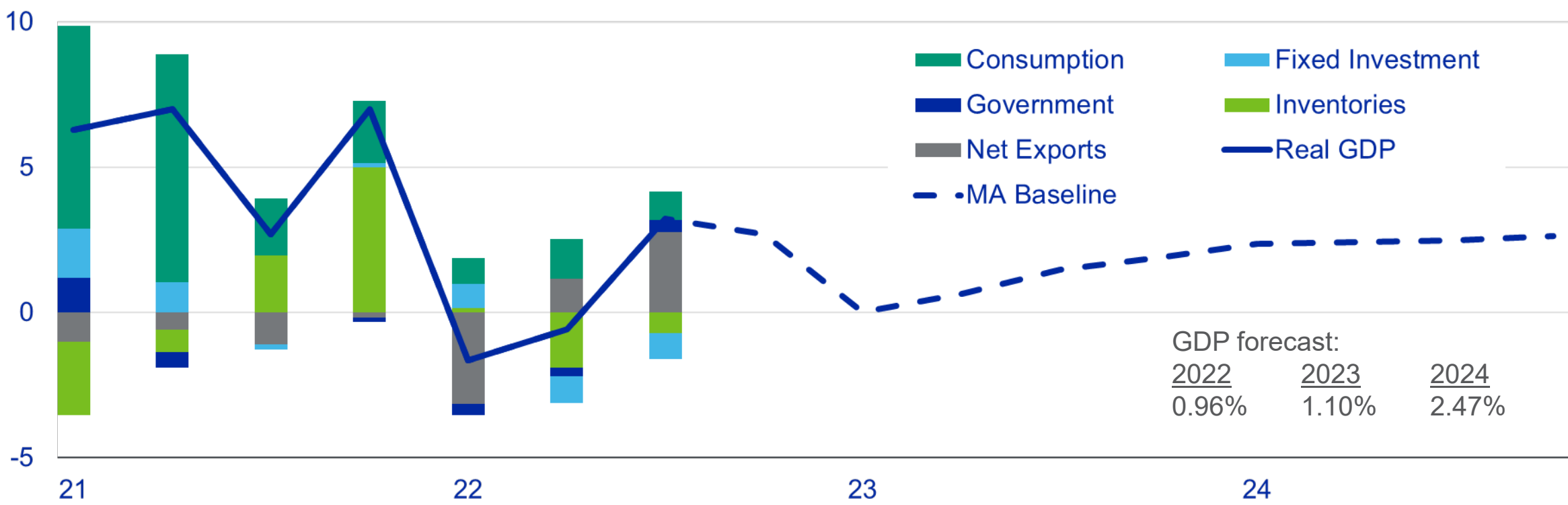
<https://www.linkedin.com/company/moodysanalytics-cre/>

February 27, 2023

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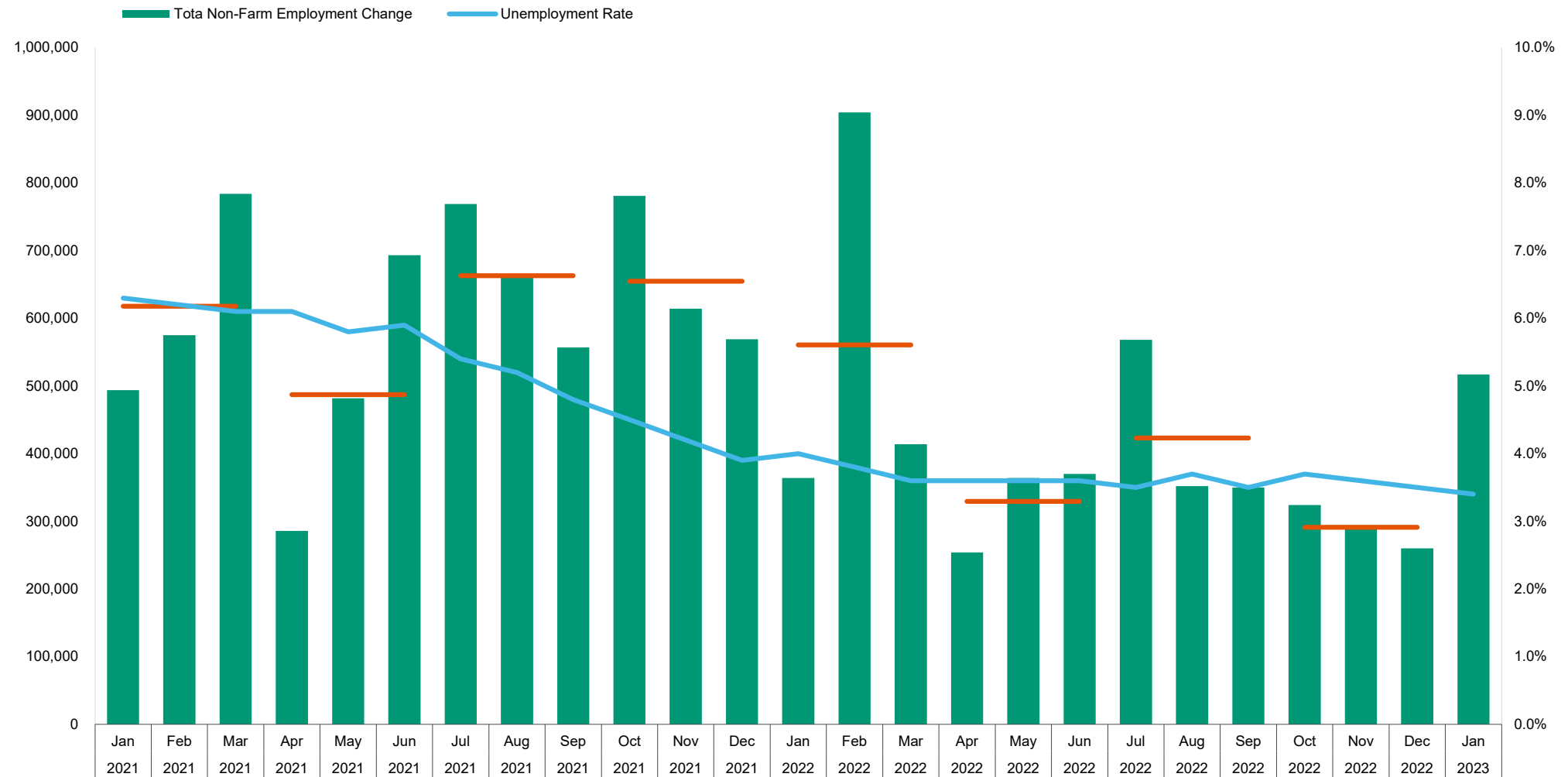
Perspectives on the Economy

Reminder: There Was No Recession in 2022



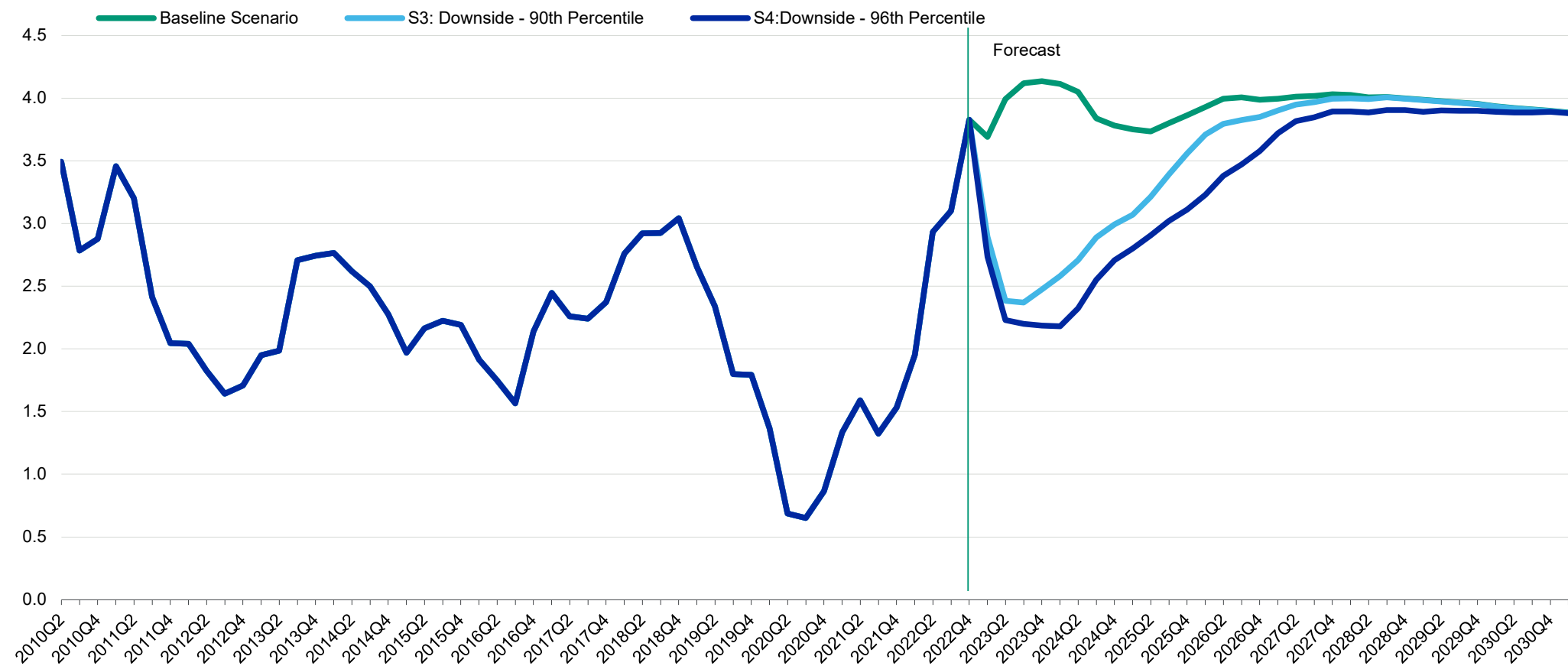
Source: Bureau of Economic Analysis, Moody's Analytics

Job Creation Trends from 2021 to the Present



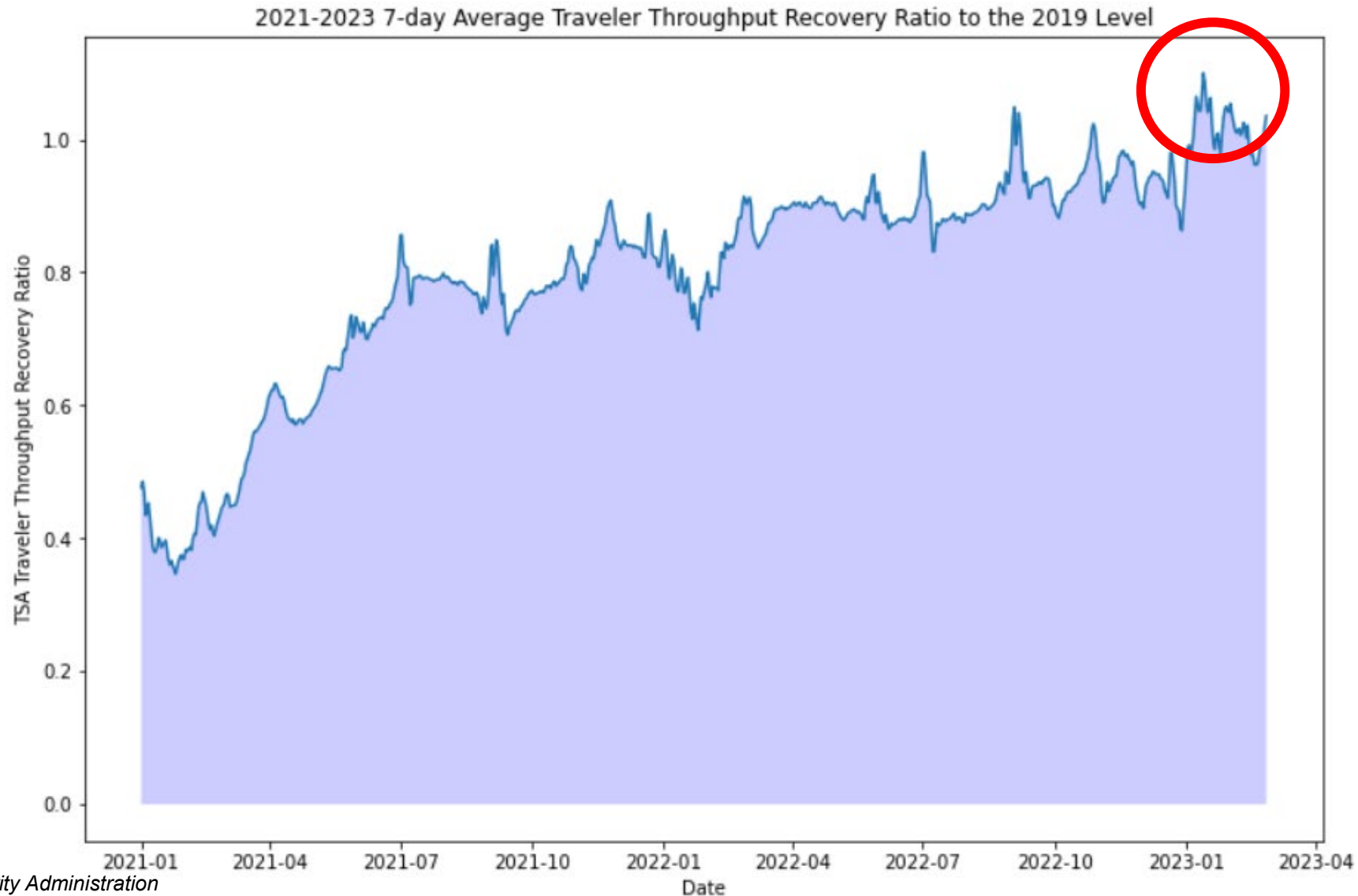
Source: Bureau of Labor Statistics

Updated Forecasts for the US 10 YR TSY



Source: Moody's Analytics

High of 109.98% on 01/13, 103.55% as of 02/26



Source: Transportation Security Administration

The Economic Outlook & Policy Environment

Key Takeaways

- » Geopolitical risks remain. The US economy escaped a recession in 2022, but really only grew by 1.0% (Q4 over Q4). Baseline 2023 US GDP forecast is also a relatively anemic 1.0%.
- » The outlook for world GDP keeps being revised downwards: the World Bank expects world GDP to rise by 1.7% in 2023 (the third downward revision since June 2022).
- » Recession probabilities remain uncomfortably high. Most CEOs are anticipating a recession in the near term (however short or shallow).
- » <What does this mean for CRE performance metrics and forecasts?>

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The Built Environment and Various Changes

National Apartment Market

Quarterly & Annual Market Conditions

- » Vacancies inched upwards to 4.5% in the fourth quarter.
- » National rent growth remained positive when one considers new and existing leases, but some negative changes at the MSA level (and for new leases being signed) suggest that multifamily didn't escape the economic slowdown unscathed.

Quarterly

Year	Qtr	Asking Rent	Percent Change	Effective Rent	Percent Change	Vacancy Rate
2015	4	\$1,262	1.0%	\$1,213	1.1%	4.3%
2016	1	\$1,274	1.0%	\$1,223	0.8%	4.3%
2016	2	\$1,292	1.4%	\$1,240	1.4%	4.2%
2016	3	\$1,308	1.2%	\$1,255	1.2%	4.2%
2016	4	\$1,313	0.4%	\$1,260	0.4%	4.2%
2017	1	\$1,325	0.9%	\$1,268	0.6%	4.4%
2017	2	\$1,345	1.5%	\$1,285	1.3%	4.4%
2017	3	\$1,364	1.4%	\$1,301	1.2%	4.4%
2017	4	\$1,374	0.7%	\$1,310	0.7%	4.6%
2018	1	\$1,389	1.1%	\$1,324	1.1%	4.7%
2018	2	\$1,411	1.6%	\$1,344	1.5%	4.7%
2018	3	\$1,431	1.4%	\$1,362	1.3%	4.7%
2018	4	\$1,446	1.0%	\$1,375	1.0%	4.8%
2019	1	\$1,455	0.6%	\$1,383	0.6%	4.7%
2019	2	\$1,475	1.4%	\$1,403	1.4%	4.6%
2019	3	\$1,489	0.9%	\$1,418	1.1%	4.6%
2019	4	\$1,497	0.5%	\$1,425	0.5%	4.7%
2020	1	\$1,504	0.5%	\$1,432	0.5%	4.7%
2020	2	\$1,499	-0.3%	\$1,428	-0.3%	4.9%
2020	3	\$1,477	-1.5%	\$1,406	-1.5%	5.0%
2020	4	\$1,462	-1.0%	\$1,391	-1.1%	5.2%
2021	1	\$1,460	-0.1%	\$1,390	-0.1%	5.3%
2021	2	\$1,477	1.2%	\$1,407	1.2%	5.3%
2021	3	\$1,591	7.7%	\$1,521	8.1%	4.8%
2021	4	\$1,639	3.0%	\$1,568	3.1%	4.8%
2022	1	\$1,680	2.5%	\$1,608	2.6%	4.7%
2022	2	\$1,728	2.9%	\$1,656	3.0%	4.5%
2022	3	\$1,759	1.8%	\$1,687	1.9%	4.4%
2022	4	\$1,794	2.0%	\$1,720	2.0%	4.5%

Annual

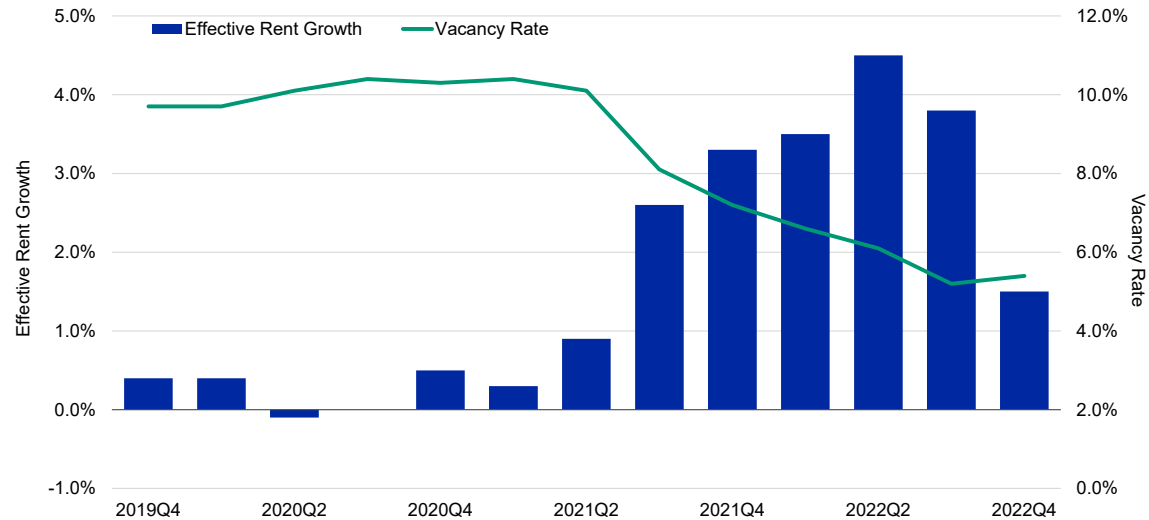
Year	Asking Rent	Percent Change	Effective Rent	Percent Change	Vacancy Rate
2012	\$1,107	3.5%	\$1,061	4.1%	4.1%
2013	\$1,146	3.5%	\$1,100	3.7%	4.0%
2014	\$1,193	4.1%	\$1,146	4.2%	3.9%
2015	\$1,262	5.8%	\$1,213	5.8%	3.9%
2016	\$1,313	4.0%	\$1,260	3.9%	4.1%
2017	\$1,374	4.6%	\$1,310	4.0%	4.7%
2018	\$1,446	5.2%	\$1,375	5.0%	4.9%
2019	\$1,497	3.5%	\$1,425	3.6%	4.8%
2020	\$1,462	-2.3%	\$1,391	-2.4%	4.8%
2021	\$1,639	12.1%	\$1,568	12.7%	4.4%
2022	\$1,794	9.5%	\$1,720	9.7%	4.1%
2023	\$1,822	1.6%	\$1,745	1.5%	4.6%
2024	\$1,876	3.0%	\$1,798	3.0%	4.7%
2025	\$1,936	3.2%	\$1,854	3.1%	4.9%
2026	\$2,000	3.3%	\$1,917	3.4%	4.9%

Source: Moody's Analytics REIS;
79 of 275 Apartment Markets

Industrial: Is The Slowdown Here?

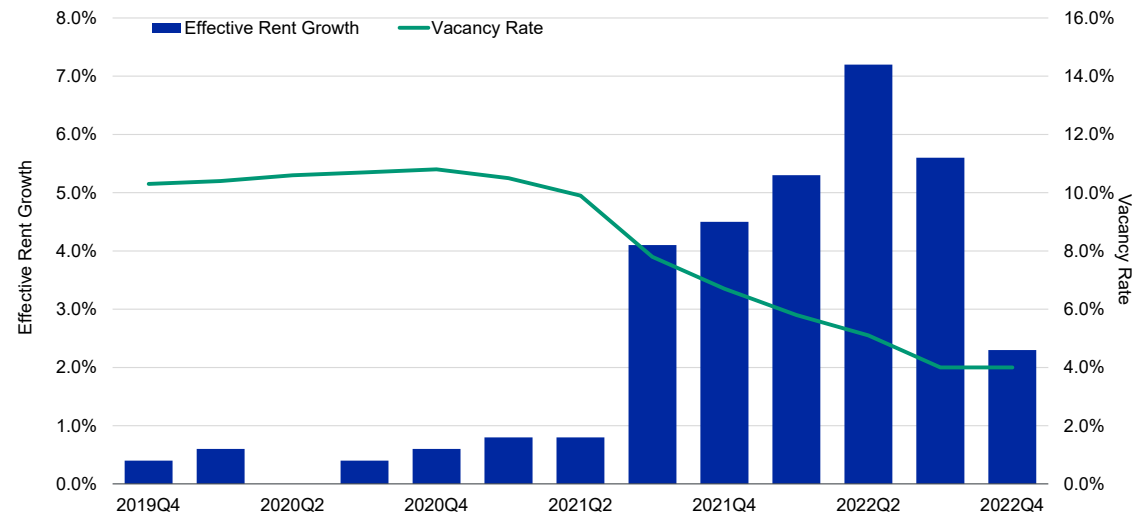
Flex/R&D

- » Flex/R&D vacancies hovered at slightly above 5% in the latter half of 2022, but trended flat in the fourth quarter.
- » Effective rent growth slowed markedly in the fourth quarter.



Warehouse/ Distribution

- » Warehouse/distribution vacancies are at record lows, but were flat at approximately 4% in the last two quarters of 2022.
- » Effective rent growth remained positive but are off quarterly highs from the first half of 2022.



Source: Moody's Analytics

National Office Market

Quarterly & Annual Market Conditions

- » Vacancies remained elevated at 18.4% in the third quarter. This is close to the pandemic peak of 18.5% observed in the second quarter of 2021.
- » Asking and effective rents rose by 0.4% - but physical occupancy of office space in major markets still appears to be fairly low.

Quarterly

Year	Qtr	Net Absorption	Asking Rent	Percent Change	Effective Rent	Percent Change	Vacancy Rate
2015	4	12.7	\$31.28	0.8%	\$25.32	0.9%	16.5%
2016	1	8.2	\$31.57	0.9%	\$25.58	1.0%	16.4%
2016	2	5.1	\$31.76	0.6%	\$25.74	0.6%	16.4%
2016	3	2.9	\$31.89	0.4%	\$25.85	0.4%	16.4%
2016	4	12.9	\$32.00	0.3%	\$25.95	0.4%	16.3%
2017	1	5.7	\$32.16	0.5%	\$26.08	0.5%	16.3%
2017	2	4.9	\$32.26	0.3%	\$26.16	0.3%	16.4%
2017	3	5.6	\$32.38	0.4%	\$26.26	0.4%	16.4%
2017	4	7.3	\$32.57	0.6%	\$26.42	0.6%	16.4%
2018	1	6.2	\$32.85	0.9%	\$26.65	0.9%	16.5%
2018	2	3.0	\$33.09	0.7%	\$26.84	0.7%	16.6%
2018	3	5.2	\$33.22	0.4%	\$26.96	0.4%	16.7%
2018	4	9.7	\$33.46	0.7%	\$27.14	0.7%	16.7%
2019	1	8.5	\$33.59	0.4%	\$27.27	0.5%	16.7%
2019	2	5.3	\$33.88	0.9%	\$27.50	0.8%	16.8%
2019	3	10.3	\$34.15	0.8%	\$27.73	0.8%	16.8%
2019	4	15.4	\$34.35	0.6%	\$27.90	0.6%	16.8%
2020	1	0.8	\$34.50	0.4%	\$28.02	0.4%	17.0%
2020	2	3.4	\$34.49	0.0%	\$27.93	-0.3%	17.1%
2020	3	-4.3	\$34.56	0.2%	\$27.89	-0.1%	17.4%
2020	4	-6.4	\$34.53	-0.1%	\$27.75	-0.5%	17.8%
2021	1	-13.5	\$34.44	-0.3%	\$27.54	-0.8%	18.2%
2021	2	-2.0	\$34.46	0.1%	\$27.48	-0.2%	18.6%
2021	3	23.0	\$34.50	0.1%	\$27.54	0.2%	18.2%
2021	4	12.9	\$34.53	0.1%	\$27.58	0.1%	18.1%
2022	1	6.2	\$34.61	0.2%	\$27.65	0.3%	18.1%
2022	2	0.0	\$34.89	0.8%	\$27.87	0.8%	18.4%
2022	3	3.1	\$35.05	0.5%	\$28.00	0.5%	18.5%
2022	4	-7.1	\$35.14	0.3%	\$28.04	0.1%	18.7%

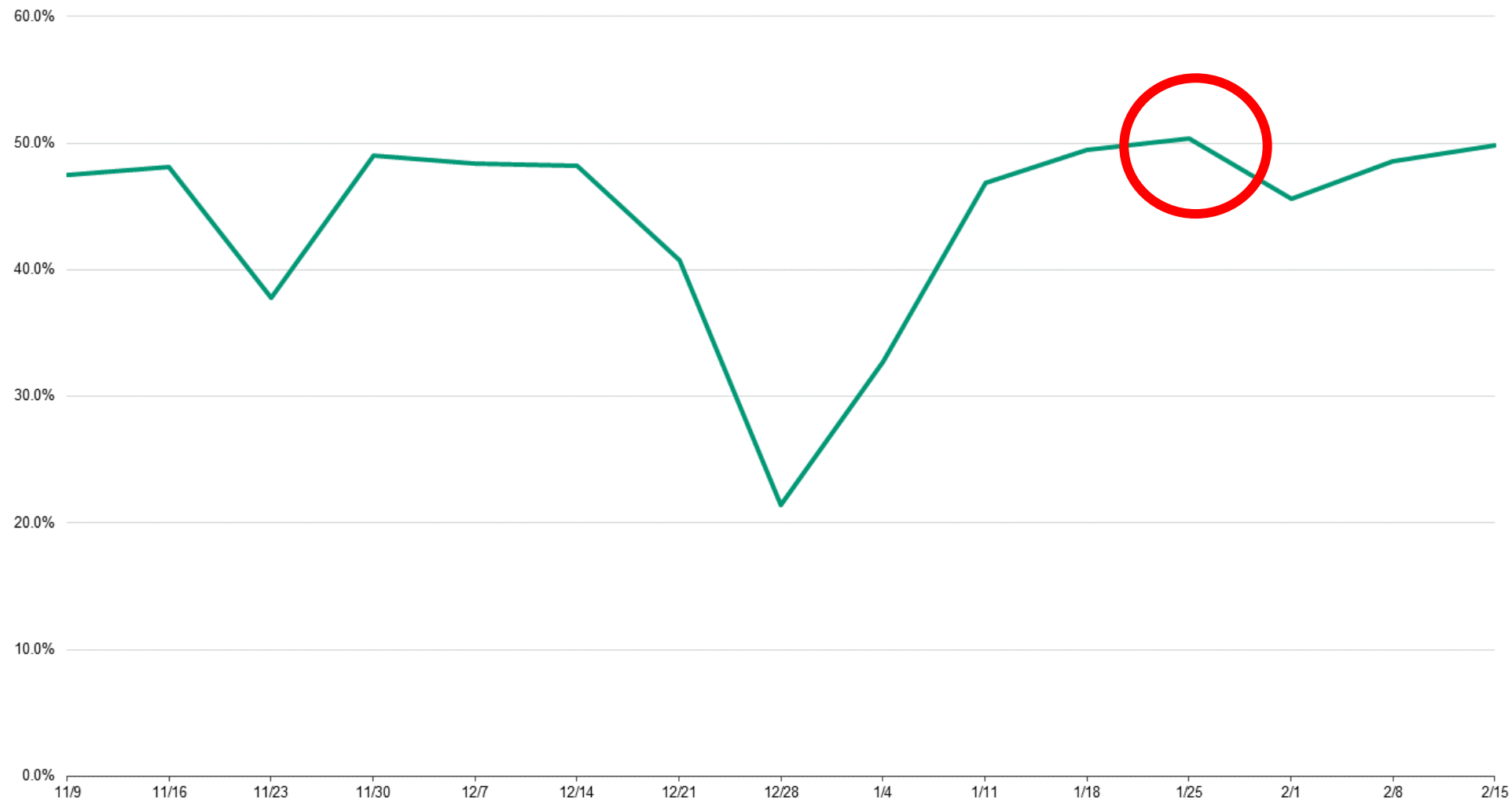
Annual

Year	Net Absorption	Asking Rent	Percent Change	Effective Rent	Percent Change	Vacancy Rate
2013	25.1	\$29.32	2.5%	\$23.69	2.6%	17.0%
2014	29.3	\$30.25	3.2%	\$24.45	3.2%	16.9%
2015	38.0	\$31.28	3.4%	\$25.32	3.6%	16.5%
2016	29.1	\$32.00	2.3%	\$25.95	2.5%	16.3%
2017	23.4	\$32.57	1.8%	\$26.42	1.8%	16.4%
2018	24.1	\$33.46	2.7%	\$27.14	2.7%	16.7%
2019	39.5	\$34.35	2.7%	\$27.90	2.8%	16.8%
2020	-6.5	\$34.53	0.5%	\$27.75	-0.5%	17.8%
2021	20.4	\$34.53	0.0%	\$27.58	-0.6%	18.1%
2022	2.1	\$35.14	1.8%	\$28.04	1.7%	18.7%
2023	23.2	\$35.70	1.6%	\$28.46	1.5%	19.0%
2024	37.6	\$36.29	1.7%	\$28.98	1.8%	18.8%
2025	28.1	\$36.92	1.7%	\$29.55	2.0%	18.6%
2026	34.4	\$37.59	1.8%	\$30.20	2.2%	18.3%
2027	33.2	\$38.28	1.8%	\$30.91	2.4%	18.0%

Source: Moody's Analytics;
79 of 190 Office Markets

Net absorption figures are in millions of square feet.

Office Utilization Rate Tops 50% (Finally)



Source: Kastle Systems

National Retail Market

Quarterly & Annual Market Conditions

Quarterly

Year	Qtr	Net Absorption	Asking Rent	Percent Change	Effective Rent	Percent Change	Vacancy Rate
2015	4	2.6	\$20.11	0.5%	\$17.55	0.5%	10.0%
2016	1	3.1	\$20.22	0.5%	\$17.66	0.6%	9.9%
2016	2	4.0	\$20.30	0.4%	\$17.73	0.4%	9.8%
2016	3	1.1	\$20.39	0.4%	\$17.81	0.5%	9.9%
2016	4	4.5	\$20.48	0.4%	\$17.90	0.5%	9.9%
2017	1	3.0	\$20.56	0.4%	\$17.98	0.4%	9.9%
2017	2	1.2	\$20.66	0.5%	\$18.06	0.4%	10.0%
2017	3	2.2	\$20.76	0.5%	\$18.16	0.6%	10.0%
2017	4	3.3	\$20.88	0.6%	\$18.27	0.6%	10.0%
2018	1	1.0	\$20.97	0.4%	\$18.36	0.5%	10.0%
2018	2	-4.0	\$21.03	0.3%	\$18.41	0.3%	10.2%
2018	3	2.7	\$21.13	0.5%	\$18.49	0.4%	10.2%
2018	4	1.5	\$21.22	0.4%	\$18.57	0.4%	10.2%
2019	1	17.2	\$21.34	0.6%	\$18.68	0.6%	10.2%
2019	2	2.7	\$21.42	0.4%	\$18.76	0.4%	10.2%
2019	3	2.4	\$21.48	0.3%	\$18.82	0.3%	10.2%
2019	4	0.7	\$21.50	0.1%	\$18.84	0.1%	10.2%
2020	1	1.4	\$21.54	0.2%	\$18.87	0.2%	10.2%
2020	2	-0.3	\$21.44	-0.5%	\$18.76	-0.6%	10.2%
2020	3	-2.3	\$21.40	-0.2%	\$18.69	-0.4%	10.4%
2020	4	-1.6	\$21.34	-0.3%	\$18.61	-0.4%	10.5%
2021	1	-0.2	\$21.31	-0.1%	\$18.57	-0.2%	10.6%
2021	2	1.6	\$21.33	0.1%	\$18.59	0.1%	10.6%
2021	3	5.1	\$21.36	0.1%	\$18.64	0.3%	10.4%
2021	4	2.3	\$21.36	0.0%	\$18.66	0.1%	10.3%
2022	1	0.7	\$21.38	0.1%	\$18.68	0.1%	10.4%
2022	2	2.1	\$21.40	0.1%	\$18.70	0.1%	10.3%
2022	3	0.5	\$21.41	0.0%	\$18.71	0.1%	10.3%
2022	4	0.7	\$21.45	0.2%	\$18.74	0.2%	10.3%

Neighborhood & Community Shopping Centers

Annual

Year	Net Absorption	Asking Rent	Percent Change	Effective Rent	Percent Change	Vacancy Rate
2013	12.7	\$19.35	1.4%	\$16.83	1.4%	10.4%
2014	13.5	\$19.70	1.8%	\$17.17	2.0%	10.2%
2015	12.3	\$20.11	2.1%	\$17.55	2.2%	10.0%
2016	12.7	\$20.48	1.8%	\$17.90	2.0%	9.9%
2017	9.7	\$20.88	2.0%	\$18.27	2.1%	10.0%
2018	1.2	\$21.22	1.6%	\$18.57	1.6%	10.2%
2019	22.9	\$21.50	1.3%	\$18.84	1.5%	10.2%
2020	-2.7	\$21.34	-0.7%	\$18.61	-1.2%	10.5%
2021	8.7	\$21.36	0.1%	\$18.66	0.3%	10.3%
2022	4.0	\$21.45	0.4%	\$18.74	0.4%	10.3%
2023	6.5	\$21.67	1.0%	\$19.01	1.4%	10.2%
2024	8.7	\$22.02	1.6%	\$19.34	1.7%	10.1%
2025	6.9	\$22.39	1.7%	\$19.75	2.1%	10.1%
2026	7.7	\$22.80	1.8%	\$20.16	2.1%	10.0%
2027	7.9	\$23.23	1.9%	\$20.53	1.8%	9.9%

Neighborhood & Community Shopping Centers

Year	Quarter	Asking Rent	Percent Change	Vacancy Rate
2013	Y	\$39.95	1.6%	7.9%
2014	Y	\$40.66	1.8%	8.0%
2015	Y	\$41.54	2.2%	7.8%
2016	Y	\$42.38	2.0%	7.8%
2017	Y	\$43.00	1.5%	8.3%
2018	Y	\$43.35	0.8%	9.0%
2019	Y	\$43.84	1.1%	9.7%
2020	Y	\$43.05	-1.8%	10.5%
2021	Y	\$43.26	0.5%	11.2%
2022	Y	\$43.34	0.2%	11.2%
2022	Q4	\$43.34	0.1%	11.2%

Regional/Super Regional Malls

Source: Moody's Analytics;
77 of 190 Retail Markets
Net absorption figures are in millions of square feet.

National Hotel Market

Quarterly Market Conditions

- Is mean reversion here? ADRs have begun climbing down from record highs from the second quarter of 2022.
- Occupancies deteriorated from 65.5% in the third quarter to 52.3% in the fourth quarter, driving RevPar to fall by 24.4%.
- Quoting ourselves from the prior quarter: “Volatility in hotel performance metrics still appears to be the norm.” Expect more of this in 2023.

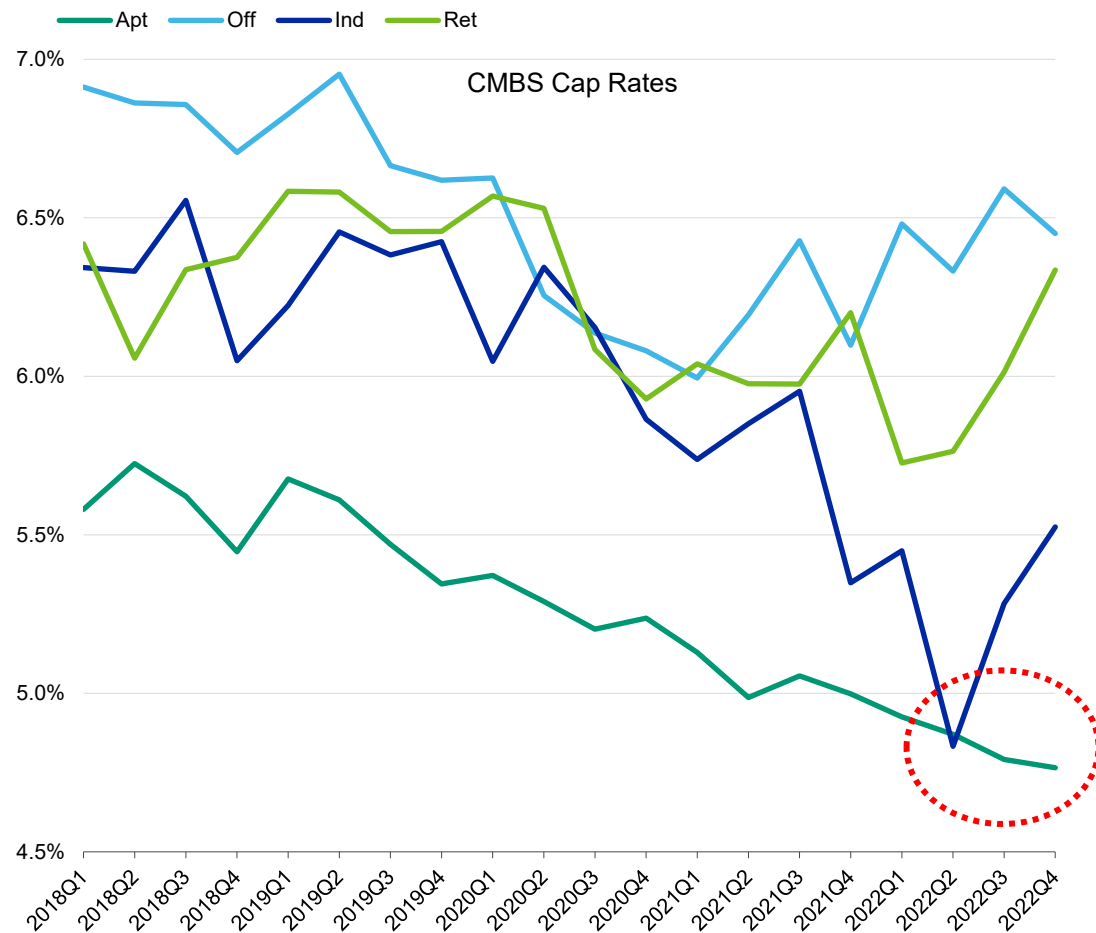
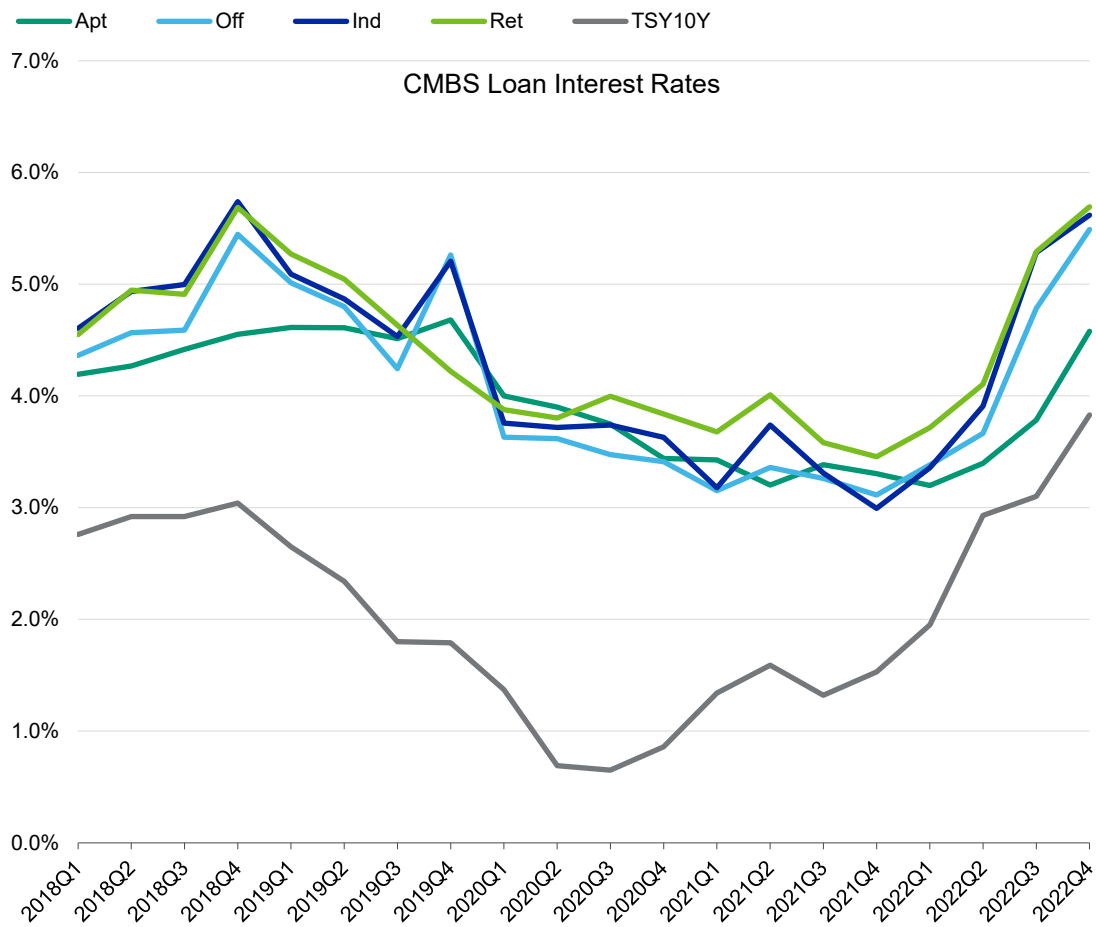
Source: Moody's Analytics

Year	Qtr	ADR	Percent Change	Occupancy Rate	PCT PT Change	RevPAR	Percent Change
2018	1	\$127	1.0%	65.6%	0.2%	\$83	1.3%
2018	2	\$127	0.2%	65.7%	0.1%	\$83	0.3%
2018	3	\$127	0.3%	64.0%	-1.7%	\$81	-2.3%
2018	4	\$127	-0.4%	65.5%	1.5%	\$83	2.0%
2019	1	\$127	0.6%	65.2%	-0.3%	\$83	0.2%
2019	2	\$128	0.1%	65.3%	0.1%	\$83	0.3%
2019	3	\$127	-0.4%	65.1%	-0.2%	\$83	-0.7%
2019	4	\$128	0.8%	66.0%	0.9%	\$85	2.2%
2020	1	\$106	-17.3%	36.7%	-29.3%	\$39	-54.0%
2020	2	\$88	-16.9%	38.4%	1.7%	\$34	-13.1%
2020	3	\$93	5.9%	45.4%	7.0%	\$42	25.2%
2020	4	\$86	-7.5%	34.6%	-10.8%	\$30	-29.5%
2021	1	\$100	16.4%	52.1%	17.5%	\$52	75.2%
2021	2	\$123	22.1%	64.0%	11.9%	\$78	50.0%
2021	3	\$126	2.9%	59.8%	-4.2%	\$75	-3.9%
2021	4	\$128	1.7%	51.9%	-7.9%	\$67	-11.7%
2022	1	\$140	9.3%	63.3%	11.4%	\$89	33.3%
2022	2	\$148	5.8%	69.2%	5.9%	\$103	15.6%
2022	3	\$148	-0.4%	65.5%	-3.7%	\$97	-5.7%
2022	4	\$140	-5.4%	52.3%	-13.2%	\$73	-24.4%
2023	1	\$142	1.8%	55.7%	3.4%	\$79	8.4%
2023	2	\$141	-1.0%	60.4%	4.7%	\$85	7.3%
2023	3	\$141	0.2%	63.9%	3.5%	\$90	6.0%
2023	4	\$142	0.4%	66.4%	2.5%	\$94	4.3%

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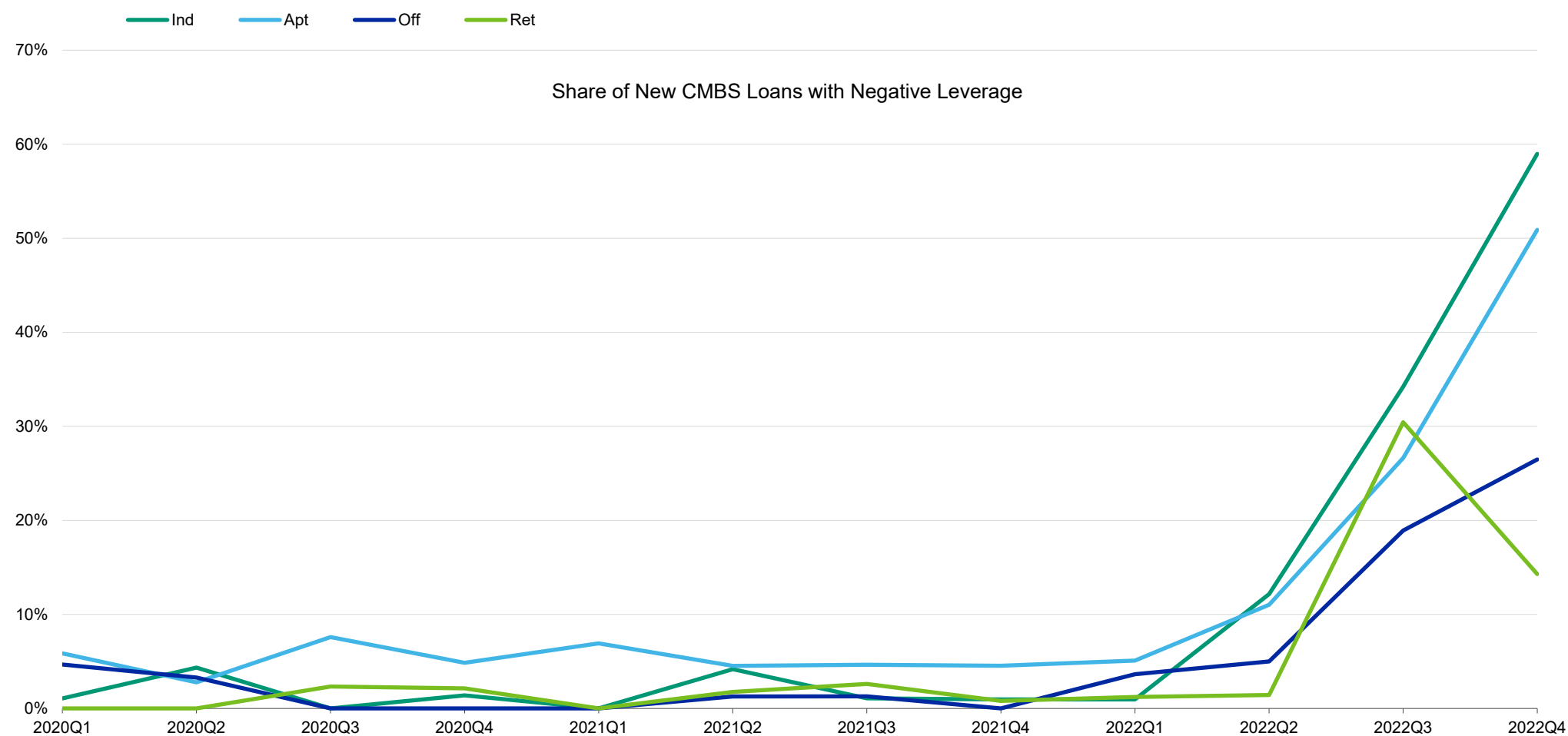
CRE Capital Markets

Cost of Capital and Cap Rates Have (Mostly) Followed the Fed



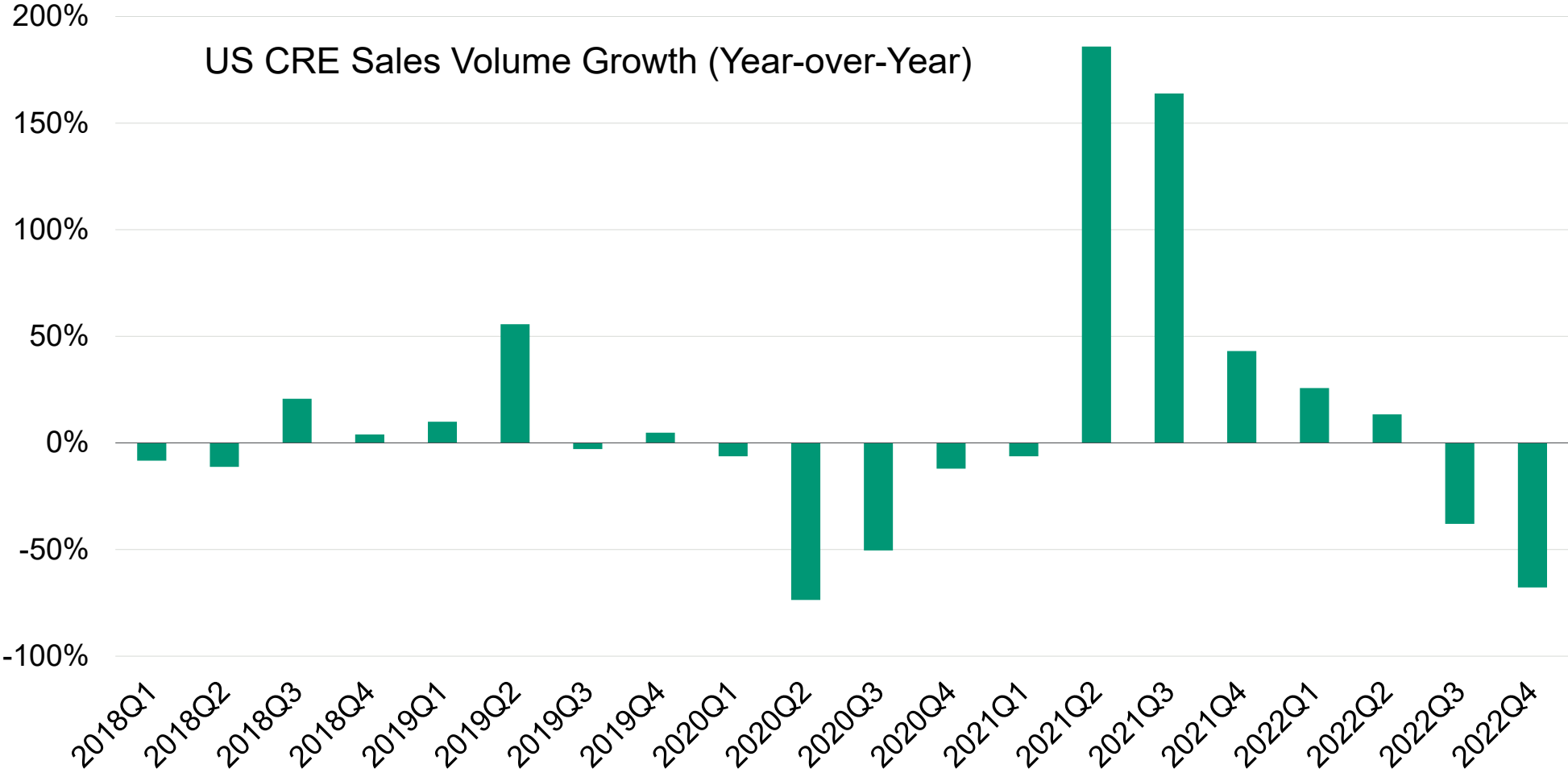
Sources: Moody's Analytics CMBS, Moody's Analytics CRE

Negative Leverage Grows for Hot Asset Classes



Sources: Moody's Analytics CRE, Moody's Analytics CMBS

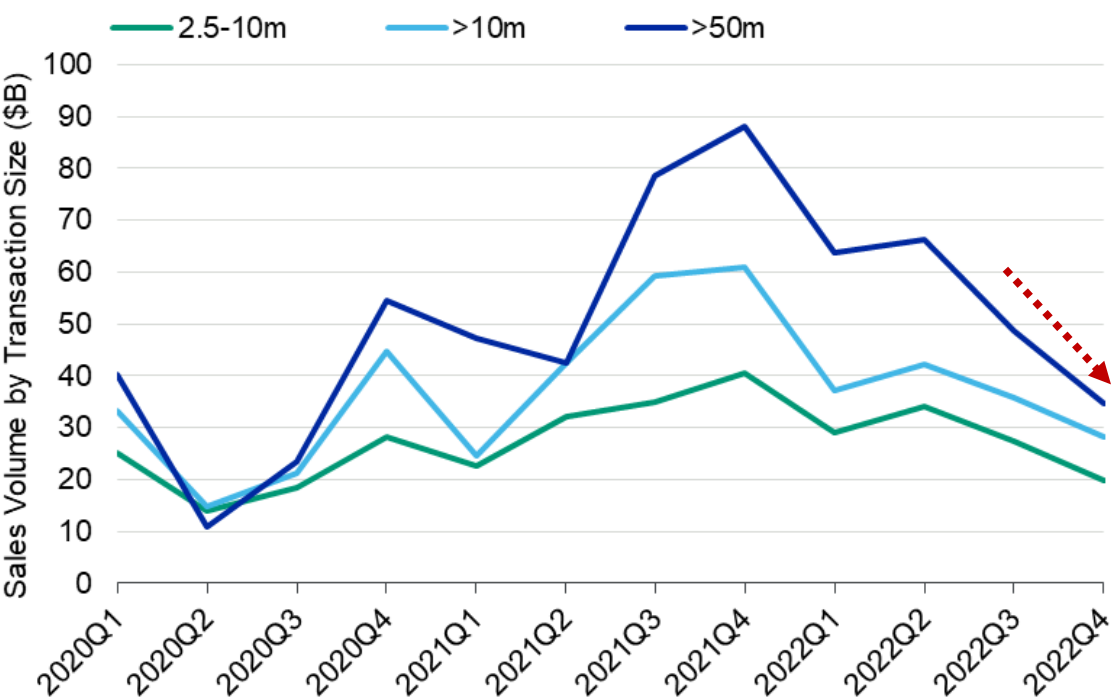
Brakes Have Slammed on the Transaction Market



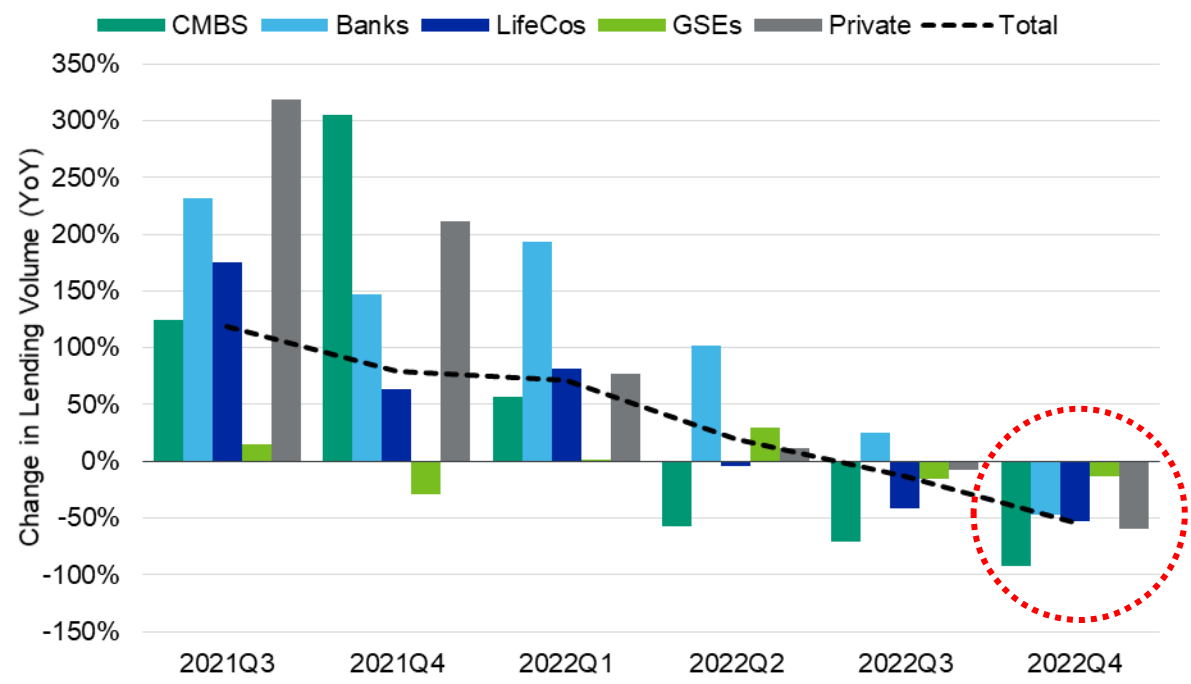
Source: Moody's Analytics CRE. Note: Volume includes only the four core asset classes of multifamily, office, industrial and retail.

Volume Down Across the Board; Debt Market a Major Factor

More pullback in large transactions...

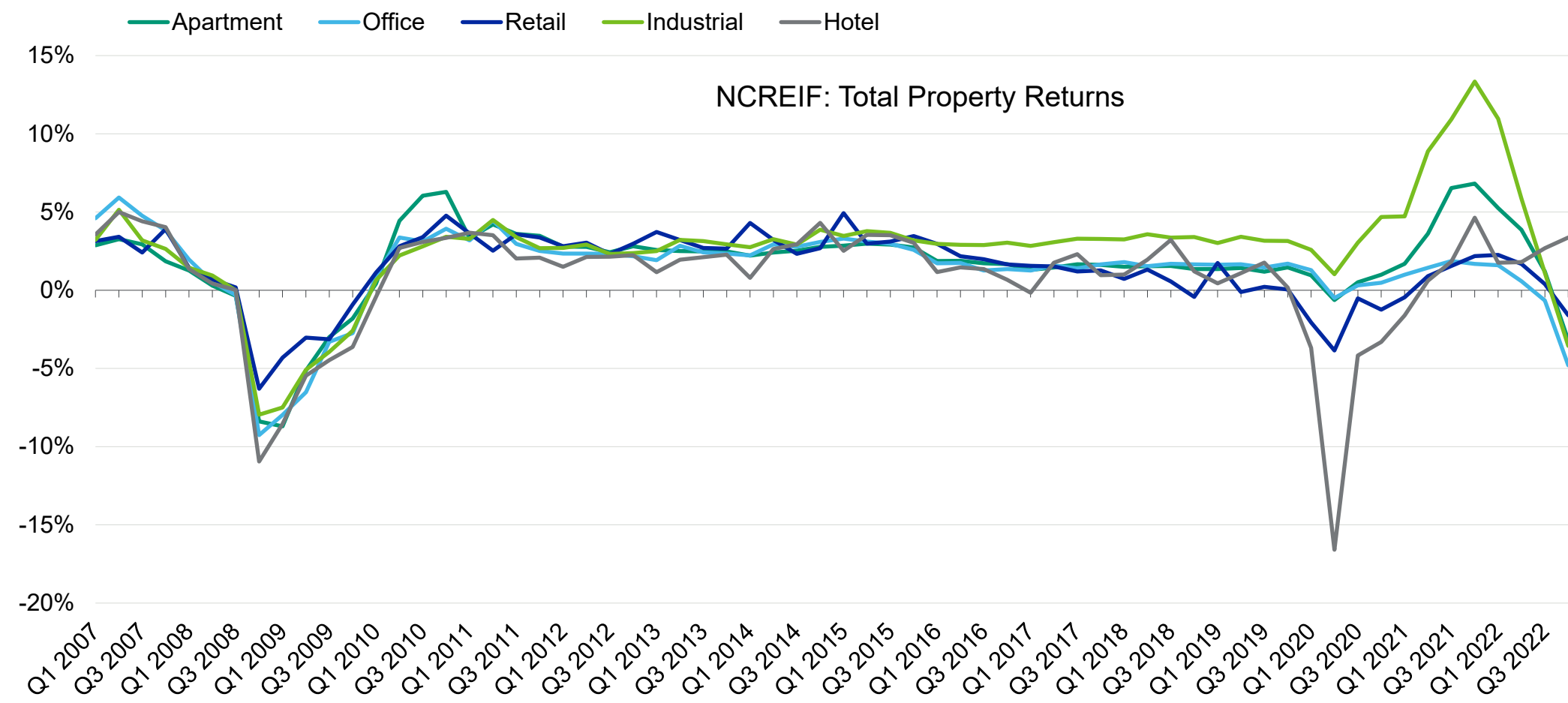


... smaller banks hang on until the music stops



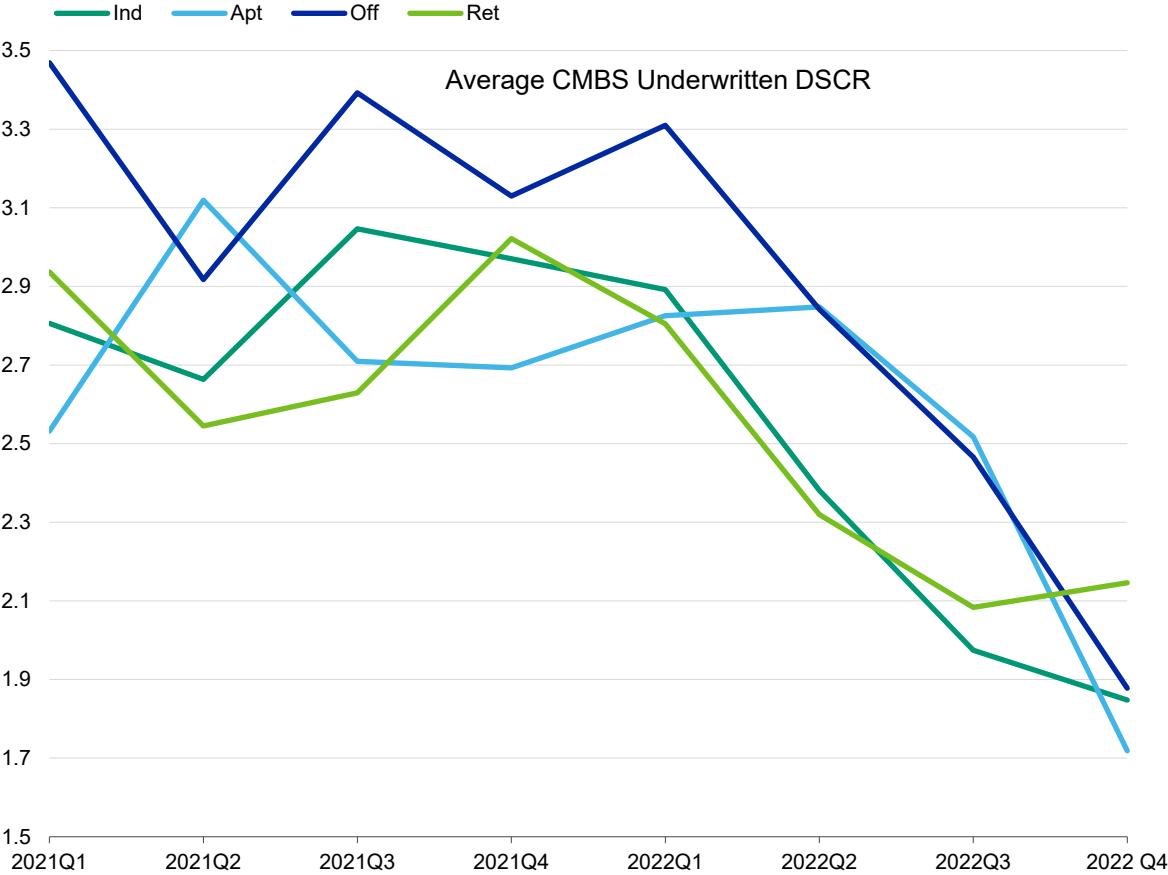
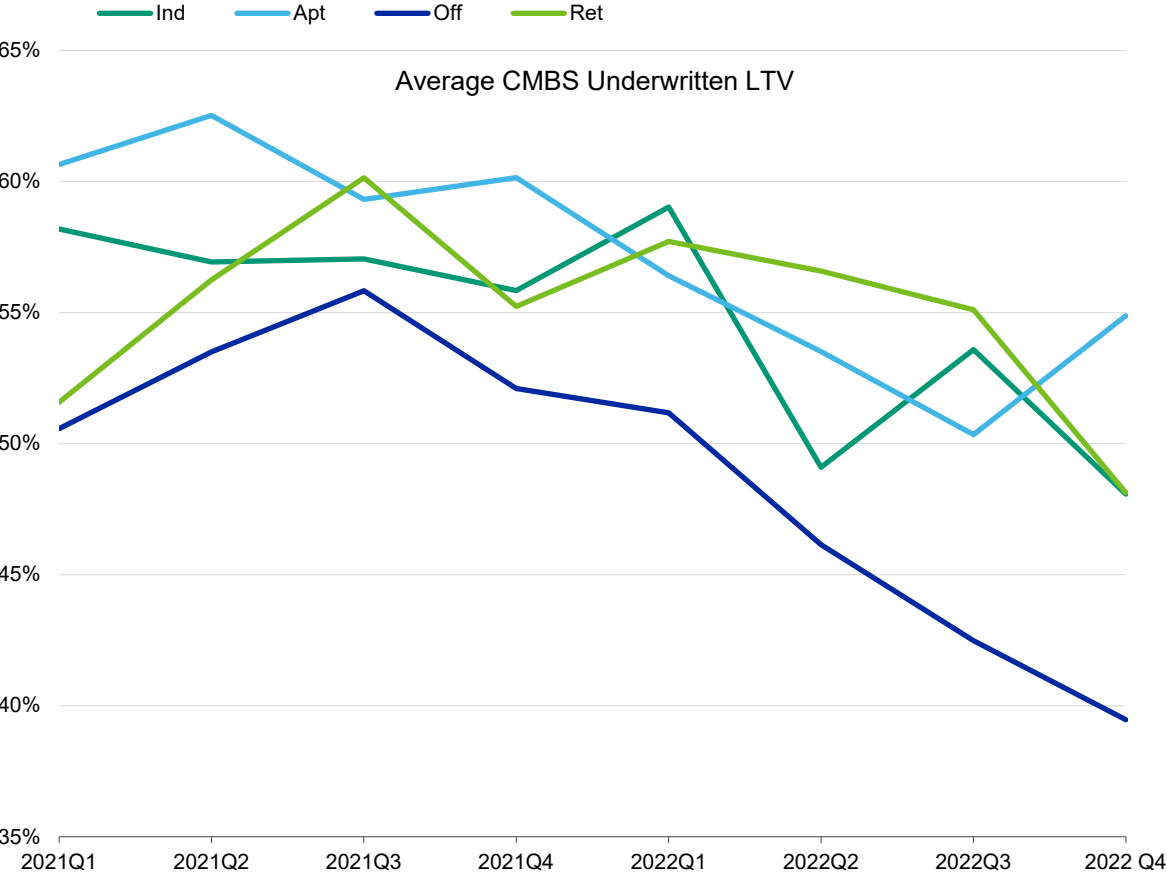
Sources: Mortgage Bankers Association, Moody's Analytics CRE

Total Returns Move Decidedly Negative (Except for Hotels!)



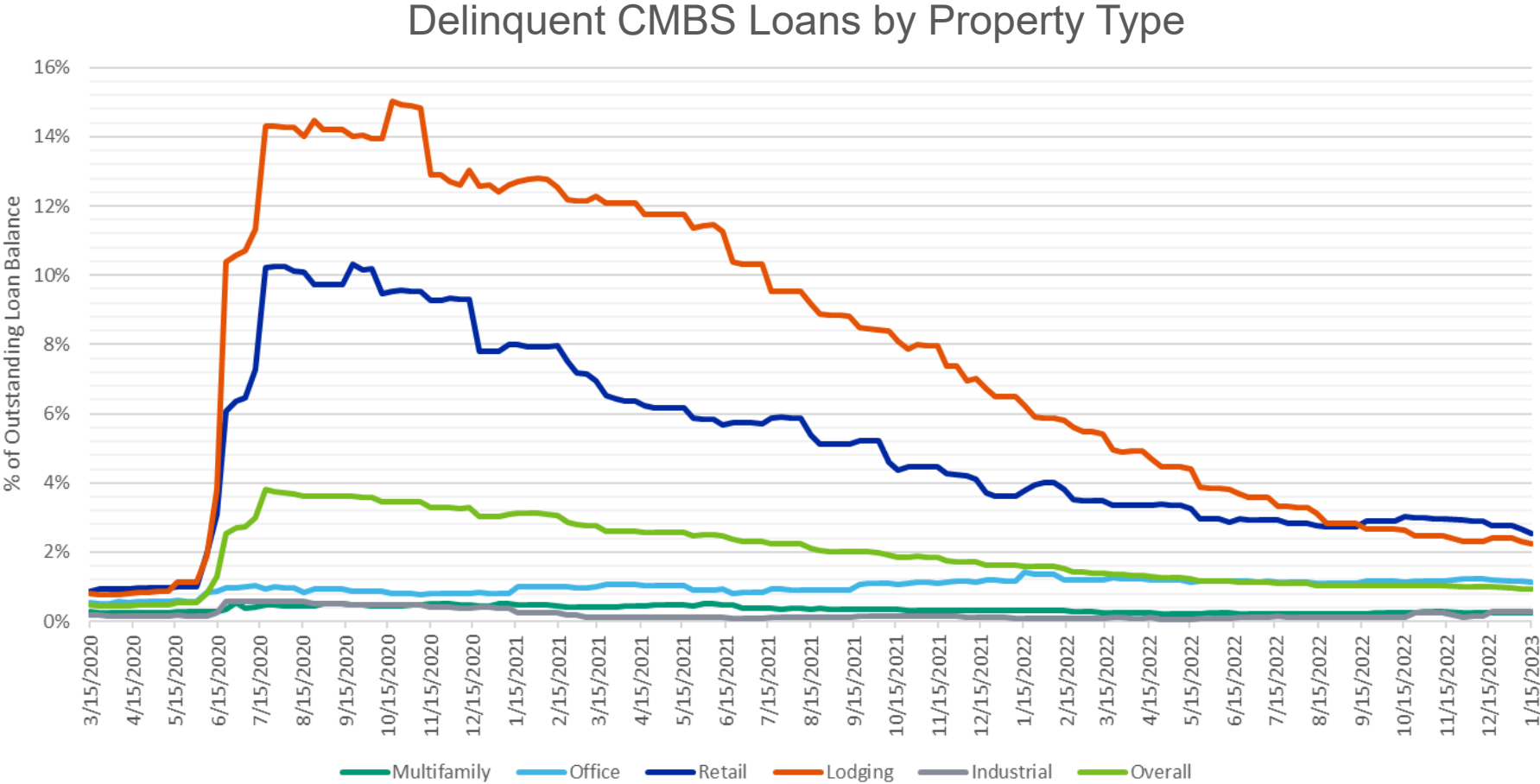
Source: NCREIF (total return on institutional properties in the NCREIF database)

DSCR and LTV Moves Lower as Rates Rise



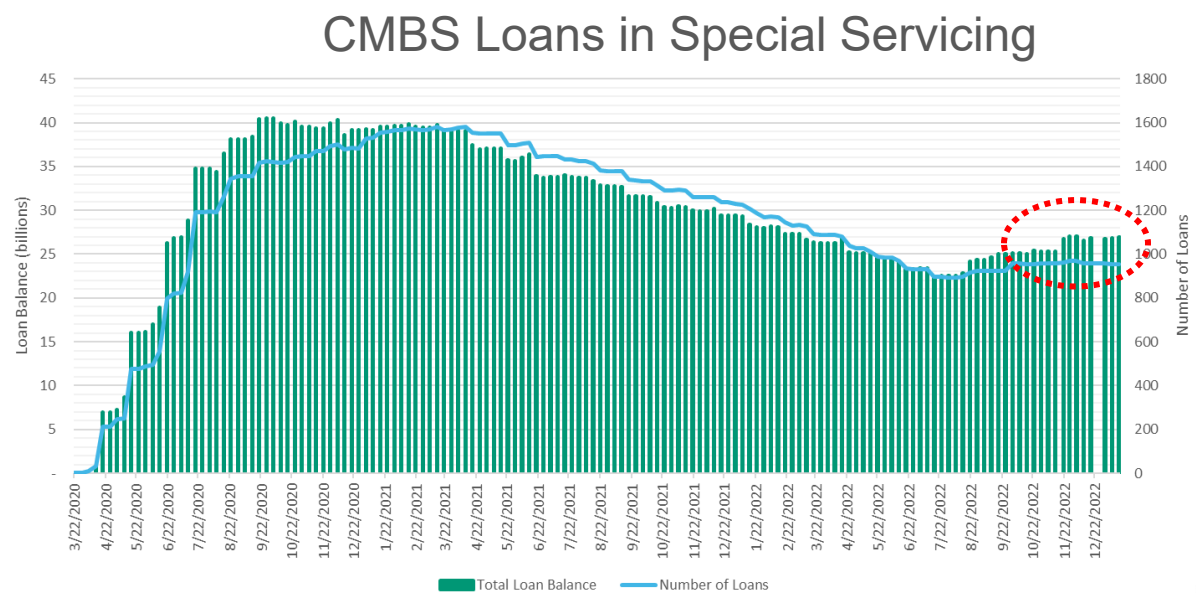
Sources: Moody's Analytics CRE, Moody's Analytics CMBS

Loan Performance Holds Steady, But...

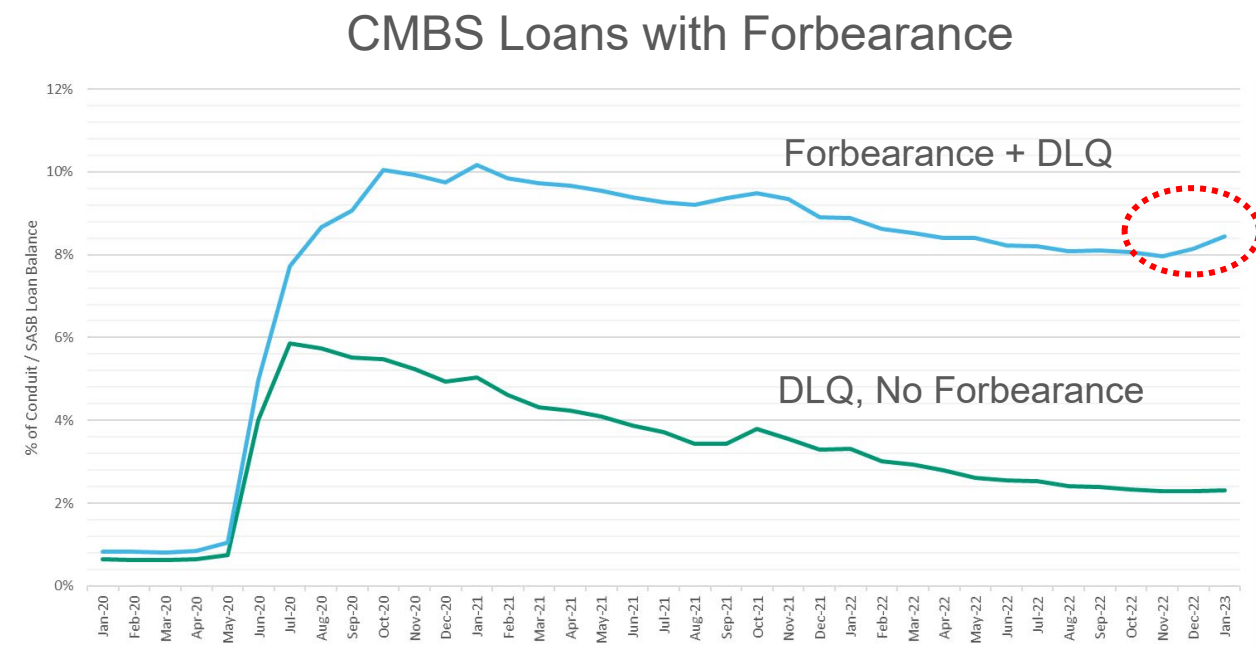


Sources: Moody's Analytics CMBS (60+ days delinquent loans)

Cracks Appearing in the Armor of Outstanding Debt



Sources: Moody's Analytics CMBS

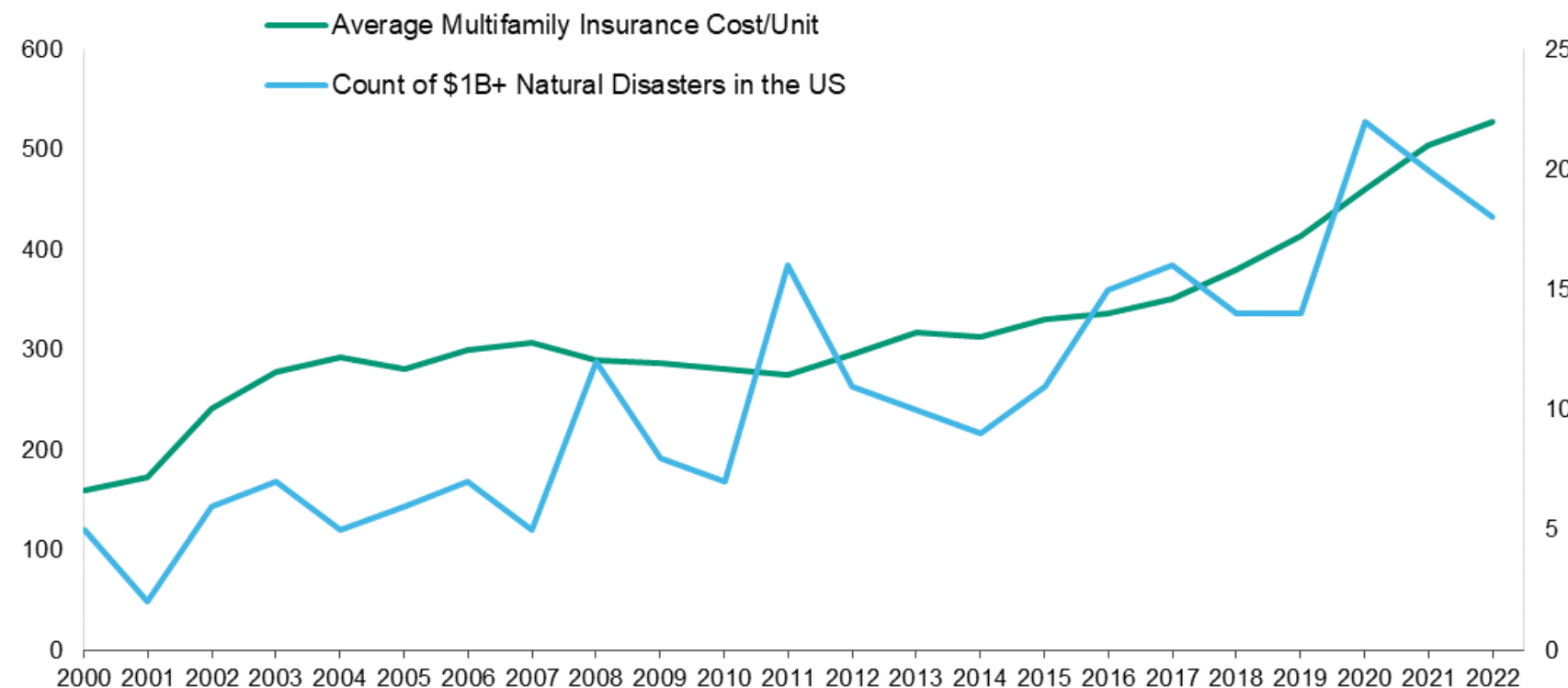


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Update on Climate Risk in CRE

Underwriting for Insurance Costs

The need to adjust to increasing climate hazards has become material



Sources: Moody's Analytics, NOAA

New Due Diligence Report for CRE Climate Risk

Property Resilience Assessment (PRA)



Hazard

Stage 1: Screening & Identifying Hazards* – Review Model & Mapping Outputs

Stage 1a: Hazard Verification



Risk

Stage 2: Vulnerability & Sensitivity Evaluation



Resilience Measures

Stage 3: Resilience Measures Recommendations

*Hazards include those caused by climate change, those made more extreme by climate change, and other natural hazards.



ASTM Standards Common in CRE Physical Due Diligence

- ASTM E 1527 – Standard Practice for Environmental Site Assessments - Phase I
- ASTM E 2018 – Standard Guide for Property Conditions Assessments
- ASTM E 2557 - Standard Practice for Probable Maximum Loss Evaluations for Earthquake Due Diligence Assessments
- ASTM E 1903 – Standard Guide for Environmental Site Assessments - Phase II Investigation
- ASTM E 2600 – Standard Practice for the Assessment of Vapor Intrusion into Structures on Property Involved in Real Estate Transactions

PRAs Could Become Common Soon



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