Trepp®
Bank Research

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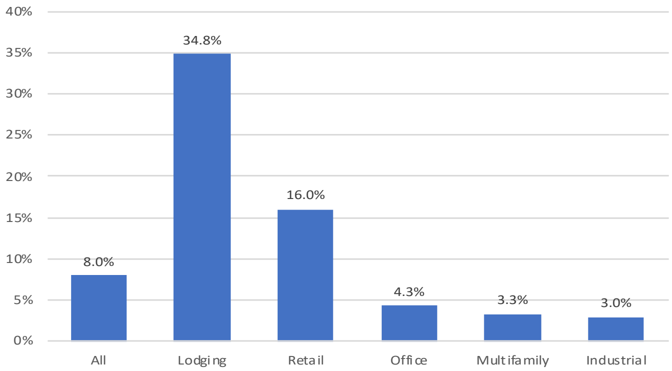
COVID-19 Impacts on Commercial Real Estate: Rising Defaults and Losses in the Loan Sector

The economic disruption caused by COVID-19 and the efforts to contain it will trigger a new cycle of rising defaults and losses in the commercial real estate lending sector. In the scenario presented below, the cumulative default rate across commercial mortgages overall will rise to 8%, up significantly from the current 0.4% default rate. The impact will be most immediate and severe in the lodging sector, with a cumulative default rate approaching 35%. The retail sector will also experience elevated defaults, with an estimated cumulative default rate of 16% in this scenario. Other major real estate sectors analyzed – office, multifamily, and industrial – will experience more measured increases in distress.

To gauge the impacts of the COVID-19 disruption, Trepp has applied an economic and real estate forecast scenario to a portfolio of 12,500 commercial real estate loans. The loans are from Trepp's T-ALLR data set, which is comprised of balance sheet loans held by commercial banks. The loans used for this analysis are commercial mortgage loans, spanning a broad range of size, geography, and property type.

The scenario used is a modified version of the bank regulators' Severely Adverse scenario, with changes to capture the more significant expected declines in prices and NOI expected in the lodging and retail segments.

FIGURE 1: CUMULATIVE DEFAULT RATE



Source: Trepp

The Dataset

The loan data used for the analysis is from Trepp's T-ALLR dataset. The loans are commercial mortgages originated and held on the balance sheet by a variety of banks, ranging in size from community banks that are regionally focused to large institutions with a national footprint.

This is a large set of data: 12,501 loans with an aggregate outstanding balance of $77.5 billion. This is also a diverse set of loans, spanning a broad range of property types, origination year vintages and loan sizes. The loan portfolio also exhibits good credit quality metrics, with a median LTV of 40.9 and median DSCR of 1.82.

Loan Data Summary Highlights:

- The largest property type weighting is multifamily, representing $33.3 billion (43%) of the total. Office and retail also represent significant portions, with 25% and 20% shares of the total, respectively. Lodging and industrial are smaller parts of the total, with 6% shares each.
- Lodging and office feature some of the larger loans, with higher average and median loan sizes.
- Credit metrics across the different property types are generally similar, with median current LTVs between 37.0 and 41.9 and median current DSCRs between 1.79 and 2.12.
- Most of the loans were originated in the last five years. Nearly 80% of the current outstanding balance is from the 2015 to 2019 vintages.
- The more recent vintages have higher LTVs and lower DSCRs than the older vintages. While the loans show similar LTVs at origination, the older vintages have benefited from more seasoning: values have increased

due to appreciation and amortization has reduced the outstanding loan balances. As a result, the current LTVs are lower and the DSCRs are higher for the older vintages.

- The loans span a broad range of sizes, with generally even distribution across small, medium and large loan amounts. The smaller loans tend to have better credit metrics, with higher DSCRs and lower LTVs, while the larger loans tend to have higher LTVs but also high DSCRs. The higher LTVs associated with larger loans is related to their also tending to be of more recent vintages. Loans that were originated several years ago have had more time to experience amortization.

The Scenario

It is difficult to know which economic and real estate forecast scenario to use. It is possible that the severe disruptions that have been impacting nearly every aspect of daily life will be over as suddenly as they hit, but it is also possible that they will last longer and have a deeper impact on the economy. Even if the disruptions do pass relatively quickly, the linkages within the economy mean that the economic fallout will be with us for some time.

To gauge the impact on commercial real estate mortgages, Trepp used the Severely Adverse scenario that regulators

FIGURE 2: LOAN DATASET SUMMARY BY PROPERTY TYPE, VINTAGE, SIZE

			LOAN SIZE ($ MN)		CREDIT DRIVERS (MEDIAN)		
	Current Balance ($Bn)	**Loan Count**	**Average**	**Median**	**LTV at Origination**	**LTV (Current)**	**DSCR (Current)**
All	$77.5	12,501	$6.2	$2.6	57.6	40.9	1.82
By Property Type							
Lodging	$5.0	449	$11.2	$4.5	53.1	37.0	2.12
Retail	$15.1	3,093	$4.9	$2.4	58.3	40.0	1.82
Office	$19.5	1,957	$9.9	$3.3	60.2	41.4	1.86
Multifamily	$33.3	6,094	$5.5	$2.5	56.9	41.9	1.79
Industrial	$4.6	908	$5.1	$2.3	55.1	38.4	1.95
By Vintage							
2019	$11.7	1,403	$8.4	$3.0	57.1	50.1	1.75
2018	$15.8	1,937	$8.2	$3.0	57.0	48.9	1.76
2017	$11.4	1,683	$6.8	$2.8	56.5	45.1	1.74
2016	$11.7	1,820	$6.4	$2.8	58.6	43.6	1.80
2015	$9.5	1,691	$5.6	$2.6	59.2	41.8	1.82
Prior Years	$17.4	3,967	$4.4	$2.1	56.9	32.6	1.94
By Loan Size							
Up to $3 Mn	$12.4	7,107	$1.7	$1.7	55.2	37.1	1.88
$3 to $10 Mn	$14.1	3,162	$4.5	$4.1	58.1	42.9	1.77
$10 to $20 Mn	$18.0	1,291	$13.9	$13.4	60.6	46.6	1.71
$20 to $35 Mn	$15.4	594	$26.0	$25.3	61.4	49.1	1.72
Over $35 Mn	$17.7	347	$50.9	$43.5	61.0	50.7	1.89

Source: Trepp, LLC (T-ALLR loan dataset) have created for large bank stress testing. This scenario assumes that GDP falls precipitously, the unemployment rate rises (peaking at 10%), interest rates plunge, and asset prices fall. Commercial real estate prices falling 35% over the first two years of the scenario. The U.S. economy is already experiencing most of these effects and more are likely to come, though as mentioned above, it is difficult to know how long or deep these impacts will be.

Trepp made some adjustments to the scenario:

- The unemployment rate still peaks at 10%, but Trepp accelerated the peak by 1 quarter, so now the 10% unemployment is reached in Q1 2021.

- Trepp created property sector price and NOI change vectors to reflect the larger impacts on lodging and retail, as compared to multifamily and industrial (see below for more detail).

- The Liquidity Scores – created by Trepp and not part of the regulators' scenarios – generally follow the patterns of the Great Recession (2008-2010). In the COVID-19 scenario, non-residential commercial mortgage liquidity reaches zero, while multifamily mortgage liquidity reaches a low of 1.5 before recovering. The multifamily low of 1.5 is lower than the 2.4 bottom rate during the Great Recession.

- Trepp extended the scenario to encompass five years. The regulators' scenario covers 13 quarters. Trepp appended additional quarters with mean-reversion targets to extend the forecast to five years.

Two key components of the Trepp Default Model are the price and NOI change forecasts. These impact LTV (price changes) and DSCR (NOI changes) which are two of the most important drivers of default and loss severity. For the COVID-19 scenario, Trepp allocated the most severe price and NOI drops to the Lodging and Retail sectors.

- Travel and tourism have ground to a halt and hotels are expected to post significant declines in occupancy and revenue.

- Many retail businesses have also been negatively impacted. Restaurants are either closed or doing take-out business only and stores are limiting hours and foot-traffic for shoppers that find shelves not fully stocked.

- The industrial and multifamily sectors are expected to suffer much less in a COVID-19 scenario. Demand in these property types will avoid negative impacts, at least in the short run. Most people are spending more time in their homes, either voluntarily or by government order. And a surge in online retail is supporting demand in the Industrial space. These sectors are not immune from a longer-term economic downturn, if that does indeed materialize.

- The office sector will also be relatively unaffected in the short run. Although offices are either empty or nearly so, long-term leases mean that building owners will continue to collect rent. With the surge in working from home, the longer-term prospects for office are somewhat murkier.

- The price and NOI declines for each major property type sector that Trepp used in its analysis are shown below. The overall impact and the pace of the declines follow the contour of the regulators' Severely Adverse scenario, but with much larger hits on lodging and retail. The price declines Trepp used are in-line with year-to-date price declines by property sector in the publicly traded real estate investment trust (REIT) market.

FIGURE 3: PRICE AND NOI IMPACTS BY PROPERTY SECTOR COVID-19 STRESS SCENARIO FOR CRE LOANS

	PEAK-TO-TROUGH		NAREIT YTD PRICE
	Price Changes	NOI Change	As of 3/20/20
Lodging	-63.2%	-48.9%	-62.4%
Retail	-49.2%	-33.1%	-50.0%
Office	-35.3%	-21.0%	-35.7%
Multifamily	-28.0%	-13.8%	-29.1%
Industrial	-25.1%	-12.9%	-24.9%

Sources: NAREIT, Trepp LLC

The Results

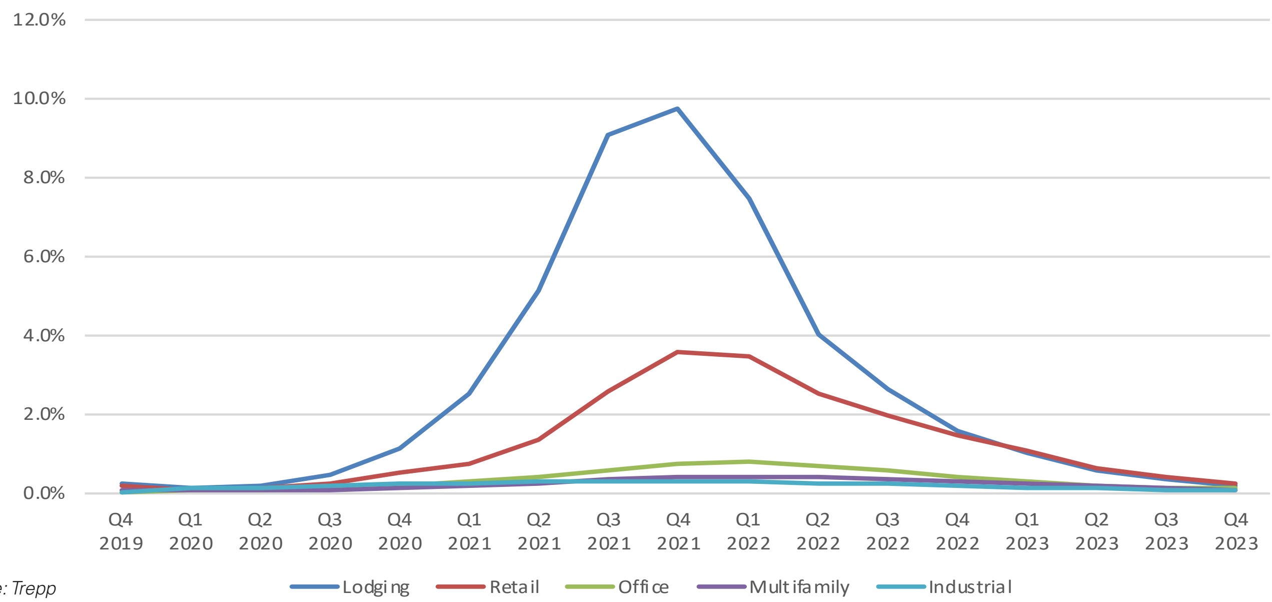
The application of the COVID-19 forecast scenario to the loan portfolio will drive default and loss rates higher for all types of commercial mortgages, especially the lodging and retail sectors. With values and NOI falling, LTV ratios will rise and DSCRs will fall, increasing the risk of default. With lower asset values and reduced liquidity, loss severity (LGD) will rise. The combination of higher default rates and higher loss severity means that expected loss rates will also increase.

- The default rate for Lodging loans will soar, reaching a peak of nearly 10% by the end of 2021.
- Retail defaults will also rise sharply, peaking at 3.6% in late 2021 / early 2022.
- Office default rates will rise, though not as severely. The peak default rate for office loans in this scenario would be 0.8%
- Industrial and multifamily mortgages will experience smaller increases in default rates, peaking at about 0.5%. For both property types, the expected declines in prices and NOI mean that LTV and DSCR ratios will hold up better, compared to lodging and retail.

The impacts of these higher periodic default rates over the 5-year forecast horizon will mean much higher cumulative default and loss rates for all types of loans, particularly lodging and retail loans.

- The cumulative default rate for all CRE loans is 8.0%, and with an expected loss severity of 31.7%, the cumulative loss rate will be 2.5%.
- For lodging loans, the cumulative default rate is expected to be 34.8%, translating into cumulative losses of 13.1%.
- The cumulative default rate for retail is expected to be 16.0% and cumulative losses will total 5.3%.
- The other sectors analyzed – office, multifamily and industrial – will fare comparatively better, with cumulative default rates in the 3.0% to 4.3% range and cumulative losses in the 0.8% to 1.2% range.

FIGURE 4: DEFAULT RATES BY PROPERTY TYPE



Source: Trepp

FIGURE 5: CUMULATIVE RESULTS COVID-19 STRESS SCENARIO FOR CRE LOANS 5-YEAR SCENARIO FORECASTS

	DEFAULT RATE	LOSS SEVERITY	EXPECTED LOSS RATE
All	8.0%	31.7%	2.5%
By Property Type			
Lodging	34.8%	37.7%	13.1%
Retail	16.0%	32.8%	5.3%
Office	4.3%	27.1%	1.2%
Multifamily	3.3%	24.2%	0.8%
Industrial	3.0%	26.2%	0.8%
By Vintage			
2019	11.9%	32.7%	3.9%
2018	11.2%	33.0%	3.7%
2017	8.6%	31.5%	2.7%
2016	7.0%	30.1%	2.1%
2015	5.6%	28.9%	1.6%
Prior Years	4.0%	30.4%	1.2%

Source: Trepp, LLC (TALLR loan dataset and TreppDM default model)

While the impacts for commercial mortgage defaults and losses outlined above are severe, they are not as severe overall as the defaults and losses experienced during the Great Recession. For example, peak default rates in the Trepp COVID-19 Scenario are 2.7% for commercial (non-residential) mortgages and 0.4% for multifamily mortgages. Those rates compare to 4.4% and 4.7%, respectively, for the Great Recession (see table below).

FIGURE 6: PEAK DEFAULT RATE COMPARISON GREAT RECESSION VS. COVID-19 SCENARIO

	COMMERCIAL MORTGAGE	MULTIFAMILY MORTGAGE
Office	-35.3%	-21.0%
Retail	-49.2%	-33.1%

Sources: FDIC, FFIEC, Trepp LLC

There are probably three main reasons for this:

- Part of it could be due to the scenario itself. The regulators' Severely Adverse scenario that we used as the basis for ours replicates many features of the Great Recession, but it all happens over shorter time frame, which can lead to somewhat less severe impacts when applied in a model.
- Part of it is no doubt due to the significant differences in the price and NOI assumptions across the various property types. The default and loss rates projected for Lodging are probably comparable to the experience during the Great Recession. But for milder impacts on other sectors, such as industrial and multifamily, are likely much less severe than the same sectors experience in the last cycle.
- Finally, the portfolio of loans Trepp used for this analysis has good current credit quality, so the loan portfolio is starting out the forecast with overall healthy LTVs and DSCRs. In the lead up to the Great Recession, lending and transaction volume was very high and underwriting standards had slipped significantly.

Conclusions

The economic disruption caused by COVID-19 and efforts to halt its spread will have a noticeable impact on the commercial real estate mortgage market, with rising defaults and losses virtually assured. The magnitude and distribution of those defaults and losses is less certain. By applying public market information on price declines by sector and a modified version of the regulators' Severely Adverse scenario for bank stress testing to a large portfolio of bank balance sheet loans, Trepp has produced concrete estimates of possible impacts.

- Lodging and retail sector defaults and losses will rise sharply, possibly reaching levels comparable to the impacts in the Great Recession.
- Other property sectors – office, industrial, multifamily – will experience increased defaults and losses, but these will likely be lower for these sectors than in the Great Recession.

The government stimulus (or relief) package that looks set to pass and get signed into law will include hundreds of billions of dollars in aid – directly to individuals as well as to the most severely impacted industries. This will likely soften some of the harsher near-term impacts, such as lost revenue and income.

The analysis presented in this report is not meant to be an actual forecast, but rather a what-if type analysis to estimate impacts on commercial mortgages stemming from possible drops in income and prices. Trepp will continue to monitor performance in the CRE market and will release more analysis of potential outcomes as more information emerges.

For more information about Trepp's commercial real estate data, contact info@trepp.com.
For inquiries about the data analysis conducted in this research, contact press@trepp.com or 212-754-1010.

About **T-ALLR**

Trepp's Anonymized Loan Level Repository (T-ALLR) houses CRE and C&I data from large and mid-sized commercial banks. The T-ALLR Data Feed contains anonymized loan level and period level attribute and performance information on each loan. With 7+ years of history and new quarterly originations typically exceeding $7 billion for CRE and $9 billion for C&I, T-ALLR provides the breadth and depth necessary to gain insights into market activity, identify trends, and spot emerging pockets of risk and opportunity.

About **Trepp**

Trepp, founded in 1979, is the leading provider of information, analytics and technology to the CMBS, commercial real estate and banking markets. Trepp provides primary and secondary market participants with the web-based tools and insight they need to increase their operational efficiencies, information transparency and investment performance. From its offices in New York, San Francisco and London, Trepp serves its clients with products and services to support trading, research, risk management, surveillance and portfolio management. Trepp is wholly-owned by Daily Mail and General Trust (DMGT).