ANALYSIS

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How Bad Can It Get? COVID-19 and Updated Economic Scenarios for CRE

On March 11, 2020, the World Health Organization officially characterized the outbreak of COVID-19 as a pandemic. Later that evening, the United States announced travel bans covering European Union citizens, with some confusion around whether the flow of goods would be restricted as well. The situation is evolving daily, with national governments in El Salvador, Spain, Canada, France, and other countries declaring some form of lockdown to control the outbreak and minimize the strain on health care.

How should we think about the outlook for multifamily and commercial real estate fundamentals given the potential for wide-scale disruptions on both the demand and supply side? Which property types and geographic markets will be hit hardest, and why? Amidst the panic and headline-catching negative projections, what countervailing (positive) effects should be considered?

I. Economic Scenarios: A Recession, or a Protracted Slump

The economics group at Moody's Analytics provides a nuanced take for several scenarios. A asmoderate recession US GDP falling by close to 9% in 2020, with economic growth turning positive the following year.

“The Federal Reserve acted very quickly to address liquidity and credit issues, and plans are being made for various forms of fiscal stimuli,” said Cris deRitis, Deputy Chief Economist. “There will likely be a severe drop in demand in the short run given quarantine efforts, but once treatment and vaccine options revive confidence, the recovery may be quick as well.”

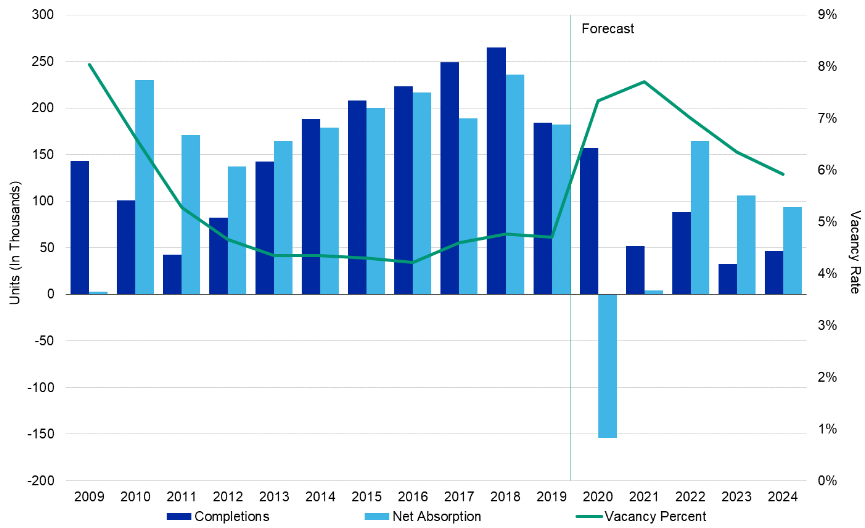
But what if the economy does not bounce back as quickly, or if credible treatment and vaccine options take a longer time to be made widely available and restore confidence? A *protracted slump* might result if the pandemic and the global policy response is extended, with GDP continuing to slide through the third quarter of 2021. Over a year and a half, GDP may contract close to 15%. This exceeds the economic decline experienced during the Great Recession, suggesting that the COVID-19 crisis will be one of the worst recessions in US history.

In this paper, we will mostly focus on the *protracted slump* scenario, given that it is the worst-case economic outlook. How does a *protracted economic slump* translate to multifamily and commercial real estate (CRE) fundamentals? How would specific property types and geographic markets react? Which would be hit the hardest, and why?[1]

II. Multifamily: Coming From A Strong Base, But Hit Hard,

Multifamily has benefited from robust demand over the last decade, but will not escape unscathed from a protracted slump. Vacancies are projected to rise to 7.3% this year and top out at 7.7% in 2021. Asking and effective rents are expected to fall by 5.5% and 6.3%, respectively.

Figure 1. Protracted Slump Scenario: Multifamily Fundamentals



Source: Moody's Analytics REIS

Several markets will likely suffer relatively significant increases in vacancy, given the combination of three factors:

1. Historical reaction functions to recessions: There are no direct measures of household movements in and out of apartment units, but some markets tend to experience larger move-outs (prompting vacancies to spike and rents to fall, but at different magnitudes) during downturns. For example, as the analysis below will show, markets like New York and San Francisco tend to have relatively stable vacancy rates even during downturns, but the distress manifests more aggressively in negative effective rent growths.
2. The recent record of oversupply: With close to eleven years of consistently strong performance, developers have tended to favor multifamily. Some neighborhoods have registered large spikes in new construction over the last few years. For some submarkets, new construction has breached historic levels, based on the 40 years of data tracked by Moody's Analytics REIS.
3. The recent record of weak performance: A large amount of new supply coming online need not be an issue if occupancy rates hold steady. For some markets, however, recent historical performance does show that vacancy rates have begun to climb. This suggests that implicit demand has not kept up with inventory growth.

The top five markets that are likely to experience the most significant increase in vacancies in 2020 are listed in Table 1, alongside projected declines in effective rents. The change in vacancy (expressed in basis points) and effective rent declines are year-over-year figures, relative to year end-2019. The vacancy levels are projected year-end numbers given the *protracted slump* scenario.

1 All submarket- and MSA-level projections for the full suite of CRE fundamentals (construction, vacancy, net absorption, asking and effective rent growth) for both the moderate recession scenario (Moody's S3) and protracted slump scenario (Moody's S4) are available to Moody's Analytics REIS clients. On the REIS platform they are framed as Scenario Y-S1 (minor downturn) and Y-S2 (major downturn).

Table 1. Protracted Slump: Top Five Markets for Vacancy Increases in 2020

MSA	State	Year	Vacancy Change (bps)	Vacancy Level	Effective Rent Change
Tucson	AZ	2020	544	9.6%	-3.3%
New Orleans	LA	2020	488	9.2%	-3.5%
Greenville	SC	2020	462	11.1%	-4.8%
Charlotte	NC	2020	460	10.2%	-3.4%
Tacoma	WA	2020	442	7.3%	-4.4%

Note: Change variables are expressed year-over-year (year-end 2020 relative to year-end 2019). Level variables (vacancy) are expressed as of year-end 2020.

Source: Moody's Analytics REIS

As usual, the analysis needs to be nuanced. Where might stress points be concentrated? Where might countervailing factors actually alleviate distress?

Occupancies or Rents? The markets in Table 1 suggest weakening occupancies, but in some markets, the stress points manifest in rent declines. New York and San Francisco have tended to display relatively tight vacancies even through downturns, but higher volatility when it comes to rent declines. In a *protracted slump* scenario, New York vacancies are expected to rise by 200 basis points to 5.9%, but effective rents are projected to decline by 5.8%—a larger magnitude than any of the top five markets in Table 1. Similarly, San Francisco apartment vacancies are expected to rise by 'only' 260 basis points to 6.6%, but effective rents may fall by as much as 12.9%.[2]

Both occupancy and rent levels are the most important determinants of top-line revenue for CRE, so market players will need to monitor these variables carefully.

Countervailing Factors: The Effect of A Projected Decline in New Deliveries. Multifamily vacancies hit 8.1% in early 2009 during the Great Recession but are unlikely to reach that level in our projections under the *protracted slump* scenario, for two main reasons. First, multifamily vacancies have trended to near-record lows given how well the sector has performed over the last decade—we are starting off from a lower base in this cycle, relative to 2006 and 2007 when multifamily vacancies actually began rising as a response to the housing market bust. National vacancies were at 4.7% at the end of 2019, whereas we started the Great Recession with vacancies at 5.7%.

Second, the Moody's Analytics REIS forecast model incorporates countervailing effects like a decline in new construction as a response to the economic slowdown. In our baseline forecasts released last February 1, before the pandemic took hold, we have new deliveries in 2020 breaking the 300,000 unit mark, based on actual projects that have broken ground. That would have been the highest figure on record in twenty years.

2 Not surprisingly, New York and San Francisco are projected to be among the most at-risk geographic areas based solely on economic and demographic variables (apart from CRE fundamentals). See Cris DeRitis's presentation during the Moody's Analytics COVID-19 webinar from March 19, available upon request.

Figure 2. Baseline, Recession, and Slump: Multifamily Fundamentals

Source: Moody's Analytics REIS

In the *protracted slump scenario*, the figure for new construction falls to just over 156,000 units in 2020, about a 50% drop relative to baseline. One can argue that that figure should fall even more, but as these figures are based on properties that have already broken ground, developers and sources of finance tend to say "the train has left the station," and units will be delivered (even as projects are canceled or delayed). We already have early evidence that construction projects are grinding to a halt in places like Boston[3] (by decree, as of March 16) and Austin[4] (because of supply chain disruptions).

As a result, national vacancy rates for multifamily *still* rise by 300 basis points to 7.7% by 2021 under the *protracted slump* scenario. But the countervailing (positive) effect of a pullback in new construction is to constrain vacancies from rising even further.[5]

III. The Office Sector: Vacancies Rise to Historic Highs

The outlook for office properties is not as sanguine as for the multifamily sector. For one thing, national office fundamentals have been tepid throughout the past decade. Vacancy rates did not fall much: it peaked at 17.6% in 2010 and took a full six years to decline by 130 basis points to 16.3% in 2016. Vacancies have been rising for the last three years. Effective rent growth averaged only 2.6% from 2011 to 2019, breaking 3% only in years 2014 and 2015.

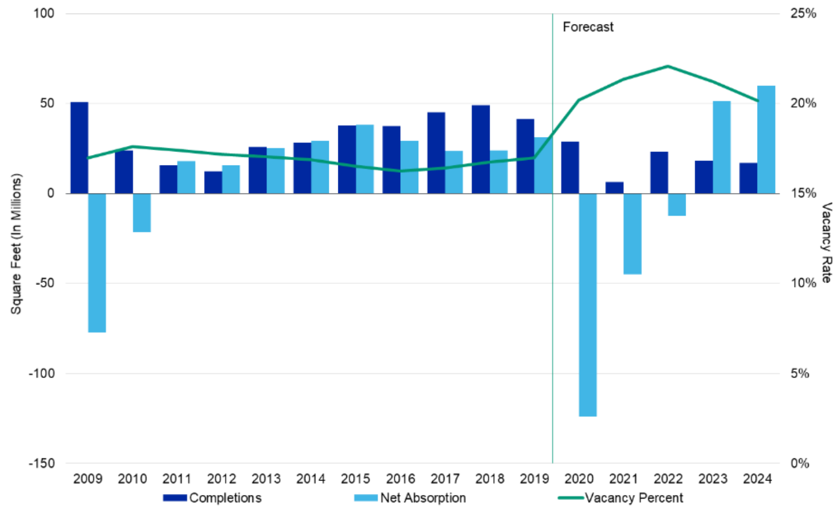
With lackluster fundamentals and a relatively high vacancy base, a protracted slump will push national office vacancies to rise by 320 basis points to 20.2% in 2020. There will likely be another 120-basis point increase in 2021 before vacancies begin declining. Asking and effective rent growth will be negative in both years, declining by 5.0% and 6.5% before turning (barely) positive in 2022.

3 https://www.bostonglobe.com/2020/03/16/business/walsh-orders-stop-construction-projects-boston/

4 https://www.bizjournals.com/austin/news/2020/03/16/worries-about-italian-marble-chinese-steel-how.html

5 Our model suggests that national vacancies would have risen to 9.2%—an historic high—had countervailing effects from supply growth reductions not been considered.

Figure 3. Protracted Slump Scenario: Office Fundamentals



Source: Moody's Analytics REIS

Which markets will be hit the hardest? Again, this depends on a variety of factors. For Texas markets, for example, we expect the ongoing geopolitical debacle (not directly related to COVID-19 but contributing to the overall turmoil) depressing oil prices to affect different markets in varying channels.

Table 2. Texas Markets and a Protracted Slump

MSA	State	Year	Vacancy Change (bps)	Vacancy Level	Effective Rent Change
Austin	TX	2020	372	16.7%	-5.7%
Dallas	TX	2020	348	26.2%	-3.8%
Houston	TX	2020	344	27.1%	-6.9%
Fort Worth	TX	2020	342	20.7%	-2.4%
San Antonio	TX	2020	336	19.3%	-1.9%

Note: Change variables are expressed year-over-year (year-end 2020 relative to year-end 2019). Level variables (vacancy) are expressed as of year-end 2020.

Source: Moody's Analytics REIS

Austin, for example, tops the chart in terms of vacancy increases, with vacancy spiking by over 370 basis points. But as it starts from a relatively lower vacancy rate, effective rents decline by a smaller amount (5.7%) relative to Houston (effective rent decline of 6.9%). Houston's vacancy rate is projected to be at over 28% by2021—still not out of historical relevant range, with a higher vacancy rate of 29.4% recorded in 1983.

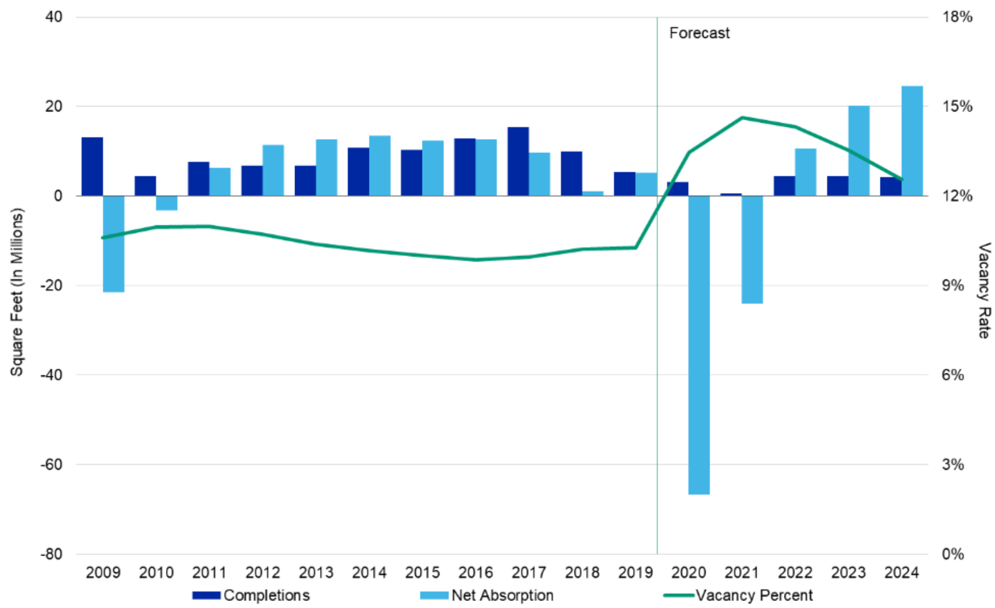
Tech markets in California will suffer based on their prior historical reaction functions and current economic conditions. Los Angeles vacancies will rise the most, spiking by over 340 basis points to 17.4% in 2020. Effective rents will likely fall by 3.5%. San Francisco, historically a high beta market (with respect to downturns), will have an almost equivalent increase in vacancies (330 basis points) to end 2020 at 12.2%, but its high volatility history will be reflected in effective rent declines on the order of 14.6%. San Jose effective rents also tend to be volatile, and will likely decline by 10.6% in this *protracted slump* scenario we are analyzing.

Are there larger scale changes afoot that might persist after the COVID-19 situation is resolved? How might demand for office space be impacted by the realization that it is feasible[6] to work remotely for an extended period of time? We will explore these possibilities in a future paper.

IV. The Retail Sector: Distress and Record Deterioration

The retail sector has fared even worse than the office sector over the last ten years. Neighborhood and community center vacancies rose to a historic high of 11.1% in the third quarter of 2011 and has barely declined—as of year-end 2019, vacancies stood at 10.2%. These factors do not augur well for brick and mortar retail establishments in the *protracted slump* scenario.

Figure 4. Protracted Slump Scenario: Retail Fundamentals



Source: Moody's Analytics REIS

For the protracted slump scenario, vacancies are forecasted to rise through 2021, ending at 14.6%. Asking and effective rents are expected to decline over 2020 and 2021 by a total of 5.2% and 7.0%. These are historical rates of deterioration for these retail CRE fundamentals, but are largely driven by a poor starting point for the sector as a whole.

6 But perhaps not optimal from a work productivity and personal preference point of view, if child care needs to be balanced alongside working from home.

Table 3. Top 10 Retail Markets for Effective Rent Declines

MSA	State	Year	Vacancy Change (bps)	Vacancy Level	Effective Rent Change
New Orleans	LA	2020	337	19.2%	-11.3%
Austin	TX	2020	324	10.6%	-9.8%
Sacramento	CA	2020	333	13.4%	-8.8%
Fort Worth	TX	2020	331	14.8%	-8.6%
Las Vegas	NV	2020	337	16.4%	-8.3%
Palm Beach	FL	2020	327	11.6%	-7.2%
Denver	CO	2020	329	12.2%	-6.9%
Orlando	FL	2020	333	12.6%	-6.8%
Richmond	VA	2020	331	15.6%	-6.7%
Jacksonville	FL	2020	334	14.4%	-6.4%

Note: Change variables are expressed year-over-year (year-end 2020 relative to year-end 2019). Level variables (vacancy) are expressed as of year-end 2020.

Source: Moody's Analytics REIS

Table 3 presents the ten retail markets with the largest projected effective rent declines for 2020, given the *protracted slump* scenario. Any major decline in economic activity will push CRE fundamentals to deteriorate, but often for different reasons based on the market. New Orleans, Sacramento, and Richmond are relatively smaller markets that cannot rely on large populations to sustain retail sales during a downturn. Las Vegas, along with Texas markets Austin and Fort Worth, bucked the national trend and built more retail properties in the last business cycle relative to comparable metros, so their pullback in rent growth is more supply-side driven.

Remember Countervailing Effects. A protracted slump that lasts through late 2021 will affect retail severely, but consider a relatively optimistic scenario: What if this is a relatively short-run disruption, with a credible treatment and vaccination option produced by later this year? If this is the case, then negative effects on specific retail establishments like freestanding restaurants might well be short-lived. Furthermore, what about the kind of sales figures that big-box discount volume retailers like Costco and BJ's will post in March through May if quarantine policies mandate that only groceries and pharmacies remain open to provide essential services?

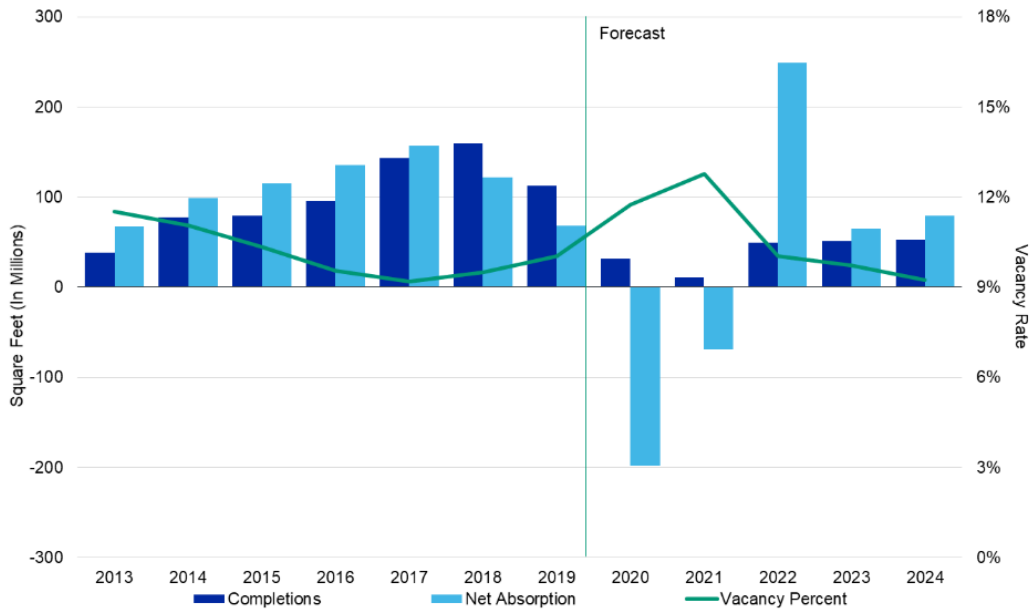
REIS's scenario forecasts focus on neighborhood and community shopping centers, given their relative weight in the retail landscape and in investor portfolios. But other retail types may well post strong results in the short run, considering the way policymakers and households are implementing social distancing policies. On the other hand, retail service establishments like bars and restaurants that are forced to shut down are likely to take a massive hit if lockdowns are prolonged. If fiscal stimulus policies mandate rent relief for beleaguered tenants to prevent layoffs and evictions, the pain is shifted to retail landlords. Large REITs might have the resources to bear the responsibility of rent relief, but what about small landlords? This is the choice that retail real estate owners and operators now face: rent relief today and a hit to short-run revenue, or evictions in three months, rising vacancies, and medium- to long-term losses in income.

Consider also *cross-sector countervailing effects:* Even as retailers struggle in this environment, lockdown policies (however temporary) are likely to boost online orders in the immediate term. That suggests benefits for some retailers like Amazon, and potential increased demand for warehouse/distribution space. But as we will see in the next section, the benefits to warehouse/distribution may be limited.

V. The Industrial Sector: Supply Growth is the Risk

Buoyed by the long economic expansion and the rise of e-commerce, industrial markets have performed well over the last five years—particularly the warehouse/distribution subsector. Despite having built over 550 million square feet of new warehouse and distribution space from 2015 to 2019, national vacancies kept declining, from above 11% to as low as 9% in 2017. The last couple of years, however, have shown vacancies inching upwards, ending 2019 at 9.9%.

Figure 5. Protracted Slump Scenario: Industrial Fundamentals



Source: Moody's Analytics REIS

A protracted slump scenario will hit warehouse/distribution hard, given the robust supply growth that the sector as a whole has been experiencing. Vacancies are projected to rise to 11.8% by the end of this year, and continue spiking to 12.8% by the end of 2021. Asking and effective rents will decline by a total of 3.5% and 6.0% over the course of 2020 and 2021, which is slightly less severe than the last cycle. Warehouse/distribution distress will center around occupancies, but asking and effective rents will be hit less hard, given that the relatively strong demand for this property type will likely bounce back once the world's supply chains reopen.

Table 4. High Inventory Growth Warehouse/Distribution Markets

MSA	State	Year	Inventory Growth	Vacancy Change (bps)	Vacancy Level	Effective Rent Change
San Bernardino/ Riverside	CA	2020	19.4%	327	12.5%	-4.4%
Dallas	TX	2020	17.1%	329	15.3%	-4.4%
Kansas City	MO	2020	15.5%	325	12.3%	-4.9%
Orlando	FL	2020	13.7%	331	14.9%	-4.7%
Fort Worth	TX	2020	12.6%	327	14.2%	-6.1%

Note: Change variables are expressed year-over-year (year-end 2020 relative to year-end 2019). Level variables (vacancy) are expressed as of year-end 2020.

Source: Moody's Analytics REIS

Table 4 presents a sample of five warehouse/distribution markets with some of the highest inventory growth figures over the last five years. San Bernardino tops the list because of its port facilities, but it is also likely to suffer from a 327-basis point increase in vacancies and effective rent declines of 4.4%. Fort Worth starts off from a lower vacancy base, but will take a larger hit by way of negative effective rents because of the market's historically high volatility during downturns.

But What About Amazon? A short run boost in online orders driven by lockdown policies has already prompted Amazon to hire additional workers—the *Wall Street Journal* article reports that the figure could be up to 100,000—to staff functions in warehouses and delivery.[7] This will be a short-term boost for warehouse/distribution, but will not be fully captured in forecasts for market rate properties, since Amazon owns many of their warehouse facilities. Further, the bulk of staff may be for delivery personnel: a function which has not yet been automated in ways that warehouse logistics have been.

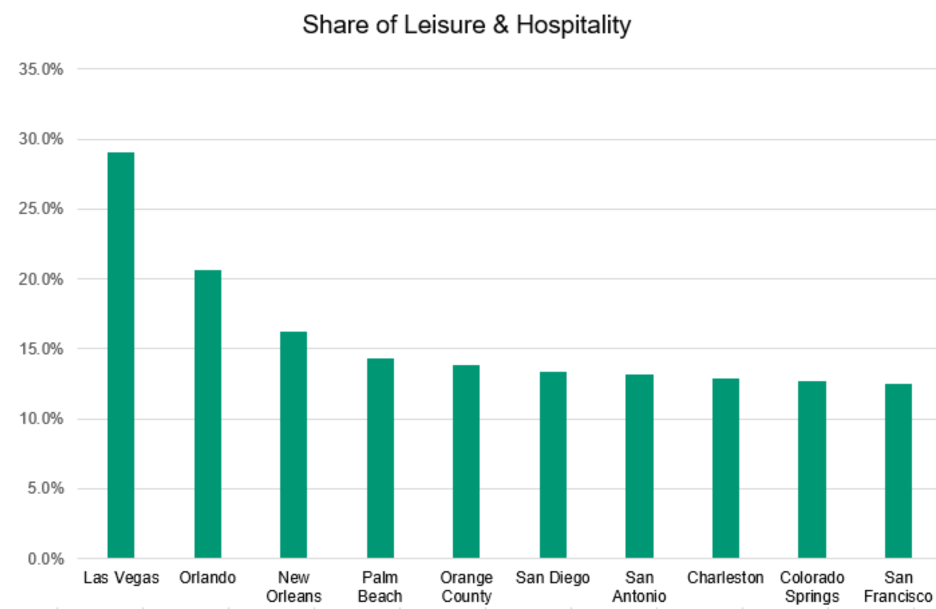
7 https://www.wsj.com/articles/amazon-to-hire-100-000-warehouse-and-delivery-workers-amid-coronavirus-shutdowns-11584387833

VI. Other Property Types

Moody's Analytics REIS does not generate submarket-specific scenarios for property types outside of apartment, office, retail, and industrial, though we have performed custom analysis for clients upon request. In lieu of specific forecasts, we offer some analysis in this section on how a protracted slump will affect other property types.

Hospitality. The property type with shortest leases (one day) is widely expected to suffer major distress even in the short run, given the pullback in both business and personal travel. Markets that are more heavily dependent on the leisure and hospitality sector are therefore more vulnerable.

Figure 6. Markets with a High Share of Leisure/Hospitality Employment



Source: Moody's Analytics

Still, depending on "early warning metrics" being evaluated, the economic shock to rents and occupancies tends to take some time before it flows through to measures like defaults and delinquencies. "Pain in fundamentals will reveal (and has revealed) itself quickly in terms of an immediate shock to hotel revenues, but it takes time for that to manifest into defaults," said Kevin Fagan, Director of CMBS and CRE Research for Moody's Investor Group. "Post-Lehman Brothers in late 2008, it took about seven to eight months before the distress really showed up in CMBS loan defaults. Borrowers have to burn through liquidity and/or perceive that the 'put option' fee of fixed costs and debt service is too high to continue to hold the property."

Self-Storage. This property type has been struggling with an oversupply issue for at least three years. Its occupancy rate of 85.4% at the end of 2019 was its weakest in seven years. As such, it is in a uniquely vulnerable position if the COVID-19 situation ends up in a protracted slump.

A recent *Wall Street Journal* article suggested that investors were flocking to Self-Storage REITs as a safe haven, given the spread of the coronavirus.[8] This seems counterintuitive, given our assessment of overall market weakness. However, this likely underscores the difference between some REITs, whose properties are outperforming market averages, and the relative fragility of the sector as a whole (given that REIS also covers LOC[9] facilities that tend to be smaller than REIT holdings).

8 https://www.wsj.com/articles/investors-flock-to-self-storage-rental-housing-as-safety-plays-11583780432

9 "Large Owners Council": a subgroup monitored by the Self-Storage Association, and composed of self-storage owners and operators with ten or more facilities, and at least 1 million rentable square feet.

Senior Housing. This is the property type that houses that slice of the population that has been identified to be at highest risk, given COVID-19. As such, state governments like Andrew Cuomo's in New York have deployed resources to keep senior citizens in coronavirus clusters safe.[10] Vacancy rates for senior housing facilities had, in any case, been rising slowly over the last two years (hitting 9.9% at the end of 2019). Until the coronavirus issue is settled, expect a chilling effect on demand for senior housing facilities, particularly if this turns into a protracted economic slump.

Student Housing. Fundamentals have been relatively tight for student housing properties, with vacancy rates for properties that rent by the bed at 4.3% and properties that rent by the unit at 2.3% when the current academic year began in fall 2019.

However, with universities calling off classes for the immediate future, and likely through the end of the semester, this calls into question the kind of rent revenue that student housing operators can expect to collect for the remainder of the academic year. There has been no explicit discussion of relief for student housing operators even as campus populations empty out and prepare for distance learning through the immediate future. On campus housing tends to be billed through tuition, but some universities have already begun refunding fees to parents: will they claw back rents paid to private on-campus housing operators? Will households break lease agreements with off-campus private developers?

There is also a large amount of new Student Housing facilities in the development pipeline. REIS estimates that inventory growth for properties that rent by the Bed will be 4.0% through Fall 2020, for example. Pre-leasing over July and August is an important factor in determining the financial viability of these new construction projects. If the COVID-19 situation extends through the Summer and Fall, this will put all new developments at risk.

If these effects linger in some form even as the coronavirus issue is contained, it will be a net negative for student housing fundamentals.

Affordable Housing. Affordability was the regulatory issue of the day prior to the coronavirus outbreak, with four states issuing various forms of rent regulation to preserve the supply of affordable housing units in specific places. All that has taken a backseat to the policy response required to contain the spread of COVID-19.

It is highly likely that affordable housing will still be in great demand once the COVID-19 situation is resolved, particularly given how household incomes may suffer if the economy does lapse into a recession. There might actually be a temporary pause in calls for stricter rent regulation over the next 18 to 36 months, if a protracted economic slump follows: rents (and home prices) will fall. But expect fundamentals like rents and vacancies for affordable housing subtypes like LIHTC or Section 8 housing to remain generally tight, following a period of distress as a recessionary scenario works its way through all asset classes.

10 https://www.npr.org/2020/03/14/815510984/the-struggle-to-keep-vulnerable-seniors-safe-in-a-large-coronavirus-cluster

VII. Summary and Conclusions

This will likely be one of the most severe recessions in US history.[11]. It is within the realm of possibility that the abrupt slowdown in economic activity from US citizens "hitting the pause button" with social distancing is reversed rapidly, once a credible treatment and vaccination protocol is made widely available. This paper speculates on the (equally likely?) possibility that the downturn will be more prolonged, and devolve into a protracted economic slump. Risk managers who need to battle-test their portfolios will need detailed guidance on how bad things can get, for major drivers of revenue like rents and occupancies.

Fortunately, stress tests conducted by the US Federal Reserve and other regulators since the Great Recession should have given financial institutions the kind of tools required to weather a severe economic shock. Various levels of our central bank and government systems have also responded relatively quickly to calls for support for liquidity, credit, and fiscal health.

However, what if effects of social distancing and lockdown policies remain over the long run, even as the COVID-19 pandemic is resolved? Economists refer to this as *hysteresis:* a condition where effects remain even as the cause is removed. What if border restrictions change patterns of business and personal travel, and how would that impact the hospitality sector? Will demand for office space be fundamentally disrupted if remote working policies are adopted on a broader and more frequent scale? How should we think about the entire value proposition of co-location—for some economists, the very basis for why cities even exist—in the face of possible future pandemics and the policy response?

As the situation continues to evolve on a daily basis, Moody's Analytics REIS will continue to monitor the effect of the coronavirus crisis on CRE fundamentals, and update our projections and analysis accordingly. In a forthcoming paper, we will present our assessment of future possibilities, and speculate on characteristics of winners and losers, given the brave new landscape of a post-COVID-19 world.

11 JP Morgan Chase's economic research unit called a recession on March 13 (https://www.institutionalinvestor.com/article/b1kr36qzhr9yp7/JPMorgan-Warns-of-Novel-Recession-as-Economic-Activity-Shuts-Off).