

ANALYSIS

APRIL 3, 2020

Author

Victor Calanog PhD
Thomas LaSalvia PhD

Contact Us

Americas
+1.212.901.1932
info@reis.com

The COVID-19 Pandemic and the Retail Debacle

A Grim Near Term and an Uncertain Future

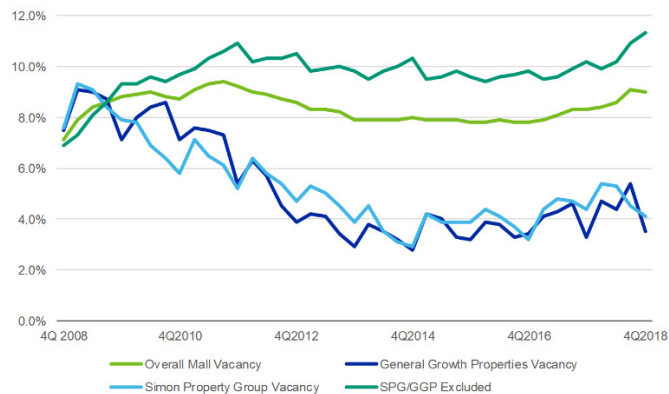
Abstract | Executive Summary

Retail properties face an extremely grim second quarter for 2020 due to the COVID-19 pandemic and store closures. The US economy is projected to shrink at an unprecedented rate in the second quarter, and the prospects for a quick recovery are uncertain. There are some provisions from the CARES Act that support rent payments for small businesses, but it will be a challenge to ensure that significant disbursements come in time before April rent payments come due. All of the pressures that prompted retail to evolve, from online commerce to demographic change, will likely increase in the post-COVID-19 world.

Introduction

On March 18, 2020, Simon Property Group (SPG) announced that it would close over 200 enclosed malls and factory outlets that it owned and operated. The drop-off in foot traffic was evident, and SPG likely anticipated government mandates to shut down non-essential services. SPG is better positioned to weather the COVID-19 pandemic, relative to other retail operators. Two days before the closure announcement, SPG finalized a \$6 billion revolving credit facility and term loan agreements with its lenders.¹ Its mall properties also entered the downturn in a far healthier state, with vacancies hovering in the mid- to low-4s even as the mall sector as a whole hit vacancy rates of 9.7% at the end of 2019.

Figure 1 SPG/GGP vs Overall Sector Mall Vacancies

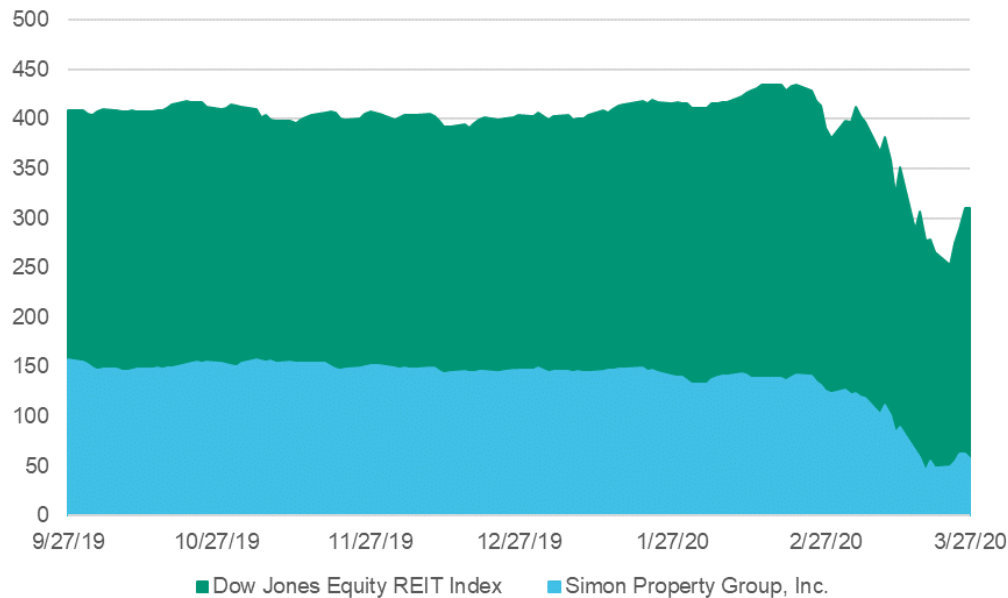


Source: Moody's Analytics REIS

¹ <https://www.nasdaq.com/articles/simon-shows-its-strength-in-the-time-of-coronavirus-2020-03-30>

Market sentiment, however, seems to be wondering whether all of these measures will be enough. SPG's stock price has fallen by over 70% (as of April 3), relative to its 2020 high from early January. By contrast, the Dow Jones All Equity REIT Index has fallen by 33.5% since its 2020 high from mid-February, roughly tracking the losses of the Dow Jones Industrial Average.

Figure 2 Stock Prices: DJ All Equity REIT Index & SPG (6Mos)



Source: Finance portals (Yahoo/Google)

SPG has yet to reopen its stores. It had initially planned to reopen on March 29, but social distancing mandates from various levels of government extended at least through the end of April have prevented the firm from doing so.

Retail properties, relative to other income-generating real assets, are particularly vulnerable given the COVID-19 pandemic. Some properties with groceries and pharmacies as anchor tenants may fare better than others, but any retail property with tenants deemed as providing non-essential services are now at risk of space going dark and rent revenue being lost. This will have systemic knock-on effects that we will discuss in the next section, the most immediate being that retailers have begun putting people on furlough. On Monday, March 30, SPG announced that it was putting 30% of its employees on furlough.² Macy's followed on Tuesday, March 31, announcing that they will be putting the majority of the company's 130,000 employees on furlough.³ Outright layoffs have happened and will continue to happen, prompting the unemployment rate to rise. Accompanying large job losses will be a contraction in consumer spending—putting pressure on retailer revenues as the cycle repeats itself.

This paper will explore the challenges that the retail property type will face in the near term, and speculate on its future, post-coronavirus.

The Near Term Outlook for Retail

Consumer Confidence is Key, and Initial Jobless Claims Signal a Grim Second Quarter

Two important indicators were released on March 26, both of which suggested that the second quarter will be challenging for retail sales. Final figures for the University of Michigan's index indicated a decline of 11.9 points in March. This represents the fourth largest monthly decline in the index's fifty-year history.⁴ The initial jobless claims figure of 3.28 million, representing people who applied for unemployment benefits through the week of March 21, is almost five times the previous record from 1982.

² <https://www.thestreet.com/investing/simon-property-group-furloughs-30-percent-of-employees>

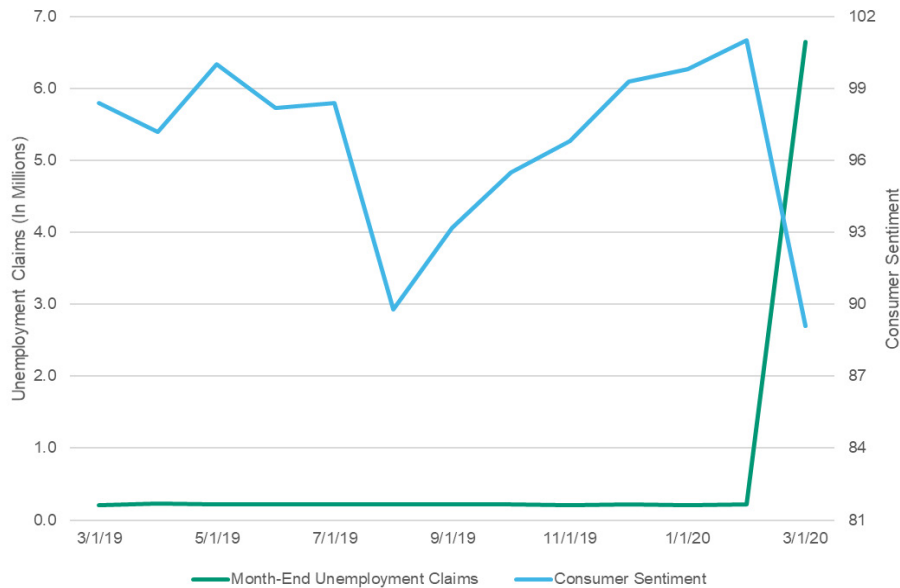
³ <https://www.cnn.com/2020/03/30/investing/macys-employees-furlough-coronavirus/index.html>

⁴ The largest monthly decline was 12.7 points in October 2008, as a response to the deepening recession and the collapse of Lehman Brothers. There were two instances of 12.2 point declines, as a response to the 1980 recession and to Hurricane Katrina in 2005.

Estimates of how far the unemployment rate could soar range as high as 20% to 32%, with the upper bound exceeding the historic high of 25% from the Great Depression.⁵

How likely is it that the unemployment rate will exceed historic highs? Consider the announcement of initial jobless claims of 6.65 million, released on April 2. This figure exceeds the previous historic high released last week by a factor of two. The CARES Act, signed last March 27, allowed sole proprietors to file unemployment claims, which likely contributed to the recent spike. However, this larger base of eligible claimants for unemployment benefits also suggests that the upward trend in initial jobless claims is not yet over. Over the month of March alone, we have broken historic highs (jobless claims) and lows (Treasury rates) for several economic variables. We cannot rule out forecasts that suggest more records will be shattered.

Figure 3 Consumer Confidence and Initial Jobless Claims



Source: FRED/St Louis Federal Reserve; University of Michigan Consumer Sentiment Survey

Even if this turns out to be a short-run disruption confined to the second quarter, there is still much uncertainty about what happens next. Federal coronavirus guidelines have been extended through April 30, and the mechanics and timings of getting the US economy restarted are in limbo. China’s recent efforts to restart the Wuhan manufacturing hub have been met with implementation difficulties⁶, suggesting that optimistic projections for third and fourth quarter GDP growth should perhaps be tempered.

Retail on the Ropes

The retail property sector was not in a position of strength prior to the coronavirus outbreak. For the remainder of this paper, we will focus the analysis on neighborhood and community shopping centers. Located mostly in suburban areas, many of these shopping centers tend to have groceries and pharmacies as anchor tenants. Therefore, in the age of COVID-19, these retail property types are poised to actually perform *better* than other retail property types which have tenants like restaurants or movie theaters that are likely deemed “non-essential.” Our projections for neighborhood and community centers may therefore have to be adjusted *negatively* for other retail subsectors.

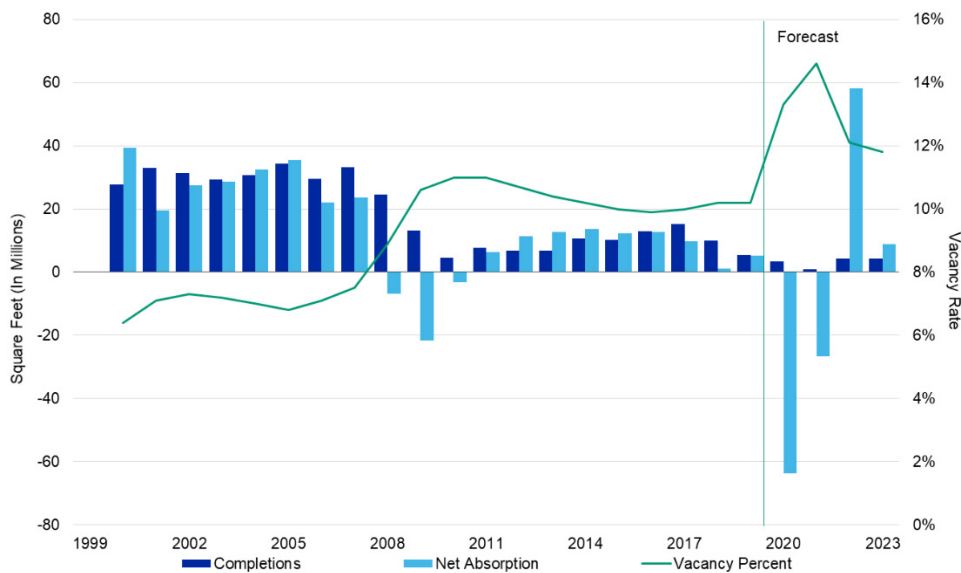
⁵ In early March, St Louis Federal Reserve President James Bullard noted that the unemployment rate could hit 30%. On March 27, St Louis Fed economist Miguel Faria-e-Castro published a paper using a formal model that estimated that the unemployment rate would hit 20%. <https://research.stlouisfed.org/publications/economic-synopses/2020/03/27/fiscal-policy-and-covid-19-insights-from-a-quantitative-model>. But on March 30, Mr Faria-e-Castro published a blog post that speculated that the unemployment rate could hit 32.1%, in the absence of government support. If the figures extend from 20% to 32.1%, however, the entire range is worrisome. The lower bound of 20% is double that of the 2008-2009 recession’s peak unemployment rate of 10%.

⁶ <https://www.economist.com/china/2020/03/26/china-goes-back-to-work>

The recovery of neighborhood and community shopping centers proceeded at a slow pace after the Great Recession of 2009, compounded by two factors:

1. Robust supply growth from 2002 to 2007 piggybacked off a strong housing market (new subdivisions were usually built with a shopping center component). When the housing market collapsed in 2006, retail was burdened by plentiful supply. Vacancies rose to a record high of 11% by 2011 and then declined at a grindingly slow rate, bottoming out at 9.9% in 2016. This rate has actually been on the rise since then, ending 2019 at 10.2%.
2. The rise of online commerce as a substitute for brick and mortar shopping meant depressing demand for physical retail space. Many articles have been written about this phenomenon, but the coronavirus outbreak (as we will discuss later) may well hasten the shift of retailers away from dense physical retail where people congregate to online ordering and delivery options. Average annual effective rent growth of 2.7% from 2000 to 2007 dropped by more than 100 basis points for the period 2012 to 2019, to 1.6%.

Figure 4 Retail Construction, Net Absorption, and Vacancies (2000-2023)



Source: Moody's Analytics REIS

Our worst case projection for the retail sector in the wake of the COVID-19 pandemic⁷ is for vacancies to rise past historic highs, ending 2021 at 14.6%. Asking and effective rents at the national level are projected to decline by 2.7% and 4.4%, respectively, in 2020; and by another 1.2% and 2.0% in 2021, given our *Protracted Slump* scenario where US GDP continues to contract through the third quarter of 2021. By comparison, asking and effective rents fell by 1.8% and 3.5%, respectively, in 2009; and declined by another 0.7% and 1.4% in 2010. On the rent growth side, we are projecting the retail sector to suffer by *more* than it did during the Great Recession, but precisely because other indicators like vacancies will also likely breach historic highs.

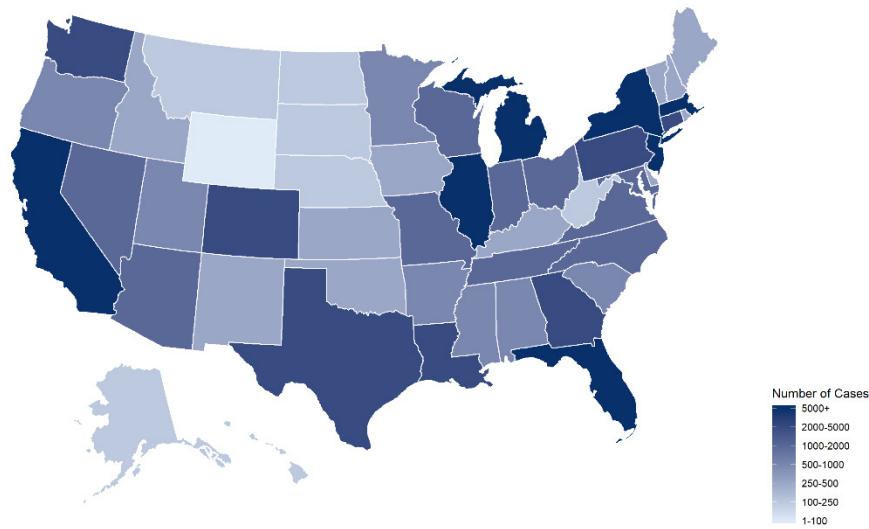
Econometric models tend to follow mean reversion. However, given the current situation, models need to account for relatively weak starting points prior to the outbreak *and* possibly historic levels of stress for key drivers like consumer sentiment and the unemployment rate.

Case Study: California, and Sacramento

Concentration risk is apparent when considering the spread of COVID-19. Of the 213,144 cases of COVID-19 identified by the US Centers for Disease Control and Prevention as of April 3, 2020, more than 60% are in the states of New York, New Jersey, Michigan, California, and Massachusetts.

⁷ We go into detail about our approach to scenario forecasting in this paper: "How Bad Can It Get? COVID-19 and the Outlook for CRE" (published March 19, 2020). Available upon request.

Figure 5 Number of Confirmed COVID-19 Cases by State



Source: US Center for Disease Control and Prevention, April 3, 2020

Consider the case of California, which has been on the list of top five states for COVID-19 cases from the onset of the outbreak. Which markets will likely be hit hardest by the current economic downturn?

Table 1 provides a list of major retail markets in California, ranked in order of the largest projected spikes in vacancies for 2020 given a *Protracted Slump* scenario. The case of Sacramento is illustrative: the metro area did not fare well in the Great Recession or the subsequent recovery. Effective rents fell by 5.7% in 2008, and another 7.4% in 2009, continuing to slide for three more years before stabilizing. Vacancies never dipped below 10.1% (circa end-2019)—double that of its starting point in 2005 and 2006 of around 5%, before the onset of the housing market crash. With that kind of weak start, Sacramento is projected to have the worst performance for *both* vacancy and rent growth in 2020, across major retail markets in California.

Table 1 California Retail Fundamentals (Protracted Slump Scenario, 2020)

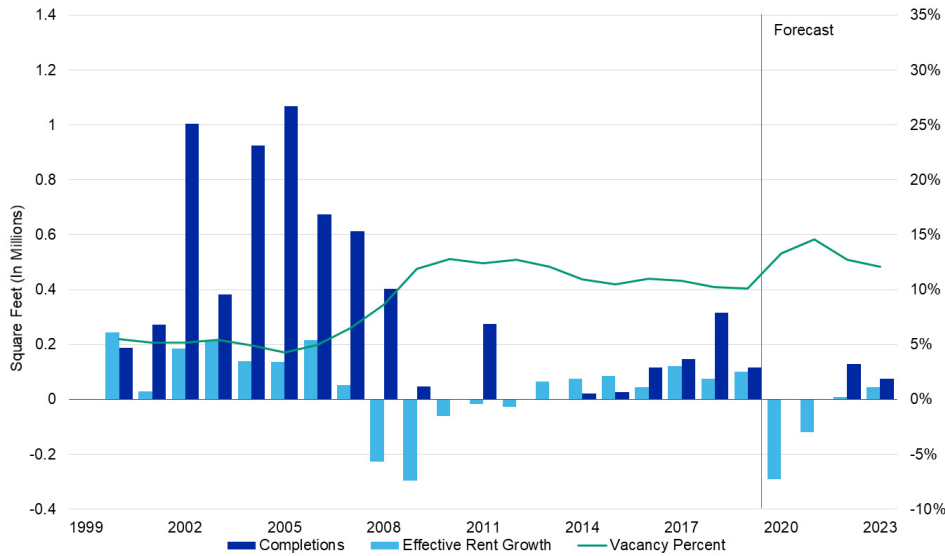
MSA	STATE	YEAR	VACANCY	VACANCY CHANGE - BPS	EFFECTIVE RENT CHANGE
Sacramento	CA	2020	13.28%	319	-7.33%
San Jose	CA	2020	8.67%	317	-4.70%
Los Angeles	CA	2020	10.51%	317	-4.74%
San Bernardino/Riverside	CA	2020	13.07%	317	-5.43%
Ventura County	CA	2020	11.81%	316	-4.34%
San Diego	CA	2020	9.06%	316	-3.19%
Orange County	CA	2020	8.89%	316	-4.72%
Oakland-East Bay	CA	2020	11.17%	315	-4.58%
San Francisco	CA	2020	7.32%	313	-3.43%

Source: Moody's Analytics REIS

Figure 6 provides completions, vacancy, and effective rent change data from 2000 to 2023 for Sacramento. It is important to note the kind of *nuanced analysis* one needs to perform for both demand- and supply-side factors. Prior to the Great Recession, retail fundamentals looked great in Sacramento. Inventory grew by 23% relative to 2000 levels, with close to 5 million square feet of new neighborhood and community shopping space coming online from 2001 to 2007. Demand outstripped strong supply growth, with vacancies falling by 120 basis points over five years: from 5.5% in 2000 to a low of 4.3% in 2005, right before the housing market crashed in 2006.

Sacramento retail vacancies then spiked to a high of 12.8% in 2010 during the Great Recession, and suffered five straight years of effective rent declines from 2008 to 2012. Vacancies never recovered previous lows from the mid-2000s, stuck at 10.1% at the end of 2019.

Figure 6 Sacramento Retail (2000 to 2023)



Source: Moody's Analytics REIS

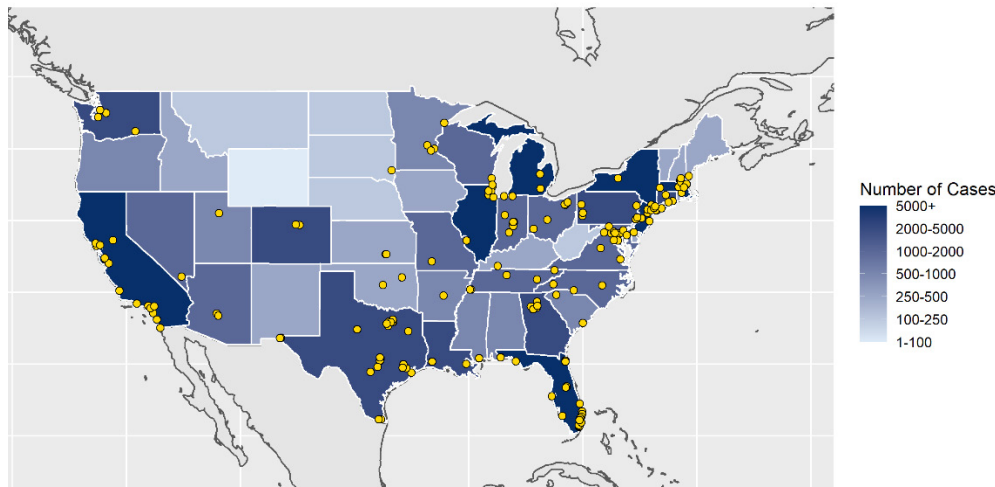
Given Sacramento retail's relatively weak state entering 2020, it is no surprise that we are projecting vacancies to spike to a historic high of 14.6% by 2021 in our worst case scenario. But note how effective rents are "only" projected to decline for two years: by 7.3% in 2020, and another 3% in 2021. As a whole, effective rents are projected to decline by 10%, which is a big number—but not as large as the 15% decline from 2007 to 2012. In other words, Sacramento retail is poised to take a large hit on the *occupancy* side, but rent growth will likely fare *better* than during the Great Recession.

Why this relatively sanguine view for effective rent growth? The supply-side pullback was truly severe after the Great Recession. Sacramento added close to 5 million square feet of new retail supply over seven years, from 2001 to 2007. But it added less than 20% of that figure for the seven years spanning 2013 to 2019. In other words, though Sacramento is projected to suffer from a severe hit on the demand side in the worst case scenario, at least it does not have to contend with a supply glut that would have exacerbated the problem.

The SPG Situation: Geographic Concentration Matters

Though the coronavirus crisis is global in scope, relative concentration across states and counties mean that some SPG properties face relatively greater risks of longer shutdowns and recovery times. Figure 7 locates where SPG properties are situated, relative to identified cases of COVID-19 by state.

Figure 7 SPG Properties and COVID-19 Cases, by State



Sources: US Center for Disease Control and Prevention, April 1, 2020; Moody's Analytics REIS

Table 2 shows a selection of the top states in the United States ranked by number of COVID-19 cases (as of April 3, 2020) where there are SPG properties. These eight states have COVID-19 cases that add up to close to 70% of the national total. They contain about a third of all SPG properties around the country. These are the states where social distancing policies may delay reopening, impacting when SPG can reopen its properties.

Table 2 Top States by COVID-19 Cases, with SPG Properties

STATE	NUMBER OF CONFIRMED COVID-19 CASES	COUNT OF SPG PROPERTIES
New York	84735	9
New Jersey	22255	6
Michigan	9334	2
California	8155	15
Massachusetts	7738	8
Florida	7495	23
Illinois	6980	5
% of total	68.8%	32.9%

Sources: US Center for Disease Control and Prevention, April 3; Moody's Analytics REIS

Similarly, Table 3 shows the top five counties ranked by COVID-19 counts, and where there are SPG properties. In relative terms, it appears that the four SPG properties located in Westchester County, New York are at greater risk of delayed re-openings. Shelter-in-place decisions are typically not made at the county level (California is an exception), so the state level analysis may be more appropriate, but many uncertainties remain. Are COVID-19 cases low in some places because of lack of testing, or because they are in the earlier phases of the infection spreading, relative to other places?

Table 3 Counties by COVID-19 Counts and SPG Properties

COUNTIES	NUMBER OF CONFIRMED COVID-19 CASES	COUNT OF SPG PROPERTIES
Westchester, New York	9326	4
Miami-Dade, Florida	1632	4
Broward, Florida	1152	5
Santa Clara, California	848	3
Marion, Indiana	804	6

Sources: US Center for Disease Control and Prevention, April 2; Moody's Analytics REIS

As the coronavirus situation evolves, these rankings are likely to change, for states, counties, and other geographic divisions. What will remain important is access to sound data and analytics so that policymakers, business leaders, and households can make good decisions.

Issues on the Front Line: Tenants Versus Landlords

The front line issues created by the COVID-19 challenge center around rent payments for retail tenants; how landlords are dealing with closures; and whether there will be government support for the sector.

First quarter 2020 figures are likely to show little or no distress, but April will be key. As we end the first quarter of 2020, it is unlikely that direct measures of rents and vacancies will show distress. The pandemic kicked into high gear in the United States in early March. Moody's Analytics REIS has been collecting data daily for retail properties but current information suggests that the brunt of the stress will happen when April rent payments come due.

What are retailers supposed to do when they are mandated by the government to close? Some large retailers have in fact taken preemptive measures even before shelter-in-place regulations are imposed,⁸ to do their part to protect their employees and customers and prevent the spread of the virus. But with closed storefronts comes the lack of ability to pay rent, particularly for smaller retailers like restaurants that may have functioned with thin margins.⁹

Will landlords then take the losses and allow tenants to stop paying rent? Taubman Centers has formally announced that it expects tenants to keep paying rent.¹⁰ Retail landlords of course have their own obligations to meet, like paying lenders for mortgages, and payroll and utilities expenses.

In a recent survey completed by the National Association of Real Estate Investment Managers, 85% of investment managers with a retail footprint have already received some form of request for rent relief.¹¹ "Many retailers are going to ask for what is now being called a 'rent holiday,'" said John Busi, President of Valuation and Advisory for Newmark Knight Frank. "Landlords, who are going to be responsible for bearing the brunt of the costs of a so-called rent holiday, will resist."

Force Majeure? Legal Recourse, and Government Support. If landlords elect to employ legal means to pursue tenants who have defaulted on rent payments, tenants will present counterarguments based on *force majeure*—the inability of tenants to pay rent and meet other obligations because of circumstances beyond their control. However, while some force majeure clauses cover events like earthquakes and hurricanes, there is some confusion as to whether it covers viral pandemics like COVID-19. And some states like New York and Florida actually still require rent payments even despite force majeure situations, arguing that economic hardship alone does not qualify one party for relief.¹²

What about the CARES Act passed by the government last Friday, March 27?¹³ Of the \$2 trillion earmarked for supporting institutions and people across the US, the most direct provision that applies to retail real estate is the \$350 billion allocated for small business loan guarantees. Rent payments are included in the acceptable use of loans, along with payroll support (such as employee salaries, paid sick or medical leave), insurance premiums, and mortgage, and utility payments. This provision offers some relief, but is limited to businesses with 500 employees or less and will cover only up to \$10 million (with loan size tied to payroll costs incurred by the business). Larger landlords will not be able to avail themselves of this support.

Furthermore, there remains the problem of immediacy versus the reality of effective implementation. Rent payments due on April 1 typically have a one-week grace period. It will be a daunting challenge for the Small Business Administration to process loan applications in time for the majority of eligible small businesses to make rent payments by April 8. The Treasury Department states that loans applications can be received and approved by Friday, April 3. In practice, will this mean that funds are *disbursed* on April 3? Even if disbursements occur by April 3, will they be of sufficient volume and magnitude?

⁸ <https://www.businessinsider.com/13-retailers-announce-temporarily-store-closures-to-fight-coronavirus-2020-3>

⁹ Even larger restaurant chains like the Cheesecake Factory have announced that they plan to stop paying rent, at least for the month of April: <https://www.cnn.com/2020/03/26/business/cheesecake-factory-april-rent-coronavirus/index.html>

¹⁰ <https://www.cnbc.com/2020/03/29/coronavirus-mall-owner-taubman-is-telling-tenants-they-must-pay-rent.html>

¹¹ <https://www.nareim.org/final-content/Two-thirds-of-managers-are-providing-rent-relief-to-tenants-Retail-and-office-worst-affected>

¹² <https://www.akerman.com/en/perspectives/covid-19-impact-on-commercial-leases-and-implications-of-various-state-laws.html>

¹³ Full text available here: <https://www.congress.gov/bill/116th-congress/senate-bill/3548/text>

As data flow in over the next few weeks about how retail fundamentals are performing, economic scenarios and future projections will be adjusted accordingly.

The Future of Retail

It is easy to speculate on how bad the short term will be for retail properties around the nation. With the exception of retailers like groceries and pharmacies, with services deemed essential; discount volume players like BJ's and Costco which have had to ration items like toilet paper; and online giants like Amazon, most retail activities are in limbo, with attendant negative effects for retail properties around the nation. What will the future be like for the retail property sector? There are at least three trends that may occur, post-COVID-19.

1. **Online Channels Will Become Even More Important.** If they have not done so already, retailers will acknowledge the need to diversify away from brick and mortar, and accelerate their plans to sell their products and services through online channels. This will likely hold true across the spectrum, not just for consumer products and durable goods. Last week, for example, the horological giant Patek Philippe, whose watches retail for a minimum of \$20,000, began offering some models for sale online via a select group of authorized dealers.¹⁴ The firm, which celebrated 180 years of business last year, had previously refused to sell any of their products online—but the COVID-19 crisis has forced their hand.
2. **The Pressure on Brick and Mortar Will Be Even More Intense.** This follows naturally from the first point above. Simon Property Group, which operates mall properties that perform better than the market average, may survive the current debacle, but it will have to think even more carefully about which malls and outlet stores ought to remain part of their portfolio, once battles about rent payments and defaults are settled with the tenants that survive. Macy's has already begun to pursue a retail reformatting strategy, building smaller "experiential" stores dispersed in off-mall properties like lifestyle centers, even as it plans to close 125 mall locations.¹⁵ The COVID-19 pandemic will just accelerate plans like these.

All retail landlords will now have to revisit their force majeure clauses before new leases are signed, to ensure that future pandemic situations are covered. The most discerning retail property managers will think carefully about which businesses are likely to withstand any future shelter-in-place mandates, and try to manage their tenant portfolio accordingly.

3. **Dense Urban Areas May Fall Out of Favor.** If retail destinations favored co-location, benefiting from an agglomeration of households that can support sales, then any post-COVID-19 trend that prompts households to shy away from concentrated urban areas will influence how the retail landscape evolves. New York City, the current epicenter of the COVID-19 crisis in the United States, might endure a permanent demand shock if tourism levels do not climb back up to previous volumes, and if there is a sustained outflow of households preferring suburban areas that are less dense. If this demand shock persists, high rent levels commanded by Fifth Avenue storefronts may become a thing of the past as well.¹⁶

The worst predictions about brick and mortar retail will likely not come true: the United States will not demolish all of its retail locations, nor will it shift to purely online commerce. There are many essential products and services that still require a physical visit to stores. Consider how gasoline is typically purchased and delivered to automobiles: Despite the increasing popularity of Tesla and electric cars, gasoline and automobile purchases still make up 28% of total retail spending.¹⁷ We have yet to see technology allowing drones to deliver gasoline into people's cars parked in their homes. Tesla cars can be ordered online, but they still make up a small proportion of total auto industry sales.

¹⁴ <https://usa.watchpro.com/exclusive-patek-philippe-lets-authorized-dealers-sell-online/>

¹⁵ <https://www.businessinsider.com/macys-new-store-not-in-mall-photos-2020-2>

¹⁶ We explore the potential effect of COVID-19 and household movements and demographic change in this paper: "Idiosyncratic Shocks and Multifamily Housing: Covid-19 and What We Can Learn from Earthquakes, Hurricanes, and Terrorism" (March 26, 2020). Available upon request.

¹⁷ https://www.census.gov/retail/marts/www/marts_current.pdf

Still, the coronavirus situation has already prompted behavioral changes in people and businesses. For example, consider how gasoline is purchased and delivered. States like New Jersey and Oregon prohibit self-service options in gasoline stations. When a customer drives up to a station in these places, a station employee operates the pump and fills the vehicle's tank with gasoline. On Saturday, March 28, Oregon temporarily lifted this ban on self-service in the face of COVID-19 pressures.¹⁸ New Jersey has yet to change its policy¹⁹, but some gas station employees are speaking up about their fears of interacting too closely with potentially infected customers.²⁰

The key difference relative to other major shocks like earthquakes, hurricanes, brush fires, floods, or even the 9/11 terrorist attacks, is that the COVID-19 crisis is the first national *and* global-level shock that the current generation has encountered. All of the other major shocks of the last quarter of a century tended to be localized: the costliest earthquake in US history affected Los Angeles in 1994; the costliest hurricane in US history affected mainly New Orleans and areas around Louisiana, driving people to Houston and other nearby markets. The 9/11 terrorist attacks mainly affected downtown Manhattan, even if they scarred the national psyche. The COVID-19 pandemic and social distancing policies affect the entire world, and are therefore likely to prompt much change in terms of how households and businesses make decisions. These changes are likely to be broader and wide-ranging, and not confined to specific geographies, unlike previous, more localized shocks.

All of the pressures prompting the retail property sector to evolve, already in effect before the COVID-19 pandemic, are likely to increase.

¹⁸ <https://www.oregonlive.com/news/2020/03/oregon-temporarily-lifts-prohibition-on-self-service-gas-in-response-to-coronavirus.html>

¹⁹ "Self-serve gas is the third rail of New Jersey politics." <https://why.org/articles/no-self-serve-gas-in-n-j-murphy-says-as-camden-opens-testing-site/>

²⁰ <https://kywnewsradio.radio.com/media/audio-channel/new-jersey-gas-station-attendants-on-the-front-lines-of-the-covid-19-pandemic>

© 2020 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S INVESTORS SERVICE, INC. AND/OR ITS CREDIT RATINGS AFFILIATES ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED BY MOODY'S (COLLECTIVELY, "PUBLICATIONS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S INVESTORS SERVICE DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S INVESTORS SERVICE CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES ITS PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing its Publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it fees ranging from \$1,000 to approximately \$2,700,000. MCO and Moody's investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moody.com under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any credit rating, agreed to pay to MJKK or MSFJ (as applicable) for credit ratings opinions and services rendered by it fees ranging from JPY125,000 to approximately JPY250,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.