GLOBAL OUTLOOK

Real Estate During a Crisis

May 2020 | Investment Research

In This Report

The outbreak of COVID-19 has quickly translated into a severe shock for the global economy and real estate markets. Near-term indicators of performance have turned sharply downward, and the situation is fast-moving.

At the same time, some lessons for what is to come can be drawn from past downturns, although causes and effects are, as always, different this time. Values are set to remain under pressure in the near term owing to stress in occupier and investment markets — and the range of possible outcomes is wide — but there are some reasons for optimism.

Unusually, most real estate markets came into the crisis with relatively contained supply, generally low vacancy and contained use of leverage. At the same time, there is a significant pool of capital that has been raised and is ready to be deployed.

Looking ahead, opportunities are bound to arise. Cyclical market movements and distress are likely to translate into buying signals in the near term, although history shows that the window of opportunity can be short-lived.

For many investors, when it comes to meeting long-term performance objectives, it will be more important to maintain a focus on how the impact of COVID-19 plays out more gradually, looking for shifts in the ways the global economy, societies and supply chains interact with the built environment.

Portfolio strategy needs to strike a balance between a need for defensiveness given elevated near-term uncertainty, the prospect of a cyclical rebound generating value growth from a low base and opportunities arising from shifting structural trends. Attractive investment themes can be grouped as follows:

- **Accelerated structural trends,** including rising online sales demand that translates into logistics requirements and a need to increase provision of modern, affordable housing units in and around major cities
- **Defensive focus** on assets with secure cash flow, such as in the residential sector, as well as debt investments that offer near-term outperformance potential and a significant opportunity set owing to refinancing requirements in coming years
- **Cyclical opportunities,** arising from a potential rebound in values after a correction — notably in low-supply office markets in Europe and trade-dependent economies in Asia Pacific

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A sharp recession is unfolding across the region, but the U.S. real estate market was in good shape in the run-up to COVID-19 and the policy response has been substantial. Near-term investment opportunities are dominated by structural themes that point toward rising demand for infill industrial and senior living, along with industrial assets in Mexico. Suburban apartments around major U.S. cities offer defensive income while catering to rising demand.

ASIA PACIFIC 28

The Asia Pacific region is set to lead a global recovery, and while real estate occupier and investment markets are under near-term pressure, a significant opportunity set is expected to emerge. Australian debt and Japanese residential offer sources of defensive income, while trade-dependent economies such as Singapore are likely to report a sharp bounce-back following current value declines. As in other parts of the world, logistics offers a compelling structural story — especially in the grocery sector.

EUROPE 37

Real estate values are under pressure in Europe owing to the severe nature of the recession, although significant capital is waiting on the sidelines and interest rate expectations are falling. Low vacancy should soften the impact on office markets, while demand for logistics and affordable residential units is benefiting from accelerated structural trends. A significant refinancing burden points to opportunities in debt, which is set to outperform in the near term.

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For the time being, the focus of global portfolio allocation is on strategic calls, aiming to gradually position holdings to capitalize on favorable structural trends.

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PART I: GLOBAL OVERVIEW

I. GLOBAL OVERVIEW

REAL ESTATE DURING A CRISIS

Events during the opening months of 2020 serve as a reminder of how downturns materialize. By definition, a shock occurs only as a result of an event that is unforeseeable in terms of its nature, specific timing and impact. Unlike most recent shocks, which have been caused by failures within the system — such as financial excesses or exuberant supply levels — COVID-19 is truly exogenous in its nature.

During the opening weeks of the year, even as news of the spread of COVID-19 across parts of China started to emerge, the general tone of economic forecasts and the outlook for real estate markets were broadly optimistic. While global growth was slowing a little, various factors supported prospects for real estate markets in 2020, including low interest rates, limited supply growth and the prospect of more jobs being created across the world, supporting space demand.

Everything changed in February, when the World Health Organization sent a shock wave through global markets by declaring a global health emergency. A few weeks later, it declared a global pandemic — the first in more than 50 years.

Although the situation improved in those parts of the Asia Pacific region that were among the first to be affected, it quickly became clear that drastic measures were required to keep infection rates down and avoid a catastrophic impact on health systems.

So, when the virus hit Europe and the United States in March, whole regions and countries were swiftly put into lockdown. And despite support by a huge program of fiscal and monetary stimulus — measures unprecedented in recent peacetime history — the global economy has been thrust into a severe recession.

Given that events are moving quickly and uncertainty remains elevated, it is undoubtedly tricky to assess the impact COVID-19 is going to have on real estate markets.

Compared with actively traded financial markets, including REITs and other listed property vehicles, private real estate moves slowly. Valuations are infrequent — sometimes occurring only annually — and some assets are rarely traded. Leasing activity and transaction volume can fall sharply in a downturn, leaving a lack of evidence on which to base accurate appraisals of asset values.

So while many factors point toward COVID-19 having a severe impact on real estate — not least the deep global recession, pressure on REIT values, sharply rising unemployment and disruptive impact on occupiers — any news that points toward the end of the crisis, such as a vaccine discovery, would likely lead to a sharp pickup in sentiment.

The exogenous nature of COVID-19 means there are no systematic failures to correct, and supportive factors that existed at the start of the year could return quickly. While uncertainty and disruption are set to impact real estate values in the near term, there is still a significant volume of capital looking to access real estate product on a long-term basis.

Faced with a wide range of potential outcomes, real estate investors must balance several factors. The most pressing need is simply to navigate existing investments through a challenging period of distress in the near term. Disruption to cash flow, uncertainty about viability of tenants and managing refinancing requirements are among the many tasks that look set to be more problematic than usual for some time.

While uncertainty and disruption are set to impact real estate values in the near term, there is still a significant volume of capital looking to access real estate product on a long-term basis.

Looking further ahead, opportunities are bound to arise. Cyclical market movements and distress are likely to create some opportunities in the near term, but history shows that the window of opportunity can be short-lived.

For many investors, when it comes to meeting long-term performance objectives, it will be more important to maintain a focus on how the impact of COVID-19 plays out more gradually and more profoundly, looking for shifts in the ways the global economy, societies and supply chains interact with the built environment.

WHAT DOES A DOWNTURN HOLD IN STORE?

The highly uncertain nature of the current crisis — in which public health concerns and policy measures are intertwined with unprecedented economic and financial stresses — makes predicting its path a particularly difficult task. Most notably, the bulk of the policy response to the crisis is, unusually in peacetime, not driven primarily by the needs of the economy.

Despite obvious differences, there are lessons that can be drawn from history and, taking into account the different circumstances this time, observations that can help make sense of events as they unfold.

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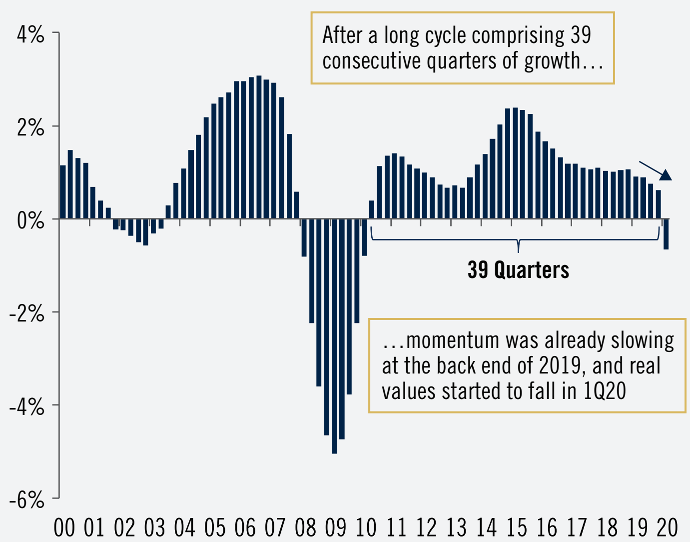
The Range of Outcomes Is Wide

The quarterly growth rate of global real estate capital values growth turned negative in the first quarter of 2020, having grown consistently since the end of 2009 (exhibit 1). It is worth noting that momentum was already slowing. The pace of growth eased throughout 2019 — essentially a lagged effect of interest rate tightening in the previous year as well as the threat to growth from global trade tensions, which now seems modest in hindsight.

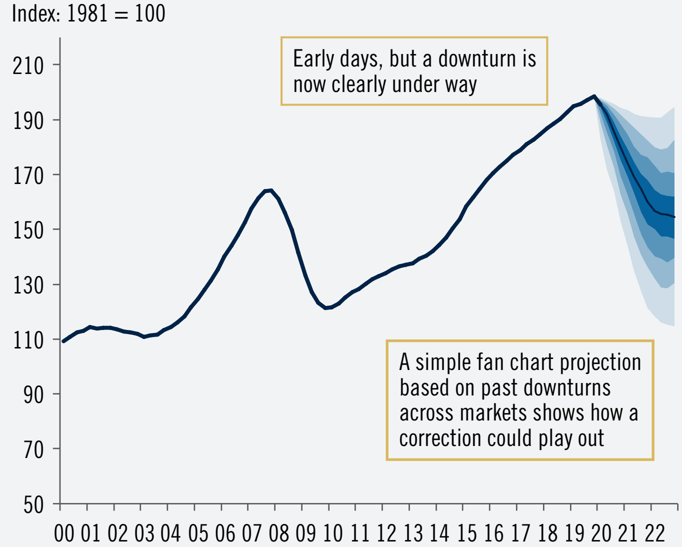
In this context, real estate yields were starting to look low, but nevertheless, the real estate sector started the year with a broadly positive outlook supported by low interest rates and contained supply growth.

Exhibit 1: Global Real Estate Values

Global All Property Real Prime Capital Value Growth (% p.a.)



Global All Property Real Prime Capital Value Index



Sources: CoStar, Cushman & Wakefield, JLL, PGIM Real Estate. As of May 2020.

The abrupt switch from being in a late cycle expansion to a downturn means that it is important to assess what the range of outcomes might look like. The right-hand side of exhibit 1 shows the results from a simple bootstrap model, in the form of a fan chart, built up from the pattern of value movements recorded in downturns across a wide variety of global sectors and markets over the past 40 years.

It is important to note that this model makes no adjustment for the nature of the current downturn. It simply aims to set out a full spectrum of plausible outcomes under the assumption that a downturn is under way, using the end of the first quarter as the starting point.

The unadjusted central scenario is a roughly 20% fall in values in real terms over two to three years, with a lower bound around the negative 40% mark over the same time period. In an optimistic scenario, a downturn could leave real estate values more or less unchanged over two years, but the extent of market disruption caused by COVID-19 points toward higher-impact scenarios.

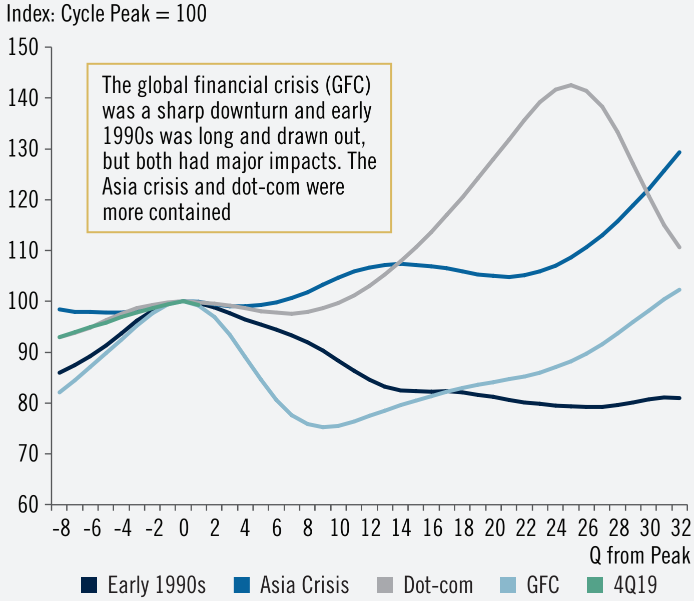
Causes and Effects Are Different Every Time

The reason the range of outcomes is so wide is because causes and effects vary significantly between cycles, as demonstrated by a simple glance at major downturns recorded since the early 1990s. There have been two major financial crises — one contained in Asia in 1998 and one truly global and system-wide in the form of the 2008 global financial crisis — a long and drawn-out correction that was exacerbated by oversupply in the early 1990s and a temporary global demand shock that came in the aftermath of the dot-com-related financial market turmoil and U.S. recession in the early 2000s.

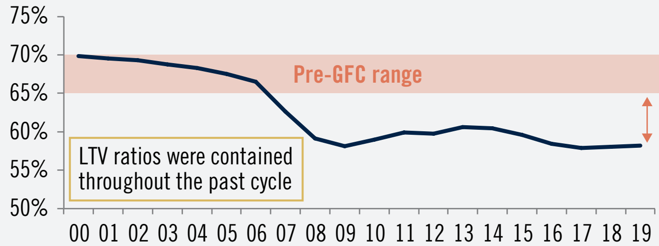
Plotting these out in exhibit 2 shows that the impact of downturns on global real estate values varies significantly. The global financial crisis led to a sharp correction, although the swift recovery in values was led by both Asia Pacific — which benefited from a strong structural growth story — and the United States, where policy makers rapidly provided economic stimulus and real estate lenders quickly regrouped after the banking crisis in 2008. In contrast, the overhang from supply meant that markets in Europe and the United States were stuck in the doldrums for many years in the 1990s. Dot-com and the Asia crisis were ultimately contained events that had limited wider-market contagion.

Exhibit 2: Comparison of Value Movements, Loan-to-Value (LTV) Ratios and Supply Across Cycles

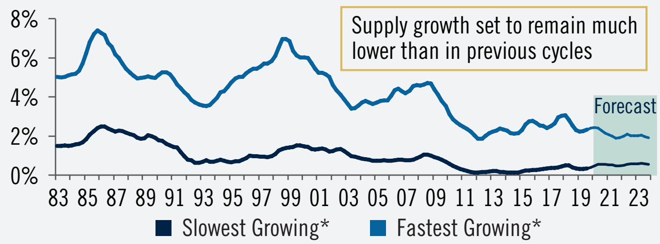
Global All Property Real Prime Capital Values Index by Downturn



Global Average LTV Ratio for a Core Office Deal (%)



Supply Growth Range Across All Sectors and Markets (% p.a.)



* *Slowest Growing* and *Fastest Growing* refer to upper and lower quartile among our sample of global office, retail, logistics and apartment markets.

Source: CoStar, Cushman & Wakefield, JLL, CBRE, ACLI, Cass Business School, PGIM Real Estate. As of May 2020.

The COVID-19-induced downturn looks set to be different again. One key difference is that the cause, a public health crisis, is truly exogenous rather than, as in previous downturns, stemming from an endogenous system failure such as excess supply or excessive financial imbalances. The extent of the short-term economic impacts — and their knock-on effects on real estate users, occupiers and owners — point toward the sharpness of the correction during the global financial crisis as being a more appropriate starting point for analysis than are the milder examples.

On a more positive note, several factors are set to support real estate performance — at least in the medium term. Unusually, this crisis hit at a time when interest rates were already low, meaning that there is no lag between a drop in sentiment and policy reaction. Policy action has already been swifter, more sizable and better coordinated than during 2008 and 2009.

Use of leverage through the past cycle — one that was notable for an ongoing sense of caution — was also low, meaning that investors in general have a better capital buffer than they did in the early stages of the global financial crisis. Lenders have more breathing room on covenants for the time being, while there is still plenty of capital looking to find a home in real estate, as demonstrated by the elevated fundraising numbers recorded up until the end of the first quarter.

Another factor is that supply growth is also much more contained than in the past. Even among the top quartile of markets by supply growth, only 2% of stock is expected to be added each year compared with an average of 6% per year recorded ahead of previous downturns. In the near term, vacancy looks certain to increase owing to rapidly rising unemployment and the inevitable stress of recession on smaller firms, but it is reassuring that the effects are not set to be exacerbated by a wave of new space deliveries.

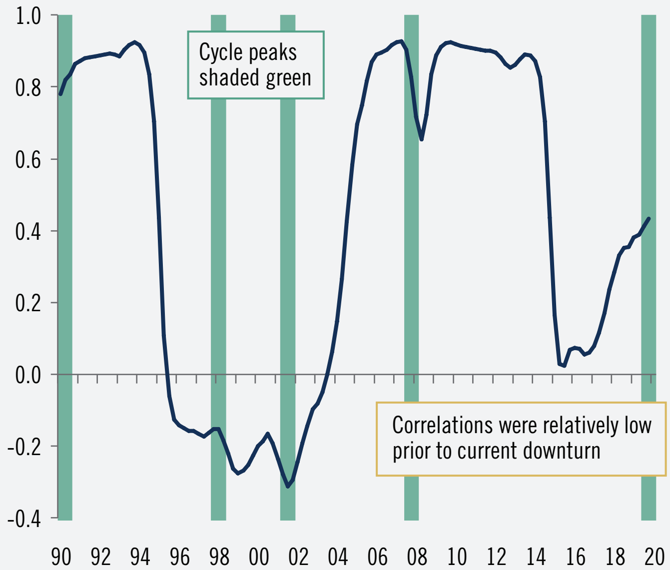
Correlation Between Markets Plays a Role

Causes and effects of downturns differ, but correlations also play a role. For the two severe downturns occurring in the past 30 years — in the early 1990s and during the global financial crisis — real estate markets recorded high correlations between major sectors and regions in the prior years (exhibit 3). Correlations then remained high for some time, essentially as the impact was widespread and common factors such as financial stress or oversupply explained a significant degree of performance across markets through the downturn and into the early part of the recovery.

The opposite was true for the smaller, contained downturns relating to the Asian financial crisis and dot-com. Varying performance prior to these market events helped avoid wider contagion and led to a more diverse range of performance in response.

Exhibit 3: Analysis of Global Market Correlations

Average Five-Year Returns Correlation Between Major Regions



Summary of Performance by Downturn

	Peak-to-Trough Value Movement		Average Major Region Correlation	
	Real Values, %	Duration, Q	Five Years Prior to Peak	During Downturn
Early 1990s	-20.8%	27	0.82	0.19
Asia crisis	-0.9%	5	-0.15	-0.27
Dot-com	-2.4%	7	-0.31	0.30
GFC	-24.7%	9	0.83	0.94
Average	**-12.2%**	**12**	**0.30**	**0.29**
End 2019			0.43	

Both severe downturns (early 1990s and GFC) featured elevated correlations in the build-up. The Asia crisis and dot-com were more contained but benefited from lower global synchronization

Note: Average major region correlation shows the average correlation coefficient of prime, all property returns between Asia Pacific, Europe and the United States.

Sources: CoStar, Cushman & Wakefield, JLL, PGIM Real Estate. As of May 2020.

The synchronized global nature of the COVID-19 impact points to correlations rising in the near term. However, the fairly low correlations recorded in recent years are encouraging. Variation in performance leading up to the downturn points toward variation — and therefore opportunities for diversification — in the eventual recovery phase too.

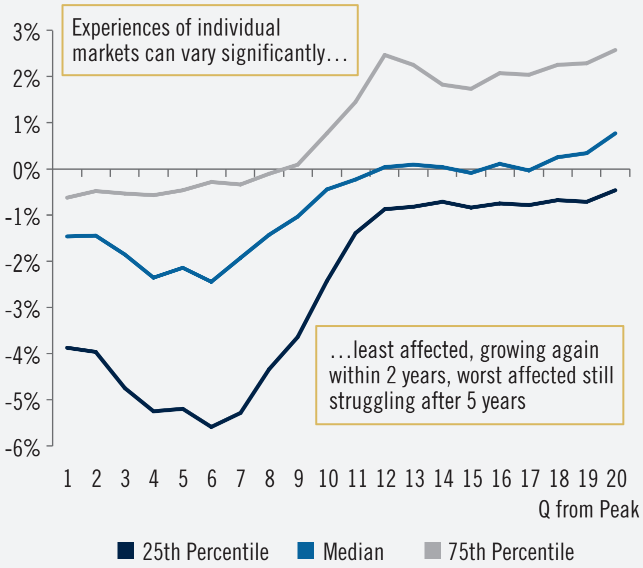
Market-Specific Exposure Adds to Risk

Even if correlations are elevated — in that values are moving in a similar direction across markets and sectors — market performance will vary, at least in such factors as magnitude of impact and timing. A simple historical analysis shows that most markets will report declining values, in real terms, for an average of about two years following a peak.

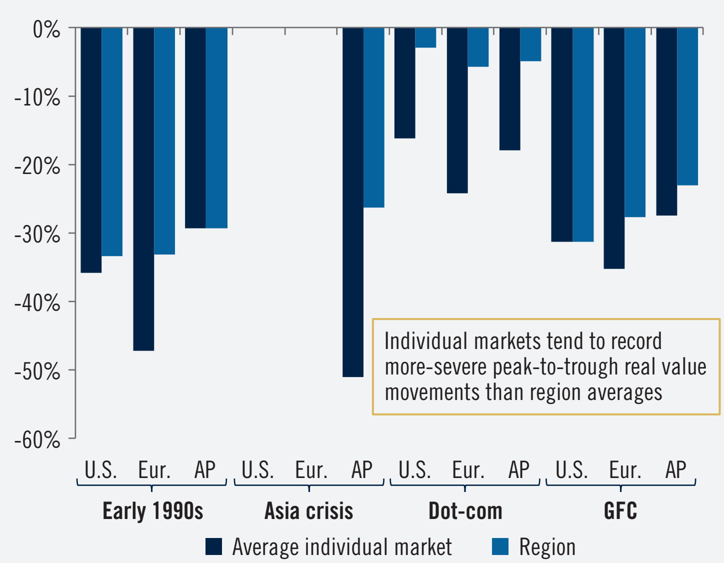
By splitting the sample, it is clear that the key aspects of variation relate to the magnitude of the initial decline and how long it takes for a recovery to get under way. While some markets are reporting a strong bounce-back in values by year three, the bottom quartile of markets are still reporting modestly declining real values five years later (exhibit 4). The most-likely cause of a prolonged downturn is either prolonged financial distress, as suffered by markets in the eurozone periphery after the global financial crisis, or an overhang of supply, which weighed on most major markets in Europe and the United States in the early 1990s.

Exhibit 4: Assessment of Capital Growth in Downturns

Real Quarterly Prime Capital Value Growth Following a Peak by Market Percentile (%)



Peak-to-Trough: Individual Markets versus Region (%)



Note: Asia Pacific covers both developed and emerging markets.

Sources: CoStar, Cushman & Wakefield, JLL, PGIM Real Estate. As of May 2020.

There are two important implications for portfolio construction. The first is that after three years, more than 50% of markets are likely to still be recording negative quarterly real value growth, so building exposure to recovering sectors and markets can generate significant outperformance.

The second is that the average of individual market declines is often significantly higher than the regional average, especially in cases when not all markets are impacted or are impacted in different ways. Having a balanced, diversified approach to exposure as a starting point for portfolio construction can clearly lead to less volatile valuation impacts through a downturn.

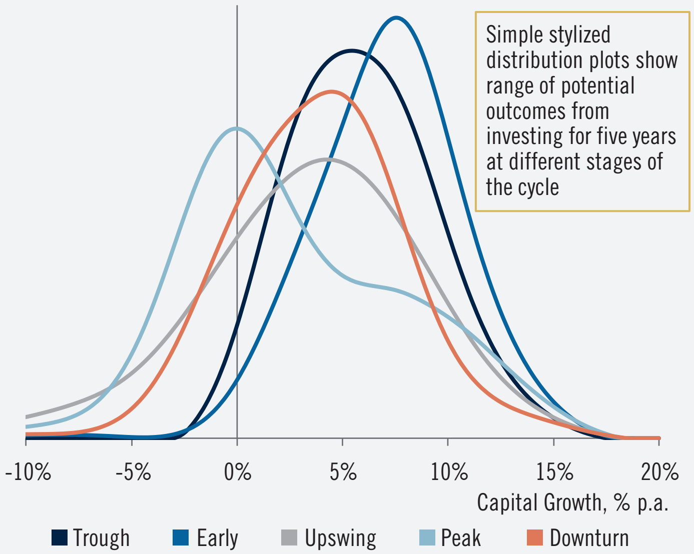
The Benefits of Holding Assets Through the Cycle

The obvious truth is that investments made at the top of the cycle or even in the early stages of a downturn — commonly owing to information lags and deal completion times — have a significantly greater risk of reporting value declines than at other stages of the cycle (exhibit 5). At a portfolio level, our estimates show about a 30% chance of reporting value declines in any given year over a five-year period, reflecting the typical two- to three-year length of downturns.

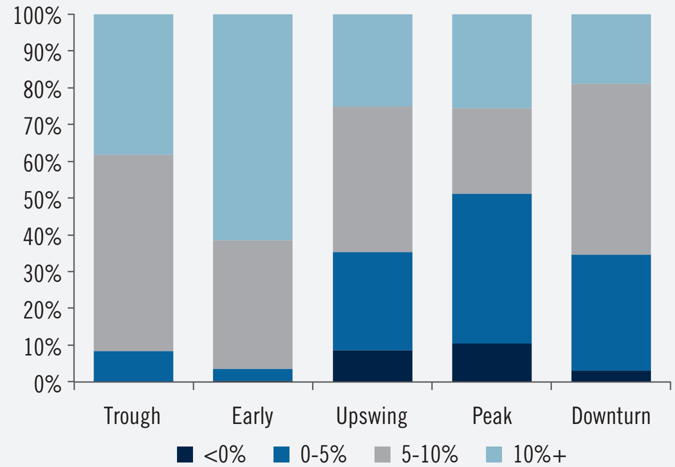
Adjusting value movement probabilities for likely income receipts gives an idea of what this means for returns. Because values do typically start recovering and income receipts are collected along the way, the probability of making a negative total return on global real estate over five years — even investing at a peak — is about 10%, although clearly, outcomes were worse in the global financial crisis than in other downturns.

Exhibit 5: Returns at Different Stages of the Cycle

Estimated Probability Distribution by Stage of the Cycle: Annual Capital Growth Over a Five-Year Investment Period



Range of Expected Five-Year Ahead Total Returns (% p.a.) **by Stage of the Cycle**



Investing in an upswing or peak can result in lower returns over five years. When income returns are factored in, the probability of negative returns is below 10%

Source: PGIM Real Estate. As of May 2020.

Even so, the message is clear, particularly for holders of core, stabilized assets: hold on through the cycle because values do recover, and focus on keeping income receipts as high as possible in the near term – something that is undoubtedly challenging in the current environment.

Elevated transactions costs associated with real estate mean that a switching strategy may offer limited benefit — perhaps with the exception of selling out of distressed sectors, such as retail — although any new deployments should focus on strategies and markets that seek to optimize performance either through acquiring at lower or distressed values or, for example, by building exposure to defensive sectors.

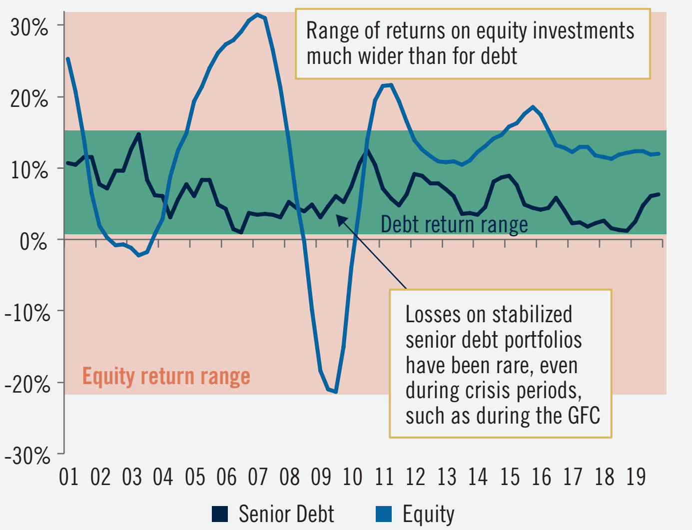
USING DEBT TO SMOOTH RETURNS

Senior real estate debt offers a very different return profile to equity positions. In many cases, core senior loans are simply held to maturity, so returns are solely functions of the coupon received and any capital loss incurred, which is typically very low. For example, outright losses on senior loans were rare during the global financial crisis — even as equity values declined significantly

As with other investment instruments, it is important to be able to assess the risk-return characteristics of lending strategies. The value of a debt position and its total return does fluctuate over time on paper, varying with prevailing interest rates that affect the coupon and mark-to-market value of the position, margins, and any capital loss incurred via changes in value of the underlying asset. Yet even once these effects are factored in, the range of returns recorded on debt investments is significantly narrower than for equity investments (exhibit 6).

Exhibit 6: Comparison of Equity and Debt Returns

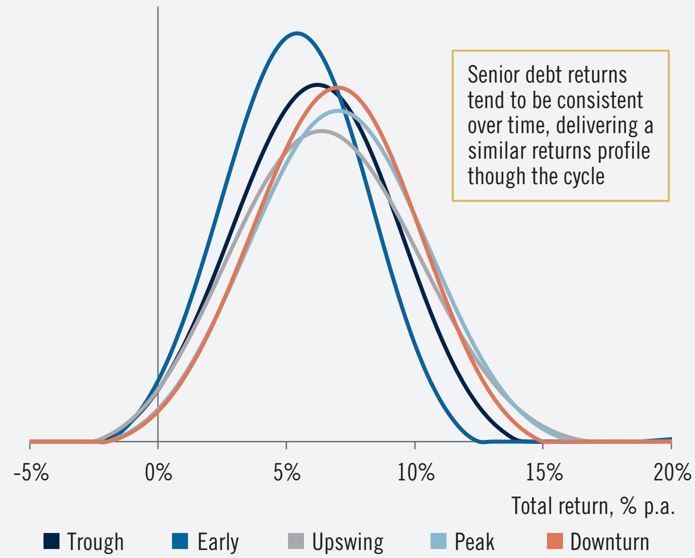
Estimated Prime Office Annual Total Returns by Instrument (%)



Note: Debt returns are estimated from an analysis of real estate performance, interest rates and prevailing ending terms. Value fluctuations are driven primarily by the effect of marking to market.

Source: PGIM Real Estate. As of May 2020.

Estimated Probability Distribution by Stage of the Cycle: Annual Senior Debt Total Return Over a Five-Year Investment Period



Even more striking is that the distribution of returns doesn't vary much through different stages of the cycle. In contrast to equity, returns tend to drop slightly on average for investments made during the trough and early recovery phase of the cycle, primarily reflecting interest rate cuts that typically follow a downturn or recession.

In return, debt investors benefit from a high degree of security over the capital value of their position, with a very low probability of capital loss occurring on core, income-generating assets over, say, a five-year hold period.

Today's market uncertainty serves to highlight the value of having an allocation to senior debt, although its benefits — in the forms of secure cash flow, capital protection and predictable returns — extend beyond downturns, as the risk of making losses on equity investments persists through most of the cycle, as shown in exhibit 5.

At the same time, the opportunity set is growing. While investment volume is set to remain depressed in the near term, senior lenders can participate in both new deals and in refinancing activity on existing transactions and nontraded assets. Banks are set to face further regulatory constraints as values come under pressure, pointing toward opportunities for alternative senior debt providers to continue to gain market share.

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TURNING TOWARD OPPORTUNITIES

Assessing the Impact of COVID-19

It is already clear that the impact of COVID-19 will be long-lasting, much in the same way that we are still feeling the effects of the 2008 global financial crisis today — for example, in stricter bank regulation, constrained development cycles and lower leverage ratios than in the past.

While the crisis is still at an early stage in many parts of the world, several observations can already be made about its general nature and likely impact on real estate markets:

General Nature

- *The crisis is having an unprecedented peacetime impact on economic activity.*

  With developed and emerging markets imposing substantial lockdown measures and restrictions, the global recession looks set to be far more severe than during the global financial crisis.

- *Economies and markets will recover in time.*

  Eventually, significant uncertainty will give way to an exit — as it already has in parts of Asia Pacific — via some combination of lower infection rates, health system stabilization, the availability of an effective treatment or vaccine, or populations building up a degree of immunity.

- *The parameters for policy action have broadened.*

  Policy-making actions that would have been viewed as inconceivable a few months ago — from government lockdowns to huge monetary stimulus packages, to extensive welfare support measures — have been rapidly normalized and are already being taken for granted. One lesson of quantitative easing — a similarly extreme measure following the global financial crisis — is that once it becomes part of the system, it is very hard to row back. Something similar looks likely this time around, relating to various public control measures and support packages. As a side effect, government debt ratios are set to rise significantly around the world this year.

- *Societal impact is most profound in Europe and the United States.*

  Clearly, COVID-19 is having a severe impact on most major countries in the developed and emerging world. By region, the impact on society looks set to be more significant in Europe and the United States than in Asia Pacific, where many countries already had strong pandemic-response protocols, owing to the experience of public health crises in recent decades, including SARS and MERS.

Real Estate Impact

- *Real estate is strengthened by the experience of the global financial crisis.*

  Significant stress cannot be ruled out, but the real estate investment industry is in better shape to deal with the current crisis than it was pre-2008 — not least as it is now a more established part of the investment universe. Such factors as stronger governance, tighter regulation and lower use of leverage through the past cycle mean investors are — in aggregate — well-placed to weather the storm.

- *Some parts of the real estate occupier market are set to suffer.*

  Any real estate sectors in which occupational demand relies on close physical proximity, person-to-person interaction and contact with unknown groups of people are set to suffer for a prolonged period. The effects will be most significant during the crisis because certain legislation in parts of Europe and the United States allow many tenants to not pay rent until conditions normalize – but because a degree of fear and uncertainty is likely to remain, they look set to persist for some time. Retail, leisure, hotels and flexible office assets are initially among the most exposed, although all sectors will feel some effects.

- *Existing trends are set to accelerate.*

  The experience of COVID-19 looks set to accelerate several ongoing themes that have been important to real estate investors in recent years:

  - *Increased online retail.* Restrictive measures pose a substantial threat to physical stores beyond near-term closures. As the trend of rising online spending continues, retailers are set to face significant further stress, accelerating the gradual decline in occupational footprint and usage value that has been ongoing in recent years.
  - *Supply chain enhancements.* Retailers — both in-store and online — and logistics operators are under pressure to improve supply chain resilience and expand capacity to cater to growth in online spending channels.
  - *Flexible working practices.* For many services firms, the experience of COVID-19 is serving as a vast experiment in deployment of remote-working practices. While it would be easy to overestimate the impact, it is conceivable that many firms will realize they can reduce their office space usage through increased efficiency and remote-working optimization.

- *Long-term dynamics remain unchanged.*

  As the crisis is exogenous in nature, existing long-term factors that inform real estate pricing and opportunities — such as aging societies, declining working-age populations and sluggish productivity growth — remain broadly unaffected. Beyond the current crisis, interest rates are set to remain low even if inflation does increase temporarily. While the risk premium is rising owing to uncertainty about near-term cash flows, there is no reason for it to remain structurally higher than in the recent past.

- *Opportunities will arise out of the crisis.*

  Normality may take some time to be restored but even if the crisis is severe, pricing opportunities will soon emerge for well-capitalized investors looking for an attractive entry point. Once pricing recovers — or if markets manage to avoid serious damage — investors look set to return to some of the structural themes that have dominated in recent years, such as the rise of logistics, structural demand for rental residential and socially responsible investing.

What Pricing Level Makes Sense?

While uncertainty remains elevated, the focus of many real estate investors will inevitably be on managing existing real estate in challenging conditions. However, the reality is that a lot of capital has been raised in recent years and, unlike in past downturns, looks like it is here to stay. As such, many investors have an eye on market conditions, looking for the right moment to get back into the market and capitalize on the favorable returns profile for investments made early in the cycle, as per exhibit 5.

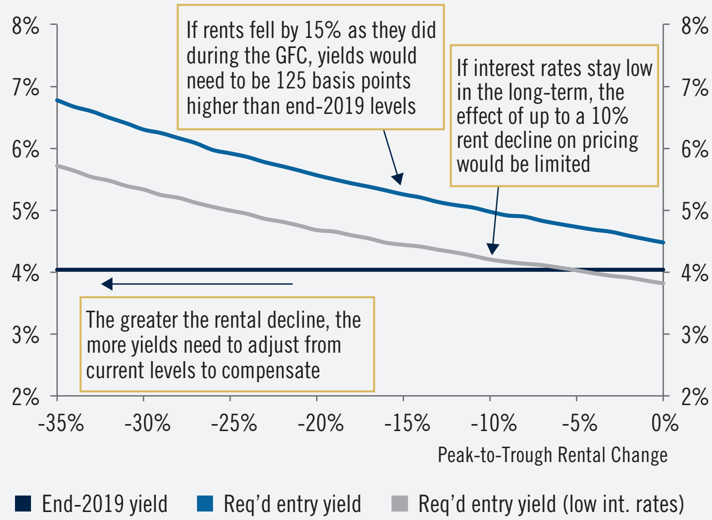
Many investors have an eye on market conditions, looking for the right moment to get back into the market and capitalize on the favorable returns profile for investments made early in the cycle.

Although the full extent of the downturn is not yet known, some simple analysis can help give a sense of what yield levels would constitute a good re-entry point. While many factors affect value, this analysis focuses on the impact of rents. In exhibit 7, we shock rents by varying degrees and then estimate what yields would need to be today so that returns meet their target over a hypothetical 10-year hold period, given assumptions that long-term interest rates, productivity, inflation and the risk premium settle at estimated equilibrium levels.

Put simply, a larger rental decline requires higher yields today to compensate for a weaker rental stream via higher income returns and greater potential for capital gain via favorable yield shift by the point of exit.

Exhibit 7: Estimating Required Yields for Investing That Vary With the Rental Outlook

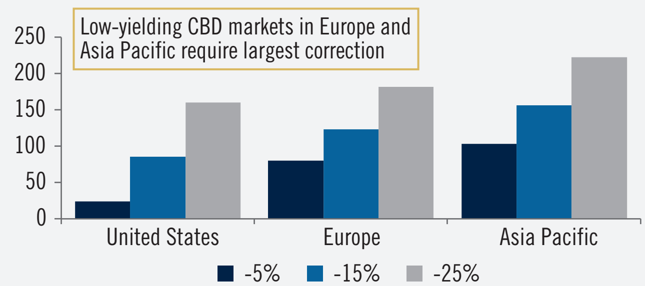
Required Entry Yield for Global Offices at Varying Levels of Peak-to-Trough Rental Change (%)



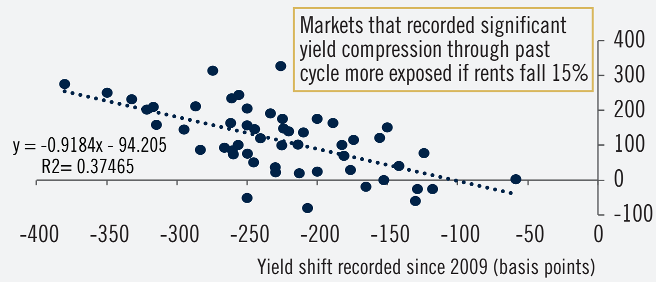
Note: This chart shows an estimate of the yield level that would be appropriate today to compensate investors for various levels of near-term rental decline. The analysis assumes a 10-year hold period and a reversion of risk premiums to normal levels at the point of exit. Current long-term interest rate forecasts are assumed, while the variant low-interest-rate scenario assumes interest rates rise only 1% from current levels over the next decade.

Source: PGIM Real Estate. As of May 2020.

Required Yield Correction for Offices at Varying Levels of Peak-to-Trough Rental Change (Basis Points)



Required Yield Correction for City Office Markets Given a 15% Rent Decline Versus Yield Shift Recorded Since 2009 (Basis Points)



Running the analysis for global office markets shows that if rents fall by a magnitude similar to that during the global financial crisis, yields would need to be about 125 basis points higher on average across global markets. In this sense, global office yields shifting from 4% at the end of 2019 to about 5.25% would represent a strong buy signal. Yields may rise further than this in a prolonged downturn, but this point would enable investors to secure a return over time in line with estimated hurdle rates.

In an alternative scenario in which bond yields stay even lower than forecast — the scenario shown in exhibit 7 is for bond yields to rise 100 basis points over 10 years — pricing would see limited impact up to a 10% rental decline. In this case, a global financial crisis-style rental correction may need yields to move out by only about 50 basis points before triggering investor interest, because low rates would offset the negative impact of rental weakness and elevated risk premiums.

Clearly there are some differences across markets. Major cities in Europe and Asia Pacific, where prime yields are often below 3%, look more exposed than markets in the United States, where yields are generally higher and where past supply excesses have been worked off, supporting long-term income growth prospects.

Broadly speaking, markets that have recorded the steepest drops in yields look most exposed. Low-yielding markets were relying on a combination of solid growth potential, low risk premiums and low interest rates to sustain pricing. Given that the current crisis is set to weigh on growth potential and push up risk premiums, markets like New York, San Francisco, Hong Kong and Paris may need to see a correction to attract fresh capital inflows.

PART II: REGIONAL PERSPECTIVES

AMERICAS

Sharp Recession Unfolding, Prompting Fiscal and Monetary Response

The Americas real estate markets are in the initial stages of reacting to a global health crisis that has induced a plunge in tenant demand and investment activity. With the spread of COVID-19, most major cities and regions were subjected to movement restrictions and stay-at-home orders, with ongoing uncertainty as to when businesses might resume normal operations. Mexico and other Latin American countries are in earlier stages of containing outbreaks as compared with the United States. Real estate investment has all but ground to a halt since March, and it is uncertain when some visibility on pricing will return.

Proactive government monetary and fiscal policy interventions, which have already exceeded those implemented in the three years after the start of the global financial crisis, may have set a floor underneath the economic disruption. The Federal Reserve has injected trillions of dollars of liquidity to support credit markets, spreading those injections across a broader range of asset classes than it did during the global financial crisis. Some measures specifically target real estate, mostly providing credit support for collateralized bond markets. Additionally, Congress has authorized nearly $3 trillion of fiscal support for both workers and small businesses.

Despite the policy support, we expect some level of disruption will persist as long as social-distancing requirements remain in place, which may be well into 2021. In the interim, the nature of this downturn will bring many unique challenges — in particular, an unprecedented drop in rent collections. However, some aspects of the investment and operating landscape have begun to come into focus. While the impetus of this downturn may be unique, the impact on real estate investment markets will in many ways mirror prior downturns, with drops in tenant demand, and a period of market illiquidity accompanied by opaque pricing signals.

State of Play Going into This Recession

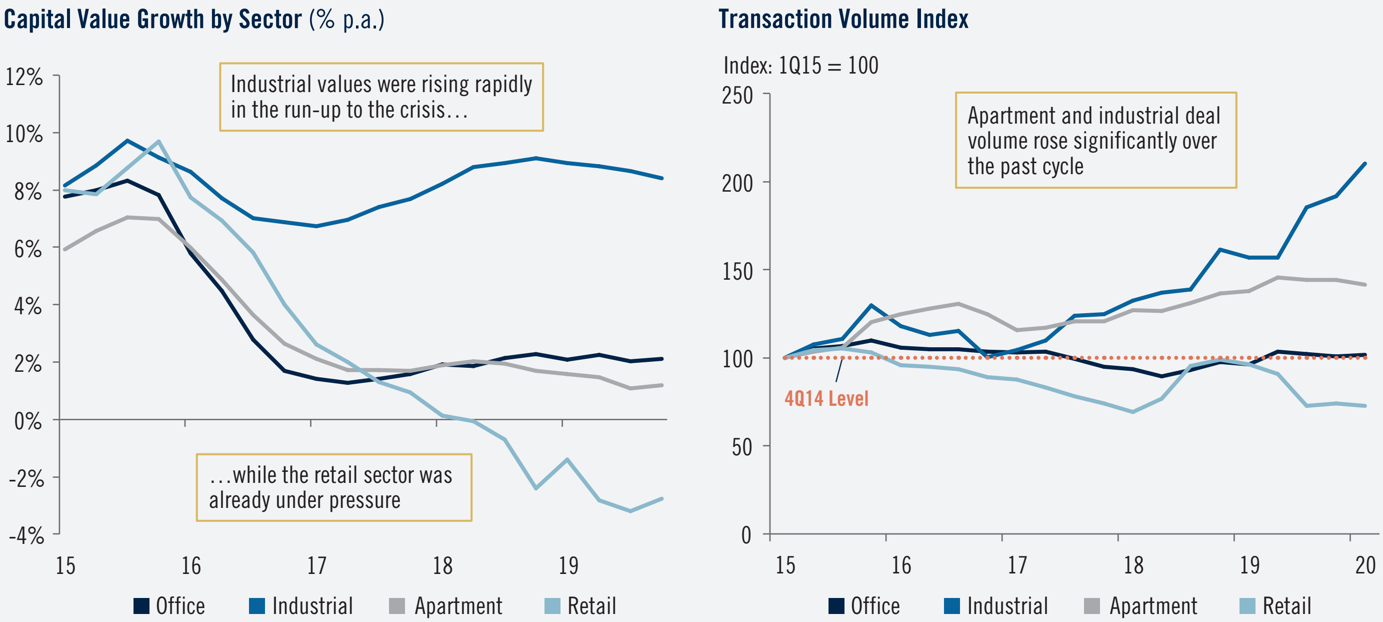
Heading into 2020, U.S. real estate investment markets were robust and on track for a very active year, coming off a record high of $600 billion in transactions in 2019. Investment intentions surveys indicated another year of net capital inflows to real estate. Amid low interest rates and with the Fed once again in accommodative mode, real estate was fairly valued relative to most other asset classes, with cap rate spreads to government bonds slightly wider than historical averages.

Nevertheless, real estate investors' risk appetites were already beginning to decrease prior to the COVID-19 shutdowns. The U.S. economic expansion was nearing its 11th year, and growth was moderating amid labor shortages in nearly all sectors. Investor preferences had begun to swing back toward core strategies — particularly capital from Asia and Europe — including continued allocations to real estate debt.

Likewise, at the start of year, occupier market fundamentals were supportive of rent growth across most sectors — notably excluding retail. Office market vacancies were near 20-year lows, with moderate supply and positive, though decelerating, rental growth.

In the industrial sector, demand from both tenants and investors remained robust, driving sustained capital value growth (exhibit AM1). Supply had picked up in recent years yet remained well below historical averages — especially given the record-low vacancies.

Exhibit AM1: Pre-Crisis Capital Value Growth and Investment Demand



Sources: NCREIF, Real Capital Analytics, PGIM Real Estate. As of May 2020.

Apartment supply had been running at a higher pace than other property types and higher than its historical average since 2013, but this was consistently matched by sustained growth in demand as household formations increased.

Both senior housing and storage were working off moderate supply excesses heading into 2020, which had constrained rental growth below historical norms. Senior housing expenses had also been rising due to the same labor scarcity affecting the broader economy, yet supply pipelines had already begun to moderate, and pricing was supported by strong investor demand.

The only major soft spot was the retail sector, which was already contending with store closures and a structural shift to e-commerce which had been adding pressure to revenues and expenses in recent years. These pressures will be magnified in the coming years. In stark contrast to the rest of the real estate market, average capital values for retail properties had already been falling since early 2018, led lower by malls.

Much as companies with strong balance sheets are well positioned to weather the current downturn, real estate markets with fundamentals on firmer footing should be the safest ports in the storm. The severity and duration of that storm are still uncertain, with no major sector likely to avert at least near-term value declines.

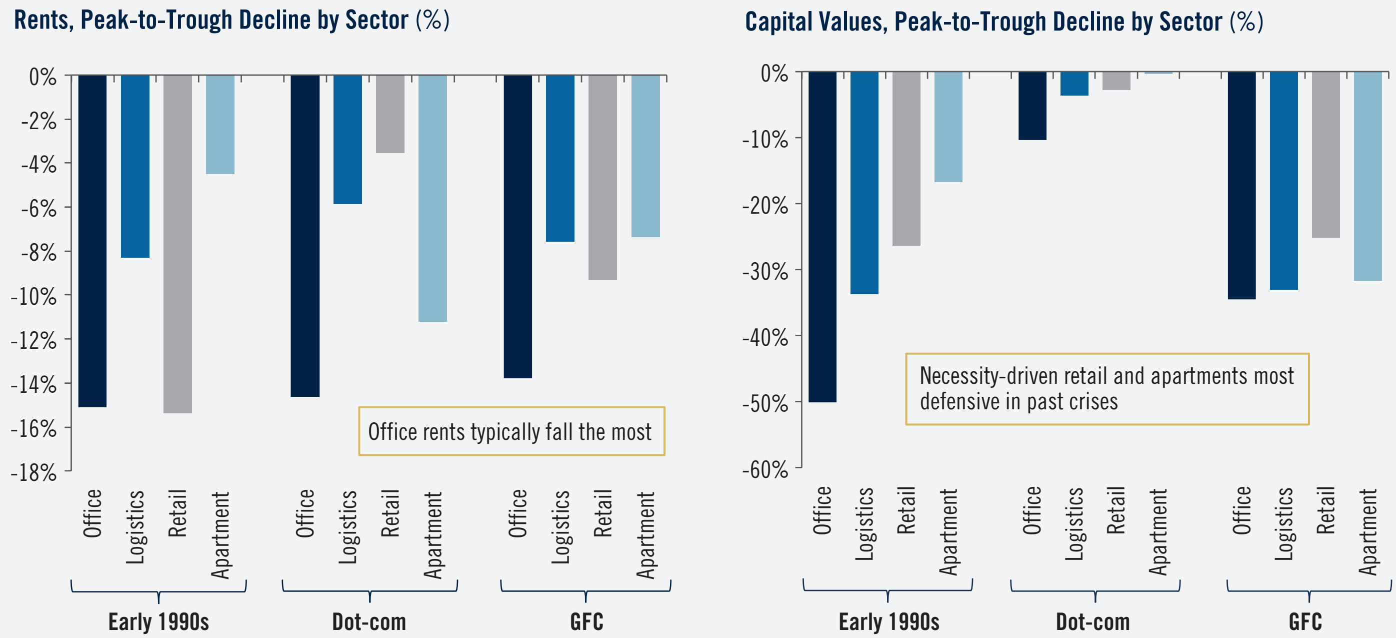
For Clues to the Future, Turn to the Past

Although every cycle is different, past real estate market corrections provide clues as to how broader economic downturns, despite their variety of triggers, have tended to impact different property types and geographies.

Necessity-driven property types, including most residential and grocery-anchored retail, have traditionally demonstrated more resilience — and have recovered faster — than discretionary formats. Apartments have been traditionally the most defensive in terms of values, while rental declines have been, on average, in line with the industrial market (exhibit AM2).

The office sector historically has been the most volatile over the course of business cycles, with the most significant peak-to-trough declines in both rents and values, as well as the most prolonged recovery periods.

Exhibit AM2: Peak-to-Trough Rent and Capital Value Movements



Sources: NCREIF, PGIM Real Estate. As of May 2020.

While retail values historically have held up at least as well as the overall market, this will not be the case in the coming downturn. Discretionary retail, which is most concentrated in malls and lifestyle centers, is likely to be disproportionately affected. Social-distancing requirements, together with shifts in customer preferences, will constrain formats where people congregate, including restaurants and cinemas.

Looking for Exit Signposts

Another consistent feature of every downturn is a hesitancy to believe when a trough has been reached. Corners turned are generally recognized only in hindsight. Resolute investors will be ready to recognize opportunities to pursue tactical opportunities caused by distress or temporary mispricing, as well as to take advantage of what may be attractive entry points for long-term conviction strategies.

While real estate performance generally lags the onset of economic recoveries, real estate investors who wait until the economic cycle is called tend to be late to the recovery. Following the global financial crisis, transaction volume bottomed out in the first half of 2009 — just in line with when the recession was ultimately declared to have ended.

Thus, green shoots of economic recovery can provide good signals for investors to start sharpening underwriting pencils. The monthly Conference Board Leading Economic Index and its components is an effective signal. Other timely signs of real estate tenant demand returning include increases in industrial production, retail sales and — in a more direct sign of investor confidence — multifamily-permit issuance.

Investment Opportunities

While there are some cyclical investment strategies that have quickly devolved into irrelevance (e.g., those premised on tight labor markets), tactical opportunities may emerge as some owners face distress and are forced to sell or recapitalize.

Furthermore, we retain our conviction around durable investment theses grounded in long-term structural trends. One of these is the ongoing structural shift to e-commerce, which has fundamentally altered the nature of the industrial market and which we expect to be reinforced — if not accelerated — by rising consumer adoption during mandated quarantine periods.

We also see compelling, demographic-driven investment trends that could extend beyond the new decade and into the next. Each is driven by one of the two largest generational cohorts in American history, with the baby boomers (born 1946-65) fueling a rapid rise in demand for senior housing and the millennials (born 1980-95) moving out of cities and into suburbs and driving demand for larger, suburban apartments outside urban centers.

1. Infill Industrial

Adoption of online retail is set to become accelerated by the current crisis. Logistics assets with easy access to areas with significant spending power typically command higher rents — even for older properties.

The COVID-19 response has reinforced or even accelerated adoption of e-commerce and omnichannel retailing. Online grocery is one example. A survey by retail intelligence group Acosta indicates that 33% of respondents placed their first-ever online grocery order in March or April 2020.

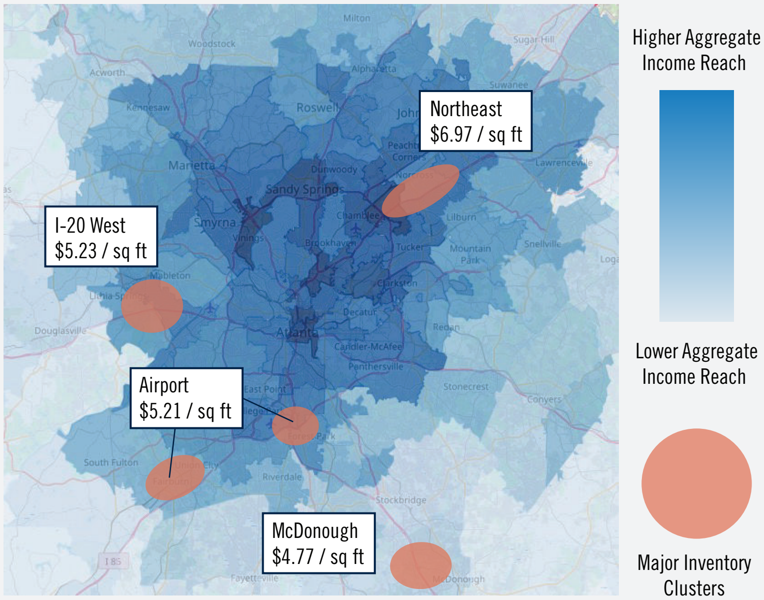
Ongoing growth in e-commerce and omnichannel retailing, combined with consumer expectations of ever-faster direct delivery, continues to propel tenant demand for industrial space. Retailers and consumer product firms are being challenged to re-orient their logistics and fulfillment infrastructures from a supply chain designed around efficiently replenishing store shelves to also serve a demand chain designed for direct-to-consumer delivery within a day or two.

As a result, consumer-oriented industrial tenants need last-mile properties to satisfy the demand chain. But last mile usually means something quite different from its literal definition. Within a metro area, these are locations where companies seek to minimize direct-to-consumer delivery costs, and as a result, older properties that may lack modern features are still viable options for tenants — and also investors. The key consideration for these locations is the delivery vehicles' ability to access the greatest customer base as efficiently as possible, providing quick and efficient access to both population density and affluence.

To help visualize the locations best suited for last-mile delivery, maps are effective tools. Using Atlanta as an example, exhibit AM3 divides the metro area into postal codes colored different shades of blue. The shading indicates locations that offer access to the highest (dark blue) or lowest (light blue) amount of aggregate household income within a 45-minute drive time.

Exhibit AM3: Impact of Location on Logistics Rents

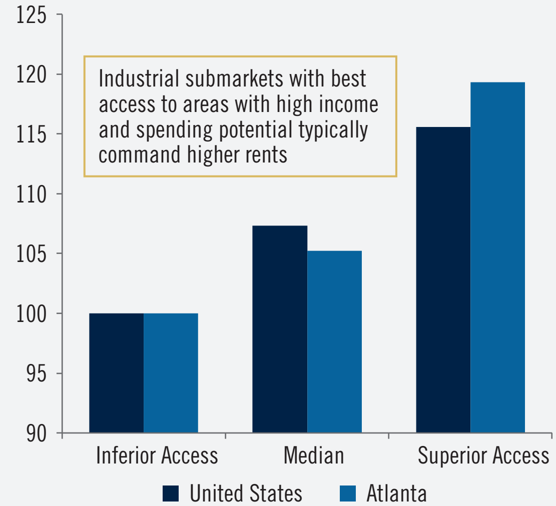
Aggregate Income Reach by Postal Code, Atlanta – 45 Minute Drive Time



Sources: U.S. Census Bureau, CoStar, PGIM Real Estate. As of May 2020.

Rent Level by Submarket Quality

Index: Lowest Third of Postal Codes = 100



Note: Access rating is determined by postal code. Postal codes are divided into thirds, with the highest third corresponding to highest aggregate income reach, shown as *Superior Access*, above.

The map indicates that areas located north of central Atlanta, with a high density of affluent households and adjacent to highway junctions (see the arc above the city center), offer tenants access to the greatest amount of spending power.

Industrial rents in these submarkets are higher than average, meaning that even older, smaller warehouse properties may provide good investment opportunities. Conversely, locations to the south, where population densities are lower and rent levels are cheaper, provide less-efficient access to key population centers within the metro area. For direct-to-consumer needs, rent savings are offset by higher transit costs.

This map alone does not consider all of the factors important to site selection for a last-mile distribution warehouse. For example, access to labor is one key consideration not incorporated in this analysis, yet as customer demands for ever-shorter delivery times increase, locations and industrial buildings with the best access to local spending power give both tenants and industrial real estate investors a significant competitive edge.

2. Suburban Apartments

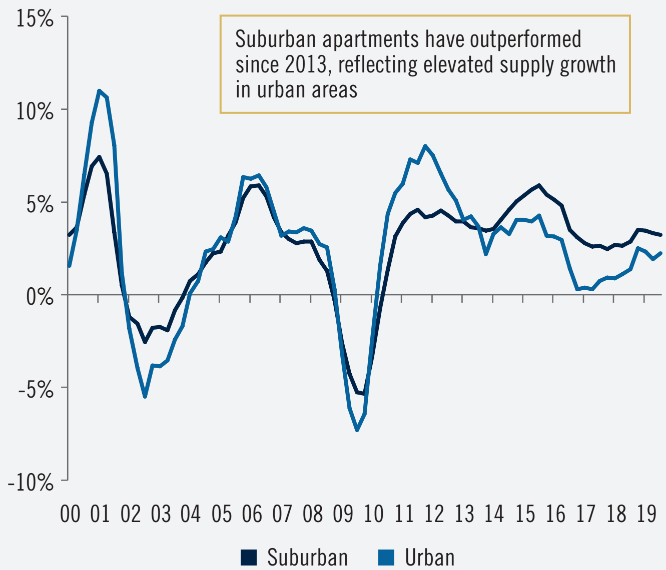
Rising household size among millennials points toward growing requirements for larger apartments located in suburban areas.

The United States is on the cusp of a shift in housing demand, including rental apartments, that will disproportionately skew toward suburban locations. There is historical precedent for this suburban shift, with the last large cohort of younger renters, the baby boomers — requiring a suburban building boom in the 1970s and 1980s. Most apartments built then had two or more bedrooms — in contrast to the smaller units built in recent years. We expect a return closer to that unit mix, as today's younger renters couple up and have children — albeit later in life than in previous generations.

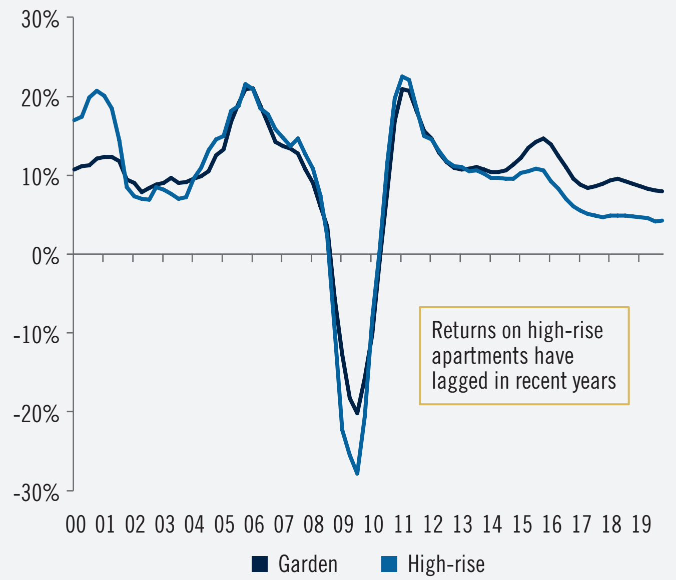
Demand for urban apartments swelled in the aftermath of the global financial crisis, fueled by a preference for urban living by some millennials entering their early- to mid-20s. Rents soared in downtown submarkets, but developers were quick to capitalize on such strong demand. Instead, suburban rental growth has outperformed since 2014, largely due to heavy construction activity in urban areas (exhibit AM4). While suburban development activity is also rising, it remains well below the pace of inventory growth seen in the most urban submarkets. Stronger fundamentals have also supported stronger total returns during the past five years.

Exhibit AM4: Assessing Apartment Performance

Suburban Versus Urban Apartment Rent Growth (% p.a.)



Garden Versus High-Rise Apartment Total Returns (% p.a., 4Q Rolling)

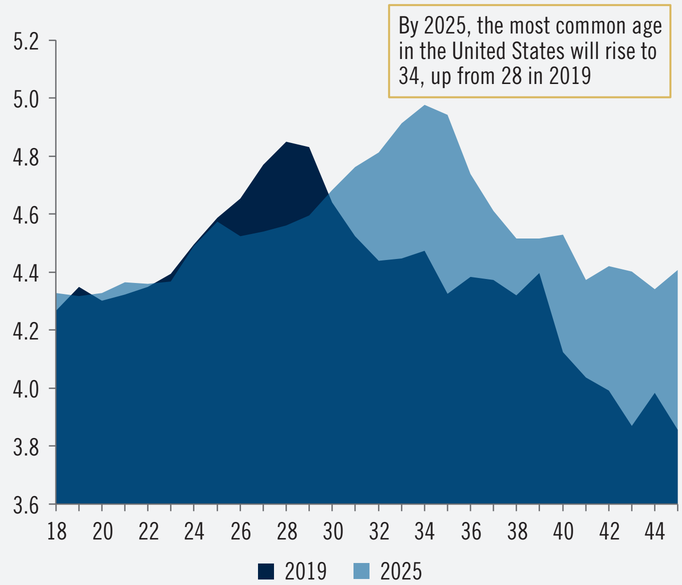


Sources: Axiometrics, NCREIF, PGIM Real Estate. As of May 2020.

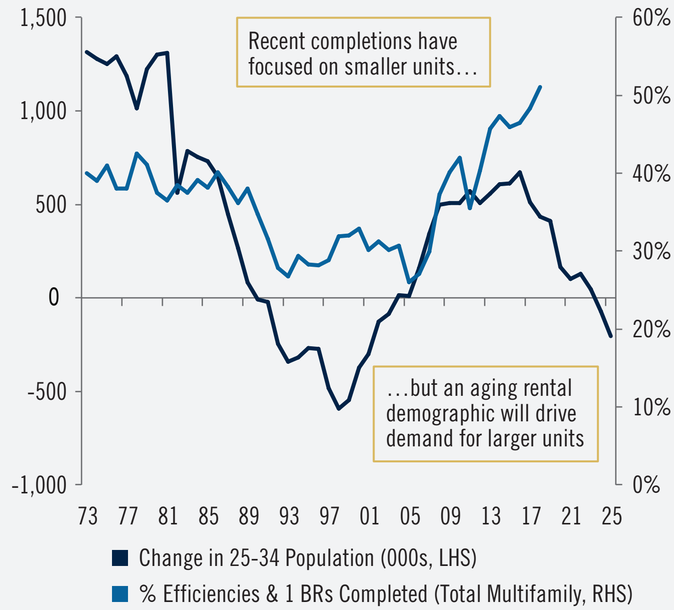
Given the size of their age cohort, shifts in millennials' lifestyle preferences as they age will have major implications for the relative performance of different segments of the multifamily space. The aging of the millennial population into their mid-30s will provide a tailwind to suburban demand, as more and more young couples move out of urban areas in search of more space and better school districts as they start to grow their families. The U.S. Census Bureau projects the population in their 30s will grow 7.1% by 2025 versus 3.8% for the rest of the nation. In 2019, the most common age in the United States was 28 — close to the median age at first marriage for men (30) and women (28). By 2025, the most-populous age range will be the mid-30s, many of whom will have children or be close to starting families (exhibit AM5).

Exhibit AM5: Age-Related Apartment Demand

2019 Versus 2025 Population by Age (Mil)



Change in Age 25-34 Population Versus Unit Types Completed



Sources: U.S. Census Bureau, Axiometrics, PGIM Real Estate. As of May 2020.

The demand shift to the suburbs will also coincide with a shift in unit type preferences. The percentage of studios and one-bedroom units in newly completed buildings has risen significantly, making up over 50% of all units completed in 2018. With the bulk of the millennial population in their mid- to late-20s for much of this recent cycle, that strategy has made sense. Indeed, rental growth for studios and one-bedroom units has outpaced two-or-more-bedroom units in most markets even despite higher concessions.

Nonetheless, as tenants move to the suburbs for more space and access to good school systems for their children, studios and one-bedroom units are unlikely to meet their lifestyle needs. Instead, we expect a growing preference for two- and three-bedroom units in the suburbs as the bulk of the millennial generation ages.

3. Rising Senior Housing Demand

COVID-19 is currently weighing on senior housing demand and profitability, but anticipated growth of the over-75 population points to rising demand — and significant new supply requirements — in the next decade.

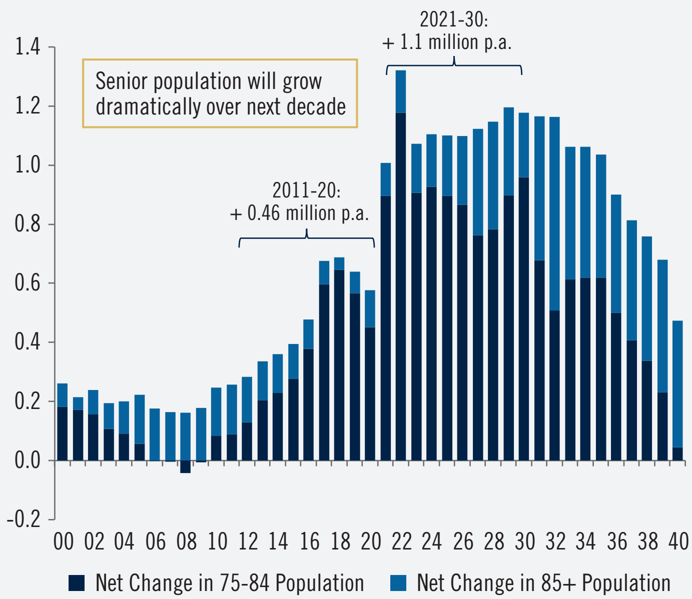
The nature of the COVID-19 pandemic presents particularly acute challenges for the senior housing sector. Senior housing communities and operators face considerable stress in keeping both staff and residents protected, with pressures on both the expense side, as costs of mitigation and staffing increase, and the revenue side, as move-in rates slow markedly. Operators and owners face squeezed revenues that may be compounded by reputational risks — particularly as less care-intensive sectors including assisted and independent living are conflated in media reports with nursing homes.

Nevertheless, looking beyond the immediate crisis, our long-term view of senior housing remains positive. Given the strength of the underlying demographic demand drivers long in place, the sector remains well positioned for long-term growth, and the coming few years could prove an attractive entry point for senior housing investors.

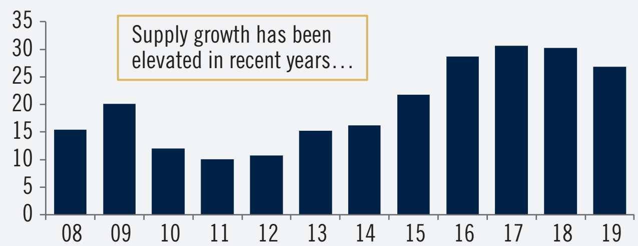
The sector has experienced somewhat softer fundamentals in recent years, as its compelling long-term demand growth profile — and the influx of capital to real estate more generally — attracted investment, thereby fueling new supply and leading occupancies and incomes to ebb. In response to this modest softness, the supply wave had already begun to abate, with starts slowing since the end of 2017 (exhibit AM6). Given the present market conditions, both supply and demand are likely to recede in the near term. However, we expect demand to rebound rapidly once restrictions are lifted, as pent-up demand provides a near-term boost and thereafter as demographic tailwinds gain momentum.

Exhibit AM6: Senior Population and Senior Housing Supply

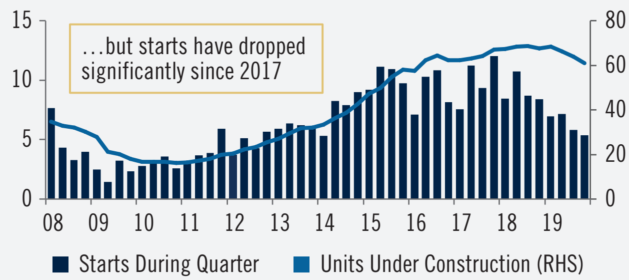
Net Change in Senior Population by Age Bracket (Mil)



Senior Housing Supply Growth (000s)



Senior Housing Construction Starts and Units Under Construction (000s)

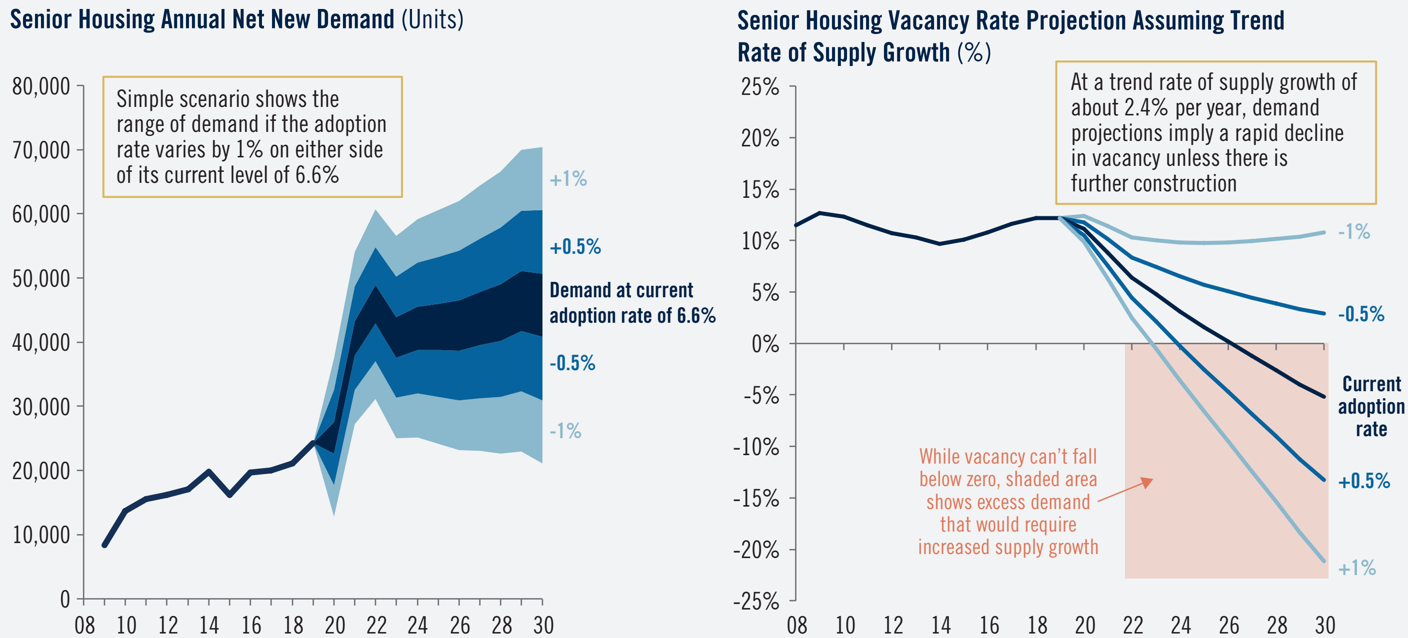


Sources: U.S. Census Bureau, National Investment Center for Seniors Housing & Care, PGIM Real Estate. As of May 2020.

There is a strong correlation between the size of the senior population (those aged 75 years or more) and demand for senior housing units, with adoption rates consistently in the range of 6.50–6.75% over the past decade. In other words, for every additional 1,000 seniors in the population, an average of 66 additional senior housing units are occupied.

In the next 10 years, the senior population cohort will grow at more than twice the pace of the past decade — from 23 million to 34 million, an increase of nearly 50%. Assuming the rate at which seniors adopt senior housing remains constant at 6.6%, new demand will average 41,000 units per year in the next 10 years — about twice the recent five-year average of just over 20,000 units (exhibit AM7). Even if adoption rates were to fall significantly, by, say, a full percentage point to 5.6%, net new demand would still average more than 23,000 units per year.

Exhibit AM7: Analysis of Senior Housing Demand



Sources: U.S. Census Bureau, National Investment Center for Seniors Housing & Care, PGIM Real Estate. As of May 2020.

Given these projections, and despite the near-term softness that has led developers to pull back, substantial new construction will be required in the sector within the next few years. Assuming baseline adoption rates, new supply at the historical average pace of 2.4% would fall short of projected demand by 2025. Even in a scenario in which supply grew by 3.1% per year — as recorded during the past five years — vacancies in the sector fall below their prior cycle low by 2024.

In all but the most pessimistic of scenarios — in which demand decreases and supply continues at elevated rates for a prolonged period — vacancies are still lower than current levels. Even if this growth in population falls short of projections or if adoption rates for senior housing ebb as seniors decide to forgo or delay moving into senior housing for financial, technological or societal reasons, the sheer magnitude of the demographic shift portends significantly higher demand for senior housing units.

Senior housing historically has been among the more-resilient sectors in downturns, as it is much more needs based than the major property sectors. Given the health emergency nature of this downturn, performance in the near term will be poor, pressured at least as much by rising expenses as any drop-off in demand, yet given demographic tailwinds, it remains a compelling long-term investment opportunity.

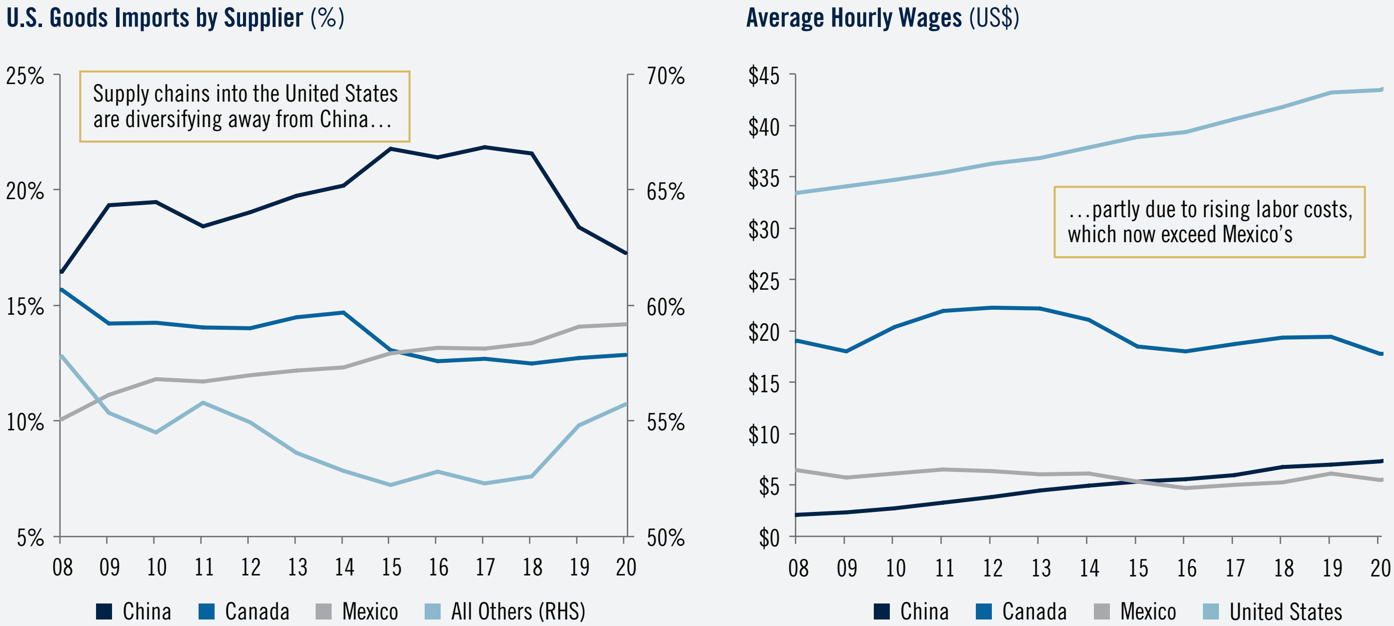
4. Supplier Diversification Driving Mexico Industrial Demand

COVID-19 is accelerating a shift to more-diversified supply chains that was already under way, creating demand for industrial real estate in Mexico.

Momentum is building in the two-decade-long evolution toward a more-integrated North America supply chain, with manufacturing activity growing fastest in Mexico. Disruptions from the COVID-19-induced factory shutdowns in China in early 2020 likely have accelerated this transition. Production delays and unanticipated cost increases have provided manufacturers with added incentives to minimize bottlenecks.

As recently as 2018, China accounted for 22% of all imports into the United States — about double Mexico's share (exhibit AM8). As of the first quarter of 2020, China's share has fallen to 17%, while Mexico's share has risen to 14%. Many factors have contributed to these shifts, which if maintained would make Mexico the largest supplier of goods to the United States. Tariffs have been imposed on Chinese goods at various times over the past three years, and uncertainty about U.S. trade policy with China is a further incentive for businesses to diversify supply chains. NAFTA renegotiations have injected some uncertainty about Mexico-U.S. trade relations, but as of May, the new United States-Mexico-Canada Agreement (USMCA) faces only ratification by Canada to reduce that uncertainty.

Exhibit AM8: Imports of Goods to the United States and Wages by Country



Sources: United Nations Comtrade, Oxford Economics, PGIM Real Estate. As of May 2020.

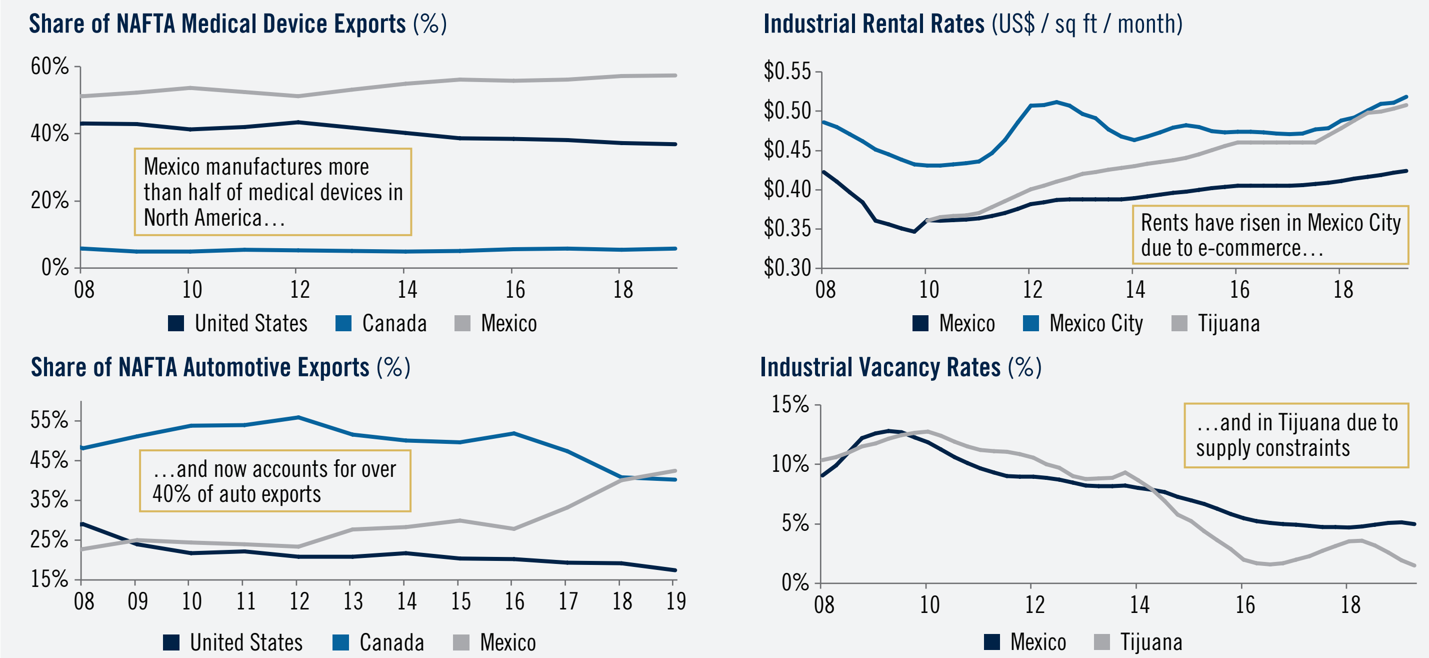
The larger factor, however, is that China has become a more expensive place in which to manufacture due to rising labor costs. In 2008, average hourly wages in China were one-third of those in Mexico, and they are now about 30% higher. Manufacturing wages have nearly doubled in China over that period, while they have remained broadly flat in Mexico. Other countries, such as Vietnam and India, have lower labor costs than either China or Mexico and have grown their share of imports into the United States as well. But Mexico's proximity to the United States, existing supply chains and infrastructure, and free-trade agreements give it an advantage over every other emerging market.

Mexico's industrial market has grown to meet this demand, with industrial inventory doubling since 2008. Despite supply additions averaging 7% per year over the past decade, industrial vacancies stood below 5% entering 2020. Industrial rental growth has lagged the U.S. average over that period in U.S.-dollar terms, though when converted to local currency, rents have more than doubled. And, although most industrial leases are in U.S. dollars and many tenants are multinational corporations, cap rates in Mexico were 300 basis points higher than the U.S. average at the end of 2019.

Certain areas of Mexico have developed manufacturing specializations, and they now benefit from scale advantages. For example, the Bajio region, which accounts for 22% of Mexico's manufacturing output, is home to 32% of Mexico's transportation manufacturing production value. Industrial demand in the region has grown with Mexico nearly doubling its share of NAFTA automotive exports from 2008 to 2019.

Tijuana has become a medical-device-manufacturing hub, with most of its production exported to the United States and Canada. As a result of the rapid growth in medical device exports and supply constraints due in part to topography, Tijuana's industrial rents are now nearly as high as Mexico City's, and its vacancy rate stands below 2% as of early 2020 (exhibit AM9).

Exhibit AM9: Imports of Goods to the United States and Wages by Country



Sources: CBRE, National Institute of Statistics and Geography, United Nations Comtrade, Oxford Economics, PGIM Real Estate. As of May 2020.

Tijuana also provides a case study in cost advantages in manufacturing that extend beyond labor. Industrial rents for buildings in Tijuana are about 40% lower on average than rents for buildings with similar specifications located immediately across the border in San Diego.

There are similar cost gaps in the immediately contiguous cities of Ciudad Juárez and El Paso, Texas, and Reynosa and McAllen, Texas. In addition, in response to U.S. corporate tax cuts in 2017, Mexico implemented new income tax and value-added-tax incentives for companies operating in the northern border region of Mexico, effectively reducing the corporate income tax rate from 30% to 20% and the value-added-tax rate from 16% to 8%.

Despite the long-term outlook for growing industrial demand, the near term will be challenging. The COVID-19-induced sharp drop in global and U.S. consumption will temporarily cause demand for many consumer goods — particularly major purchases like autos — to decline. It will also disproportionately hit industries exposed to travel, including aerospace. When ratified, the USMCA will make the goods of some industries, including automotive manufacturing, slightly more expensive in Mexico in part due to minimum wage requirements.

But our view is that the near-term demand shortfall will be temporary — similar in many ways to the brief interruption in the growth of Mexico's manufacturing industry during and immediately after the global financial crisis. The secular growth story remains intact, supported by an acceleration in supply chain diversification that was already under way.

ASIA PACIFIC

Opportunities Amid Disruption?

The COVID-19 pandemic brought the Asia Pacific regional economy to a sudden stop in early 2020. Strict travel restrictions and social-distancing measures enforced by countries across the region have been highly disruptive to economic and business activity. Most Asia Pacific economies are now facing recession, and at the regional level, the International Monetary Fund expects 2020 to represent the worst output growth recorded in 60 years.

The abrupt deterioration of the economic environment has put an end to the long-lasting real estate cycle that started in Asia Pacific in 2010. Prior to the outbreak of COVID-19, the low interest rate environment and positive tenant demand had been supportive to real estate values and rental growth momentum across major markets. However, with leasing demand now evaporating and investment activity slowing markedly, real estate markets across Asia Pacific look set to suffer significant disruption in the near term.

Experience from previous downturns suggests that regional markets are less likely to move in unison, and there is no reason for it to be different this time. The timing and momentum of cycles vary across markets — for both downturns and subsequent upswings — courtesy of diverse economic and real estate fundamentals regionally.

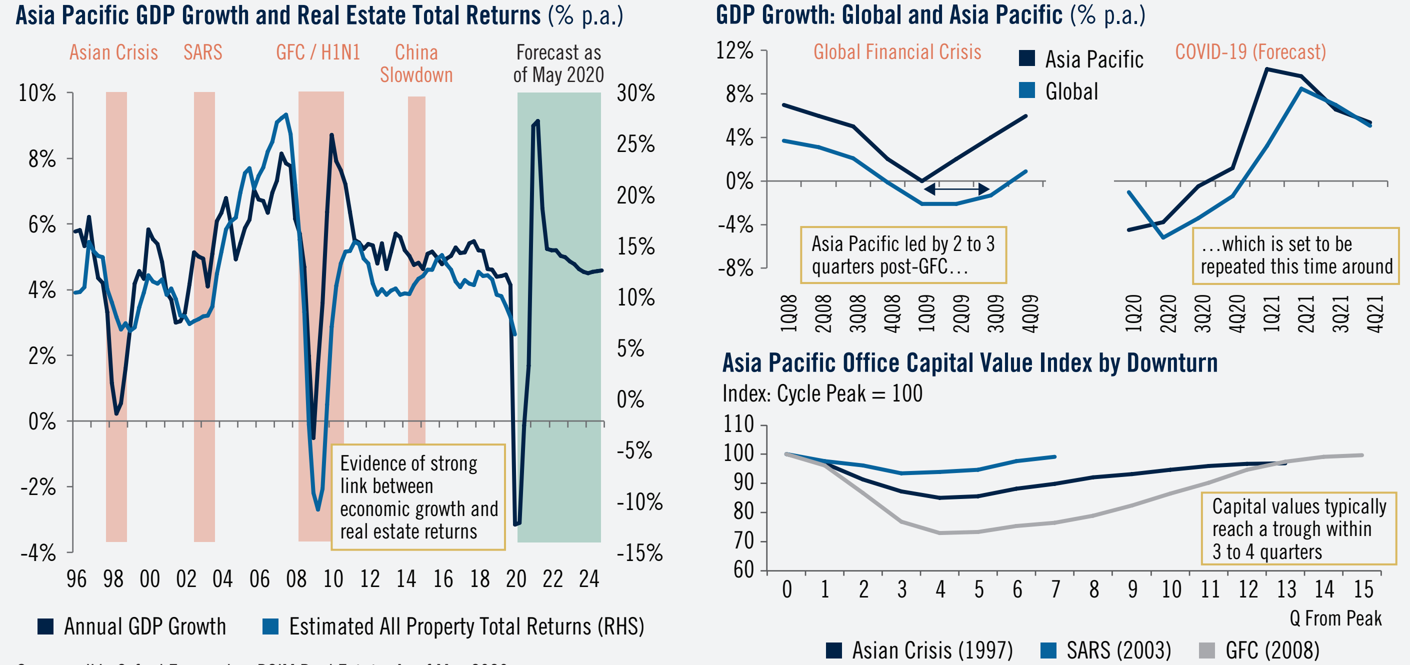
All markets in Asia Pacific will be impacted, but severity will vary depending on property types and the pandemic situation in each country. While it is clear that there will be pain and uncertainty in the short term, significant policy responses from governments — notably in China, South Korea and Australia — have gone some way to reassure investors about the outlook.

Just as the downturn is sharp and severe, the recovery that follows will likely be strong. The challenge for investors is to assess conditions and try to identify opportunities amid all the disruption.

First In, First Out: Asia Pacific to Lead a Global Recovery

Real estate returns are closely linked to economic performance. The severe impact of COVID-19 on economic growth — in the form of a sharp recession — indicates a likely period of near-term weakness in real estate performance (exhibit AP1).

Exhibit AP1: Asia Pacific Economic and Real Estate Market Recovery in Recent Downturn Cycles



Sources: JLL, Oxford Economics, PGIM Real Estate. As of May 2020.

Evidence from previous downturns suggests that the Asia Pacific economies rebound swiftly following crises. During the global financial crisis, which disproportionately affected Europe and the United States, the Asia Pacific recovery was ahead of the global economy by a couple of quarters.

The trigger that ends a crisis can be different each time, but it is clear that a recovery from the current downturn will depend critically on the pandemic being brought under control. In this respect, Asia Pacific has some advantages compared with other regions. Arguably, having experienced epidemics in the past two decades, including SARS in 2003 and H1N1 (or swine flu) in 2009, nations across Asia Pacific were relatively better prepared to deal with a significant public health crisis.

While initial measures have had some success in containing the spread of COVID-19, there remains an ongoing risk that the outbreak will spike again with a new wave of infections, as seen in Singapore in April. As in other parts of the world, until there is an effective vaccine or treatment for the virus, it will likely be difficult for countries in Asia Pacific to return to the way they were.

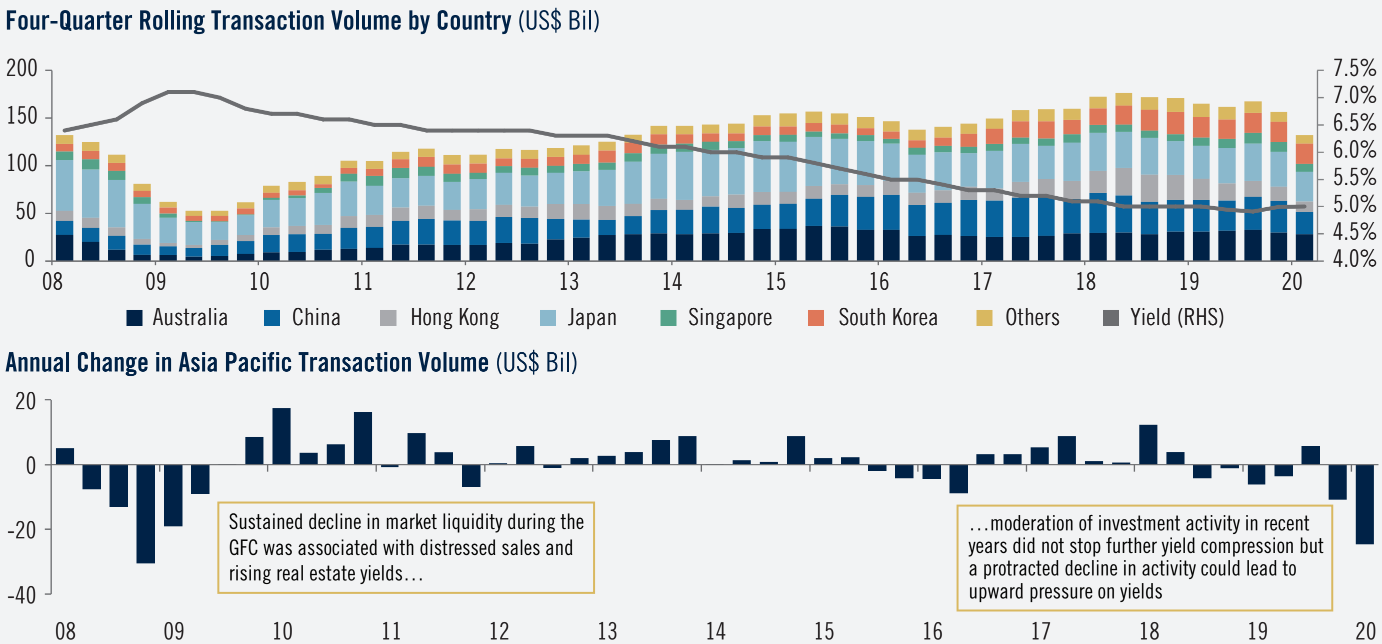
Based on evidence from previous downturns, the office sector, on average, reached a trough three to four quarters after peaking, although the pace of recovery can vary. This time, prospects for a rebound are supported by generally solid and improving occupier market fundamentals recorded prior to the pandemic.

Average office vacancy rates in major regional central business districts (CBDs) were at historical lows at the end of 2019. Forecasts for new supply growth over the next three years were already well below the 10-year average and may move lower if development projects are delayed or canceled. When leasing demand resumes growth again, these fundamentals will play critical roles in supporting rental growth as the new cycle takes shape.

Pressure on Transaction Volume

In recent years, as the market cycle grew longer, high prices and lack of investment opportunities were frequently cited as the biggest challenges in Asia Pacific real estate investment. The highly competitive environment fostered yield compression, while the slight moderation in transaction volume in 2019 was largely characterized by the lack of motivated sellers rather than the absence of interested capital (exhibit AP2).

Exhibit AP2: Assessment of the Asia Pacific Investment Market



Source: JLL, PGIM Real Estate, Real Capital Analytics. As of May 2020.

In fact, there was ample capital waiting to be deployed in Asia. Last year, the Asian Association for Investors in Non-Listed Real Estate Vehicles (ANREV) reported that real estate investment managers raised a record-breaking amount of US$32.8 billion for vehicles focused on Asia Pacific — up 22% from US$26.9 billion in 2018. The pandemic could prompt strategic reappraisal of capital allocation among investors, but long-term capital interested in the Asia Pacific region looks set to remain abundant.

Investment Opportunities

With a downturn under way, history demonstrates that times of crisis can also be times of opportunity — particularly for investors who can look beyond any short-term uncertainty and focus on the long-term outlook.

Trying to accurately time a market cycle is nearly impossible — especially as liquidity tends to dry up during a downturn. As the current downswing progresses, asset valuations might be adjusted accordingly, but that does not necessarily translate into available opportunities — especially if investors opt to hold their assets through the cycle rather than sell at a discount.

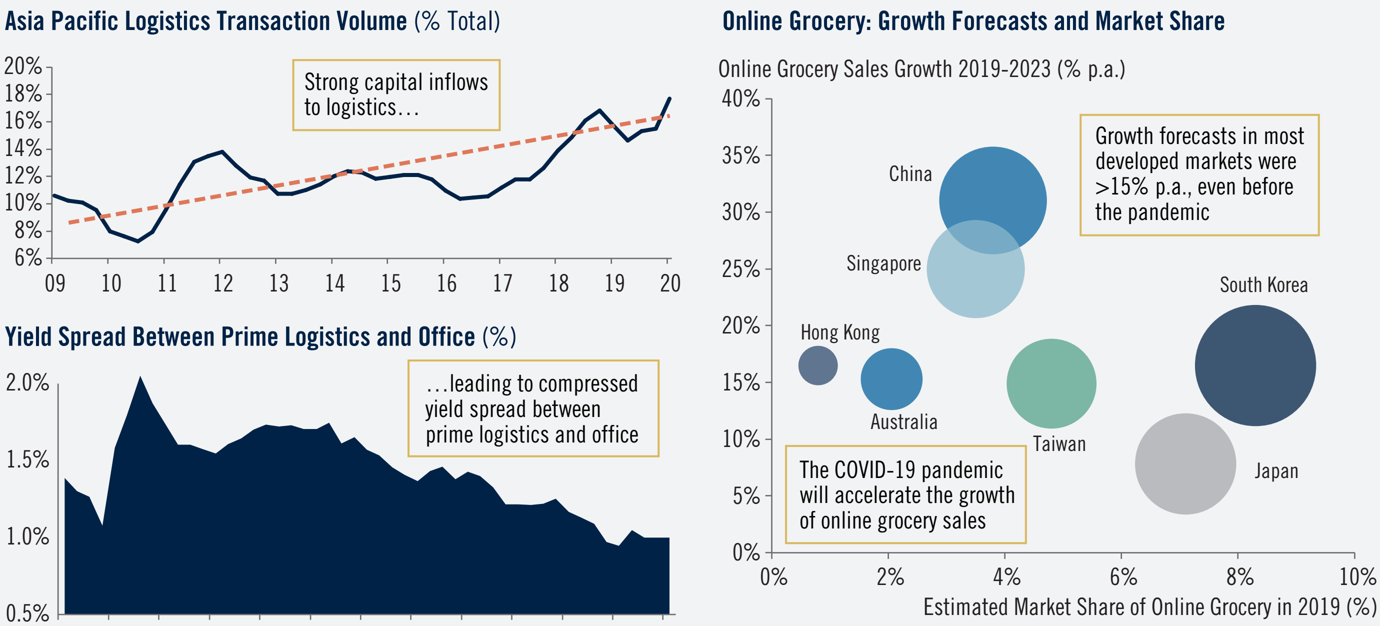
Opportunities arising from downturns are typically diverse depending on the extent of price correction, the presence of ongoing structural themes and the fundamental dynamics of individual markets. Examples of these come in the forms of structural growth underpinning the long-term outlook for the logistics sector, the defensiveness of the Japanese residential sector and prospects for a swift recovery in the Singapore office sector.

1. Logistics

Structural trends supporting opportunities in logistics — particularly relating to grocery supply chains — are being accelerated by COVID-19.

The structural rise of logistics is well established. In the past decade, the modern logistics sector has benefited from the rapid expansion of e-commerce. Rising capital inflows to the sector and a growing share of overall volume have driven sharp yield compression relative to other sectors such as office (exhibit AP3).

Exhibit AP3: Logistics Investment Market and Online Grocery Share



Note: The forecast of online grocery growth was made before the COVID-19 pandemic. Bubble size represents the estimated e-grocery market share in 2023.

Sources: CBRE, IDG Research, JLL, PGIM Real Estate, Real Capital Analytics. As of May 2020.

In contrast to other real estate sectors, which are set to be negatively affected by COVID-19, the logistics sector — or, more precisely, the logistics segment serving e-commerce — stands to benefit from an accelerated shift to online retail, especially if restrictive policy measures remain in place for some time. The longer such measures — which hamper access to physical retail stores — are kept in place, the more likely that the temporary jump in online retail penetration becomes permanent.

An example is the surge in online grocery sales as consumers seek to minimize social contact. Even before the pandemic, online grocery sales had been forecast to rise by approximately 15% per year in developed Asian markets over the next five years. If anything, these forecasts are likely to see upward revisions, meaning that demand for logistics space serving food and grocery online retailers, including cold-storage facilities, is set to be boosted across major markets.

While such an accelerated shift looks attractive, there are certain nuances that investors should consider — particularly in a time of heightened market uncertainty. First, logistics assets are no longer cheap, as reflected in the compressed spreads between logistics and office yields.

Second, despite the structural rise in demand, logistics rental growth remains generally subdued and often inconsistent, diverging significantly across markets and submarkets. This means that it could be easy for investors to overestimate the structural value that exposure to the sector provides. Selecting the right assets and markets remains critical to making successful investments in the logistics sector.

A deeper look into the operational side of the sector provides some additional insights. Occupiers of logistics warehouses — mostly businesses in the low-margin logistics and transportation industry — are highly cost sensitive, particularly to fixed outgoings such as rents. Warehouse tenants are therefore often resistant to upward rental pressures and actively consider trade-offs between cheaper rents and better locations, where delivery time and transportation costs are lower but typically come at higher rental costs.

Established logistics clusters where rental and transportation costs are more balanced will likely outperform emerging locations. A new asset in a secondary location might face a significant challenge to secure tenants and maintain occupancy despite offering cheaper rents. Investors seeking access to the sector via greenfield developments — often in outer locations — must consider this trade-off carefully.

With the pandemic reinforcing structural demand in the logistics sector, investors should take advantage of market dislocations and price corrections that arise — particularly in typically competitive markets such as Sydney, Tokyo and Shanghai. However, a disciplined selection of asset and submarket remains a priority.

2. Japan: Residential to Offer Resilience

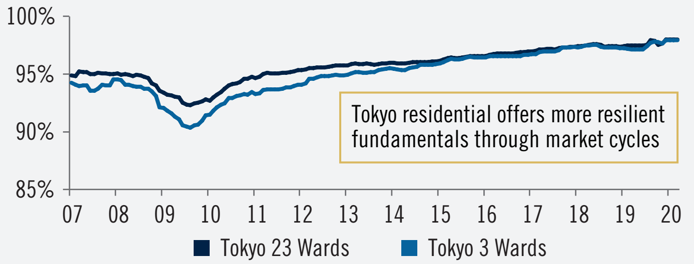
The Japanese residential sector offers stable cash flow in an uncertain environment and benefits from a favorable supply-demand outlook.

Unlike other parts of the Asia Pacific region, the Japanese economy was already slowing toward the end of 2019. The postponement of Tokyo's 2020 Olympics, due to the pandemic, adds to the prospect of a sharp economic recession in 2020.

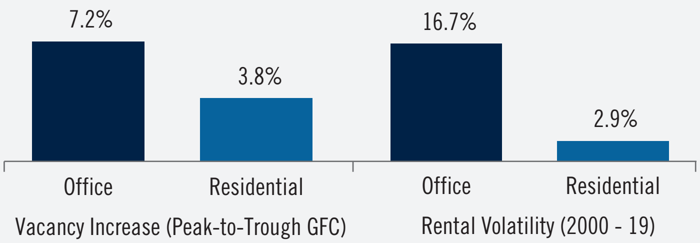
While market uncertainty is weighing on the retail and hospitality sectors and a large supply pipeline threatens the office outlook, the Japanese residential market is arguably one of the most resilient sectors in the region in the near term. With occupancy remaining above 95% for most of the past decade, rental income in the residential sector has been much more stable than in the office sector, for example. Since 2000, residential assets in Tokyo's central wards have recorded an average rental growth of 1.5% per annum with a volatility estimated at 2.9% (exhibit AP4).

Exhibit AP4: Tokyo Residential Sector Fundamentals

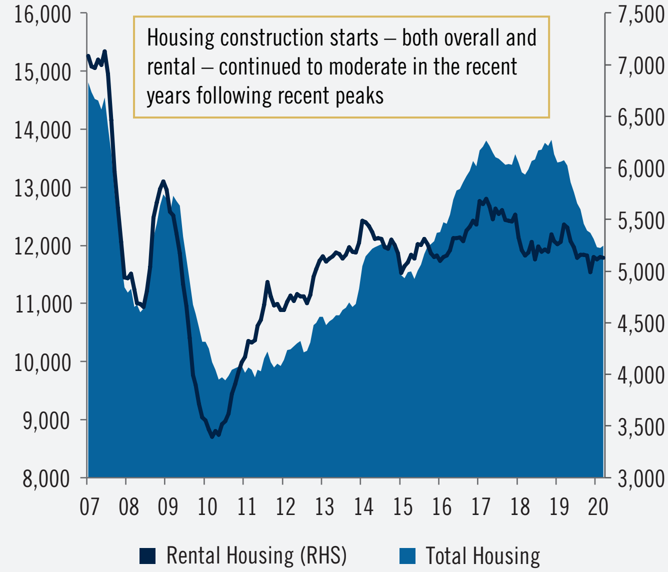
Tokyo Residential Occupancy Rate (% Stock)



Tokyo Office and Residential Fundamentals



Tokyo Housing Units Construction Starts (000s)



Sources: Association for Real Estate Securitization; JLL; Ministry of Land, Infrastructure, Transport and Tourism of Japan; PGIM Real Estate. As of May 2020.

Part of this resilience is attributable to the fundamental structure of the economy. Population growth in Tokyo continues to be strong despite weak demographic trends nationwide. This has been driven by domestic migration as students and working-age citizens flock to major cities for education and employment opportunities. This trend is set to persist and to continue to drive demand in the sector.

The apartment outlook also remains favorable, as housing construction starts in Tokyo have fallen to multi-year lows. At the same time, the postponed Olympics is set to lower the near-term supply pipeline, as sales of residential units within the athletes villages are delayed.

Amid rising economic headwinds, the Japanese residential sector will likely remain attractive to both domestic and international investors, particularly those seeking defensive, cash-yielding real estate returns.

3. Australia: Defensive Debt, Cyclical Office

Near-term uncertainty points toward debt opportunities as a source of defensive cash flow, while office markets are eventually set to record a strong recovery.

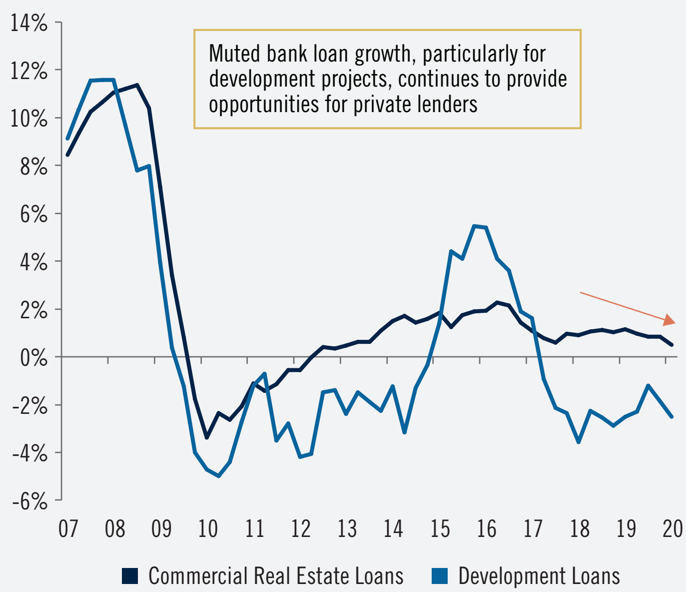
Coming on the heels of disruptive bushfires in late 2019, the pandemic has aggravated the Australian economy at its weakest time. Australia is facing its first recession in almost three decades, bringing its real estate market cycle — which has had a strong run since the global financial crisis — to an end.

In an uncertain environment, debt investments offer a relatively defensive returns profile, and the real estate debt investment market is more established in Australia than other parts of the Asia Pacific region.

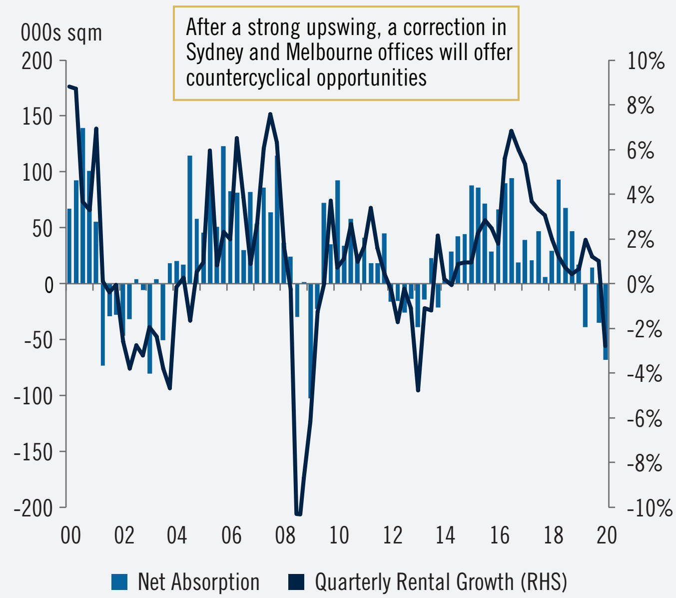
Facing tighter lending regulations since the global financial crisis, commercial banks in Australia have gradually withdrawn from real estate lending, focusing their capacity on low-risk and stabilized commercial real estate assets (exhibit AP5). This creates opportunities for institutional private lenders to fill the void in financing higher risk real estate investment such as development projects.

Exhibit AP5: Australia Real Estate Fundamentals

Commercial Real Estate Loan Growth – Bank Lenders (% p.a.)



Sydney and Melbourne CBD Office Absorption and Rental Growth



Sources: Australian Prudential Regulation Authority, JLL, Oxford Economics, PGIM Real Estate. As of May 2020.

In the current market downturn, demand for private debt is set to increase because borrowers may need to seek alternative financing sources given growing pressure on traditional bank lenders. Tapping into this increased borrowing demand will allow investors to continue to deploy capital during the downturn without taking on the level of risk associated with equity investments.

As a cyclical economy, Australia is also likely to create some recovery-driven opportunities. Among major sectors, office is likely to experience a sharp correction in the near term — especially as momentum had already turned by the end of 2019. Having enjoyed one of the strongest upswing cycles in recent years, effective office rents in Sydney and Melbourne CBDs are almost 50% higher than their pre-global financial crisis peak, putting them at high risk of rental and capital value correction as the market cycle turns.

While the short-term impact of COVID-19 is set to weaken demand across all markets, office demand in Sydney and Melbourne will likely resume as the economy rebounds after the downturn. With a trend growth of around 2.5 to 3.0% per annum, the Australian economy is among the fastest-growing economies in the developed world. The strong economic fundamentals underpin favorable rental growth prospects for the Sydney and Melbourne markets in the longer term.

4. China: Focus on Tier 1 Markets

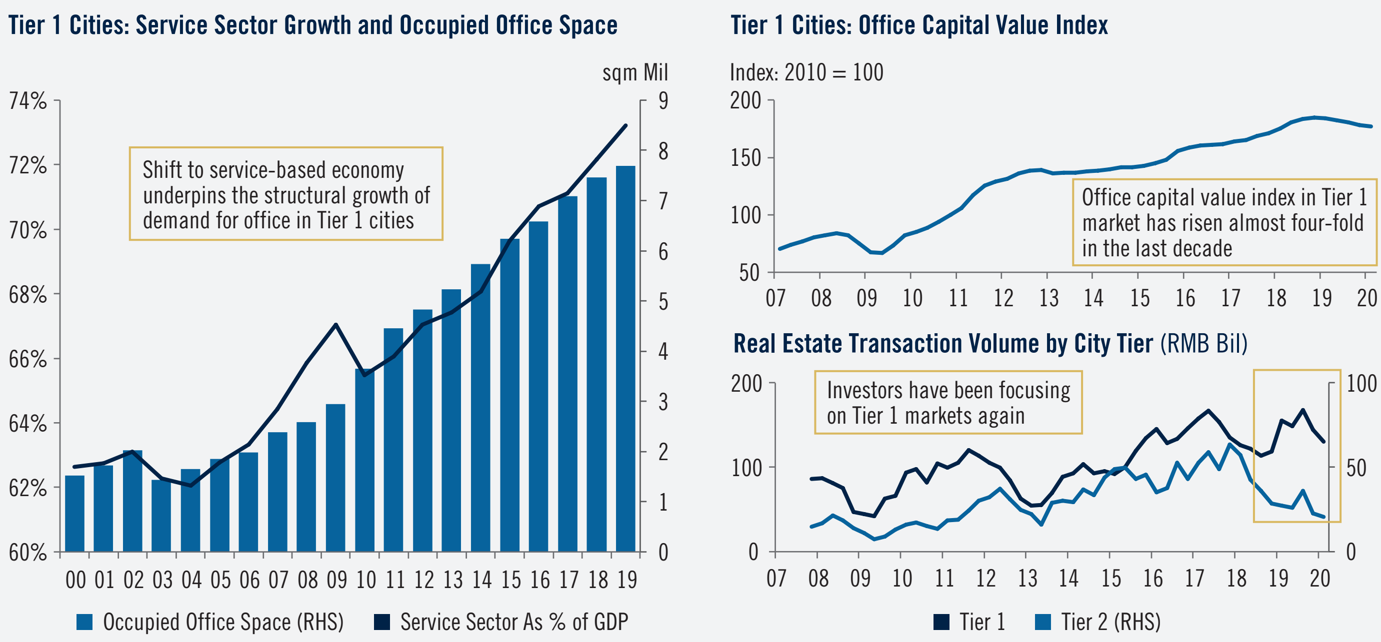
Tier 1 cities continue to exhibit a shift toward services, driving ongoing demand for office space. The prospect of a value correction points toward an attractive entry point.

As the first country to be impacted by the COVID-19 outbreak, China and its economy were hit hard by lockdowns in major cities, reporting a quarterly contraction of 6.8% in the first quarter. Since March, when China started lifting lockdowns and relaxing domestic travel restrictions, the economy has gradually resumed activity, although a return to previous norms remains a distance away.

While the short-term economic growth outlook is deteriorating, China remains an important driver of global growth and an attractive proposition for investors. The main concern for the Chinese economy over the long term is the impact of a shifting global supply chain — an effect exacerbated by the pandemic. As one of the biggest beneficiaries of international trade in the past few decades, China is now facing significant challenges as global manufacturers diversify their production and supply chains away from the mainland.

The overall economy will be impacted, but the effects are set be more significant in cities that rely on manufacturing and exports. Most of these are Tier 2 cities or lower. Benefiting from the country's rebalancing shift toward services and domestic consumption in the past decade, the economies of Tier 1 cities such as Beijing, Shanghai, Shenzhen and Guangzhou have shifted to a much greater service sector weighting (exhibit AP6).

Exhibit AP6: Office Performance and Transaction Volume in Tier 1 Cities



Source: JLL, Oxford Economics, Real Capital Analytics, PGIM Real Estate. As of May 2020.

Reflecting a rising service sector share, demand for premium office space in Tier 1 markets such as Beijing and Shanghai has risen twofold in the past 10 years. Capital inflows have also shifted to focus more on Tier 1 markets in recent years, while investment activity in Tier 2 markets has declined by two-thirds from its peak.

In Tier 1 cities, the office sector is set to offer selective opportunities based on the balance of supply and demand, which is currently favoring Beijing over Shanghai. Softening investment sentiment — and the prospect of a value correction in the near term — point toward an attractive entry point.

5. Upswing in Trade-Dependent Economies

Hong Kong, Singapore and South Korea are volatile markets that are already recording value declines but are well-placed for a strong cyclical recovery.

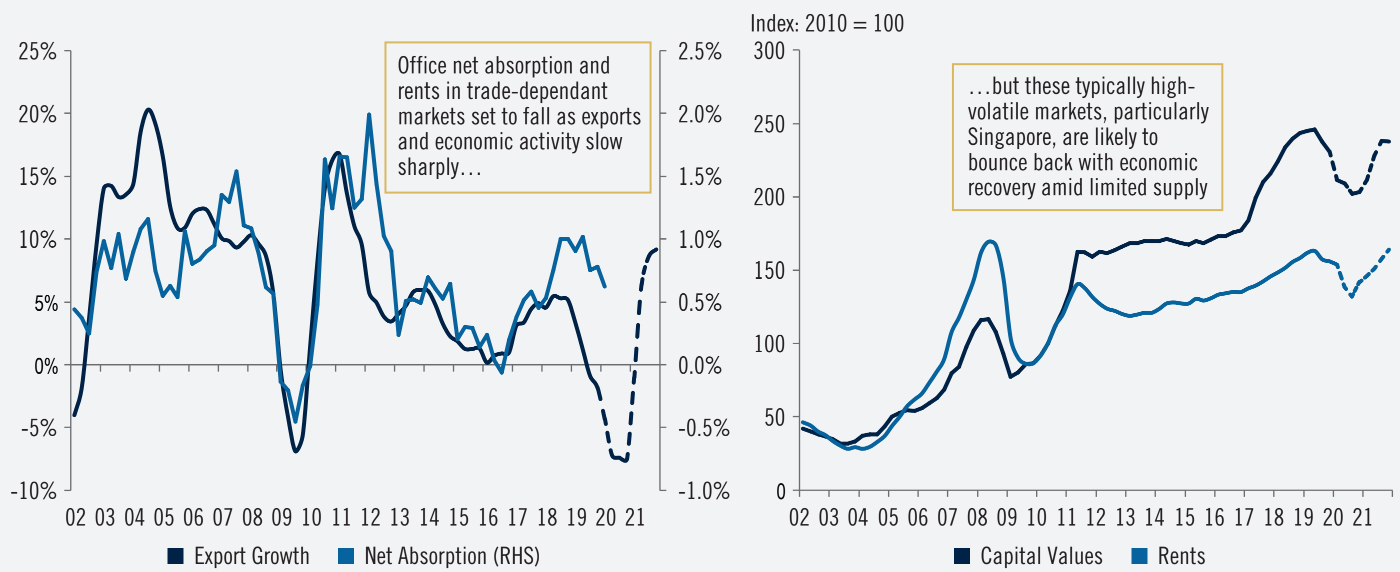
The trade-dependent economies of Hong Kong, Singapore and South Korea have a heavy reliance on exports, which means they are relatively sensitive to global economic conditions. As such, the prospect of a global demand slump linked to COVID-19 points toward these economies facing a deep recession.

Real estate performance is similarly linked to trade conditions. Office absorption in Singapore and Hong Kong shows a very high correlation with export growth over time (exhibit AP7). If this past relationship holds, there will be significant pressure on office demand in these city-states until global economic growth stabilizes.

Exhibit AP7: Exports, Office Absorption, Rental and Capital Value Growth

Annual Export Growth (%) **and Office Net Absorption** (% Stock, 4Q Rolling)

Prime Office Capital Value and Rent Index: Hong Kong and Singapore



Sources: Oxford Economics, JLL, PGIM Real Estate. As of May 2020.

In the office sector, rents and capital values are already declining. The impact is most pronounced in Hong Kong, where demand was already easing as a result of social unrest at the end of last year, while Singapore's office cycle saw rental growth momentum decline for the first time since early 2017.

While the volatility inherent in these markets points to a sharp decline during a downturn, it is typically followed by a significant upswing in a recovery. During the global financial crisis, prime office rents in Singapore and Hong Kong grew by almost 40% in the first 12 months after reaching a trough. The increase in capital value momentum was even more striking as yields compressed in anticipation of a swift rental recovery.

Among these markets, Singapore looks best-placed to enjoy a strong cyclical recovery, as Hong Kong remains hampered by political concerns. Uncertainty around the sustainability of demand for flexible office space — a key driver of leasing activity in all three markets in recent years — is set to weigh on recovery momentum.

EUROPE

Sharp Recession, But Fiscal and Monetary Support Is Extensive

The outlook for real estate markets in Europe has altered significantly since the start of 2020. Economic growth was already running below trend, but real estate performance was supported by several tailwinds, including low supply boosting occupier markets, ample liquidity and low interest rates supporting capital values.

The rapid spread of COVID-19 throughout Europe in March triggered the imposition of highly restrictive measures in almost all major countries in the form of lockdowns, movement restrictions and travel bans that aim to limit transmission of the virus.

Sentiment indicators and timely economic data are pointing to an unprecedented, sharp contraction in economic output through the second and third quarters of 2020. Sharp downward movements in equity indexes — and elevated volatility — demonstrate that asset values are under severe pressure. Real estate valuations lag but will not be immune to wider market trends, as demonstrated by significant falls in REIT valuations through March and April.

It is not yet clear how deep or how long the recession will be, but there is some cause for optimism. Unlike during the global financial crisis, when policy response was slow off the mark, fiscal and monetary policy action to cushion the impact of COVID-19 has been swift, synchronized and sizable across Europe.

Policy action should help limit losses in output and employment provided that restrictive measures can be lifted before too long. Central bank credit lines are supporting liquidity among key real estate lenders, and along with emergency business loan and employee retention schemes, the health of major corporate occupiers.

Undoubtedly, recent events are set to weigh heavily on the outlook for the remainder of 2020 and beyond. A return to what was considered normality only a few months ago looks some way off. While some of the supportive factors for real estate opportunities remain in place — notably, contained supply growth and low interest rates — pricing adjustments and alterations in the way society interacts with the built environment mean that the landscape for investment opportunities is shifting rapidly.

Deal Volume Set to Decline

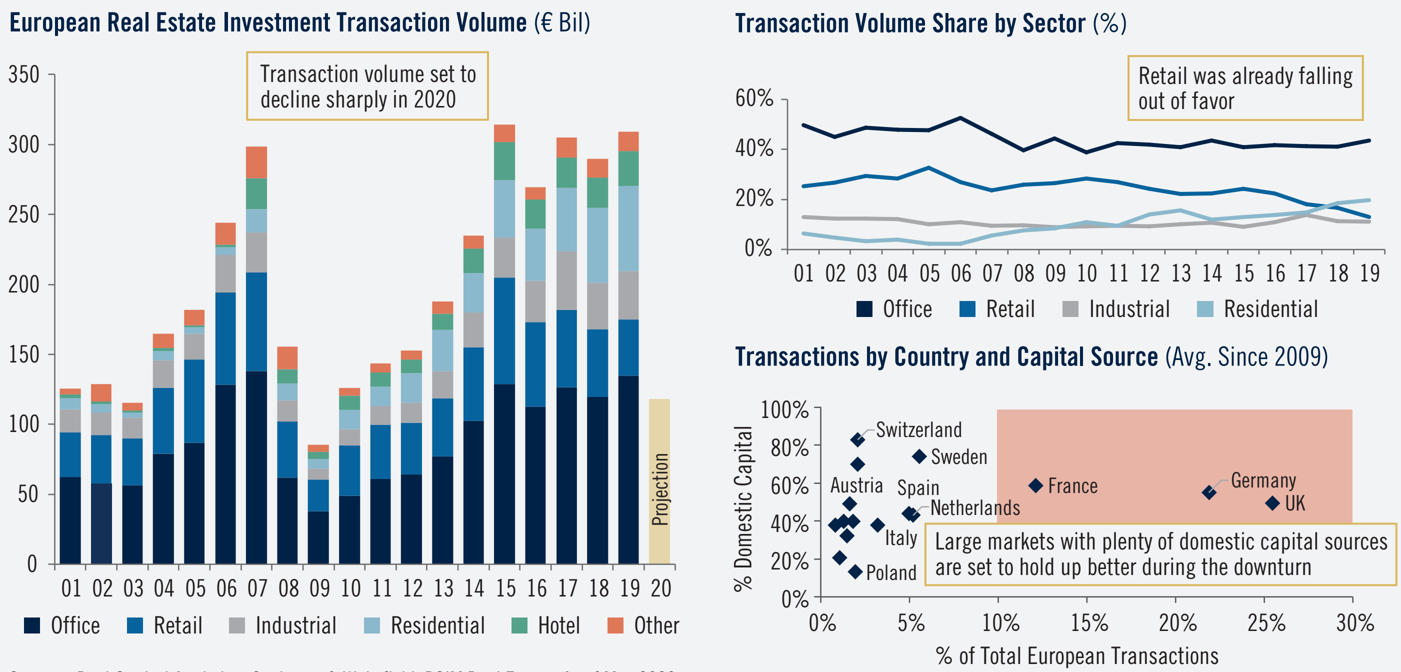
European real estate transaction volume remained at high levels throughout 2019, picking up toward the end of the year, when receding Brexit uncertainty boosted activity in the United Kingdom. Transaction volume during the fourth quarter of 2019 was the second highest on record, and this momentum carried into early 2020.

Deals continued to be completed at the same pace as those last year until early March, when COVID-19 restrictions were imposed and activity quickly ground to a halt, reflecting the sharp decline in economic and financial sentiment. With lockdowns restricting the ability of purchasers, lenders and appraisers to physically visit sites, there was an immediate effect on the completion of transactions in the second quarter.

With the impact to economic activity set to be at least as severe as during the global financial crisis, it is not unreasonable to assume that transaction volume will decline in a fashion similar to 2009, if not more significantly. The highly synchronized nature of the COVID-19-related downturn means the adjustment is set to occur over an even shorter time frame.

A simple projection based on the decline in volume recorded in 2008 and 2009 but adapted to reflect current restrictions on activity shows that deal volume in 2020 may eventually be as little as one-third of the total recorded last year (exhibit EU1).

Exhibit EU1: Investment Market Overview



Sources: Real Capital Analytics, Cushman & Wakefield, PGIM Real Estate. As of May 2020.

When a recovery does come, some recent and past trends are set to be repeated. By sector, investors are likely to continue to favor investment in industrial and residential assets over retail, although challenges in the hospitality sector are set to persist, dampening appetite for hotels. Markets that offer a combination of scale and significant domestic capital sources — which are set to prove more resilient initially than overseas flows due to travel restrictions — are likely to hold up better and recover more swiftly.

Investors Waiting on the Sidelines

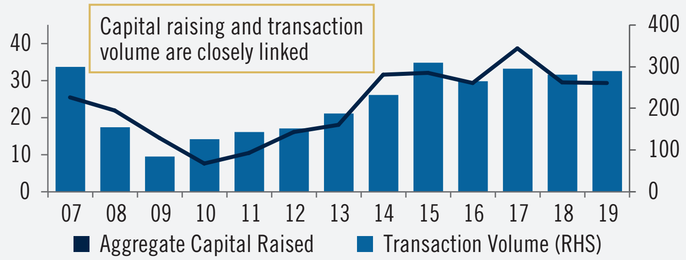
Beyond the inevitable period of disruption in the short term, an important factor in determining how quickly investment markets will recover relates to capital raising in the run-up to the crisis and, more specifically, how much dry powder — contractually committed capital yet to be drawn — is waiting on the sidelines.

Over the past few years, the aggregate volume of capital raised has remained at high levels, broadly tracking the pattern of investment volume (exhibit EU2), reflecting the growing investor appetite for real estate motivated by elevated returns, diversification benefits and a growing opportunity set. As a result, the volume of dry powder waiting to be deployed in European real estate markets reached a record level of just below €80 billion in 2018 and remained close to that level throughout 2019.

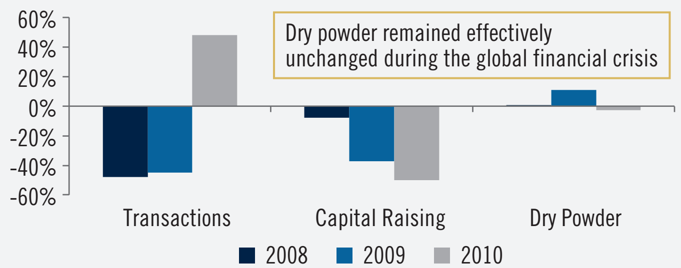
The actions of investors during the global financial crisis can provide some clues as to what investors might do with their available capital in the face of a downturn. While transaction volume declined through 2008 and 2009 — and capital raising didn't start to recover until 2011, three years after the crisis began — dry powder remained effectively unchanged.

Exhibit EU2: Capital Raising and Dry Powder

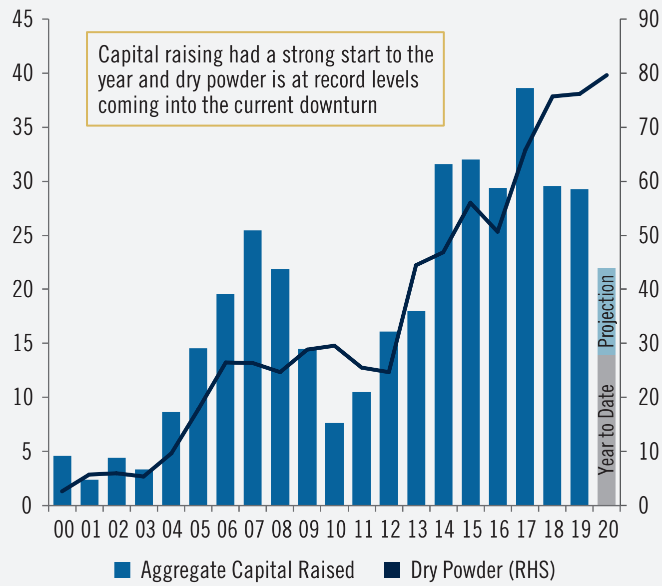
Aggregate Capital Raised and Transaction Volume – Europe (€ Bil)



Change in Volume During the Global Financial Crisis (%)



Aggregate Capital Raised and Dry Powder – Europe (€ Bil)



Sources: Preqin, Real Capital Analytics, PGIM Real Estate. As of May 2020.

Similar trends can be expected this time around. Capital raising is set to decline significantly in the middle part of this year, reflecting a range of factors, including the prospect of weak or negative returns, physical constraints in visiting managers and conducting due diligence, and pressures to rebalance portfolios owing to value declines in liquid asset classes such as equities and corporate bonds. However, a strong start to the year means that overall capital raised in 2020 should remain substantial, assuming a return to more-normal levels in the fourth quarter.

Dry powder rose slightly in the first quarter and, given limited potential to complete transactions in the near term, is set to rise in line with the €15 billion of capital raised so far this year. As in 2009 and 2010, many investors with available capital are set to be patient until there is greater clarity on the impact of the crisis. At the same time, the presence of a large volume of capital that is on the lookout for opportunities points toward a floor to potential value declines and the prospect of a swift value recovery following a correction, once uncertainty recedes.

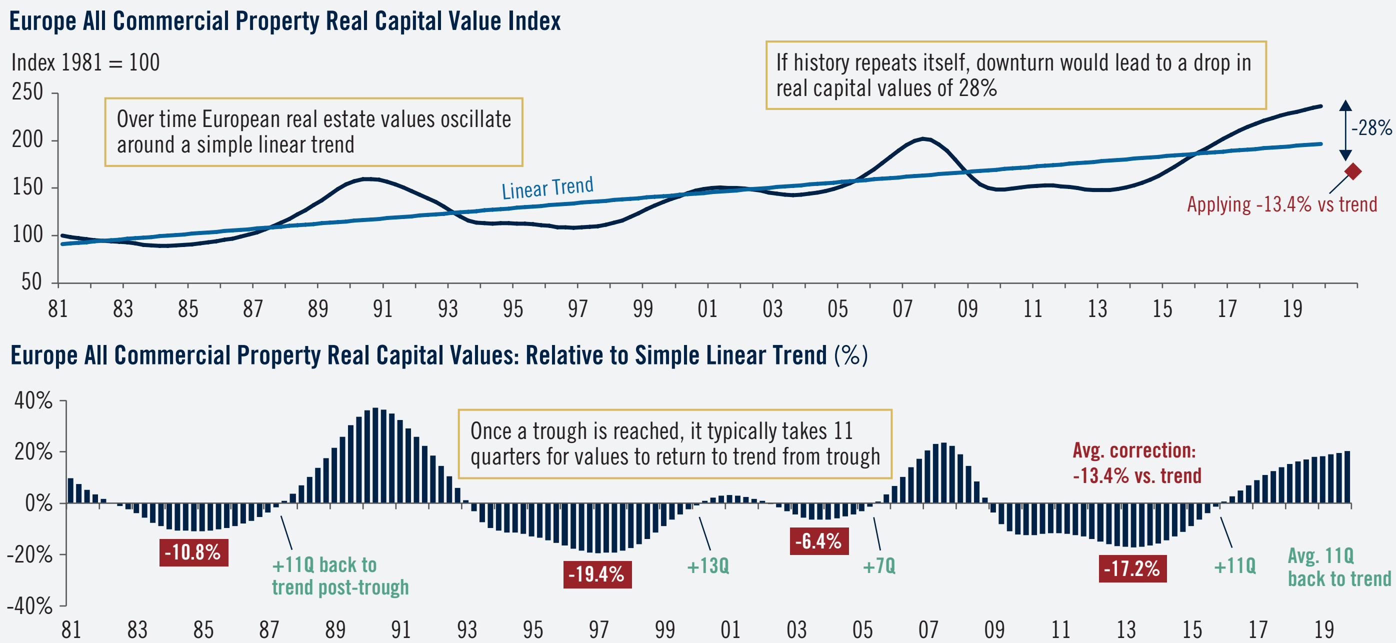
Capital Values Under Pressure, But Will Low Interest Rates Help?

While capital availability and low interest rates have helped support elevated real estate valuations in the early part of 2020, the capital value upswing that has been a feature of the market since 2012 is ending. Occupier distress is apparent — weighing on short- and medium-term cash flow potential — while the risk premium is rising.

Alongside movements in REIT markets, which can lead private market values — albeit sometimes with mixed signals — history can act as a guide to what is to come. Causes and effects differ across downturns, but value movements recorded over the past 40 years provide some clues into typical durations and magnitude of typical capital value downturns.

On a very simple level, European real estate capital values have tended to oscillate around a linear, gently upward-sloping trend. In the last four downturns, the average correction, in real terms, was down to 13% below that trend, with a range of 6 to 19% (exhibit EU3).

Exhibit EU3: Assessing the Magnitude of Value Declines



Sources: Cushman & Wakefield, PGIM Real Estate. As of May 2020.

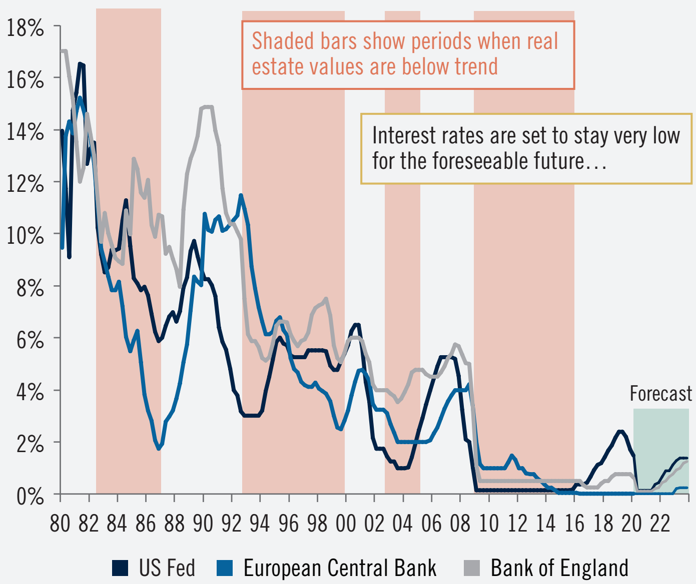
Boosted by low interest rates and a weight of capital that has chased core real estate assets in recent years, prime capital values come into this crisis at relatively high levels. If capital values fall in a typical fashion — to 13% below trend — the total peak-to-trough capital value correction would be around minus 28%, taking just under three years to return to the trend path from the trough.

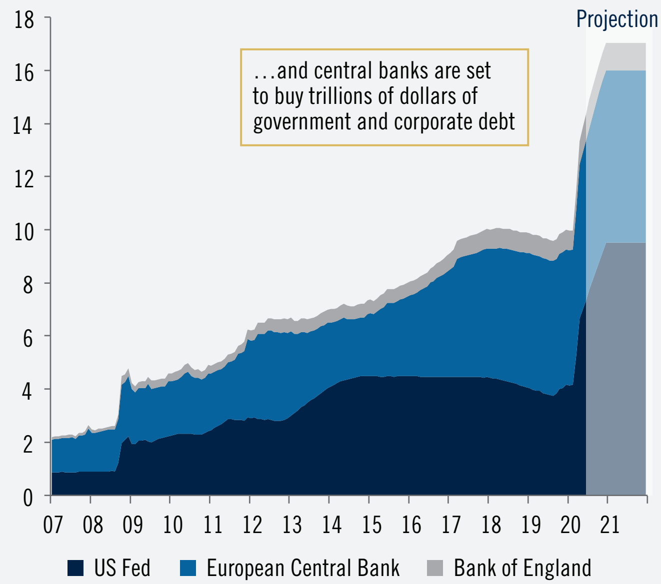
As always, several factors are different going into this crisis compared with past downturns. In the near term, the economic impact is set to be more severe than even the global financial crisis, yet the contraction is highly synchronized and playing out quickly, so natural valuation lags may provide a cushion against the worst of the impact if conditions start to improve.

Extensive policy measures have already been deployed to try to cut the recession short and support economic activity as restrictions are lifted. Unlike past crises, the current downturn has not followed a period of rising interest rates, meaning that policy support has been more or less immediate.

In addition to cutting rates, central banks across Europe have restarted quantitative easing and asset purchase programs — much as the Federal Reserve has done in the United States — acquiring significant quantities of government and corporate debt (exhibit EU4). Broadly speaking, the aim is to provide liquidity and to divert capital away from safe-haven assets toward other investments, with low bond yields driving down required returns on risk assets. In real estate terms, this means yields being lower than they otherwise would be.

Exhibit EU4: Central Bank Policy Response





Sources: Bloomberg, Oxford Economics, PGIM Real Estate. As of May 2020.

Low Supply to Soften Impact on Rental Growth

The severity of the near-term economic impact of COVID-19 is having an impact on occupier markets. Most visibly, some tenants are not legally required to pay rents in many major markets during the second quarter. While such measures will not last forever, the risk that cash flow disruption could happen again in the future — especially while the virus is not totally eradicated and further lockdowns may be required — will now have to be explicitly factored into cash flow expectations.

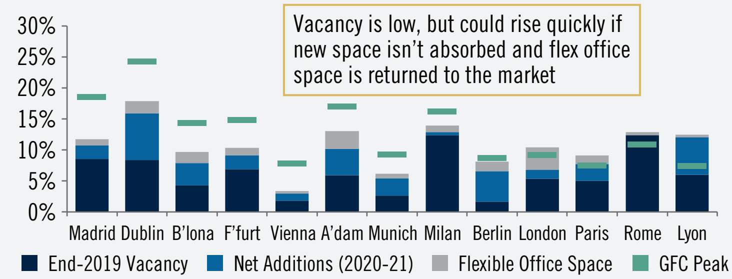
On the back of a sharp increase in unemployment and stress in the small business sector, vacancy is set to rise — especially as demand coming out of the lockdown restrictions is set to remain tentative across all sectors and markets.

In the office sector, an adverse impact on demand is inevitable, but there should be some support from low supply coming into the crisis. Demand for space has dropped significantly and is putting downward pressure on rents, but limited space availability in many European markets should help contain rental falls.

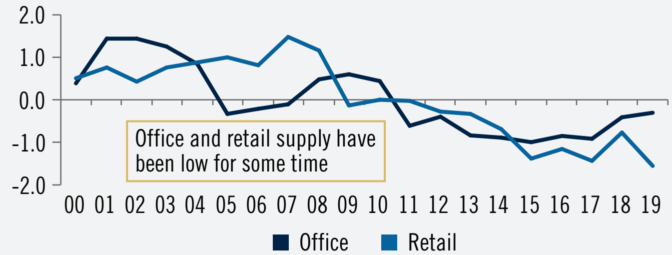
In general, vacancy starts from a low base across most major office markets, owing to a combination of above-average demand — driven by significant gains in employment in recent years — and below-average additions to space through much of the past cycle (exhibit EU5).

Exhibit EU5: Vacancy and Supply Across European Markets

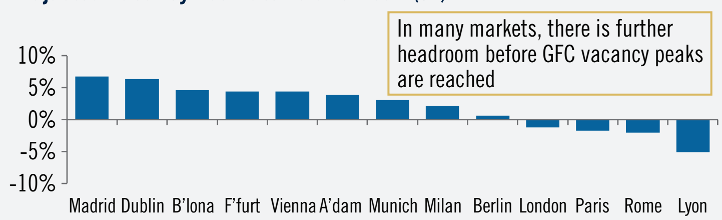
Office Vacancy Rate and Adjusted Vacancy Estimate by Market (%)



Normalized Supply Growth by Sector (%)

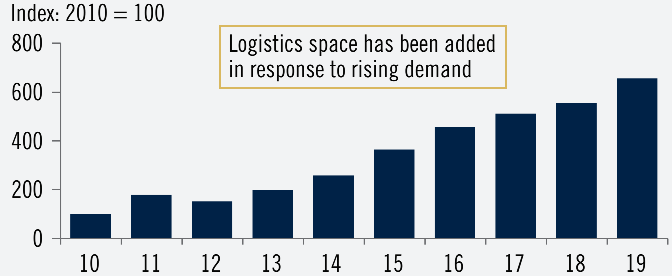


Adjusted Vacancy Estimate vs GFC Peak (%)



Logistics Completions: Major Markets

Index: 2010 = 100



Note: Our measure of "adjusted vacancy" is the sum of end-2019 vacancy, expected additions in 2020-21 and flexible office space.

Sources: PMA, Cushman & Wakefield, PGIM Real Estate. As of May 2020.

In the run-up to the global financial crisis, supply growth was higher than in recent years, and demand dropped sharply, pushing vacancy rates upward. To make matters worse, several major markets, including Amsterdam and Frankfurt, came into the crisis with legacies of excess supply that dated back to rapid development in the late 1990s. In such circumstances, rents dropped significantly.

A stressed near-term vacancy scenario is proxied in exhibit EU5 by (1) taking existing vacancy, which is very low in most markets; (2) adding on all space due to be added to the market in the next two years; and (3) assuming the release of flexible office space. The reason to include flexible office is twofold: first is the short-term challenge to its operational model posed by the nature of COVID-19 and associated policy measures, and second is that its tenant base includes corporate overflow space and small businesses, both of which tend to be disproportionately affected in a downturn.

While overall office demand is certain to be impacted in the coming months, this analysis demonstrates that there is some headroom before reaching the peak vacancy reported in the aftermath of the global financial crisis.

The already struggling retail sector — in which vacancy has been rising for some time, even in the strongest locations — is set to be further affected as occupiers fail and prospects for the releasing of vacated space look weak, unless significant concessions are made. Similarly, prospects for hotel occupancy, which is now running at historical lows, are highly uncertain, even once travel restrictions are eased.

In contrast, the logistics sector comes into the crisis on the back of a significant increase in supply in recent years, with additions to stock in major markets running three times higher than in the early part of the cycle. There is some overhang of speculative space to work off, although vacancy remains low in a historical context, and further shifts toward online retail point to demand remaining more resilient than in other sectors.

Investment Opportunities

Current conditions point toward a sense of caution in the near term. While the outlook could improve swiftly if progress is made to contain or treat COVID-19, the reality is that the whole of 2020 looks set to be characterized by occupier and investment market uncertainty and distress.

Looking ahead, the returns environment is likely to remain subdued through the next cycle — not least as interest rates are effectively unable to fall further to support capital growth. The ability to maintain income receipts and deploy effective asset management strategies to grow cash flow and asset values is increasingly important.

Despite the uncertainty, several trends support the outlook and give some indication as to what the investment opportunity landscape is going to look like.

The relatively low-supply environment means that major core office markets that offer liquidity are well positioned to record a swift recovery. In addition, the crisis is exacerbating structural trends that were already gathering momentum. Supply chain expansion is boosting demand for logistics and there is set to be a growing need for higher-quality, affordable residential units in major cities.

In the near term, debt investments offer an attractive entry route into the market, providing defensive cash flow and capitalizing on an opportunity set that is growing as regulation constrains traditional bank lenders.

1. Early Recovery Office Markets

Liquid CBDs and markets that can keep vacancy down through the crisis are set to offer a significant opportunity set during an office recovery.

Office is one of the most cyclical real estate sectors, with headline value swings driven by factors that can vary through the cycle, such as large lot sizes that require significant available finance, lags in providing new supply and the lumpy nature of large, corporate leases that drive occupational demand.

The experience of past cycles points toward two important factors determining the nature of the opportunity set during an office recovery cycle: liquidity and vacancy.

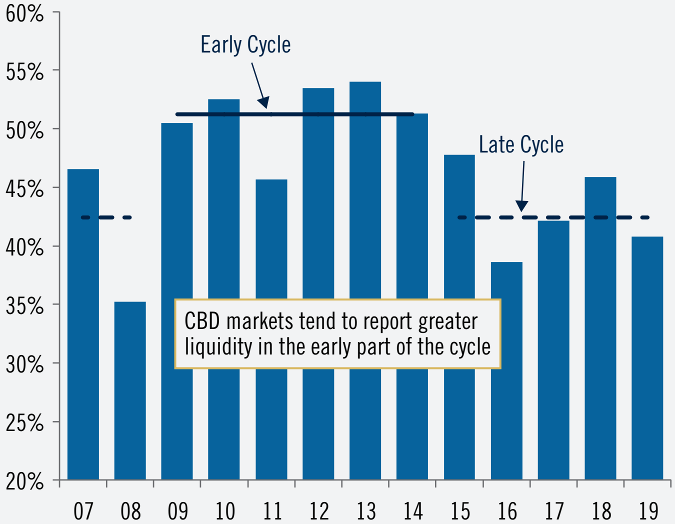
Liquidity is important not only for buyers that need to be able to transact through the cycle but also in terms of there being an opportunity set in the form of stock available to bid on.

During a downturn and into the early recovery phase of a cycle, investors are typically still cautious, and finance may not be so readily available if the occupier story isn't solid. A good example is CBDs, which tend to report stronger leasing fundamentals in weaker market conditions, owing to factors that drive location preferences such as density, agglomeration effects and connectivity.

Investors typically follow occupier trends and CBDs constituted 50 to 55% of total office investment volume in Europe's major markets in the years following the global financial crisis. In more recent years, as occupier demand broadened, the CBD share dropped to about 40% (exhibit EU6).

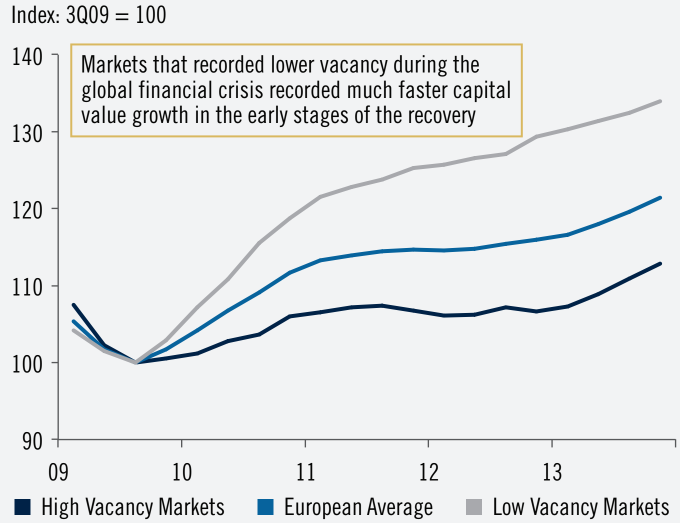
Exhibit EU6: CBD Liquidity and Impact of Vacancy on Value Recovery

Share of CBD in Total Office Transaction Volume – Big Three (%)



Note: Big three refers to France, Germany and the United Kingdom

High Vacancy vs Low Vacancy Market Capital Value Index



Note: High vacancy markets include Amsterdam, Frankfurt, Madrid, Milan and Rome; Low vacancy markets include Berlin, London, Paris and Vienna.

Sources: Real Capital Analytics, Cushman & Wakefield, PMA, PGIM Real Estate. As of May 2020.

Similarly, one clear lesson from past crises has been that elevated vacancy — whether due to an existing legacy, a mistimed spike in new additions or simply demand dropping sharply — holds back any recovery. In the third quarter of 2009 — the year following the trough of the global financial crisis — values in markets with below-average vacancy rose by 16% compared with a rebound of only 4% in higher-vacancy markets.

The encouraging sign for office markets is that most locations are starting with very low vacancy rates, although the nature of the downturn means that demand could pull back sharply in the near term, pushing availability upward. Some persistence to vacancy is possible depending on whether the crisis leads occupiers to realize they can reduce their space footprint without a detrimental impact on output.

As in prior cycles, markets that can keep vacancy low are set to have the earliest and most-pronounced recovery. While there is a great deal of uncertainty around future demand, markets such as Berlin, Paris CBD, Munich and Vienna all started the crisis with very low vacancy and look set to be among the earliest to recover.

2. Accelerated Structural Trends

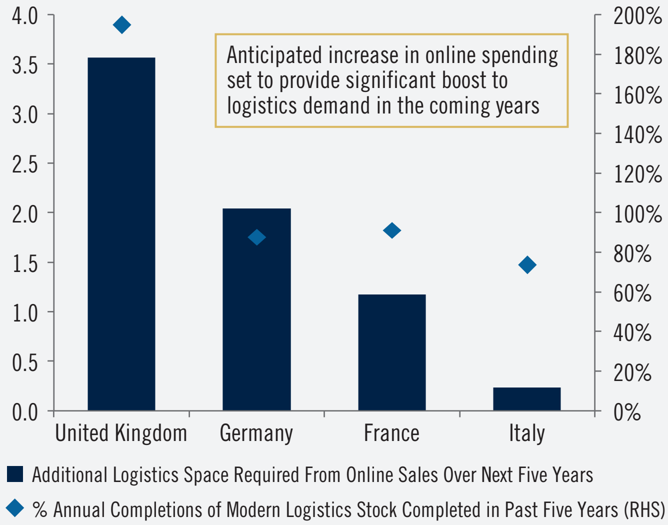
Rising online spending and a growing need for provision of modern residential stock in major cities are set to provide ongoing opportunities for investors.

Given the severity of the economic impact of COVID-19, logistics markets are set to face some near-term disruption — notably relating to a period of weaker retail spending across Europe. However, looking through the cycle, a further move toward online retail is set to benefit the logistics sector.

An increase in online retail activity requires a greater amount of logistics and warehousing space to deliver goods in a timely manner. Based on an analysis of existing space usage among major international online retailers, it is estimated that additional annual online sales of €900 million (about $1 billion) require about 100,000 square meters (1 million square feet) of logistics space. Exhibit EU7 shows how this figure translates into potential additional space requirements in the next five years across a number of major European markets.

Exhibit EU7: Estimating Logistics Space Requirements

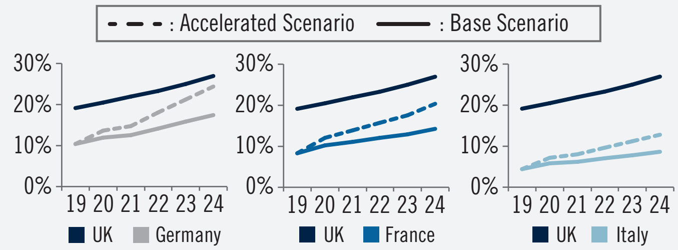
Estimated Additional Annual Logistics Space Required From Online Sales (sqm Mil)



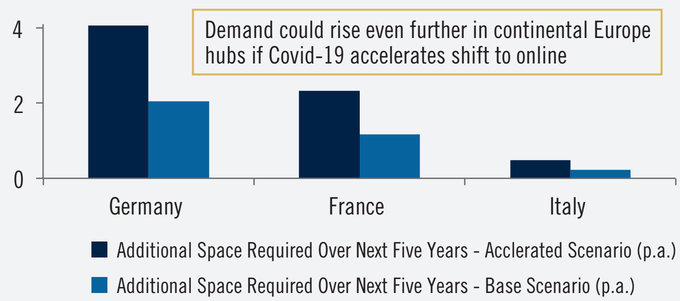
Note: Additional demand estimated by assuming every €900 million additional annual online sales requires approximately 100,000 sqm additional distribution space.

Sources: PMA, Oxford Economics, PGIM Real Estate. As of May 2020.

Online Share of Retail Spending – Scenario Analysis (%)



Estimated Logistics Space Required – Scenario Analysis (sqm Mil)



Note: Accelerated scenario reflects an increased pace of conversion towards the UK Level.

Based on the analysis, significant additional space is set to be required in major distribution corridors in the United Kingdom, where the share of online sales is above many countries in Continental Europe. The volume of new space required is elevated compared with the recent pace of completions.

Significant requirements are also set to be forthcoming in other European markets, and these could be further boosted if COVID-19 affects consumer behavior — not least in the near term as physical shopping is set to remain restricted for some time — and accelerates an already ongoing shift toward a rising share of online retail. Logistics demand in the major markets of France, Italy and Germany would grow twice as quickly under an accelerated scenario in which they approach UK levels of online penetration more rapidly.

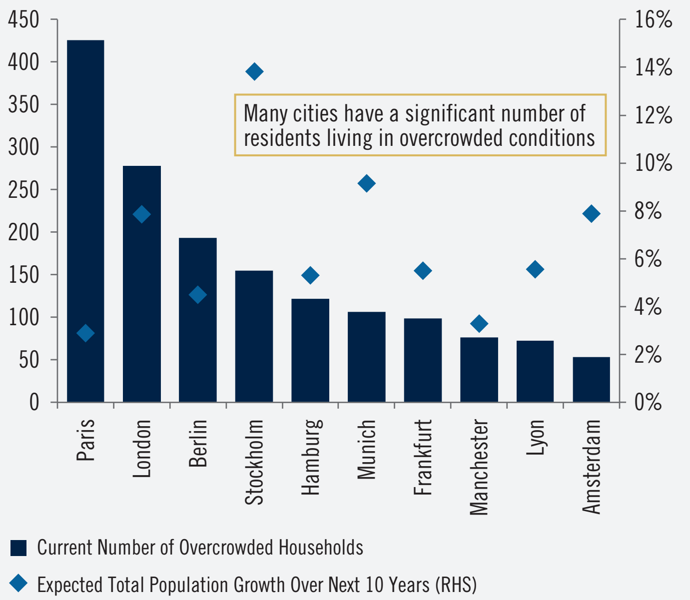
Another structural trend in recent years has been an increased interest in residential assets among institutional investors that are attracted by their defensive granular cash flows, a relatively favorable mix of demand driven by household formation in major urban areas and relatively constrained supply through much of the cycle.

Over time, part of the story — especially for investors that are interested in impact investments that target socially beneficial projects — is linked to urban regeneration, enabling cities to repurpose existing sites to cater to the changing living and working needs of their populations.

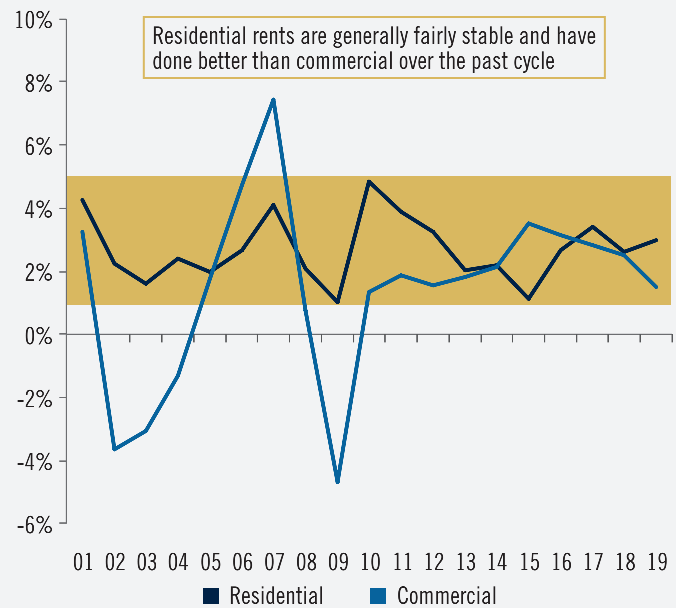
While the effects of the COVID-19 crisis are yet to be fully borne out, a potential opportunity for investors relates to housing provision in dense urban areas. Many major European cities have grown rapidly in recent decades, and inevitably, some of the housing stock has been left behind. Combined, London and Paris have 650,000 households living in overcrowded conditions (exhibit EU8).

Exhibit EU8: Residential Market Characteristics

No. of Overcrowded Households (000s) **and Population Growth** (% p.a.)



Rental Growth: Residential versus Commercial (% p.a.)



Sources: Eurostat, MSCI, Oxford Economics, Cushman & Wakefield, DZ Hyp, MSCI, PGIM Real Estate. As of May 2020.

At the same time, most major cities are expected to record population growth in the coming years, pointing toward an ongoing need for provision of living spaces. The popularity of the residential sector is benefiting from its relatively stable rental growth profile, which outperformed commercial markets for much of the past cycle.

Refurbishing existing buildings, providing new accommodation to gradually replace older stock and creating living spaces that cater to growing urban populations continue to be important parts of the investment landscape. The public health implications of COVID-19 can only accelerate a need to improve the mix of residential stock as well as provide in-town living spaces for employees who have proved crucial during the crisis, notably those working in health sectors.

3. Debt-Funding Requirements

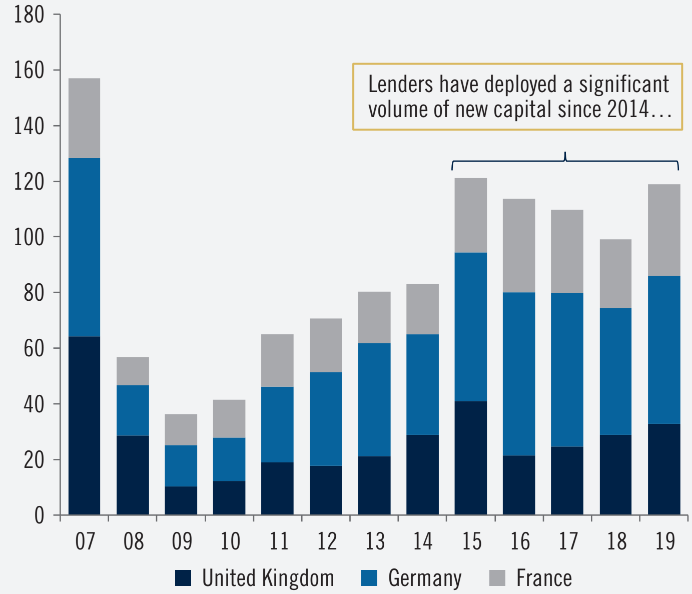
Elevated lending to real estate in recent years points to refinancing opportunities for nontraditional lenders, while alternative debt providers can look to capitalize on any distress in the market.

The volume of lending to real estate in Europe's major markets has been elevated in the past few years. In total, a combined €565 billion of new debt has been originated in France, Germany and the United Kingdom since 2014 (exhibit EU9), primarily reflecting elevated transactions activity rather than the use of leverage, which has been constrained during the past cycle.

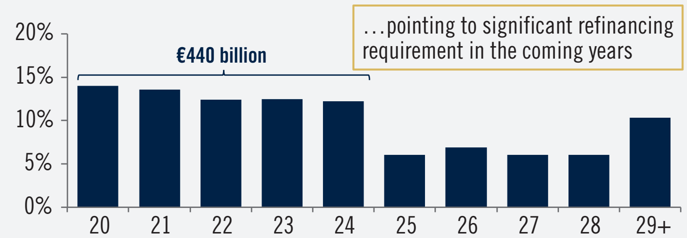
Evidence from a Cass Business School study of the UK market suggests that new business is typically around 50% of total lending activity once refinancing of existing loans is taken into account.

Exhibit EU9: European Debt Market Performance and Holdings

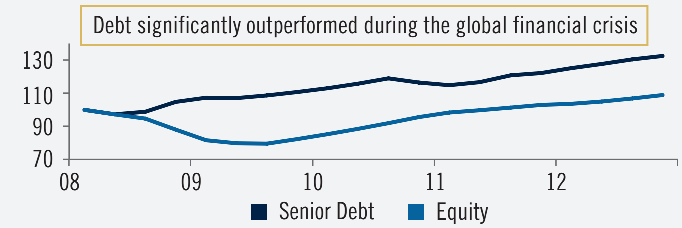
Estimated New Debt Origination by Major Country (€ Bil)



Loan Maturity Schedule: UK, Germany and France (%)



Total Return Index in Five Years Following the Global Financial Crisis (1Q08 =100)



Note: Debt returns are estimated from an analysis of real estate performance, interest rates and prevailing ending terms. Value fluctuations are driven primarily by the effect of marking to market.

Sources: Cass Business School, IREBS, Cushman & Wakefield, INREV, PGIM Real Estate. As of May 2020.

The volume of lending that has taken place in recent years looks set to give rise to significant opportunities. During a downturn, funding gaps can arise as a result of a mismatch between lender capacity for new business and borrower requirements to deal with maturing loans — a situation exacerbated by falling equity transaction liquidity that makes a sale-driven exit difficult. In total, €440 billion of loans are due to mature over the next five years in the United Kingdom, Germany and France combined.

Given the potential for values to decline in the short term, there are two broad groups of opportunities. The first, relating to non-distressed assets, is for non-traditional senior lenders to participate in financing new deals and refinancing existing loans given the regulatory constraints that continue to constrain bank lenders.

The second, relating to stressed capital structures, is for alternative debt and capital solutions providers to inject capital, which is an appealing prospect for senior lenders that could face a deluge of defaults if the COVID-19-related downturn is severe.

More generally, senior debt tends to outperform in a downturn. During the global financial crisis, the estimated value of debt positions barely fell, and it was almost a year before equity started seeing prospects of outperforming on a longer-term basis. Given the risk premium required, there is a strong case for investors to increase exposure to debt in their real estate allocations — at least until uncertainty materially reduces.

PART III: GLOBAL PORTFOLIO IMPLICATIONS

III. GLOBAL PORTFOLIO IMPLICATIONS

DIVERSIFICATION IN UNCERTAIN TIMES

When it comes to diversification, the ultimate goal is to target strategies and markets that are going to outperform at any given moment in time. At the same time, real estate is an asset class with many factors that impede portfolio allocation, including imperfect information flows, a universe of non-homogenous assets, lags between market events and their effect on valuations, and a lengthy transaction process.

The upshot is that trying to accurately time a market cycle is no easy task. Even if a trough is predicted accurately, being able to allocate capital and execute transactions rapidly and at sufficient scale to capture a short window of performance upside is not a given.

Even so, diversification across sectors and geographies has an important role to play — especially as individual markets, on average, have more-severe downturns than wider market measures.

Over time, there are few patterns to markets performing consistently well or badly in terms of total returns (exhibit 8). Over a long period of time, prices adjust to take account of such factors as growth potential and risk; and previously unanticipated changes such as the rise of online retail periodically come along to shake things up.

Exhibit 8: Prime Sector-Region Return Rankings

Estimated Prime Market Total Return (% p.a.)

	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
Best Performing	16%	16%	24%	23%	29%	29%	21%	15%	17%	24%	33%	28%	36%	5%	4%	22%	23%	16%	18%	23%	20%	19%	23%	16%	15%
	12%	14%	17%	23%	20%	26%	20%	15%	15%	23%	22%	28%	24%	4%	2%	22%	19%	15%	15%	16%	20%	16%	15%	16%	13%
	12%	14%	17%	20%	18%	19%	14%	13%	14%	20%	22%	24%	21%	0%	1%	19%	18%	15%	14%	15%	18%	15%	15%	13%	12%
	11%	13%	17%	19%	17%	16%	13%	12%	12%	19%	20%	23%	21%	-1%	-2%	16%	17%	15%	14%	15%	18%	15%	12%	13%	12%
	11%	11%	17%	17%	14%	15%	13%	9%	11%	18%	20%	20%	19%	-2%	-3%	15%	17%	15%	13%	15%	17%	11%	11%	11%	11%
	10%	10%	16%	17%	14%	15%	13%	9%	10%	18%	20%	19%	15%	-3%	-5%	15%	16%	14%	12%	15%	14%	10%	10%	11%	11%
	3%	9%	13%	15%	13%	14%	12%	7%	10%	18%	19%	19%	14%	-4%	-7%	14%	14%	13%	11%	15%	13%	10%	10%	10%	9%
	2%	8%	12%	14%	13%	14%	12%	6%	10%	17%	19%	19%	14%	-5%	-8%	12%	13%	12%	10%	14%	12%	10%	10%	9%	8%
		7%	12%	-6%	7%	13%	12%	6%	10%	17%	19%	19%	10%	-7%	-9%	11%	10%	8%	10%	12%	12%	8%	8%	8%	8%
			1%	-13%	-2%	12%	7%	4%	8%	13%	18%	18%	8%	-9%	-9%	9%	8%	6%	10%	10%	11%	8%	7%	8%	8%
							7%	3%	5%	10%	18%	14%	8%	-10%	-14%	8%	8%	5%	10%	10%	9%	7%	7%	7%	7%
Worst Performing							2%	-2%	1%	10%	12%	7%	8%	-13%	-15%	7%	7%	5%	9%	5%	8%	4%	4%	4%	0%

Asia Pacific Office
Asia Pacific Retail
Asia Pacific Industrial
Asia Pacific Residential
Europe Office
Europe Retail
Europe Industrial
Europe Residential
United States Office
United States Retail
United States Industrial
United States Residential

The relative performance of different sectors and regions varies significantly from year to year, suggesting a benefit from a diversified global real estate market exposure

Note: Returns are indicative, based on the performance of prime or grade A commercial property assets. These estimates do not include depreciation or other running costs and are for illustrative purposes only.

Sources: CoStar, Cushman & Wakefield, JLL, PGIM Real Estate. As of May 2020.

At a very simple level, holding a range of exposure across markets and sectors ensures a portfolio will not suddenly find itself stuck at the bottom end of the ranking chart while vastly reducing the downside risks associated with an excessive concentration in any individual sector or market.

STRATEGY VERSUS TACTICS

While the benefits of diversification are clear, there is a balance to be struck between having a broad exposure and making calls to invest in sectors, markets and strategies that are expected to deliver excess risk-adjusted returns given prevailing conditions and the outlook.

Essentially, the aim of making allocation calls is to tilt exposure toward better-performing markets as much as possible over time. Broadly speaking, these can be either strategic or tactical in nature. The aim of strategic allocation decisions is to tap into long-term trends or established patterns that are favorable to investment in a certain sector, geography or instrument. In the current environment, investing in the fast-growing logistics sector is perhaps the clearest example, while in the past, an example might be a decision to underweight the European office sector in the early 2000s, owing to structural oversupply that made it a lagging performer for several years.

In contrast, tactical calls aim to capitalize on short-term momentum. Following the global financial crisis, markets in Asia Pacific were least affected and bounced back strongly in 2010 compared with other parts of the world, rewarding a tactical overweight to the region.

One feature of tactical calls is that they require a degree of price discovery — which can occur only once a sufficient volume of transaction activity returns — in order to assess whether pricing fully reflects the short-term risks as well as longer-term performance characteristics.

For now, clarity on pricing does not yet exist. So while it is possible to set target prices and required entry yields that relate to tactical opportunities that are likely to occur, for the time being the focus of global portfolio allocation is on strategic calls, aiming to gradually position holdings to capitalize on favorable structural trends.

For the time being, the focus of global portfolio allocation is on strategic calls, aiming to gradually position holdings to capitalize on favorable structural trends.

GLOBAL INVESTMENT OPPORTUNITY MAP

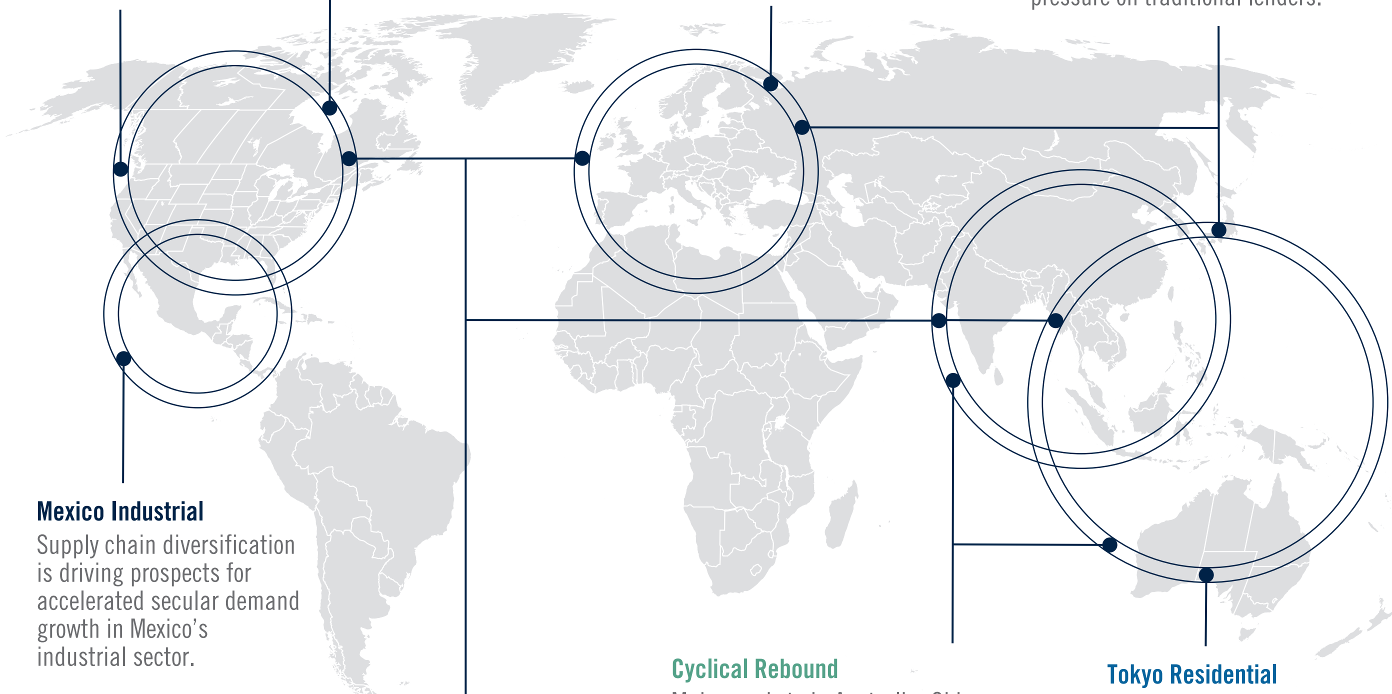
Low-Vacancy Offices
While occupier markets are set to face near-term distress, many major cities have historically low vacancy and are set to be among those earliest to recover.

Senior Housing
The prospect of rapid demand growth is set against moderating supply, which points to further rental growth and development opportunities despite near-term uncertainty.

Suburban Apartments
Rising household size among millennials points towards growing requirements for larger apartments located in suburban areas.

Affordable Living
Residential assets offer a source of portfolio diversification, while their resilient income profile is attractive in uncertain market conditions.

Debt Investing
Debt lending offers downside protection, while opportunity set is growing across the risk spectrum due to significant refinancing requirements and ongoing regulatory pressure on traditional lenders.



Mexico Industrial
Supply chain diversification is driving prospects for accelerated secular demand growth in Mexico's industrial sector.

Cyclical Rebound
Major markets in Australia, Chinese Tier 1 cities and trade-dependent economies, including Singapore, are all expected to record significant recoveries, notably in the office sector.

Tokyo Residential
The Japanese residential sector offers stable cashflow in an uncertain environment and benefits from a favorable supply-demand outlook.

Logistics
Demand is growing for distribution facilities to meet evolving supply chain needs as online retail expands across all major regions, notably in infill locations and for groceries.

Nature of Opportunity
- Accelerated Structural Trends
- Defensive Focus
- Cyclical Opportunities

STRATEGIC ALLOCATION RECOMMENDATIONS

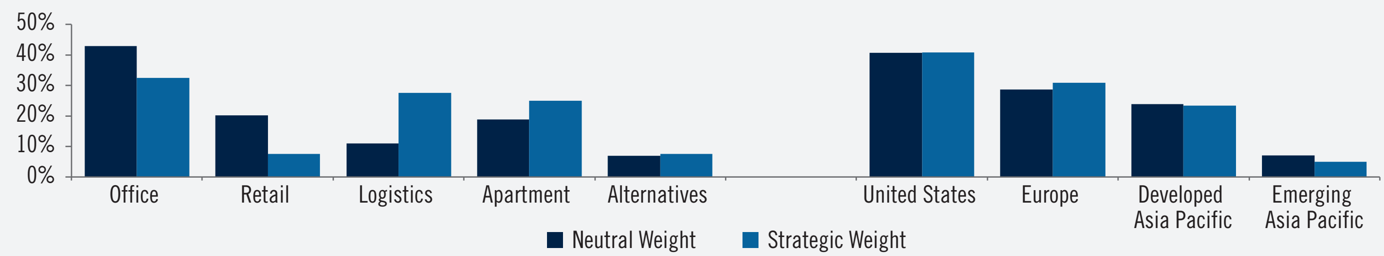
Across the regions, there are variety of different investment opportunities to consider, as summarized in the foregoing map. The following framework seeks to translate them into strategic allocation recommendations and assess their impact against a neutral global portfolio.

Given an assessment of current market conditions, indicative strategic calls for a large-scale, long-term core investor are as follows and summarized in exhibit 9:

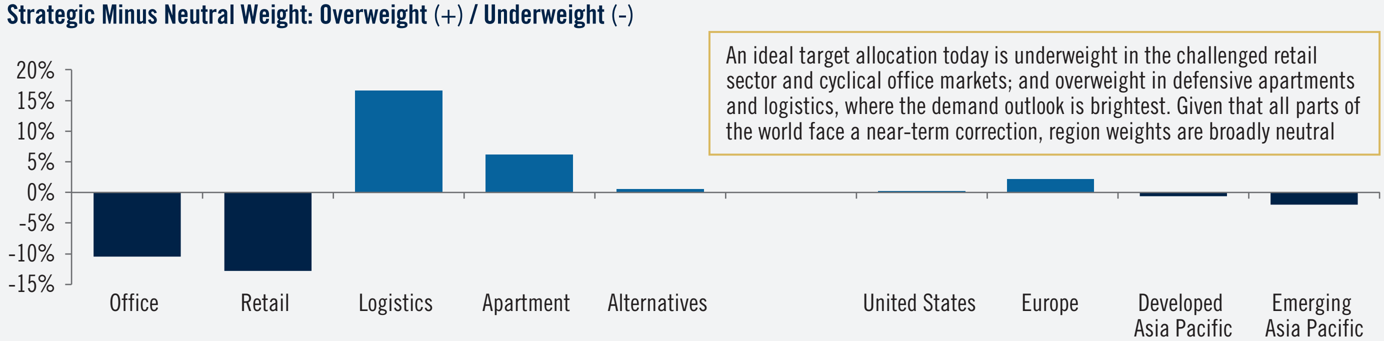
- Focus on major markets that offer liquidity through the cycle to ensure an ability to deploy capital and trade when necessary.
- Continue to build exposure to logistics in the long term, owing to increasing online-retail-related demand. Given the potential accelerated increase in demand for distribution space and the volume of competing capital looking to access product in the sector, build-to-suit remains an attractive entry point.
- Overweight toward apartment markets — primarily in the United States, major European countries and Japan — to capture stable income, diversification and favorable trends toward renting.
- Reduce allocation to retail in all regions owing to rising — and accelerating — threats from online channels. Concentrate retail allocation on selected necessity-driven assets and as a naturally occurring part of mixed-use projects, such as ground floor retail units in an office development.
- Underweight exposure to office in the near term, owing to its relatively high volatility and potential for value declines — especially in the United States.
- In terms of other sectors, focus on senior housing in the United States because it represents the focus of activity — especially as the outlook for previously favored hotels is now highly uncertain.

Exhibit 9: Strategic Sector Allocations

Comparison of Strategic Allocation Weights and Neutral Benchmark (%)



Strategic Minus Neutral Weight: Overweight (+) **/ Underweight** (-)



Source: PGIM Real Estate. As of March 2020.

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