PGIM REAL ESTATE

4Q21

INVESTMENT RESEARCH

QUARTERLY INSIGHTS

News of a more aggressive COVID-19 variant emerging is spooking markets, reminding the world that the pandemic is not over. And yet economies abilities to adapt even as new restrictions are being imposed means there is little risk of a big downgrade to the outlook. That of course assumes no worsening on the supply side. To be sure rising inflation and interest rates are risks but they still look like the result of a strong demand-side recovery – and one that is becoming more broad based. Given what we still see as a demand-driven recovery this quarter the teams turn to finding value amongst emerging investment themes.

This quarter, we aim to answer the following questions around the world:

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- Can rental leases defend against rising inflation?
- Is the next market boom in China Rental Housing?

04 | EUROPE

- Why has retail remained a significant part of the investment landscape?
- How close is retail vacancy to a turning point?
- How has retail adjusted in different ways across Europe?

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- How bright is the outlook for retail, senior housing and, dare we ask, office?
- Do supply-constrained markets now offer good relative value?

QUARTERLY INSIGHTS | INVESTMENT RESEARCH

ASIA PACIFIC

Key Questions

- Can rental leases defend against rising inflation?
- Is the next market boom in China Rental Housing?

Can rental leases defend against rising inflation?

Despite the economic recovery's gaining traction, investors remain cautious about the macro outlook, with all eyes on the inflation trajectory. Concerns rose in recent months after economic data began showing surges in price readings, which implied certain risks that higher raw material prices and global supply chain disruptions could lead to sustained — rather than transitional — inflation.

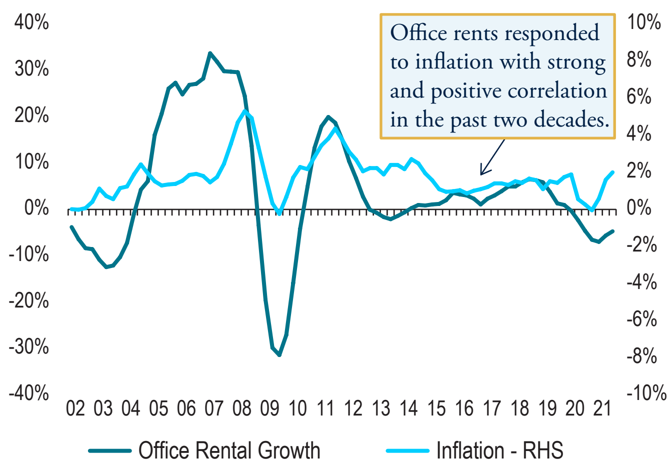
A market with expectations of high inflation can be detrimental to investment across asset classes. But for real estate investors, leases can help partially absorb rising costs to protect income if inflation risks materialize.

In the long term, the balance of space supply and occupier demand, which includes cyclical factors like macroeconomic environment and structural drivers like demographics, will play a critical role in determinations of leasing fundamentals and rental growth. However, in the short term, the ability to push through inflated cost at rent renewals can serve as an effective defense against rising inflation.

Our analysis shows a positive relationship between rental growth and inflation in major Asian office markets (Exhibit 1). For the two decades before the pandemic, office rents had generally outpaced inflation, with most markets reporting *real* rental growth — that is, rental growth net of inflation.

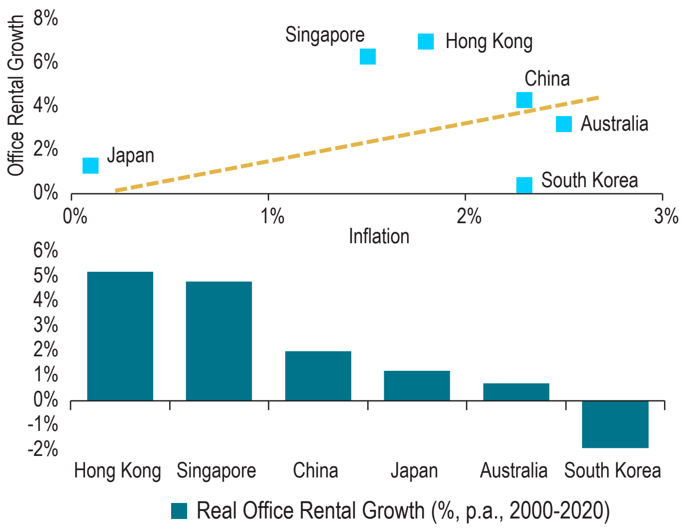
Exhibit 1: Office Rents and Inflation

Grade A Office Rental Growth and Inflation (%, p.a.)



Note: Data is average of major markets in Australia, China, Hong Kong, Singapore and South Korea.

Office Rental Growth by Country (%, p.a.)



Sources: Oxford Economics, JLL, PGIM Real Estate. As of December 2021.

In markets such as Australia, the linkages between rents and inflation are captured in standard lease terms — for instance, an annual rental uplift linked directly to inflation, which contractually provides inflation protection for rental income over time. A look across markets shows that the positive link between rents and inflation is holding up, but it does vary (Exhibit 1, right-side graphs). *Real* rental growth has been especially strong in high-growth markets like Singapore, Hong Kong and China.

For the future, with office supply remaining subdued and office demand expected to recover, office rents are forecast to grow again. Historical evidence suggests that rising inflation will be a significant factor — and that it is often successfully reflected — in rental negotiations.

Is the next market boom in China Rental Housing?

For years, strong economic growth, rapid urbanization and expansive demographics have been key drivers of the Chinese housing market. House prices in China's largest 70 cities have increased by an average of 8% per annum in the past two decades. However, with house prices increasing at much faster paces than household incomes are, China's housing market is now among the most unaffordable in the world, with a ratio of median house price to median household income ranging from 40 to 50 times in the top tier 1 cities (Exhibit 2).

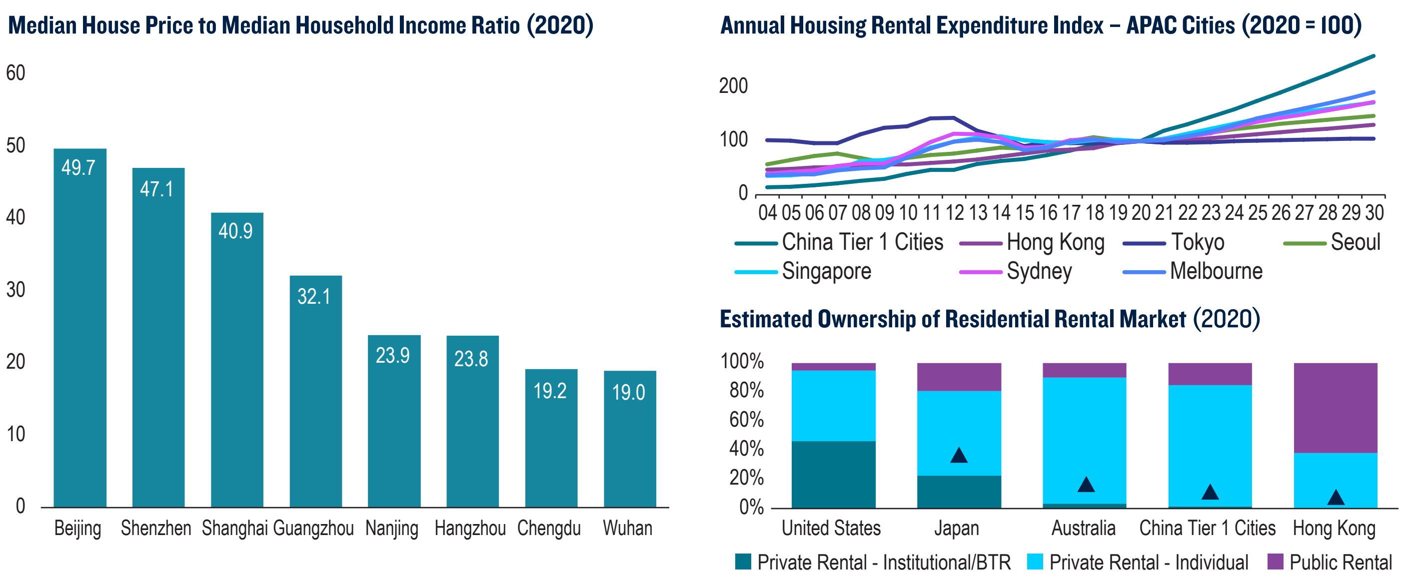
Declining affordability has been a major factor in driving rapid growth in the rental housing market during the past decade. Annual housing rental expenditure in China's tier 1 cities grew by 2.5 times from 2010 to 2020, which is more than double the growth rate in other major Asian cities (Exhibit 2).

In the near term, a shortage of public housing and a lack of interest from the private sector in the affordable housing segment — largely because of high residential land prices — together suggest further growth in demand for rental housing in the coming years.

With recent housing policies providing investors more supports and incentives from the Chinese government by offers of rental housing and affordable housing solutions, the residential-for-rent market is pointing toward growing rapidly; and housing rental expenditure in major cities is forecast to double again in the next decade (Exhibit 2, right-side graphs).

In contrast to the more established rental housing markets in the United States and Japan, the majority of rental housing in China is under private and individual ownership (Exhibit 2). And rental housing represents a huge opportunity for investors to fill in the void of institutional share in the booming rental housing market.

Exhibit 2: Rental Housing Markets In China



Sources: Oxford Economics, Numbeo, Rental Housing Finance Survey, Office for National Statistics, Housing and Land Survey, JLL, Cushman & Wakefield, Rating and Valuation Dept, Australian Bureau of Statistics, and PGIM Real Estate. As of December 2021.

QUARTERLY INSIGHTS | INVESTMENT RESEARCH

EUROPE

Key Questions

- Why has retail remained a significant part of the investment landscape?
- How close is retail vacancy to a turning point?
- How has retail adjusted in different ways across Europe?

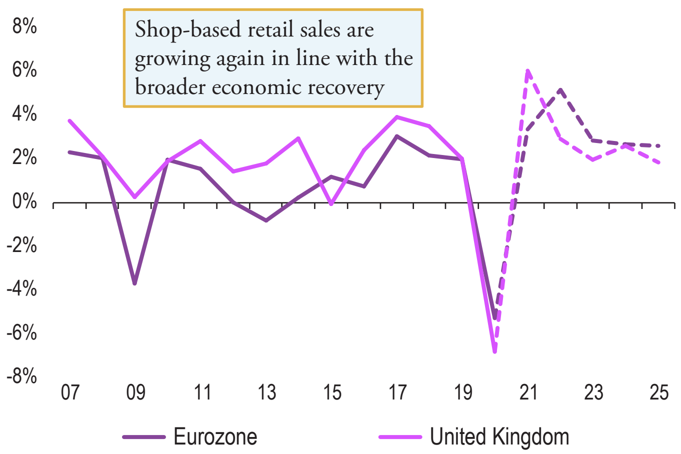
Why has retail remained a significant part of the investment landscape?

The European economy is now back to growth mode after successful vaccination rollouts, resulting in a bounce back of shop-based retail sales of goods and services, as shown in Exhibit 1. This is expected to support retail tenants' profit generation potential, which in turn backs their ability to pay rents and generate cash flows for landlords. Retailers are still under pressure, but expectations are that investment performance in the retail sector is starting to turn the corner.

Against that backdrop, investor interest in retail properties is expected to pick up. In contrast to recent sentiment, retail has remained a significant part of the real estate investment universe throughout the COVID-19 pandemic in many European markets, particularly as retailers made more use of multichannel models through well-located high street retail assets. And although investors have shifted their investment focus toward industrial properties, in absolute terms retail transaction volume continued to outweigh industrial volume in a number of key European markets such as Manchester, Berlin and Frankfurt, as shown in Exhibit 1.

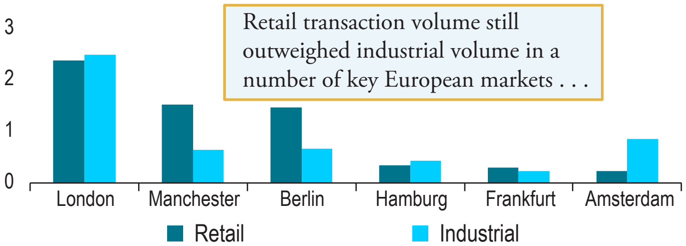
Exhibit 1: Retail Still a Big Part of the Market

Shop-Based Retail Goods and Services Growth[1] (%)

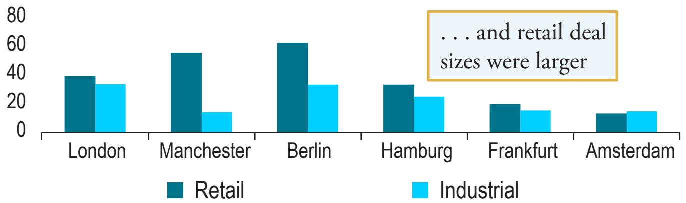


[1]Retail sales figures here are headline retail sales adjusted for online activity and additional leisure and services spending carried out in store settings.

Investment Volume in the Past 12 Months (€ billion)



Average Deal Size in the Past 12 Months (€ billion)



Sources: Economist Intelligence Unit, Oxford Economics, Real Capital Analytics, PGIM Real Estate. As of December 2021.

Beyond the headline investment figures, the number of retail transactions was lower in most markets, but the average retail deal size was bigger than the average industrial deal size.

The large relative deal size of retail transactions is appealing to investors that are under pressure to deploy capital quickly, given elevated liquidity and growing fund sizes. And combining that with an improving retail environment, there are reasons for fund managers to put retail opportunities selectively back on the agenda.

How close is retail vacancy to a turning point?

In-store retail sales are bouncing back across nearly all European countries this year, but of great concern for retail is the quick and sustained rise in vacancy rates across Europe. As more stores closed than opened in the past three years, vacancy has shot up to levels above 12%, thereby undermining landlords' rent negotiation power.

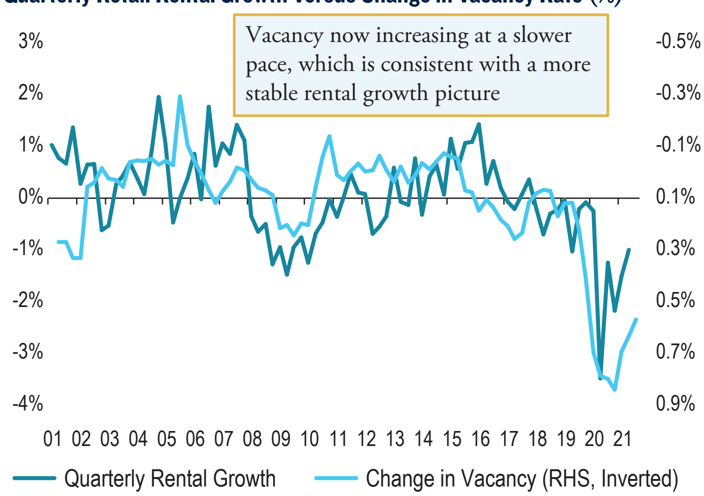
However, there are signs of a turning point because the rise in the vacancy rate is slowing and retail rents have started to fall less quickly than during the heights of the pandemic. The combination of a better picture for consumer spending and weak or even negative supply growth means retail vacancy is set to stop rising in 2022. Historically, that would be enough to bring an end to retail rent declines.

There's more positive news too. The value-offering retail warehouse sector is showing relatively stable performance in rental levels this time around, as its large out-of-town format has proved more adaptable and shown resilience versus pure-play online retail. No doubt that this reflects it being less affected by COVID-19 restrictions as well, given car parking and easy access to necessities and household goods.

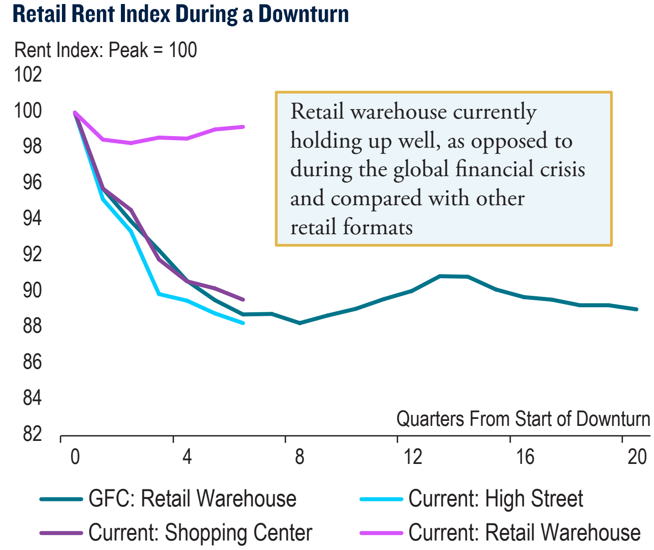
But the retail warehouse sector is also of interest when it comes to the outlook for high street and shopping centers. The right-side chart in Exhibit 2 plots the hit to retail warehouse rents during the global financial crisis and compares that with the ongoing hit to rents across high street and shopping centers. The correlations are striking. With retail warehouse as a leading indicator, as a group both high street and shopping center rents should start to rise in the next 12 months.

Exhibit 2: Vacancy and Rental Growth Momentum Turning

Quarterly Retail Rental Growth Versus Change in Vacancy Rate (%)



Retail Rent Index During a Downturn



Sources: Cushman & Wakefield, PMA, PGIM Real Estate. As of December 2021.

How has retail adjusted in different ways across Europe?

Store-based spending is showing signs of improvement, but it nevertheless follows a period of correction driven by e-commerce adoption, which has led to a new retail environment and the need of a structural adjustment across European cities.

Exhibit 3 looks at the connection between how many goods are sold per square meter of store floor space (in-store sales intensity) and high street real rents across European city center retail markets.

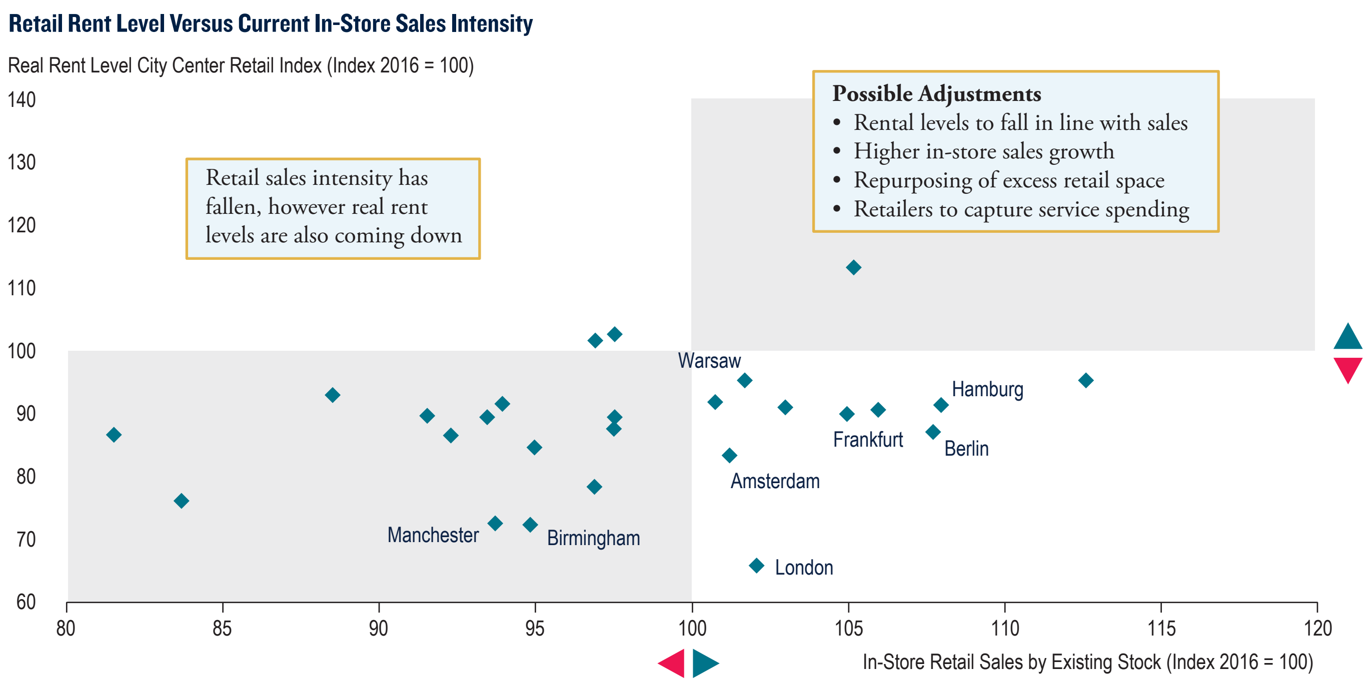
What this chart tells us is that if sales volumes are too low, retailers can't make rent payments, and market rents fall. Since 2016, most markets have fallen to the left of the chart, signaling a decline in spending intensity. At the same time real rents have fallen as well, and nearly all markets are now in the bottom half. In most markets, real rents are down by 5% to 20%.

That fall in rents shows the adjustments to the new retail environment, but it also suggests two paths to the future: either more rental declines will follow any further loss in sales intensity, or sales intensity will recover, pointing to growing store-based retail sales. So, for investment opportunities to emerge, we're looking for signs of which of those two structural-adjustment processes plays out.

Some cities have a head start. In the large German cities or in Amsterdam, for example, retail sales intensity has increased compared with 2016. Part of that has resulted from some retail stock being removed from the market while rising services spending counteracts some of the e-commerce threat and leads to higher sales intensity. In those markets, rental declines are already starting to slow.

Another example of the adjustment process playing out is in the UK, where London, Manchester and Birmingham have seen significant downward adjustments in rents that has gone well beyond the drop in store-based spending. And even though there are still downside risks, selective investment opportunities for high street and retail warehouse assets are set to emerge as cash flows transition to becoming more sustainable.

Exhibit 3: Europe Retail Rent Level Versus Current In-Store Sales Intensity



Sources: Oxford Economics, PMA, PGIM Real Estate. As of December 2021.

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QUARTERLY INSIGHTS | INVESTMENT RESEARCH

UNITED STATES

Key Questions

- How Bright is the Outlook for Retail, Senior Housing and, Dare We Ask, Office?
- Do Supply-Constrained Markets Now Offer Good Relative Value?

How Bright is the Outlook for Retail, Senior Housing and, Dare We Ask, Office?

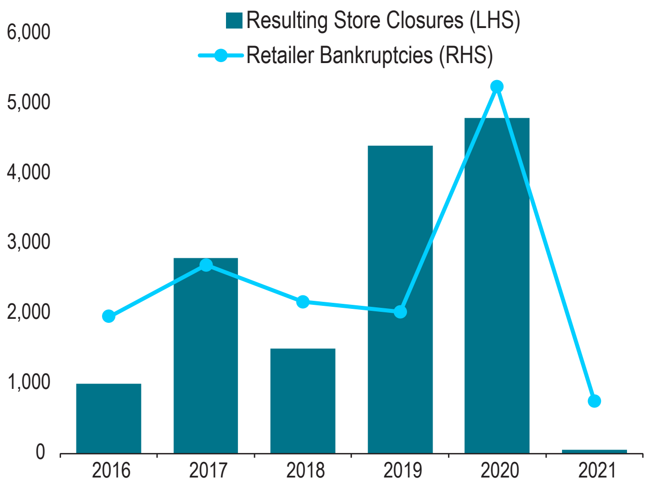
It may be time to retire the winners-and-losers narrative when it comes to property types. Even though the COVID-19 pandemic has taken a toll on the property types most affected by stay-at-home orders and cautious tenants, our outlook has turned from cautious optimism to just plain optimism.

Retail was not really a pandemic loser, given that it was already the worst-performing property type going into 2020. Store closures caused by bankruptcies were already at post-2008 record levels prior to COVID-19, as shown in Exhibit 1, and many retailers also folded in 2020; yet the distress retailers faced last year has accelerated the creative destruction process to the point that they, together with the retail real estate sector, are the healthiest they have been in years.

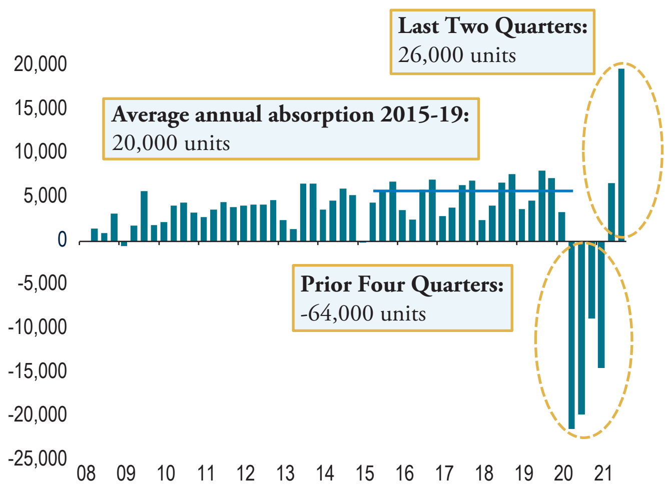
By contrast, senior housing demand, which had been high and steadily rising throughout the 2010s, abruptly reversed for a full year. But then came the vaccines in early 2021. Since then, absorption has rebounded, including in the third quarter, when net absorption was nearly as high as a typical full year. Pent-up demand is high in this necessity-driven property type.

Exhibit 1: Retail and Senior Housing Are Healing Rapidly

Retailer Bankruptcy and Closures (#)



Senior Housing Quarterly Absorption



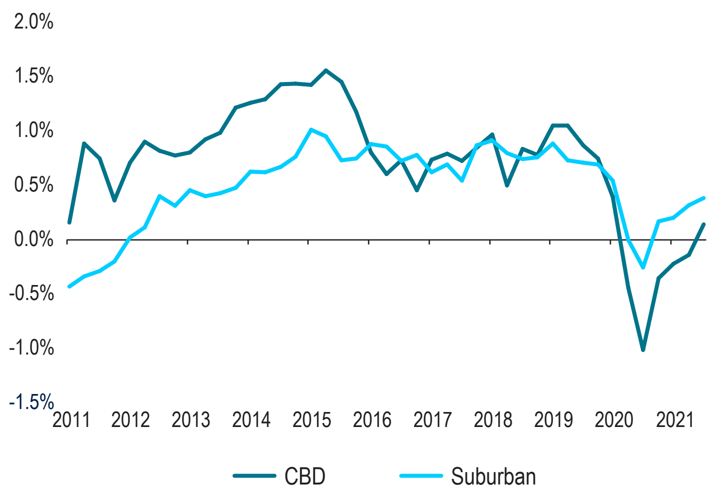
Sources: PNC Real Estate Research, ICSC, NIC, PGIM Real Estate. As of December 2021.

The bull case for office is a little harder to make since many office-based employees are still not showing up in offices on a regular basis. But the bottom of the market appears to have passed. As shown in Exhibit 2, suburban office rents have been more resilient than those in central business districts (CBDs), with the former now regaining their prepandemic levels, albeit with considerable variation by building quality and location.

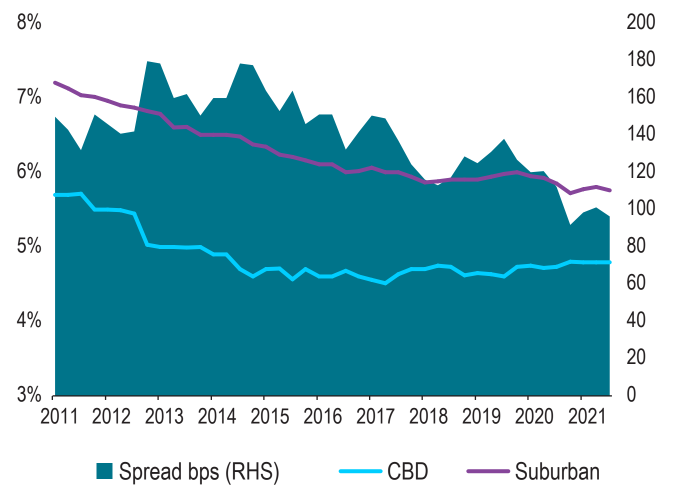
We expect tenant demand to tilt toward centrally located, accessible offices near restaurants and other cultural amenities. The direction of pricing during the past year does not line up with our view, with the gap between suburban and CBD office cap rates declining to under 100 basis points. With cap rates well above many other property types, both may offer investment opportunities now. But the case for CBDs is stronger.

Exhibit 2: CBD Offices Have Turned the Corner, but Aren't Priced Like It

Quarterly Office Rent Growth by Location Type



Office Top Quartile Cap Rates by Location Type (12-month average)



Sources: CoStar, Real Capital Analytics, PGIM Real Estate. As of December 2021.

Do Supply-Constrained Markets Now Offer Good Relative Value?

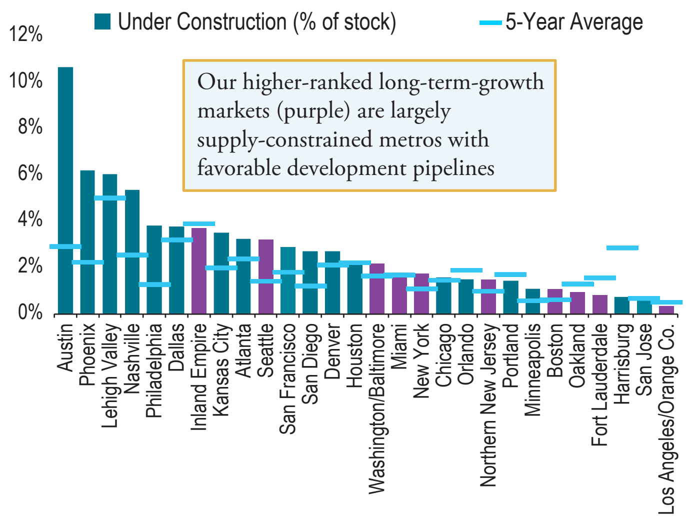
After a very brief pause in industrial and apartment tenant demand last year, resurgent leasing has pushed occupancies above pre-2020 highs in markets large and small — and in many of them, above record levels that had stood since at least 1980. That has attracted a flood of capital into both property types. In our view, supply-constrained markets, which we expect to achieve superior rent growth over the long term, are not attracting the premium they should.

Industrial construction has begun to pick up, with space under construction as a percent of stock higher than it has been in more than two decades. As shown in Exhibit 3, that supply is not evenly distributed. And although the median market has a little over 2% under construction, some markets have triple or more than that. Meanwhile, more supply-constrained markets, such as those shown in purple — in which we expect the strongest long-term rent growth — are adding supply at more-measured rates.

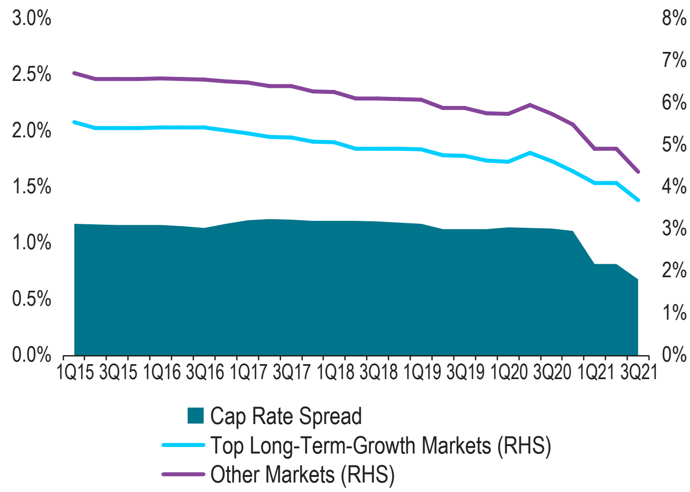
Today's pricing does not reflect our long-term rent growth view. Cap rate spreads between our top-ranked markets and other markets were stable through 2020, at about 100 basis points. This year, however, that cap rate premium has shrunk, just as supply picks up in many less-constrained markets. We view that as an opportunity to pivot into these top ranked markets.

Exhibit 3: Industrial Supply Is Up Nationwide, Even as Cap Rates Compress

Industrial Space Under Construction (% of stock)



Industrial Cap Rates by Market Category



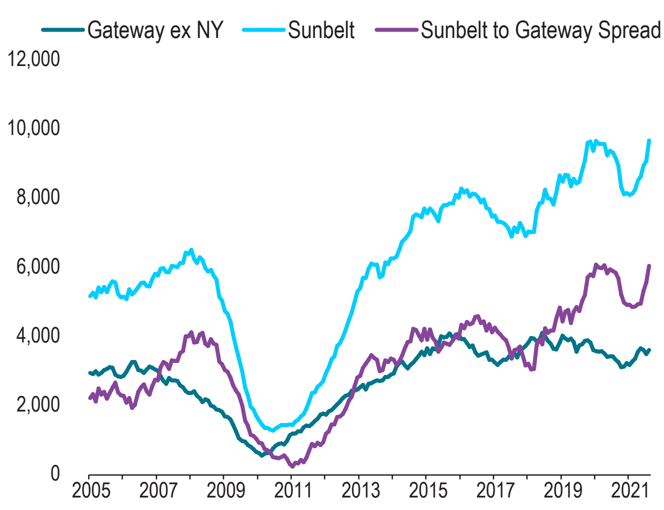
Sources: CoStar, Green Street Advisors, PGIM Real Estate. As of December 2021.

A similar trend is occurring in apartment markets. As shown in Exhibit 4, supply in gateway[1] markets is following its prepandemic trend, with about 3,500 permits issued every month. Permits in Sunbelt markets, after a brief lull in the middle of last year, are now headed straight up. And there is a good reason for that right now: rents in many Sunbelt markets are well above pre-2020 levels, and occupancies are well above 95% even in markets that typically have plenty of available apartments.

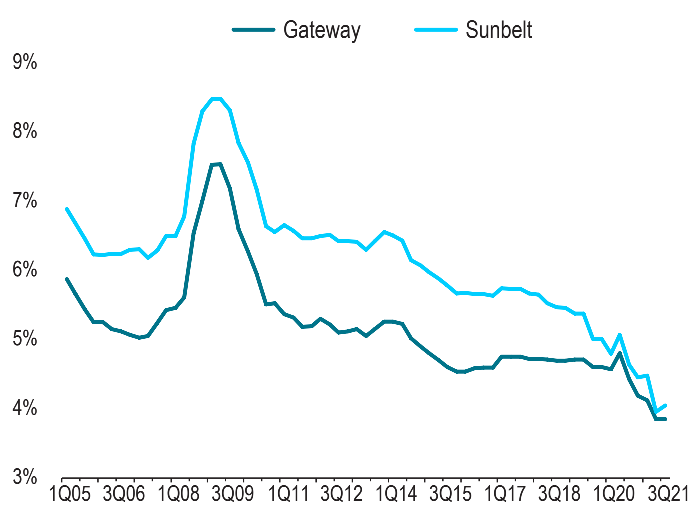
But today's pricing implies that incomes in less-constrained, Sunbelt markets will grow at the same pace as the gateways. And although there are exceptions, we disagree. We expect supply in less-constrained markets will chip away at rent growth more this decade than it did in the past decade, leaving gateway markets as a compelling value now.

Exhibit 4: Gateway and Sunbelt Apartments Diverge in Supply, Converge in Pricing

Trailing 12-Month Permits



Apartment Cap Rates



Sources: Green Street Advisors, PGIM Real Estate. As of December 2021.

[1] Gateway markets: Boston, Chicago, Los Angeles, New York (excluded for this chart), San Francisco, Washington, D.C. Sunbelt markets: Atlanta, Austin, Charleston, Charlotte, Dallas, Houston, Nashville, Orlando, Phoenix, Raleigh, Tampa.

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