### Real Estate Research Snapshot

#### 2020 Part 2



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# What 40 years of meeting the moment means for tomorrow

#### WILL ROBSON

Executive Director, **Global Head** of Real Estate Solutions Research

his year has taught us how crucial clarity and consistency is under uncertainty, and how important it is to learn lessons from the past, no matter how novel the current environment may feel.

Fueled by the investing ambitions of our clients it's been four decades since we launched the MSCI UK Annual Property Index and began to help our clients meet the moment through turbulent times, property booms, bubble bursts, market crashes and technological change.

Our aim has always been to equip the real estate industry with a shared understanding of global markets to set the foundation for effective strategy development and robust performance and risk measurement.

Looking back, there are many real estate investing trends that emerged over the last 40 years that we see reflected during our current COVID-challenged times and are therefore showcased here in the second part of this year's MSCI Real Estate Research Snapshot.

#### Measure to manage: the real estate index is born

Increasing allocations to alternative investments drove the professionalisation of real estate investment management. MSCI Real Estate (then IPD) established our initial indexes to measure the performance of institutional real estate holdings, the mission to bring transparency to this opaque asset class. We continue to bring such transparency to new markets today as exemplified by the launch of the MSCI Brazil Property Index.



#### and the science of investing

The world seemed to grow smaller during the 90s. Connectivity increased with new technology such as cable television and the World Wide Web and the World Trade Organization (WTO) was also created, accelerating globalisation.

International real estate investing increased alongside the growth in international trade with mass mobilization of capital markets. As real estate portfolios became more complex, the application of portfolio theory to real estate became more widespread. We kept pace and expanded partnerships in France, Sweden, Germany and the Netherlands and our research team developed increasingly sophisticated analytical insights leveraging our growing databank to help investors understand the drivers of real estate performance across markets and sectors.

'Could COVID-19 topple global cities' dominance?' on page 8 digs into the drivers of office capital value growth on a like-for-like basis across global cities reflecting the power of our measurement standards and the insightful analytics we've developed over

#### Diversification and risk take centre stage

During the second half of the 2000s, real estate investors found themselves at the heart of a Global Financial Crisis, unprecedented in terms of its global reach and coordinated impact across real estate markets and other asset classes. Real estate's role within the global financial system was brought into sharp relief and so risk analytics rose rapidly up the agenda for investors.

To meet the moment, we created tools to help investors measure specific real estate risk factors (IRIS and Riskweb), launched Pan-European, US Core and Global Property Fund Indexes and introduced Transaction Linked Indicators to help investors better understand volatility and calculate regulatory capital requirements.

The COVID-19 pandemic has had similarly significant and global impacts on real assets. Our blogs on pages 5, 14 and 19 look at the impact of the pandemic on infrastructure risk and returns as well as its impact on recent real estate income streams and how those might evolve for offices over the coming years as occupiers reassess their space needs in response to the grand working from home experiment.





#### The rise of the green investor

The 2010s saw sweeping economic highs and lows including the Eurozone debt crisis and the American Dow Jones Industrial Average seeing its longest stretch of gains in twenty years. The Paris Agreement was signed, The Task Force on Climaterelated Financial Disclosures (TCFD) was formed, average target real estate allocations across global investors hit double digits and with the rise in green buildings and net zero targets, ESG investing went mainstream.

Following MSCI's 2012 acquisition of IPD, MSCI Real Estate was established. In a continued drive toward transparency, MSCI launched our Global Methodology Standards for Real Estate Investment, a Green Investing Index, a suite of 'Liquid' Real Estate Indexes and supported the increasing diversity of real estate strategies with the launch of new sectors and Global Cities datasets, and custom index and analysis tools.

The analysis of private real estate in the multiasset context is a key strength of the creation of MSCI Real Estate. 'Listed and private real estate: Putting the pieces back together' on page 11 is an illustration of this analytical strength and is a benefit that we will continue to leverage as we continue to bring best practice like Factors from other asset classes to real estate investment analysis.

#### TOMORROW

2020

#### **Emerging markets and changing climate**

2020 has been scarred by the social and economic disruption of the COVID-19 global pandemic, yet technological advancement continues apace with hyper-personalized medicines being designed to treat unique genetic mutations, the rise of digital currency and our ability to run powerful Al algorithms on the phones in our pocket. Climate remains a pressing issue for multi-asset portfolios as allocations to real estate rise above \$1tm.

MSCI Real Estate continues to respond to the demands of tomorrow's investor, accelerating the use of data and analytics, entering into a strategic alliance with Burgiss to cover the full spectrum of risk within private assets investing, expanding coverage of emerging markets with the launch of our Brazil index and helping investors identify and understand the financial risks of climate change with our Climate Value-at-Risk (Climate VaR) framework. The value of the Climate VaR framework is described on page 17 as we discuss how various climate hazards can vary substantially in the way they impact portfolio risk.

I hope you enjoy reading and don't hesitate to get in touch to discuss any of these research themes in more detail.  $\bullet$ 

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**Missed rents'** 

impact on real estate

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Read the full blog post **here** 

#### ental income is the lifeblood of real estate. Without it, property funds are not able to pay distributions to shareholders and borrowers cannot service their debt. The contractual nature of property rental income, a key feature of the asset class, underpins asset values and by extension property and fund returns. The COVID-19 pandemic has put occupiers under financial pressure, which has in turn stressed property funds' rental income. We analyzed fund- and asset-level data for 107 property funds in the U.K., Europe, Australia and North America to assess the impact of slowing net-income growth on distribution yields, performance and debt-service ratios during the COVID-19 pandemic. Our analysis suggests that real

COVID-19 pandemic. Our analysis suggests that re estate investors may want to consider new ways of analyzing income risk and benchmarking the income performance of their portfolios.

#### Real estate income was impacted by the pandemic

The COVID-19 pandemic has impacted the business operations of many real estate occupiers, stressing landlords' rental-income streams. To illustrate the extent of the impact, we compared the asset-level income return of five regional MSCI property-fund indexes for the six-month periods ended December 2019 and June 2020. All five indexes showed lower income return in June 2020 compared to December 2019.

- Lockdowns and social distancing have impacted many tenant businesses, resulting in an unprecedented number of requests for rental relief, stressing real estate rental-income streams
- For equity investors, income returns have weakened, despite softening asset values. Recent income returns may understate the full potential impact as accrual of deferred rents may mask further shortfalls
- Lower rental incomes may also stress debt covenants and increase servicing pressures on some loans. In loans that default and are foreclosed upon, falling asset values may also increase potential loss severity





Source: MSCI Pan-European Quarterly Property Fund Index, MSCI/AREF UK Quarterly Property Fund Index, MSCI/PREA U.S. ACOE Quarterly Property Fund Index, MSCI/REALPAC Canada Quarterly Property Fund Index, MSCI/Mercer Australia Core Wholesale Monthly Property Fund Index Using the MSCI Global Quarterly Property Fund Index, we assessed the impact of the pandemic on asset-level net operating income (NOI) across the main property sectors. Effects were not uniformly distributed, with retail and hotel assets particularly impacted by lockdowns and social distancing, while the industrial sector continued its outperformance.

On a same-store basis, the biannual NOI of retail assets declined by 21.4%, while hotel assets saw a 39.7% drop. Industrial property's net income grew 1.4%, which was only marginally down on the prior six-month period. The office sector saw its NOI growth remain flat, notwithstanding the uncertain demand outlook for corporate office space, while residential property also recorded flat net income growth for the six months to June.

Bearing in mind that asset-level income returns are calculated on an accrual basis, could actual fund distribution yields tell us something that property income doesn't? As their cash flows were disrupted, many funds adjusted the shareholder distributions by slowing, suspending or deferring payouts. As a result, the spread between asset-level NOI yields and funds' distribution yields has increased, suggesting that property-level rent collections may be lagging accruals.

Globally, we saw a 20-basis-point (bp) widening in the spread between the asset NOI yield and fund distribution yield, while higher impacts were observed in the U.K. (+20 bps) and Australia (+30 bps).



#### Exhibit 2: Retail and hotel rental incomes were the hardest hit during COVID-19

#### Income stress could affect real estate debt

In addition to the impact on fund distributions, the income reductions caused by the pandemic could have implications for real estate debt markets.

Debt in commercial real estate became a major pain point for some investors during the last major downturn, the 2008 global financial crisis (GFC). With investors more aware of the risks associated with debt, there has been a general deleveraging trend over the course of the current cycle. For example, debt as a percentage of gross asset value (GAV) in MSCI's core, open-ended real estate indexes increased as asset values fell during the GFC, but have generally moderated since then to levels close to or lower than where they were before the financial crisis.

While investors have generally remained more cautious about debt, the unique and unforeseen nature of the current crisis may pose challenges. In particular, the reduction in real estate income caused by the pandemic could have ramifications, with lower incomes potentially making it harder for some borrowers to service their loans.

To illustrate why this may be the case, we use data from the MSCI/PREA U.S. ACOE Quarterly Property Fund Index to calculate simple debt-service coverage ratios (DSCRs). The ratios may not exactly match the covenants written into loans – they have been calculated by dividing NOI from the assets by the interest and financing costs on debt – but they do help to illustrate the potential impact of the crisis on loan servicing.

Focusing on the aggregate index first, the DSCR is higher than it was at the end of 2007, suggesting that, at least in U.S. core funds, there is more buffer than there was pre-GFC. Comparing the fourth quarter of 2019 to the second quarter of 2020 to see what impact the pandemic has had, we see that the ratio has declined slightly since the end of last year, from 4.8 to 4.7, with the falls in income being partially offset by lower borrowing costs.

While there has been only a small movement at the aggregate level, when we break the ratios down by property type, we see how the larger falls in income for sectors like retail have had a more pronounced impact on the ratios. At the end of 2019, the ratio of NOI to borrowing costs stood at 5.0 for retail but fell to 3.3 six months later. While retail assets in the U.S. ACOE index were still generating over three times more NOI than borrowing costs, the observed reduction in buffer may be replicated outside of core markets too. For assets with higher debt or that had lower buffer pre-pandemic, the falls in income could therefore cause more serious servicing risks.



# Rent stress and income disruption may continue for some time

In addition to the risks that reduced rental income could pose to income covenants and loan servicing, debt investors may face an additional risk in falling asset values. In the first six months of 2020, aggregate asset values in the MSCI Global Quarterly Property Index fell by 3.6% with sectors like retail and hotel seeing even larger declines (-8.7% and -6.9%, respectively). As asset values decrease, this can increase loan-to-value (LTV) ratios, resulting in greater potential loss severity for loans that default and are foreclosed on. Debt investors may therefore find asset-value-growth indexes useful for tracking the LTV ratios in their portfolio.

#### The importance of risk and performance monitoring

While some of the income disruption currently being experienced may be temporary and reversible once the pandemic is over, considerable uncertainty remains for real estate investors, in both debt and equity real estate. With the virus continuing to impact global economies and the path to recovery still unknown, rent stress and income disruption may continue for some time. Investors may therefore want to consider new ways of analyzing income risk and benchmarking the income performance of their portfolios. •



# Could COVID-19 topple global cities' dominance?

#### NIEL HARMSE

Senior Associate, Real Estate Solutions Research

Read the full blog post **here** 

Institutional property investors turned to global gateway cities to diversify portfolios and generate capital growth in the years since the 2008 global financial crisis.<sup>1</sup> These cities' critical mass, connectivity and economic importance appeal to investors and occupiers alike, and the liquidity they offer differentiates them from secondary markets. But COVID-19 may jeopardize the relative dominance of these power cities.

Social distancing, remote working and changing mobility trends could affect growth in property income and by extension investment returns in these large, global cities. In August, we surveyed more than 400 real estate managers and investors who attended an MSCI webinar. The poll showed that most respondents at the time favored a hybrid return-to-work approach (78%), while 17% of respondents expected to return to the office full time and only 5% favored a permanent work-from-home option. In this post, we assess whether the superior capital growth of global cities was built on fundamental income growth or driven by the ability of these cities to attract a disproportionate share of capital flows. Analyzing purchase activity in the U.S. office market, we also looked for signs of whether investors have been allocating more capital toward secondary markets.

- Pandemic-era trends may affect income growth and investment return for office property in global gateway cities, where office property long attracted more capital inflows and produced higher capital growth than secondary markets did
- While some of the outperformance can be attributed to yield compression, these cities also delivered higher income growth. Investment performance within global cities also varied over the 10 years to June 2020
- As global gateway cities' outperformance put downward pressure on their yield, we've seen a larger percentage of purchase expenditure flow to secondary office markets since 2017 – a trend that the COVID-19 pandemic might have accelerated



Exhibit 3: Capital-growth decomposition in global cities and illustrative secondary markets

#### Source: MSCI Real Estate

#### Exhibit 4: Income had greater impact on capital growth in prime locations



#### Was gateway cities' capital growth built on solid ground?

Global gateway cities New York, Paris, Tokyo and London were the top-ranked cities in terms of purchase activity for the period from 2001 to 2019 (accounting for 17.8% of purchase activity across all property types by capital value), according to the MSCI Global Annual Property Index.

For office properties, the figure was higher, at 24.6%. But has the long-term investment performance been justified? For the 10 years ended June 2020, offices in global cities did deliver a higher total return — which was largely driven by capital growth.

But the components of the capital growth matter. Success may breed success, but is it necessarily a favorable characteristic? A market's ability to attract capital flows may result in yield compression, which in turn underpins capital growth. However, when yield compression occurs in the absence of sustained fundamental income growth, it could, over time, lead to artificially high asset prices.

Exhibit 3 illustrates how the capital-growth decomposition of global gateway cities compared to that of secondary office markets within the same country over a 10-year period ended June 2020. The global gateway cities produced higher capital growth over the period when compared to that country's secondary office market. For all four countries, the capitalgrowth outperformance comprised both higher yield compression and higher income growth. But cities are complex, and capital flows and investment returns are not always evenly spread within their borders.

#### Location within cities mattered

Global cities are, by definition, vast urban expanses encompassing many different districts. Even in the context of a city-focused strategy, however, institutional capital could be more focused on narrowly defined geographies like Manhattan, Paris's eighth arrondissement or London's West End.

Over the 10-year period to June 2020, these prime locations within the global cities all produced superior capital growth when compared to the rest of the city (exhibit 4).

In all three examples, these areas received a larger portion of their capital growth from fundamental property-income growth as a result of a strong occupier market, but they also benefited more from yield compression — meaning they became more expensive on a relative basis.

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#### **Beyond global cities:** a shift to secondary markets

Sustained yield compression helped global gateway cities produce superior long-term capital growth, but it also made them more expensive than other markets and in a historical context. In an analysis of the 30 largest city-level office markets in the MSCI Global Annual Property Index, we found that net income yields hit a record low in 14 markets, while another 14 were within 50 basis points of their alltime lows, as of December 2019.

Given the escalating cost of property in global cities, have we seen a shift to secondary markets? In the U.S., there has been a gradual increase in the capital allocated to offices outside of the five main global and regional gateway cities.<sup>2</sup>

From 2005 through 2016, 60.6% of office purchases by value took place in the global and regional gateways of New York, Los Angeles, San Francisco, Chicago and Boston. From 2017 to June 2020, however, 45.7% of purchases by value took place in secondary markets - higher than the 45.4% for global and regional gateway cities. Smaller office

Secondary (next 15)

markets (i.e., those outside the top 20) also saw their share of overall purchase activity increase - to 8.9% from 2017 to 2020 from 5.0% from 2005 to 2016.

During times of crisis, investors might adopt a more nuanced city strategy. In this blog post, we showed how a larger percentage of purchase expenditure migrated to locations outside of the main U.S. global cities since 2017, even though these large metros provided superior capital growth. Sustained yield compression helped global gateway cities produce superior long-term capital growth, but it also made them more expensive than other markets and in a historical context. But what could COVID-19 mean for these locations in the future?

As COVID-19 plays out, focusing on shifts below the headline figure may help in assessing the impact of the pandemic on the world's prime office markets. •

- <sup>1</sup> Nihalani, A. 2018. "Global Gateway Cities: The Performance Behind the Hype." MSCI Research Insight.
- <sup>2</sup> The largest five office markets by value in the MSCI U.S. Quarterly Property Index are New York, Los Angeles, San Francisco, Chicago and Boston.

#### Exhibit 5: Higher value of office purchases outside global cities since 2017



The rest

Global & regional gateways (top 5)

Source: MSCI Real Estate

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**BERT TEUBEN** Executive Director,

New Product Research

Read the full paper **here** 

# **Listed and private real estate:** Putting the pieces back together

A property owned by a listed real estate company, such as a Real Estate Investment Trust (REIT) or a real estate management and development company, should produce returns close to those of an equivalent asset that is privately owned.

In reality, however, the results differ, especially when looking at short-term performance. The challenge for real estate investors is to be able to use both listed and direct real estate in their real estate allocations and understand the drivers of performance for each. Specifically, how do equity market factors, financial structures and individual properties contribute to performance? Advances in MSCI real estate research and operations have enabled us to seek answers to this question.

Listed real estate performance is clearly a combination of both equity and direct real estate characteristics. Although direct real estate appears in the short term to exhibit stable performance track records that reflect smooth valuation sequences, perhaps giving the impression of bond-like behavior, analysis using MSCI's real estate dataset and new analytic tools shows that this impression can be misleading. The medium and long-run behavior of the asset class has clearly been more cyclical and growth-sensitive.<sup>1</sup>

But are these cyclical patterns essentially the same as those described by the stock market performance of the higher liquidity companies which hold securitized real estate? Earlier research showed that share prices of listed companies have been more volatile as they are affected by the ups and downs of the stock market, while underlying real estate values are appraised infrequently and thus experience lower volatility. But over the longer term, it was found that "securitized and direct real estate markets are tightly linked."<sup>2</sup>

These earlier studies generally relied on using standard headline index series, which permitted only imprecise analysis due to their varying constituents. This MSCI study similarly uses closely corresponding market index series, but also compares precisely matched samples from 19 European listed real estate companies with long term returns at the asset level. This detailed dataset enables us to make an apples-to-apples comparison within and across asset, vehicle and security levels, using custom indexes or composites.

#### The three levels of performance

To answer the original question, we must examine each of the three operational levels of investment management and activity: the capital and revenue features of the underlying investment asset; the financial structure of the vehicle in which that asset is held; and the pricing processes of the securities market in which the vehicle is priced and traded.

The levels of performance are:

- Asset level Unlevered returns on individual assets are derived from the capital value growth of those assets and the net income generated from their occupiers and/or other business revenues.
- Vehicle level Account for the impacts of leverage, cash balances, other investments and any associated management overheads, costs and fee.
- Security level Based on the share price movement and the dividend of the company in which the property holding vehicle is held.

#### Comparing three levels of market index returns

First we examined the performance of standard headline indexes across security, vehicle and asset levels, focusing exclusively upon the European market and making specific comparisons for the U.K. and developed Europe excluding the U.K. We used the MSCI Core Real Estate Indexes for detailing performance at security level, IPD fund indexes at vehicle level and IPD valuation-based indexes and transaction-linked indicators at asset level.

The relationship between listed and direct real estate performance is hard to unravel if one looks solely at broad index comparisons. However, a relatively clear bottom line pattern did emerge – correlations climbed from a fairly low level over a three-month performance period to just over the 0.8 mark when the measurement horizon stretched to 18 months and beyond. For more detail on these historic correlations, see the original research by Teuben and Cullen (2017).<sup>3</sup> At this point, the underlying (and slower moving) asset-level fundamentals appeared to take control.

#### Listed real estate performance is clearly a combination of both equity and direct real estate characteristics

At the highest level of aggregation, asset, vehicle and equity headline index performance trends all appeared broadly synchronized over the longer term, at least to the extent that their overall cyclical patterns largely matched one another (see Exhibit 6 below). This reaffirmed the findings of comparable earlier studies, but in this exclusively European study, the relationship appeared much stronger for U.K. companies than for their continental European counterparts.

#### Exhibit 6: Listed real estate vs fund index performance in the UK (2001-2020 Q2)



Source: MSCI

#### Digging deeper: matched sample comparisons

The matched sample analysis identified a subset of listed real estate companies, for each of which we could generate medium-term performance series (10-year minimum), at all three measurement levels - asset, fund and security. Given these stringent conditions, this subset comprised only 19 European listed companies (11 from the U.K. and eight from Europe ex U.K.).

The combined year-on-year effects of the main historic drivers (2006-2015) for the U.K. sample can be seen in the full version of this 2017 research paper.

The overall returns can be partly explained by the underlying return movements at asset level, while most of the drivers of the equity return differences in individual years can be explained by quantifiable stock market sentiment movements ("NAV premium/ discount impacts"). An independent vehicle level impact was only seen to be significant during the phase of extreme oscillation (2007–2009).

Looking at 3-, 5- and 10-year periods for both the U.K. and mainland Europe up until 2015, we see that the bulk of the equity performance can be explained by asset level movements, which accounted for roughly 70% of overall real estate company stock performance in mainland Europe over five or more years, and an even higher proportion in the U.K.

Asset-level returns clearly were the main driver of overall equity performance in the long term. However, vehicle/financial factors also influenced returns, especially in phases of weak or strong overall equity returns. Over shorter (annual or quarterly) time periods, stock market sentiment had a hefty impact on return volatility.

#### **Company level comparisons**

In addition to the matched-sample comparisons above, selected analyses were also carried out at individual company level. This added level of granularity identified distorting effects of extreme individual company results.

The performance of each of the companies, even for medium-term five-year averages (2011-2016), showed a wide spread. Despite the size of these spreads, there remained a strong relationship between the different levels of performance. Almost 70% of individual company variation in security-level performance could be explained by patterns of performance at asset level.

Over the shortest period available for inter-company comparisons – 12 months – the equity/asset-level performance correlation was actually negative (see Exhibit 22 of the full 2017 research paper). But when the measurement horizons were stretched to three years and beyond, the relationship flipped



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#### Asset-level returns clearly were the main driver of overall equity performance in the long term

into positive correlation territory. Over all of these timescales, a positive equity/asset performance relationship (broadly within the 0.6 to 0.8 correlation window) was consistently revealed, indicating that the "noise" of stock market sentiment oscillations was fully diluted, even at the level of the individual firm, over periods of three or more years.

These strong correlations across asset, vehicle and security levels, particularly over 3- and 5-year periods, suggested that long-term investors may be able to use listed real estate companies as components of their overall real estate portfolio strategies. No individual company exhibited wildly different patterns of performance.

#### Conclusion

Investors still have difficult strategic and tactical choices to make. Portfolio liquidity inevitably comes with a price tag. What this study has shown is that over shorter measurement periods – of up to around 18 months – the cost of increased liquidity has come in the form of additional volatility. Beyond this 18-month window, however, the performance track records for listed real estate – at both company and market levels – converge ever more closely with those of corresponding directly held assets as the benchmark period approaches the 3- to 5-year mark.

- <sup>2</sup> Hoesli, M. and E. Oikarinen. (2012). "Are REITs Real Estate? Evidence from International Sector Level Data." Swiss Finance Institute, University of Geneva.
- <sup>3</sup> Teuben, B. and I. Cullen. (2017). "Listed and Private Real Estate: Putting the pieces back together." MSCI Research Insight.

<sup>&</sup>lt;sup>1</sup> Shepard, P., P. Hobbs and Y. Liu. (2015). "Is Real Estate Bond-Like?" MSCI Research Insight.

Was infrastructure

solid during COVID-19?.

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WILL ROBSON Executive Directol Global Head of Real Estate Solutions Research

#### NIEL HARMSE

Senior Associate Real Estate Solutions Research Read the full blog post **here**  magine a world without infrastructure – no electricity, water, roads, airports or cellphone signal. Modern society's economic productivity is facilitated by infrastructure investments. It's a virtuous cycle in which it can help stimulate longterm economic growth, which in itself creates the need for more infrastructure investments.

As a result, the infrastructure asset class has grown significantly over the past decade. As of June 30, 2020, USD 403.3 billion had been raised by private-capital infrastructure funds since inception, with over USD 210 billion of that amount raised in the last five years, according to data from the Burgiss Manager Universe (BMU).<sup>1</sup>

Much like real estate, another tangible alternative asset class, however, it has not been spared the impacts of the COVID-19 pandemic. Though returns improved in the second quarter, year-to-date performance was negative, and some investors may be wondering whether the asset class's virtuous cycle has been broken. While that remains to be seen, a closer look across infrastructure investment types, as well as subsectors and risk levels of private infrastructure investments over time, may provide a useful perspective as private-capital firms and their investors manage through the pandemic.

#### Infrastructure investments were not all built the same

The pandemic impacted the returns of infrastructure investments, whether investors were exposed to assets directly, through pooled closed-end funds or via public companies. The MSCI Global Quarterly Private Infrastructure Index, a measure of assetlevel performance, returned -3.3% for the six months ended June 2020. A 3.3% dip in the first quarter, incorporating the initial reaction to the pandemic, was followed by a 0% return in Q2. But that doesn't tell the whole story.

Pooled infrastructure funds, which like privateasset indexes incorporate an element of appraisal smoothing, returned -2.6% for the first half of 2020, according to Burgiss. Though these funds suffered a sharper fall (-4.9%) in the first quarter, they rebounded more strongly than infrastructure assets did in Q2, returning 2.3% for the three-month period.

- Infrastructure, like real estate, is a tangible, income-producing alternative asset class with a variety of asset types and holding structures that has not been spared the impacts of the COVID-19 pandemic
- The return of private infrastructure assets held up better than their listed equivalents, though risk levels remained elevated
- Transport infrastructure, directly impacted by pandemic-enforced travel restrictions, performed poorly and drove down the overall return of the MSCI Global Quarterly Private Infrastructure Index in the first half of 2020



The MSCI World Infrastructure Index represents companies owning and operating infrastructure assets, and has relatively high exposure to communication firms. The MSCI World Core Infrastructure Index consists of companies engaged in core industrial infrastructure activities and has a sector allocation more closely aligned to the MSCI Global Quarterly Private Infrastructure Index. Both listed-company indexes are more volatile than their private counterparts, in part due to their exposure to broad equity-market dynamics and absence of appraisal smoothing. And both suffered strong drawdowns in the first quarter (-16.3% and -16.9%, respectively), but also enjoyed significant rebounds in Q2.

Riding in the middle was a hybrid approach designed to simulate an index with liquidity similar to that in listed indexes but with performance and volatility characteristics closer to those of the private indexes. We started with the MSCI World Core Infrastructure Index and incorporated a lowvolatility tilt and an index of short-term inflationprotected bonds matched to the leverage levels among the constituents. We refer to this as the "Simulated MSCI World Liquid Core Infrastructure Index"<sup>2</sup> in Exhibit 7.

#### The pandemic impacted the returns of infrastructure investments



#### Exhibit 7: Total return and allocations - private, public and hybrid infrastructure indexes



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#### Exhibit 8: Sectors' weighted contribution to total return

Source: MSCI

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#### Subsector performance differed within private assets

To better understand the impact of COVID-19 on infrastructure assets, we looked at the contribution of the underlying sectors to the MSCI Global Quarterly Private Infrastructure Index's aggregate return.

Unsurprisingly, transport infrastructure assets, directly impacted by pandemic-enforced travel restrictions, drove down the overall return of the MSCI Global Quarterly Private Infrastructure Index in the first half of 2020. Transport infrastructure returned -5.0% and underperformed relative to water utilities (-4.4%) and power (-1.9%).<sup>3</sup> Transport's underperformance, combined with its significant index weighting relative to water utilities and power, resulted in a strong, negative-weighted contribution to the total return.

Another reason for transport's underperformance lies in airports, which are 91.4% uncontracted assets by value. Airports and other uncontracted assets are inherently more exposed to the real economy than contracted ones. For the six months to June 2020, uncontracted assets saw returns slide by 6.7%, while contracted assets' returns were only marginally negative (-0.2%). Transport assets and airports comprised 66.1% of all uncontracted assets, while power and water utilities accounted for 67.0% of contracted assets.

#### Returns rebounded but risks remain

We next looked at portfolio risk based on the sector weightings of the MSCI Global Quarterly Private Infrastructure Index using the MSCI Private Infrastructure model in MSCI's BarraOne®. We found that while the return of infrastructure assets did stabilize in Q2, the risk associated with these returns remained elevated into the third guarter. The index started the year with an estimated risk of 3.1%, based on the weightings of the underlying subsectors. Within the space of two months, the risk estimate nearly doubled to 5.8% as the impact of COVID-19 began to filter through the global economy. Estimated risk remained elevated through the end of September, dropping slightly to 4.9%. Here again, we saw a difference with contracted assets. While the estimated risk of all infrastructure assets increased by the same level (120 basis points (bps)) from February to March, the estimated risk of regulated and contracted assets declined by 70 bps between March and September. During the same period, assets not regulated or contracted saw only a 20-bp improvement.

#### Did COVID-19 turn Infra red?

Infrastructure is a complex and varied asset class with a variety of options for investors to gain exposure, and COVID-19 presents risks and opportunities across the spectrum. With year-to-date performance in the red through June 30 and risk levels elevated, investors have reason to dig deep into the drivers of risk and return and wonder whether infrastructure's virtuous cycle has ended, or, like so much during this pandemic, simply paused.

The authors thank Vishad Bhalodia, Yang Liu and Sheng Yao, as well as Keith Crouch from the Burgiss team, for their contributions to this blog post.

- <sup>1</sup> The Burgiss Group LLC provides the BMU. As of January 2020, MSCI is a minority shareholder in Burgiss.
- <sup>2</sup> We used the MSCI Volatility Tilt Factor Index methodology to incorporate the low-volatility tilt and the Markit iBoxx TIPS Inflation-Linked 1-5 Year Index to deleverage and smooth the listed index.
- <sup>3</sup> The power subsector includes assets related to power generation
- and transmission and renewable energy.

# Real estate at the heart of the climate risk challenge

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Read more about the Real Estate framework here

eal estate is particularly interesting in the context of climate change. A Google Image search for climate change will throw up hundreds of photos depicting the damage wrought by extreme weather events like wildfires, hurricanes or flooding. Very often, at the centre of these pictures is a building of some kind - a piece of real estate.

As well as being on the receiving end of climate change, real estate is also a significant part of the problem. The IEA estimates that the real estate sector of the economy contributes over 30% of global emissions.<sup>1</sup> However, as an investment asset class, it represents only 9% of institutional portfolios.<sup>2</sup> In that sense, it may seem that real estate is really punching above is weight as a climate change driver but being a big part of the problem also means it's could also be a big part of the potential solution as well.

#### Investor vs occupier perspectives

The sense that real estate is punching above its weight may be overstated, however. Some of this is driven by the difference between real estate as a segment of the economy vs real estate as an investment asset class.

A lot of real estate is held outside of institutional investment portfolios. A huge amount of residential real estate is owner occupied or owned by public bodies for social housing purposes. Much is owned by private investors too. Whoever owns it, climate change impacts both the owner and occupier.

An occupier is interested in how physical impacts of climate change could impact the revenues and costs associated with their operations at a particular facility. Investors in, or managers of real estate assets are interested in how those effects would flow through to asset valuations and the financial costs associated with any damage that may be caused to the asset. They are also interested in the costs associated with carbon reduction commitments driven by public policy or self-determined by their investors.

Exhibit 9: Real estate's significance as an emitter and as an asset class

🗌 Real estate 📒 Other

91%



AUM

Emissions

69%

Source: IEA (2019), 2019 Institutional Real Estate Allocations Monitor, University's Baker Program in Real Estate – Hodes Weill & Associates



- MSCI/PREA US ACOE Quarterly Property Index asset locations
- MSCI ACWI IMI Index constituents US facility locations

Source: MSCI

Exhibit 10 uses MSCI data to illustrate the difference in perspective between owner and occupier. The blue dots represent US based facilities used by constituent companies of the MSCI ACWI World IMI Index to run their businesses. These facilities are spread very broadly across the US, albeit with greater density in major cities. The red dots represent constituent assets form the MSCI/PREA US ACOE Quarterly Property Index. These are properties held in open-end core private real estate funds managed on behalf of institutional investors like pension funds. These assets are far more concentrated in major cities. The differing geographical spreads of assets drive significant differences in physical climate risk. When thinking about climate risk of real estate investment portfolios, we concentrate on the investor's perspective of climate impact and real estate portfolios more akin to the red dots than the blue dots.

# Very high High Medium Low Very low No risk

#### Exhibit 11: Tropical cyclone risk from climate change vs exposure to storms

#### Emphasising the 'change' in climate change

Extreme weather events seem to occupy an evergreater share of column inches and air time in the media these days. This is possibly a function of increasing frequency and intensity of such events but also the collective realisation of the link between these events and the 'Climate Emergency' we now face and know is linked to excessive carbon emissions.

It is natural to devote a lot of time and energy to understand one's portfolio's current exposure to these kinds of events. It is, for example, a trivial exercise to use publicly available projections of hurricane paths to determine which of your assets may stand in the way. Summary statistics of the value and type of assets exposed are easily calculated to describe your exposure.

Exhibit 11 depicts the predicted paths of two recent hurricanes. First, Hurricane Laura which swept from the Gulf of Mexico, north east towards New York and second, Hurricane Sally that passed over land to the south west of Laura's path. The quantum and value of property in Laura's predicted wake was far higher than that of Sally. The properties in Laura's path were dominated by office buildings whereas Sally was predicted to touch relatively few because is western route drifted to the south of New York rather than passing straight over.

However, this analysis, whilst interesting, says nothing of climate risk - let alone the risk from climate change. If we are to understand the physical risk from climate change, we need to understand first how climate change is going to change the frequency and intensity of such events. Then we need to understand the potential financial costs associated with these predicted changes. Finally, we should understand the materiality of these future costs when discounted and compared with assets' current market value. Calculating such metrics allows the analysis to be seamlessly incorporated in to broader financial and risk analysis.

#### An expansive and sophisticated solution required

Climate change is a significant threat affecting all areas of life and society. It's a complex problem with many facets. Although real estate is a big part of the problem, it could also be a big part of the solution. But solutions to solving real estate related problems won't be effective if they operate in a bubble. Such a complex and significant problem requires a coherent, multi-asset class solution that will facilitate the optimal allocation of capital across and within asset classes. Such an approach will hopefully help to mitigate climate change and protect investors' capital – and society more broadly - from the worst of its risks.

<sup>2</sup> 2019 Institutional Real Estate Allocations Monitor, University's Baker Program in Real Estate – Hodes Weill & Associates

<sup>3</sup> Real Estate Market Size 2019/20, MSCI

<sup>1</sup> IEA (2019)

## **COVID-19 and office income:** What could lie ahead?

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W iith new COVID-19 lockdowns and swaths of white-collar workers continuing to work from home, a question looms: What will happen to offices? As office tenants approach contract expiry and break-clause dates and contemplate what the future of work will look like for them, they may reconsider their need for office space. This could have significant consequences for office demand and income from office leases.

#### Impact so far

The pandemic has already had a significant impact on real estate rental income. This effect has been most severe in segments where lockdowns and social distancing have hit hardest: leisure, hotels and retail. In these segments, the income losses were due to factors other than expiring or broken leases. Hotel leases are essentially nightly<sup>1</sup>; and in the case of a sharp contraction in demand, the income hit is instantaneous. Although retail property generally benefits from reasonably long leases, tenant default rates had already been climbing steeply since 2017, in part due to headwinds from e-commerce. COVID exacerbated these challenges, as so many tenants have been simply unable to pay rent. Office tenants, in general, have been less acutely impacted by the pandemic - and seemingly better able to pay their rent throughout this crisis.

But what has tended to happen when leases expire or tenants exercise their lease-break clauses? According to data from our new client report, the "MSCI Lease Events Review 2020," post-tenancy vacancy has risen for offices since the 2008 global financial crisis and in recent years reached an alltime high. In 2019, 72% of expiring office leases remained vacant for at least one guarter after expiry, as shown in the exhibit below. In addition, nearly 50% of office lease-break options were exercised, on a rent-weighted basis, and 47% of offices were vacant for at least one quarter after a break. With the dramatic impact of COVID-19 and ensuing lockdowns, many market commentators have been asking whether these numbers could continue to increase.

- The COVID-19 pandemic and the ensuing lockdowns' economic ramifications have caused significant uncertainty over the future of work and rental income from office properties
- Nearly 60% of the UK Quarterly Property Index's office rental income comes from leases that expire or contain a break-clause date over the next five years
- A review of lease events showed that in 2019 47% of offices were vacant for one quarter or more after a break clause and 72% were vacant after lease expiry.<sup>2</sup> These numbers could rise amid COVID-19, leaving more rent at risk



#### Exhibit 11: 60% of office income could be eroded by 2025

#### Income erosion (excluding defaults) - breaks and expiries "worst case" scenario

- % Weighted rental income eroded (due to breaks)
  % Weighted rental income eroded (due to expiry)
- 🔶 % Weighted rental income remaining (after breaks) 🛛 🔶 % Weighted rental income remaining (after expiry)
- Total income remaining after erosion



Source: MSCI Real Estate

#### What could changes in lease-event outcomes mean for office income?

Given office tenants' higher recent tendency to vacate leases, what could lie ahead for office income immediately post-pandemic and further into the future? In the MSCI UK Quarterly Property Index, nearly 60% of office rental income is tied to leases that expire, or have a break-clause date, within the next five years. The exhibit above illustrates how office income would be eroded if each tenant took their earliest contractual opportunity to vacate - at either a break date or lease expiration. The analysis assumes no renewal or reletting to a new tenant. In this sense it provides a useful worst-case-scenario benchmark (leaving the possibility of default to one side). Under this conservative analysis, nearly all income (86%) is eroded by 2034, with the remainder lost in 2035 and beyond. Of course, historically, income erosion in U.K. offices has never been this dramatic; some leases are renewed or re-leased within one quarter. Although COVID-19 may increase the tendency to hand back space, how can we develop more realistic and informative scenarios of potential income erosion for office properties?

In the following analysis, we use data from the "MSCI Lease Events Review 2020" for the propensity for leased income to be lost at break date and lease expiry in 2019 as probabilities in a forward-looking simulation as follows:

- For each lease, we effectively 'flip a coin' at every lease event to determine if the income associated with that lease is either broken or expires depending on the type of lease event (with the coin's odds based on the Lease Events Review data)
- Leases arriving at a lease expiry become vacant with 72% probability
- Those arriving at a break date become vacant with 47% probability
- Any income that remains unbroken after a break date may be lost at the lease's expiry date like any other lease with 72% probability

Exhibit 12 shows a comparison between the "worst case scenario" erosion profile in the previous exhibit, and an erosion profile that we get when we adjust the post-expiry and post-break vacancy probabilities as described in the simulation above. It also compares the annual % rental income erosion attributed to leases breaking or expiring, for the two scenarios.

The shaded pink area in the exhibit below illustrates the upward shift in cumulative erosion profile due to the propensity for only some leases (47%) reaching their break clauses to break. The shaded blue area shows a similar but smaller shift up since 72% of income is actually lost at lease expiry. Together, these effects flatten the income-erosion trajectory over the next 15 years and beyond. Under these assumptions, however, the total potential income erosion over the next five years is still nearly 40%. Investors expecting the tendency for occupiers to vacate space at lease events to increase may expect the income erosion profile to land somewhere in the middle of the shaded area.

#### The next five years may be telling

U.K. office rental income seems to have been largely spared from the impact of COVID-19, but there are already signs of change. With the nearly 60% of the MSCI UK Quarterly Property Index's office rental income in leases that expire or contain a breakclause date over the next five years, investors may wish to consider the implications for their portfolios. What the pandemic will ultimately mean for office properties remains to be seen, but U.K. office rental income could erode more rapidly than it has done in the past.

<sup>1</sup> Hotels under management contracts are subject to this variability of income. Some hotels operate under more traditional long-term leases with the owners (but not the operators) somewhat insulated from a downturn in demand.

<sup>2</sup> Tenancies weighted by contracted rent.

#### Exhibit 11: Even under less aggressive scenarios, 40% of office rental income could be eroded by 2025



Source: MSCI Real Estate

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