SUMMIT

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SUMMIT

AFIRE is the association for international real estate investors focused on commercial property in the United States.

ABOUT

Summit Journal is the official publication of AFIRE, the association for international real estate investors focused on commercial property in the United States.

Established in 1988 as an essential forum for real estate investment thought leadership, AFIRE provides a forum for its senior executive, institutional investor, investment manager, and service provider members to help each other become Better Investors, Better Leaders, and Better Global Citizens through conversations, research, and analysis of real estate capital markets, cross-border issues, policy, economics, technology, and management. AFIRE has nearly 200 member organizations from 25 countries representing approximately US$3 trillion in assets under management.

Learn more at afire.org/summit

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About the cover: Three multifamily buildings amidst lake-effect fog in Chicago, IL. Fall 2022. Photo by Benjamin van Loon

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MAKE SUSTAINABILITY REAL

With the case for sustainability already well-established, how can (and should) real estate continue to lead?

Gunnar Branson
AFIRE

NOTE FROM THE EDITOR

ISSUE 11

With the worst parts of the pandemic behind us—and political and economic fallout continuing to challenge us—it's clear that this is no longer the world that was. But we're not yet in the world to be, either. Instead, we're somewhere in-between.

This issue of Summit Journal (our eleventh issue to date and our last issue of 2022) is a reflection of this point in time. Our contributors, from all sides of the industry, are looking to the past for cues to the future, but definitive answers to our current challenges—inflation, supply and demand, geopolitics, climate change—are still obscured by the fog of uncertainty.

This uncertainty is putting a different sort of pressure on real estate values. At the time of this writing, some of the largest and most well-capitalized real estate funds in the US are limiting what investors can withdraw. Other funds are stemming outflows, as investors track weakening demand for office space, and as rent growth slows in apartments and other sectors.

But AFIRE members, representing a notable sample of global institutional investors, and the contributors to this journal, still see bright points and long-term opportunities in US real estate—even if it takes a mix of art and faith to reach those insights. For example, CBRE Investment Management, which is also graciously serving as the sponsor for this issue, suggests that the solution for some of our current industry challenges could be found by prioritizing investments with a promise of positive social change (p. 10). Similarly, AFIRE CEO Gunnar Branson provides a renewed challenge to the real estate industry, following years of advancements in sustainability (p. 6).

The other articles and research in this issue runs the gamut on market selection (Aegon Asset Management, p. 32); asset pricing (Barings Real Estate, p. 40); evolving trends in supply and demand (JLL, p. 96); challenges in operating expenditure (Berkshire Residential Investments, p. 60); and differences in office performance across US markets (RCLCO, p. 46). New York Life Real Estate Investors shares a white paper looking at post-pandemic economics effects in "sand state" markets (p. 68), and we're also proud to include a recent article from PwC on the future path of long-term interest rates in the US (p. 22).

Together, the ideas presented by the contributors to this issue—alongside the guiding voice of the Summit Journal Editorial Board (whose comments append several of the articles found herein)—don't quite promise sure-fire solutions. But they showcase how our industry is thinking at this point in time: a community finding its way through the fog.

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MAKE SUSTAINABILITY REAL

Gunnar Branson
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With the case for sustainability already well-established, how can (and should) real estate continue to lead?

HOW DO WE MAKE SUSTAINABILITY REAL?

When I ask that question, the answer usually has something to do with regulatory requirements and how rating agencies are trying to make sure everyone complies with some sort of standard. As important as standards are, and despite all the progress made in the real estate industry, the full answer to the question seems to remain elusive.

Real estate has embraced environmental, social, and governance (ESG) best-practices in ways we never imagined twenty years ago, and newer buildings tend to be more efficient than they have ever been. As such, investors are starting to be measured on the sustainability of their portfolios. Armies of professionals in our industry are ensuring compliance with every new regulation, code, and measurement system. Everyone is doing their part to be more compliant—and sustainable.

And yet, no matter how many buildings are certified "green" by various standards around the world, and despite the best efforts of many organizations, only a handful of structures today could be considered close to "carbon neutral."

It's common knowledge that building operations account for 30% of global final energy consumption and 27% of total energy sector emissions annual CO^2 emissions.[1] The demand for new construction continues to grow with more than 8 billion people now on the planet, many of them migrating to new homes far from the worst aspects of climate change. There are a lot of new buildings to build, though the concrete and steel we use to achieve this remains an ongoing environmental challenge, and we haven't yet learned how to use alternative materials at scale. With the average world temperature already 1.1°C warmer than it was before the Industrial Revolution, we have no choice but to deliver sustainability now—we still have so much more to do.[2]

Of course, the energy buildings use comes from the electrical grid, which is supplied by a wide range of fuels, from coal fired power plants to more carbon neutral fuels such as solar, wind, and nuclear. The carbon footprint of electricity is improving, but not fast enough that building owners can just wait for electricity providers and governments to take care of the problem. At the same time, an environment of rising energy prices can further incent landlords and tenants on energy efficiency.

If every building built today were carbon neutral, we would still need to contend with the stuff we already have. In 2040, two-thirds of the global building stock will have already been built.[3] Unless we change existing stock, the emissions required to heat, cool, and operate those buildings will still prevent us from accomplishing the climate targets set by the Paris Agreement of 2016.

Various media reports from the twenty-seventh United Nations Climate Change Conference in Egypt this past November made the imperative for change clear, but also how little time there is to change course. The entire world is affected by the negative changes of our Anthropocene era, the current geological age during which human activity has become the dominant influence on climate and environment. With everyone now impacted in some way by rising temperatures and sea levels, changes in weather patterns, and increasingly catastrophic weather events, dystopian futures once the realm of science fiction have already become our actual reality.

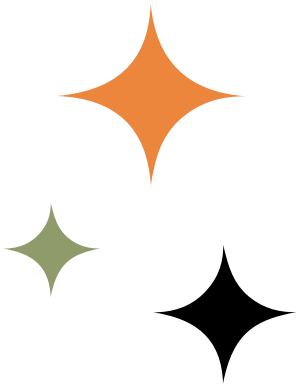
SO, LET ME ASK THE QUESTION AGAIN: HOW CAN WE POSSIBLY MAKE SUSTAINABILITY REAL?

To attempt to find an answer to this question at the leading edge of our industry, I recently sat down with Amy Erixon, President of Global Investment Management for Avison Young, a global commercial real estate services firm, headquartered in Toronto. Her answer was actionable and direct: "Make a carbon transition plan, now."

In addition to her work with Avison Young, where she founded the firm's global investment management practice, Amy is the chair of AFIRE's new ESG Committee. Before Avison Young, she was the CEO of IGRI, a full-service development and investment firm that built the first LEED-certified projects across Canada in the mid 2000's. She is also a founding member of the sustainability and fund governance committees of REALpac, and served on the Ontario Board of the Nature Conservancy of Canada, the ULI Responsible Property Investing Council, and MIT's Educational Council.

When she talks about sustainability, there is very little hedging about whether it's a good idea to invest in sustainability now. Most global investors agree with her. According to a recent AFIRE Survey of Investors, 85% agree that ESG will deliver significant return on investments and 55% would even be willing to accept lower expected returns if the investment had a beneficial impact on society or environment,[4]. But in a constant chase for superior returns, doing anything out of our industry's orthodoxy requires leadership. It therefore may seem "safer" to follow others, comply with requirements, and avoid fundamental change. But as Amy suggests, this might not be wise.

Amy is adamant that investors must have a detailed plan for their portfolios that includes how to improve efficiency, reduce reliance on carbon fuels and, if necessary, exit investments that are likely to become functionally obsolete due to lack of resilience or the cost to modernize to contemporary standards. "Tenants and capital will vote with their feet," She says. In some cases, they are already starting to do so. In a time of climate change, the most sustainable buildings are the most competitive. Over the next ten years, it is difficult to believe that mere compliance with existing codes will be enough. "You better have a sustainability strategy. You will lose tenants and capital if you can't answer how you will make it happen."



TO WIN, INVESTORS MUST BECOME SUSTAINABILITY LEADERS.

Looking around Toronto during my visit, I was reminded of just how much Canadian real estate is leading sustainability compared to the US, and how much we can learn from what they are doing now. But investors in Canada also have a long way to go. How should we do it? How can we make a meaningful start right now?

Amy had a suggestion:

> "Everyone needs to begin assessing their portfolio right now. Know exactly how well each building is doing when it comes to sustainability then divide everything into three buckets. The first bucket is your low hanging fruit; the properties that need the least amount of work to become sustainability leaders. The second bucket is the assets that require meaningful capital expenditures such as new roofs or HVAC, double or triple pane windows, heat recovery air exchange systems. Here in Toronto deep lake cooling and district heating are options, and in many parts of the US it might include on-site solar or even just solar domestic water. Mid and high-rises are harder for renewables, but with a little luck we will have commercially viable solar glass systems in the near future. There are a lot of options and one has to assess both asset by asset and at the portfolio level. For example, you can purchase renewable source energy, or even energy credits. Those are pretty cheap right now but in the land rush to improve portfolio performance they will get very expensive fairly soon. The third bucket includes the most difficult assets; those that require answers to the tough question, 'is asset likely to ever be sustainable?'"

It's one thing for someone to promise zero carbon in a few decades, it's quite another to deliver. It isn't easy or cheap. Investors must engage in a difficult self-assessment, not only to meet expectations, but to exceed them. And then they need to act accordingly—even if it is expensive, even if it is hard.

Of course, real estate investing is intrinsically difficult to do. Predicting how a building, a neighborhood, or a city will perform over ten years is remarkably complicated and uncertain. It's challenging to aggregate capital; build or acquire assets and lease those assets. To add additional significant change to the mix is an anathema to anyone that tries to deliver consistent risk-adjusted returns. And yet, many times throughout the history of real estate, investors have succeeded in doing just that.

Sixty years ago, the US was set on a course to go to the moon before the end of the decade by then-President John F. Kennedy. Many expressed reasons not to even try. It was unproven what the return on investment might be. New technologies needed to be invented. Many thought it was impossible. The president, however laid out his argument for going to the moon with words that resonate every time I hear them;

> "We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win, and the others, too."[5]

We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard

I recommend that everyone listen to his entire speech, especially when facing the tremendous challenge of climate change. His argument to lean into the difficulty, to make the seemingly impossible possible, worked. We went to the moon and expanded what human beings were capable of in so many ways.

I suspect that human beings will survive the challenge of climate change, not because it is easy, but because it is hard.

In the spirt of AFIRE's core mission—to help each other become better investors, better leaders, and better global citizens—I hope that my colleagues in real estate will lead instead of follow on the path to sustainability.

ABOUT THE AUTHOR

Gunnar Branson is the CEO of AFIRE and the publisher of Summit Journal.

NOTES

[1] "Buildings Tracking Report: September 2022." IEA. Accessed December 7, 2022. https://www.iea.org/reports/buildings.

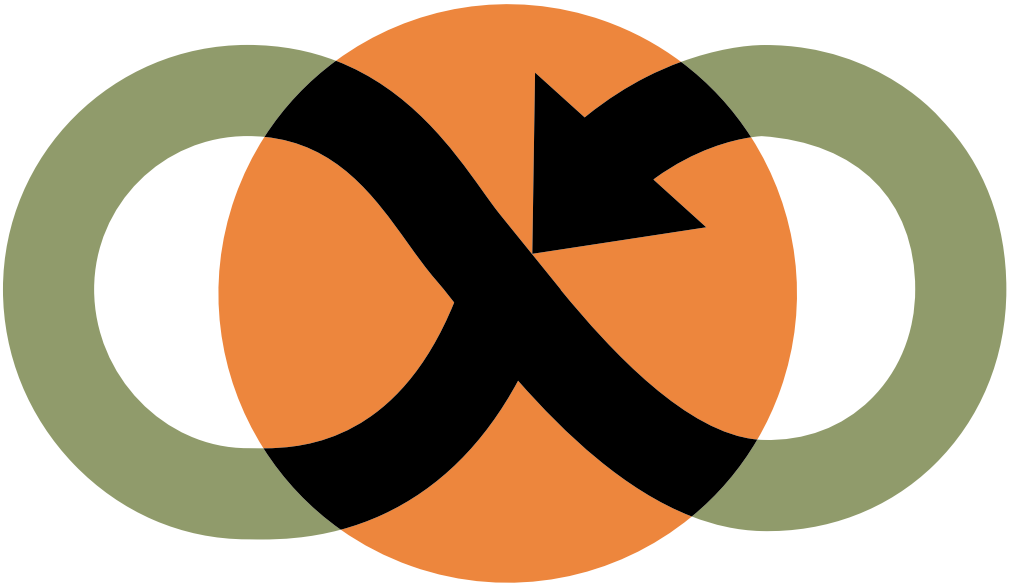
[2] "Climate Change 2021: The Physical Science Basis." Intergovernmental Panel on Climate Change. Accessed December 7, 2022. https://www.ipcc.ch/report/ar6/wg1/.

[3] "Energy Technology Perspectives." IEA, September 1, 2020. https://www.iea.org/topics/energy-technology-perspectives.

[4] Branson, Gunnar, and Benjamin van Loon. "Marching Backwards into the Future." AFIRE, May 2, 2022. https://www.afire.org/summit/marchingbackwards/.

[5] "John F. Kennedy Speech." Rice University. Accessed December 7, 2022. https://www.rice.edu/jfk-speech.

RETURN GENERATION POTENTIAL



Shane Taylor
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In addition to potentially offering inflation protection and lower return volatility, real estate may also help bring about tangible positive change and help solve some critical problems.

When it comes to generating attractive risk-adjusted returns, real estate has demonstrated its worth over the long run. It can deliver relatively stable income, some inflation protection, and generally lower volatility and diversification benefits—even through and beyond the pandemic—real estate also offers something that other asset classes can't easily replicate: the opportunity to invest in tangible positive change.

The buildings in which we live, work, heal, learn, and play in all have an environmental and social footprint. Through action on the ground, this footprint can be minimized and, in some cases, turned into a positive. Whether it is constructing affordable and sustainable housing, deploying solar panels on roofs to generate energy, assist with supply chain blockages or ensuring the energy efficiency of new and existing stock, real estate can help solve some of the world's most pressing issues.

And investing in problem-solving real estate can make financial sense, too. Buildings with strong sustainability credentials can be more likely to be sought after by occupiers and less likely to be left vacant. They also have the potential to generate enhanced returns thanks to having been constructed to higher specifications. And because investments can be channeled into areas that are truly in demand, they are potentially more cycle-resistant.

When it comes to real estate, generating attractive returns and solving problems are not mutually exclusive.

REAL ESTATE: INVESTMENT THESIS

Investors seeking high, sustainable income, inflation protection, low correlation to other asset classes, and attractive returns at relatively low volatility—for those investors seeking any of these attributes, real estate may provide a solution.

EXHIBIT 1: EUROPEAN INCOME RETURNS (2001–21)

Sources: MSCI Europe; INREV Annual Core Index; Bank of America Merril Lynch Euro Corporate; Bank of America Merrill Lynch Pan Europe Government; FTESE/EPRA/NAREIT Developed Europe; FTSE World Europe

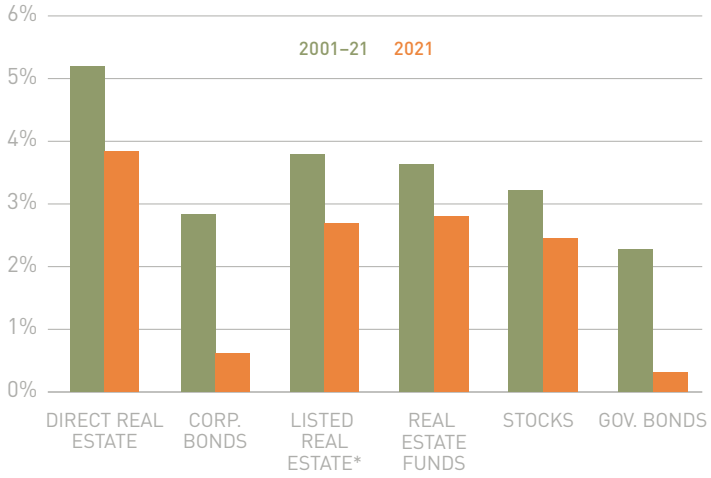


EXHIBIT 2: INCOME GENERATED BY US REAL ESTATE FUNDS (2000–21)

Source: ODCE. As of March 2022.

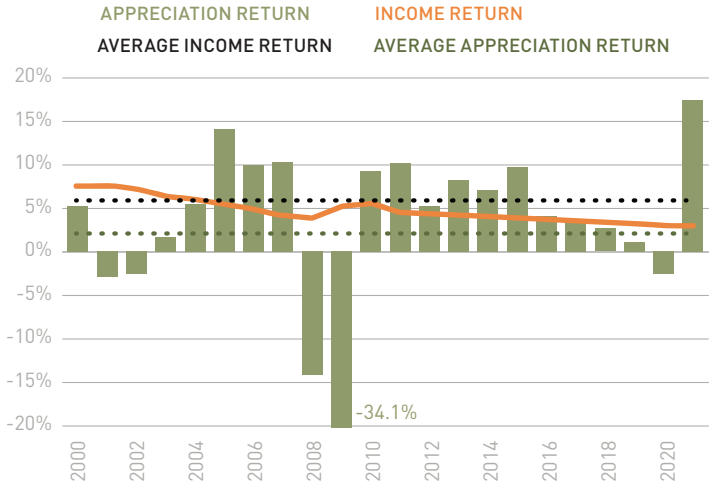
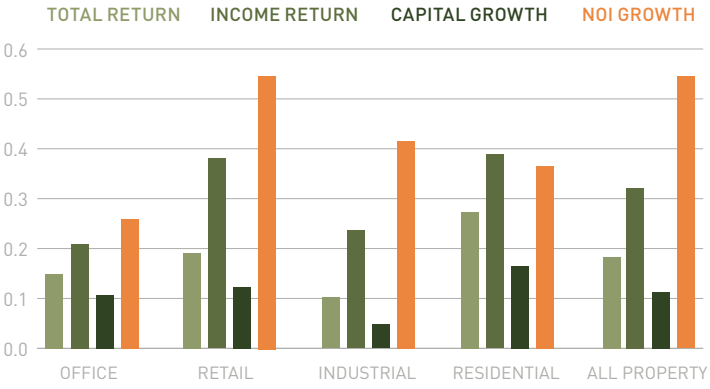


EXHIBIT 3: GLOBAL CORRELATION OF NOI GROWTH AND RETURN WITH INFLATION (ANNUAL FIGURES; 1981–2021)

Sources: MSCI; NCREIF; Oxford Economics Financing; CBRE Investment Management



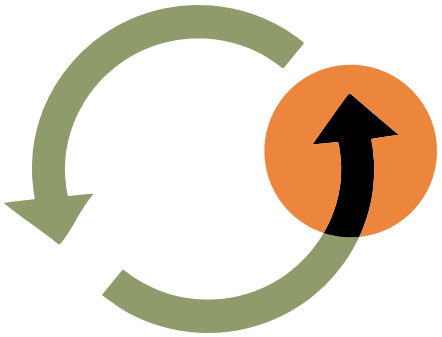


EXHIBIT 4: LOW CORRELATION

Sources: CBRE Investment Management, based on MSCI World (equities), Bank of America Merrill Lynch Global government index (gov bonds), FTSE EPRA/NAREIT Developed index (listed real estate), MSCI Global Property Index (private real estate)

15 YEARS

CORRELATION GLOBAL RETURNS 2007–21	STOCKS	GOVERNMENT BONDS	PUBLIC REAL ESTATE	PRIVATE REAL ESTATE
Stocks	1.00			
Gov Bonds	-0.55	1.00		
Public Real Estate	0.85	-0.45	1.00	
Private Real Estate	0.27	-0.26	0.22	1.00

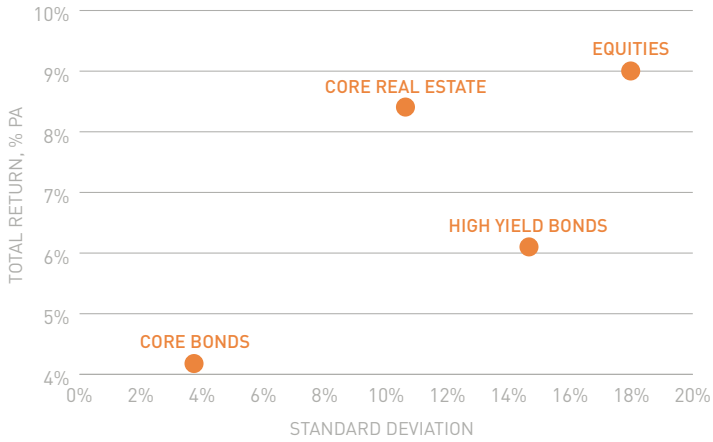
20 YEARS

CORRELATION GLOBAL RETURNS 2007-2021	STOCKS	GOV. BONDS	PUBLIC REAL ESTATE	PRIVATE REAL ESTATE
Stocks	1.00			
Gov Bonds	-0.63	1.00		
Public Real Estate	0.74	-0.42	1.00	
Private Real Estate	0.28	-0.26	0.35	1.00

Buildings and construction account for 36% of global final energy use and 39% of energy-related carbon dioxide (CO^2) emissions when upstream power generation is included.

EXHIBIT 5: ATTRACTIVE RETURNS WITH RELATIVELY LOW VOLATILITY

Source: NFI PDCE Gross of Fees. As of December 2021.



In addition to generating attractive risk-adjusted returns to meet investors' traditional fiduciary requirements, real estate may also help mitigate economic and societal problems.

SUPPLY CHAINS

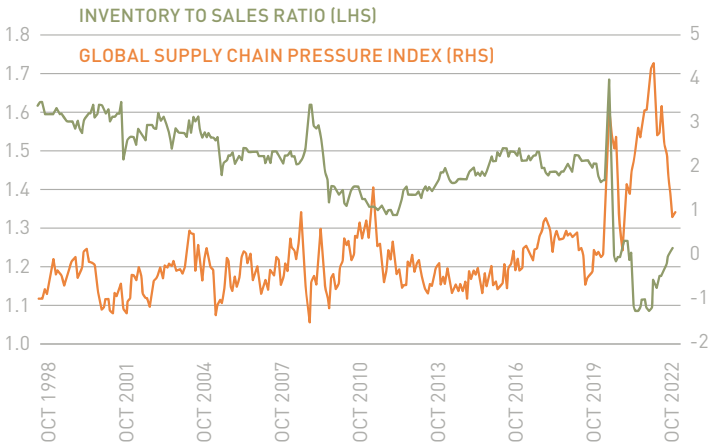
Problem: Stretched and Vulnerable Supply Chains

The vulnerabilities of supply chains based around just-in-time strategies have been bubbling up in the background for some time: bottlenecks, lack of security of supplies, environmental footprint. The onset of the COVID-19 pandemic, heightened geopolitical tensions, and the cost of energy crises have all brought these to the foreground, triggering a re-evaluation of supply chain models. This rethink is increasingly involving a switch away from "just-in-time" to "just-in-case" strategies centered around holding higher levels of stock and inventory.

US retailers have been struggling to rebuild inventory back to long term average levels let alone build the excess inventory or safety stock they would like to have as part of this new just-in-case supply chain model. Yet they have also been contending with a global supply chain pressures index well above (1 to 4 standard deviations above the long-term average) normal. The confluence of these two factors help to explain why recent years have seen such fierce competition among occupiers for quality, well-located space.

EXHIBIT 6: US RETAILER INVENTORY-TO-SALES RATIO REMAINS LOW WHILE GLOBAL SUPPLY CHAIN PRESSURES INDEX REMAINS HIGH

Sources: Inventory to Sales Ratio from the St. Louis Federal Reserve as of June 2022 and the GSPCI from the New York Fed as of August 2022 and Bengino, G. et. Al "A New Barometer of Global Supply Chain Pressures," Jan 2022, Federal Reserve of New York. The Index is scaled by its standard deviation.



This rethink is increasingly involving a switch away from "just-in-time" to "just-in-case" strategies centered around holding higher levels of stock and inventory.

Holding more inventory mitigates the risk of running short on stock. It also helps to retain customer loyalty and can act as a hedge against future price rises and higher transportation costs. For example, according to Drewry Supply Chain Advisors and the Cass Freight Index, the cost to ship goods via ocean freight jumped by more than 200% in 2021, while the cost for domestic freight rose over 40%.[1]

Solution: Modern Logistics Facilities

The modern logistics sector is central to reconfiguring supply chains and weathering today's high inflation environment. Transportation costs make up 40–70% of a company's total logistics spend. By contrast, fixed facility costs (including rent) account for only 3–6%.[2] Modern logistics facilities therefore offer a cost-effective route to reducing transportation costs as well as protection against future supply chain disruption.

Financial Sense Check: Investing in Modern Logistics Facilities

Thanks to favorable supply/demand dynamics, specifically supply struggling to keep pace with demand that is being driven by long-term structural trends, such as e-commerce and supply chain reconfiguration, availability rates are at record-lows across most major US markets *(Exhibit 7)* and warehouse size segments *(Exhibit 8)*. And thanks to long-term structural drivers, further rental growth is expected.

EXHIBIT 7: AVAILABILITY RATES OF LOGISTICS FACILITIES

Source: CBRE EA; CBRE Investment Management as of September 2022

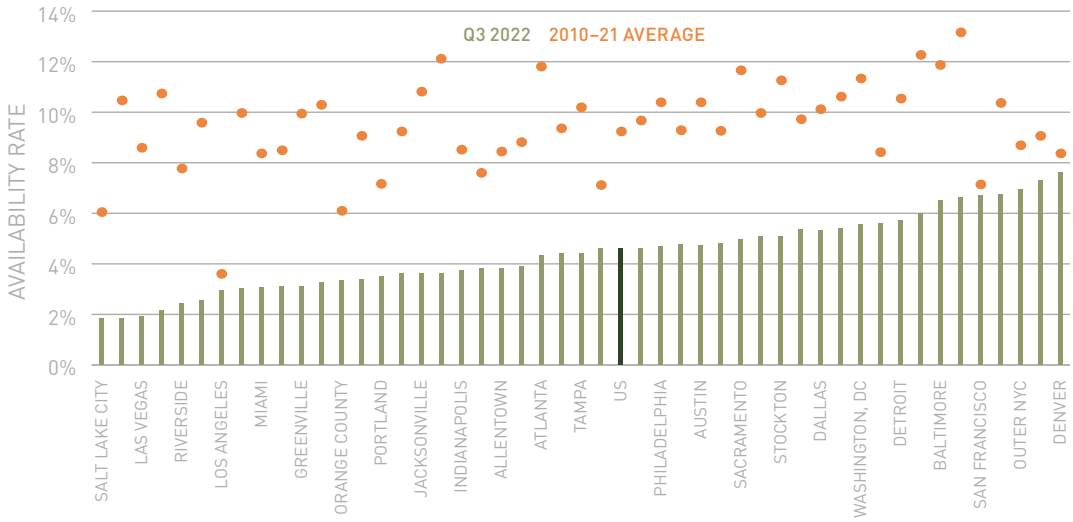


EXHIBIT 8: WAREHOUSE SIZE SEGMENTS

Source: CBRE EA as of Q3 2022

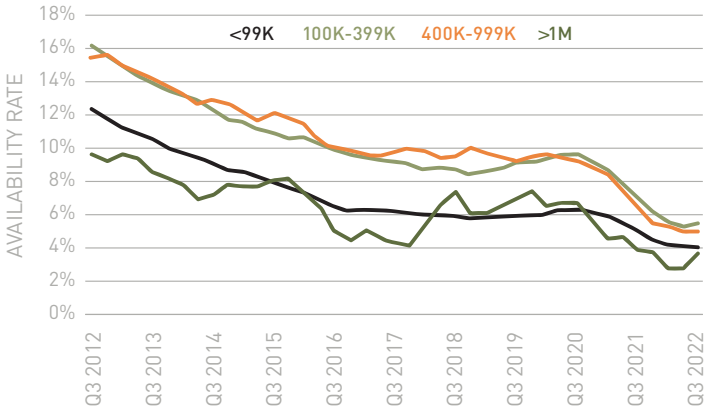
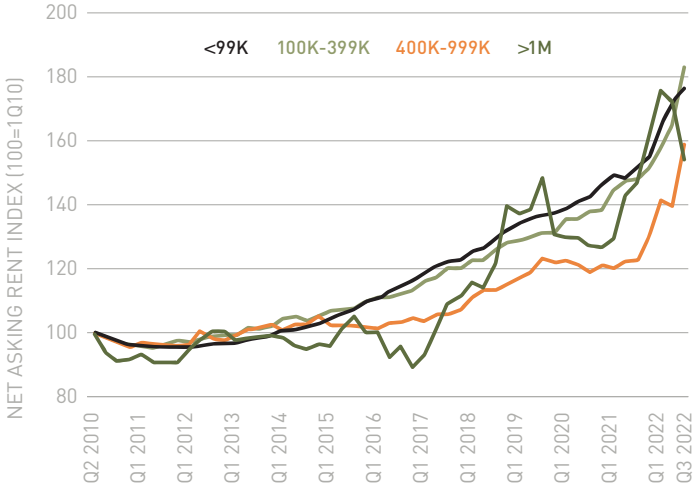


EXHIBIT 9: ASKING RENTS FOR WAREHOUSE

Source: CBRE EA as of Q3 2022



AFFORDABLE HOUSING

Problem: Lack of Affordable and Sustainable Housing

Today's cost of living crisis and rising interest rates are exacerbating a pre-existing problem: a chronic lack of affordable and sustainable homes.

The problem is threefold: a lack of housing stock given the populations it is to serve; this drives up rents and has created an affordability challenge; meanwhile, much housing stock is in need of refurbishment and upgrade, especially given temperature volatility and climate change.

Harvard University's "The State of the Nation's Housing 2022" report quotes the Federal Home Loan Mortgage Corporation's (Freddie Mac) estimate of a 3.8 million shortfall in market-rate housing both for sale and for rent in the US.[3] In the UK, the House of Commons' February 2022 Research Briefing "Tackling the Under-Supply of Housing in England" estimates "around 340,000 new homes need to be supplied in England each year, of which 145,000 should be affordable."[4]

The US and UK may be among the largest investable housing markets globally but in fact are fact from the least affordable. Demographia's 2022 report finds Hong Kong, China, and several cities in Australia, New Zealand, and Canada among the least affordable globally. The Harvard Report found that in the US in 2020, the nationwide share of cost-burdened households (that is, those paying more than 30 percent of their incomes for housing) stood at 30 percent. Moreover, 14 percent of all households were severely burdened (spending more than half their incomes on housing). Renter households were particularly hard-pressed, with 46 percent at least moderately burdened and 24 percent severely burdened. In the UK, the Hamptons Monthly Lettings Index estimates that, following record rental growth in 2021, tenants spent an average of 42% of their post-tax income on rent. The figure rises to 48% for those renting in London.[5]

Much affordable housing stock is in need of upgrading and retrofitting. The Harvard report called for urgent upgrades to existing stock as too much of it is simply "not equipped to meet the accessibility needs of an aging population or to withstand the impacts of climate change." The report goes on to quantify the climate change issue in terms of household numbers: "The [...] immediate, large-scale challenge is to improve the resiliency of the existing stock and to mitigate the risks of future damage from extreme weather-related events. Some 51.5 million households now live in areas under at least moderate threat of annual losses from natural disasters, including 11.6 million lower-income households with limited resources to recover or relocate."

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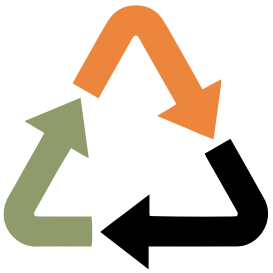


The cost of living crisis problem is threefold:

1. Lack of Housing Stock
2. Affordability
3. Sustainability

WHY THE LACK OF SUPPLY?

Labor shortages, restrictive local land use regulations have long been factors which have challenged the production of new and affordable housing stock in many markets. During and since the pandemic, labor shortages became even more acute and additionally supply chain delays for many construction materials and spiraling costs added to these challenges.

In the UK, the House of Commons Report similarly found that the planning system is central to the failure to build enough homes, particularly where housing need is at its most severe. Other barriers include policies that enable affordable homes to be purchased by private individuals (right to buy).

Solution: Affordable Housing Funds

Real estate funds focused on affordable housing offer a solution that not only increases the level of affordable stock, but also improves quality of life for people either by updating properties or by building sustainable homes. By channeling institutional client capital, funds can help plug the funding gap. Importantly, these funds continue to target the attractive returns investors expect from real estate. They also help satisfy the growing need for institutions to demonstrate the impact their respective investment strategies are having on society.

Financial Sense Check: Investing in Affordable Housing Funds

By providing fit-for-purpose accommodation that has been designed or upgraded with the environment and quality of life in mind, tenants are less likely to leave, more likely to look after their homes, and more inclined to recommend the development to others. These can all lead to lower maintenance costs, lower bad debts, lower void costs, and lower vacancy rates—all of which, in turn, can positively impact exit yields.

CLIMATE CHANGE

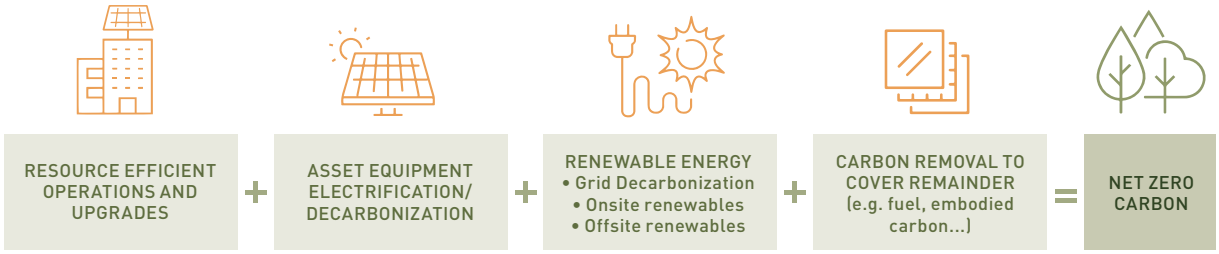
Problem: Climate Change

The World Green Building Council (WGBC) Global Status Report 2017 states that buildings and construction together account for 36% of global final energy use (and a higher 39% of energy-related CO^2 emissions when upstream power generation is included). Additionally the WGBC found that energy intensity per square meter needs to improve on average by 30% by 2030 (compared to 2015) to be on track to meet global climate ambitions set out in the Paris Agreement.[6]

Solution: Investing in Net Zero-Aligned Real Estate

By addressing climate-related risks and opportunities and by focusing on delivering resiliency and net zero carbon performance, it is possible for real estate to switch from being a part of the problem to being a part of the solution.

EXHIBIT 10: THE ALGEBRA OF GETTING TO NET ZERO CARBON



Real estate has many levers that it can pull to help attain net zero carbon:

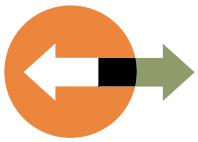
- Undertaking retrofits on existing buildings to make them energy efficient
- Deploying onsite renewable energy to generate power for the site and wider community
- Carrying out the electrification of sites including the installation of battery storage and electric-vehicle charging systems
- Increasing the use of more environmentally friendly materials
- Implementing green financing programs to fund projects targeting a reduction in the carbon footprint of buildings

Financial Sense Check: Investing in Net Zero-Aligned Real Estate

Properties that do not have strong sustainability credentials are at risk of becoming stranded assets. According to the Carbon Risk Real Estate Monitor, "properties that will be exposed to the risk of early economic obsolescence due to climate change because they will not meet future regulatory efficiency standards or market expectations."[7]

Upgrading existing buildings/constructing new properties that meet high sustainability thresholds is therefore an exercise in risk management. It can also add value. Buildings with their own energy source can generate savings and, in certain instances, additional sources of income. The asset may also be more attractive to occupiers looking to reduce their own carbon footprints, thereby minimizing vacancies which, in turn, can help with exit yields.

Research carried out on the relationship between certification from GRESB, an independent organization providing validated ESG performance data and peer benchmarks, and real estate fund returns show that strong GRESB performance correlates to enhanced returns for non-listed funds: overall, a 3% uplift was observed between the lowest and highest GRESB scoring funds.[8]



It is possible for real estate to switch from being a part of the problem to being a part of the solution.

Buildings with their own energy source can generate savings and, in certain instances, additional sources of income.

TALENT

Problem: Skills Shortage

According to the 2022 Global Talent Shortage Survey carried out by Fortune 500 company, Manpower Group, "[Three in four] employers report difficulty in finding the talent they need." The survey involved more than 40,000 employers from a broad range of industries in 40 countries and territories.[9] The reasons behind the skills shortage range from lack of adequate training to more people leaving the workforce – the US Bureau of Labor Statistics estimates that in December 2021, over 4.3 million workers voluntarily left their jobs.[10]

Solution: Building Ecosystems around Developments

By linking developments to education and training, an ecosystem can be fostered that benefits both the communities they serve as well as prospective occupiers. This can be achieved via the establishment of educational funds that invest in the teaching and training of skills relevant to the development.

QUICK CASE: COMMUNITY SOLAR PROJECT IN MARYLAND, US: A QUICK CASE STUDY

Partners: CBRE IM and Altus Power

Project: Build and operate a portfolio of rooftop community solar projects to generate renewable energy for approximately 5,700 residential customers. This involves installing solar systems of up to 20MW on the rooftops of logistics facilities owned by CBRE IM funds.

Vision: The power generated from the solar project systems is distributed to CBRE IM's tenants and to residential customers with 30% or more of the electricity to be allocated to low- and moderate-income residential customers in Maryland.[11]

Financial Sense Check: Building Ecosystems Around Developments

Firstly, investing in the education and training of the local community can help projects get through the planning and funding stages.

It can also enhance the attractiveness of an asset. An educational fund, as in the Science Square Technology Enterprise Park, can establish a virtuous loop: people have the opportunity to train up and raise their income potential; developers/landlords foster an ecosystem centered around the asset; a local workforce skilled in a specialist sector helps attract further investment into the ecosystem; more employment opportunities are generated; and people can continue to train up and raise their income potential, beginning the loop again.

Rethinking Real Estate as an Asset Class

In summary, real estate is a unique asset class that not only generates attractive risk-adjusted returns but also provides investors with the opportunity to put their money to work to help solve some of the world's most pressing societal and environmental issues.

Crucially, there doesn't have to be a trade-off between investing for positive change and generating attractive returns. The opposite can be true. Investing for good can help future-proof assets and increase sustainability of income. This, in turn, can enhance returns for investors.

With real estate, it is possible to invest in assets that not only benefit investors, but the actual people, places, and communities where we live, work, and play.

QUICK CASE: SCIENCE SQUARE TECHNOLOGY ENTERPRISE PARK AT GEORGIA TECH[12]

Partners: Georgia Tech and developer Trammell Crow Company (TCC)

Project: A purpose-built 18-acre mixed-use development focused on establishing Atlanta as a biomedical research and technology hub.

The first phase of the development will comprise:

- TCC's Science Square Labs
- 364,740-square-foot Class A lab/office tower
- 280-unit residential building with shared parking and ground-floor retail space

Vision: As part of the project, TCC is providing an initial US$500,000 Community Educational Grant which will go towards life sciences' education and jobs training in the local area.

ABOUT THE AUTHOR

Shane Taylor is Americas and APAC Head of Research for CBRE Investment Management, a leading global real assets investment management firm.

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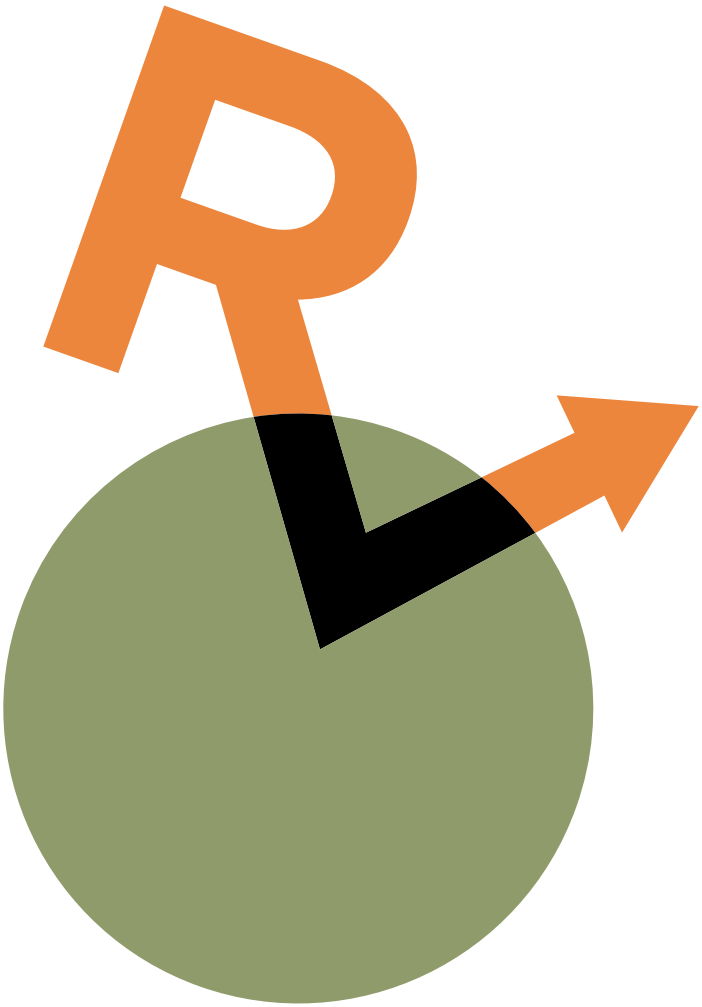
CATCH A FALLING *R



Alexis Crow, PhD
Global Head, Geopolitical Investing Practice
PwC

The future path of long-term interest rates in the US and why it matters.

As investors, executives, and policymakers grapple with the effects of multi-decade high inflation, and consider the impact of higher prices on their long-range planning, portfolios, asset prices, and the potential for an economic recession, central banks have come under fire for a perceived failure to maintain price stability. Amidst the backdrop of an elevated commodity price environment, tight labour markets, demand for both goods and services which continues to surprise to the upside, and persistent supply chain disruptions, some commentators have chided officials at the US Federal Reserve and the European Central Bank (amongst others) for failing to have acted faster to stem the rise in price for labour, goods, and capital. The once reified central bankers—whose 'rockstar' status had hitherto been enshrined in elite gatherings—have now been taken to task for their insistence that inflationary pressures were 'transitory', resulting from the shocks to supply and demand from the COVID-19 pandemic. Indeed, the pass through of headline (including volatile food and energy prices) into core inflation (personal consumption expenditures on goods and services) has eroded real incomes, ushering in a 'cost of living crisis'[1] and the potential for an 'inevitable impoverishment'[2] for some households.

Although some price pressures appear to have moderated (such as wage inflation in the US[3] or the price of some key inputs, such as lumber[4]), a robust debate has unfolded about the future path of interest rates in the US and other advanced economies. Will the highest inflation in 40 years—and the continued disruption to global commodity markets resulting from the Russia-Ukraine conflict—lead us toward a 'higher for longer' interest rate environment? Or, after such crises and shocks eventually subside, will we return to a 'lower for longer' interest rate environment, underpinned by aging populations, declining fertility, lackluster economic growth, diminishing returns on innovation, and what one prominent investor has referred to as the 'great sag?'[5]

Part of the answer lies in understanding the future path of r-star—that is, the natural, or equilibrium, rate of interest. In contrast with shortterm interest rates (the manipulation of which is a tool of monetary policy), r-star is defined as the natural rate of interest "expected to prevail when the economy is at full strength", and inflation is stable. Crucially, as NY Federal Reserve President John Williams highlights, r-star is the result of "longer-run structural factors, beyond the control of central banks."[6] These include demographics, productivity growth, innovation, and an increasing preference for holding "safe assets."[7]

Thus, a consideration of the future path of r-star involves a number of different interrelated factors, including, but not limited to: productivity, the future of work, and automation; the relationship between labour vs capital, and between innovation and economic growth; indebtedness and fiscal policy; inequality of wages, wealth, pensions, and consumption; a "savings glut of the rich" within domestic economies,[8] and global imbalances in net asset positions among economies on a global basis.[9] The onus for solutions in each of these arenas falls to fiscal policy as well as to the power of the private sector—and again, such outcomes are not necessarily "determined by central banks."[10]

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View the original at https://www.orfonline.org/research/catch-a-falling-r/

"The trajectory of r-star in the US is important for policymakers, investors, and executives within emerging markets and developing economies."

WHY IT MATTERS

Understanding the future of r-star matters for a number of reasons. Crucially, short-term interest rates—and the long-run equilibrium rate—are often conflated by executives and market participants who are constantly bombarded by headlines. In a short to medium term of higher inflation and higher rates (and amidst the attendant hand wringing), the assumption might be to extrapolate from the status quo of short-term rates, which are not necessarily sticky. Thus, for investors, a clear understanding of the *long-term* trajectory of interest rates is crucial to scoping future rates of return, asset prices, and portfolio allocation. This is especially pertinent for levered businesses such as real estate, infrastructure, and private equity. For executives across the board, a vantage point on the direction of r-star is also critical to scoping the future cost of capital—in other words, in judging how cheap (or expensive) money might be in the longer term.

And for policymakers tasked with maintaining sustainable economic growth amidst aging populations, and the corollary need for expanding entitlements amidst record levels of debt, a cleareyed discernment of r-star is inherent in fiscal policy and the budgetary outlook. After all, we have only recently exited an era of *disinflation,* when policy officials and central bankers have cautioned against the economic perils of stagnant growth and of 'excessively' low inflation.[11]

Moreover, in looking beyond advanced economies, the trajectory of r-star in the US is especially important for policymakers, investors, and executives within emerging market and developing economies (EMDEs). An interest rate rise environment in the US might put pressure on local currencies, resulting in imported inflation; as well as stress on USD-levered borrowers; and may potentially spur destabilising capital outflows. Crucially, in the current tightening cycle, central bankers from India have turned a keen eye on the Fed dot plot, as a way of informing RBI policy and, in turn, providing forward guidance to markets and investors.[12]

Finally, for the private sector as a whole, the interrelationship between falling r-star, expanding wealth-to-GDP ratios, lower returns on assets, and technological unemployment which often disproportionately impacts lower wage workers, the onus is on investors and executives to find ways of mitigating the deleterious effects of a lower r-star on stakeholders and communities, and to incorporate this into their long-term business strategy.

As we shall see, one clear arena where private capital can be mobilised to address public problems relates to R&D and innovation spending in the housing sector.[13] As the crisis of affordability in housing ripples across advanced and EMDEs alike, real estate investors—as well as executives from across sectors—can actually spur investments which can boost long-term productivity and growth. As such, taking action and deploying capital to "attack the sources"[14] of a falling r-star might constitute a fulfillment of growing ESG mandates—specifically the S or more nebulous social components—which are harder to define in a world focused on climate and energy.

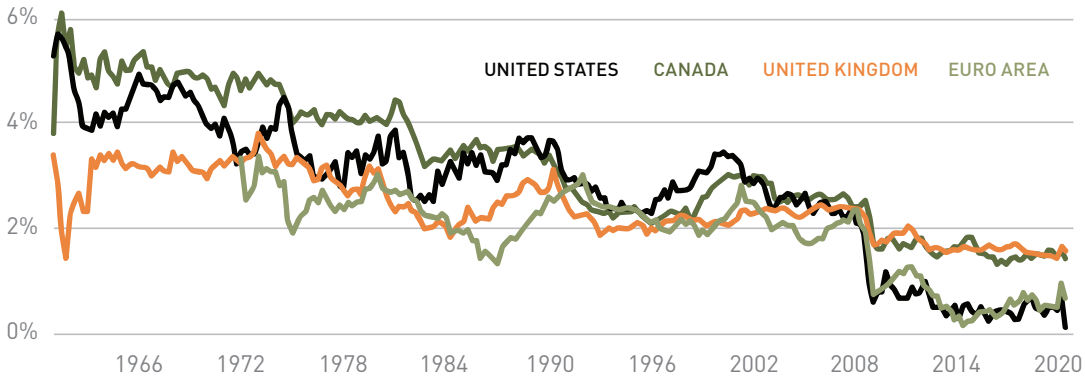
WHAT'S BEHIND THE LONG-RUN DECLINE IN R-STAR IN ADVANCED ECONOMIES? THE SECULAR STAGNATION DEBATE

As indicated above, in contrast with short-term interest rates, r-star (or the natural rate of interest) results from longer term macroeconomic and demographic factors. As Holston, Laubach, and Williams find, r-star has been on a long-run decline within OECD economies including the US, Canada, the UK, and the Euro area *(Exhibit 1)*. Researchers at the Bank of Japan point to a similarly low r-star in Japan, hovering around zero percent.[15]

Demographic factors—including aging populations, and lower birth rates—translate directly into slower trend economic growth, which has contributed to "dramatic declines in the longer-term neutral rate of interest," or r-star.[16] Productivity, too, has been on a downward spiral within many advanced economies.

EXHIBIT 1: THE NATURAL RATE OF INTEREST (R*) FOR THE US AND OTHER ADVANCED ECONOMIES

Source: Federal Reserve Bank of New York



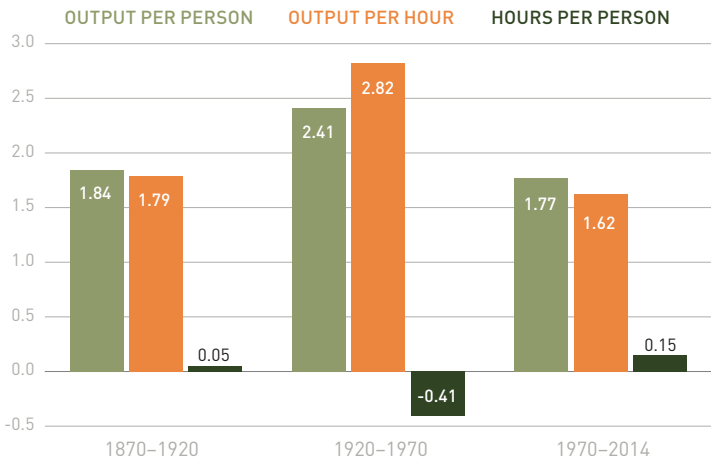
Demographic factors—including aging populations, and lower birth rates—translate directly into slower trend economic growth, which has contributed to "dramatic declines in the longer-term neutral rate of interest," or r-star.

Robert Gordon's work shows that within the US, productivity grew at a miraculous rate from 1930–70,[17] and—with the exception of a brief uptick during the early part of the ICT revolution from 1996–2004,[18] and perhaps with gains within some WFH services occupations during the pandemic economy[19] – productivity has been on a persistently downward slope. As we see in *Exhibit 2*, Gordon shows that in America since 1970, workers work more hours, and produce less output.

Part of the reason for initial uptick in the early days of the ICT (information and communications technology) revolution. But decline during the later digital waves might be that the initial introduction of laptop computers and mobile phones supported flexibility in working, and thus enhanced productivity during business travel but that the enhanced digitisation which followed—with multiple forms of communication, social media, and indeed gaming[21] — have actually distracted workers (and executives) from the task at hand, thus requiring longer to complete a job and to work efficiently.

EXHIBIT 2: US LABOUR PRODUCTIVITY ANNUALISED GROWTH RATE, 1870–2014 (%)

Source: The Rise and Fall of American Growth (Robert J. Gordon)[20]



Moreover, in increasingly consumer-driven economies, less workers means less consumers, which often leads to less growth. In addition, amidst increased longevity, people are planning on longer retirements, and are thus for the most part—induced to bolster their savings. All of these reasons—aging populations, declining fertility rates, diminished growth and productivity, and an accumulation of savings—were famously augured by Alvin Hansen in 1938, who neatly summarised such lackluster growth potential as "secular stagnation."[22]

Moreover, in increasingly consumer-driven economies, less workers means less consumers, which often leads to less growth. In addition, amidst increased longevity, people are planning on longer retirements, and are thus—for the most part—induced to bolster their savings.

WHITHER ANIMAL SPIRITS, AND THE PANDEMIC PRODUCTIVITY BOOM?

Prior to the pandemic, in the wake of the 2017 tax reform in the US and a relative uptick in business investment,[23] some executives buoyantly pondered whether we were in a new age of 'animal spirits', and that US GDP growth might catapult from a decade plus of slower growth into a new dawn of super powered potential. Consequently, the neutral interest rate—r-star—might rise from the ashes. However, such optimism was "sadly misplaced".[24] Indeed, researchers at the San Francisco Fed[25] point to longer term structural drags: namely, that "our increased longevity and propensity to save are the key demographic drivers keeping r-star low, and they're not about to reverse."[26]

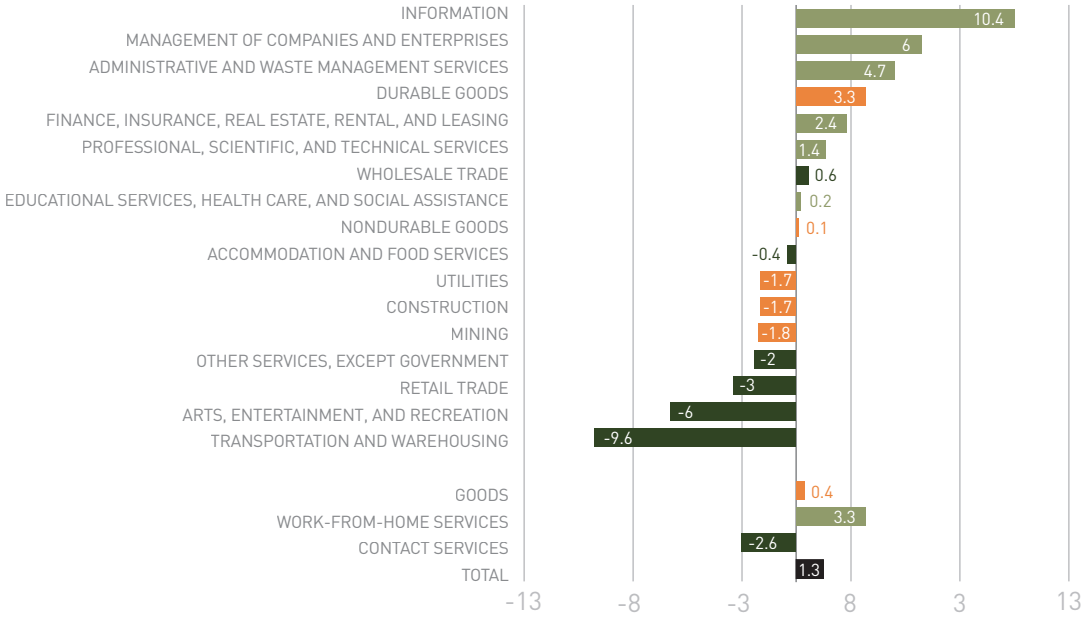
Moreover, the perhaps unprecedented number of changes in labour markets and the production of goods and services has prompted some observers to portend another newer age of high-geared growth (and thus, the potential for a loftier r-star). Recent research shows that productivity gains within the working from home (WFH) services sector during 2020 actually offset the sharp contraction in US GDP during the trough of the COVID-19 induced recession, with a similar effect in six OECD countries.[27]

Thus, the deployment of 'potential capital'—and a capital deepening in technologies to support remote workin—demonstrated resilience within the services-oriented sector amidst the sudden economic shock. As we can see in *Exhibit 3*, the silver lining of productivity gains was sectorally concentrated in IT, management, and business services.

The acceleration of remote working and attendant productivity gains are perhaps reminiscent of the early days or "nine ebullient years," of the ICT revolution which resulted in sharp productivity gains. Just as the proliferation of laptop computers and mobile phones ushered in prospects for enhanced productivity, so the transition to WFH—for those fortunate enough to do so—opened up opportunities for virtual communication and collaboration, as well as a deepening of corporate investment in such technologies. (It should also be noted that output gains might also be attributed to the redeployment of hours previously spent commuting to work on the primary job).[29]

EXHIBIT 3: AVERAGE PRODUCTIVITY GROWTH RATE OF 17 INDUSTRIES IN THE US, 2020:Q1- 2022:Q1

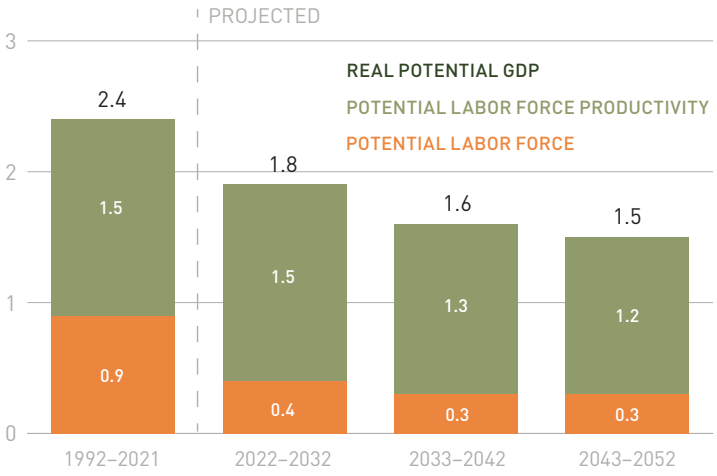
Source: Robert J. Gordon and Hassan Sayed, "A New Interpretation of Productivity Growth Dynamics in the Pre-Pandemic and Pandemic Era U.S. Economy, 1950-2022" NBER.[28]



In addition to this pandemic-induced burst of productivity, tight labour markets and trends such as 'the Great Resignation' in the US as well as an unremittingly high and volatile commodity price environment, and comparisons to the "bad days" of high inflation of the 1970s some commentators stipulate whether we might be in for a period of stickier or higher for longer interest rates. A simple fact of the matter is that people generally tend to extrapolate from the present moment, and forecast a status quo as an indication of the future. Such a practice is often misleading: despite this confluence of shocks to supply and demand of goods, services, workers, and inputs, persistent structural factors continue to drag on growth within the US and other OECD economies. Indeed, despite the WFH burst of productivity in the initial part of the pandemic economy, the Congressional Budget Office (CBO) forecasts that productivity will decline from 2022 onwards, in tandem with slowing growth of the US labour force.[30]

EXHIBIT 4: COMPOSITION OF THE GROWTH OF REAL POTENTIAL GDP IN THE US

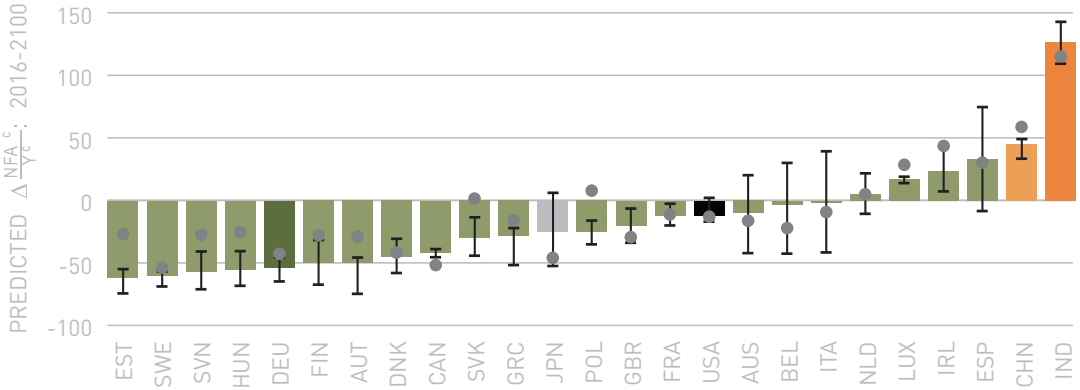
Source: CBO



Adopting a clear-eyed perspective on the 'lower for longer' trajectory of r-star is not indicative of a defeatist outlook for the economy. Thus removed from a heady conviction of 'animal spirits' and short-term exuberance, it is to adopt a sober and necessary understanding of the unfolding of our societies over the long term.

EXHIBIT 5: LONG-RUN NET FOREIGN ASSET POSITIONS FOR SELECTED COUNTRIES, 2016 - 2100

Source: Auclert, A. et al., November 2021. 'Demographics, Wealth, and Global Imbalances in the Twenty-First Century,' NBER: National Bureau of Economic Research



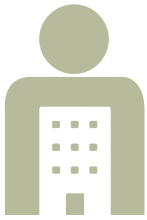
AGING, ASSETS, AND GLOBAL IMBALANCES

Another structural drag on growth contributing to lower r-star is an expanding imbalance between wealth to GDP. As indicated above, aging populations have an increased propensity to save: thus, over time, labour income gives way to holding assets. In a study of 25 countries—including both advanced and emerging economies—Auclert et al find that wealth to GDP ratios will significantly increase over this century. Such a process leads to "capital deepening everywhere, falling real interest rates", and "unambiguously implies a falling rate of return."[31]

Moreover, as the aging process unfolds at different times within the world's major economies, this process also results in a corollary imbalance in net asset positions between certain countries (defined as a country's "excess of wealth over capital and bonds").[32] As we can see in Figure 5, by 2100, growing net asset positions in India and China are "financed by declining asset positions in the US."

Rather than reinforce notions of insecurity concerning China's rise (as the relationship between China's assets and America's debt is a well-researched topic),[33] this outlook to the end of the century should actually be illustrative for institutional investors and corporations focused on opportunities for investing in India, especially within financial services.

Beyond the global purview, in considering the outlook for asset prices, one can extrapolate that expanding wealth-to-GDP ratios and lower real rates of return and interest may also result in higher asset prices within some asset classes. This has been the case in commercial and residential real estate in the US and advanced economies since the Global Financial Crisis, set against the backdrop of low to negative interest rates. This dynamic might actually render the acquisition of certain assets—such as housing—out of reach for certain segments of the population, thus amplifying existing wealth inequality, or the gap between the 'haves' and the 'have-nots.'[34] Despite the fact that labour might have temporarily regained the upper hand visa-vis employers in tight labour markets such as the US, ultimately, capital looks likely to prevail, indicating the persistence of the 'asset economy' and attendant socio-economic imbalances within countries.[35]



As shelter is a basic need across the income spectrum, deploying capital to a sector parched for R&D might actually unlock productivity gains, having a positive ripple effect throughout the economy

THE SEARCH FOR SOLUTIONS: INNOVATION IN THE HOUSING SECTOR, AND R-STARS ALIGNED

So what are the solutions? As indicated earlier, r-star results from structural factors beyond the powers of central banks. Thus, the onus for buttressing growth amidst the 'great sag' falls upon fiscal and economic policymakers, as well as investors and executives. Which policies might yield the greatest return on investment in R&D, by supporting sustainable economic growth? The passing of the CHIPS and Science Act in the US is salutary, with the potential to support domestic semiconductor production and jobs in technology.[36] Japanese Prime Minister Fumio Kishida has also recently designated investing in early stage companies as part of his 'new capitalism' agenda, and has tasked a government pension fund with stepping up investments in the venture space.[37]

Looking at the potential for positive spillover effects from innovation in specific industries, one clear arena where there is hope for change is in the housing sector. A lack of supply of affordable housing continues to exacerbate wealth (and consumption) inequality in the US and other advanced economies. Indeed, the cost of housing in the form of rent continues to erode real incomes across OECD economies. In the US, the finance and insurance (or services) aspects of real estate—as well as personal expenditure on housing—constitute a significant portion of US GDP.[38]

And yet, an examination of R&D expenditure as a percentage of revenue across sectors reveals that R&D spend for the real estate industry is dead last, far behind pharma and medicine, computer science, and even finance and insurance[39] (the latter of which is a sector where perhaps innovations are not always desirable).

Advancements in the PropTech (or property technology) subsector of real estate—and potentially the application of blockchain technology—might actually increase productivity in the leasing and transacting of existing housing stock.[40] Additionally, in an opportunity for the private sector and public sector to come together to work toward solutions, land reform and improving land use regulations might actually create greater efficiencies for the construction and retrofitting of housing stock in densely populated urban areas[41] – the magnetism of which continues to defy expectations that "cities were dead" in the wake of COVID-19. The opportunities for investing in efficiency gains in the housing sector have not escaped the attention of some of the largest players in the space: over the longer term, the application of technology to streamline leasing and transactions—and the potential to collaborate on land use—might generate long-term returns, as well as bolster ESG criteria for institutional investors and corporations. As shelter is a basic need across the income spectrum, deploying capital to a sector parched for R&D might actually unlock productivity gains, having a positive ripple effect throughout the economy.

The onus for buttressing growth amidst the 'great sag' falls upon fiscal and economic policymakers, as well as investors and executives.

Those ripple effects may include efficiency and productivity gains throughout the economy where everyone has shelter as a basic need.

Finally, it is worth pointing out that adopting a clear-eyed perspective on the 'lower for longer' trajectory of r-star is not necessarily indicative of a defeatist outlook for the economy. Thus removed from a heady conviction of 'animal spirits' and short-term exuberance – which is often latent with anxiety), it is to adopt a sober and necessary understanding of the unfolding of our societies over the long term. In such a way, we can act as stewards for growth, identifying and seizing opportunities to create value and growth in a world otherwise characterised by the great British phrase of 'muddling through.'

And, as EMDEs eventually confront AE dynamics such as aging populations, flatlining productivity, digitisation, wealth inequality, and a crowding into safe haven assets—as those within advanced economies—positive successes born by creative fiscal policy—as well as the direct participation of the private sector—can be shared across borders. Perhaps this will emerge as a rare moment of cohesion on the global economic stage, which has hitherto been marked—perhaps disproportionately—by the coordination of monetary policy and central banks.

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[29] Gordon and Sayed, "A New Interpretation of Productivity Growth Dynamics in the Pre-Pandemic and Pandemic Era U.S. Economy, 1950-2022"

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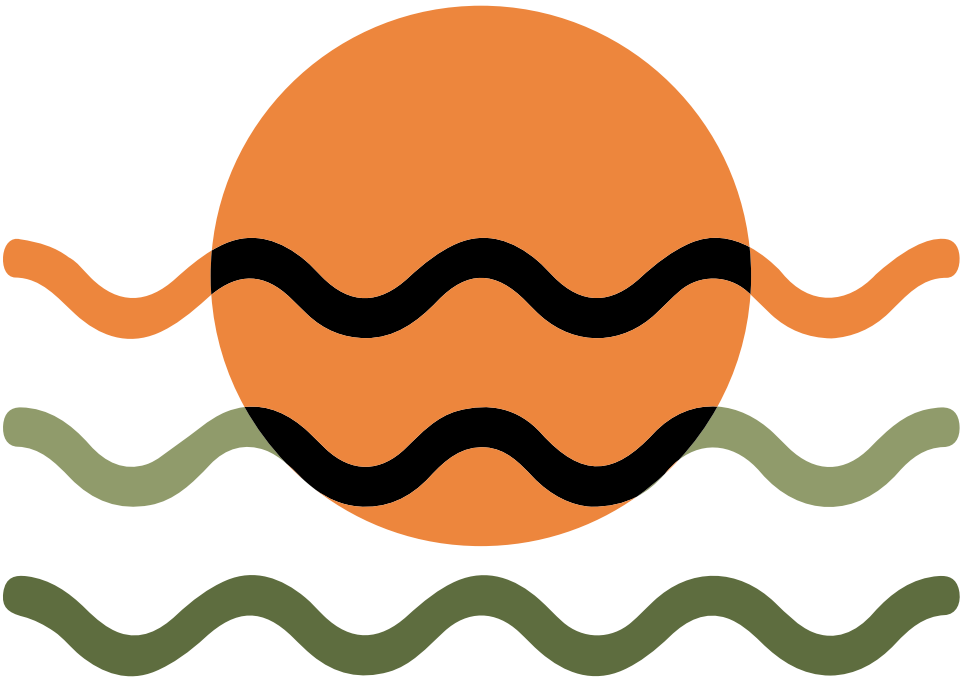
TIDAL PATTERNS



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Amidst myriad global economic and geopolitical uncertainties, US commercial real estate has an even greater challenge ahead: demographics.

Focus on the COVID-19 recession, policies to truncate it, and the path of recovery have dominated the attention of analysts for more than two years. Macroeconomic factors continue to dominate our attention now as inflation in the aftermath of the COVID-recession has been further complicated by Russia's invasion into Ukraine. All eyes are on the prospects for the US Federal Reserve to accomplish a soft landing.

With these trends well-examined at this point, we know that US commercial real estate investors are well-versed in understanding the importance of economic growth to property investment performance. And today, commercial real esate (CRE) in the US is beginning to confront another foundational challenge: weakening demographics.

In this article, we identify the components of weakening demographics measured nationally and highlight differences across US metro areas. The differences illustrate the importance of careful metro market selection to counter demographic headwinds in the years ahead.

FOUR DEMOGRAPHIC CHALLENGES

A review of detailed data points to four demographic trends that are increasingly worrisome for US economic growth prospects and the vitality of its US CRE sector:

1. **Overall population growth** has been slowing alongside labor force growth, which will impair economic growth prospects unless productivity improvements provide an offset.
2. **Legal immigration** has been declining along with foreign student applications to US colleges. Quotas set in US policy have been difficult to increase and prospects for more immigrant friendly sentiment appear unlikely.
3. **Generationally, Baby Boomers are retiring and dying;** Millennials have largely matured into prime working age, while up-and-coming Gen Z is smaller than the Millennial generation which it follows.
4. Beyond Gen Z, the **birth rate** has shrunk for a variety of cultural and economic reasons suggesting that a future baby boom is unlikely to juice up economic growth prospects.

SLOWING POPULATION GROWTH

Population growth has generally been slowing since hitting a year-over-year high of 1.38% in 1992. It has been slowing precipitously since 2016, reaching a fifty-year low of 0.35% in 2020, and data points for 2021 are expected to be even lower. The slowing growth is being caused by the components of population change: births, deaths, and net migration. As *Exhibit 1* illustrates, the number of births has been stagnant or declining since 2008. Meanwhile, the number of deaths has been steadily increasing, even before the COVID pandemic, due to the aging population. The natural increase in population, or the difference between births and deaths, reached a fifty-year low in 2020, which is the most recent reported data.

While the natural increase in population has been declining, net migration (the number of immigrants minus the number of emigrants) has been diminishing rapidly *(Exhibit 2)*. The policies of the Trump administration were associated with a steep 47% fall in net migration between 2016 and 2019, and restrictions on international travel due to the COVID pandemic caused immigration to nearly come to a complete halt.

EXHIBIT 1: US NATURAL POPULATION INCREASE, BIRTHS, AND DEATHS (THOUSANDS)

Sources: US Census Bureau: Population Estimates & Projections; US National Center for Health Statistics; Moody's Analytics Estimated. As of December 31, 2020.

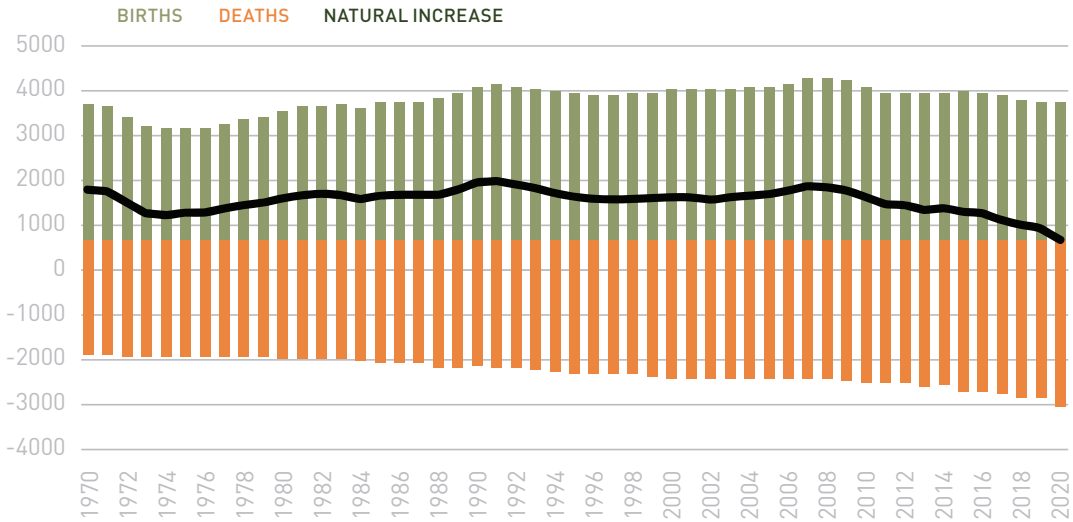
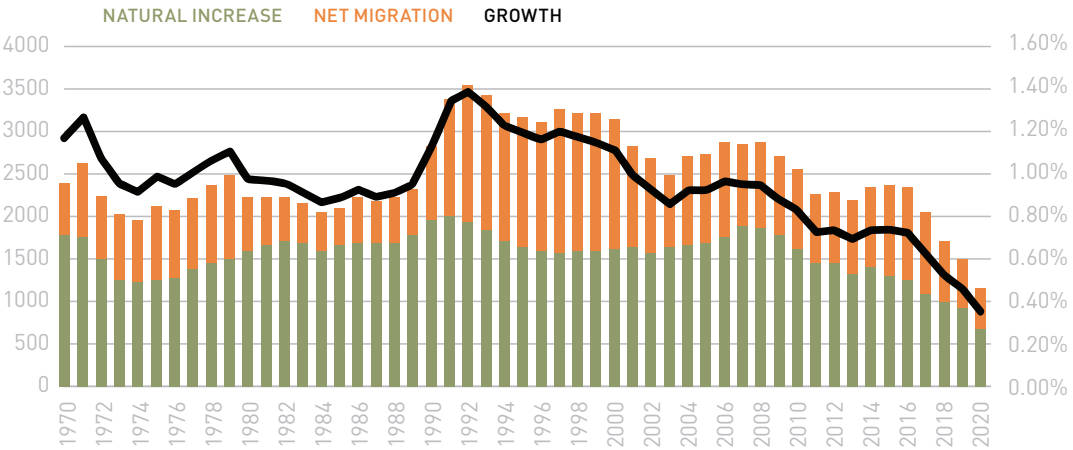


EXHIBIT 2: US POPULATION NATURAL INCREASE AND NET MIGRATION (THOUSANDS) AND GROWTH (%)

Sources: US. Census Bureau: Population Estimates & Projections; US National Center for Health Statistics; Moody's Analytics Estimated. As of December 31, 2020.



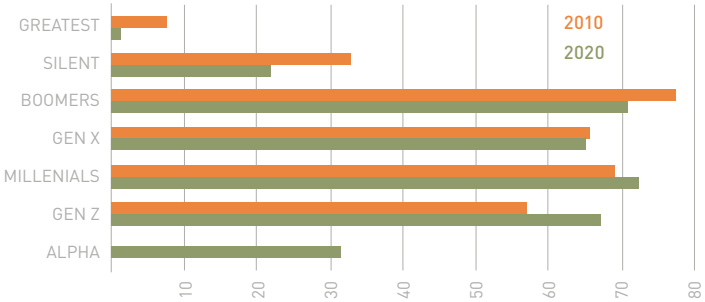
GENERATIONAL TRENDS

In addition to the slowing growth rate of the overall population, there are significant demographic changes underway that will transform the economy and US CRE prospects *(Exhibit 3)*. The most important change is aging of the Baby Boomer generation. Until recently, the Boomers, defined as those born between 1946 and 1964, was the largest generation in US history.[1] Boomers have dominated the labor force since the 1970's and have enabled much of the economic expansion seen since then. However, they are now reaching retirement age, which will have ongoing effects on the labor market. The oldest Boomers began to reach the traditional retirement age of 65 in 2011 and all the boomers will have reached that age by 2029.

The current demographic trends suggest that the economy will be grappling with a contracting labor force for years to come.

EXHIBIT 3: 2010 AND 2020 POPULATION BY GENERATION (MILLIONS)

Source: US Census Bureau: Annual Estimates of the Resident Population by Single Year of Age and Sex for the United States. As of July 31, 2010, and July 31, 2020.



The second demographic sea-change focuses on Millennials, defined as those born between 1981 and 1996,[1] and now comprising a larger cohort than boomers. Millennials have now all matured into the prime working age category (defined as 25 to 54). As they continue to form and expand their households, they will reach their prime earning and spending years over the next two decades. As the Boomer generation declines in size, spending power, and influence, the dominance of the Millennial generation will grow and its influence over the economy and trends in CRE will strengthen.

The third demographic trend that will shape the future is Generation Z, defined as those born between 1997 and 2012.[1] The most crucial characteristic of Gen Z is its relatively smaller size compared with both Millennials and Boomers. Therefore, as Boomers retire there will be fewer workers to take their place in the labor force. This will cause significant headwinds for the economy and CRE prospects.

EXHIBIT 4: EMPLOYMENT GROWTH, DEMOGRAPHICS, AND PRODUCTIVITY

Source: Federal Reserve Bank of St. Louis, US Bureau of Labor Statistics. As of December 31, 2010, and December 31, 2021.

	REAL GDP	POPULATION	LABOR FORCE	LABOR PRODUCTIVITY
AVERAGE 2000–10	2.0	1.2	0.9	2.7
SKEW 2000–10	-1.4	1.7	-0.3	-0.3
AVERAGE 2011–21	2.0	0.8	0.4	1.2
SKEW 2011–21	-1.4	-0.2	-2.1	0.3

ECONOMIC GROWTH PROSPECTS

Economic growth is dependent on population growth, the growth of the labor force, and labor productivity. The current demographic trends suggest that the economy will be grappling with a contracting labor force for years to come. Labor productivity spurred by investment in technological innovation helped the US economy sustain its 2% real growth over the last two decades. However, as shown in *Exhibit 4,* population growth and labor force growth weakened in the most recent decade with a negative skew. Productivity gains weakened as well.

Increasing the amount of legal immigration would be the most immediate and impactful solution, but the quotas defined in US policy have been difficult to increase and prospects for more immigrant friendly sentiment appear unlikely.

Looking even further ahead, the US birth rate has shrunk for a variety of cultural and economic reasons suggesting that a future baby boom is unlikely to juice up the labor force. That leaves us with productivity as the primary prospect for economic growth in the future. Surely improvements in technology will create significant increases in productivity, especially as robotics and artificial intelligence take root. However, the industries that stand to lose the largest number of workers due to retirement—education and health services, and professional and business services—are also likely to be the hardest to automate. Altogether, expectations of a return to the 2% real growth trend, even after current economic woes are eased, will be a challenge.

DEMOGRAPHICS CHALLENGES DIFFER ENORMOUSLY ACROSS US METRO AREAS

PLACE MATTERS

Demographic headwinds will not affect all localities the same way. While the future distribution of population growth is subject to divergence, the recent past can give us hints. *Exhibit 5* shows that among the fifty largest metro areas in the US, population growth has varied significantly in recent years. On average, the twenty-first to the thirtieth largest metros saw the largest growth rate of 1.2% between 2015 and 2020. That is more than double the pace of the national increase, 0.5%.

EXHIBIT 5: 2014–2020 POPULATION GROWTH OF FIFTY LARGEST METRO AREAS BY SIZE

Source: Moody's; US Census Bureau; American Community Survey: 5-Year Estimates. As of December 31, 2020.

LARGEST METROS	AVG. GROWTH	STRONGEST GROWTH	WEAKEST GROWTH
US AVERAGE	0.5%		
1–10 LARGEST	0.8%	Phoenix 2.0%	Chicago -0.2%
11–20 LARGEST	0.8%	Tampa 1.8%	Detroit 0.1%
21–30 LARGEST	1.2%	Austin 2.4%	Pittsburgh -0.3%
31–40 LARGEST	0.7%	Jacksonville 1.9%	Cleveland -0.2%
41–50 LARGEST	0.6%	Raleigh 2.1%	Buffalo -0.1%

Within this cohort, blockbuster population growth has occurred in Austin at 2.4% and Orlando at 2.2%. But other medium-sized metros in this group have fared very differently; Pittsburgh has declined while St. Louis and Cincinnati have barely grown at all. Within the ten largest metros, growth rates have also been quite varied, with Phoenix and Dallas enjoying growth rates of 2.0% and 1.8%, respectively, while the New York and Chicago metros have declined.

As investors work to designate target markets, this metric of pre-COVID population growth offers insight into the relative attractiveness of metro areas for both population, and economic growth associated with population growth. Researchers have identified the key drivers of relative attractiveness to include the cost of living, the cost of doing business, and the concentration of industries. Austin is a case in point; it has an agglomeration of tech industries along with cost of living and cost of doing business advantages compared to the tech centers on the West Coast.

Within the ten largest metros, growth rates have also been quite varied, with Phoenix and Dallas enjoying growth rates of 2.0% and 1.8%, respectively, while the New York and Chicago metros have declined.

APARTMENT SECTOR

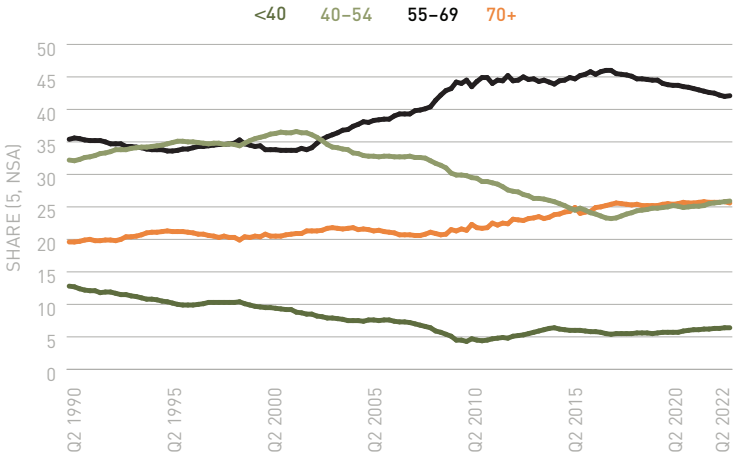
Apartment demand is directly fed by population growth, employment, and income, which direct demand to the various quality-rent cohorts that comprise apartment supply. These demographic drivers are not uniform across localities, resulting in stronger demand for new supply in growing areas compared to declining demand in shrinking areas. Middle-market apartments in particular will benefit from relatively stronger demographics in some metros compared to relatively weaker demographics in others.

The past decade's growth in multifamily apartment demand has been fueled by the large Millennial generation's initial household formation. With the youngest Millennials now age 26, they are now all in or surpassing the prime renting ages of 25 to 34. They will increasingly be looking for more space and ownership opportunities as they mature and grow their families.

The resulting increase in demand for single family ownership was boosted by historically low mortgage borrowing rates during the COVID recovery, and home prices soared. Higher borrowing costs and more expensive home prices are now stifling demand. Additionally, the overall economic well-being of the Millennial generation in young adulthood has been weaker compared with prior generations at the same age *(Exhibit 6)*. With more debt, lower earnings, fewer assets, and less wealth than previous generations, Millennials have had to delay many life milestones and will continue to rent longer than previous generations.[2] This is positive for apartment investments.

EXHIBIT 6: DISTRIBUTIONAL FINANCIAL ACCOUNTS: NET WORTH BY AGE

Source: Moody's, US Board of Governors of the Federal Reserve System: Distributional Financial Accounts. As of June 30, 2022.



The smaller Gen Z population will mean that there will be fewer new households formed in the coming years. As *Exhibits 7 and 8* illustrate, demand from younger people for apartments has been slowing, and will be stagnant at best, in the coming years. But, on the other hand, Gen Z might earn higher incomes sooner than Millennials, due to the tightening labor market, and will subsequently be able to form households sooner. They might even be more mobile than previous generations due to work-from-home opportunities persisting beyond COVID.

Beyond dealing with the uncertainties of Gen Z, rental markets will need to cater to the growing older population as well. There is a significant population of baby boomers that are already renting but their needs may change as they age. There will be some opportunity created by Boomers downsizing from homeownership to apartment rental.

As older adults provide a larger portion of the demand for rental housing, more multifamily properties will be designed or rehabbed with their needs in mind. Basic accessibility features that allow people to age in place, such as step-free entrances and levered door handles, will become more important. Landlords may also consider more extensive accessibility features to attract seniors.

As older adults provide a larger portion of the demand for rental housing, more multifamily properties will be designed or rehabbed with their needs in mind. Basic accessibility features that allow people to age in place, such as step-free entrances and levered door handles, will become more important. Landlords may also consider more extensive accessibility features to attract seniors.

EXHIBIT 7: CHANGE IN NUMBER OF RENTER HOUSEHOLDS BY AGE CATEGORY

Source: US Census Bureau; American Community Survey: 5-Year Estimates. As of December 31, 2020.

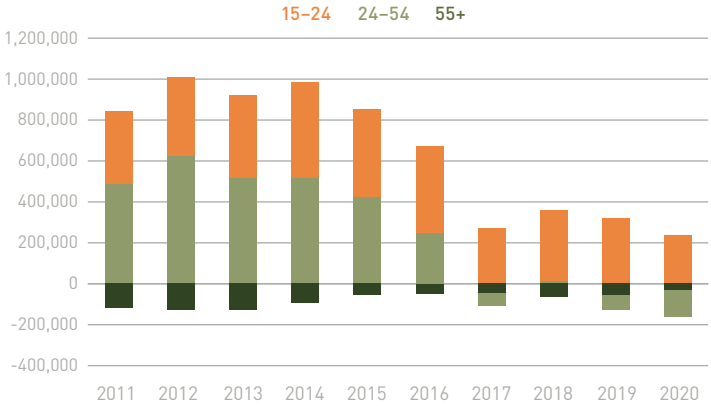
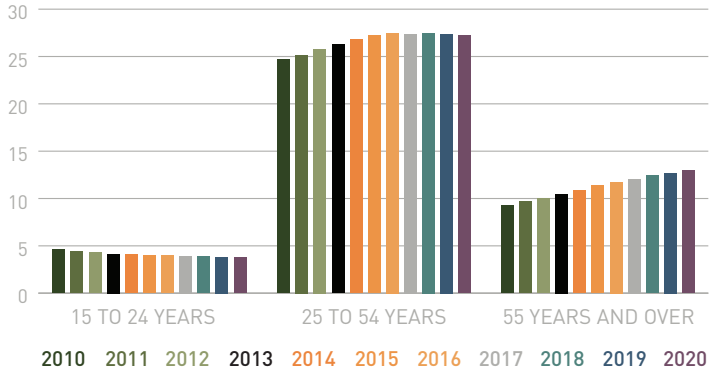


EXHIBIT 8: NUMBER OF RENTER HOUSEHOLDS BY AGE CATEGORY (MILLIONS)

Source: US Census Bureau; American Community Survey: 5-Year Estimates. As of December 31, 2020.



INDUSTRIAL, OFFICE AND RETAIL SECTORS

Industrial, office, and retail space demand are indirectly affected by shifting demographics primarily through the impact on economic growth. With demographic prospects differing across localities, prospects for these sectors are also subject to wide geographic differences. While the apartment sector is the most sensitive to demographic changes, grocery-anchored retail is affected by gains or losses in numbers and spending power of local shoppers. Some locales will have demand for new grocery-anchored centers; other locales will see diminishing vitality in that sector as population declines.

COMBATTING THE HEADWINDS

US CRE investors monitor economic growth closely with the understanding that it drives demand for space. Beginning in 2020, the impact of the COVID pandemic was the focus of attention as it impaired economic growth globally. Now, as the pandemic fades in importance, attention is focused on inflation, monetary policy, and the disruption in food and energy sectors due to the war in Ukraine. These near-term challenges will pass with time and investors will need to direct their focus to the US CRE demand drivers that emerge. In this paper, we identify population growth prospects over the medium term as a potential pain point for US CRE. Slow population growth is underway in the US and will likely continue. Productivity growth is also relatively slow. Together they create a constraint on economic growth prospects and the demand it creates for CRE.

The demographic constraint on top line economic growth will make it imperative for investors to pay close attention to the very different prospects for individual property subsectors in individual metro areas. Demographic evolution for the US as a whole will not affect all locales equally. The differences in turn translate into different investment prospects. Specifically, both middle-market apartments and grocery-anchored retail will benefit from relatively stronger demographics in some metros versus relatively weaker demographics in others. It is worth noting that the locational decisions of Millennials have been a determinant of stronger versus weaker metros in the recent past. Similarly, the locational decisions of Gen Z will drive relative growth in the future.

The demographic constraint on top line economic growth will make it imperative for investors to pay close attention to the very different prospects for individual property subsectors in individual metro areas.

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NOTES

[1] Dimock, Michael. "Defining Generations: Where Millennials End and Generation Z Begins." Pew Research Center, April 21, 2022. https://www.pewresearch.org/fact-tank/2019/01/17/where-millennials-end-and-generation-z-begins/.

[2] Kurz, Christopher, Geng Li, and Daniel J. Vine. "Are Millennials Different?" Board of Governors of the Federal Reserve System. Federal Reserve, November 1, 2018. https://doi.org/10.17016/FEDS.2018.080

Demographic evolution for the US as a whole will not affect all locales equally.

The locational decisions of Millennials have been a determinant of stronger versus weaker metros in the recent past.

Similarly, the locational decisions of Gen Z will drive relative growth in the future.

WORKPLACE VALUES

Dags Chen, CFA
Head of US Real Estate Research and Strategy
Barings Real Estate

The sooner we can recognize that values have come down collectively—even beyond the office sector—the sooner we can move forward to capitalizing on new opportunities.

The ambivalence and lag of appraisal-based price indices are misleading investors over the damage done to their private real estate exposure from rising inflation and interest rates. It is happening at a particularly precarious time for global financial markets. During this moment, investors need transparency regarding the values of their holdings.

Investment managers have a responsibility to provide as accurate assessment of current value despite the lack of transactional data points, which are usually sparse during periods of turmoil.

As of Q3 2022, office properties in the NCREIF Property Index (NPI) posted a total return of 3.2% over the prior twelve months, consisting of an income return of 4.3% and an appreciation return of -1.1%. For those who own institutional-quality conventional Class A office buildings in almost any major market, this is implausible. Traditional office values are way down. Evidence indicates space needs and preferences have changed and as a result, office transaction activity over the past year has once again collapsed while a composite share price index of public office REITs has fallen by more than 30% over the same period.[1]

The US Federal Reserve is dealing with broad, persistent inflation unlike anything the nation has experienced in four decades. To restore price and, dare we say it, financial system stability, the central bank cannot follow the same monetary easing playbook as it has since the GFC. This time things are necessarily different. Rapid monetary tightening is stressing risk valuations across all risk assets and "yesterday's prices" are not holding up. If asset managers wait for transactions data to draw conclusions about values, they will likely have missed giving their investors information during this critical juncture.

Those who issue and endorse appraisal values should not be the primary arbiters of market values in such moments. Nor do we need a precise understanding of the future path of the office sector. The industry already has abundant information about where values are. At least, we understand where they are not.

THE WORST EPISODE OF DEMAND DESTRUCTION ON RECORD

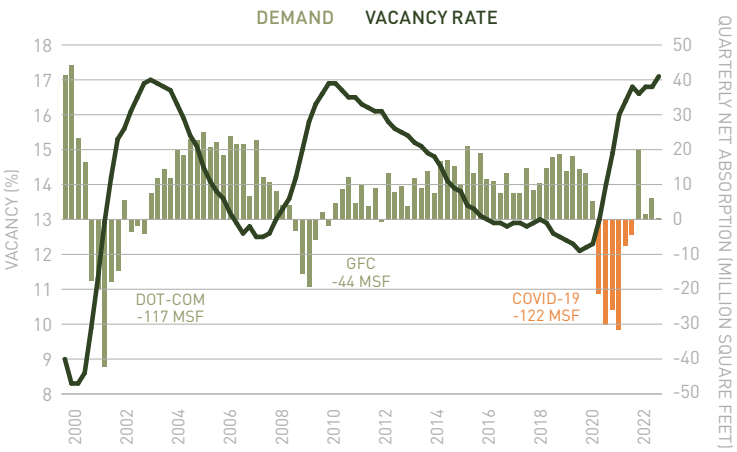
The COVID pandemic has caused office employers to reassess their space needs even as they try to entice employees back to the office. The return to office has been slower than broadly anticipated, thanks largely to a historically tight labor market that has favored employees rather than employers. As of September, the unemployment rate for those with at least a bachelor's degree was 1.8%.[2] Employees have overwhelmingly favored hybrid work arrangements, but the obstacles around returning to office are not only a matter of preference. Challenges around commuting, concerns regarding public health and safety, and the difficulties of finding child and/or eldercare—among a multitude of other factors—have hampered the return to in-office work even for many who otherwise want to go back at least part-time.

From Q2 2020 to Q3 2021, firms in multi-tenant office buildings gave back a cumulative 122 million SF (MSF) of space. This is the worst episode of demand destruction on record, exceeding the dot-com bust of 2001, when office-using firms gave back 117 MSF of space over nine quarters. However, sublease vacancy, an indicator of office shadow supply, peaked in early 2002, signaling an impending recovery for the market. Today, sublease vacancy continues to climb with few indications of stabilization. Shadow supply—space that is leased or owned but unoccupied—looms large, meaning that vacancy is likely under-represented by topline numbers.

Challenges around commuting, concerns regarding public health and safety, and the difficulties of finding child and/or eldercare—among a multitude of other factors—have hampered the return to in-office work even for many who otherwise want to go back at least part-time.

EXHIBIT 1: HIGHEST GIVE BACK OF SPACE ON RECORD

Source: Barings Real Estate



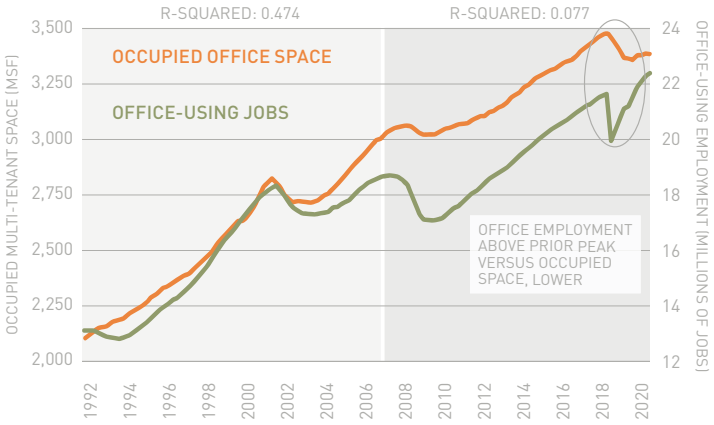
OFFICE DEMAND DECOUPLING FROM EMPLOYMENT

Even before the pandemic, the statistical relationship between office employment and occupied office space was weakening. From 1990 to 2007, the regression coefficient (r-squared) between the quarterly change in office-using employment and the change in occupied space was 0.474 *(Exhibit 2)*. From 2007 to 2022, the r-squared dropped to a mere 0.077. During the intervening years between the GFC and the pandemic, we saw higher densification of office workspaces. There were two primary objectives: to increase the amount of in-person collaboration and to save on space costs. But in the years following, gains in office jobs have not had meaningful carry over into absorption trends.

Since the COVID pandemic, office-using employment has climbed by 3.4% above its prior peak while occupied space is down from its February 2020 peak by 2.7%, which is likely understated considering shadow space. Some may argue that there hasn't been sufficient time to assess whether the decoupling of office employment and space demand will continue in the post-pandemic era. In reality, the statistical relationship between these trends was already deteriorating well before February 2020. Hybrid work arrangements and accelerating functional obsolescence suggest that conventional office investors should no longer assume that general office employment gains will drive some terminal rate of base demand growth in the post-pandemic era.

EXHIBIT 2: OFFICE EMPLOYMENT GROWTH NO LONGER A RELIABLE INDICATOR OF SPACE DEMAND

Source: Barings Real Estate



OFFICE VALUES HIT HARDER BY RISING RATES THAN OTHER PROPERTY TYPES

Globally, investors have awakened to the risks of a "higher-for-longer" interest rate environment. The speed and degree to which the Federal Reserve is hiking rates are the most intense since the 1980s. As a direct consequence, real estate debt costs have risen to their highest in more than a decade. Almost all property types are being repriced in the current environment, but investors are willing to tolerate lower cap rates for those sectors that can benefit from secular demand tailwinds such as industrial, apartment, and self-storage. Apartment and Industrial core cap rates have compressed by 63 basis points (bps) and 139 bps, respectively, since Q1 2020 on account of demand prospects. In some cases, cap rates have declined but expected IRRs stayed level.

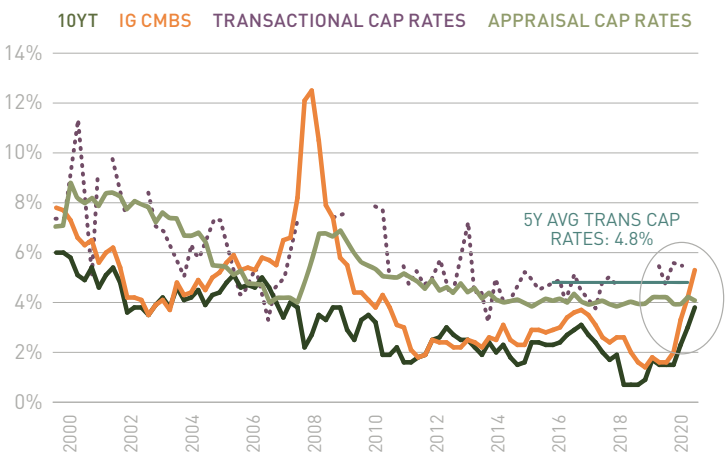
Unlike other sectors, Office cap rates compressed by only 12 bps over the same period. Though low interest rates were a tailwind for office investment, declining demand and rising capital expenditure costs are putting more and more upward pressure on property yields. A "lower-for-longer" interest rate environment permitted a proliferation of office investments that were a "spread play" by which borrowers could leverage thin equity returns due to low borrowing costs. With the FFR possibly rising above 5%, the jump in base rates has resulted in "negative leverage" as property cash flows have remained anemic despite the acceleration in inflation. Even recent transactions, indicated by the dotted line in Exhibit 3, did not anticipate such a surge in interest rates and financing costs.

Distress within the office sector is increasing while broad market data lags the reality on the ground. Anecdotal evidence of distressed and troubled loans is widening, and LTVs that were once considered conservative are being tested as liquidity and the risk profile for office investment deteriorate rapidly.

Distress within the office sector is increasing while broad market data lags the reality on the ground.

EXHIBIT 3: APPRAISAL OFFICE CAP RATES FACE RESET AS BASE RATES AND DEBT COSTS HAVE SPIKED

Source: Barings Real Estate



Buildings that offer flexible floorplates, collaborative spaces, substantive ESG implementation among other "next-generation" amenities are increasingly able to attract a disproportionate share of tenant demand, especially if they are in nodes with a concentration of tech (STEM) firms

LIQUIDITY IS LEAVING THE (OFFICE) BUILDING

Office transaction activity excluding medical office in September dropped to $5.7 billion, marking the slowest month for office sales since February 2021. Over the quarter, office transactions excluding medical office totaled only $19.8 billion, down 43.3% year-over-year and under the 2015 to 2019 quarterly average of $32.5 billion. Office transaction activity will continue to fall to its pandemic levels as deals closed today were commenced months earlier under more benign capital market circumstances. Sales volume is likely overstating liquidity levels as the uncertainty over the future value of risk assets, not only office properties, is bringing sales activity to a halt.

Property price indices, especially those that are appraisal-based, do not register rapid declines in sales activity. In contrast, public REIT share prices do react to periods of elevated volatility and lower liquidity. They can tend to overshoot during moments of pricing dislocation, but public REITs are directionally relevant to private real estate values. During the pandemic, the office subsector component of the FTSE/NAREIT All Equity REIT price index declined by 38.4% from January 2020 to October 2020, but then rebounded by 39.2% over the following 12 months on account of a public sector stimulus-fueled economic rebound. This time around, the office subsector index has fallen by 38.7% under very different capital market circumstances. We think it is reasonable to expect that property values will not emerge from the current market downturn unscathed.

EXHIBIT 4: OFFICE TRANSACTION ACTIVITY DROPPING BACK TO COVID LOWS

Source: Barings Real Estate

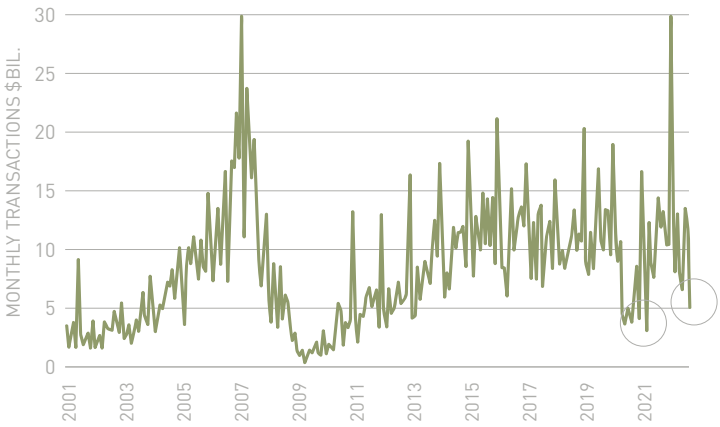
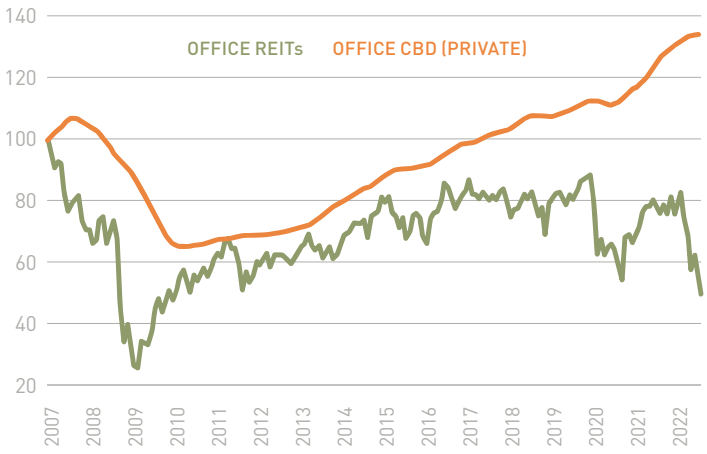


EXHIBIT 5: PUBLIC REITS HAVE LONG DIVERGED FROM PROPERTY PRICE INDICES

Source: Barings Real Estate



IS OFFICE SIMPLY NOT INVESTIBLE?

While the opportunity set of investible offices has dramatically condensed in the post-pandemic era, we believe the property market is bifurcated between the "haves" and "have nots". In a prior article,[3] we explained how those buildings that offer flexible floorplates, collaborative spaces, substantive ESG implementation among other "next-generation" amenities are increasingly able to attract a disproportionate share of tenant demand, especially if they are in nodes with a concentration of tech (STEM) firms as well as other amenities.[4] Relative to the "haves", the "have nots" are conventional offices, including unexceptional Class A properties, that have few, if any, distinguishing characteristics.

As firms continue to downsize but move into best-in-class space, investment managers are learning that they are willing to pay up for the office space in locations that will entice their employees to return to the office and increase in-person interaction and collaboration.

RE-VALUING THE OFFICE SECTOR

The purpose of this article has not been to pin the blame on commercial real estate appraisers who provide a vital input into the investment decision-making process during normal market conditions. Investment managers who make decisions about when to buy, hold, and sell real estate have a responsibility to provide an accurate assessment of investment values when times are not normal.

The office sector is experiencing a perfect storm of declining demand, a fundamental change in tenant space and location preferences, higher interest rates, and financing costs. Future cash flows are also uncertain. We do not know precisely how this current market downturn will play out, but asset managers that have operated in and survived past real estate market cycles recognize that values need to account for a worsening macroeconomic outlook, higher degree of functional obsolescence, and the likelihood that interest rates and inflation will be higher going forward than before the pandemic.

The sooner we can recognize that prices are not where industry benchmarks have indicated, the sooner we can move forward with assessing and capitalizing on new opportunities within the office sector.

ABOUT THE AUTHOR

Dags Chen is Managing Director and Head of US Real Estate Research and Strategy for Barings Real Estate, a global real estate platform with extensive capabilities across both debt and equity strategies.

NOTES

[1] Bloomberg. As of September 30, 2022.

[2] Bureau of Labor Statistics. As of September 2022.

[3] Chen, Dags, Ryan Ma, and Ryan LaRue. "Selective Framework." Summit Journal. AFIRE, June 22, 2022. https://www.afire.org/summit/selectiveframework/.

[4] "Selective Framework" Summit Journal

REVIEWER RESPONSE

Beyond focusing the reader on the limitations of appraisal-based valuations, which are widely understood to lag in periods of heightened market volatility, the author dives deeper and makes the case that office values will likely be impaired on a long-term basis. In general, I agree.

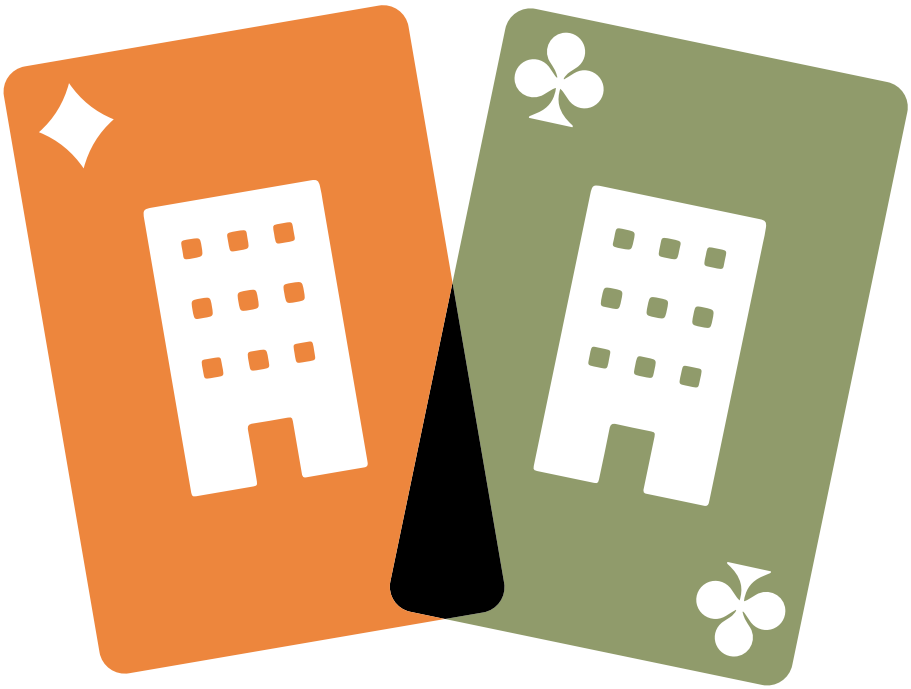
However, the point about "haves" and "have nots" that the author touches on should be explored more deeply as it is central to understanding the value of specific office properties now and going forward. Geography, age, and net-zero readiness are becoming bigger factors in tenant demand and relative value.

For example, the post-pandemic shift in how and where people work is primarily a US phenomenon (Asia is very much back to pre-pandemic habits) and varies greatly across domestic cities and regions. Consider that Austin's re-entry rate of 64.3% is more than 50% greater than San Francisco's re-entry rate of 42%. Leasing statistics since the onset of Covid in 2020 highlight how pronounced the disparity is across building age, with positive 88 million SF of net absorption in buildings built since 2015, as compared to negative 257 million SF of net absorption in buildings built more than eight years ago. Rent premiums for new space are also at all-time highs.

I expect we will see appraised values for office adjust more dramatically in the coming quarters, as appraisers incorporate weaker recent market data, increase discount rates and increase residual cap rates. I agree that there will be compelling investment opportunities that emerge from this dislocation, but asset mangers will need to be highly selective when it comes to office. And I think they get that. After all, one could argue that ODCE fund managers have actually been ahead of the curve, proactively reducing their collective exposure to office by over one-third, from 35.4% to 23.5% of their portfolios over the past three years.

– Amy Price
President, BentallGreenOak
Member, Summit Journal Editorial Board

OFFICE GAMES



William Maher
Director of Strategy and Research
RCLCO Fund Advisors

Scot Bommarito
Senior Research Associate
RCLCO Fund Advisors

Even as the US office sector has lagged other property types, there could be an important (and valuable) difference of office performance based on property age and market.

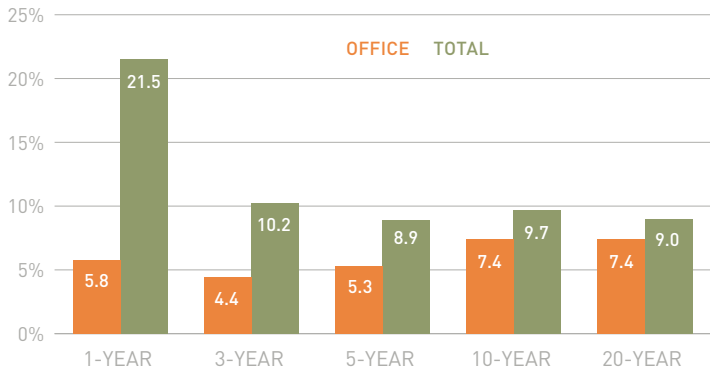
US office performance has lagged other property types and the overall NCREIF Property Index (NPI) in both total returns and net operating income (NOI) growth for the past twenty years. This overall trend, however, masks variations within the sector as office properties bifurcate between "have" and "have not." Have-not properties struggle to maintain current values as NOI growth is weak (or negative) and required capital expenses detract from value, while "have" properties are able to grow NOI and increase values. Using NCREIF data, this article examines the bifurcation of office performance based on property age and market.[1]

THE OFFICE SECTOR

The US office sector has underperformed overall real estate over the last two decades, with returns averaging 7.4% annually, trailing total NPI returns by 160 BPS *(Exhibit 1)*. There were brief periods of moderate out-performance just prior to the Global Financial Crisis and the COVID-19 pandemic, but office underperformed the overall index for most of the past twenty years *(Exhibit 2)*. The margin of underperformance widened more recently.

EXHIBIT 1: AVERAGE ANNUAL NPI RETURNS

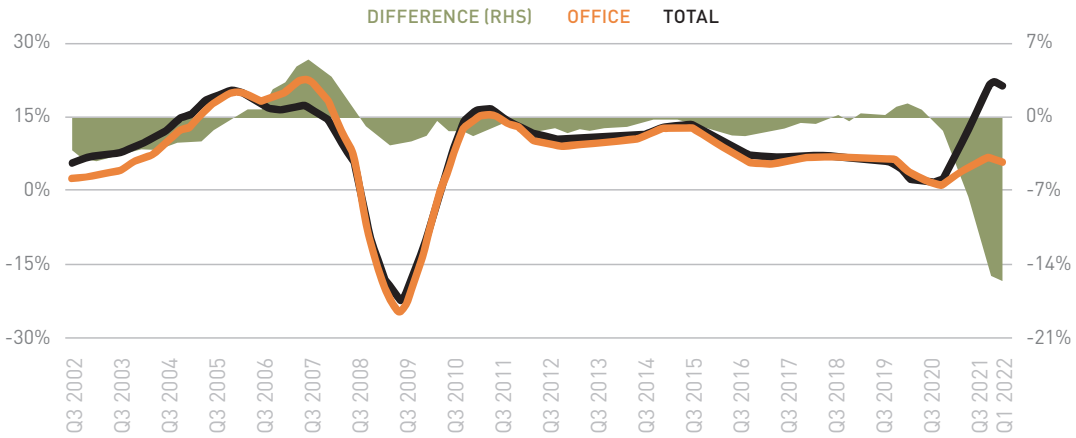
Source: NCREIF



Partly due to underperformance (as well as investor shifts to industrial and apartments), the office's share of NPI declined precipitously over the past several years. Office's market value in NPI continues to increase in absolute terms, but its share of total market value decreased to 27% in 2022 from 42% in 2000.

EXHIBIT 2: ROLLING FOUR-QUARTER NPI RETURNS

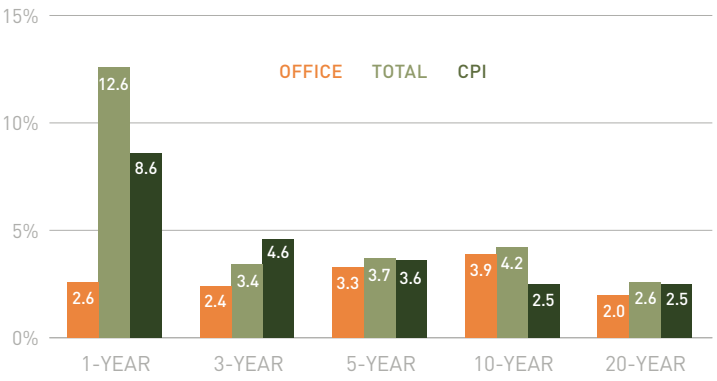
Source: NCREIF



Recent industrial outperformance has been one contributing factor to office under-performance, but weak office NOI growth and elevated capital expenditures also dragged on office returns. Office NOI growth[2] has averaged 2% annually over the past twenty years, trailing CPI inflation by 50 BPS and total NPI NOI growth by 60 BPS *(Exhibit 3)*. Most recently, total NOI growth hit a twenty-year high, increasing 12.6% over the last year due in part to apartment and retail properties recovering from COVID-related declines. In contrast, office NOI grew only 2.6% over the past four quarters.

EXHIBIT 3: AVERAGE ANNUAL NPI NOI AND CPI CHANGE

Source: NCREIF; Federal Reserve Bank of St. Louis



In addition to being newer (<10 years old), NextGen office caters to more recent work trends like the growing demand for collaborative and flexible office space, outdoor space, and access to other lifestyle amenities like gyms and restaurants.

NEWER OFFICE PROPERTIES ARE OUTPERFORMING

Despite the poor performance of office as a whole, newer office properties (what we call Next Generation/NextGen properties) have materially outperformed the overall sector in terms of total returns and NOI growth. In addition to being newer (<10 years old), NextGen office caters to more recent work trends like the growing demand for collaborative and flexible office space, outdoor areas, and access to other lifestyle amenities like gyms and restaurants.

Based on NCREIF performance data, NextGen office has outperformed other office properties and, in some cases, the overall NCREIF universe, over the past ten years. NOI growth in recently built offices has outpaced growth in older office properties, averaging 9.2% annually over the last five years *(Exhibit 4)*, nearly three times the average growth rate for all office and two and a half times total NPI NOI growth. However, as most of the US office stock is older, office buildings that are ten years old or less make up only 15% of NPI office market value *(Exhibit 5)*, potentially placing a scarcity premium on these properties.

By market value, nearly 60% of NPI office is more than thirty years old, and this older stock often suffers from muted demand because it lacks many of the modern amenities increasingly desired by office tenants. Notably, office buildings between eleven and twenty years old have seen the lowest NOI growth over most time horizons with average annual NOI growth of -0.5% over the past five years and 1.1% over the past ten years. This is possibly due to significant tenant turnover during that time frame as initial leases expire.

In addition to weak NOI growth, older offices have elevated capital expenditures *(Exhibit 6)*. NPI office as a whole averaged annual capital expenditures at 2.2% of market value over the last five years, the highest of the four main property types and well above the total NPI average of 1.5%. Offices older than thirty years old recorded even higher capex, averaging 2.7% of market value. Conversely, newly built office capital expenditures have been around 1.1% of value over the past five years, below the total NPI average.

EXHIBIT 4: AVERAGE ANNUAL OFFICE NOI GROWTH BY PROPERTY AGE (YEARS)

Source: NCREIF

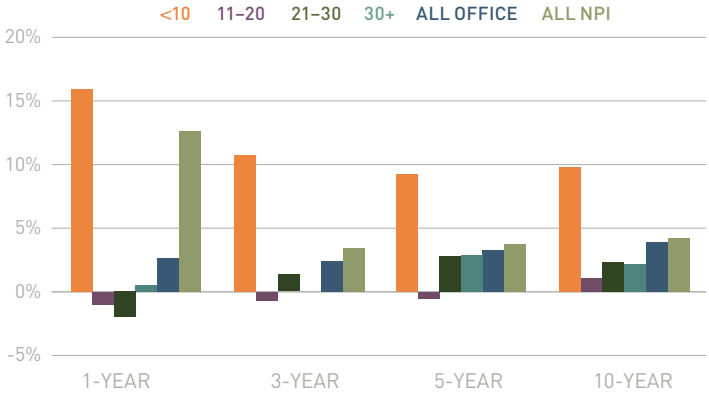


EXHIBIT 5: OFFICE MARKET VALUE BY AGE

Source: NCREIF

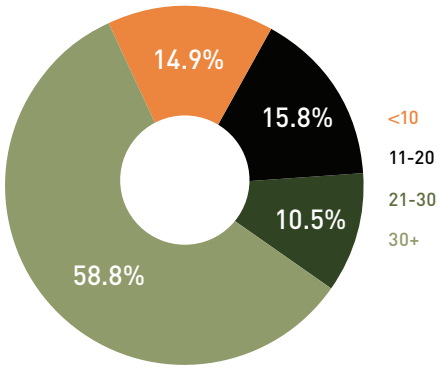
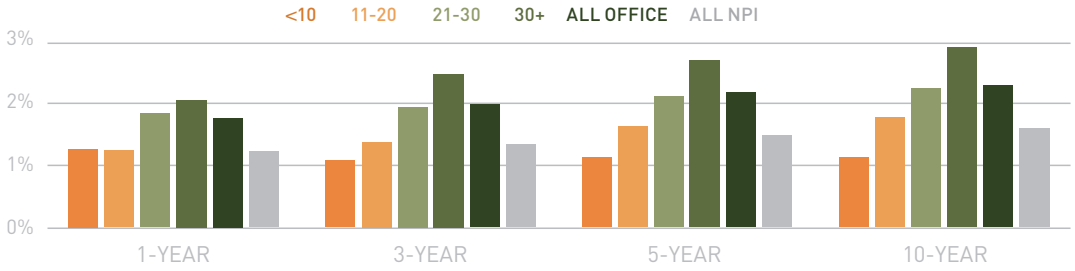


EXHIBIT 6: AVERAGE ANNUAL OFFICE CAPITAL EXPENDITURE AS PERCENT OF VALUE BY PROPERTY AGE

Source: NCREIF



Taken together, weak NOI growth and high capex have led to low returns, particularly for older office product *(Exhibit 7)*. Newer office has outperformed older office but has fallen short of total NCREIF Property Index (NPI) returns in both the short and medium term. Over the four quarters ending in 2Q 2022, total NPI grew to record highs, posting a 21% return. The total return of office properties in the NPI remained far more modest at just 5.3%, but returns for newly built office were over double that figure at 11%. Apartments and industrial both outperformed new office in the recent real estate rally with trailing one-year returns of 24.4% and 47.7%, respectively. Over the longer term, newer office properties have out-performed older buildings, with a ten-year return of 8.7%, but have lagged the overall NPI, which delivered a 9.5% average annual return.

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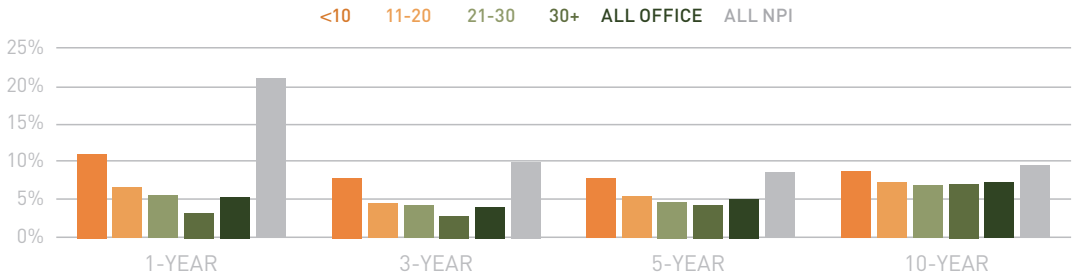
EXHIBIT 7: AVERAGE ANNUAL OFFICE RETURNS BY PROPERTY AGE

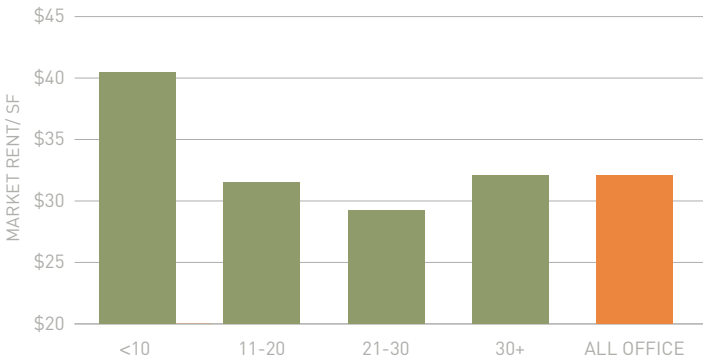
Source: NCREIF



New office buildings charge premium rents and are forecasted to see marginally stronger rent growth than older offices over the next five years *(Exhibit 8)*. Nationally, market rents average approximately $40/SF in offices 10 years old or newer, 25% above all office average rents. According to CoStar, newer office rents are also projected to grow 1.6% annually over the next five years, surpassing all office average rent growth by 40 BPS. Elevated rents and faster rent growth will in turn drive continued NOI growth and ultimately returns.

EXHIBIT 8: OFFICE RENTS BY PROPERTY AGE

Source: CoStar



OFFICE PERFORMANCE BY MARKET

In addition to age of building, office performance also varies widely by market. Nearly three-quarters of NPI office market value is concentrated in the traditional gateway markets *(Exhibit 9)*. The two largest markets—New York City and Washington, DC—have performed poorly over the last five years with low NOI growth *(Exhibit 10)* and total returns *(Exhibit 11)*. Despite making up 29% of office market value, they have driven just 10% of NPI office's NOI growth and 11% of total returns over the last five years. Other large markets—notably San Francisco, San Jose, Los Angeles, and Cambridge—have performed better. Cambridge, San Jose, and Oakland collectively constitute 9% of NPI office market value, but over the last five years, these markets drove 22% of office NOI growth and 18% of total returns.

EXHIBIT 9: OFFICE MARKET VALUE BY MSA

Source: NCREIF

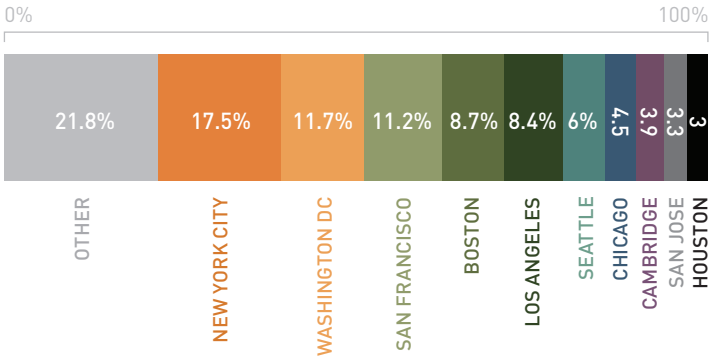


EXHIBIT 10: FIVE-YEAR AVERAGE ANNUAL OFFICE NOI GROWTH BY MSA

Source: NCREIF

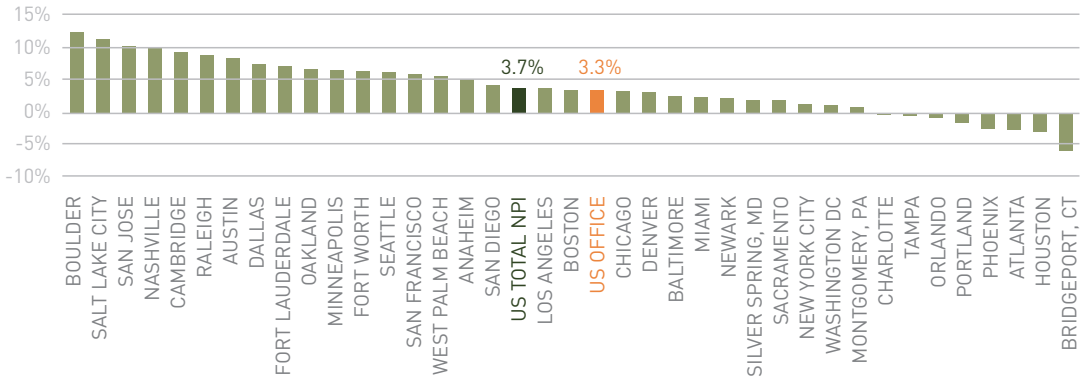
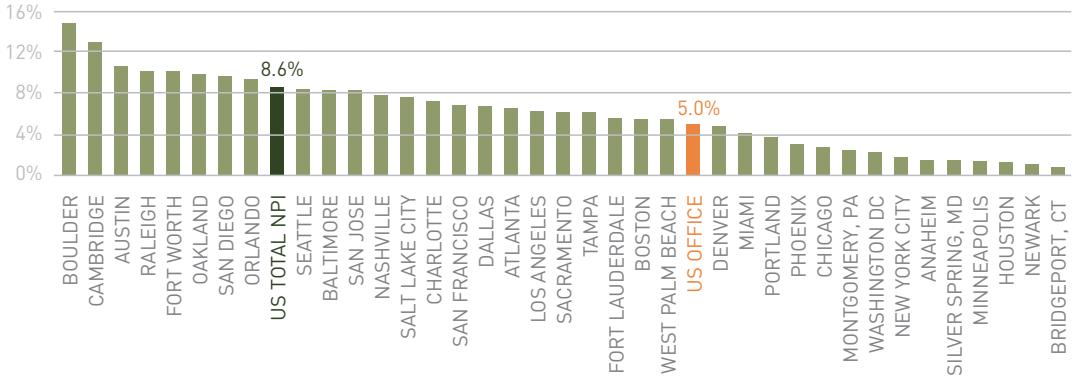


EXHIBIT 11: FIVE-YEAR AVERAGE ANNUAL OFFICE RETURN BY MSA

Source: NCREIF



Many of the top performing office MSAs are "quality of life" markets with robust life science and tech sectors. Office NOI growth has been strongest in large life science markets such as Cambridge and the San Francisco Bay Area, and in smaller but growing life science markets, such as Boulder and Raleigh. The same trend holds for total office returns. Cambridge, a major biotech hub, is the largest office market to earn outsized five-year average returns, outperforming total NPI by 440 BPS. Several smaller office markets with active life science sectors also outperformed the NPI: notably Boulder, Raleigh, and San Diego.

The strong performance of life science markets is not surprising. Both scientific breakthroughs and venture capital activity has favored life science/biotech companies. Most biotech work requires access to physical lab and office space, supporting office demand and shielding the sector from "work from anywhere" trends. Office in several biotech markets has outperformed total NPI over the last five years, suggesting that life science office may be an attractive investment opportunity within the broader office sector.

INVESTMENT IMPLICATIONS

Over the last two decades (or longer), the office sector has consistently lagged total NPI on both total returns and NOI growth. Investors have taken note, and office's share of NPI market value has steadily declined while apartment and industrial shares have grown.

Within the office sector, the story is not unequivocally negative.

Strong NOI growth has driven higher returns for NextGen office properties built within the last ten years. In contrast, NOI growth and total returns at older office properties (particularly 11- to 20-year-old buildings) have been much lower (and at times negative).

While newer office buildings have outperformed older ones in total returns, they have underperformed the overall NPI. Office has also performed better in markets with strong tech and life science activity. Cambridge and the San Francisco Bay Area are two notable examples.

While a preponderance of older buildings will likely lead to underperformance for office as a whole for the foreseeable future, newly built offices and spaces in tech and life science markets have shown more favorable signs however, they must be evaluated relative to other property types.

These office subsectors may not prove to be diamonds, but they certainly seem to merit a closer look by investors.

Office in several biotech markets has outperformed total NPI over the last five years, suggesting that life science office may be an attractive investment opportunity within the broader office sector.

ABOUT THE AUTHORS

William Maher is Director of Strategy and Research and Scot Bommarito is Senior Research Associate for RCLCO Fund Advisors (RFA). RFA is an affiliate of RCLCO (formerly Robert Charles Lesser & Co.), which has been the "first call" for real estate developers, investors, the public sector, and non-real estate companies and organizations seeking strategic and tactical advice regarding property investment, planning, and development since 1967.

NOTES

[1] All NCREIF data are as of 2022 Q2.

[2] Based on NCREIF's Same Property methodology.

REVIEWER RESPONSE

The authors succinctly reemphasize what many of us have become acutely aware of in the wake of the pandemic: the deepening bifurcation between winners and losers in the office sector, using the dual lenses of property vintage and market to quantify this gap. As the data clearly shows, older buildings have increasingly fallen out of favor for the same reasons things always fall out of favor—tastes shift, new offerings evolve to meet the market, and laggards without vision (and a nice stockpile of capital to afford reinvention) get left behind as relics of a former time.

While the piece does its best to highlight bright spots in an otherwise dimly lit sector, even this does little to instill confidence in the relative upside for even those fewer newer assets, because "[though] newer office has outperformed older office, [it] has fallen short of total NCREIF Property Index (NPI) returns in both the short and medium term."

What may have been additive for investors and owners of office would have been for the authors to dig one layer further into this newer subset of buildings and determine if, beyond vintage, there are other qualities or characteristics that create the potential for upper-quintile performance in this top-of-class subset. In an environment where work-from-home and hybrid arrangements are already chipping away at the net demand picture and a potential recession threatens to knock demand further off course, using vintage as a starting point is exactly that: just the starting point.

– Sabrina Unger
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EMISSION CRITICAL

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Workers spending less time in the office post-pandemic may seem negative for the office sector, but a four-day workweek can be a boon for some office property owners.

With the uncertainty around the future of work, the common understanding of how many in-office days make up a "work week" is in flux. As recently highlighted by the Washington Post, workers' preference for going into the office in the middle of the week, rather than either end, may create new expectations for the CRE industry.[1]

Even before the COVID-19 pandemic, companies and employees were floating the idea of a "four-day workweek." The topic has been in discussion for years (in fact, many decades[2]), and now some start-ups and tech firms have begun doing away with Fridays altogether.[3] In one way, this could add a new element of underwriting analysis for office and multifamily properties in NYC. With new emissions regulations looming, a four-day workweek could shift a large portion of energy use (and potential fines) from offices to apartments.

Workers spending less time in the office post-pandemic may seem entirely negative for the office sector but in one way, a four-day workweek can be a boon for some office property owners. One less office workday and possibly as much as 20% less office utilization and energy usage could bring unexpected relief to those New York office landlords who were facing fines for exceeding their greenhouse gas (GHG) emissions statutory limits under Local Law 97 (LL97). Conversely, if most of those in-office Fridays are replaced with people working from their NYC apartment living rooms, the burden of energy usage (and fines) could be passed to the multifamily sector.

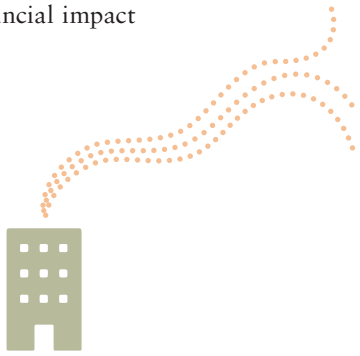
REMIND ME: WHAT IS LOCAL LAW 97 AGAIN?

LL97 is part of the greater NYC Climate Mobilization Act[4] which includes five local laws and is one of the largest city-level emissions reductions acts globally. In a city unique because the majority of its emissions come from its buildings rather than is transportation,[5] it's not surprising that all five local laws target buildings. The other laws in the package focus on energy efficiency, solar panels and green roofs, and creating a Property Assessed Clean Energy fund for New York City.[6] Importantly, this fund launched in 2021 and provides a funding mechanism for owners looking to implement energy retrofits to comply with LL97.

LL97 itself has provided an example for similar laws popping up in cities around the country. Under the groundbreaking legislation, most buildings with more than 25,000 square feet will be required to meet new energy efficiency and greenhouse gas emissions limits by 2024, with tighter limits in 2030. The stated goal[7] is to reduce the emissions produced by the city's largest buildings by 40% by 2030 and 80% by 2050. Building owners will need to report their emissions by May first every year beginning in 2025,[8] which is the year LL97 will impose financial penalties for building owners that are not compliant with the law.

The annual penalty is the difference between a building's annual tonnage of carbon emissions (estimated as a multiple of the energy usage depending on energy source) and its emissions limits (which are based on property type[9]), multiplied by $268. In 2021, Moody's Investors Service (MIS) did an analysis[10] of the potential fines associated with this penalty and found them to be relatively minor compared to the average NYC rent per square foot, though not an insignificant portion of property net revenue on average. Based on this analysis, most fines for exceeding 2024 and 2030 emissions caps will be less than 3% of NOI. However, for a handful of NYC buildings, the fines could be quite burdensome—potentially more than 10% of NOI.

As investors integrate this information into their due diligence and strive to understand the financial implications of LL97, other factors will adjust their analyses. As building owners and tenants explore the future of work and consider adopting long-term hybrid plans for office use, Moody's initial findings on the financial impact might change.



Under the groundbreaking legislation, most buildings with more than 25,000 square feet will be required to meet new energy efficiency and greenhouse gas emissions limits by 2024, with tighter limits in 2030.

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BY THE NUMBERS: HOW MUCH OF A SHIFT COULD THERE BE?

For illustrative purposes, we assume a 20% reduction or increase in energy usage based on shifting one workday from the office to home. It's important to caveat that this 20% energy shift is a ceiling, and somewhat unrealistic, given that many building systems consume energy whether or not humans are in the building.

However, it's clear that the future of work is hybrid, so a lot of energy savings are likely found during the rest of the week besides Fridays.

For apartments, it's more likely the increase is much smaller than 20%, as shown by studies of energy usage during the pandemic.[11] But, for now we'll stick with the 20% assumption just to illustrate the extreme version of energy usage shifting due to a 20% shorter in-office workweek.

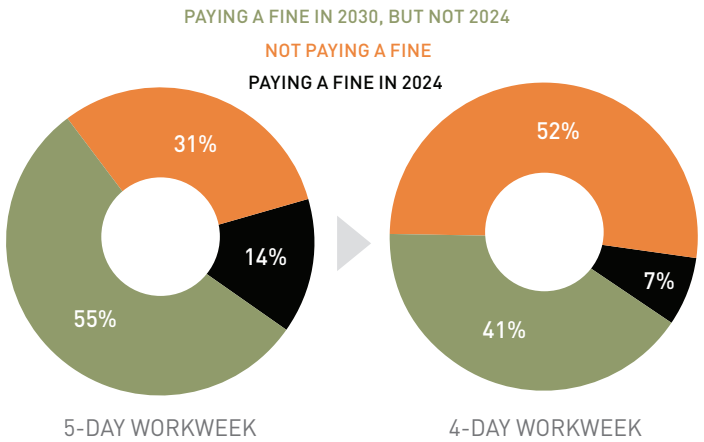
As shown in *Exhibit 1*, when people go to work five days a week, 14% of NYC office properties are subject to pay fines based on LL97 2024 limits, another 55% will be subject to fines in 2030. If a four-day workweek becomes the norm, and energy usage drops 20%, the number of fined office properties will be halved to just 7% in 2024. In 2030, 14% more property owners would be spared the fines from the estimated 55% down to 41%.[12]

Based on Moody's Investors Service's 2021 paper,[13] among offices exceeding their 2024 greenhouse gas (GHG) emissions limits, the average fine was $1.15 per square foot (PSF). With a 20% reduction of energy usage, the average fine would decrease 23% to $0.88 PSF. For the 2030 limits, the average fines would decline 29% from $0.89 PSF to $0.63 PSF.[14]

EXHIBIT 1: PERCENTAGE OF NYC OFFICE PROPERTIES THAT EXCEED LL97 LIMITS

Source: NYC OpenData Energy and Water Data Disclosure for Local Law 84

Note: For an extreme example of the potential shift, we calculate the reduction of energy/carbon emissions to be 20% due to one less workday to arrive at the share of high, medium, and low intensity office buildings.



For NYC multifamily properties, we estimate that 21% are currently subject to pay fines based on 2024 emissions limits, and 77% in 2030 (including properties that exceed 2024 limits). If there is a 20% increase in multifamily energy use as a result of a four-day workweek, the percentage of multifamily owners that will be on the hook rise from 21% to 40%. By 2030, that number will rise by 9 percentage points—from 77% to 86%.

Among multifamily buildings exceeding their 2024 GHG emissions limits, the average fine based on Moody's Investors Service's 2021 analysis is $0.37 PSF, which would increase 29% to $0.52 PSF with a 20% increase in energy usage. For the 2030 limits, the average fines would rise 25% from $0.48 PSF to $0.64 PSF.

THE IMPLICATIONS FOR MULTIFAMILY OWNERS

Multifamily building owners in NYC already have other challenges with mitigating the potential costs of LL97, such as:

1.) Some of the highest potential fines PSF among property types

2.) More complicated energy retrofits

3.) Less ability in NYC to legally pass along capex to tenants

4.) Less ability in NYC to raise rents aggressively with legal caps

Recognizing that the four-day in-office workweek, or another hybrid arrangement, may be here to stay, and that it may push apartment buildings past their emissions limits, multifamily building owners now have an opportunity to make gradual changes to mitigate the financial burden they face from increased work-from-home and the associated energy use. This knowledge also provides investors with additional questions to ask during their due diligence or targeted engagement encouraging building owners to get ahead of these risks.

For example, owners can consider gradual replacement of equipment like air handler units and water heaters with more efficient options as these devices reach the end of their life cycles. They can also promote their sustainability measures in their marketing to potential tenants, which is an important issue for many tenants, commercial and residential alike. This preference is so strong that there is a growing premium for buildings that have taken sustainability measures, all else equal.

This premium can help owners economically justify significant one-time retrofit investments by avoiding LL97 fines, saving on energy costs, and getting a rent premium for sustainability efforts.

ABOUT THE AUTHORS

Kevin Fagan is Senior Director, Head of CRE Economic Analysis; Xiaodi Li is Associate Director, Senior Economist; and Natalie Ambrosio Preudhomme is Associate Director for Moody's Analytics, which provides financial intelligence and analytics.

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[8] "Compliance: Local Law 97." NYC.gov. Accessed December 6, 2022. https://www1.nyc.gov/site/sustainablebuildings/requirements/compliance.page. Note that many buildings are already required to report emissions as part of the NYC Benchmarking Law, Local Law 84.

[9] The specifics of the property type classifications and emissions limits are still being defined. On Nov 14th there was a public hearing about proposed updates to the rule related to these technicalities. Our analysis is based on the definitions and guidelines included in the original 2019 law. The proposed updates from October can be found here: https://www1.nyc.gov/assets/buildings/pdf/proposed_greenhouse_gas.pdf

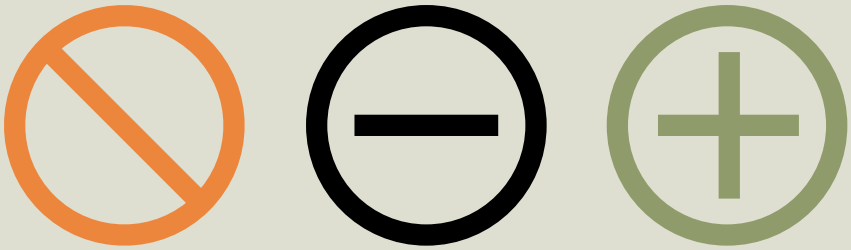
[10] "Moody's Research." Moody's. Accessed December 6, 2022. https://www.moodys.com/researchdocumentcontentpage.aspx?docid=PBS_1266408

[11] Calculation is based on NYC OpenData Energy and Water Data Disclosure for Local Law 84 (Data for Calendar Year 2019). See also: https://data.cityofnewyork.us/browse?q=Energy%20and%20Water%20Data%20Disclosure&sortBy=relevance; https://www1.nyc.gov/assets/sustainability/downloads/pdf/publications/New%20York%20City%27s%20Roadmap%20to%2080%20x%2050_Final.pdf

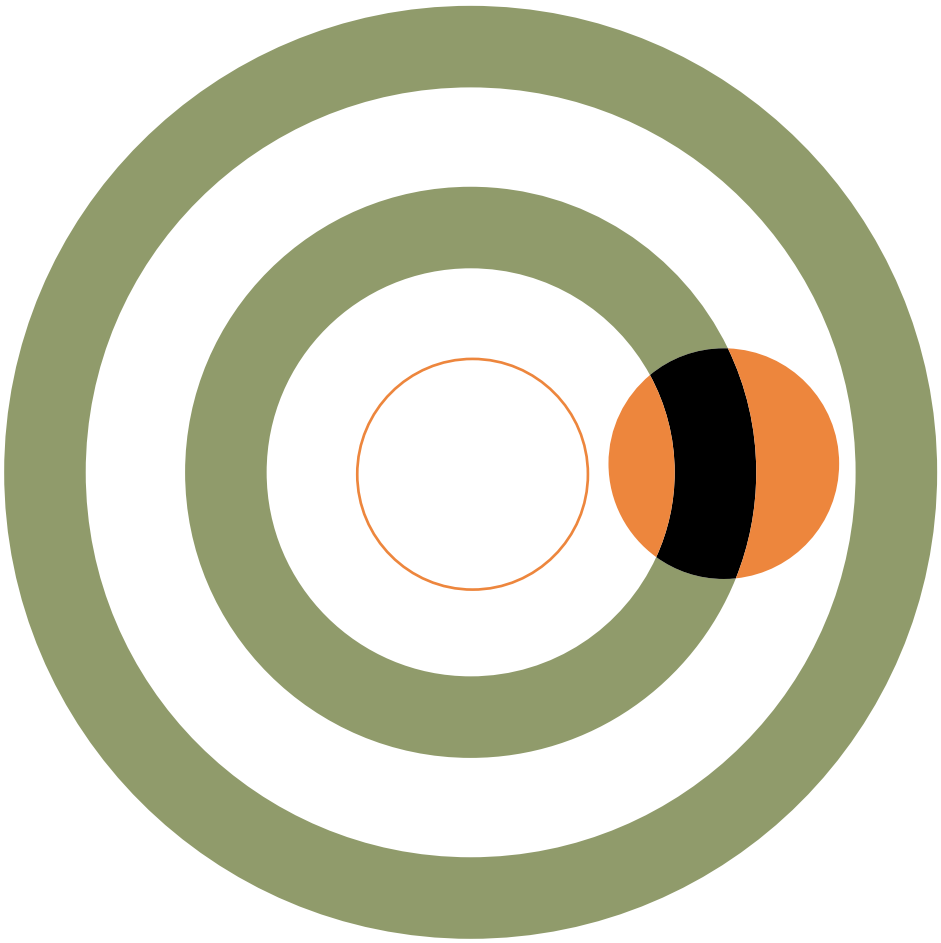
[12] "Moody's Research." Moody's. Accessed December 6, 2022. https://www.moodys.com/researchdocumentcontentpage.aspx?docid=PBS_1266408.

[13] Special thanks to John Boyle in Moody's Investors Service for his original 2021 work and consultation.

Recognizing that the four-day in-office workweek, or another hybrid arrangement, may be here to stay, and that it may push apartment buildings past their emissions limits, multifamily building owners now have an opportunity to make gradual changes to mitigate the financial burden they face from increased work-from-home and the associated energy use.



MOVING TARGETS



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A close-in look at twenty major US metros and thousands of properties shows how the overall impact of rising expense loads have narrowed NOI margins. Investors should take note.

While much attention from mass and trade media focused on unprecedented apartment revenue growth in the aftermath of the COVID-19 pandemic, the expense side of the story was no less impressive and carries important lessons to apartment owners and investors as the US economy and real estate markets enter a new phase.

With these lessons in mind, this article focuses on 2021 operating expense inflation based on a property-level analysis of 14,405 garden, mid-rise, and high-rise apartment properties securing loans in Freddie Mac CMBS. This analysis of property-level year-on-year operating performance through the year-end 2021 statement year reveals three key findings:

1) Across the twenty major metro areas that we focused on in this analysis, operating expenses grew at the fastest pace in at least a decade, with insurance, utilities, repairs/maintenance, management, and payroll costs being the key drivers. In fifteen out of the twenty markets, expenses grew faster than revenues in both 2020 and 2021.

2) Operating expense growth in 2021 was positively correlated with revenue growth across properties as well as geographically, with the Sunbelt markets and more affordable/lower density locations on one end of the spectrum and the more expensive gateway/coastal markets and higher density locations on the other.

3) Operating expense growth across markets in 2021was positively correlated with regional consumer price inflation, which in turn was highly correlated with net migration rates observed in 2021.

While the effects of the pandemic on apartment performance have clearly varied across various types of assets and locations, absolute net operating incomes (NOI) have increased—and in most cases surpassed—prior peaks, but the overall impact of rising expense loads have narrowed NOI margins, something that owners and investors will need to monitor carefully, especially if the broader inflationary pressures on costs remain elevated.

LOOKING AT THE DATA

For the purposes of our analysis, we used operating statements reporting full calendar year results for 2021 and 2020 for 8,881 properties across twenty major metropolitan areas with a hundred or more observations.[1] *Exhibit 1* shows median 2021/2020 changes in revenue, expense, and NOI across properties in each of the metros, along with the median revenue per unit levels. The prototypical apartment property in this data set had about 124 units and average monthly revenue of US$1,307 per unit.

EXHIBIT 1: OPERATING STATEMENTS FOR 8,881 PROPERTIES ACROSS 20 MAJOR METROS

Sources: Freddie Mac; Multifamily Comps.

	PROPERTIES	UNITS	AVERAGE UNITS	REVENUE/ UNIT, $	2021/2020 CHANGE, %		
					REVENUE	EXPENSES	NOI
Atlanta	401	88,326	220	1,195	6.9	5.4	8.9
Baltimore	187	41,776	223	1,273	3.9	4.7	3.2
Boston	225	20,656	92	1,761	1.6	4.4	-1.2
Chicago	665	50,857	76	1,279	1.8	5.1	-1.1
Dallas	669	148,705	222	1,076	5.6	6.4	5.9
Denver	383	57,175	149	1,326	4.4	5.4	3.7
Detroit	161	28,904	180	855	5.1	6.2	4.5
Houston	482	104,201	216	1,011	4.3	6.0	2.3
Los Angeles	1,345	87,262	65	1,606	2.7	4.1	2.0
Miami	320	42,169	132	1,299	5.9	6.4	5.5
Minneapolis	202	16,032	79	1,075	2.7	4.5	1.6
New York	1,664	92,529	56	1,685	1.2	4.2	-0.2
Philadelphia	298	46,808	157	1,281	5.1	5.4	4.8
Phoenix	292	60,188	206	1,169	9.4	5.8	11.1
Riverside	149	21,428	144	1,350	6.1	4.9	7.6
San Diego	220	22,723	103	1,689	4.2	3.8	5.2
San Francisco	286	16,300	57	1,905	-1.2	2.4	-6.1
Seattle	462	38,620	84	1,475	0.8	4.8	-2.7
Tampa	176	40,712	231	1,158	8.5	6.3	9.4
Washington, DC	294	71,728	244	1,494	1.6	3.4	1.0
Total	8,881	1,097,099	124	1,307	4.3	5.2	3.8

Out of the twenty markets in this analysis, only five had revenue growth above expenses over 2020–21 period: Atlanta, Phoenix, Riverside, San Diego, and Tampa.

2020–21 OPERATIONAL PERFORMANCE

Prior to the start of the COVID-19 pandemic, revenue growth had generally been slowing for some time across the sample of properties included in this analysis. As *Exhibit 2* shows, after peaking at 5.2% in 2015, revenue grew at about 4% annual pace in 2017–18 and at 3.5% in 2019. Meanwhile, expense growth has been edging higher: from 2.6% in 2015 to about 4.2% in 2017–18 and 3.6% in 2019. Overall, expense growth has been running above revenue growth over 2017–2019 period, but only slightly.

As the pandemic hit and the US economy went into a sharp, brief recession in early 2020, revenue growth slowed down to about 1.5%—the lowest pace that these major markets experienced since 2010. Unlike a decade ago, however, expense growth moderated only slightly to 3.1%—basically keeping pace with the historical average.

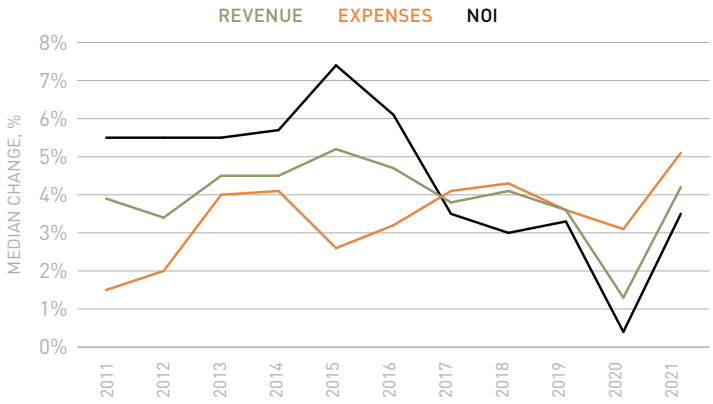
With the public health situation starting to improve by early 2021, both the broader economy and operational performance quickly bounced back. Apartment revenue growth accelerated to 4.3% compared to 3.6% historically, driven by much stronger performance of the garden-style segment concentrated in the Sunbelt region of the country.

At the same time, expenses jumped by 5.2%—the highest increase back to the start of the Freddie Mac CMBS dataset. In fact, out of the twenty markets in this analysis, only five had revenue growth above expenses over 2020–21 period: Atlanta, Phoenix, Riverside, San Diego, and Tampa. All but one out of the top five markets based on 2021 expense growth were in the Sunbelt region (Dallas, Houston, Miami, Tampa, and Detroit) where it has averaged 6.3%. In contrast, expense growth has averaged 3.9% in most gateway/coastal markets such as New York, Los Angeles, Chicago, Washington, DC, and San Francisco, which have higher concentrations of both high-rise and smaller mid-rise properties located in high-density urban areas.

While expense growth was also reported to be higher among garden-style properties, the difference relative to mid/high-rise apartments was not as wide as on the revenue side. As a result, there was a material difference in NOI results between garden-style apartments with 6.9% 2021 NOI growth as compared to just 0.3% NOI growth for mid/high-rise properties.

EXHIBIT 2: NOI RESULTS IN GARDEN-STYLE AND MID- TO HIGH-RISE PROPERTIES

Sources: Freddie Mac; Multifamily Comps.



In contrast, expense growth has averaged 3.9% in most gateway/coastal markets such as New York, Los Angeles, Chicago, Washington, DC, and San Francisco.

We next reviewed the contributions to expense growth across the various operating expense categories. As shown in *Exhibit 3*, this more detailed analysis shows that insurance costs had the highest increase, followed by repairs, utilities, management, and payroll. Notably, while insurance-related expenses (and real estate taxes, for that matter) have been trending higher for several years before the pandemic as apartment values have also been rising rapidly, the synchronized above-average inflation in the other four major cost categories (together accounting for approximately 60% of total expenses) was an emerging new pattern not observed in previous years. The broadly based pattern of expense growth has generally held both across garden and mid/high-rise segments, as well as regionally by market.

EXHIBIT 3: CONTRIBUTIONS TO EXPENSE GROWTH ACROSS OPEX CATEGORIES

Sources: Freddie Mac; Multifamily Comps.

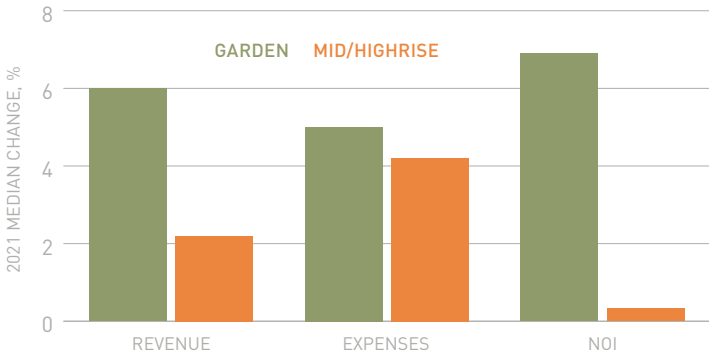
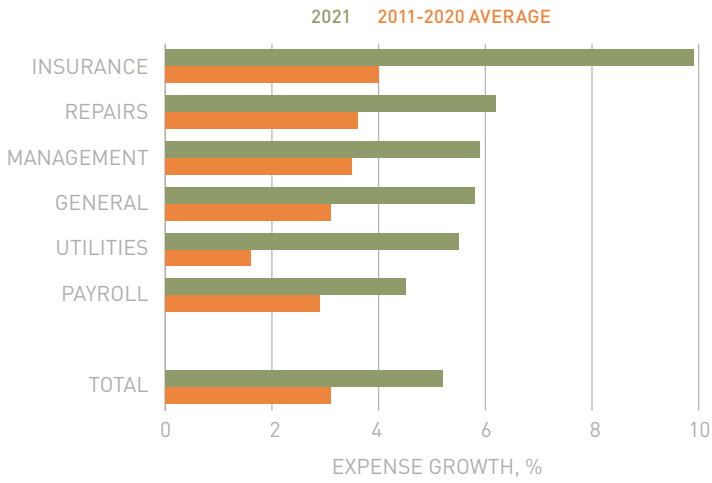


EXHIBIT 4: EXPENSE GROWTH

Sources: Freddie Mac; Multifamily Comps.



2020–21 OPERATIONAL PERFORMANCE AND MARKET VARIATIONS

In terms of revenue growth, the Freddie Mac CMBS apartment dataset reflected market variation patterns that were very similar to those reported by other sources. More specifically, we found a 95% cross-market correlation with a RealPage same-store dataset comprised of more than 17,000 properties with 3.96 million units in the twenty major markets we analyzed.

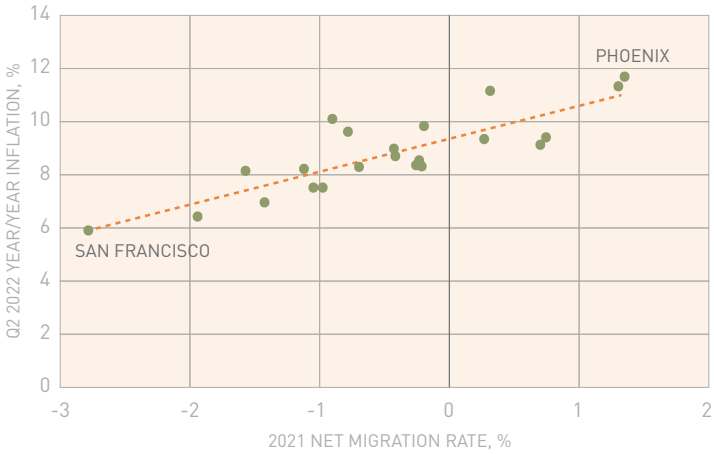
While RealPage's coverage is more weighted towards larger properties, both datasets showed a striking divergence in revenue growth between markets in the Sunbelt region relative to the coastal ones. First, revenue growth in the Sunbelt markets was much less affected by the pandemic and the recession, despite similarly sharp and in some cases even deeper, job losses. For example, based on the Freddie CMBS dataset revenue growth in Phoenix slowed from 7.2% annual pace over 2018–19 to 6.5% in 2020 as compared to San Francisco, where it plunged from 4.0% to -2.2%.

Second, while subsequent revenue growth recovery in 2021 was broad-based, it was also much more pronounced in the Sunbelt region rather than on the coasts. Using the above example, Phoenix revenue growth improved to 9.4% in 2021 as compared to just -1.2% in San Francisco. For the top five markets based on 2021 revenue growth (Phoenix, Tampa, Atlanta, Miami, and Riverside) the revenue growth improvements last year averaged 3.7% while for the bottom five markets (San Francisco, Seattle, New York, Washington, DC, and Boston) that average improvement was 0.9%.

One potential explanation to these dynamics is that both during and after the pandemic, renters migrated out of high-rent and/or high-population-density areas (which also tend to have much smaller apartment unit sizes based on square footage) into markets with lower rents and/or lower population density with more room space, especially as work-from-home arrangements for office workers became more widely accepted by employers. Support to this hypothesis is found both in market-level data (for example, negative 75% correlation between 2020 revenue per unit and 2021 revenue growth) as well as property-level data in combination with micro-location (i.e., census) information.

EXHIBIT 5: MIGRATION AND INFLATION

Sources: US Bureau of the Census; Bureau of Labor Statistics.



On the expense side, two notable patterns were observed during the 2021 recovery. First, there was a moderately high positive correlation across these twenty markets between their revenue and expense growth rates: about 65% compared to only 25% historically. In other words, markets with stronger revenue growth also generally experienced higher increases in expenses and vice versa. For example, the median expense growth across apartment properties in Phoenix was 5.8% - more than twice the rate of 2.4% reported in San Francisco.

Second, in fifteen out of twenty markets, expenses grew faster than revenue both in 2020 as well as 2021, reducing what would otherwise be stronger NOI gains. Like the high cross-market correlation with revenue growth, this was also a deviation from what was observed over the prior decade when revenue growth exceeded expense growth in most cases.

While it may be too early to tell if these patterns of expense growth relative to revenue seen during the pandemic and subsequent recovery are anomalies that will not be repeated going forward, we do believe they are worth monitoring closely given their potential link to the broader macro-economic context of rising inflation and significant regional differences due to migration and other factors.

Markets with stronger revenue growth also generally experienced higher increases in expenses and vice versa.

MIGRATION-INFLATION CONJECTURE

On a macro-economic level, one of the new trends following the pandemic has been rising consumer price inflation, which has been progressively intensifying since the end of 2021 and has now reached the highest pace since the early 1980's. While the root causes of this will ultimately be a subject for many academic studies, the initial view is that in addition to purely monetary policy factors, one of the triggers behind higher inflation is disruption in global supply chains which has led to deepening shortages both in the US as well as globally. So far, much of the discussion on this topic seems to have focused more on the headline national figures, and yet the regional variation is equally important when trying to understand the full story.

Taking a closer look at the market-by-market variation in reported consumer price inflation in 2021 and 2022 year-to-date, we find direct parallels and correlations with the post-pandemic revenue and expense growth reflected in Freddie Mac apartment data used for this analysis. The BLS regional CPI indices show much more pronounced inflation in the Sunbelt metros, such as Phoenix, while lagging substantially in major gateway markets, such as San Francisco.

It is quite possible that increased migration out of the coastal areas into the Sunbelt during and after the pandemic provided enough of a positive shock to local consumption of goods and services to have these material impacts on inflation differentials across markets. Prior to the pandemic, there was no substantial correlation between the one-year lagged net migration rates and inflationary readings across markets for which the Bureau of Labor Statistics published local consumer price indices. This pattern changed last year when the correlation jumped to 74% and is 86% as of mid-year 2022.

Both macro-economists, as well as apartment owners and investors, should monitor these dynamics closely. If indeed such regional post-pandemic patterns are only "transitory" and start normalizing by late 2022/early 2023 as the current "consensus" expectation suggests, then we will likely see moderating revenue and expense growth in the Sunbelt as well as accelerated recovery in the coastal markets.

At the same time, if the recent migration patterns persist and the pressure on local prices of goods and services remains, expense control (especially in the major categories such as payroll and utilities) will come to the fore as one of the key considerations for managing NOI margins—especially as the broader economy and apartment rent growth begin to slow.

ABOUT THE AUTHORS

Gleb Nechayev, CRE is the Head of Research and Chief Economist at Berkshire Residential Investments and Webster Hughes, PhD is the Founder and Principal of Multifamily Comps LLC.

NOTES

[1] Based on reporting as of June 2022.

REVIEWER RESPONSE

The authors of this article make a compelling case for expense growth playing a bigger role in multifamily NOI growth (or decline). This makes sense, as the economy and apartment demand growth may slow in 2023 just as expenses such as insurance, energy, and repairs may continue rising. That said, the biggest question for investors to ask during their investment period (often five to seven years) may be, "Which metros continue to post positive employment and population growth?" as these factors appear to be highly correlated with multifamily demand and rent growth.

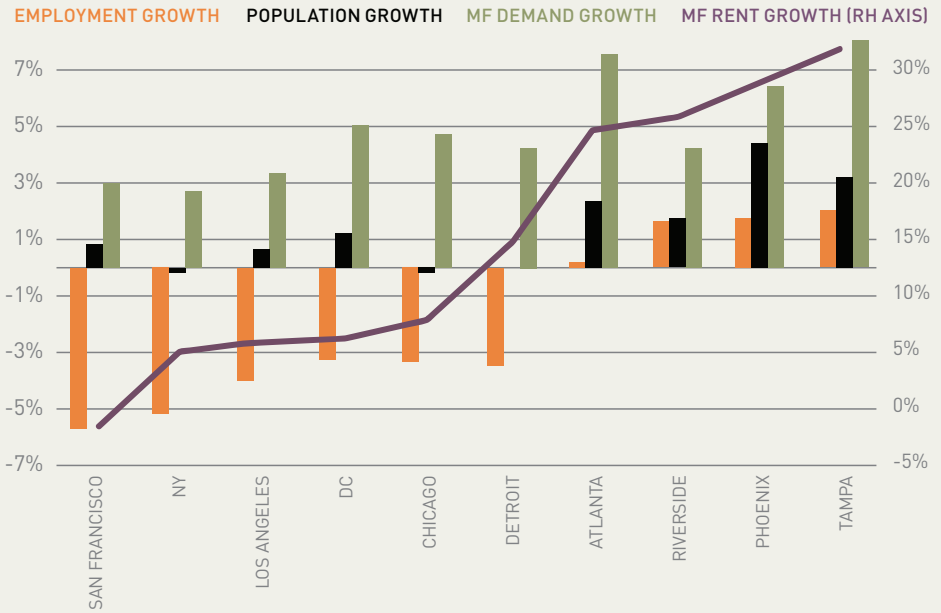
The authors cite ten metropolitan areas with remarkably high or low expense growth. The five metros cited for low expense growth in 2021 are on the left of the chart below. It would appear low expense growth had a strong relationship with weak employment, in addition to low population and rent growth. The five metros on the right exhibited the highest expense growth, as well as generally higher population and rent growth. So, while the five metros on the right may be wrestling with higher expense growth, they are generally enjoying much higher rent growth, with Atlanta, Riverside, Phoenix, and Tampa all posting cumulative rent gains over 20%.

Going forward, markets like Tampa and Phoenix may struggle to maintain population and employment growth at these levels, while markets like San Francisco and New York may cease contracting and actually grow their population and employment bases. The bottom line for investors may be to focus on the markets with successful economies but pay attention to how increases in expenses may play out.

– Hans Nordby
Member, Summit Journal Editorial Board
Head of Analytics and Research, Lionstone Investments

2020 AND 2021 MARKET GROWTH OVERVIEW

Source: Lionstone Research and CoStar, as of November 2022



If regional post-pandemic patterns are only “transitory” and start normalizing by late 2022/early 2023 as the current “consensus” expectation suggests, then we will likely see moderating revenue and expense growth in the Sunbelt as well as accelerated recovery in the coastal markets.

SAND STATES

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In the wake of the Great Financial Crisis, certain metros in the Sand States suffered disproportionally. It may not be as bad this time.

Perhaps one of the most famous opening lines of any novel ever written is: "All happy families are alike; each unhappy family is unhappy in its own way." Leo Tolstoy's rhetorical flourish with which he began his 1877 novel *Anna Karenina* emphasizes that there are many factors which can cause a negative outcome; that, although outwardly unhappy families may appear sad, the causes and the manifestation of the misery are disparate.

Likewise, recessions all appear harsh; but their causes and magnitude, and impact on individual sectors vary.

One of the primary causes of the Global Financial Crisis (GFC) of 2008–09 was the housing bust, which had a particularly negative impact on the boom economies of Phoenix, Las Vegas, Inland Empire[1], Tampa, Miami and other markets in Florida, Arizona, Nevada, and California (the Sand States[2]). Conversely, the unique COVID-induced recession had a positive impact on housing values and on commercial real estate. The next recession may be different. It is possible that the impact on the economy, housing, and commercial real estate of certain markets will be similar in direction but not necessarily in magnitude due to changed employment concentrations.

According to the Case-Shiller index of home prices, Las Vegas, Phoenix, Miami, and Tampa represented four of the five[3] worst affected housing markets during the GFC. In terms of multifamily housing, Phoenix, Inland Empire, and Tampa represented three of the top five markets by value decline from peak to trough during the GFC.

In the case of both home prices and apartment valuations, these markets experienced peak to trough declines almost double the national average.

The GFC caused a bust in the booming economies of Phoenix, Las Vegas, Inland Empire, Tampa, and Miami, among others. These markets were hit particularly hard in the housing sector, both single family and multifamily.

EXHIBIT 1: CASE-SHILLER HOME PRICE INDEX AND NCREIF MARKET VALUE INDICES (GFC PEAK TO TROUGH DECLINE)

Sources: Case-Shiller S&P Dow Jones Indices. As of August 2022. NCREIF Market Value Indices. As of Q3 2022.

Case-Shiller Home Price Index GFC Peak to Trough Decline

Metro Area	% Decline	Peak Quarter	Trough Quarter
Las Vegas	-61.6%	Apr 2006	Jan 2012
Phoenix	-56.4%	May 2006	Aug 2011
Miami	-51.0%	Feb 2007	Nov 2011
Detroit	-47.7%	Mar 2006	Apr 2011
Tampa	-47.6%	May 2006	Nov 2011
San Francisco	-45.3%	Mar 2006	May 2009
San Diego	-42.2%	Mar 2006	May 2009
Los Angeles	-41.5%	Apr 2006	May 2009
Chicago	-37.5%	Mar 2007	Apr 2012
Atlanta	-37.4%	Apr 2007	Mar 2012
Minneapolis	-36.6%	Apr 2006	Mar 2011
Washington, D.C.	-32.9%	Mar 2006	Apr 2009
Seattle	-30.5%	May 2007	Dec 2011
Portland	-29.0%	Apr 2007	Mar 2012
United States	-26.0%	Feb 2007	Feb 2012
New York	-25.9%	May 2006	Mar 2012
Cleveland	-21.4%	Jan 2006	Feb 2012
Charlotte	-17.9%	Aug 2007	Jan 2012
Boston	-17.7%	Nov 2005	Apr 2009
Denver	-11.6%	Mar 2006	Feb 2009
Dallas	-9.5%	Apr 2007	May 2011

NCREIF Market Value Indices GFC Peak to Trough Decline

Metro Area	% Decline	Peak Quarter	Trough Quarter
Bridgeport/Stamford	-42.8%	4Q07	4Q09
Phoenix	-39.5%	3Q07	4Q09
West Palm Beach	-36.6%	3Q07	4Q09
Las Vegas	-36.3%	1Q08	2Q10
Riverside/San Bernardino	-35.8%	4Q07	4Q09
San Francisco	-34.2%	3Q08	1Q10
Miami	-34.0%	3Q07	4Q09
Newark, NJ	-32.7%	2Q08	1Q10
Oakland, CA	-31.8%	1Q08	4Q09
Los Angeles	-31.4%	1Q08	4Q09
Orange County, CA	-30.6%	2Q08	1Q10
Tampa/St. Petersburg	-30.5%	2Q07	4Q09
San Jose, CA	-29.9%	2Q08	3Q09
Orlando	-29.8%	3Q07	4Q09
Atlanta	-29.7%	1Q08	1Q10
Seattle	-29.7%	3Q08	1Q10
Baltimore	-29.3%	4Q07	4Q09
Fort Lauderdale	-29.0%	1Q08	1Q10
Portland, OR	-29.0%	3Q08	1Q10
Charlotte	-28.7%	3Q08	1Q10
Philadelphia	-27.5%	1Q08	4Q09
Boston	-25.5%	4Q07	4Q09
Salt Lake City	-24.6%	3Q08	1Q10
United States	-24.6%	2Q08	4Q09
Denver	-24.3%	2Q08	4Q09

In this analysis, we focus on the five large Sand State markets of Phoenix, *Las Vegas, Inland Empire, Tampa, and Miami* that suffered in the wake of the GFC of 2008-2009 and explore if the past is likely to be repeated based on certain factors that render these markets different than they have been in the past.

One key reason for this bust may be related to Sand State metro's disproportionate reliance on construction jobs prior to the GFC. A concentration of construction jobs was particularly problematic during the GFC because of the industry's inherent correlation with the housing market. Growing home values led to more homebuilding and demand for construction labor. When home values declined, so did demand for construction labor, which disproportionately impacted places with a greater share of construction jobs. As of September 2022, the construction industry makes up a smaller share of the employment base *(Exhibit 2),* where declines are noticeable in Las Vegas, Inland Empire, Phoenix, and other Sand State metros.

Since the GFC, the economies of these markets have become more diversified, particularly away from the construction sector, so the magnitude of a future setback or bust should be more muted. Therefore, the magnitude of the negative impact on the economic health, housing and commercial real estate values of their respective metros will likely be less than it was during the GFC.

In this analysis, we focus on the five large Sand State markets of Phoenix, Las Vegas, Inland Empire, Tampa, and Miami that suffered in the wake of the GFC and explore if the past is likely to be repeated based on certain factors that render these markets different than they have been in the past.

EXHIBIT 2: CONSTRUCTION INDUSTRY EMPLOYMENT LQ (PRE-GFC AND NOW)

Source: US Bureau of Labor Statistics; New York Life Real Estate Investors Strategy & Research Group analysis. As of September 2022.

Construction Industry Employment LQ Pre-GFC and Now			
	Location Quotient		
Metro Area	Sep 2006	Sep 2022	Delta
Las Vegas	2.05	1.38	-0.67
Riverside/San Bernardino	1.75	1.30	-0.44
Phoenix	1.64	1.23	-0.41
Bakersfield	1.47	1.07	-0.40
Orlando	1.49	1.09	-0.40
Tucson, AZ	1.30	0.91	-0.39
Reno	1.86	1.62	-0.24
Fresno	1.29	1.08	-0.21
Miami/Ft. Lauderdale/WPB	1.21	1.01	-0.20
Jacksonville	1.41	1.23	-0.18
Tampa	1.32	1.15	-0.17
Atlanta	1.01	0.85	-0.16
San Diego	1.23	1.13	-0.10
Orange County, CA	1.21	1.12	-0.09
Chicago	0.86	0.78	-0.08
New Orleans	1.11	1.06	-0.04
San Antonio	1.01	0.97	-0.04
Birmingham, AL	1.13	1.11	-0.02
San Francisco/Oakland	1.02	1.01	-0.02
United States	1.00	1.00	0.00
San Jose, CA	0.93	0.95	+0.02
Los Angeles	0.81	0.83	+0.02
Sacramento	1.39	1.46	+0.06
Indianapolis	1.02	1.09	+0.07
Providence	0.88	0.95	+0.07
Seattle	1.20	1.29	+0.08
Oklahoma City	0.80	0.89	+0.08
Houston	1.32	1.42	+0.10
Baton Rouge	1.78	1.90	+0.12
Milwaukee	0.73	0.87	+0.14
Pittsburgh	0.90	1.05	+0.15
Portland, OR	1.12	1.31	+0.19
Rochester	0.64	0.89	+0.25
Tulsa	0.88	1.14	+0.26

PHOENIX

Phoenix was one of the epicenters of the housing crash that precipitated the GFC. In the three years prior to the peak, home values in Phoenix increased 89.6%, the highest among the twenty markets tracked by the Case-Shiller Index. In the wake of the GFC, Phoenix home values declined -56.4% from peak to trough; the second lowest behind Las Vegas. This compares to the US, where home values rose only 28.9% in the three years leading up to the national housing market peak in February 2007, and subsequently fell -26.0% from peak to trough.

In the run-up to the GFC, growth in home values in Phoenix reached a peak in September 2005, when home values increased +49.3% on a year-over-year basis. In the trough of the GFC, Phoenix home values reflected a decline of -36.0% year-over-year.

During the GFC, the value of institutional apartment properties in Phoenix experienced similar dynamics to home values. Phoenix apartment property values increased 31.3% year-over-year at its peak, before declining -33.0% year-over-year during the trough. By Q3 2022, Phoenix apartment values were up 27.6% year-over-year, which is nearly double the rate of the US.

EXHIBIT 3: PHOENIX METRO AREA CASE-SHILLER HOME PRICE INDEX (FEBRUARY 2020)

Source: Case-Shiller S&P Dow Jones Indices. As of August 2022.

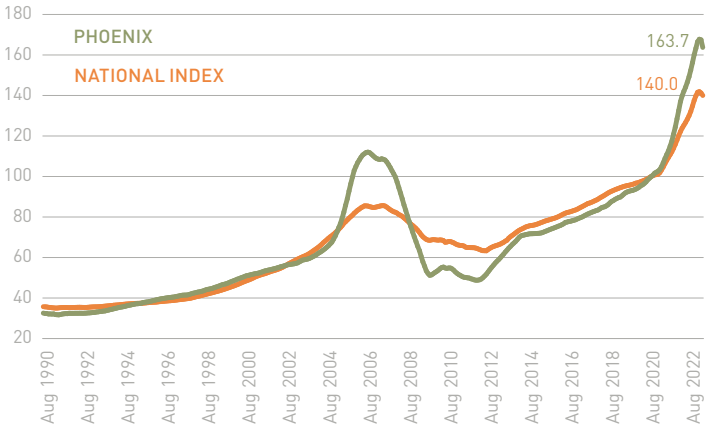


EXHIBIT 4: PHOENIX METRO AREA CASE-SHILLER HOME PRICE INDEX (% YOY VALUE CHANGE)

Source: Case-Shiller S&P Dow Jones Indices. As of August 2022.

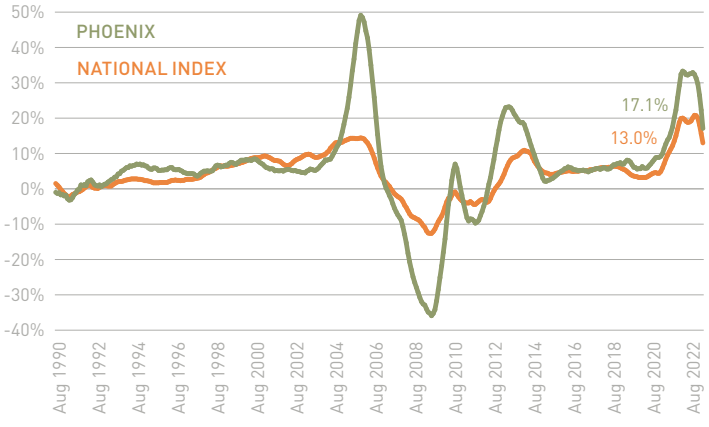


EXHIBIT 5: PHOENIX METRO AREA CONSTRUCTION INDUSTRY LQ

Source: US Bureau of Labor Statistics; New York Life Real Estate Investors Strategy & Research Group.

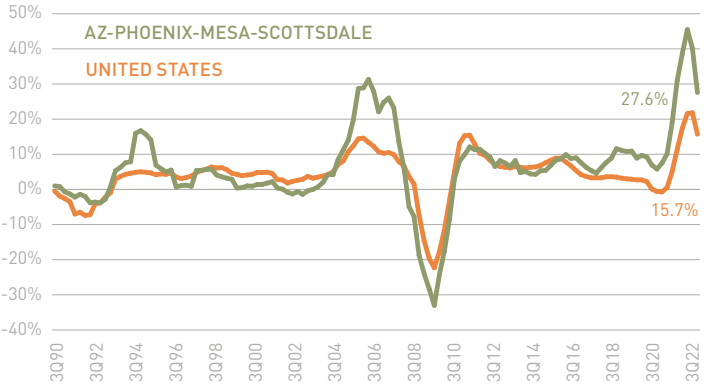
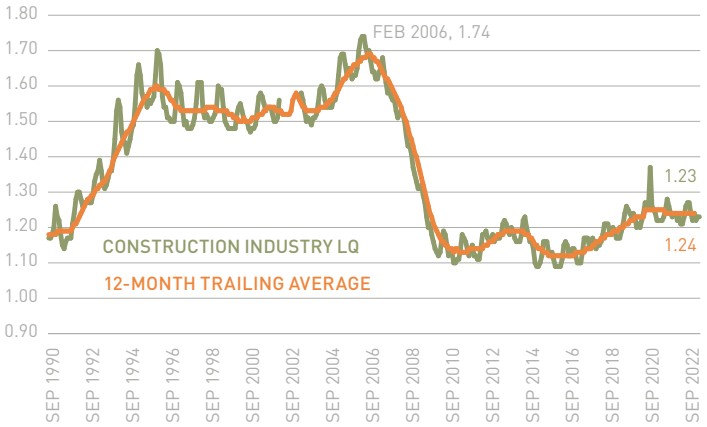


EXHIBIT 6: PHOENIX METRO AREA APARTMENT SECTOR NCREIF MVI (% YOY VALUE CHANGE)

Source: NCREIF Market Value Indices. As of Q3 2022.



PHOENIX

Are Phoenix housing and apartment prices likely to decline in a similar fashion during a possible 2022–23 recession? One indicator may be in comparing the concentration of construction jobs in 2006 and 2022. The LQ for the construction sector was 1.74 on the eve of the housing crisis (February 2006). However, as of September 2022 it had declined to 1.23. The Phoenix economy has diversified and is not as reliant on construction jobs and the housing industry as it was in the past. Phoenix was so reliant on the construction industry that nearly one out of every ten workers were employed in the construction sector.

EXHIBIT 7: PHOENIX METRO AREA EMPLOYMENT BY INDUSTRY

Source: US Bureau of Labor Statistics; New York Life Real Estate Investors Strategy & Research Group analysis. Data not seasonally adjusted. As of September 2022.

Phoenix Metro Area - Employment by Industry							
	Workers (000s)			% Share of Workers		Location Quotient	
Industry	Sep 2006	Sep 2022	Growth	Sep 2006	Sep 2022	Sep 2006	Sep 2022
Total Nonfarm	1,903	2,323	22.1%	100.0%	100.0%	1.00	1.00
Mining, Logging and Construction	184	150	-18.7%	9.7%	6.4%	1.53	1.16
Mining and Logging	3	3	6.9%	0.2%	0.1%	0.30	0.32
Construction	181	147	-19.1%	9.5%	6.3%	1.64	1.23
Manufacturing	141	150	6.4%	7.4%	6.4%	0.71	0.77
Durable Goods	114	110	-3.3%	6.0%	4.7%	0.91	0.90
Non-Durable Goods	27	40	46.7%	1.4%	1.7%	0.38	0.54
Wholesale Trade	87	87	0.3%	4.6%	3.8%	1.07	0.97
Retail Trade	224	251	11.7%	11.8%	10.8%	1.06	1.05
Transportation, Warehousing, and Utilities	66	119	82.3%	3.4%	5.1%	0.93	1.12
Transportation and Warehousing	57	111	95.6%	3.0%	4.8%	0.91	1.13
Utilities	9	8	-5.8%	0.5%	0.3%	1.13	0.99
Information	32	43	35.6%	1.7%	1.8%	0.75	0.92
Financial Activities	157	216	37.7%	8.2%	9.3%	1.34	1.59
Professional and Business Services	325	387	19.0%	17.1%	16.7%	1.31	1.14
Education and Health Services	203	370	81.9%	10.7%	15.9%	0.80	0.99
Leisure and Hospitality	179	233	29.9%	9.4%	10.0%	0.97	0.96
Other Services	71	71	1.0%	3.7%	3.1%	0.94	0.82
Government	235	248	5.2%	12.4%	10.7%	0.77	0.73

The economy has since diversified and, as is true across the US, the transportation and warehousing (TW) sector has increased substantially. In Phoenix, the growth reflects a nearly 96% increase between 2006 and 2022. During that time, the Financial Activities LQ increased from 1.34 to 1.59. The economic downturn that Phoenix would likely experience during a recession would likely be of a lower order of magnitude than that which was experienced during the GFC.

LAS VEGAS

Similar to Phoenix, Las Vegas also experienced a pronounced housing boom which burst in the wake of the GFC. In the three years prior to the peak, home values in Las Vegas increased 88.2%, before declining -61.6% in the wake of the GFC. This peak to trough decline represents the worst of the 20 markets tracked by the Case-Shiller Index. (As noted earlier, in the US, home values rose 28.9% in the three years leading up to the national housing market peak in February 2007, but subsequently fell -26.0% from peak to trough.)

In the run-up to the GFC, growth in home values in Las Vegas reached a peak in September 2004, when home values increased +53.2% on a year-over-year basis. In the trough of the GFC, Las Vegas home values declined -33.0% year-over-year.

Institutional apartment properties also experienced a value run-up and subsequent value decline. Apartment values in Las Vegas increased 30.4% year-over-year at its peak in Q2 2006, before declining -28.0% year-over-year during the trough in Q3 2009. By September 2022, Las Vegas apartment values were up 25.1% year-over-year, above the national rate.

EXHIBIT 8: LAS VEGAS METRO AREA CASE-SHILLER HOME PRICE INDEX (FEBRUARY 2020)

Source: Case-Shiller S&P Dow Jones Indices. As of August 2022.

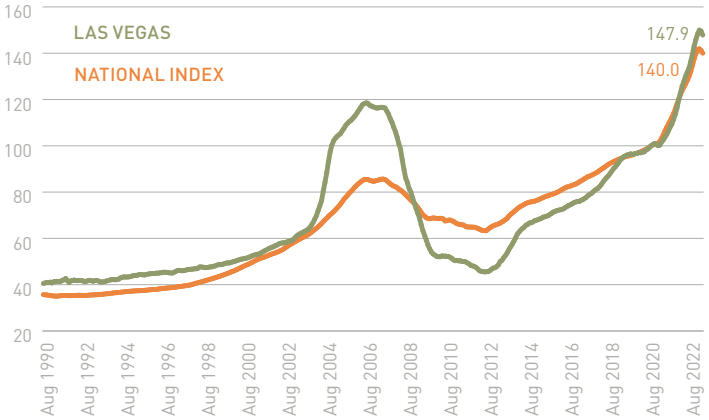


EXHIBIT 9: LAS VEGAS METRO AREA CASE-SHILLER HOME PRICE INDEX (% YOY VALUE CHANGE)

Source: Case-Shiller S&P Dow Jones Indices. As of August 2022.

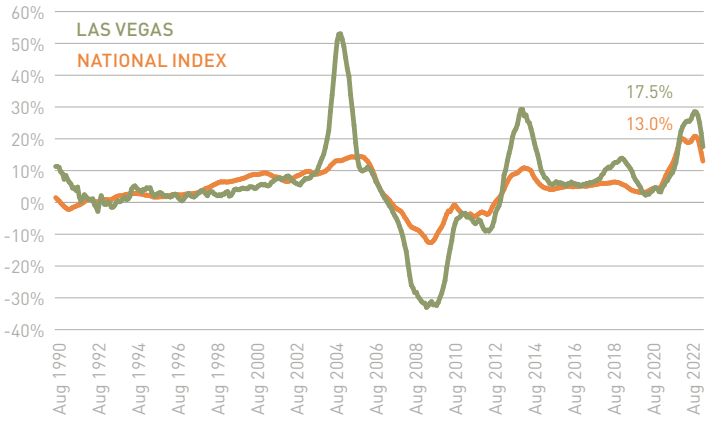


EXHIBIT 10: LAS VEGAS METRO AREA CONSTRUCTION INDUSTRY LQ

Source: US Bureau of Labor Statistics; New York Life Real Estate Investors Strategy & Research Group.

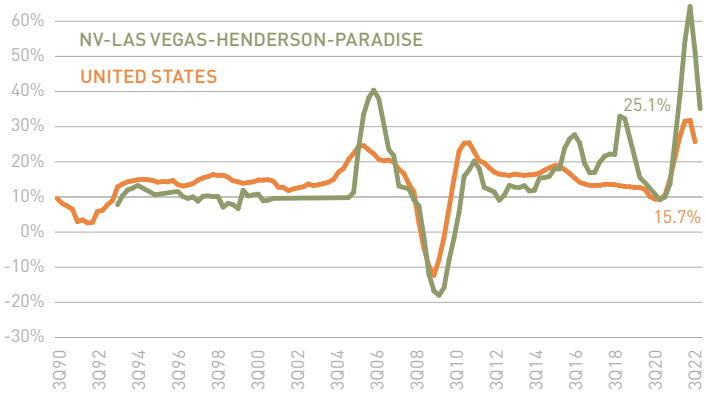
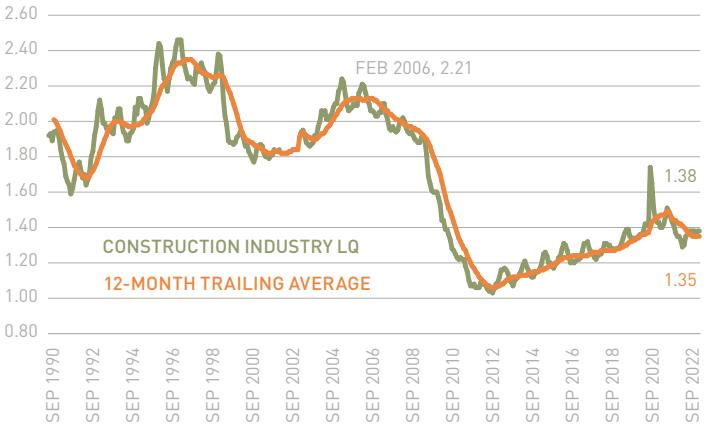


EXHIBIT 11: LAS VEGAS METRO AREA APARTMENT SECTOR NCREIF MVI (% YOY VALUE CHANGE)

Source: NCREIF Market Value Indices. As of Q3 2022.



LAS VEGAS

On the eve of the housing crisis, the construction industry made up a disproportionately large portion of the workforce in Las Vegas. In February 2005, the LQ for the construction sector was 2.24, representing 12% of nonfarm payrolls. BySeptember 2022, the construction industry LQ had fallen to 1.38, or about 7% of jobs. This represents the largest reduction in concentration of any major job sector in Las Vegas. Conversely, Reno, another Nevada market, has experienced lesser employment diversification away from construction, having an LQ of 1.86 in September 2006 and 1.62 in September 2022.

In addition to the construction industry, there are other ways the composition of employment in Las Vegas differs today relative to before the GFC. The TW sector is much larger in 2022—nearly double as a share of jobs compared to 2006. Although extraordinary employment growth in this sector is true across the US, growth in Las Vegas has outpaced the nation, with an increase in LQ from 1.06 in September 2006 to 1.52 in September 2022. This includes overflow demand from tight southern California markets of Los Angeles, Orange County, and Inland Empire. Las Vegas has also experienced small gains in sectors such as education/health services (LQ from 0.49 to 0.67), financial activities (0.90 to 0.92), and professional and business services (0.96 to 1.00).

The leisure and hospitality industry, the largest single industry in Las Vegas, represented an LQ of 3.06 and 29.7% of jobs in September 2006. By September 2022, it had an LQ of 2.51, and represented 26.1% of jobs. The COVID pandemic has likely contributed to this reduction. Nonetheless, with more than a quarter of all jobs in leisure and hospitality, the sector continued to dominate the employment landscape of Las Vegas.

Beginning with the COVID-19 pandemic, the surge in demand for e-commerce goods resulted in accelerated demand for logistics space and substantial growth in the TW employment sector.

EXHIBIT 12: LAS VEGAS METRO AREA EMPLOYMENT BY INDUSTRY

Source: US Bureau of Labor Statistics; New York Life Real Estate Investors Strategy & Research Group analysis. Data not seasonally adjusted. As of September 2022.

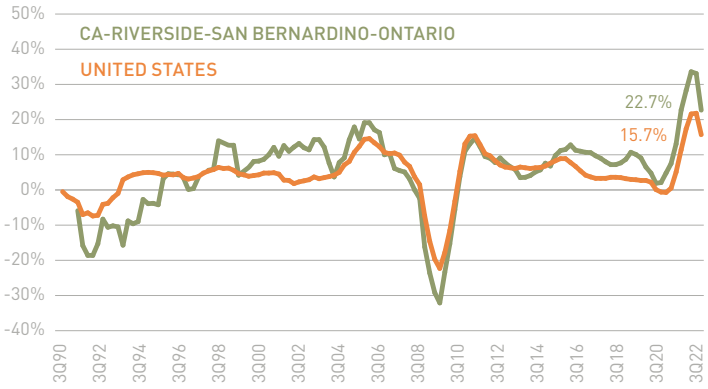
Las Vegas Metro Area - Employment by Industry							
	Workers (000s)			% Share of Workers		Location Quotient	
Industry	Sep 2006	Sep 2022	Growth	Sep 2006	Sep 2022	Sep 2006	Sep 2022
Total Nonfarm	925	1,067	15.3%	100.0%	100.0%	1.00	1.00
Mining, Logging and Construction	111	76	-31.1%	11.9%	7.1%	1.89	1.28
Mining and Logging	1	0	-20.0%	0.1%	0.0%	0.11	0.09
Construction	110	76	-31.2%	11.9%	7.1%	2.05	1.38
Manufacturing	28	29	5.8%	3.0%	2.7%	0.29	0.33
Durable Goods	18	17	-8.8%	2.0%	1.6%	0.30	0.30
Non-Durable Goods	10	13	33.7%	1.0%	1.2%	0.27	0.37
Wholesale Trade	24	25	5.0%	2.6%	2.3%	0.60	0.61
Retail Trade	97	112	15.2%	10.5%	10.5%	0.95	1.03
Transportation, Warehousing, and Utilities	36	71	100.8%	3.8%	6.7%	1.04	1.46
Transportation and Warehousing	32	69	113.0%	3.5%	6.4%	1.06	1.52
Utilities	3	3	-18.2%	0.4%	0.3%	0.89	0.72
Information	11	11	0.9%	1.2%	1.0%	0.55	0.53
Financial Activities	51	57	12.8%	5.5%	5.4%	0.90	0.92
Professional and Business Services	115	156	35.0%	12.5%	14.6%	0.96	1.00
Education and Health Services	61	115	89.1%	6.6%	10.8%	0.49	0.67
Leisure and Hospitality	275	279	1.5%	29.7%	26.1%	3.06	2.51
Other Services	26	29	11.8%	2.8%	2.7%	0.70	0.72
Government	92	107	15.5%	10.0%	10.0%	0.62	0.68

INLAND EMPIRE

Although the Case Shiller Home Price Index does not track the Inland Empire metro area, we can still observe the value decline that occurred for institutional apartment properties.

EXHIBIT 13: INLAND EMPIRE METRO AREA APARTMENT SECTOR NCREIF MVI (% YOY VALUE CHANGE)

Source: NCREIF Market Value Indices. As of Q3 2022.



During the GFC, apartments in Riverside-San Bernardino "Inland Empire" experienced value growth of 19.1% year-over-year at its peak in Q4 2005, before declining -32.1% year-over-year during the trough in Q3 2009. By Q3 2022, Inland Empire apartment values were up 22.7% on a year-over-year basis, greater than the US as a whole.

Are Inland Empire housing and apartment prices likely to decline in a similar fashion in a possible 2022–23 recession?

Like the two previously discussed markets, the construction industry was also overrepresented in the workforce of Inland Empire prior to the GFC. The LQ was 1.88 on the eve of the housing crisis (February 2006). However, by September 2022, the LQ had declined to 1.30. As a share of total jobs, the construction industry declined from 10.1% in 2006, to 6.7% in 2022, or a decline of about -14% in the actual number of jobs.

The Inland Empire economy has diversified over this period and is less reliant on construction jobs and the housing industry as it was in the past. Bakersfield and Fresno, two additional metro areas located in California, also experienced similar employment diversification away from construction jobs, with LQs that have fallen from 1.47 and 1.29 in September 2006 down to 1.07 and 1.08, respectively in September 2022.

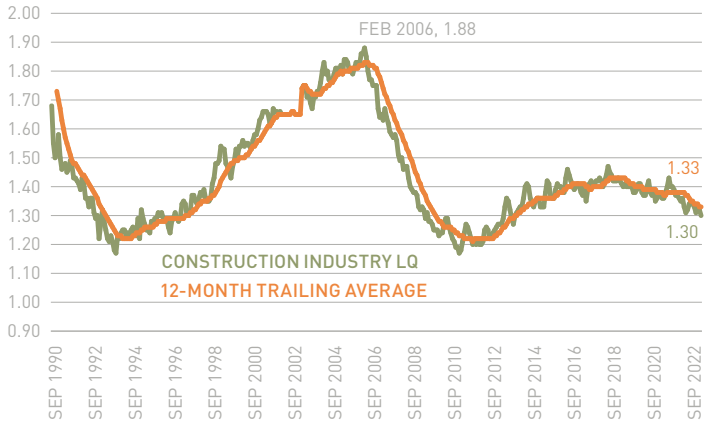
In addition to employment diversification away from construction labor, Inland Empire has been the beneficiary of extraordinary growth in the demand for TW workers. From 2006 to 2022, the TW sector in Inland Empire grew 254%, increasing as a share of all jobs from 4.7% to 12.9%. Prior to the GFC, the sector had an LQ of 1.43, which even in 2006 was an overconcentration relative to the nation.

Southern California has long been a region with a greater preponderance of logistics properties due to its proximity to the ports of Los Angeles and Long Beach, which each individually are the largest two ports in the US. Because Riverside and San Bernardino counties are inland (as the name suggests) and further from the ports, less expensive land and labor costs render this market desirable. In addition to warehouse and distribution center jobs, transportation jobs in trucking, rail, and other categories accompany this form of economic activity.

Beginning with the COVID-19 pandemic, the surge in demand for e-commerce goods resulted in accelerated demand for logistics space and substantial growth in the TW employment sector. In September 2022, the LQ for Transportation and Warehousing was 3.04, the highest in the nation and a substantial increase from pre-GFC, the highest increase among metro areas tracked by the Bureau of Labor Statistics.

EXHIBIT 14: INLAND EMPIRE METRO AREA CONSTRUCTION INDUSTRY LQ

Source: US Bureau of Labor Statistics; New York Life Real Estate Investors Strategy & Research Group.



Less expensive land and labor costs render this market desirable. In addition to warehouse and distribution center jobs, transportation jobs in trucking, rail, and other categories accompany this form of economic activity.

INLAND EMPIRE

EXHIBIT 15: INLAND EMPIRE METRO AREA EMPLOYMENT BY INDUSTRY

Source: US Bureau of Labor Statistics; New York Life Real Estate Investors Strategy & Research Group analysis.
Data not seasonally adjusted. As of September 2022.

Inland Empire Metro Area - Employment by Industry							
	Workers (000s)			% Share of Workers		Location Quotient	
Industry	Sep 2006	Sep 2022	Growth	Sep 2006	Sep 2022	Sep 2006	Sep 2022
Total Nonfarm	1,286	1,665	29.4%	100.0%	100.0%	1.00	1.00
Mining, Logging and Construction	132	113	-14.1%	10.2%	6.8%	1.62	1.22
Mining and Logging	1	1	-7.1%	0.1%	0.1%	0.21	0.19
Construction	130	112	-14.1%	10.1%	6.7%	1.75	1.30
Manufacturing	124	99	-19.8%	9.6%	5.9%	0.93	0.71
Durable Goods	87	62	-28.8%	6.7%	3.7%	1.03	0.71
Non-Durable Goods	37	37	1.4%	2.9%	2.2%	0.76	0.70
Wholesale Trade	54	71	30.8%	4.2%	4.3%	0.98	1.10
Retail Trade	172	181	5.5%	13.4%	10.9%	1.20	1.06
Transportation, Warehousing, and Utilities	66	219	231.4%	5.1%	13.2%	1.39	2.87
Transportation and Warehousing	61	214	254.4%	4.7%	12.9%	1.43	3.04
Utilities	6	5	-12.3%	0.4%	0.3%	1.11	0.85
Information	16	10	-36.1%	1.2%	0.6%	0.55	0.30
Financial Activities	51	46	-9.6%	4.0%	2.8%	0.65	0.47
Professional and Business Services	145	178	22.7%	11.3%	10.7%	0.87	0.73
Education and Health Services	141	267	90.0%	10.9%	16.0%	0.82	1.00
Leisure and Hospitality	126	182	44.3%	9.8%	11.0%	1.01	1.05
Other Services	42	45	8.4%	3.2%	2.7%	0.82	0.73
Government	219	253	15.6%	17.0%	15.2%	1.06	1.04

Consequently, because the Inland Empire economy is more diversified, principally away from the construction industry, the negative effects may be muted relative to during the GFC.

TAMPA

Tampa is another example of a market that experienced a more severe housing boom and bust than the rest of the nation during the GFC. In the three years prior to the pre-GFC peak, home values in Tampa increased 73.0%, before declining -47.6% in the wake of the GFC. In the US as a whole, home values rose 28.9% in the three years leading up to the national housing market peak in February 2007, but subsequently fell -26.0% from peak to trough.

The Tampa economy has diversified away from construction jobs and is not as reliant on them or the housing industry as it was in the past.

TAMPA

EXHIBIT 16: TAMPA METRO AREA CASE-SHILLER HOME PRICE INDEX (FEBRUARY 2020)

Source: Case-Shiller S&P Dow Jones Indices. As of August 2022.

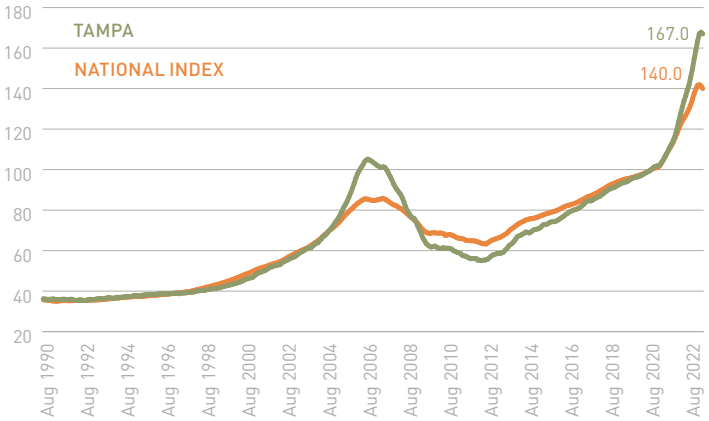
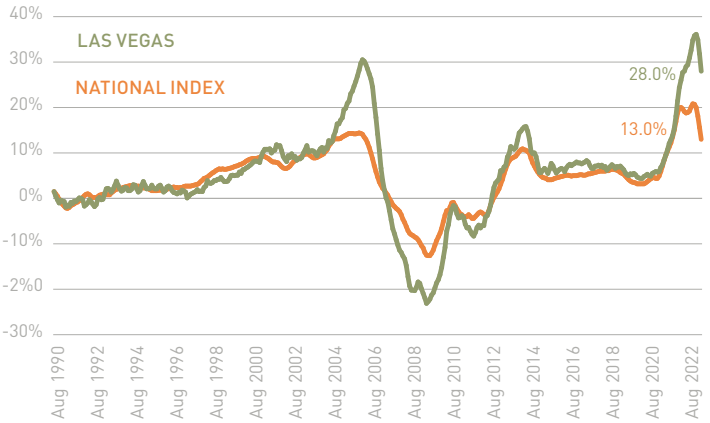


EXHIBIT 17: TAMPA METRO AREA CASE-SHILLER HOME PRICE INDEX (% YOY VALUE CHANGE)

Source: Case-Shiller S&P Dow Jones Indices. As of August 2022.



In the run-up to the GFC, growth in home values in Tampa reached a peak in November 2005, when home values increased +30.7% on a year-over-year basis. At the lowest point of the GFC, Tampa home values had declined -23.3% year-over-year.

During the GFC, the value of institutional apartment properties in Tampa experienced similar dynamics to home values. Tampa apartment property values increased 35% year-over-year at its peak in Q1 2006, before declining -25.1% year-over-year during the trough in Q3 2009. By Q3 2022, Tampa apartment values were up 29.4% year-over-year, nearly double the rate of growth in the US.

Are Tampa housing and apartment prices likely to decline in a similar fashion in a possible 2022–23 recession?

The theme of a reduction in the concentration of construction jobs in Sand State markets since pre-GFC is true in Tampa as well. The construction industry LQ was 1.40 on the eve of the housing crisis (February 2006). However, as of September 2022 it has declined to 1.15. As a share of all jobs, this is a decline from 7.7% to 6.0%. This demonstrates that the Tampa economy has diversified away from construction jobs and is not as reliant on them or the housing industry as it was in the past. This employment shift in Tampa is also characteristic of other metro areas in Florida, a *Sand State*, including Orlando, Miami, Tampa, and Jacksonville. Orlando, which had the heaviest reliance on construction labor, has also seen the greatest improvement with job LQ down from 1.49 in September 2006 to 1.09 in September 2022.

In addition to a smaller construction industry, Tampa has seen the manufacturing (both durable and non-durable goods) industry decline in size, as well as the Information sector. Conversely, the financial activities jobs sector has grown from an LQ of 1.37 to 1.58. Although the number of transportation, warehousing, and utilities jobs increased nearly 50% from 2006 to 2022, the LQ only increased from 0.67 to 0.68.

Of the four major Florida metro areas, Tampa has the lowest TW LQ, perhaps reflecting the geographic logistical challenges of the Tampa-St. Petersburg-Clearwater, FL metro area and its non-central Florida location. Tampa has a port that services both passenger cruise and cargo traffic. As a cargo port, the Port of Tampa Bay handled 181,000 TEUs[4] in fiscal year 2021, only about 4% of the traffic that major US ports such as Long Beach or New York/New Jersey processed during that time.

EXHIBIT 18: TAMPA METRO AREA CONSTRUCTION INDUSTRY LQ

Source: US Bureau of Labor Statistics; New York Life Real Estate Investors Strategy & Research Group.

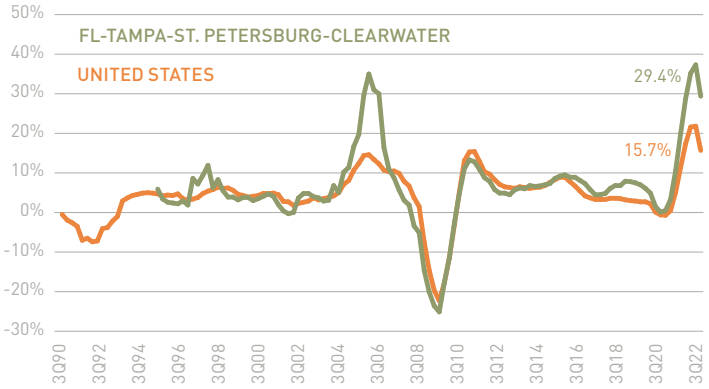


EXHIBIT 19: TAMPA METRO AREA APARTMENT SECTOR NCREIF MVI (% YOY VALUE CHANGE)

Source: NCREIF Market Value Indices. As of Q3 2022.

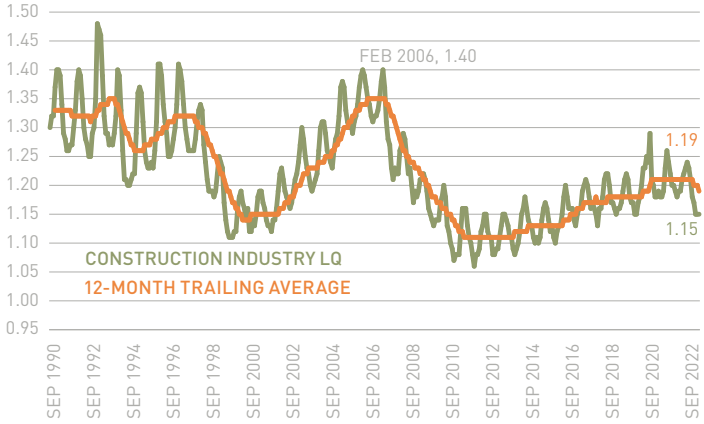


EXHIBIT 20: TAMPA METRO AREA EMPLOYMENT BY INDUSTRY

Source: US Bureau of Labor Statistics; New York Life Real Estate Investors Strategy & Research Group analysis. Data not seasonally adjusted. As of September 2022.

Tampa Metro Area - Employment by Industry							
	Workers (000s)			% Share of Workers		Location Quotient	
Industry	Sep 2006	Sep 2022	Growth	Sep 2006	Sep 2022	Sep 2006	Sep 2022
Total Nonfarm	1,237	1,476	19.4%	100.0%	100.0%	1.00	1.00
Mining, Logging and Construction	95	88	-7.7%	7.7%	6.0%	1.22	1.07
Mining and Logging	1	0	-50.0%	0.0%	0.0%	0.09	0.05
Construction	95	88	-7.4%	7.7%	5.9%	1.32	1.15
Manufacturing	79	72	-8.9%	6.4%	4.9%	0.61	0.58
Durable Goods	52	49	-7.1%	4.2%	3.3%	0.65	0.63
Non-Durable Goods	26	23	-12.5%	2.1%	1.6%	0.56	0.49
Wholesale Trade	53	62	16.1%	4.3%	4.2%	1.01	1.09
Retail Trade	150	167	11.7%	12.1%	11.3%	1.09	1.11
Transportation, Warehousing, and Utilities	31	46	49.5%	2.5%	3.1%	0.67	0.68
Information	32	29	-9.2%	2.6%	1.9%	1.16	0.98
Financial Activities	104	136	31.1%	8.4%	9.2%	1.37	1.58
Professional and Business Services	201	275	36.9%	16.2%	18.6%	1.25	1.27
Education and Health Services	162	230	41.8%	13.1%	15.6%	0.99	0.97
Leisure and Hospitality	132	170	29.0%	10.6%	11.5%	1.10	1.10
Other Services	47	50	6.2%	3.8%	3.4%	0.95	0.90
Government	152	153	0.3%	12.3%	10.3%	0.77	0.71

MIAMI

In addition to Tampa, Miami experienced a severe housing boom and bust during the GFC. In the three years prior to the pre-GFC peak, home values in Miami increased 67.5%, before declining -51.0% in the wake of the GFC. In the US as a whole, home values rose 28.9% in the three years leading up to the national housing market peak in February 2007, but subsequently fell -26.0% from peak to trough.

EXHIBIT 21: MIAMI METRO AREA CASE-SHILLER HOME PRICE INDEX (FEBRUARY 2020)

Source: Case-Shiller S&P Dow Jones Indices. As of August 2022.

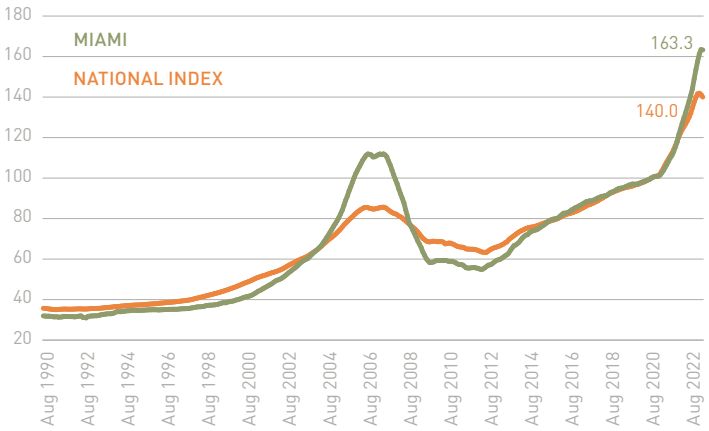
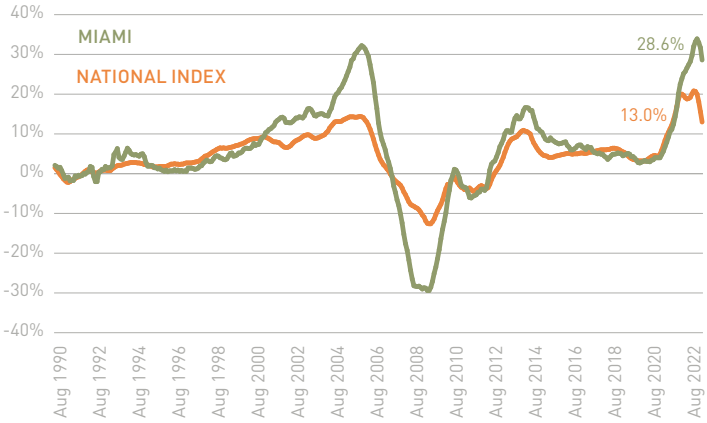


EXHIBIT 22: MIAMI METRO AREA CASE-SHILLER HOME PRICE INDEX (% YOY VALUE CHANGE)

Source: Case-Shiller S&P Dow Jones Indices. As of August 2022.



In the run-up to the GFC, growth in home values in Miami reached a peak in November 2005, when home values increased +32.3% on a year-over-year basis. At the trough point of the GFC, Miami home values had declined -29.5% relative to a year prior.

During the GFC, the value of institutional apartment properties in Miami experienced similar dynamics to home values. Miami apartment property values increased 28.7% year-over-year at its peak in Q4 2006, before declining -29.1% year-over-year during the trough in Q3 2009. By Q3 2022, Miami apartment values were up 28.4% year-over-year, outperforming the nation as a whole.

Are Miami housing and apartment prices likely to decline in a similar fashion in a possible 2022–23 recession? The theme of a reduction in the concentration of construction jobs in Sand State markets since pre-GFC is true in Miami as well. The construction industry LQ was 1.28 on the eve of the housing crisis (February 2007). However, by September 2022 it had declined to 1.01. As a share of all jobs, this is a decline from 7.0% to 5.2%. This demonstrates that the Miami economy has diversified away from construction jobs and is not as reliant on them or the housing industry as it was in the past. As noted earlier, this employment shift in Miami is also characteristic of other metro areas in Florida.

In the run-up to the GFC, growth in home values in Miami reached a peak in November 2005, when home values increased +32.3% on a year-over-year basis.

At the trough point of the GFC, Miami home values had declined -29.5% relative to a year prior.

EXHIBIT 23: MIAMI METRO AREA CONSTRUCTION INDUSTRY LQ

Source: US Bureau of Labor Statistics; New York Life Real Estate Investors Strategy & Research Group.

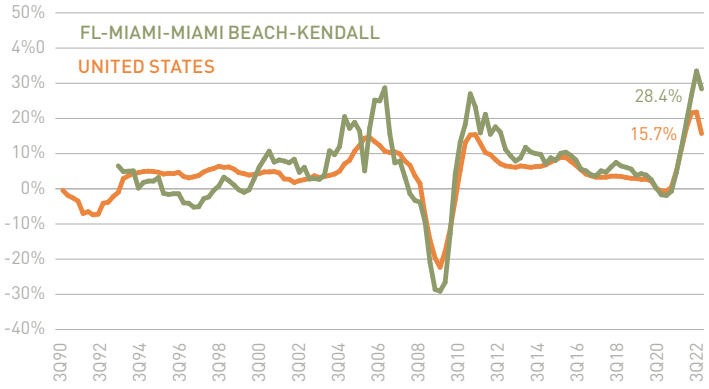
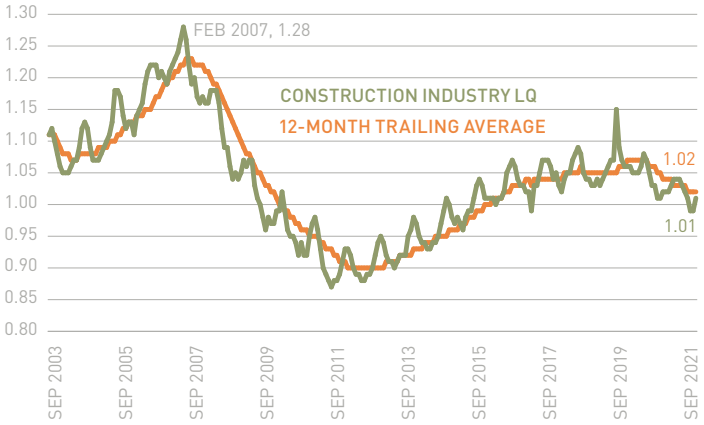


EXHIBIT 24: MIAMI METRO AREA APARTMENT SECTOR NCREIF MVI (% YOY VALUE CHANGE)

Source: NCREIF Market Value Indices. As of Q3 2022.



MIAMI

Financial services, tech firms, and adjacent PBS companies have created or increased their presence in the Miami metro area.

Miami's manufacturing employment base has also declined, from an LQ of 1.21 in 2006 to 1.01 in 2022. The Professional and Business Services sector has grown from 15.3% of all jobs in 2006, to 17.3% in 2022. Although, the financial activities sector share of jobs declined between 2006 and 2022, announcements from financial firms relocating or increasing their presence in the Miami area means the number of these jobs will likely increase. In June, Chicago-based Citadel Securities announced plans to move its headquarters to Miami. This announcement comes after other financial services, tech firms, and adjacent PBS companies created or increased their presence in the Miami metro area.

Similar to elsewhere in the country, the number of TW jobs increased substantially over the past decade. This is particularly true in Miami, which has grown as a logistics hub for a rapidly growing population. With that, has come a 66.6% increase in transportation, warehousing, and utilities jobs between 2006 and 2022.

EXHIBIT 25: MIAMI METRO AREA EMPLOYMENT BY INDUSTRY

Source: US Bureau of Labor Statistics; New York Life Real Estate Investors Strategy & Research Group analysis. Data not seasonally adjusted. As of September 2022.

Miami Metro Area - Employment by Industry							
	Workers (000s)			% Share of Workers		Location Quotient	
Industry	Sep 2006	Sep 2022	Growth	Sep 2006	Sep 2022	Sep 2006	Sep 2022
Total Nonfarm	2,402	2,825	17.6%	100.0%	100.0%	1.00	1.00
Mining and Logging	1	1	12.5%	0.0%	0.0%	0.06	0.08
Construction	168	147	-12.9%	7.0%	5.2%	1.21	1.01
Manufacturing	102	96	-5.4%	4.2%	3.4%	0.41	0.40
Wholesale Trade	146	156	7.0%	6.1%	5.5%	1.42	1.43
Retail Trade	300	329	9.6%	12.5%	11.6%	1.12	1.14
Transportation, Warehousing, and Utilities	94	157	66.6%	3.9%	5.6%	1.07	1.21
Information	52	53	3.1%	2.1%	1.9%	0.98	0.95
Financial Activities	184	205	11.3%	7.7%	7.3%	1.25	1.24
Professional and Business Services	367	490	33.5%	15.3%	17.3%	1.17	1.18
Education and Health Services	310	434	39.9%	12.9%	15.4%	0.97	0.96
Leisure and Hospitality	246	332	34.9%	10.2%	11.7%	1.05	1.13
Other Services	106	121	14.3%	4.4%	4.3%	1.12	1.15
Government	326	304	-6.7%	13.6%	10.8%	0.85	0.74

WHAT'S NEXT FOR SAND STATES?

A housing correction has begun and will likely have a negative impact on the economic health and commercial real estate values of noted Sand State metros. Higher borrowing costs, general unaffordability, stagnant real wages, and a possible recession are likely causes. It would follow that a housing decline would likely have a particularly adverse effect on the economic health and commercial real estate values of markets more severely impacted by a recalibration in housing prices.

In the wake of the GFC, certain metros in the Sand States suffered disproportionally. Fewer barriers to construction including more easily available developable land and lower regulatory hurdles expose these metros to above average risk of overbuilding and boom/bust cycles in the construction industry relative to other markets. When homebuilding declined during the GFC, an overconcentration of construction labor disproportionately impacted the overall economic health of these markets.

Although there are factors that may continue to render some markets exposed to these cycles, the economies of the five discussed subject metros have become more diversified, notably, away from the construction industry. This set of circumstances may result in a future setback that is smaller in magnitude relative to the one experienced during the Global Financial Crisis.

ABOUT THE AUTHORS

Stewart Rubin is Senior Director and Head of Strategy and Research, and Dakota Firenze is a Senior Associate, for New York Life Real Estate Investors, a division of NYL Investors LLC, a wholly-owned subsidiary of New York Life Insurance Company.[5]

NOTES

1 Inland Empire is a term used to refer to the Riverside–San Bernardino–Ontario metro area

2 Their abundance of either beaches or deserts has led some observers to refer to them as "Sand States"

3 Inland Empire (Riverside/San Bernardino) market is not tracked by the Case Shiller Home Price Index

4 TEU, or a twenty-foot equivalent unit, is a measure of volume in units of twenty-foot-long shipping containers. Large container ships typically transport 18,000–21,000 TEUs.

5 NYL Investors LLC: The information presented has been prepared by Real Estate Investors for informational purposes only and sets forth our views as of this date. The underlying assumptions and our views are subject to change. This does not constitute investment advice and should not be used as a basis for any investment decision. There is no guarantee that market expectation will be achieved.

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REVIEWER RESPONSE

Writing on the likely cusp of recession, Rubin and Firenze offer a timely reflection on the differential impact of the Great Financial Crisis on five American markets and how these markets have evolved in the years since.

A common thread connecting Phoenix, Las Vegas, the Inland Empire, Tampa, and Miami during the housing boom was a heavy reliance on the residential sector and home construction as drivers of economic activity and employment. With boom turning to bust, these markets are cited by the authors for their particularly severe housing market downturns and contributions to the cascade of fractures in the US financial system.

More than fifteen years after the Sand States' housing apex, the authors point to evidence of greater diversification in economic activity and a lower reliance on housing as reasons to expect they will fare better this time around. More measured housing activity, observable in local and national data, is a feature of markets across the country. It also coincides with other key differences between the GFC and the current cycle which argue for lower vulnerability in the housing sector. During the former, housing was oversupplied and investment demand surpassed real demand. Presently, housing is relatively undersupplied, particularly in the workforce and affordable segments; real demand was robust until succumbing to the most abrupt increase in mortgage rates since the early 1980s.

Owing in part to changes in the regulatory framework, today's outstanding mortgages pool compares favorably to any housing boom benchmark. While single-family homeownership faces significant headwinds, housing's more balanced contribution to activity—in the authors' focus markets and elsewhere—rightly suggest it will exert less downward pressure on the outlook.

– Sam Chandan, PhD, FRICS, FRSPH
Member, Summit Journal Editorial Board

Professor of Finance & Director, Stern Center for Real Estate Finance, New York University Stern School of Business

Sam Chandan is not a contributor to the "Sand States" article and not affiliated with NYL Investors LLC.

The economies of the five metros have become more diversified, notably, away from the construction industry. This set of circumstances may result in a future setback that is smaller in magnitude relative to the one experienced during the Global Financial Crisis.

STORM WARNING

Rajeev Ranade
Partner
Climate Core Capital

Owen Woolcock
Partner
Climate Core Capital

Not all storms are the same, and some are so tragic that they force a moment of universal recalibration. Hurricane Ian was one of those storms—but what does that mean for real estate?

Climate change looms over the real estate investment community, but the industry struggles to quantify the risk to cash flow and valuations. Sometimes an event comes along, that no matter how tragic, acts as a moment of important recalibration. In the years to come, Hurricane Ian, which made its deadly landfall in Florida in summer 2022, may prove to be one of these critical events.

Climate Core Capital thinks about climate, data, and the relative risk and readiness of our cities each day. The firm watched events unfold and identified a series of observations that matter for the here and now, but also the coming investment cycle—and for future cycles that are likely to be impacted by environmental events of equal or greater ferocity.

Firstly, what was the scale of Hurricane Ian and why was its force so unprecedented?

MAGNITUDE

Ian is the thirty-seventh major hurricane (Category 3+) to strike the state of Florida since 1851 and the fifteenth to be rated Category 4 or 5 at the time it made landfall in the United States.

Ian made landfall as a hurricane three times. It first came ashore as a 125-mph Category 3 storm near La Coloma, Cuba, early on September 27, 2022. On the afternoon of September 28, the storm struck Cayo Costa, Florida, as a Category 4 with 150-mph winds. Two days later, Ian made its final landfall near Georgetown, South Carolina, as a Category 1 at 85 mph.

Rising ocean water piled up onshore—up to twelve feet in some places. A record-breaking storm surge of more than seven feet entered parts of Fort Myers, Florida, at nearly twice the height of the previous record set by Hurricane Gabriel in 2001.Fourteen inches of rain in twelve hours is considered a one-in-a-thousand-year event in this corridor of southwestern Florida. Southern Sarasota County exceeded fourteen inches in twelve hours, and some reports suggested as much as twenty inches in some locations. Ninety-two people lost their lives in the United States as a result of the storm, and most of the reported deaths were drownings in Florida.

Around 2.7 million customers were in the dark at peak outage in Florida. That adds up to about 25% of the state, markedly higher than for Category 5 Hurricane Michael, which left 4% of the state without power in 2018. North Carolina recorded around 350,000 people without power at its peak, and South Carolina had around 218,000. Virginia topped 100,000. Georgia added about 15,000 out at peak.

Ian's web of damage was unusually widespread as the hurricane drove storm surge onto coastal areas and triggered river overflows and flash flooding across inland Florida, where almost nobody expects water stress, and subsequently, has no flood insurance.

CONTEXT

- At 150 mph, Ian's landfall wind speed in Florida ties for the fifth strongest on record in the United States, a mark shared by seven other storms. It ties for the fourth-highest landfall speed on record in Florida. The storm made landfall very close to where Charley (2004) did when it also struck with 150 mph winds.
- The yearly precipitation averaged over the whole Earth is about 39 inches (100 cm), but this is distributed very unevenly. Nevertheless, more than a third of our planet's annual rainfall fell in Southwest Florida in just half a day.
- Previously, storms tended to weaken as they neared the northern Gulf Coast due to cooler waters or stronger jet stream winds. But that did not happen with Hurricanes Michael (2018), Laura (2020), Ida (2021) or Ian (2022). A disturbing trend is emerging.

HISTORICAL TREND

With thirteen named storms as of November 1, 2022, the Atlantic hurricane season in 2022 actually ran below the year-to-date ten-year average (sixteen named storms) and most recent thirty-year climatology (thirteen; 1991–2020).

What are we to make of this last fact? It leads some to conclude tropical storm patterns remain in a somewhat consistent band, and there will continue to be hurricane seasons of varying severity. This misunderstands two key points. Firstly, even if the simple number of hurricanes remains constant, their intensity and speed of formation are increasing in an alarming direction. Secondly, and most crucially, more people, households, and businesses have moved in ever greater numbers into the path of exposure.

For the way we currently approach urban design, no city can cope with its average annual rainfall falling in half a day—and that's without considering the impacts of storm surge bringing more water into coastal areas from the sea. It's important to appreciate the wider context of what major population centers will contend with as they face more intense and frequent hazards.

The second point is arguably even more critical for real estate investors to acknowledge: the frequency of "the Big One" in the market where you own real estate is not so important if the financial system is recognizing the risk more accurately. Why? Because repricing always follows risk recognition.

1. Even if the simple number of hurricanes remains constant, their intensity and speed of formation are increasing in an alarming direction.

2. More people, households, and businesses have moved in ever greater numbers into the path of exposure.

THE PRICE OF SUNSHINE

Ian struck the state of Florida during a very precarious time for the state's insurance market. Recent rating agency reviews of numerous insurance carriers' ability to maintain viable business operations in Florida had already put a strain on the overall market, and media reporting has indicated half a dozen bankruptcies in 2022 even prior to Ian.

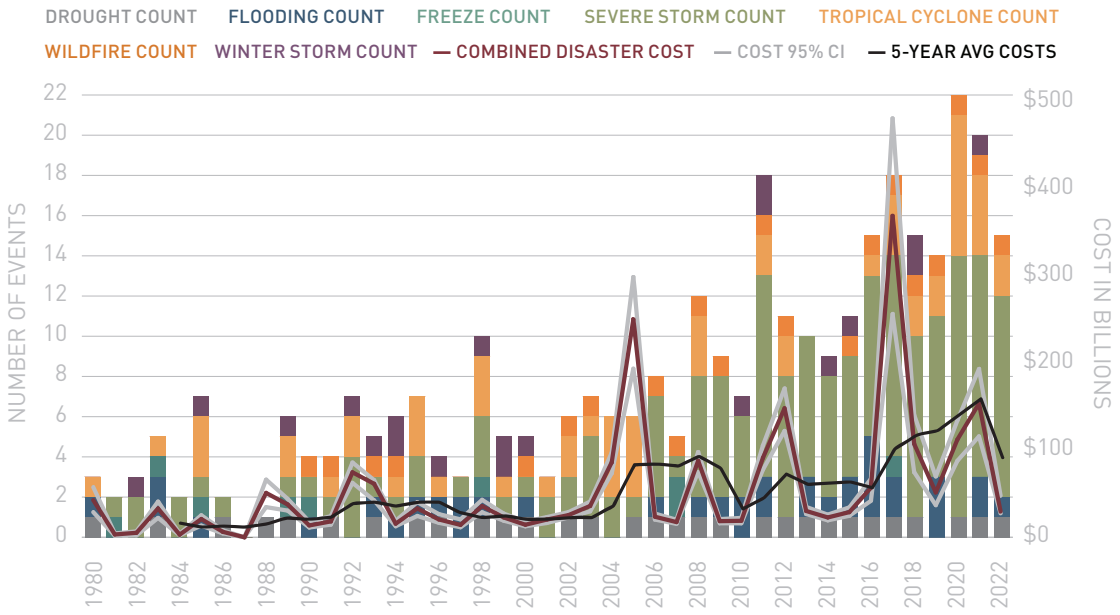
This has resulted in a rapid rise in the number of active policies in Florida's state-run Citizens Insurance program, which is considered to be the carrier of "last resort" for residential and commercial entities. According to Climatewire, the number of its policyholders has doubled in the past two years and recently passed one million for the first time since 2014.[1] The average property insurance rate in Florida is $4,231—nearly triple the US average of $1,544, according to the Insurance Institute. At what point do workers, businesses, or retirees decide this is an operational expense that outweighs the quality of life?

Behind each natural disaster is a financial market that needs to reprice, reevaluate, and rebalance. The practical side of this, however, is not easy. Markets (and investors) continue to back thirty-year mortgages and long-duration municipal bonds in locations like coastal Florida with no climate risk premium. More than 7.2 million single and multifamily residences were in Ian's path with high flash flood risk, according to risk analytics firm CoreLogic.[2] But the mortgages, insurance products and bonds supporting these locations are securitized into enormously deep pools with geographic diversity across the whole country. Up until this point, the theory has persisted that the US can withstand a few billion-dollar disasters, given our scale of liquidity—but how long will this be the case?

The problem is the frequency of disaster risk is only moving in one direction (credit: NOAA):

EXHIBIT 1: US BILLION-DOLLAR DISASTER EVENTS: 1990–2021 (CPI-ADJUSTED)

Source: NOAA



The frequency of "the Big One" in the market where you own real estate is not so important if the financial system is recognizing the risk more accurately.

Why? Because repricing always follows risk recognition.

"THERE'S NO SUCH THING AS A NATURAL DISASTER"

Modern natural disasters occur at the intersection of natural events and human decisions. Ian is a story with many narratives, but one such narrative is that of a high-end hurricane making landfall near a metropolitan area that constructed more than four hundred miles of shallow canals at the wide mouth of a river as a habitat for 760,000 people.

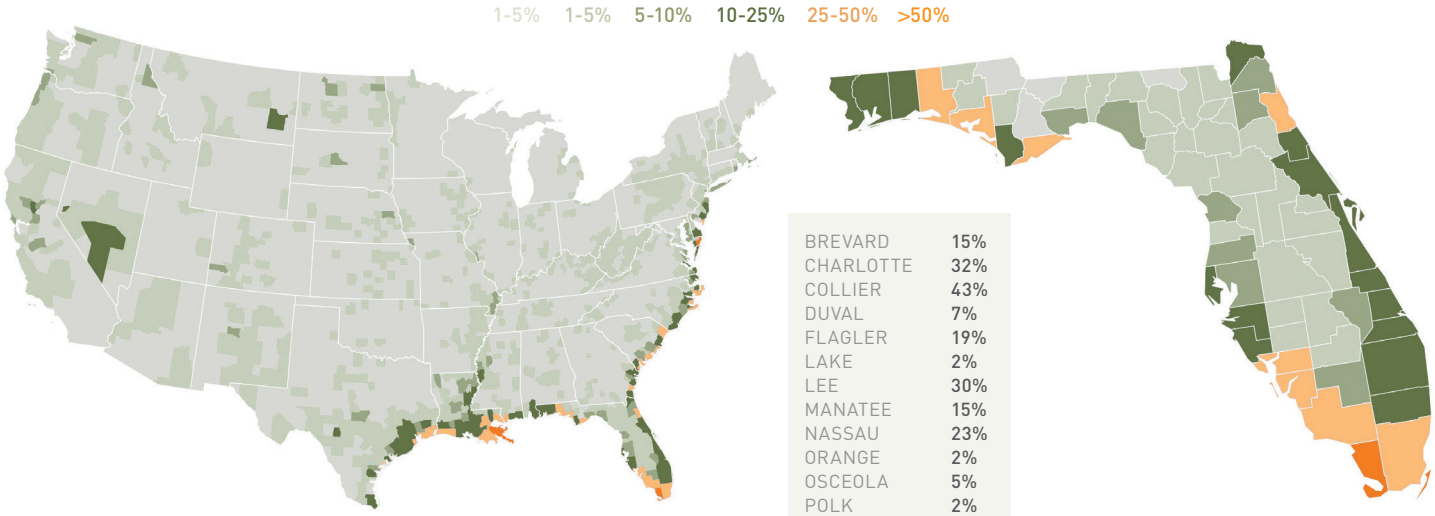
It's also important to remember many of Hurricane Andrew's (1992) legacies. One of these is that South Florida became home to some of the best building code requirements in the US. Another is that Andrew effectively bankrupted the Florida insurance industry and led insurers to develop sophisticated catastrophe modelling to better price their risk exposure. We cannot rule out similar market disruption, long-run risk innovation, and "new normal" market dynamics brought on in the wake of Ian.

We all need to think deeply on the extent to which American communities in high-risk corridors can cope with intergenerational risk exposure. The map below (credit: Steve Bowen) provides an updated look at current National Flood Insurance Program (NFIP) take-up as of 31 August 2022.

We all need to think deeply on the extent to which American communities in high-risk corridors can cope with intergenerational risk exposure.

EXHIBIT 2: NATIONAL FLOOD INSURANCE PROGRAM (NFIP): TAKE-UP PER COUNTY

Source: Steve Bowen. As of August 31, 2022.



BREVARD	15%
CHARLOTTE	32%
COLLIER	43%
DUVAL	7%
FLAGLER	19%
LAKE	2%
LEE	30%
MANATEE	15%
NASSAU	23%
ORANGE	2%
OSCEOLA	5%
POLK	2%
SARASOTA	21%
SEMINOLE	3%
ST. JOHNS	27%
VOLUSIA	15%

The problem is the frequency of disaster risk is only moving in one direction.

With storm surge having caused devastating impacts in Charlotte, Lee, and Collier counties, it's worth reflecting on how much of this disruption will be uninsured—either because of the risk calculus of an individual homeowner, or pricing, or a poorly designed system that doesn't sufficiently protect those who do participate.

Climate change does not discriminate. The broader reality we continue to drive as a firm is that information is not equally shared, incentives are not aligned, and the financial system is presently unable to recognize the risk accurately. The repricing is underway in localized settings, even if large investment products overlook the delta.

PREPARING FOR FUTURE STORMS

What does all this mean for large institutional investors, many of whom could be asking any of the following questions:

- If I have followed the Sunbelt thesis of the last fifteen years and allocated into higher climate risk markets, what is the right way to think about rebalancing or divestment?
- In the markets where I invest, will public and private stakeholders coordinate toward resilience?
- Do investment time horizons align with my risk appetite?
- Should climate change frame my underwriting and perception on equity, debt, and the capital stack?
- How do I stay informed and engaged on evolving climate risks, and in what ways can I 'in-house' the expertise?

As Margaret Atwood famously said: "It's not climate change, it's everything change." Financial and capital markets will decide if Hurricane Ian is a moment of recalibration and the beginning of a new approach to a pervasive risk across future market cycles. It's time to ask: Am I being adequately compensated for my risk?

ABOUT THE AUTHORS

Rajeev Ranade and Owen Woolcock are Partners at Climate Core Capital, a real estate and alternative investment management firm focused on climate change and climate risk funds.

NOTES

[1] https://www.politico.com/news/2022/10/10/ian-cracks-floridians-nest-eggs-00060759

[2] https://www.corelogic.com/intelligence/a-history-making-hurricane-brings-high-flash-flood-risk-to-more-than-7-2-million-homes-in-florida/

REVIEWER RESPONSE

At a time when demographic patterns in many parts of the world involve movement of people and businesses toward locations vulnerable to climate-related disasters, Rajeer Ranade and Owen Woolcock of Climate Core Capital are asking real estate investors many pertinent questions. These include whether climate risk is priced into the cash flow assumptions on which properties are being underwritten as well as the valuation metrics being applied to these cash flows. They have an appropriate focus on insurance, wondering whether a shift in the cost and availability of insurance in markets like Florida, prone to both wind and flood, has been factored into operating cost assumptions.

Ranade and Owen posit that Hurricane Ian, which hit the Gulf Coast of Florida and South Carolina in September and is expected to be one of the costliest catastrophes in US history, may represent a tipping point for real estate investors. Will this storm prompt investors to ask a series of what if questions about the value of their holdings? What if Ian causes a reversal in migration trends, causing a decline in the labor pool available to support an office investment or in the size of the trade area for an apartment or a retail asset? What if property taxes double, triple, quadruple as local governments rebuild infrastructure to reflect the reality of wind, storm surge and inundation? What if capital market demand goes negative?

In light of the rapid escalation in the number of extreme weather events, in their magnitude, and the speed at which they occur, the authors suggest that investors ask themselves whether it is time to divest from locations that may represent more risk than they underwrote. We concur, suggesting that investors set their risk tolerance and use this to guide portfolio construction.

– Mary Ludgin, PhD
Member, Summit Journal Editorial Board
Head of Global Investment Research, Heitman

PACIFIC THEATER

Simon Treacy
CEO, Private Equity Real Estate
CapitaLand Investment

Yu Jin Ow
Vice President, Group Strategy and Research
CapitaLand Investment

The Asia-Pacific region is already home to some of the world's largest economies and now set to lead global economic growth. What's moving the needle now for the APAC region?

In these post-COVID times of moderate economic growth and tighter monetary policies globally, the world could see a bigger wave of progression for the Asia-Pacific region (APAC). Emerging Asian countries are blazing the trail in global urbanization, on the back of the outsized scale of rural-urban migration. At the same time, consumer spending growth is forecast to be strongest globally in the emerging markets of China, India, and Southeast Asia into the next decade.

APAC has been the leading region through all economic downcycles over the last two decades, proving its economic resilience, and is set to continue this positive trajectory towards achieving robust economic gains in the next few years, with the region projected to contribute more than 40% of global GDP by 2030.

There are three key themes for investors to note:

1. APAC tailwinds could mitigate global headwinds
2. Divergence in monetary policies between the East and West
3. Property returns exhibit more nuances at the country and sector level

1. APAC TAILWINDS AND GLOBAL HEADWINDS

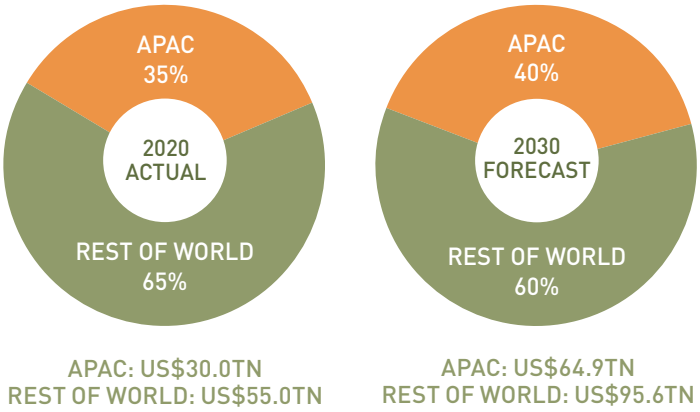
The global economy is facing one of the most challenging periods in several decades, with considerable headwinds stemming from a myriad of events, including geopolitical conflicts, the COVID-19 pandemic, supply-chain disruptions, decade-high inflation, and accelerated tightening of monetary policies.

The competitive advantages of APAC place the region in a strategic position as an attractive investment destination to institutional investors for the long term and should serve to limit any potential downside from the uncertainties in the global environment. Positive macro fundamentals and favorable secular trends are likely to continue to drive incremental demand for quality real estate products, underpinned by:

- APAC's dominance in global economic growth, led by China, India, and Southeast Asia: Growth in APAC is expected to average 4.4% through 2022-26, and to considerably outpace the global (3.1%), US (2.2%) and Eurozone (2.1%) averages.[1]
- Australia (3.2%) and Singapore (2.8%) are forecast to be among the fastest growing developed economies, while half of the top ten largest economies globally will be in APAC over the next decade.

EXHIBIT 1: APAC SHARE OF GLOBAL GDP

Source: Oxford Economics; CLI Group Research. As of June 2022.



APAC has emerged as the leading region through all economic downcycles since 2000, including the dot-com bust, the Global Financial Crisis and the height of the COVID outbreak in 2020. The region is increasingly more dominant and will make up 40% of global GDP by 2030, up from 28% and 35% in 2010 and 2020, respectively *(Exhibit 1)*. The investible real estate universe in the APAC region will grow[2] in tandem with the sustained robust growth of its economy, with a further boost from its incremental market share of the global economy.

Emerging APAC countries—namely, China (16.6 million annual increase in urban population), India (9.7 million increase), and Indonesia (3.5 million increase)—are expected to lead the rise in urbanization rates globally into the next decade.[3] The sheer scale of rural-urban migration in these countries will present an outsized potential demand pool for real estate and infrastructure products.

Rapid expansion[4] of the tertiary sector of major economies in APAC considerably outpaced their US and European counterparts over the last decade and this trend is expected to persist. Annual services sector growth through 2022–30 is projected to be the strongest in India (8.1%) and China (5.3%).[5] Australia (3.6%) and Singapore (2.9%) are projected to lead developed countries globally through the same period, compared to the US (2.2%), UK (2.1%), and Germany (1.4%).

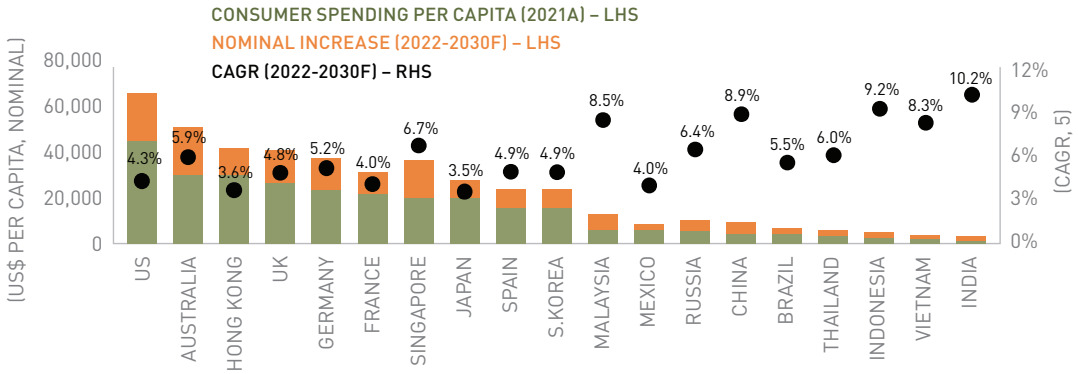
On a per-capita basis, consumer spending growth rates over 2022–30 are forecast to be strongest in the emerging markets of China, India and Southeast Asia, underpinned by favorable demographics and rapid urbanization *(Exhibit 2)*. Australia and Singapore are projected to lead growth among the developed markets, in part driven by sustained healthy economic growth, as well as stable and tight employment market.

Moreover, there are several additional structural trends which we believe will contribute to the underlying strength and attractiveness of the real estate sector in APAC over the next few years, including(1) sustained infrastructure spending and improvements; (2) rise of environmental, social, and governance (ESG) standardization; (3) digitalization and automation; and (4) demand-supply mismatch due to elevated flight-to-quality requirements.

The region is increasingly more dominant and will make up 40% of global GDP by 2030, up from 28% and 35% in 2010 and 2020, respectively.

EXHIBIT 2: GROWTH IN NOMINAL CONSUMER SPENDING PER CAPITA

Source: Bloomberg; Oxford Economics; CLI Group Research. As of June 2022.



Inflation is at multi-decade highs in the US and the Eurozone, but is relatively benign in parts of Asia.

MONETARY POLICY: EAST VS. WEST

Inflation is at multi-decade highs in the US and the Eurozone, but relatively benign in parts of Asia (i.e., China and Japan). Inflationary pressures, however, are more prevalent in select higher growth developed countries (e.g., Singapore and Australia), albeit still at comparatively manageable levels.

Widening divergence in monetary policies globally is increasingly evident, as central banks move to deal with the incessantly high inflation. There is a noteworthy degree to which monetary policies may be out of sync in parts of APAC with the rest of the global economy *(Exhibit 3)* and the dispersion can offer interesting and attractive risk adjusted investment opportunities in the region.

EXHIBIT 3: GLOBAL MONETARY POLICY DIVERGENCE IS EVIDENT

Source: EIU; HSBC; Citi; Financial Times; CLI Group Research. As of July 2022.

	CENTRAL BANK	MONETARY POLICY STANCE
US	U.S. Federal Reserve (Fed)	**Accelerated tightening** Raised Fed rates by 75bps in June 2022, the biggest increase since 1994.
EU	European Central Bank (ECB)	**Gradual tightening** Indicated a possible rate increase of 25bps in Q3 2022, and more.
APAC	People's Bank of China (PBOC)	**Gradual easing** Issued a 25bps cut to the reserve requirement ratio in April 2022; reduced the 5 yr loan prime rate by 15bps to 4.45% in May 2022.
	Reserve Bank of India (RBI)	**Gradual tightening** Raised repo rates by 50bps in June 2022, the second hike in a month.
	Bank of Korea (BOK)	**Accelerated tightening** Raised benchmark rate to 2.25% in July 2022, the highest since August 2014.
	Bank of Japan (BOJ)	**Neutral** Maintain ultra loose monetary policy stance, adjusting for persistently low inflation.
	Reserve Bank of Australia (RBA)	**Accelerated tightening** Raised rate by 50bps in July 2022, the fastest series of hikes since 1994.

PROPERTY RETURN NUANCES AT THE COUNTRY AND SECTOR LEVEL

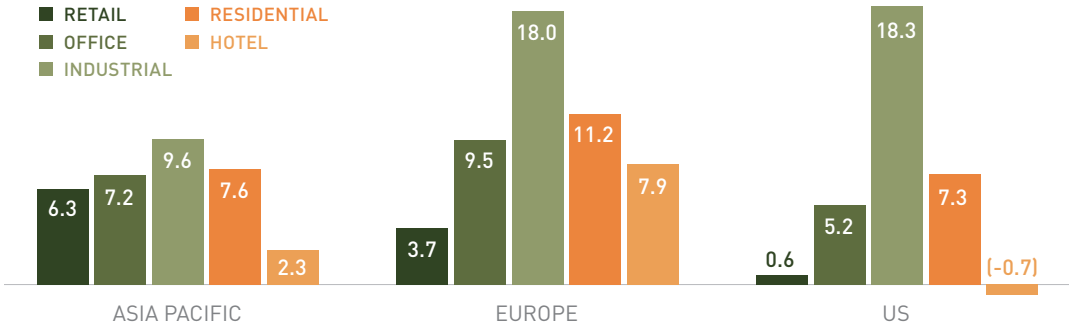
While there is some fluctuation in total returns across all regions in the various historical time frames, owing to uneven capital returns, income returns have been largely stable and at similar levels for each region (at 4–5%). The total returns profile however is more distinct at the asset class level *(Exhibit 4)*.

Within APAC, the shift in market-specific drivers and fundamentals can be evidenced by the dynamic shift in total returns by country and sector year to year. Diving deeper, property returns at the country, sector and city level further lend to the notion that property market fundamentals across APAC are highly diverse and disparate, and this will remain a key feature of the region going forward.

Total commercial real estate transaction volume in the APAC region exceeded US$200 billion for the first time in 2021.

EXHIBIT 4: REGIONAL RETURNS BY ASSET CLASS (2017–21 AVERAGE)[6]

Source: MSCI; CLI Group Research. As of July 2022.



DEEPER INSIGHTS ARE ESSENTIAL IN THE HIGHLY DIVERSE APAC REGION

The property sector in the APAC region has evolved considerably over the last decade and is becoming progressively more institutionalized. This is clearly evidenced by the increased market liquidity, with total commercial real estate transaction volume in the APAC region having exceeded US$200 billion for the first time in 2021.[7]

Notably, institutional investor interest in new economy assets has accelerated in recent years, with total transaction volumes having more than tripled over the last five years, reaching US$37 billion (+22% YoY) in 2021, while the deal count has also more than doubled over the same period.[8] While the APAC region is likely to see keener investor interest going forward, the highly distinct real estate markets in the region are by and large complicated to navigate. Deeper insights are essential in market selection and assessing new opportunities.

As in other highly specific global regions, an intimate knowledge of local markets and execution capabilities is often the key determinant of success, due to the varied demand drivers and underlying real estate fundamentals across the region characterized by:

Marked heterogeneity in the property cycle: Positions of major APAC countries vary considerably across the space and capital market cycles. Deep understanding of local real estate dynamics and operating capabilities are essential to unlock potential investment returns.

Wide spectrum of investment opportunities: The diversity within investable markets across the region offers a broad selection of available investment options to cater to varying degrees of investor risk appetite.

Investing into real estate across the region over the next few years, against a backdrop of evolving government policies, rising interest rates, elevated asset pricing, escalating construction costs, and other factors is likely to be increasingly challenging. However, new opportunities with attractive risk-adjusted returns will typically also emerge during these periods, in part driven by the cyclical rebound, credit market gaps and pricing dislocations (e.g., special situations, distressed situations, and credit opportunities in China).[9]

These unprecedented times present both challenges and opportunities and will require institutional investors to make conscious investment decisions to rebalance and better future-proof their real estate portfolios. APAC's indubitable continued growth story makes a well-grounded investment case, and this is an opportune time for investors to gain or increase exposure to the region.

EXHIBIT 5: VARIED DEMAND DRIVERS AND OPPORTUNITIES ACROSS APAC

Source: CLI Group Research. As of July 2022.

The highly distinct real estate markets in the region are by and large complicated to navigate. Deeper insights are essential in market selection and assessing new opportunities.

ABOUT THE AUTHORS

Simon Treacy is CEO of Private Equity Real Estate and Yu Jin Ow is Vice President of Group Strategy and Research for CapitaLand Investments, a leading Asian real estate investment manager with a global foothold.

NOTES

[1] Projections by Oxford Economics as of June 2022.

[2] The real estate market size of APAC tracked by MSCI was recorded at around US$630 billion as of 2020, up from around US$386 billion in 2010. The coverage ratio for APAC was around 22% based on the estimated total market size of US$2.8 trillion in 2020. Source: MSCI, May 2022.

[3] Projections by World Bank and Oxford Economics as of February 2022.

[4] Includes tertiary sectors such as banking & finance, professional services, information technology, retail trade, healthcare, etc.

[5] Projections by Oxford Economics as of June 2022.

[6] Total returns in US Dollars.

[7] Figure excludes development sites. Source: Real Capital Analytics, May 2022.

[8] Includes business parks, data centers, logistics, tech parks, etc.

[9] See also: Tze Shyang, Puah, and Yu Jin, Ow. "China's Deleveraging Platform: Opportunities Ripe for Select Picking." CapitaLand, June 2022. https://www.capitaland.com/en/about-capitaland/newsroom/inside/2022/jun/Chinas-develeraging-platform-opportunities-ripe-for-select-picking.html.

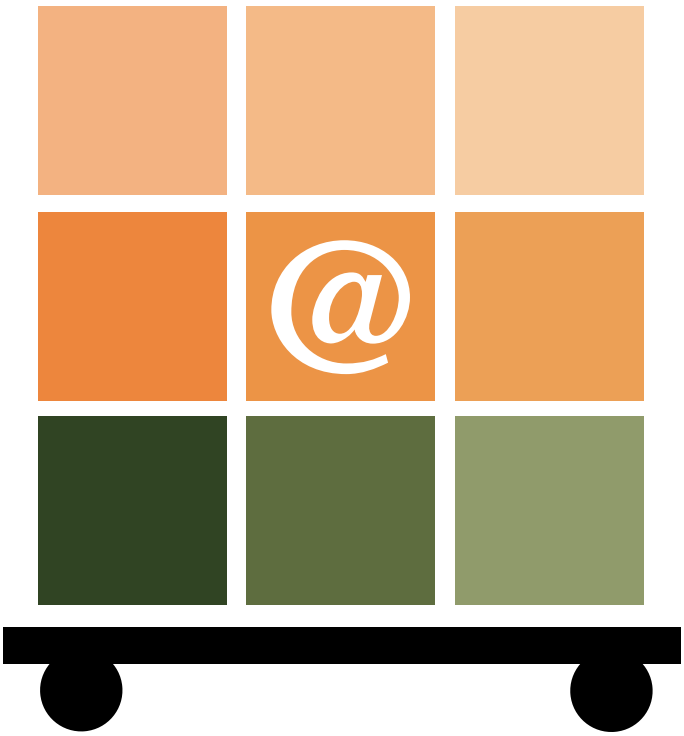
REVIEWER RESPONSE

Overall, the authors present an inviting rationale for real estate investment in APAC. Economic tailwinds in the region are a counterbalance for international investors mired in investments in low-growth markets. Economic growth, coupled with tremendous urbanization, will fuel demand for new real estate. Investing on the front end of this trend captures growth, all the while participating in an increasingly institutional and investable market. And lastly, this is all supported by continued national spend on infrastructure, the rise of ESG standardization, automation, and demand for new generation space.

While the macro story is logical, and one might quibble with certain propositions (hasn't Asia always operated in a higher inflationary environment?), for me the crux of the rationale is why "deeper insights are essential" (i.e., it all comes down to the real estate). Here the authors introduce the complexity and nuance of investing in different sectors across geographies, but to a certain degree, leave the reader wanting for more. Of course, "deep understanding of local real estate . . . [is] essential to unlock potential real estate returns," but what are examples in APAC? Given the nature of the article, the authors are absolved from going into too much detail. They do deliver the point that the investing in APAC is complex and that there are a range of investment options cater to varying degrees of investor risk appetite. To this end, they nicely set the stage on why APAC should be on the investment menu and are inviting you for a more in-depth conversation about what you can order.

– Thomas Brown
Member, Summit Journal Editorial Board
Partner, LGT Capital Partners

STABLE SPACE



Mehtab Randhawa
Global Head of Industrial Research
JLL

For e-commerce property investors, the past decade was outstanding, but even as market dynamics are slowing industrial's momentum, market fundamentals remain sound.

For e-commerce property investors, the past decade was outstanding—and the future bodes well, too.

From 2010 to 2021, demand for US industrial space grew by 24%, while supply grew only by 18%. That imbalance continued in 2022. Now, market dynamics are slowing industrial's momentum, but market fundamentals remain sound.

While inflation, rising interest rates, and fears of recession have dampened short-term expectations, the economy continues to be strong. In JLL's Q3 2022, gross domestic product exceeded expectations with a 2.6% annualized growth rate. Consumer spending continued, albeit at a slowing rate, and businesses continued to invest in equipment and intellectual property—signaling a vote of confidence in their long-term prospects. Private investment in real estate contracted, however, in response to higher interest rates.

Warehouse and distribution real estate has enjoyed a long period of continuous expansion and a pandemic-driven surge in activity that rising interest rates will likely temper. Before the COVID-19 pandemic emerged, industrial vacancy rates were more or less stable as a steady flow of tenant requirements were met with new supply. However, the pandemic dramatically accelerated the growth of e-commerce in 2020 as consumers shifted to online shopping to avoid exposure.

The sharp growth in online shopping, resulting from stay-at-home orders, sent shock waves across global supply chains and sparked demand for e-commerce warehouse and logistics space. Distributors and third-party logistics companies (3PLs) expanded their distribution networks into urban infill markets to meet consumer demand not only for the products themselves, but also for fast deliveries. Extreme shipping delays and product shortages further increased demand for warehouse space as retailers and suppliers invested in additional inventory to avoid lengthy delays for product and potential lost sales.

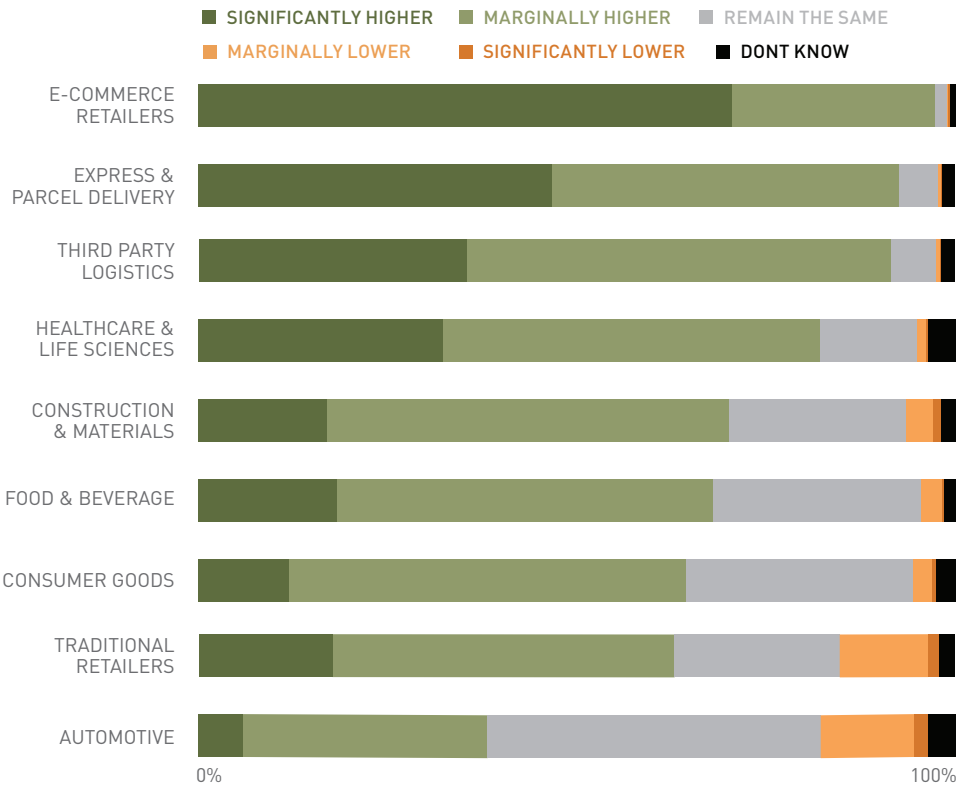
As demand for space surged, it became obvious that supply of industrial real estate was not keeping up with demand. Competition for warehouse space became increasingly fierce, while COVID-related construction delays and material shortages slowed delivery of new warehouse product. Retail to industrial conversions have alleviated pain points as companies re-structure their supply chain strategy.

Competition for space translated into above-average rent growth, which is always good news for property investors. Over the last five years, a competitive leasing environment accelerated US industrial rent growth by 47%. US markets with the highest asking rents include New York City, Mid-Peninsula, Silicon Valley, Long Island, and Los Angeles.

In Q3 2022, industrial property vacancy fell to an all-time low of 3.3% in the sector's seventh consecutive quarter of declining vacancy. Nine markets across the US achieved vacancy rates under 2%, and the Savannah, Inland Empire, and Los Angeles markets had posted vacancy rates under 1%. The historical low vacancy rate helped contributed to lofty rents of $8.45 per SF in Q3, marking a 25% year-over-year increase.

EXHIBIT 1: MOST IMPORTANT DRIVERS OF FUTURE OCCUPIER DEMAND FOR NEW CONSTRUCTION

Source: JLL 2021 Global Logistics Real Estate Market Report



GROWING E-COMMERCE DEMAND

E-commerce may have abated from its 2021 peak, but it will continue to be a major driver of industrial real estate demand. Online shopping constitutes approximately 13% of US retail sales at present, and US e-commerce sales are projected to grow by 50% by 2025. In a 2021 JLL survey, global logistics professionals anticipated by a large margin that the growth of e-commerce and last-mile logistics—covering that last distance between a warehouse and the customer—would drive their future demand for warehouse space.

Key urban submarkets have seen a rise in the construction of mezzanine and multistory warehouses where land and building availability is scarce. Another trend that has emerged is adaptive re-use conversions, especially in the last-mile delivery space. In fact, more than half of all e-commerce requirements are for urban logistics locations to keep pace with online shopping demand. In established urban logistics markets, rents have seen a 27% weighted average in year-over-year growth while the average vacancy in established urban logistics markets is 2%.

In dense markets where space and land are severely constrained, developers are getting creative. Some are repurposing older, smaller, and less functionally sophisticated industrial spaces into last-mile logistics facilities or space for fleet and vehicle storage. Others are converting underutilized retail or office space into logistics facilities. In a few unique locations, some creative developers are building multi-story warehouses.

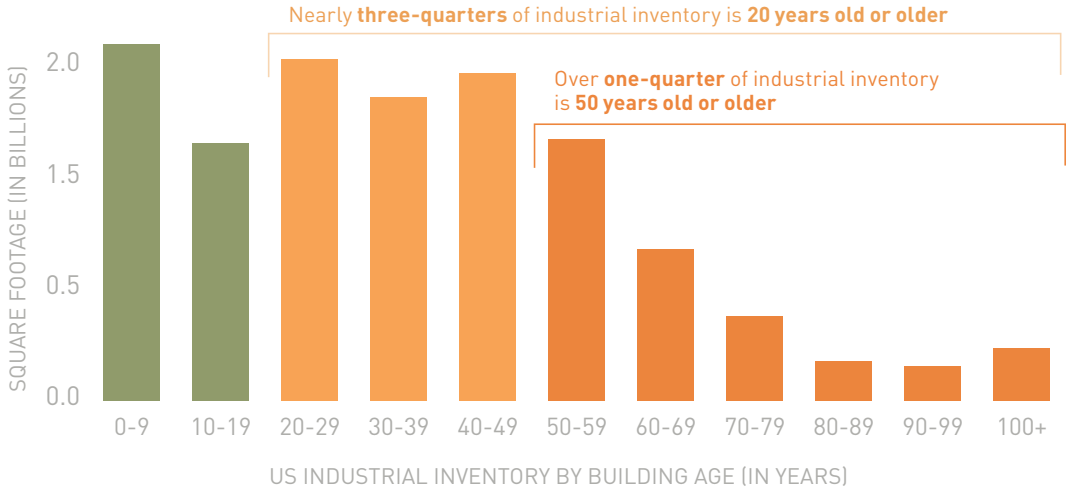
Online shopping constitutes approximately 13% of US retail sales at present, and US e-commerce sales are projected to grow by 50% by 2025

AGING INVENTORY AND THE INCREASED DEMAND FOR MODERN WAREHOUSE FACILITIES

A closer look at the industrial supply-demand imbalance reveals that aging inventory is part of the problem. Facilities that might have been considered dated, yet functional, just a few years ago have quickly become functionally obsolete amidst demand for state-of-the-art facilities that can support today's logistics processes.

EXHIBIT 2: THE US INDUSTRIAL INVENTORY IS AGING RAPIDLY

Source: JLL



Older-generation buildings will be reimagined to accommodate new users with electric vehicle parking, higher clear heights, increased truck radius maneuvering and other modern features, as well as new space configurations to better suit future distribution models.

Leading distributors and 3PLs have invested heavily in warehouse technologies and innovative design to attract labor, and to move goods in and out of the facility at a much faster rate than seen before. Their modern facilities provide higher ceiling heights to accommodate mezzanine structures and high inventory stacking, plentiful docks, and large-radius trailer parking. To help attract and retain in-demand talent, some operators want the kinds of amenities more often seen in office buildings.

In contrast, the average age of US industrial product is around 42 years old, and older industrial buildings typically have lower ceiling heights, fewer dock doors, and less trailer parking than newer facilities. Older-generation buildings—those built more than 20 years ago—account for 75% of the total industrial inventory. Sun Belt cities such as Las Vegas, Charleston, Inland Empire, and Austin have younger buildings on average and a larger inventory of modern product built in conjunction with recent population growth. Similarly, some of the oldest assets are located in old manufacturing towns such as New York, Pittsburgh, and Cleveland.

With many older buildings becoming functionally obsolete, these buildings will be torn down, recycled, or rebuilt to be more efficient over the next decade. And over the next cycle, older-generation buildings will be reimagined to accommodate new users with electric vehicle parking, higher clear heights, increased truck radius maneuvering and other modern features, as well as new space configurations to better suit future distribution models.

ADAPTIVE REUSE AND REPLACEMENT CONVERSION PROJECTS

In the absence of available land, industrial developers and users are looking to adaptive reuse and replacement to create new stock. Candidates for adaptive reuse typically include distressed malls and big-box stores. Their large floorplates, high ceilings and massive parking lots are beneficial features for e-commerce distribution and fulfillment, and these retail locations typically provide multiple points of access to major thoroughfares. While several adaptive reuse projects have been initiated in the United States, zoning obstacles, expensive alterations, and other issues often create barriers to entry for adaptive reuse.

In contrast, demolishing and replacing existing structures is far more common in the United States. Replacement projects originate from many different types of former use, with site size, proximity to major highways and zoning being the most important aspects of the properties. Unsurprisingly, strong replacement conversion activity has been occurring some of the highest rent markets in the country, including Los Angeles and New York City, where demand is strong enough to justify the development costs.

MULTI-STORY DEVELOPMENTS EMERGING IN SELECT MARKETS

While occupiers have been driving net absorption to high levels, the number-one constraint on delivery of new product is a lack of land. Developers have been struggling to secure suitable development land and planning approvals. Scarcity has inspired creative solutions, such as multi-story warehouses that have popped up in select densely populated areas with high land values, including New York City, Seattle, and the San Francisco Bay.

Still rare in the United States, these buildings feature multiple levels of warehouse space, each with loading docks and truck courts connected by ramps. For users who need to move goods through their facilities quickly, multi-story design offers greater utilization than mezzanine structures. While development costs tend to be relatively high for these well-located and innovative structures, occupiers who value proximity to customers are willing to pay top-of-market rents.

New multi-story warehouses offer tenants sizable buildings embedded in the urban core that, unlike many older buildings, can accommodate modern warehouse automation systems. However, multi-story warehouse development projects are costly and complex, given building codes and the structural support required to bear heavy loads. What makes them economically feasible is the high cost of land in urban markets, and the fact that transportation is the biggest cost in supply chains—a close-in site means lower delivery costs.

LOOKING AHEAD

As 2022 came to a close, annual absorption of industrial space is expected to exceed 400 million-SF—a large number, second only to the historic 2021 levels. Preleasing remained strong for projects under construction, but activity fell 11.2% year-over-year in Q3 2022 as 138.2 million SF of new industrial product came online in the US. Those deliveries represent a 27% increase from the previous quarter, which might explain the decline in preleasing.

Following the Federal Reserve's latest interest rate hike, industrial transactions slowed notably in the Q3 2022. However, year-to-date transactions volume was still higher year-over-year than in 2021 because of the strong start to 2022.

On the investment front, rising rates have led to widespread repricing of transactions. Swaths of institutional investors are waiting on the sidelines for greater clarity about cost of capital. Investor interest in Class B assets and industrial assets with pending lease expirations is highest, given the shorter path to get to positive leverage. Lenders have become more selective regarding transactions of scale, and buyer interest is greatest for transactions valued at less than US$100 million.

Despite these trends, long-term occupier—and investor—demand is projected to persist. Alongside urban logistics activity will be the continuing growth of mega-box developments in key logistics markets outside the high-density areas. Offering high clear-height ceilings, as well as trailer and vehicle parking, these facilities are essential to companies with broad distribution networks. Availability of labor continues to be a key component of these mega-sites and will continue to play a significant factor in where companies decide to relocate.

LOOKING AHEAD

Investor competition for exposure to logistics real estate, combined with the dynamics of net-zero interest rates, pushed liquidity to record levels in recent years. Since the start of 2021, roughly US$208 billion in capital has flowed into the sector. Despite geopolitical turmoil and three rounds of rate hikes by the federal reserve, transaction volume eclipsed $64 billion through the first half of 2022.

Yields for industrial assets have generally risen between 75 and 100 basis points from 120 days ago amid the broad-based repricing of transactions across the capital markets. In addition to the repricing of assets is the impact on land valuations, as prospective buyers begin to underwrite slower rent growth. While industrial asset values have come down, they remain high by historic standards.

Heading into 2023, some port-centric and port-adjacent markets could see an uptick in short-term

leasing activity to accommodate holiday inventory stocking; Q3 2022 saw a record-breaking volume of new construction groundbreakings, bringing the total amount of industrial product under construction to 633.8 million SF. Coupled with tepid preleasing rates, the vacancy rate is expected to increase as new product comes online. Rental rate growth is expected to continue upward, but at a slower pace.

Despite concerns about rising costs of capital, upward pressure on cap rates and fears of recession, the industrial property sector as a whole remains in good shape. Demand for logistics real estate, including e-commerce distribution and fulfillment, will become less intense as supply keeps pace with demand again. That is good news for occupiers and investors alike, as a less frenetic marketplace means more opportunities in 2023.

ABOUT THE AUTHOR

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Since the start of 2021, roughly US$208 billion in capital has flowed into the sector.

Scarcity has inspired creative solutions, such as multi-story warehouses that have popped up in select densely populated areas with high land values, including New York City, Seattle, and the San Francisco Bay.

Alongside urban logistics activity will be the continuing growth of mega-box developments in key logistics markets outside the high-density areas.

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