SUMMIT

AFIRE SUMMER/FALL 2022

10

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

The publisher of Summit is not engaged in providing tax, accounting, or legal advice through this publication. No content published in Summit is to be construed as a recommendation to buy or sell any asset.

Some information included in Summit has been obtained from third-party sources considered to be reliable, though the publisher is not responsible for guaranteeing the accuracy of third-party information.

The opinions expressed in Summit are those of its respective contributors and sources and do not necessarily reflect those of the publisher.

© 2022 AFIRE
Material may not be reproduced in whole or in part without the written permission of the publisher.

ISSN 2689-6249 (Print)
ISSN 2689-6257 (Online)

About the cover: *The World Turned Upside Down*, a sculpture by Turner Prize-winning artist Mark Wallinger, at the entrantrance to the Saw Swee Hock Student Centre at the London School of Economics, Summer 2022.

Photo by Benjamin van Loon

2022 AFIRE EXECUTIVE COMMITTEE

CHAIRMAN
Karen Horstmann
Chair, AFIRE

DEPUTY CHAIR
Kai-yan Lee
Managing Director, Vanke US

TREASURER
Steve McCarthy
Head of North America, AXA Real Estate Investmement Managers

CORPORATE SECRETARY
Amy Price
Managing Partner & Co-Head of US BentallGreenOak

MEMBER AT LARGE
Mike Hu
Head, US Capital Markets, Gaw Capital

MEMBER AT LARGE
Michel Schram
Director, Private Real Estate, PGGM

GENERAL COUNSEL
Paul Meyer
Partner, Real Estate Markets, Mayer Brown LLP

DIRECTOR OF PROGRAMS
Will McIntosh
Global Head of Research, USAA Real Estate Company

DIRECTOR OF MEMBERSHIP
Janice Stanton
Executive Managing Director, Cushman & Wakefield, Inc.

DIRECTOR OF LEGAL AND TAX
R. Byron Carlock, Jr.
US Real Estate Practice Leader, PwC

DIRECTOR OF MEMBER RETENTION
Steve Collins
Head, Capital Advisors, JLL

PRIOR YEAR CHAIRMAN
Martin Brühl
Managing Director & Chief Investment Officer, Union Investment Real Estate

STAFF

CEO AND PUBLISHER
Gunnar Branson
gbranson@afire.org

COO
Lexie Miller, CAE
lmiller@afire.org

SENIOR COMMUNICATIONS DIRECTOR AND EDITOR-IN-CHIEF
Benjamin van Loon
bvanloon@afire.org

MEETING DIRECTOR
Asmait Tewelde
atewelde@afire.org

DIGITAL COMMUNICATIONS ASSOCIATE
Lauren Richey

DESIGN AND PRODUCTION
Campbell Symons Design
campellsymons.com

CONTACT

AFIRE
1300 Pennsylvania Ave NW, #190-630
Washington, DC 20004
+1 202 312 1400 | info@afire.org
www.afire.org

6

CAPITAL MARKETS PULSE

Through the rest of this year, investors forecast challenges for global capital, but thoughtful investors are forging ahead.

Gunnar Branson
Benjamin van Loon
AFIRE

2

NOTE FROM THE EDITOR

16

ON/OFF SWITCH

While the market rarely sends clear investing signals, current market conditions are replete with clues, but as timing for corrections is difficult, a move to risk-off strategies could be useful.

Joseph L. Pagliari
University of Chicago
Booth School of Business

22

MOBILE ZONING

Mobile information technology has upended US land use regulation, and the ramifications of this technological upheaval are finally coming into view.

Robert Seldin
Madison Highland Live Work Lofts

28

GET SMART

As buildings become increasingly technologized, especially after the pandemic, cyber-attacks can put entire properties at risk and require a firmwide security approach.

Noëlle Brisson
Michael Savoie
CyberReady, LLC

36

HEDGE TRIMMING

The rapid rise in consumer prices has rekindled the old debate about whether commercial real estate provides a long-term hedge against inflation (hint: look at multifamily).

Gleb Nechayev
Berkshire Residential Investments

42

THE NEW SCIENCE

While the real estate industry has long understood the need for data, it still struggles with connecting information to decision making. New strides in data science could change that.

Brian Biggs
Ashton Sein
Grosvenor

48

BRACE FOR IMPACT

The practice and expectations of investing across all industries is undergoing major upheaval and the key to stability will mean looking beyond profit for profit's sake.

Michael Cooper
Richard Florida
Dream Unlimited Corporation

54

TRANSITION PLANS

Forecasts about the future of the office sector are often wildly conflicting, but the looming high tide of generational leadership transitions could change the script.

Sabrina Unger
Britteni Lupe
American Realty Advisors

60

WHAT DRIVES LOGISTICS?

The logistics sector was the winner of the pandemic recession—but is its rise built to last?

Hugues Braconnier
Dr. Megan Walters
Allianz Real Estate

66

RENEWED PURPOSE

From retail to office to abandoned factories and warehouses, owners of real estate are rethinking—and reinventing—the future of their investments.

John Thomas
Stacey Krumin
Squire Patton Boggs

70

DATABASICS

Data centers have become an increasingly institutionalized property class over the past several years, but finding success in the sector depends on talent and expertise.

Max Shepherd
Jannah Babasa
Isabel Ruiz Halter
Sheffield Haworth

76

COOPERATIVE INVESTMENT

As insurance costs of residential and commercial spiral out of control, a 1400-year-old tradition is poised to offer long-term, sustainable growth for real estate investments.

Ishmam Ahmed
AFIRE

80

DOMESTIC MIGRATION TRENDS JUNE 2022

Dive into the report to understand if and how COVID impacted domestic migration patterns on a state, city, and zip code level.

Ethan Chernofsky
Placer.ai

92

UP FRONT

How does the Consumer Price Index account for the cost of housing?

David Wessel
Sophia Campbell
The Brookings Institution

NOTE FROM THE EDITOR

SUMMER/FALL 2022

In the world of long-term investments, some years go according to expectations, and other years, nothing goes as planned.

As evidenced by the ups and downs of the past six months alone, 2022 has imparted a level of economic, political, and environmental palaver that typically crests only once every few decades.

The intersecting challenges of global inflation, the Russian invasion of Ukraine and spiking geopolitical tensions, increasingly massive environmental disasters, and sundry novel public health crises can make once-confident investors far more cautious (perhaps rightfully so).

But for investors at institutional scale, caution cannot mean inaction. As detailed in the first article of this issue, which provides an abridged version of new AFIRE pulse survey focused on current capital markets alongside future trends (p. 6), institutional real estate investors are being realistic about the present moment, but firmly focused on looking beyond the near horizon for meaningful returns.

Following this introduction, we're pleased to offer perhaps one of our most comprehensive issues of Summit to date, covering all sides of the investment landscape. Joseph Pagliari from the University of Chicago offers a unique take on market cycles (p. 16), while Sabrina Unger and Britteni Lupe of American Realty Advisors (p. 54), Gleb Nechayev of Berkshire Residential Investments (p. 36), and Robert Seldin of Madison Highland Live-Work Lofts (p. 22) bring unique perspectives on the demographic and economic trends transforming closely held real estate investment philosophies.

Noted author and urbanist Richard Florida returns to Summit alongside Michael Cooper, both of Dream Unlimited Corporation, with a look at the future of sustainable development (p. 48).

Ishmam Ahmed, one of the emerging leaders involved in AFIRE's new fellowship program, covers an emergent area of Islamic finance (p. 76) in the first of what we expect to be an ongoing series of topics focused on the nuances of Islamic finance.

The rest of the content in this issue crosses through and beyond real estate as well, complementing one of our core views at AFIRE—that commercial real estate stands at a complex intersection of how we live, work, and play. And more importantly, that there are no absolute truths in this industry. This is why we're proud to include the voices of our AFIRE Editorial Committee in this issue, posited in direct conversation with journal contributors to show that real estate is a conversation, not a monologue.

Finally, we're proud to welcome our first-ever underwriter for Summit Journal, *Aegon Asset Management*—a long-time AFIRE member and frequent contributor to this journal, as well. With support from our authors, editorial board, and gracious sponsors, the conversation at Summit continues to expand, providing a forum for the exchange of ideas we need to continue weathering the challenges ahead.

Benjamin van Loon
Editor-in-Chief, Summit Journal
AFIRE

CONTRIBUTORS

AFIRE (P. 6 & 74)

afire.org

Gunnar Branson
CEO and Publisher

Benjamin van Loon
Communications Director
and Editor-in-Chief

Ishmam Ahmed
Master of Professional Studies, Real Estate
Georgetown University

Student Fellow, AFIRE

ALLIANZ REAL ESTATE (P. 58)

allianz.com

Hugues Braconnier
Head of Logistics

Dr. Megan Walters
Global Head of Research

AMERICAN REALTY ADVISORS (P. 52)

aracapital.com

Sabrina Unger
Managing Director and
Head of Research and Strategy

Britteni Lupe
Associate, Research and Strategy

BERKSHIRE RESIDENTIAL INVESTMENTS (P. 34)

berkshireresidentialinvestments.com

Gleb Nechayev, CRE
Head of Research and Chief Economist

CYBERREADY, LLC (P. 26)

cyberreadyassessments.com

Noëlle Brisson
FRICS, MAI, Co-Founder

Michael Savoie
PhD, Co-Founder

DREAM UNLIMITED CORPORATION (P. 46)

dream.ca

Michael Cooper
Founder and Chief Responsible Officer

Richard Florida
Vice Chair of Impact

GROSVENOR (P. 40)

grosvenor.com

Brian Biggs, CFA
Vice President, Research

Ashton Sein
Research Analyst

MADISON HIGHLAND LIVE WORK LOFTS (P. 20)

madisonmarquette.com

Robert Seldin
Managing Principal

PLACER.AI (P. 78)

placer.ai

Ethan Chernofsky
Vice President, Marketing

EDITORIAL BOARD

SQUIRE PATTON BOGGS (P. 64)

squirepattonboggs.com

John Thomas
Partner

Stacey Krumin
Partner

SHEFFIELD HAWORTH (P. 68)

sheffieldhaworth.com

Max Shepherd
Executive Director, Global Real Assets

Jannah Babasa
VP, Global Real Assets

Isabel Ruiz Halter
Director, Global Real Assets

UNIVERSITY OF CHICAGO BOOTH SCHOOL OF BUSINESS (P. 14)

chicagobooth.edu

Joseph L. Pagliari, PhD, CFA, CPA
Clinical Professor of Real Estate

THE HUTCHINS CENTER ON FISCAL AND MONETARY POLICY (P. 90)

brookings.edu

David Wessel
Director

Sophia Campbell
Former Senior Research Assistant

Thomas Brown
Partner
LGT Capital Partners

Byron Carlock, Jr.
Real Estate Leader
PwC US

Jim Clayton, PhD
Professor and Timothy R. Price Chair Director, Brookfield Centre in Real Estate & Infrastructure
York University Schulich School of Business

Sam Chandan, PhD, FRICS, FRSPH
Professor of Finance & Director, Stern Center for Real Estate Finance
New York University Stern School of Business

Collete English-Dixon
Executive Director, Marshall Bennett Institute of Real Estate
Roosevelt University

Peter Grey-Wolf
Vice President
Wealthcap

Mary Ludgin, PhD
Senior Managing Director, Head of Global Research
Heitman

Paul Meyer
Partner, Real Estate Markets
Mayer Brown

Hans Nordby
Head of Research and Analytics
Lionstone Investments

Amy Price
President
BentallGreenOak

Sabrina Unger
Managing Director, Head of Research and Strategy
American Realty Advisors

Steve Weikal
Head of Industry Relations
MIT Center for Real Estate

CRE Tech Lead
MIT Real Estate Innovation Lab

PUBLISHER
Gunnar Branson
CEO, AFIRE
gbranson@afire.org

EDITOR-IN-CHIEF
Benjamin van Loon
Senior Communications Director, AFIRE
bvanloon@afire.org

DESIGNER
Campbell Symons Design
campbellsymons.com

LEARN MORE at afire.org/summit/summiteditboard

CAPITAL MARKETS PULSE

Gunnar Branson
CEO
AFIRE

Benjamin van Loon
Editor-in-Chief
Summit Journal

Through the rest of this year, investors forecast challenges for global capital, but thoughtful investors are forging ahead.

Does anyone really look forward to investing when it appears that the proverbial "Four Horsemen" might be over the horizon? With global political tensions high, environmental crises becoming more recurrent, and the worldwide economy combatting inflation, recession, and other challenges, it can sometimes feel as if the Horsemen have already arrived.

But some investors are looking beyond the horizon—and marching forward with confidence.

THE AFIRE MID-YEAR PULSE SURVEY

Despite the notes of optimism covered in our mid-year report from the AFIRE members (which represent nearly 200 organizations from 25 countries, with $3 trillion AUM in the US)—all are well aware of the current market challenges. They know, for example, that since January 2022, US inflation rose by more than 9%; the Fed hiked interest rates by more than they have in almost thirty years; we crossed a global threshold of more than six million people dead from COVID since the start of the pandemic; supply chains remain in disarray; July 2022 was the 451st consecutive month with temperatures above the twentieth-century average; wildfires have punished countries around the world; water supplies are dwindling to perilous levels in some parts while others are underwater with historic floods. And of course, Russia started a war in Ukraine.

For many real estate investors, packing up and going home would seem like an appealing option in this sort of landscape. But it is not an option if "going home" means going into the middle of any of the above crises. Instead, governments, investors, and ordinary people must acknowledge what is going on, accept that there are no resets, and adapt to our new and continuously evolving reality.

Institutional investors are particularly good at adaptation, especially those that invest globally. In this report, conducted in July 2022 with support from PwC Research, AFIRE gained some insight about the investment landscape and how capital markets are changing—especially in comparison to any predictions and sentiments forecasted in our early AFIRE 2022 Annual Investor Survey, released in April 2022.

Not surprisingly, this group of 111 global respondents—each representing the point of view of their respective organizations—listed inflation, geopolitics, war, and interest rates as their greatest investment threats. But at the same time, they are also able to extract opportunity from these seemingly unprecedented challenges.

FUTURE THINKING/OVERVIEW

The future is a critical topic for AFIRE members, the majority of which focus on long-term, multi-generational investments. Much of their thinking about the future informs the decisions they make right now, which is why it's important to understand the sentiments expressed deeper in this survey through the lens of investor prognostication.

As seen in *Exhibit 1,* economic uncertainty is also front-of-mind, with both US-based and non-US-based investors forecasting challenges to dealmaking in both the US and Europe—the latter to a greater degree. In both regions, non-US-based investors are more pessimistic, but still more optimistic about US real estate prospects compared to European prospects. Alternately, US-based investors are more pessimistic about the inevitability of a US recession (92%) compared to investors from elsewhere (67%).

Outside of these agree/disagree responses, respondents also identified several other critical threats and opportunities, including war, market volatility, and energy independence.

With energy poised to be one of the greatest challenges in the coming decade for real estate investment, nearly two-thirds of respondents are already engaged in actively improving their energy efficiency *(Exhibit 2),* and 59% are prioritizing investments that already meet specific sustainability certifications standards (e.g., LEED, BREEAM, Living Building Challenge, etc.). Non-US-based investors are more likely to focus on capital expenditure for sustainability improvements (43%) compared to US-based investors (31%), though the latter group has more of a priority to dispose of outmoded or inefficient assets.

US-based investors are more pessimistic about the inevitability of a US recession (92%) compared to investors from elsewhere (67%).

EXHIBIT 1: TO WHAT EXTENT DO YOU STRONGLY STRONGLY DISAGREE, DISAGREE, AGREE, OR STRONGLY AGREE WITH THE FOLLOWING STATEMENTS?

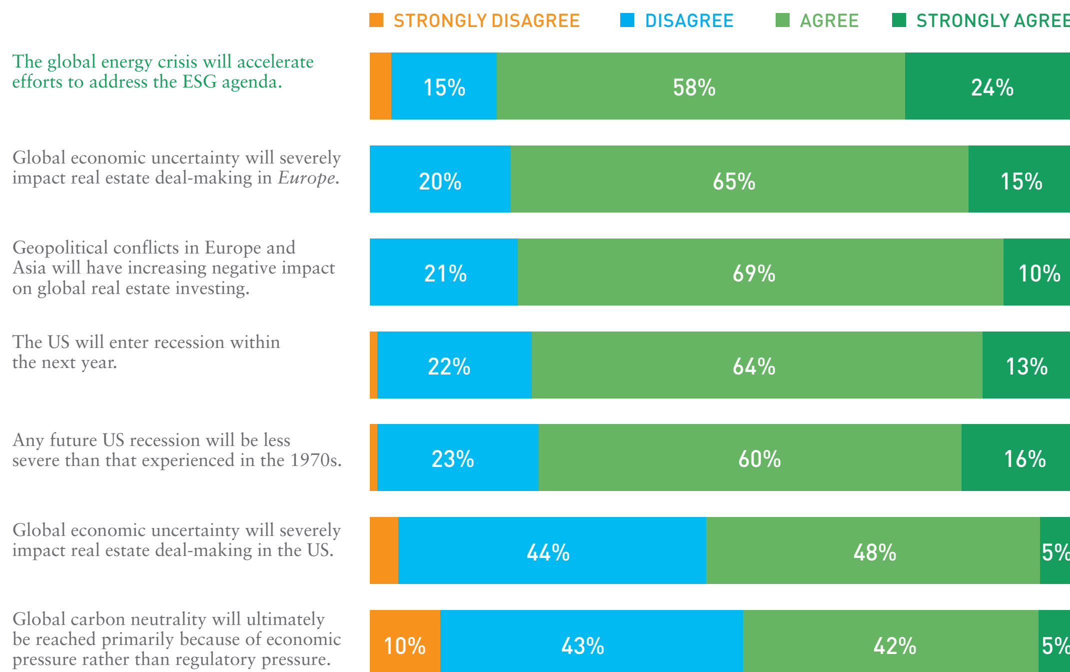


EXHIBIT 2: WHICH OF THE FOLLOWING STRATEGIES IS YOUR ORGANIZATION IMPLEMENTING (OR PLANNING TO IMPLEMENT) TO DEAL WITH RISING ENERGY COSTS?

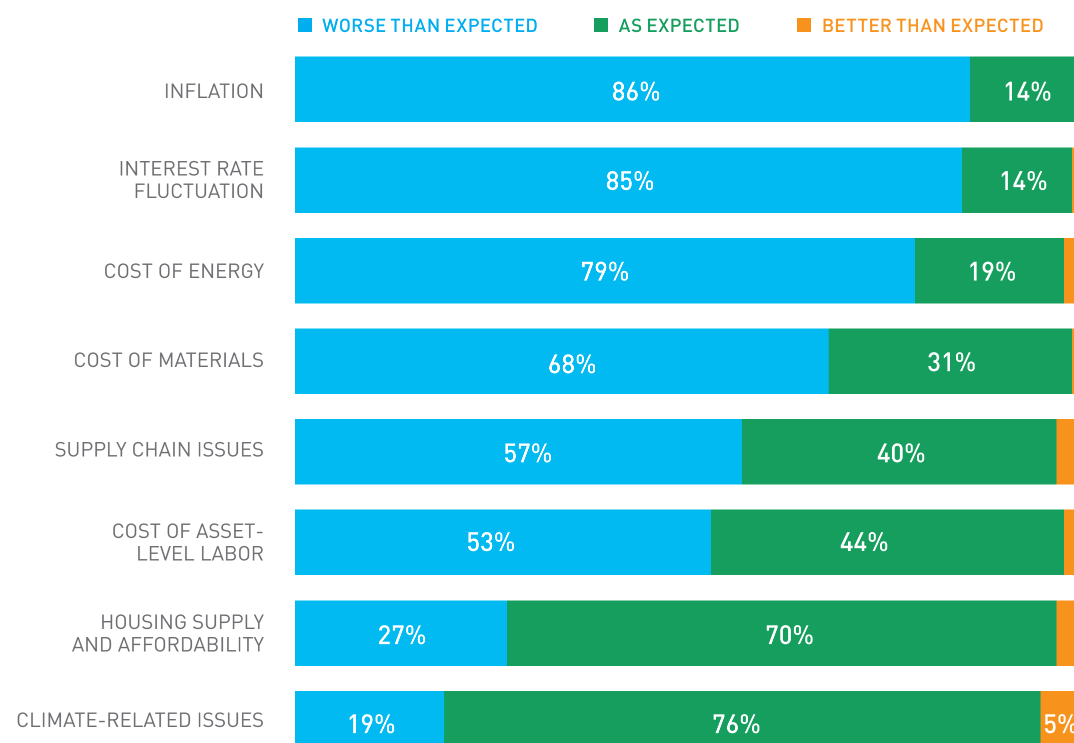
	NET IMPLEMENTATION	US-BASED INVESTORS	NON-US-BASED INVESTORS	US VS NON-US
Actively improving energy efficiency.	65%	61%	70%	-9%
Prioritizing investments that meet sustainability certification standards (i.e., LEED, BREEAM, Living Building Challenge, etc.).	59%	64%	67%	-3%
Implementing standards and tracking technologies to quantify and reduce energy consumption.	49%	50%	41%	+9%
Increasing capital expenditure for strategies that reduce energy reliance (i.e., high-efficiency glazing, landscape design, etc.).	35%	31%	43%	-12%
Increasing priority or mandate to dispose of outmoded, inefficient real assets.	27%	33%	22%	+11%
Investing in on-site renewable energy solutions (i.e., solar panels, geothermal technology, etc.).	23%	28%	20%	+8%
Investing in markets less susceptible to energy shocks and price volatility.	13%	22%	9%	+13%

CROSS-BORDER STRESSES

A lot has changed in 2022, especially as rosier views of inflation earlier in the year, including a popularly held opinion that it was transitory, have since given way to the reality that it's here to stay (in some sectors more than others). As such, questions asked about inflation six months ago generate different answers when asked in July.

As seen in *Exhibit 3*, to underscore this change, around 86% of respondents indicated that inflation in 2022 has actually been worse than expected, compared to where we were at the beginning of the year. That change is echoed by similar sentiment for changes in interest rates (85% worse than expected) and the cost of energy (79%) and materials (68%).

EXHIBIT 3: DO YOU BELIEVE THE FOLLOWING FACTORS IMPACTING REAL ESTATE ACTIVITY WORSE THAN EXPECTED, AS EXPECTED, OR BETTER THAN EXPECTED FOR 2022?



Alternately, since the beginning of the year, concerns about housing supply and affordability and climate-related issues have generally unfolded as expected for investors—or even better, in some cases.

When asked about the extent to which investors are seeing an increase in cap rates *(Exhibit 4)*, or a flattening of institutional demand, six in ten respondents are observing both to be the case. US-based investors appear more likely to currently see flattening of institutional demand (33%) compared to non-US-based investors (26%).

Asked to rank a set of eleven factors for their role in perceived increases in current cross-border investment activity *(Exhibit 5)*, respondents indicated that the cost of capital, inflation, and interest rate fluctuation are the most impactful.

Nearly half of respondents (45%) cite the cost of capital as the most critical factor, with US-based and non-US-based investors ranking this factor similarly. However, half of non-US-based investors rank interest rate fluctuations in their top three, compared to only 17% of US-based investors. US-based investors rated the cost of energy higher (25%) compared to non-US-based investors, and differences in regulation across jurisdictions is ranked higher for increasing investment activity among US-based investors (28%) compared to 19% for non-US-based investors.

Asked to rank the same set of eleven factors for their role in perceived challenges to reducing cross-border investment activity, respondents indicated that the interest rate fluctuation, cost of capital, and inflation at the top of the list. This closely mirrors the same factors that are increasing cross-border activity—which suggests that a challenge for one is an opportunity for another.

Importantly, interest rate fluctuation is the greatest impediment for investors. US-based investors are more likely to rank interest rate fluctuation in their top three (69%) compared to non-US-based investors. Alternately, a higher proportion of non-US-based investors rank supply chain issues in their top three factors impeding cross-border activity (26%) compared to US-based investors (19%).

EXHIBIT 4: TO WHAT EXTENT ARE YOU CURRENTLY SEEING...

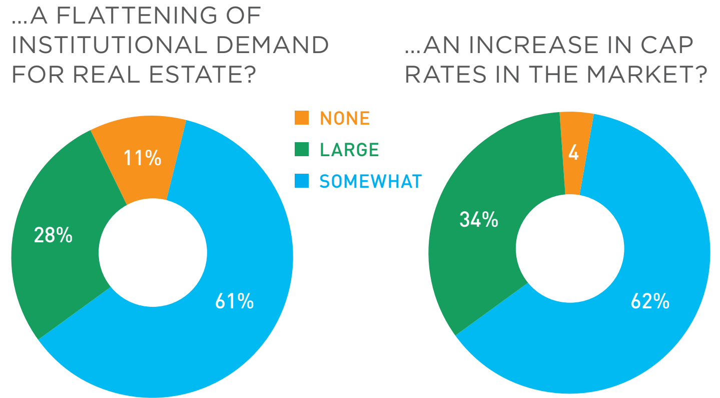


EXHIBIT 5: RANK THE FOLLOWING FACTORS, FROM MOST TO LEAST IMPORTANT, FOR THEIR CURRENT PERCEIVED IMPACT ON INCREASING CROSS-BORDER INVESTMENT ACTIVITY:

	NET IMPORTANCE	US-BASED INVESTORS	NON-US-BASED INVESTORS	US VS NON-US
COST OF CAPITAL	45%	50%	46%	+4%
INFLATION	41%	44%	44%	–
INTEREST RATE FLUCTUATION	38%	17%	50%	-33%
WAR IN UKRAINE	32%	33%	28%	+5%
HOUSING SUPPLY AND AFFORDABILITY	26%	25%	24%	+1%
DIFFERENCES IN REGULATION ACROSS JURISDICTIONS	25%	28%	19%	+9%
SUPPLY CHAIN ISSUES	15%	17%	13%	+4%
COST OF ENERGY	14%	25%	11%	+14%
HYBRID WORKING PATTERNS	10%	11%	6%	+5%
COST OF MATERIALS	8%	3%	11%	-8%
COST OF ASSET-LEVEL LABOR	5%	6%	6%	–

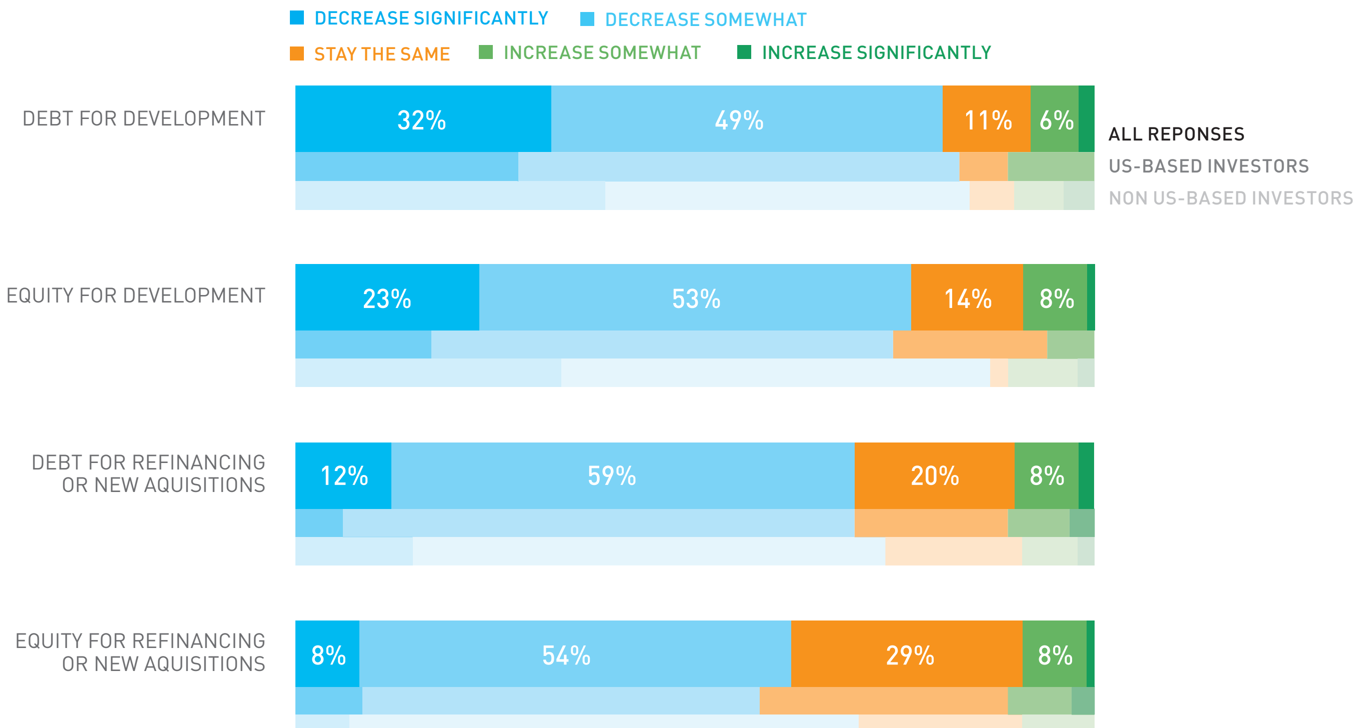
Non-US-based investors appear more pessimistic, with a higher proportion forecasting a decrease in availability of all types of capital this year.

CAPITAL, LENDING, AND DEBT

Given the sundry economic challenges facing capital markets, the availability of capital for development, refinancing, and acquisitions is expected to decline across the board for the rest of 2022, with debt for development expected to decrease by the greatest amount.

Non-US-based investors appear more pessimistic *(Exhibit 6)*, with a higher proportion forecasting a decrease in availability of all types of capital this year. This is most notable for equity for refinancing or new acquisitions (70% decrease among non-US-based investors compared to 58% for US-based investors) and equity for development (87% compared to 75%).

EXHIBIT 6: DO YOU EXPECT THE FOLLOWING TYPES OF AVAILABLE CAPITAL TO DECREASE SIGNIFICANTLY, DECREASE SOMEWHAT, STAY THE SAME, INCREASE SOMEWHAT, OR INCREASE SIGNIFICANTLY BY THE END OF 2022?



Most types of lending are also expected to decline through the rest of 2022 *(Exhibit 7)*. Four in ten respondents foresee a decrease in lending among alternative platforms rising, and seven in ten expect a reduction in commercial mortgage-backed securities (CMBS). US-based investors are more likely to suspect this CMBS decrease (83%) compared to non-US-based investors (69%). However, more than half of respondents foresee an increase in lending from non-bank institutions, such as pension funds and insurance companies.

In line with tempered forecasts around lending and available capital, the cost of debt is expected to increase across the board in the next year, with the greatest rise forecast for value-added real estate (85%) and development finance (81%) *(Exhibit 8)*. Debt for core real estate is expected to rise as well (69%), but not as steeply as debt for refinancing, new acquisitions, and niche sectors.

Indicatively, US-based investors are more likely to expect an increase in the cost of refinancing in the coming year (86%) compared to non-US-based investors (74%). A similar difference appears for new acquisitions, with an 83% increase expected by US-based investors compared to 78% for non-US-based investors.

Four in ten respondents foresee a decrease in lending among alternative platforms rising, and seven in ten expect a reduction in commercial mortgage-backed securities.

EXHIBIT 7: DO YOU EXPECT CHANGES IN THE FOLLOWING TYPES OF LENDING WILL DECREASE SIGNIFICANTLY, DECREASE SOMEWHAT, STAY THE SAME, INCREASE SOMEWHAT, OR INCREASE SIGNIFICANTLY BY THE END OF 2022?

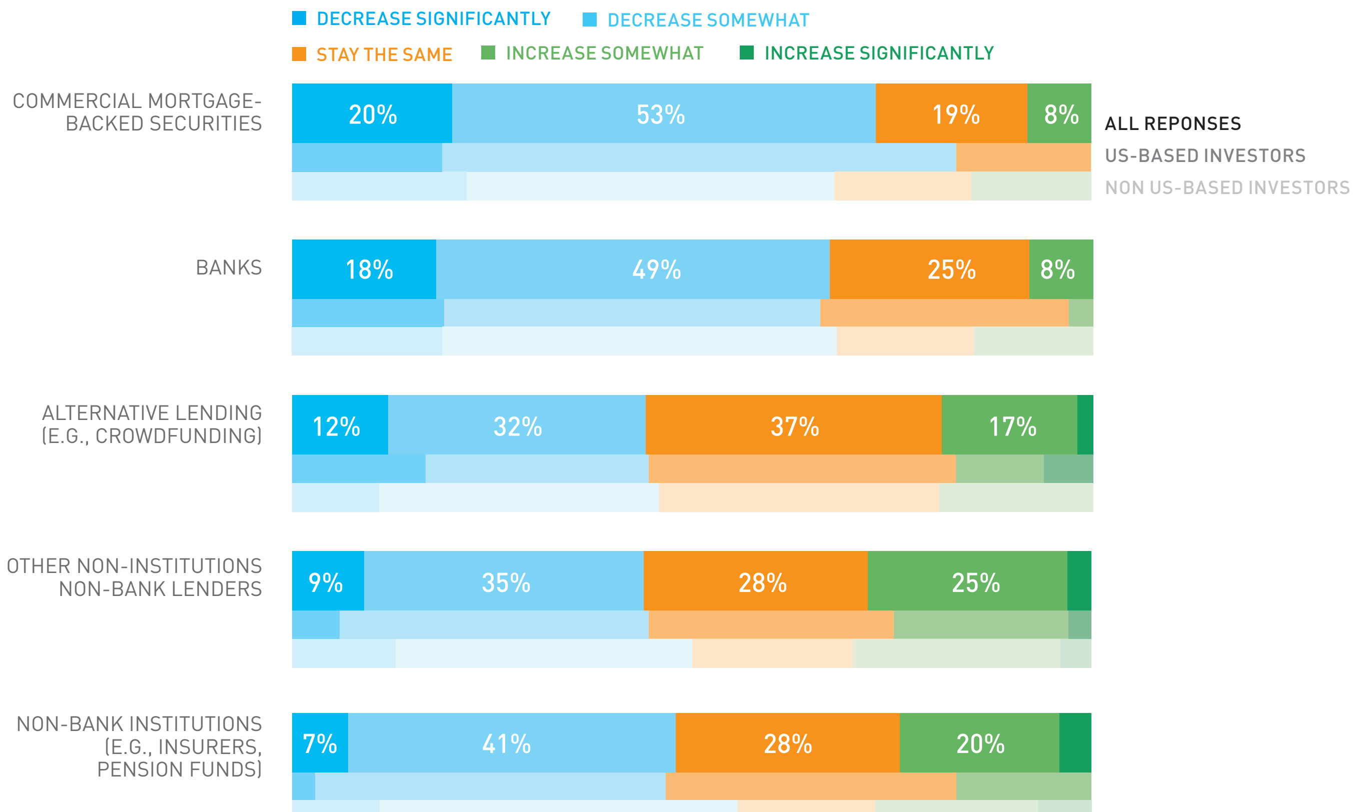
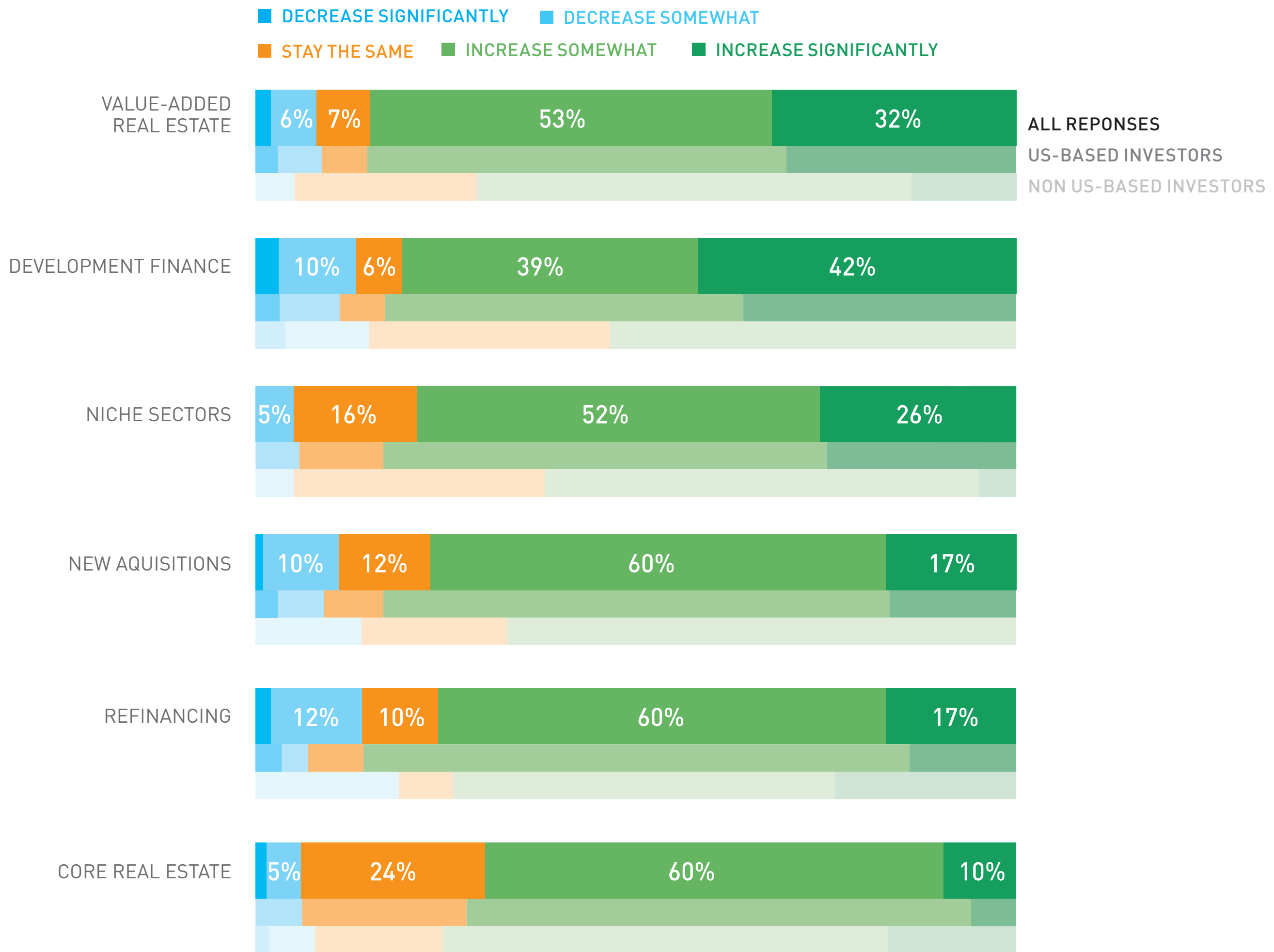


EXHIBIT 8: DO YOU EXPECT THE COST OF DEBT IN THE FOLLOWING AREAS WILL DECREASE SIGNIFICANTLY, DECREASE SOMEWHAT, STAY THE SAME, INCREASE SOMEWHAT, OR INCREASE SIGNIFICANTLY BY THE END OF 2022?



The cost of debt is expected to increase across the board in the next year, with the greatest rise forecast for value-added real estate (85%) and development finance (81%).

PLANNING AHEAD

This past year has not shaped up to be a year for the faint of heart. For example, 56% of respondents believed that the industry was behind allocations for US real estate investments in 2022, while more than 80% communicated that the impact of inflation and rising interest rates was worse than expected.

Meanwhile, the availability of capital is expected to decline for the rest of the year both in debt and equity, while the cost of both expected to increase. Not surprisingly, more than three-quarters (77%) of respondents believe that the US will enter a recession within the next year.

But even if the rising cost of capital is affecting new cross-border investments, it may also increase cross-border activity in new areas and markets. Roughly 77% of respondents believe that the recession—if it happens—will not be as severe as it was in the 1970's. This will lead to unique opportunities in strategic and niche markets, improvements in ESG practices, and a deepening focus on multifamily, single-family, and affordable housing.

As expected, investors in Europe are a bit less positive than their colleagues in the US, but collectively, there continues to be belief and continued investment in the US property markets from global institutions.

For now, the Horsemen have not yet crossed the horizon.

The world is not ending, it's changing.

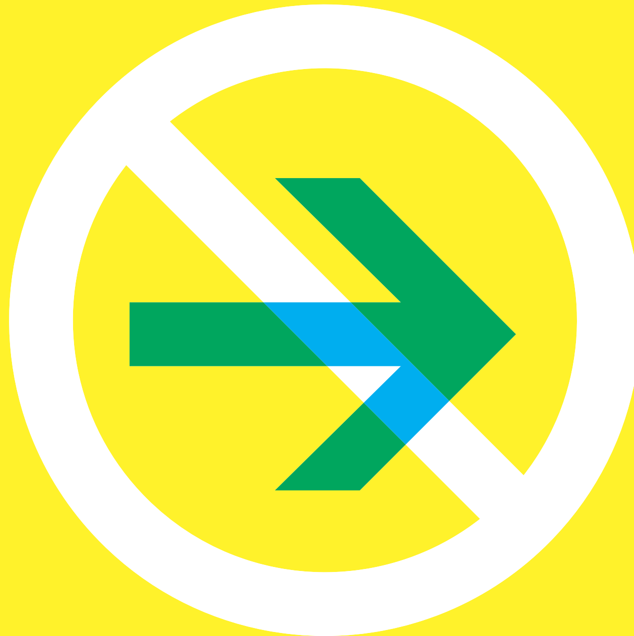
ABOUT THE AUTHORS

Gunnar Branson is the CEO of AFIRE and the publisher of Summit Journal. Benjamin van Loon is Communications Director for AFIRE, and Editor-in-Chief of Summit Journal.

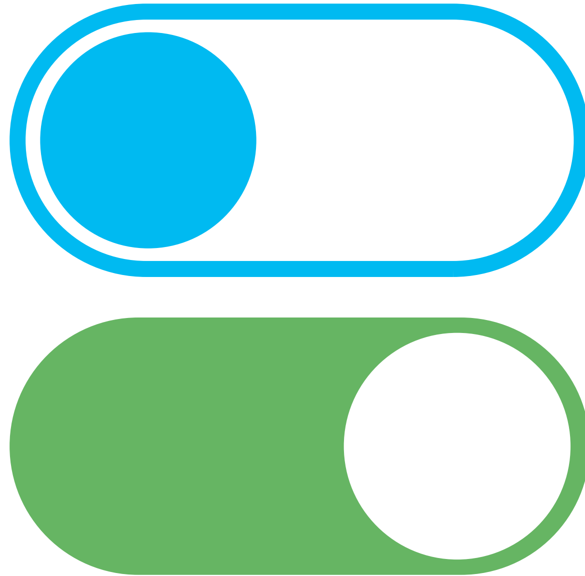
NOTES

This research was conducted with the support of PwC Research and has been graciously underwritten by CBRE and Holland Partner Group.

56% of respondents believed that the industry was behind allocations for US real estate investments in 2022, while more than 80% communicated that the impact of inflation and rising interest rates was worse than expected.



ON/OFF SWITCH



Joseph L. Pagliari, PhD, CFA, CPA
Clinical Professor of Real Estate
University of Chicago, Booth School of Business

While the market rarely sends clear investing signals, current market conditions are replete with clues, but as timing for corrections is difficult a move to risk-off strategies could be useful.

While the market rarely sends clear investing signals, current market conditions send an exceedingly disconcerting set of mixed signals: low unemployment levels and stratospheric (albeit, with some signs of stagnating) asset valuations juxtaposed with increasing inflation and interest rates, a sputtering economy, and war in Eastern Europe.

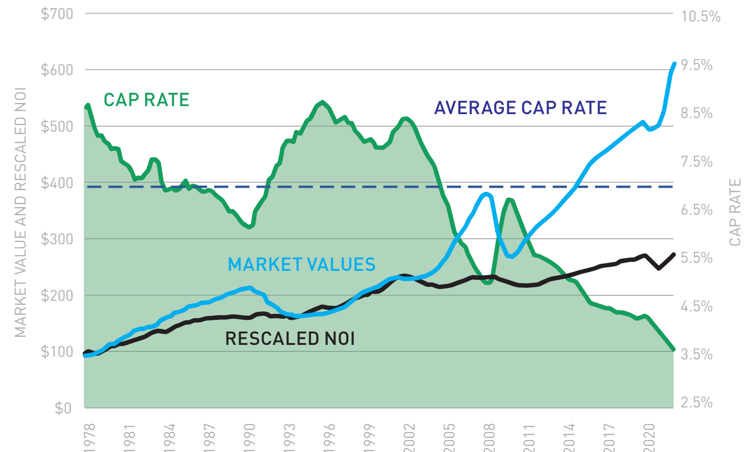
It is understandable that some real estate investors find this juxtaposition a bit bewildering. And, for most investors and fund managers, it is impractical to move to cash while awaiting a resolution of these mixed signals. Moreover, even if some investors feel that a market correction is imminent, it is incredibly difficult to time such corrections. What should thoughtful real estate investors do? Move to risk-off strategies.

CURRENT PRICING

The long-term view of current capitalization rates, for US-based-core properties, suggests that they have never been this low.

EXHIBIT 1: NCREIF INDEX: MARKET VALUES, RESCALED NOI, AND CAP RATES BASED ON A $100 INVESTMENT FOR THE PERIOD 1978 THROUGH Q2 2022

Source: Author

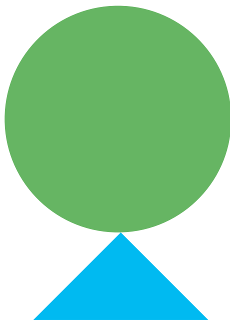


In *Exhibit 1,* the path of the blue line, indexed to the left-hand vertical axis, represents the value of $100 invested in the NCREIF Property Index (NPI) at its inception in 1978. While the scale somewhat obscures valuation changes in the early years of the Index, at least two significant price reversals are seen: (1) in the late 1980s and early 1990s, when Index values fell by 25–30%, and (2) in the mid 2000s, when Index values fell by 35–40%. (If you like, you can add a third: the fairly minor impact[1] of the COVID pandemic is observed in the early 2020s.)

Broadly speaking, the NPI is characterized by high-quality (i.e., institutionally owned) properties. So, the "flight to quality" that occurs in most downturns (real estate or otherwise) is not observed in these data. While reliable data on lower-quality assets—those often found in non-core funds, often referred to as "transitional" properties—are difficult to come by, it is generally believed that lower-quality properties fell even further during the market corrections in the late 1980s and early 1990s, and in the mid 2000s.

Similarly, the red line in *Exhibit 1* indicates the growth in (restated) net operating income assuming US$100 of income[2] in 1978 over the same period (it is also indexed to the left-hand vertical axis). Given a time series of property values and income levels, a time series of capitalization rates is constructed; these rates are shown by the top line of the green-shaded region (and are indexed to the right-hand vertical axis). The green dashed line indicates that capitalization rates have averaged approximately 6.7% over this nearly 45-year period. In general, the time-series path of capitalization rates has been downward sloping. Possible explanations include a generally declining path of interest rates and the growing acceptance of commercial real estate as an institutional asset class.

Whatever the reasons for the downward trend, cap rates cannot endlessly decline—there needs to be some bottom, if not a rebound.



ANGST ABOUT PRICING

Whatever the reasons for the downward trend, cap rates cannot endlessly decline—there needs to be some bottom, if not a rebound. And to that end, the current pricing of US commercial real estate ought to give investors pause. For example, today's prices for core properties in the primary markets are more than 50% higher than before the Global Financial Crisis (GFC), and today's cap rates, approximately 3.8%, are the lowest in the NCREIF history.

While discussions about and definitions of "bubbles" are fraught with imprecision, Greenspan—reflecting on the GFC—indicated what he thought the signs of a bubble to be:[3]

> ". . . I define a bubble as a protracted period of falling risk aversion that translates into *falling capitalization rates* that decline measurably *below their long-term, trendless averages*. Falling capitalization rates propel one or more asset prices to unsustainable levels. All bubbles burst when risk aversion reaches its irreducible minimum, i.e., credit spreads approach zero, though analysts' ability to time the onset of deflation has proved elusive." (Emphasis added.)

If we take Greenspan's definition to the NCREIF data, we see that today's capitalization rates are nearly ' ($ BPS lower than their long-term average:

Cap Rate Comparison

Current Cap Rate	3.68%
Long-Term (Trendless Average)	7.05%
Difference	*3.37%*

This difference represents the greatest disparity between the current capitalization rate and the then-current long-term trendless average of prior capitalization rates in the NPI history.

RISK-ON/RISK-OFF INVESTING

Since we are in the real estate investment business, most of us can't "go to cash" and wait for a price correction. It may never come. Instead, shrewd investors often employ a "risk on/risk off" approach to investing. Following an event such as the GFC, when investors' risk aversion is quite high, the smart money invests aggressively (i.e., "risk on"). However, as memories of the adverse event fade and risk aversion diminishes dramatically, the smart money invests conservatively (i.e., "risk off"). In the latter period, investors aren't paid much for taking risk; moreover, and assuming the adverse financial event arrives, the low-quality assets are most-harshly valued downward (i.e., there's a "flight to quality" in the downturn).

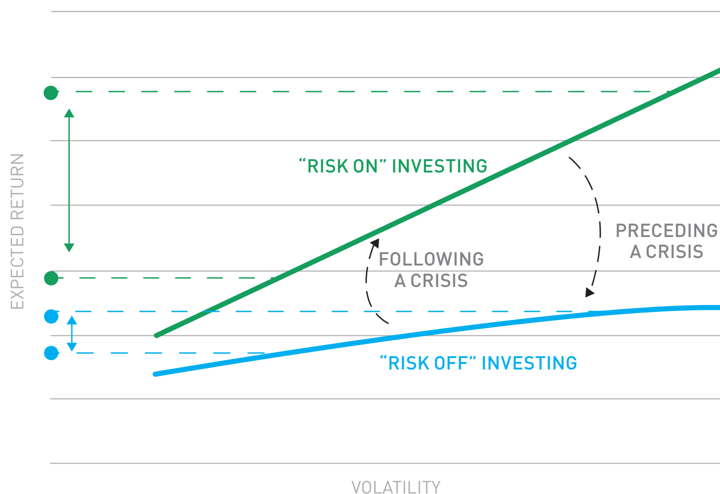
Perhaps Warren Buffett best summarized this approach: "We simply attempt to be fearful when others are greedy and to be greedy only when others are fearful."[4]

While the signs for such market extremes are imprecise, investors often look to telltale signs in both the credit markets (such as credit spreads, available leverage ratios, severity of loan covenants, etc.) and the equity markets (such as cap rates vs. risk-free rates, ease of fund-raising, the amount of "dry powder," governance provisions in fund and/or joint venture documents, etc.), the strategy can be generally described with what we see in *Exhibit 2:*

Very few investors have broad discretion. Most investors—and certainly operators and fund managers—have discretion within the confines of a given strategy.

EXHIBIT 2: ILLUSTRATION OF CHANGING RISK/RETURN CONTINUUM, AND RISK-ON VS. RISK-OFF INVESTMENT STRATEGIES

Source: Author



Thus, risk-on/risk-off investing is intended to tactically respond to current market conditions. Following some sort of market correction (e.g., the GFC), the risk-return continuum is typically elevated and steeply sloped. However, as the market's collective reaction to that correction wanes (e.g., more than a decade has passed), the continuum sinks and is shallowly sloped. In the former state, the expected to rewards to risk-taking are significant; in the latter state, the expected to rewards to risk-taking approach insignificant.

That said, de-risking depends on each real estate investor and fund manager. Very few investors have broad discretion. Most investors—and certainly operators and fund managers—have discretion within the confines of a given strategy. As one example, the core real estate manager[5] might avoid the "style drift" (in this case, a tendency to move towards core-plus and/or value-added strategies) often found in "late cycle" investing, and instead concentrate on best-in-class assets. Such a rebalancing avoids the dilutive effects of the promoted interests paid to operating partners and the increased drag of transaction costs that typically accompany the short-term nature of non-core investments.[6] Furthermore, investors and fund managers may—where possible—consider lowering the leverage ratio of their investments, thereby reducing the chances of financial distress often associated with significant market downturns. Similar arguments could be made on behalf of non-core managers and strategies.

WHEN THE INCREASE IN RISK DWARFS THE INCREASE IN RETURN

In today's low-return environment, some investors have moved their real estate portfolio allocations further out on the risk/return continuum, arguing that low-risk strategies provide insufficient rewards. And while it is true that moving further out on the risk/return continuum increases the investor's expected return, it does so at the increasing risk of a significant shortfall with regard to the investor's liability management.[7] To illustrate this proposition, consider *Exhibits 3* and *4:*

EXHIBIT 3: RISK-ON ENVIRONMENT: ILLUSTRATION OF RISK-RETURN CONTINUUM (NET OF FEES) AND ESTIMATED LOSS PROBABILITIES FOR SELECTED PORTFOLIOS

Source: Author

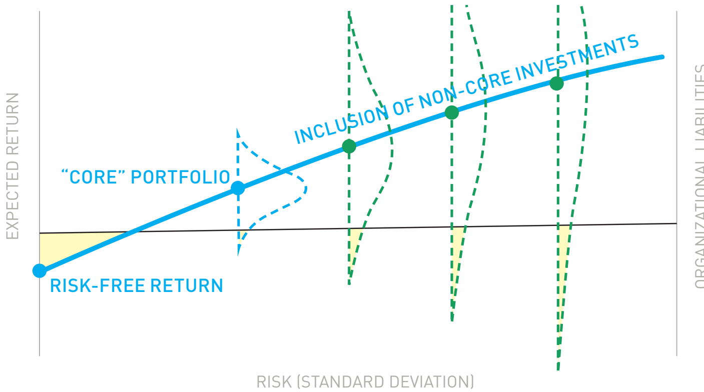
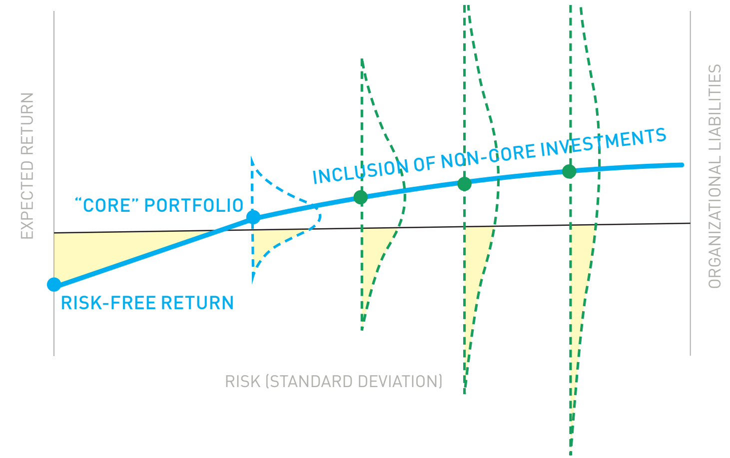


EXHIBIT 4: RISK-OFF ENVIRONMENT: ILLUSTRATION OF RISK-RETURN CONTINUUM (NET OF FEES) AND ESTIMATED LOSS PROBABILITIES FOR SELECTED PORTFOLIOS

Source: Author



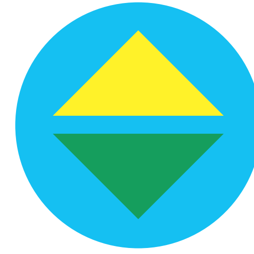
The first of these two exhibits is meant to convey the general sense of a risk-on market, in which the chances of the realizing a return below the investor's liabilities or a given threshold are fairly small in comparison to the second of these two illustrations. *Exhibit 4* is meant to convey the cost of "reaching for yield" (or, equivalently, "swinging for the fences") in a low-return/risk-off world; such behavior significantly increases the risk of realizing a shortfall with respect to the organization's liabilities.

This cost is compounded by the likelihood that a real estate market correction–should it come to pass–will coincide with a similar correction in the broader capital markets, perhaps abetted by bouts of "distress" and illiquidity; all of which greatly worsens the downside of being overly invested in risky assets during a market reversal.

In today's low-return environment, some investors have moved their real estate portfolio allocations further out on the risk/return continuum, arguing that low-risk strategies provide insufficient rewards.

ABOUT THE AUTHOR

Joseph L. Pagliari Jr., Ph.D., CFA, CPA, is Clinical Professor of Real Estate at the University of Chicago Booth School of Business and focuses his research and teaching efforts on issues broadly surrounding institutional real estate investment.



NOTES

[1] While not the main point here, the minor dip of ≈ 1.7% in NPI valuations may be understated, attributable to "appraisal smoothing." As a counter example, it is estimated that asset values in the public REIT market fell by ≈ 6.7%, while asset values for those public REITs investing in the core property types fell by ≈ 10.9%. (Moreover, Green Street's Commercial Property Price Index estimates, as of Q2 2022, a near 5% decline in their all-property index—whereas NCREIF shows no such retreat.) See: "REITs Amid a Pandemic," Green Street, accessed February 1, 2022; greenstreet.com.

[2] While a $100 property investment does not produce $100 of income, both indices are initially set to $100 so as to improve the visual comparison of changes in property values to changes in income levels. Without restating the income levels, it would be difficult to visually discern the differences in changing income levels.

[3] See: Alan Greenspan, "The Crisis," Brookings Papers on Economic Activity, working paper, Spring 2010, p. 201–46; brookings.edu/bpea-articles/the-crisis

[4] While Buffet's remarks were aimed at clear market turns, the tactical application of his approach is also broadly applicable. See: Warren Buffet, "Chairman's Letter," Berkshire-Hathaway Annual Report, 1986, accessed August 11, 2022; berkshirehathaway.com/letters/1986.html

[5] See: Joseph Pagliari, "High-Yield Lending's Characteristics as a Function of Asset-Level Volatility," CRE Finance Council, April 2022; faculty.chicagobooth.edu/-/media/faculty/joseph-pagliari/docs/mezzscharacteristicfassetcharacterisitics13022.pdf

[6] See: Mitchell Bollinger and Joseph Pagliari," Another Look at Private Real Estate Returns by Strategy," Journal of Portfolio Management 45, 2019; doi.org/10.3905/jpm.2019.1.098

[7] The nature of the liabilities depends on the investor's circumstances. For example, a defined-benefit pension plan has to fund future payments to the plan's beneficiaries, a university endowment plan aims to produce a certain minimum spending rate, a household would like to finance a comfortable retirement and so on.

REVIEWER RESPONSE

Joe Pagliari's article is a worthwhile read. His writing reflects a special mix of academic rigor and inside baseball from his days at an investment advisor.

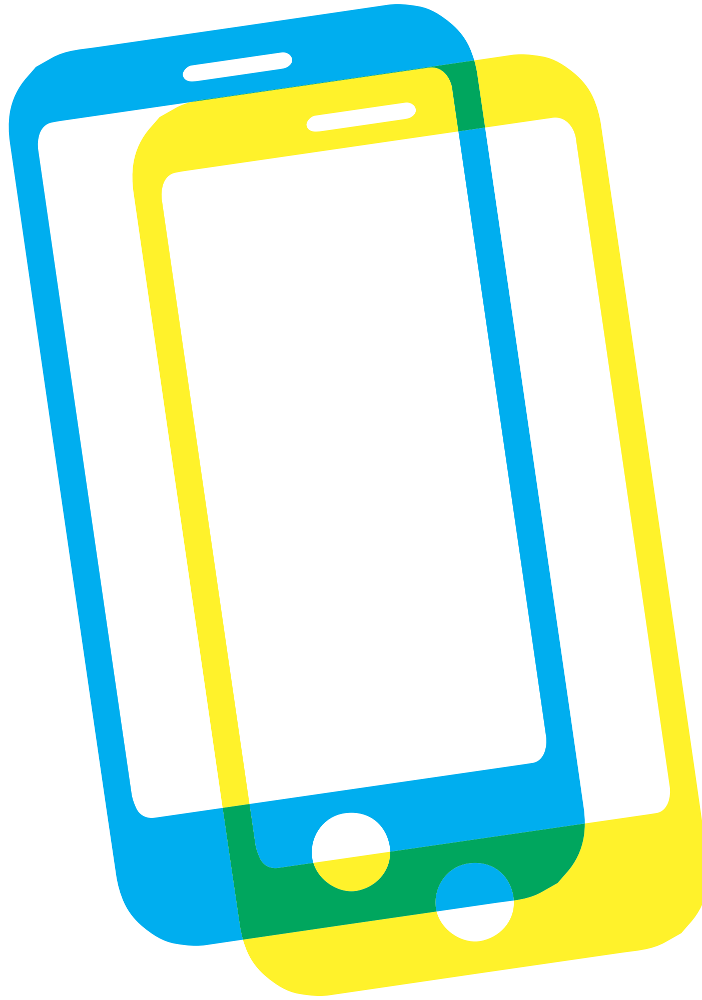
He's right about the complexity of the current macro backdrop, with strong job creation occurring even as we face the possibility of a second consecutive quarter of negative GDP. Within real estate, change is already occurring as rate hikes to quell inflation mean that the cost of debt now exceeds the ultra-low capitalization rates on which assets were trading. Initially, cap rates were moving up for lesser-quality assets in lesser locations but now, cap rates are rising more widely, if not across the board.

I share Joe's view that this is a good time to seek risk-off strategies, including investment in retail, where leverage is still accretive. Despite store openings exceeding store closings, retail remains out of favor, hence its high initial yield. Asset selection is key, but opportunities exist. Similarly, add to the mix sectors with defensive characteristics like storage and student housing. Both have short lease terms—positioning them as inflation hedges—and tenant demand that tends to hold up even as economic growth slows.

– Mary Ludgin, PhD
Senior Managing Director, Head of Global Research, Heitman

Member, Summit Journal Editorial Board

MOBILE ZONING



Robert Seldin
Managing Principal
Madison Highland Live Work Lofts

Zoning and building codes, the software of the built environment, have governed the use, location, and occupancy of all US real estate for the past hundred years. Mobile information technology has finally challenged that primacy, and the shape of US real estate markets will never be the same.

The power of municipalities to dictate land use in the US was established via the landmark 1926 Supreme Court ruling; the *Village of Euclid, Ohio v. Ambler Realty Co,* that codified the practice of separating land use by functional zone.[1] Following *Euclid v. Ambler,* all US real estate, in conjunction with the rise of professional city planning, came to be governed by the belief that a building's use should be fixed, that land use should be centrally controlled, limited to specific predetermined uses, and divided by function. This is the foundation of the modern US real estate industry.

Mobile information technology has upended US land use regulation, and the ramifications of this technological upheaval are finally coming into view.

As many current land use principles were established during the Industrial Revolution, concepts that supported and enhanced a twentieth-century industrial society increasingly conflict with a twenty-first-century economy organized around mobility and knowledge. While industrial jobs are typically tied to a permanent physical location (a factory or manufacturing facility), making them well-suited for external land use controls, today's information and knowledge workforces, powered by mobile telecommunication and cloud-based information technology, are increasingly placeless. This shift has upended real estate demand and the presumptive logic of place-based use limitations and central control.

In today's mobile information economy, the power to do more things everywhere means that, in a practical sense, land use is now vested with individual people, not places. No longer tethered to a fixed location of discrete and limited use, people now bring their jobs, stores, and entertainment with them wherever they go. Not surprisingly, many of these newfound freedoms place personal choice in direct conflict with zoning and building codes. In shifting control to individuals and consumer choice, mobile information technology is challenging government and building owners for primacy in deciding who does what, where, and when.

Another result is that for office and retail assets specifically, everywhere has become “no-cost” shadow competitive supply. Any asset sector that is forced to compete with unlimited “no-cost” competition is permanently impaired.

THIS IS THE TECHNOLOGICAL USURPATION OF EUCLID V. AMBLER

One result of this change is that people can now be more productive anywhere through their phones than any single purpose building may permit. This suggests that restrictive zoning and building codes, once a source of economic and social stability, have become agents of hastened functional obsolescence. Rigidity has become their weakness.

Another result is that for office and retail assets specifically, everywhere has become “no-cost” shadow competitive supply. Any asset sector that is forced to compete with unlimited “no-cost” competition is permanently impaired.

To remain relevant, rather than fighting technology-enabled freedoms, building owners and municipalities must learn to enable, align with, and support expanded functionality and consumer choice. Those who don’t will lose. The impacts will define the future of real estate markets, capital markets, municipal finance, the design of cities, and the environment.

Let’s focus on two sectors that zoning and building codes have traditionally separated, but which are now merging through technology: residential and office (i.e., living and working)

DC AREA: THE CANARY IN A COAL MINE FOR A CHANGING ECONOMY

Emerging from the pandemic crisis, the line between home and work hasn’t just blurred—it has virtually disappeared. Markets featuring highly educated, well-compensated information and knowledge workforces—traditionally the safest office markets—are increasingly the most at risk. Why?

At its most basic, an office building is a machine for storing and processing information. Its value is therefore derived from the volume of people who need to visit every day to access information to do their jobs. In 2007, the iPhone and mobile internet technology liberated all information from buildings. Today, most people carry in their pockets a machine that provides immediate access to all information, at all times. The permanent de-linking of information from physical space shifted power from the landlord to the tenant and permanently changed the dynamics of office demand.

The Washington, DC region is home to the US Federal Government, the nation’s largest and most stable employer. Due to the outsized influence of federal employment, the DC area was long considered the nation’s safest office investment market. Evidencing this stability, in Q1 2010, Washington, DC had the lowest office vacancy rate and the highest average office rents in the US.[2]

In addition to being the nation’s largest employer, the US Federal Government is likewise the nation’s largest information processing enterprise. It is through this lens that the disaggregating power of mobile information technology and its impact on office demand become clear.

In 2010, the US Government passed the Federal Telework Enhancement Act (FTEA) and in Q1 2010, the DC MSA (Northern Virginia, District of Columbia, Suburban Maryland) had an overall office vacancy rate of 11.93% on a total inventory of 390 million SF, for a total vacant supply of 46.5 million SF.[4,5] The FTEA required all executive agencies to establish and implement policies and protocols enabling staff to work from home. The goal was enhanced work/life balance, and talent recruitment and retention. In passing the FTEA, the US Federal Government became the first large-scale employer to embrace a mobile workforce.

Over the course of the next decade, the DC area experienced positive job growth every year, and every year office vacancy rose. This dichotomy was unprecedented. What had never occurred in any year between 1945 and 2010, has occurred every year since.

Today, the DC MSA has an overall office vacancy rate of 18.8%; a total office inventory of 372.5 million SF; and a total vacant supply of 70 million SF; an increase in total vacancy of 23.5 million SF since 2010. During this same period, the area’s office inventory decreased by 17.5 million SF, meaning that total DC area office demand decreased by 41 million SF in just over one decade.[6] This is the equivalent of an additional 205 office buildings, each containing 200,000 SF, all becoming 100% vacant, in the safest US office market. In response to reduced demand, rental rates declined while concessions and TI allowances increased, lowering office values market wide.

Similar demand and value reductions to office assets are now occurring across the US.

Facing unlimited tech-enabled shadow competition and increased worker freedom, office owners must find additional utility for their assets in order to maintain profitability. But the burden isn't on owners alone. Just as decreased demand begets decreased value, decreased value begets decreased tax revenue. Confronted with declining office demand, and declining sales tax revenue from reduced office attendance, municipalities that had long relied upon stable daytime populations and rising office values to support their operations will increasingly face an unenviable choice between either reducing basic services (e.g., schools, police and fire protection, etc.) or increasing property taxes on residents.

WORKING FROM HOME MAY NOT BE AS EASY AS YOU THINK

Prior to the pandemic, in 2019, less than 6% of the US workforce (10 million people) worked from home.[7] In 2009, the amount was 4% (6 million people).[8] This represents a four-million person increase over a ten-year period. Today, according to the most recent polls and studies, 58% of the 164 million-person US workforce, or 96 million people, telework at least one day each week.[9] This means that an additional 86 million people, who only three years ago spent some portion of each day at an office, now spend that time somewhere else. This is the largest and fastest migration in human history.

Mobile information and knowledge workers now comprise the largest and most underserved constituency in commercial real estate, and its least understood demand generator. For many US corporations, this transition has created a windfall opportunity, as real estate costs have been offloaded from corporate balance sheets onto employees. Despite the rapidly growing market for working from home, most of the existing housing supply in the US is neither designed for nor equipped to support this transition. What are some of the challenges?

In the US, residential and office buildings are designed for different uses and occupancies. This difference is reinforced through building codes which each have different standards for fire protection, sprinkler design and coverage, building egress, floor strength, handicapped accessibility, and parking, based upon use. As commercial uses are designed for higher occupancies, commercial codes are typically more restrictive than residential codes, making the retrofit of residential properties impractical for commercial function. From a land use perspective, no standard accommodation currently exists for multi-family housing units to serve as *de facto* office space. Therefore, despite the perception that existing multi-family supply should provide a natural home for rapidly emerging telework demand, code impediments complicate this reasonable adaptation. Even if local zoning regulators were willing to allow existing multi-family buildings to accommodate expanded commercial cross functionality, existing building code and life-safety limitations would remain significant impediments to any meaningful near-term transition.

Creating assets that can attract and support evolving tenancies is, therefore, the single greatest opportunity in commercial real estate today.

In addition to code considerations, building owners and investors who allow assets to be used in ways that are not clearly lawful (apartment owners allowing residents to occupy their apartments as an office) face considerable risks from insurers and lenders who require that assets be operated in compliance with all local laws and ordinances. Tenants too, face considerable risk in assuming that the technology-enabled freedoms correspond with lawfully permitted use. Would a renter's insurance claim made on an apartment unit being occupied for a non-lawful office use be granted?

Just as today's existing office buildings are poorly equipped to compete with unlimited no-cost shadow supply, building and zoning code limitations render most of today's existing multi-family housing ill-suited to meet rapidly expanding telework demand. Both asset types, therefore, face hastened technology-fuelled functional obsolescence.

How large is the challenge? The US today has more than 96 million teleworkers, 44 million rental apartment units and almost 15 billion sf of vacant office space.[10] The total value of the combined US office and multi-family markets is US$5.4 trillion, and neither sector is well suited to accommodate largest pool of rapidly emerging demand.[11] Creating assets that can attract and support evolving tenancies is, therefore, the single greatest opportunity in commercial real estate today.

FLEXIBILITY: THE NEW NORMAL

As technology will not stop advancing, how can investors prepare? Some ideas to consider include:

1) Flexibility is stability: As consumers now have the power to decide where and when to do everything, buildings need regulatory regimes that support customer self-determination. Going forward, real estate products that expand function to enable growing demand will generate the safest income. As income stability and predictable growth drive exit multiple, the more a building can do, and the more people it can effectively serve, the more it will be worth.

2) Existing office assets are now value plays: As technology permanently changes the demand for even recent vintage properties, many high-quality single purpose office assets will now cost far less to buy than to build. Repurposing high-quality physical plants with updated "software" to enable expanded uses will result in generational basis and speed to market advantages, while limiting the risks of ground up construction.

3) Increased utility means increased sustainability: Buildings that expand allowable uses to align with evolving consumer choice means fewer buildings are needed. Fewer buildings equals more green space. Multi-functional spaces are likewise the most affordable as they allow consumers to combine several "life-cost" categories (e.g., living, working, and commuting) within one physical space. In a world of $4–$5/gallon gas, that is meaningful. Increased building utility likewise extends the life and peak hour functionality of municipal infrastructure while allowing people to trade commute time for an expanded set of more enjoyable pursuits. Considering these clear benefits, one question for investors is can they still achieve ESG goals by investing in single purpose real estate assets?

Recognizing the potential for an uneven regulatory response, portfolio managers should consider allocating capital to locations where municipal leaders either support expanded building utility today or where underlying codes permit expanded uses by right.

To remain relevant, physical space needs to be as flexible and value enhancing to its customers as cyber space.

4) Municipal responses will be uneven: Faced with declining tax revenues from reduced office demand, municipalities may be tempted to reassert land use hegemony and increase enforcement against home workers. This would likely increase volatility in multifamily assets while having little to no impact on office utilization. Recognizing the potential for an uneven regulatory response, portfolio managers should consider allocating capital to locations where municipal leaders either support expanded building utility today or where underlying codes permit expanded uses by right. In the new reality of permanent evolution, the local Planning Director and Fire Marshal will play an outsized role in the future viability of municipalities, individual real assets, and become quantifiable risks for portfolio managers to underwrite. Locations where assets can quickly and inexpensively pivot to where demand is going will be increasingly attractive to capital.

As technologies advance, the built environment must keep pace. To remain relevant, physical space needs to be as flexible and value enhancing to its customers as cyber space. While we don't know what tomorrow's technologies will enable, we can be certain that they will be faster, more dynamic and more liberating than what we have today. Building owners, investors, and municipalities must be proactive in establishing regulatory frameworks that understand, anticipate, accept, and support this new reality. The future of real estate investment requires it.

Locations where assets can quickly and inexpensively pivot to where demand is going will be increasingly attractive to capital.

ABOUT THE AUTHOR

Robert Seldin is Managing Principal for Madison Highland Live Work Lofts, part of Madison Marquette, a leading private full-service real estate provider, investment manager, developer, and operator headquartered in Washington, DC.

NOTES

[1] Michael Simpson, "People & Planning," *Encyclopedia of Cleveland History*. Case Western Reserve University. 2022; case.edu/ech/articles/v/village-euclid-v-ambler-realty-co

[2] Lincoln Property Company, "Washington, DC Regional Quarterly Review: Q1 2010," lpcwashingtondc.com/

[3] "The Largest Employers in the United States," World Atlas 2017, worldatlas.com/articles/the-largest-private-employers-in-the-united-states.html

[4] "Telework Enhancement Act," Official Website of the Office of Personnel Management, accessed August 1, 2022, telework.gov/guidance-legislation/telework-legislation/telework-enhancement-act/

[5] Lincoln Property Company, "Washington, DC Regional Quarterly Review: Q1 2010," lpcwashingtondc.com/

[6] Lincoln Property Company, "Washington, DC Regional Quarterly Review: Q1 2010," lpcwashingtondc.com/; Matt Kruczlnicki, Adam Reiskin, and Miles Barkley, "Washington Metro Area Office Market Reports 1Q22, Market Summary Chart," Newmark Q1 2022. nmrk.com/insights/market-report/washington-dc-office-market-reports

[7] US Census Bureau

[8] Coates, Patrick Coates, "Remote Work Before, During and After the Pandemic," NCCI, updated January 25, 2021, ncci.com/SecureDocuments/QEB/QEB_Q4_2020_RemoteWork.html

[9] Andre Dua, Kweilin Ellingrud, Phil Kirschner, Adrian Kwok, Ryan Luby, Rob Palter, and Sarah Pemberton, "Americans Are Embracing Flexible Work—and They Want More of It," McKinsey, updated June 23, 2022, mckinsey.com/industries/real-estate/our-insights/americans-are-embracing-flexible-work-and-they-want-more-of-it; Jack Steward, "The Ultimate List of Remote Work Statistics for 2022," Findstack, updated April 24, 2022,findstack.com/remote-work-statistics/

[10] Eliza Theiss, "National Office Report," Commercial Edge, updated June 2022, commercialedge.com/blog/national-office-report/

[11] "Estimating the Size of the Commercial Real Estate Market in the US," Nareit, updated 2019, reit.com/data-research/research/nareit-research/estimating-size-commercial-real-estate-market-us

REVIEWER RESPONSE

Seldin's article succinctly dissects the intersection of land use dictated by municipalities, the built environment, and the impact of technology on demand—particularly for office.

The result is an eye-opening look on how work-from-home has impacted office use, both pre- and post-pandemic, and how both owners and municipalities will need to adapt to changing demand patterns.

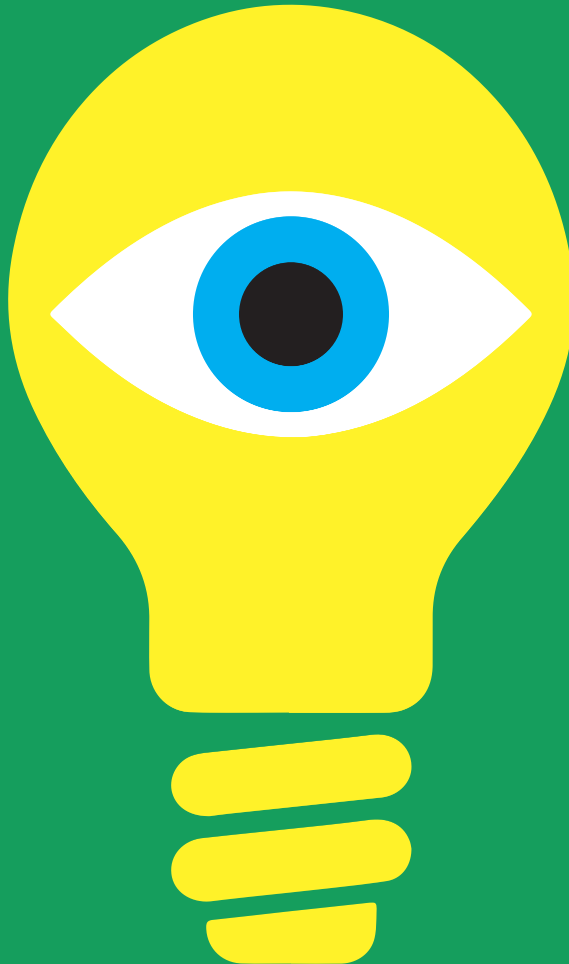
While there have numerous articles on the future of office, Seldin's article is unique and provocative, framing the issue with the fundamentals of real estate: i.e., what is the permitted use of the physical asset? It then moves to how technology has untethered the knowledge worker to the physical asset. Using the Washington DC MSA as a case study, it shows how the Federal Telework Enhancement Act, passed in 2010, massively impacted the space-use in the market over the last ten years. He nicely frames that "office owners must find additional utility for the assets" and municipalities will be faced with choices to address declining revenue impact for under-utilized office.

While he points out that working from home in apartments may not be "up to code" and give rise to certain liability issues, one might argue that is currently not a burning issue for municipalities and insurers alike. Overall, this is a fresh take on demand drivers for space use and might be considered one of the most interesting reads on the topic in 2022.

– Thomas Brown
Partner,
LGT Capital Partners

Member, Summit Journal Editorial Board

GET SMART



Noëlle Brisson FRICS, MAI
Co-Founder
CyberReady, LLC

Michael Savoie PhD
Co-Founder
CyberReady, LLC

As buildings become increasingly technologized, especially after the pandemic, cyber-attacks can put entire properties at risk and require a firmwide security approach.

In light of the recent onslaught of cyber-attacks on American businesses, consider the following:

- 60% of attacks come from misconfigured remote access
- Most attacks could be avoided by simple human behavior
- Most breaches are discovered several months after they have happened
- “Beneath the surface” factors comprise over 95% of the financial impact of a breach

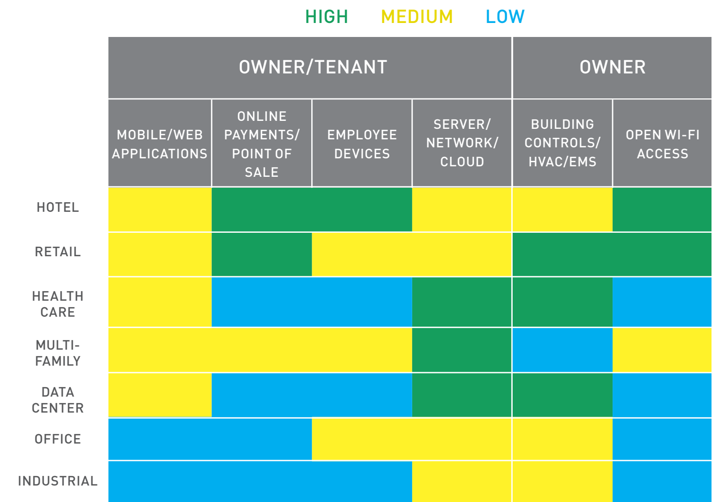
As these statistics show, the days of cyber-attacks being an IT issue are gone. Today, cyber is a business risk similar to market, operations, or financial risk, and must be treated that way. However, there are concrete steps a business can take to minimize their cyber risks—especially those posed by smart buildings.

PRACTICING COMMERCIAL REAL ESTATE IN THE AGE OF SMART BUILDINGS

A “smart building” is a building with infrastructure attached to the internet and/or internet of things (IoT) devices embedded in the building, such as utility meters, HVAC systems, elevators, vending machines, and building information management systems (BIMS), to name a few. Smart buildings become targets for hackers and their risk profile increases *(Exhibit 1)*.

EXHIBIT 1: VULNERABILITIES BY PROPERTY TYPE

Source: Deloitte Center for Financial Services



Note: High to low is defined by the level of risk exposure for each property type by each entry point.

THE EXPONENTIAL GROWTH OF IOT

Data is not the only target for modern hackers. Core systems, such as industrial controls and digital supply chains, are being hacked in a dangerous trend to disrupt and destroy. For example, 2021 became known as the year of the supply chain attack. The first and most notable was the SolarWinds supply chain attack identified in early January of that year. "Ransomware-as-a-service" (RaaS) also made headlines in May 2021 when Colonial Pipeline, was hit with an attack using the DarkSide RaaS.

Many IoT devices are out of sight, which, in many cases, means out of mind. Most people are not even aware of how many IoT devices exist within their building and what remote access to equipment for evaluation and repair and connection to municipal grids means. Attacks on IoT devices now make up roughly 33% of infected devices. Connected elevators, smart HVAC meters, printers, coffeemakers, interactive kiosks, and other seemingly innocuous connected devices became a cybercriminal favorite in 2020 and continued to be targeted in 2021.[1]

Cyber criminals are also adapting their attack methods. They are targeting the human layer—the weakest link in cyber defense. According to the Verizon 2022 Data Breach Investigations report, the human element continues to drive breaches. In 2021, 82% of breaches involved a human element.[2]

With the increased frequency of cyber-attacks and a heightened awareness of the need for data privacy, many governing bodies, as well as professional and trade organizations started issuing law, regulations, directives, and guidance notes.

EXPANSION OF LAWS AND REGULATIONS

With the increased frequency of cyber-attacks and a heightened awareness of the need for data privacy, many governing bodies, as well as professional and trade organizations started issuing law, regulations, directives, and guidance notes. Abroad and in the US, a few examples of increased awareness of cyber risks and heightened regulatory scrutiny are worth mentioning.

Government

Decades ago, the US Congress started regulating the use of sensitive "personally identifiable information" (PII). For example, since 1974, the Family Educational Rights and Privacy Act (FERPA) protects the privacy of student education records. In 1996, the Healthcare Insurance Portability and Accountability Act (HIPAA) addressed the security and privacy of health information.

This concern for sensitive information took a huge leap in 2016 when the European Commission issued the General Data Protection Regulation (GDPR) to protect the data privacy of European citizens. Since GDPR subsequently became enforceable in 2018, many other countries across the globe issued laws modeled after it, such as Canada's Personal Information Protection and Electronic Documents Act (PIPEDA), as well as the UK's version of GDPR.

In the US, similar regulations (albeit for consumers, not citizens) have been adopted at the state level. California was an early adopter of similar regulations when it passed the Consumer Protection Act (CCPA). Similar statutes followed in Connecticut, Colorado, Utah, and Virginia. Several other eastern states are pondering comparable legislation. The Securities and Exchange Commission (SEC) also strengthened its guidance to assist public companies in preparing cyber risks and incidents disclosures: 10K and 10Q filings will need to include more information on the company's risk management procedures. Furthermore, data breaches will need to be reported, including costs and litigations.

The European Energy Performance of Buildings Directive (EPBD) introduced the concept of a Smart Readiness Indicator (SRI) as a common EU scheme for rating the smart readiness of buildings.[3] SRI aims to "raise awareness on the benefits of smarter building technologies and make their added value more tangible for building users, owners, tenants, and smart service providers." Although it focuses on energy saving and well-being, it points to the overriding interrelationships between all smart infrastructure and networks interacting within a building. As those relationships increase, the entry points of a cyber-attack multiply.

Private Sector

The private sector is also mobilizing to strengthen data protection. On the global stage, the Basel Committee on Banking Supervision in 2021 further raised the importance of sufficient IT risk control measures to minimize that category of operational risks. The International Standards Organization is in the process of updating ISO 27001 and keeps expanding standards dealing with information security and data protection. More recently, the World Economic Forum identified the need to bridge the gap between decision-makers and technical experts, and launched a cybersecurity platform which among other initiatives, is developing a cyber resilience index for businesses.

There are also several examples of data protection particularly relevant to commercial real estate:

- The National Elevator Industry, Inc. (NEII) released *Elevator & Escalator Industry Cybersecurity Best Practices* in 2019, a guideline developed by cybersecurity and codes experts from NEII member companies and international industry partners.
- In the UK, in 2022, the National Cyber Security Centre (NCSC) and the Chartered Institute of Building (CIOB) partnered to help small-to-medium sized construction companies protect their businesses and building projects from cyber-attacks.
- In 2021, the European Association for Investors in Non-Listed Real Estate Vehicles (INREV) implemented ISO 27001 and committed to cybersecurity best practices to better protect their members' data as they revamped their data warehouse.

RAISED AWARENESS OF THE RELATIONSHIP WITH SMART GRIDS AND SMART CITIES

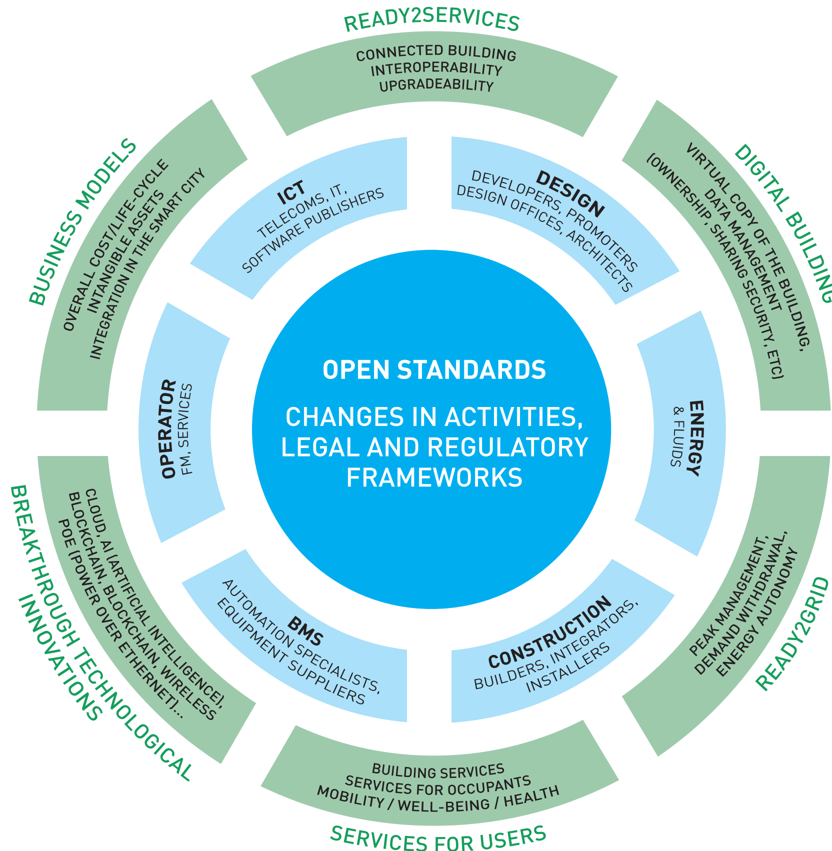
Traditionally, a city was an urban area where people and physical infrastructure interacted. A smart city adds a technology layer and uses different types of electronic data collection sensors to supply information used to manage assets and resources. This includes data collected from citizens, devices, and assets that are processed and analyzed to monitor and manage traffic and transportation systems, power plants, water supply networks, waste management, law enforcement, information systems, parking, schools, libraries, hospitals, and other community services.[4]

Geographic Information Systems (GISs) have also been used by cities for many years now for more informed decision-making. Cities are now developing Digital Twins using this data to better understand how buildings, streets, and other assets can be used, optimized, and made safer.

The increasing deployment of smart city technologies is turning cities and buildings into huge data centers. As interconnection increases, so does the risk of data being used for inappropriate activities. Cities are collecting more and more data on public and privately-owned buildings to be more efficient and meet evolving sustainability requirements. And while smart cities have the potential to be more efficient, they present risks without proper management and oversight of data usage. This explains, for example, the notorious abandonment of the Quayside project by Sidewalk Labs in Toronto over fear of obtrusive data collection.[5]

EXHIBIT 2: THE SMART BUILDING ECOSYSTEM

Source: Smart Buildings Alliance



DATA GOVERNANCE

Despite the recent and emerging data regulations, not enough importance is given to data governance. There is a compelling need to discuss data governance not from a regulatory stance but from a holistic risk approach.

Shared services, IoT, and third parties multiply the opportunities for data being compromised or stolen. It is imperative that organizations define the "right data" so it can be protected. Right data is that needed by the organization to reliably achieve its strategic goals. The problem today is that because it is so easy to collect data, organizations are drowning in data. In fact, too much data may even obscure transparency. For example, the French regulator Autorité des Marchés Financiers (AMF) sees too much data submission as a red flag for risk.[6] By first defining what constitutes its "right" data, an organization can become more selective. This approach not only reduces costs, it speeds-up response times if there is breach.

The second key step is an accurate and up-to-date inventory of business data, categorized by departments and/or risk owners. Through that inventory, companies will know which assets or devices are holding the right data and information. It will be easier then to drive a more relevant risk and resource allocation, and to map those items of risk toward an acceptable and actionable framework. This is particularly relevant in the case of remote workers or bring-your-own-device (BYOD) practices sometimes accepted by companies.

The third step is to organize the data flow to document how the various business lines use the data: why is the data needed in the first place, how end-users process it, and what happens to this data from creation through using, sharing, storing, updating, and finally archiving or deleting it.

The lifecycle of data should be given scrutiny: is there a vetting process for when data comes in and when it leaves your control? Do you know who owns the data? The value chain of data ownership can be very complicated since it often involves aggregation from many sources.

Finally, a set of controls and audit procedures must be in place to ensure ongoing compliance with internal data policies and external government regulations. Data governance should extend to third parties: the same data issues raised and resolved internally should be addressed in interactions with external entities.

A cyber "bonus" is starting to emerge in large cities, with small rental premiums, faster absorption, or better retention, and less downtime between tenants.

UPDATED UNDERWRITING

Appraisers inspections and valuation assumptions do not yet take into full consideration cybersecurity risks, the potential impact on marketability of the building, how "smart" the building is, the level of connectivity, or the presence or absence of cyber clauses in leases. Property Condition Assessment (PCA) reports continue to follow checklists for HVAC and other electrical, plumbing and mechanical systems by type, capacity, condition, defaults, and cost to cure. However, beyond the physical condition and soundness characteristics, these reports do not raise awareness of the cyber hygiene of building systems. In that respect, the analysis of obsolescence needs to be expanded.

In their marketing and leases, office buildings typically document physical security, whether through the presence of a security desk or doorman, or ID cards or key fobs containing personal information, hours of operations, video surveillance in parking lots, and so on. However, a secure IT infrastructure is not yet systematically considered part of this same amenity package.

To meet the growing threat of cyber risk, cybersecurity issues should be included in leases. Any systems connected to several tenants, shared building internet connectivity, interactive lobby directory kiosks, and other shared assets should all be identified, and access documented. Landlords and tenants should conduct cyber sweeps to make sure that previous tenants' accounts have been deleted from hubs, routers, and devices prior to providing access to new occupants.

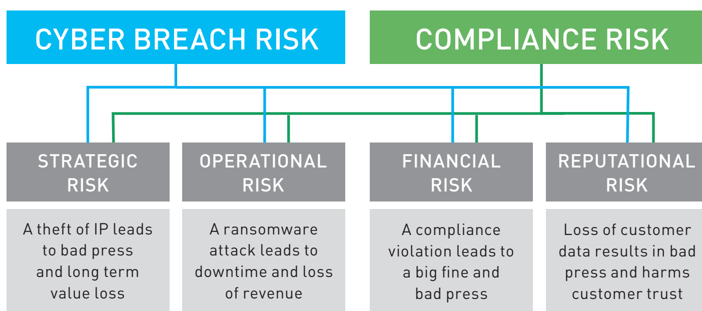
From our experience, a cyber "bonus" is starting to emerge in large cities, with small rental premiums, faster absorption, or better retention, and less downtime between tenants. The valuation industry over the years has developed a framework for "green values." The same thing needs to happen with "cyber values." In the meantime, those issues should become incorporated in acquisition and investment due diligence and contracts.

BUILDING A BUSINESS CASE FOR CYBER RESILIENCE

All steps typically included in due diligence should be updated through a cyber lens. If we agree that cyber issues are an enterprise-wide risk, the analysis should start with a closer look at the organizational chart to detect potential silos and understand how cyber risks are managed. Similarly, routine documents such as contracts, licenses, and permit reviews should make sure that data security is addressed to vet, select, and manage third parties. These are typically the forgotten and weakest elements of a digital ecosystem, because they can be tedious to identify. However, according to IBM's Cost of Data Breach Report 2021, there was a 10% increase in the average total cost of a breach between 2020 and 2021. Where remote work was a factor in causing the breach, there was a cost difference of US$1.07 million.[7]

EXHIBIT 3: EFFECTIVE RESPONSE REQUIRES MANAGING BUSINESS-LEVEL RISK

Source: balbix.com



Because more than 90% of hacks involve human error, training programs should also be assessed to check if they include cyber risks and are kept up-to-date and are delivered throughout the company.

Because more than 90% of hacks involve human error, training programs should also be assessed to check if they include cyber risks and are kept up-to-date and are delivered throughout the company. Particular attention should be focused on data governance and business continuity, including disaster recovery plans and protection of customer information. If the target company or building has been hacked, a detailed understanding should emerge from the source and circumstances of the hack to the handling of the crisis and corrective measures taken.

The hacking history of a building should be the parallel to the credit history of a company. The Strengthening American Cybersecurity Act passed by the Senate in March 2022 will establish a mandate for companies in critical sectors (e.g., energy, transportation, financial services, health care, etc.) to alert the government when they are hacked or faced with the demand to pay ransoms to hackers.

Additional representations and warranties should cover data security and address how employees, clients, and third parties' confidential data are protected, whether there have been data breaches, whether asset and property managers procedures are in compliance with the recent laws enacted in many states, and whether systems and networks have been properly configured to protect confidential data.

Similarly, indemnification provisions should require that the target indemnify the buyer for any costs incurred in connection with losses associated with privacy or data security. Coverage should be aligned with the risk map of the company and its real estate assets.

NEW DYNAMICS FOR LANDLORDS, TENANTS, AND PORTFOLIO, ASSET, AND PROPERTY MANAGERS

Everyone who has access to the building's data must be involved in protecting it. Owners, managers, and tenants are becoming third-party risks to each other.

To start with this unified all-user protection, facilities managers need to re-invent themselves as "great facilitators" to increase communication between third parties, IT, Eegineering, and business leaders, understanding their relations and striving to break silos between those stakeholders. Each area should be communicating what has connection to the internet and how that connection is being used, managed, and protected.

On the front-end, property and asset managers and landlords need to have similar conversations with tenants who need to understand how the building operates and will increasingly demand that their buildings include safeguards to protect their data and require proof and accountability in their leases. Conversely, building owners and managers should assess the vulnerability presented by new and existing tenants.

MANAGING FUTURE RISKS

Advancing an effective and holistic response to cybersecurity requires managing business-level risk, rather than just IT-level risk. It is the only way to build effective business continuity and disaster recovery plans.

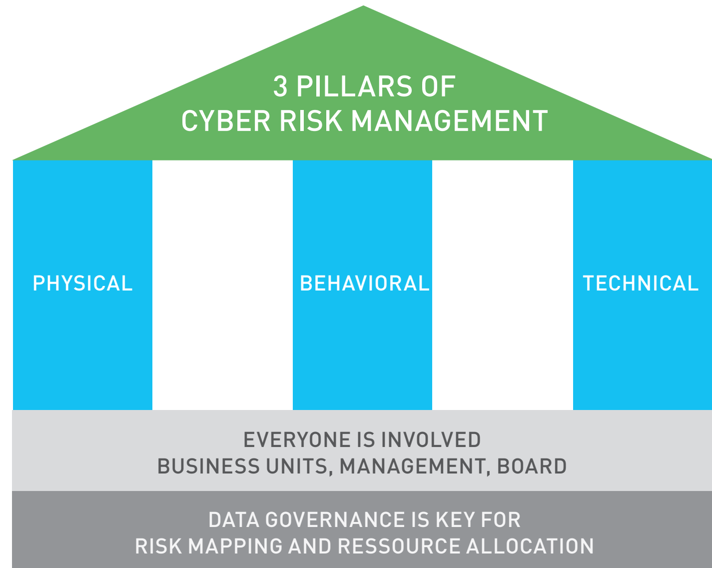
Modern cyber risk management must address:

1. Physical Security: Are buildings and building operations secure from intruders? Is sensitive data protected from prying eyes (these could be intentional, accidental, or even remote through video conferencing)?
2. Behavioral Security: Do personnel understand and practice safe data management practices? Do employees understand how to spot a phishing attack? Are safe protocols followed when entering and exiting spaces containing sensitive data? Is line-of-sight checked when participating in a video call?
3. Technical Security: Is the network secure? This seems a simple question, but with the addition of remote workers, IoT devices, and cloud storage, the network is no longer limited to the office. Technical security must focus on protecting the data wherever it is flowing.

Finally, it is not enough to protect each of these areas. Good cyber risk management must address the interaction between them. For instance, increasing password security may tighten technical security, but if the passwords are too complex, users will write them down and/or store them on unprotected smart phones, resulting in decreased behavioral security, and, possibly, an overall decrease in the cyber risk profile of the organization.

Now more than ever organizations need to treat cyber risk as a business risk. Whether it is a smart building, interconnected devices, or remote workers accessing an office network with personal devices, private data is more accessible, and more vulnerable to attack.

It is possible to manage the cyber environment and proactively protect sensitive information. Just start the process. Doing so will open new conversations with tenants, investors, and trade professionals, and create a more competitive building and portfolio.



ABOUT THE AUTHORS

Noëlle Brisson, FRICS, MAI, and Michael Savoie, PhD, are Co-Founders of CyberReady, LLC, which provides cyber risk management, and state-of-the-art online and in-person assessments of the cyber risk profile of an organization's physical, behavioral and technical assets.

NOTES

1 Nokia Threat Intelligence Report 2021. onestore.nokia.com/asset/210870. Accessed 6/27/2022.

2 2022 Data Breach Investigation Report (DBIR) | Verizon. (verizon.com/business/resources/reports/2022/dbir/2022-dbir-data-breach-investigations-report.pdf). Accessed 6/27/2022.

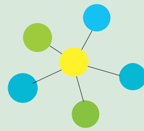
3 "Smart Readiness Indicator—Smartbuilt4eu". smartbuilt4eu.eu/. Accessed 6/28/2022.

4 McLaren, Duncan; Agyeman, Julian (2015). Sharing Cities: A Case for Truly Smart and Sustainable Cities. MIT Press. ISBN 9780262029728.

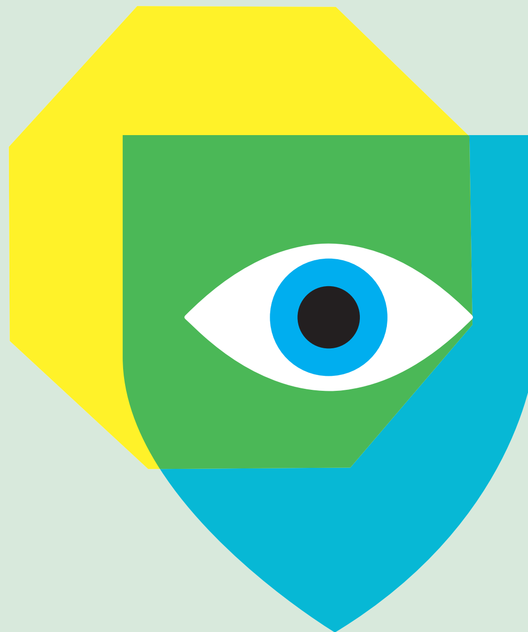
5 (triplepundit.com/story/2020/sidewalk-labs-failure-smart-cities/120616). Accessed 6/26/2022.

6 Brisson, Marie-Noelle, Savoie, Michael. "Data Governance: Cybersecurity Oversight and Strategy for Real Estate." Real Estate Issues, Volume 42:10. August 28, 2018.

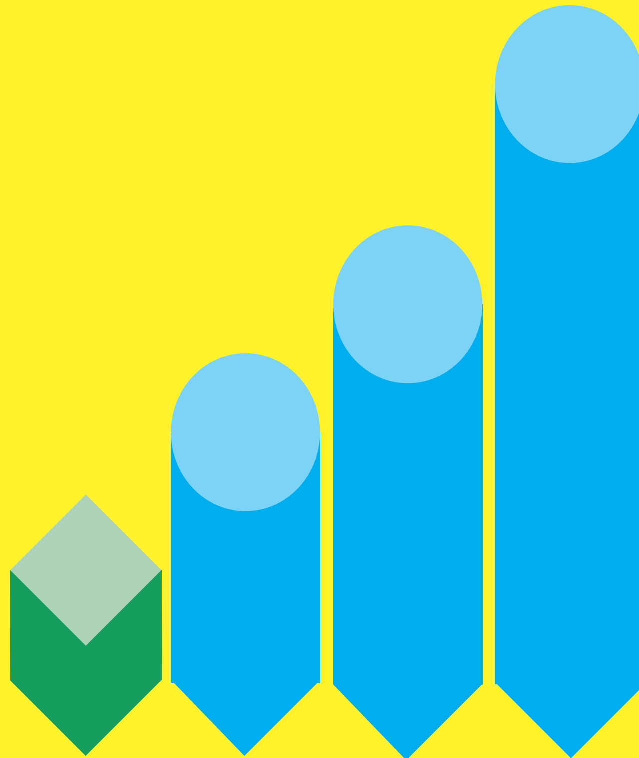
7 Cost of a Data Breach Report 2021; ibm.com/downloads/cas/OJDVQGRY. Accessed 6/27/2022.



The increasing deployment of smart city technologies is turning cities and buildings into huge data centers. As interconnection increases, so does the risk of data being used for inappropriate activities.



HEDGE TRIMMING



Gleb Nechayev, CRE
Head of Research and Chief Economist
Berkshire Residential Investments

The rapid rise in consumer prices has rekindled the old debate about whether commercial real estate provides a long-term hedge against inflation (hint: look at multifamily).

The rapid rise in consumer prices has rekindled the old debate about whether commercial real estate provides a long-term hedge against inflation. The answer is: it depends.

To begin answering this question using the latest data, this article explores the dynamics of two key performance indicators for privately owned institutional properties in the United States: market value index (MVI) and net operating income (NOI) relative to consumer price index (CPI) inflation.

To explore these dynamics, we first compare average year-over-year changes in MVI and NOI, relative to inflation, over the entire span of historical data available for both metrics (43 years from Q1 1979 through Q1 2022), as well as periods of above-average inflation (most of which took place in the 1980s).[1] Second, we calculate elasticities of year-over-year changes in MVI and NOI, relative to inflation, while also accounting for economic growth as measured by changes in real gross domestic product (GDP).

Our key finding is that of the four major property types, multifamily (i.e., apartments) was the only one that has provided a long-term hedge against inflation both in terms of market value and property income.

From the perspective of real estate fundamentals, there are two main interrelated reasons for the stronger inflation-adjusted performance of apartments. On the demand side, a relatively short leasing cycle of about a year, compared to over five years in other major property sectors, allows apartments to adjust to market changes more rapidly and efficiently. In addition, inflation and interest rates tend to move together, and higher borrowing costs for home purchases also support rental demand—a factor that is not at play in other sectors. On the supply side, a shorter residential construction cycle allows developers to respond to changing market conditions quickly, keeping price levels close to equilibrium and reducing downside volatility in rents and property revenues. Real estate investors who are concerned about the potential scenario of persistent high inflation might consider this when evaluating their portfolio allocations to different property sectors.

At the same time, it should be recognized that *within* the apartment sector, various product segments and regional markets also vary in terms of their ability to counter inflation. We find, for example, that while garden-style apartments have been a better inflation hedge on the value side, and NOIs at high-rise apartments were more elastic relative to inflation. Furthermore, the inflation hedging potential of apartment values and NOI can vary even more widely geographically and therefore impact market allocations as part of portfolio construction. In summary, while both apartment values and NOIs have indeed shown the ability to keep up with or even exceed inflation over long-term horizons (unlike other sectors), this does not apply equally to any property and location.

MVI AND NOI GROWTH RELATIVE TO INFLATION

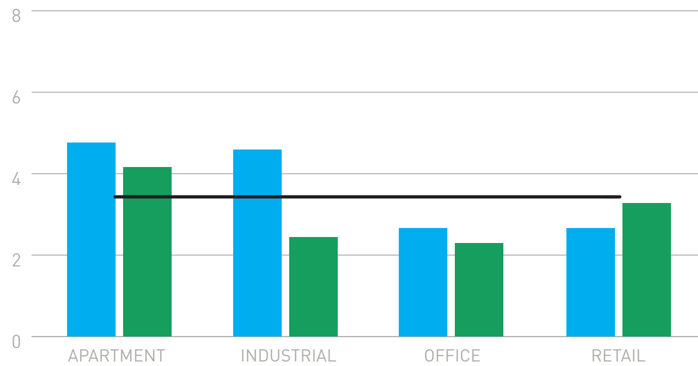
Looking at market value index (MVI), only the apartment and industrial sectors achieved appreciation that exceeded inflation both over the entire span of available history as well as periods of above-average inflation *(Exhibit 1)*. On the NOI side, apartments were the only property sector to handily beat inflation both over the entire history as well as periods of above-average inflation. Retail NOI growth was second-best after apartments, and while it lagged inflation slightly over the entire period, it also exceeded it slightly during periods of above-average inflation.

The results suggest that multifamily is the only real estate sector that served as a real inflation hedge historically, followed by industrial according to market value index.

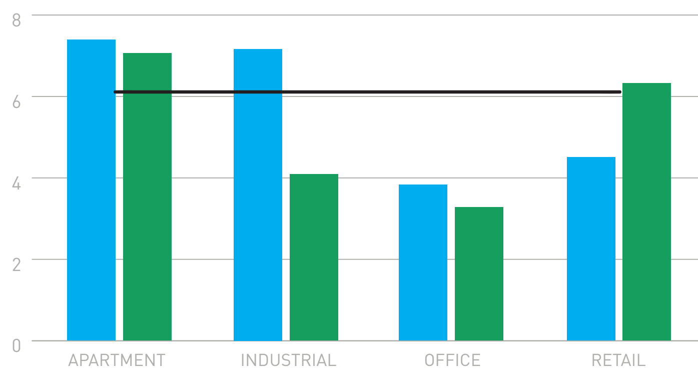
EXHIBIT 1: INFLATION AND ABOVE-AVERAGE INFLATION OBSERVED ACROSS SECTORS

Sources: US Bureau of Labor Statistics; NCREIF; Berkshire Research

Q1 1979–Q1 2022
173 QUARTERS OF OBSERVATION



ABOVE-AVERAGE INFLATION
57 QUARTERS OF OBSERVATION



MARKET VALUE INDEX (MVI) NET OPERATING INCOME (NOI)

CONSUMER PRICE INDEX (INFLATION)

In the case of apartments, the main driver of above-inflation MVI growth is clearly NOI growth. Meanwhile, results for industrial and retail are less obvious: industrial MVI grew above inflation while its NOI has not, but the opposite was true in the case of retail. One potential explanation for this is the impact of investor demand on both sectors, especially over the last few years.

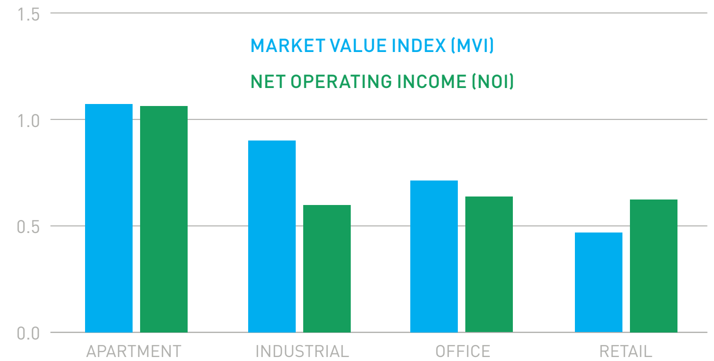
MVI AND NOI GROWTH ELASTICITIES RELATIVE TO INFLATION

While it is helpful to know how MVI and NOI growth compared to inflation historically, answering the long-term hedge question also depends on how well that growth adjusts to the changing inflation. To answer that, we calculate growth elasticities relative to inflation using the entire span of historical data available for both metrics (Q1 1979 through Q1 2022).[2]

Exhibit 2 shows how much MVI and NOI growth change for every 1% increase in inflation. Once again, apartments are the only sector where both metrics have shown a propensity to basically keep up with rising inflation over time. Industrial is the second-best based on how well market values adjust to inflation (0.9% coefficient), followed by office (0.6% coefficient) while retail comes last (0.4% coefficient). At the same time, there are no substantial differences between industrial, office, and retail in terms of how their NOI growth has responded to inflation historically, with coefficients of about 0.6%.

EXHIBIT 2: EFFECT ON GROWTH OF A 1% INCREASE IN INFLATION (%)

Sources: US Bureau of Labor Statistics; NCREIF; Berkshire Research



The results suggest that multifamily is the only real estate sector that served as a real inflation hedge historically, followed by industrial according to market value index.

The results suggest that multifamily is the only real estate sector that served as a real inflation hedge historically, followed by industrial (at least when it comes to market values). It is important to note, however, that different types of apartments do vary in terms of how their values and NOIs respond to inflation.

For example, available data only allow us to repeat the above analysis for garden-style and high-rise segments over the last 30 years rather than 43 years, thus missing the period of very high inflation observed in the early 1980s. This more limited analysis does show however that garden-style apartments have been a better inflation hedge on the value side, while high-rise properties were able to better keep up with inflation in terms of their NOI growth.

One potential explanation for this is that high-rise apartments tend to focus more on more affluent renters who are better able to absorb rent increases in a rising inflationary environment. At the same time, market values for garden apartments benefit more from stronger investor demand, even though their NOIs may not keep up with inflation as well as in the high-rise segment. We find similar variation across markets, with some being better inflation hedges on the value side while others adjusting better in terms of NOI.

It helps to know that apartment properties have a track record of being an inflation hedge, but the other key parameter, even more important than inflation itself, is broader economic and employment growth. Real estate can still deliver good investment returns when high inflation is accompanied by a strong economy and labor market. At the same time, when high inflation takes place during very weak or negative economic growth, and so-called "stagflation" sets in, no sector is immune to potentially stagnant or even declining property values and NOIs, after factoring for inflation. While this is not the baseline scenario for now, investors should carefully evaluate such downside risk as the global economy and capital markets deal with multiple uncertainties stemming from Russia's war on Ukraine as well as the ongoing public health situation.

On the upside, the apartment sector is entering this uncertain period amid a record housing supply shortage that is likely to keep upward pressure on rents until inflationary pressures eventually subside. Rental housing (including apartments) has a unique distinction within real estate of being both a form of investment as well as providing "shelter," a service that accounts for more than 30% of the broader inflation measurement. The increasing real estate portfolio allocations towards rental housing that was observed last year could be reflecting a growing recognition by investors of its relative advantages in the current environment.

ABOUT THE AUTHOR

Gleb Nechayev, CRE, is Head of Research and Chief Economist for Berkshire Residential Investments, a people-focused investment management company known for its vertically integrated organization and experience in US residential real estate.

NOTES

[1] This material is for informational purposes only and is not intended to, and does not constitute financial advice, investment management services, an offer of financial products or to enter into any contract or investment agreement.

Berkshire provides investment management services to advisory clients that invest in the residential housing sector. In respect of its investment management services, Berkshire may receive performance-based compensation from such advisory clients. Accordingly, Berkshire may financially benefit from the appreciation of residential housing units.

[2] Our analysis follows the same approach as discussed in: Greg MacKinnon, "What Would Higher Inflation Mean for Real Estate?", *PREA Quarterly*, updated Fall 2021.

REVIEWER RESPONSE

This article takes a timely look at the age-old question of whether real estate is actually an effective hedge against inflation. While the conclusion is likely intuitive to most readers—that "it depends" and that multifamily is more effective than other property types—the exploration of why that's the case, and if it can be expected to continue, raises some interesting points.

The author does a nice job making the case for investments in apartments being a proven inflation hedge, citing the ability to reset rents more frequently, and also notes an important correlation to economic and labor growth. However, for this link to continue, renters must be able to afford to pay higher asking rental rates and absorb future rent increases at a rate at least in line with inflation. Current rent-to-income ratios call this into question.

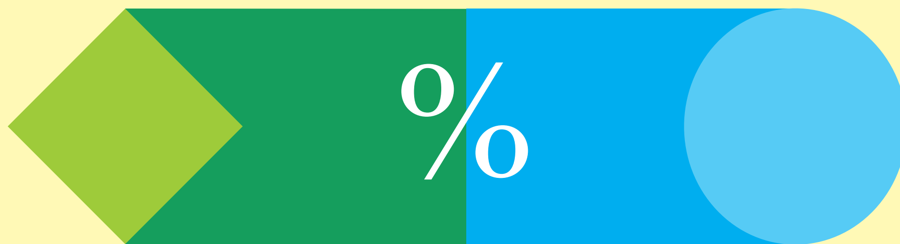
For context, US Census Bureau data and Moody's Analytics estimates through December 2021, over the last decade, show that apartment rents have increased 71%, while incomes grew just 37%. Said another way, rental rates have increased nearly twice as much as income levels during the same period, driving rent-to-income ratios from 17% to 21%, nationally. For apartments to continue to provide a hedge against inflation, we will need to see wage growth more in-line with inflation, which has not been the case historically.

Turning to the industrial sector, the author notes that appreciation has outpaced inflation, even as growth in NOI lagged, thereby creating a hedge. The appreciation in industrial is irrefutable, but the question to ask is what has driven that appreciation and whether the correlation to inflation will continue. The rise of e-commerce and the secular shift of distribution supply chains is another well-accepted explanation of the phenomenal escalation in industrial market values; one that is uncorrelated to inflation.

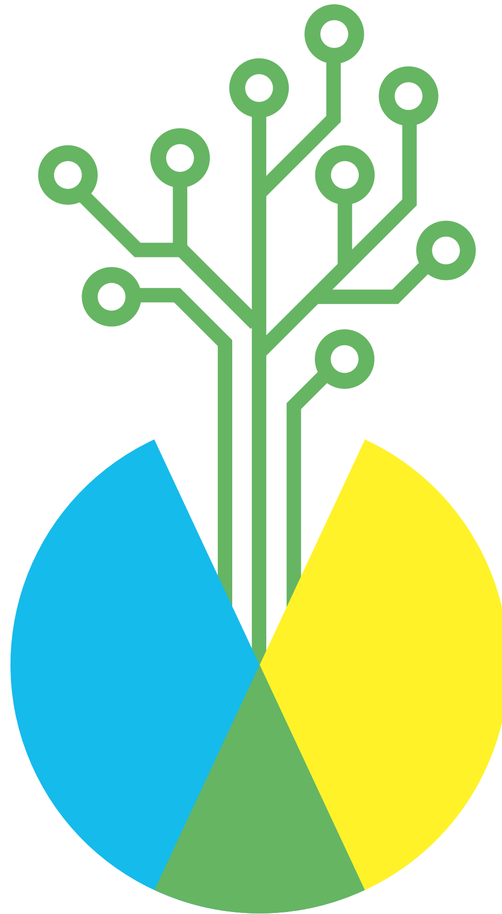
So, can we reasonably expect past correlations with inflation to continue similarly into the future? I am not so sure. In particular, inflation is being driven at least in part by exogenous factors not tied to the business cycle; the Fed is curbing growth with significant rate hikes; and apartment rent levels are already stretching incomes.

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

It helps to know that apartment properties have a track record of being an inflation hedge, but the other key parameter, even more important than inflation itself, is broader economic and employment growth.



THE NEW SCIENCE



Brian Biggs, CFA
Vice President, Research
Grosvenor

Ashton Sein
Research Analyst
Grosvenor

While the real estate industry has long understood the need for data, it still struggles with connecting information to decision making. New strides in data science could change that.

Real estate is an “informationally inefficient” asset class, which means that real estate assets may not fully reflect information about the assets in their price. Because real estate pricing does not always reflect the underlying fundamental value of the asset, research to discover and exploit data in real estate markets can uncover fundamental value, identify mispricing, and generate above-market return easier than in other, publicly traded asset classes, such as stock and bonds.

Advances in data availability and data science techniques are bringing new transparency to historically opaque real estate markets. Taking a data science approach to real estate analysis can reveal fundamental relationships between building-specific features, amenities in the built environment, sociodemographic factors, and real estate pricing at a scale previously unthinkable using traditional real estate analysis techniques.

This article explores the use of data science in real estate analysis. We draw connections between data science and comparator analysis often used in traditional real estate analysis, outline ways that data science can be integrated into the investment process, showcase a practical example, and conclude with thoughts about the future of data science in real estate.

DATA SCIENCE AND TRADITIONAL REAL ESTATE ANALYSIS

The data science approach to real estate analysis involves collecting information on a large number of real estate assets and testing whether there are consistent relationships between factors that may drive value (e.g., coffee shop density, median household income, etc.) and some real estate value indicators (e.g., rent level, asset value growth, etc.).

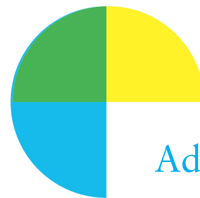
We build a bridge between real estate data science and a traditional real estate pricing method—comparator analysis—by highlighting where they overlap and where they differ on four key traits:

- Sample size: Both the data science approach and the comparator set analysis approach are comparative methods; that is, both seek to identify comparator properties that can guide pricing on a subject asset. They differ in the number of comparator properties used in the analysis. Data science requires a very large number of comparator properties, typically ranging from the hundreds and potentially into the millions. By contrast, the traditional comparator analysis uses only a handful of comparators that are as similar as possible to the subject asset.
- Analytical method: The data science approach and the comparator set approach both adjust information on comparator properties to come up with an estimated price for the subject property. Data science uses statistical models such as regression, decision trees, and neural networks to identify relationships between variables. Comparator set analysis involves manually comparing similarities and differences among a subject asset and comparator assets to develop a range and point estimate for subject asset pricing.
- Granularity of analysis: Granularity of analysis refers to how deep the approach can go into the unit, suite, or storefront at a subject property. In principle, data science can go down to the finest detail. In practice, however, data availability limits the data science approach to the building level, with unit-specific analysis possible only for a relatively small set of assets. Since the comparator set approach is manual and limited to a small number of comparator assets, the approach allows for high unit-specific adjustments to estimate a price for the subject property. In most cases, the comparator set approach will be more granular than the data science approach.
- Presentation of price ranges: Estimated pricing is just that: an estimate. Prices, therefore, are often presented as ranges to reflect the uncertainty over the spot estimate ultimately used for a bid or rental contract. Because the data science approach relies on statistical models to estimate pricing, price ranges take the form of statistical confidence intervals reflecting deviations around the point estimate at the desired level of confidence. Comparator set analysis uses scenario analysis and sensitivity tables to show how changes in key assumptions would impact pricing and show a range of pricing outcomes.

EXHIBIT 1: TRAITS OF DATA SCIENCE AND COMPARATOR SET ANALYSIS IN REAL ESTATE

Source: Grosvenor Research

TRAIT	DATA SCIENCE	COMPARATOR SET ANALYSIS
Sample size	Large	Small
Method	Statistical models	Comparator properties
Granularity	More limited, challenging to go to unit level	Unit-level, highly detailed
Price ranges	Statistical confidence intervals	Scenario analysis



Advances in data availability and data science techniques are bringing new transparency to historically opaque real estate markets.

PRACTICAL EXAMPLE: ESTIMATING TRANSPORTATION PREMIA

To bring the data science approach to life, we will demonstrate a practical example estimating the transportation premium on apartment rents.

Intuitively, properties that are closer to a major employment center will command higher rents due to a variety of factors, including shorter commute times to work. We think renters are known to value transportation connectivity and the associated commute times, but by how much? A look at the Seattle multifamily market can help us understand how data science can be used to estimate this transportation or commute premium.

EXHIBIT 2: SEATTLE AVERAGE COMMUTE TIME BY CENSUS TRACT

Source: Grosvenor Research; US Census Bureau

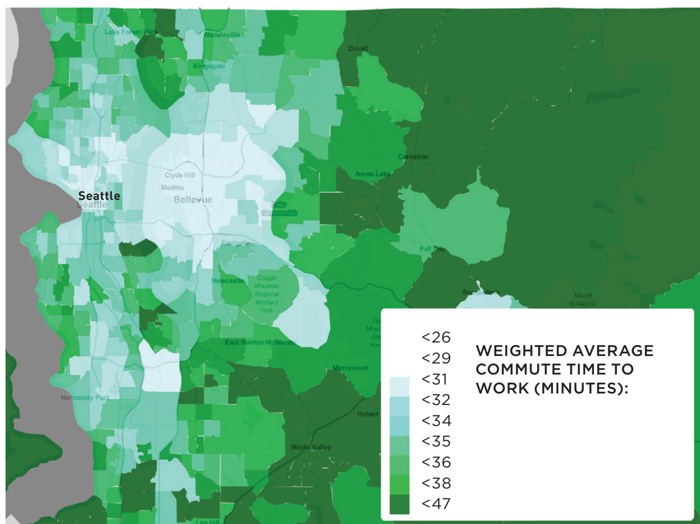
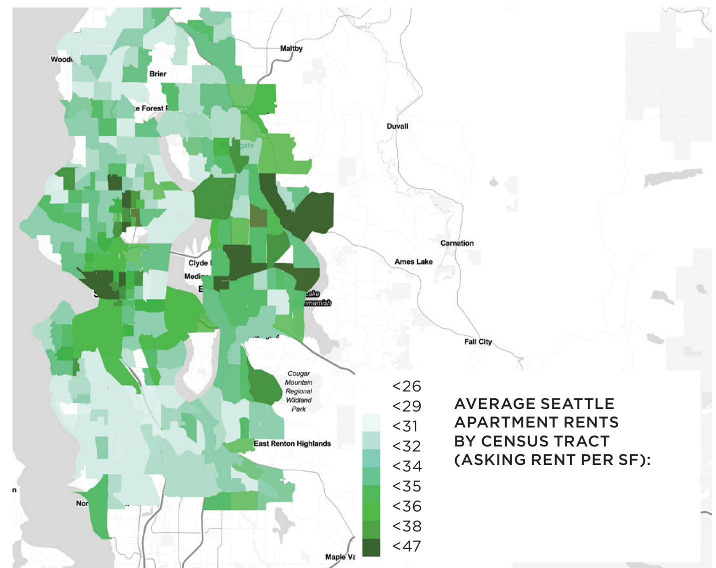


EXHIBIT 3: SEATTLE SQUARE FOOT APARTMENT RENT BY CENSUS TRACT

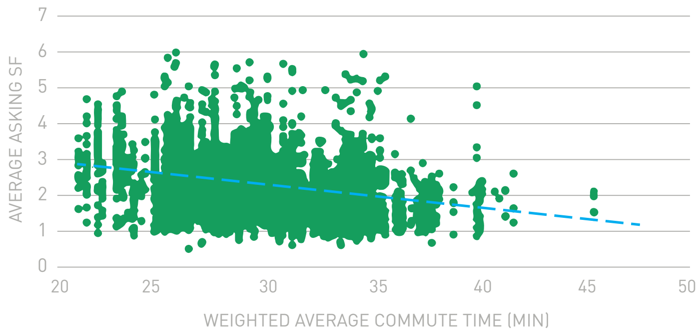
Source: Grosvenor Research; US Census Bureau



At first glance we can already see the relationship between rents and commute time. *Exhibit 2* shows a map of Seattle and the weighted average commute time to work. It is evident that downtown Seattle and Bellevue have significantly lower commute times compared to areas farther out from downtown. And in an almost inverted image, we see the opposite with the downtown Seattle and Bellevue having the highest rents and dispersing outward in *Exhibit 3*. *Exhibit 4* demonstrates this explicitly, showing that lower commute times are associated with higher rents and vice versa.

EXHIBIT 4: SCATTER PLOT OF COMMUTE TIME AND BUILDING-LEVEL APARTMENT PER-SQUARE-FOOT RENTS IN SEATTLE

Source: Grosvenor Research; CoStar; US Census Bureau



We used a data science model to answer this question. Our model uses rent per square foot as a dependent variable and eighteen independent variables that explain about 68% of the variation in Seattle apartment rents. After controlling for these variables, we can isolate the transportation premium. We find that for every additional ten minutes in commute, rents fall by $0.02. Our results illustrate and quantify the inverse relationship between commute time and rents while supporting the well-known assumption that renters are willing to pay for shorter commutes.

After building a data science capability, the next challenge investors face is integrating data science into their existing workflow.

INTEGRATING DATA SCIENCE INTO WORKFLOW

After building a data science capability, the next challenge investors face is integrating data science into their existing workflow. In this section, we outline some ideas for how to weave data science into existing workflows.

- **Identify mispricing:** As an informationally inefficient asset class, there can be long lags between information entering the real estate market and when it is incorporated into real estate pricing. If an investor can identify what price an asset should be, based on its fundamental value drivers, they can exploit the time lag between information availability and pricing changes to acquire undervalued assets or sell overvalued assets. Data science is one of the best tools for uncovering and pricing this information efficiently, at a large scale, and in ways that are best done through machine learning instead of manual human analysis.

Using the commute time example, we know that on average rents at a building level fall by $0.02 for every additional ten minutes of commute time. If an investor spots a collection of buildings that appear to have rents $0.10 lower relative to their commutable distance to an employment hub, the market may be undervaluing this neighborhood with properties trading at a discount to fair value, representing an attractive buying opportunity.

- **Scenario analysis and simulations:** Investors make capital allocation decisions based on investment theses, such as the rise of e-commerce, long-term trends in remote working, or changing preferences for residential living. These investment theses can involve long-term calls on megatrends whose ultimate impact is as much guesswork as conviction. Data science offers spot estimates for variables that investors can adjust to reflect future states of the world based on their investment theses.

One major trend post-pandemic is the rise of hybrid working arrangements. An investor could use data science to simulate what residential rents might be if rents fell about $0.01 for every extra ten-minute commute instead of $0.02 pre-pandemic due to less frequent commuting. This makes long-term investment theses more concrete and actionable.

- **Adjudicate between competing deals:** Capital-constrained investors must adjudicate between competing investment opportunities when making capital allocation decisions. Is it better to be near a popular park, in a sought-after school district, or next to major train station? Data science can help adjudicate between competing deals by objectively pricing features based on observed tenant willingness-to-pay data, taking part of the subjectivity out of the process.

For instance, say an investor was presented with two opportunities: an apartment building very near the CBD with a low average commute time and an office building next to the busiest metro station in the city. If the investor finds that the apartment building undervalues its low commute time while the office overvalues its proximity to transit, the investor will have higher rental growth prospects in the apartment building.

PRACTICAL CHALLENGES AND NEW ADVANCEMENTS

Data science is quickly becoming the gold standard for real estate research. Nonetheless, data scientists in real estate still face several practical challenges. High-quality and large-scale data can be difficult to come by, particularly if one wants to price highly granular, unit-specific features. Methodological standards for data collection continue to evolve, making long-run time series analysis more difficult than in other asset classes. Real estate also faces certain problems unique to spatial data science, such as what to do when data is constrained within artificial boundaries like census tracts or neighborhood definitions. And investors continue to struggle with how to incorporate data science into their existing investment workflow.

Still, the data science opportunity in real estate—a famously illiquid, opaque, and informationally-inefficient asset class—is enormous. Advances in data availability and innovations in data science are starting to shed new light on real estate markets. Investors with a data science capability and an organizational structure set up to harness the power of data science can reap outsized, market-beating investment performance.

ABOUT THE AUTHORS

Brian Biggs, CFA, is Vice President, Research, and Ashton Sein is Research Analyst for Grosvenor's North American property business, part of Grosvenor, an international organization whose activities span urban property, food and agtech, rural estate management, and support for philanthropic initiatives.

Investors with a data science capability and an organizational structure set up to harness the power of data science can reap outsized, market-beating investment performance.

REVIEWER RESPONSE

A friend once told me that as a real estate tech investor, he's excited about how new data tools can remove friction and make real estate transactions more transparent. However, as a real estate investor he's less enthused, because such tools allow more competitors to enter the field with a better understanding of local market dynamics. This is the tension between traditional comparator analysis and the emerging power of data science highlighted by the authors.

Data science encourages us to look beyond conventional "real estate" data toward innovative new sources such as geo-social data (e.g., Instagram, Twitter, Facebook, etc.), satellite imagery, cell phone data, and other novel datasets to better understand real estate markets and trends. For example, Dr. Andrea Chegut's Wide Data Project at MIT draws on more than 3,000 variables from 22 datasets to model asset pricing of every building in New York City. For any one individual to try and process this amount of data would be impossible, but using machine learning and proprietary computational techniques her team has been able to answer granular questions such as what is the value of seasonal daylight exposure, proximity to coffee shops or craft brewpubs, trees on a street, or superior data connectivity. Understanding where to find relevant data and how to extract strategic information from it will be key for future real estate practitioners as they move to distinguish themselves from their competition.

Data science is not a panacea, however. As anyone building a data lake will attest, data sets are often dirty, siloed, incomplete and incompatible. As the authors point out, acquiring accurate and relevant data remains a challenge, such as differentiating between asking and realized rents after concessions. Moreover, irrational exuberance in markets can trump "true" value. For now, machine learning augments human knowledge and understanding, allowing real estate practitioners to make better decisions instead of having to rely on gut or intuition. But in the near future we will likely rely more heavily on increasingly automated, dynamic, real-time, and significantly more accurate valuation models that are able to process immense amounts of data and overcome the market's information inefficiencies.

– Steve Weikal
Head of Industry Relations, MIT Center for Real Estate
CRE Tech Lead, MIT Real Estate Innovation Lab
Member, Summit Journal Editorial Board

BRACE FOR IMPACT

Michael Cooper
Founder and Chief Responsible Officer
Dream Unlimited Corporation

Richard Florida
Vice Chair of Impact
Dream Unlimited Corporation

The practice and expectations of investing across all industries is undergoing major upheaval and the key to stability will mean looking beyond profit for profit's sake.

It has become a cliché to say that an industry is being disrupted. But investing of all sorts and across all industries is in the throes of a major disruption. While most think of disruption as an effect of technological change, this one is a product of environmental and social concerns. In the face of imminent threats from climate change, income inequality, and increasingly unaffordable housing, real estate investors and developers are being forced to think beyond mere profit to the roles their organizations can play in addressing these challenges. The term associated with this sea-change is "impact investing."

ESG INVESTING VS. IMPACT INVESTING

In 2015, the United Nations introduced its sustainable development goals (SDGs), covering everything from poverty, education, and gender equality to clean water and energy, and challenged the world to meet them by 2030.[1] UN SDG 11 was focused specifically on making "cities and human settlements inclusive, safe, resilient, and sustainable." This provided a major impetus for ESG investing[2] — not quite the same thing as impact investing, which is defined as "the intention to generate positive measurable social and environmental impact alongside an attractive financial return."[3] While ESG investments tend to be defensive by nature[4]—ESG funds, for example, avoid investing in companies that produce high amounts of carbon emissions—impact investing is proactive, investing in companies and technologies that work to reduce carbon emissions. ESG investments uphold minimum standards; impact investments exceed them. This *intentional* creation of positive benefits is the core of what differentiates impact investing from ESG.

ESG and impact investments together amount to US$46 trillion, or 40% of all global assets under management, according to Deloitte Touche; a figure that is projected to grow to 58% by 2025.[5] Some of this growth will be driven by new regulations, such as those in the European Union. But much of it is being propelled by the increase in institutional capital allocations towards investments that generate social as well as financial returns. And it is being accelerated by changing societal norms which value positive social and environmental outcomes. In this way, impact investing is bound up with a broader shift to more sustainable and inclusive models of capitalism: "doing well by doing good." Real estate development can and should make a difference in three areas in particular: (1) the mitigation of climate change and its effects, (2) increasing sustainability and affordability, and the (3) reduction of social inequities.

Environmental Sustainability: The real estate industry accounts for roughly 40% of global energy use and contributes around 30% of the world's greenhouse gas emissions, according to the United Nations, by its use of non-green building materials and climate control technologies, and by building low-density projects that exacerbate suburban sprawl, promote car dependency, and replace wetlands and greenspaces with hardscape, reducing climate resilience.[6] By making the right choices, real estate investors can reduce those trends.

Economic Inequality: Income inequality has surged globally, reaching levels not seen since the 1920s. The middle class is shrinking as cities and metros cleave into islands of concentrated advantage surrounded by concentrated disadvantage, and the prospects for upward economic mobility have become radically constrained, according to research by Harvard's Raj Chetty.[7] Strategic investments in under-served neighborhoods can make a huge difference.

Housing Affordability: Accelerated by rising costs and shrinking inventory in the wake of the COVID-19 pandemic, the crisis of housing affordability has spread from superstar cities such as New York, London, Hong Kong, and San Francisco to aspiring rise-of-the-rest cities like Austin, Miami, Nashville, and Calgary. In many of these places, the cost of home ownership has risen past the point of rationality, with median housing costing as much as 10, 12 and 15 times the prevailing median wage (three times median wage is considered affordable), according to Dermographia.[8] A 2018 survey of 200 global cities found that 90% of them face an affordability crisis.[9] Though luxury housing produces the greatest returns for investors in the short term, investments in affordable housing are needed to ensure a more widely shared and sustainable prosperity.

Accelerated by rising costs and shrinking inventory in the wake of the COVID-19 pandemic, the crisis of housing affordability has spread from superstar cities such as New York, London, Hong Kong, and San Francisco to aspiring rise-of-the-rest cities like Austin, Miami, Nashville, and Calgary.

IMPACT INVESTING IN PRACTICE

As an example of the success of impact investing in practice, for over two decades, Dream, one of Canada's largest real estate companies, with CAD$16 billion under management, has organized its projects and investments around the goal to "Build Better Communities" while aggressively pursuing environmental sustainability. In 2020, with input from leading experts and consultants, Dream developed its proprietary Dream Impact Management System to understand, evaluate, and effectively communicate the impact being generated by its investments across two interrelated financial and social bottom lines. In that year, it launched the publicly traded Dream Impact Trust and the Dream Impact Fund, a private equity fund. Both vehicles are explicitly *intentional* and produce *measurable* impacts; all investments must meet at least one of the UN's 17 SDGs; and they are trackable and verifiable internally and by third-party audit.

Dream's Impact Framework seeks to align and measure its real estate investments to help address the pressing issues of climate change socioeconomic inclusion, and housing affordability. In this way, its Impact Framework reflects the United Nations' Sustainable Development Goals, with a particular focus on SDG 11 which calls for building more sustainable, resilient, and inclusive cities and communities. That framework this spans three key issue areas:

Environmental Sustainability and Resilience: Develop sustainable real estate that optimizes energy use, limits greenhouse gas emissions, and reduces water use and waste while also creating resiliency against natural disasters and major climatic events.

Attainable and Affordable Housing: Invest in integrated mixed-use communities that are transit-oriented, located close to employment opportunities, and support an overall lower relative cost of living with high quality of life.

Inclusive Communities: Intentionally design and program communities that are safe and inclusive for everyone with spaces that encourage mental and physical health, and wellness.

Dream set out to meet these goals by focusing on three key commitments: its Net-Zero Roadmap, which is aimed at achieving net-zero across its portfolio by 2035; its Social Procurement Strategy, which increases exposure to equity-seeking groups in its supply chain; and Impact Leases, which Integrate social and environmental commitments.

To illustrate its commitment to achieving its joint social and financial goals, with each CAD$100 million invested, the company projects a 14–16% financial return along with the following estimated environmental social returns:[10]

Environmental Sustainability: 860,000 KG of CO_2 emissions eliminated annually, equivalent to 3.5 million vehicle kilometers removed from the road each year.

Attainable and Affordable Housing: 762 additional affordable housing units and CAD$2.5 million in saved rent annually by these households.

Inclusive Communities: The generation of an estimated 4,300 employment hours for under-represented groups and provision of an estimated 2,300 hours of inclusive community programming, such as tutoring and job training.

Accounting frameworks that measure things such as greenhouse gas emissions, job creation for marginalized communities, and annual rental savings for households, will become increasingly relevant and important measures of investment performance.

BEYOND PROFIT FOR PROFIT'S SAKE

The investment landscape is changing—and fast. For the real estate community and investors in it, it is no longer sufficient to merely generate financial returns. Governments and the public are increasingly calling for social benefits and returns as well. In the not-too-distant future, impact monitoring and measurement will stand alongside timeworn constructs like return on equity, internal rate of return, and yield as metrics to gauge success. Accounting frameworks that measure things such as greenhouse gas emissions, job creation for marginalized communities, and annual rental savings for households, will become increasingly relevant and important measures of investment performance. Real estate investors and developers who put such impact frameworks in place will be in the best position to win new projects, lease new space, access preferential financing and tax incentives, and ultimately procure more investment capital.

Government policies and regulations are accelerating this shift. Starting in 2030, the Canadian federal government will require 75% of the floor space in new and renewed commercial leases to be net-zero in their carbon impacts and climate resilient.[11] Local jurisdictions are requiring developers to incorporate significant affordable housing options in their projects and demanding that they meet the UN's SDGs. The New York City Housing Authority is providing access to preferential funding to developers that preserve, revitalize, and create new affordable housing.[12]

Investors and companies are moving in this direction as well. The World Green Building Council has 132 global signatories committed to reducing carbon emissions to net zero in their real estate footprints.[13] The National Council of Real Estate Investment Fiduciaries (NCREIF) is implementing measures to track key environmental and social goals.[14] European investors have been proactive in this area for some time; North America is beginning to catch up.

The world has changed. Governments and the public at large increasingly expect investors to generate social and environmental benefits; demands that will only grow louder over time. As concerns over housing affordability and climate change mount and gain political traction, real estate investors and developers will be increasingly called upon to direct their capital to companies and projects that help meet these pressing social and environmental needs.

ABOUT THE AUTHORS

Michael Cooper is Founder and Chief Responsible Officer of Dream Unlimited, with an extensive track record in the real estate industry dating back to 1986. Richard Florida is Vice Chair of Impact for Dream Unlimited and a professor at the University of Toronto.

Real estate investors and developers will be increasingly called upon to direct their capital to companies and projects that help meet these pressing social and environmental needs.

NOTES

1 "Sustainable Development Goals," United Nations Department of Economic and Social Affairs, sdgs.un.org/goals.

2 "Environmental social and governance (ESG) investing," Organization for Economic Co-operation and Development, updated June 8, 2022, oecd.org/finance/esg-investing.htm.

3 "What You Need to Know About Impact Investing," Global Impact Investing Network, thegiin.org/impact-investing/need-to-know/#what-is-impact-investing.

4 "ESG vs. Impact Investing—Understanding their different goals and different roles," iCapital, updated February 15, 2022, icapitalnetwork.com/insights/blog/esg-vs-impact-investing-understanding-their-different-goals-and-different-roles/.

5 Tania Lynn Taylor and Sean Collins, "Ingraining sustainability in the next era of ESG investing," Deloitte, updated April 5, 2022, deloitte.com/uk/en/insights/industry/financial-services/esg-investing-and-sustainability.html.

6 "Sustainable Real Estate Investment," United Nations Environment Programme, updated February 2016, unepfi.org/publications/investment-publications/property-publications/sustainable-real-estate-investment-2/.

7 "Home," Opportunity Insights, opportunityinsights.org/.

8 "Demographia International Housing Affordability," Urban Reform Institute, Frontier Center for Public Policy, updated 2022, demographia.com/dhi.pdf.

9 "Housing Affordability in a Global Perspective," Lincoln Institute of Land Policy, updated November 2018, lincolninst.edu/sites/default/files/pubfiles/kallergis_wp18ak1.pdf.

10 Dream also currently has over CAD$1 billion invested in pure-play impact investing vehicles, which includes signature projects such as: Toronto's West Don Lands, a LEED Gold, 30% affordable purpose-built multi-family rental apartment community in Toronto's downtown east end; Canary District Block 10, which includes the first Indigenous Hub in Canada, serving the needs of Toronto's First Nations community and the broader city; Brightwater, a 72-acre waterfront development in Mississauga's Port Credit area that will be transformed into a complete, vibrant, and diverse community; and Zibi, a 34-acre sustainable mixed-use waterfront community in Ottawa/Gatineau, which will be the first designated "One Planet Master-Planned Community" in the country.

11 "Greening Government Strategy: A Government of Canada Directive," Government of Canada, updated 2020, canada.ca/en/treasury-board-secretariat/services/innovation/greening-government/strategy.html.

12 Shimon Shkury, "Public/Private Partnerships are Crucial to Meet the Demand for Affordable Housing," Forbes, updated April 20, 2022, forbes.com/sites/shimonshkury/2022/04/20/publicprivate-partnerships-are-crucial-to-meet-the-demand-for-affordable-housing/?sh=5cd3b6b8594d.

13 "Four new companies join WorldGBC's Net Zero Carbon Buildings Commitment," World Green Building Council, updated February 11, 2021, worldgbc.org/news-media/four-companies-join-net-zero-carbon-buildings-commitment.

14 "ESG Key Performance Indicators—Feedback Requested," NCREIF PREA Reporting Standards, updated March 10, 2022, reportingstandards.info/2022/03/10/esg-key-performance-indicators-feedback-requested/.

REVIEWER RESPONSE

The concepts presented herein by the authors reflect the importance of ESG considerations in responsible impact-oriented investing and well represent the future of responsible real estate investing.

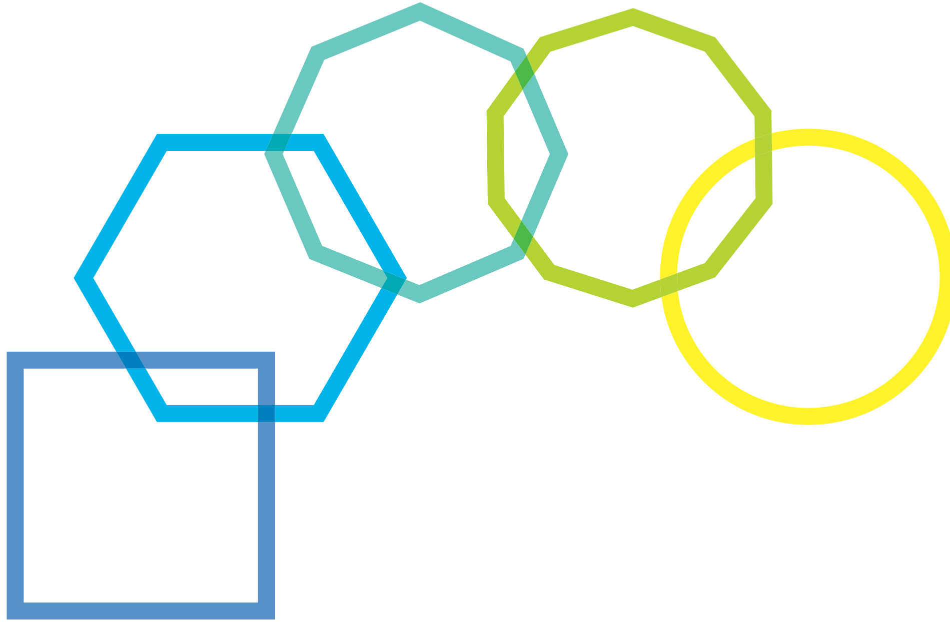
We can no longer deny the negative environmental impacts of traditional development methodologies. We must focus on responsible redevelopment of the built environment, deployment of energy efficient systems, demolition and repurposing of obsolete structures and collective collaboration to create healthy buildings and healthy communities.

Fortunately, the real estate industry is embracing this important mandate and will benefit society for generations to come.

– Byron Carlock
Real Estate Leader, PwC US
Member, Summit Journal Editorial Board

The investment landscape is changing—and fast. For the real estate community and investors in it, it is no longer sufficient to merely generate financial returns. Governments and the public are increasingly calling for social benefits and returns as well.

TRANSITION PLANS



Sabrina Unger
Managing Director, Head of Research and Strategy
American Realty Advisors

Britteni Lupe
Associate, Research and Strategy
American Realty Advisors

Forecasts about the future of the office sector are often wildly conflicting, but the looming high tide of generational leadership transitions could change the script.

The word "office" has become synonymous with uncertainty for real estate investors. For every data point that seems to suggest the end of the modern workplace as we know it, there is an equal number touting the benefits of in-person collaboration, with several major employers taking hard stances about return-to-work expectations. How demand and usage ultimately shake out will have lasting implications for a property type that represents a quarter of ODCE funds' holdings.[1]

Beyond these data, there is another transitional force to interpret. Millennials are moving closer to peak corporate influence as they age into their prime C-suite years in the coming decade. The depth of this generational handover, and the difference in values and perspectives between the current and next cohort of leaders (and their Gen Z employees), provides an important clue about longer-term prospects for the office sector.

LEVELING THE FIELD

Two years on since the beginning of the pandemic and the massive work-from-home experiment, the majority of office occupiers have firmed up their post-pandemic return-to-work strategies, with most adopting some level of flexibility, whether begrudgingly or willingly.

The lasting effect of this acceptance on space demand is yet to fully materialize in the fundamentals data, given rolling expirations that will distribute the impact over several years. However, 2022 stands to represent the toughest test for landlords yet, as 11% of leased office space in the US is set to expire.[2] How much of the roughly 900 million SF of leased space expiring between now and 2026 will be renewed is still anyone's guess, though the general consensus is *less*.

Some have argued that an economic recession could spur a more meaningful return to the office, as looser labor market conditions would shift the leverage more firmly back into employers' hands, making a forced return to the office more viable. This silver lining has given life to the hope that this period of office demand flux could be relatively short-lived.

To believe a recession will reset the playing field is both overly optimistic and shortsighted. A looming transition in the makeup of corporate leadership by virtue of a generational handoff from Baby Boomer and Gen X managers to Millennials in the next decade stands to prevent the current office approach from backsliding, and may even reinforce it, creating meaningful implications for long-term holders of office properties.

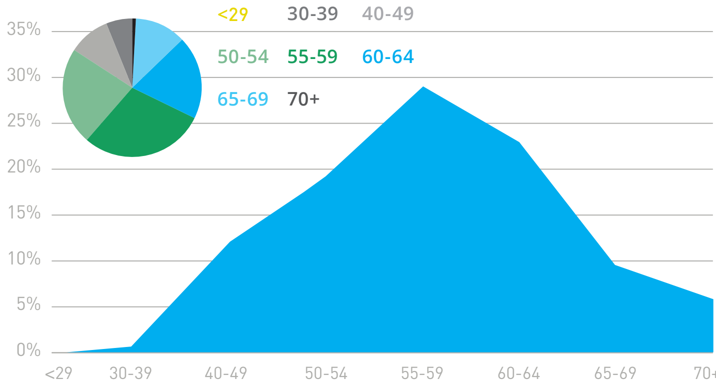
A COMING CHANGE-UP IN THE C-SUITE

As corporations have grown larger and more profitable over time, boards have naturally sought to fill key leadership positions with professionals who have the depth of experience to steer these big ships; the kind of experience that comes with age. This gradual "graying" of the C-suite has created a backdrop where departures are beginning to occur with increasing frequency as the front end of the Baby Boomer generation enters retirement, leaving a sizable gap that next-in-line Gen Xers will be unable to wholly fulfill on their own.

More than half (52%) of sitting CEOs in the Russell 3000 are between 55 and 65 years old; the average age of departure: 61.[3] While this statistic suggests an imminent wave of change (given people are living and working longer), it is the tail ends of the distribution that mask the true depth of potential for disruption, as the number of CEOs age 70 or older outnumber those under 40 by a measure of six to one *(Exhibit 1).*

EXHIBIT 1: DISTRIBUTION OF RUSSELL 3000 CEOS BY AGE GROUP

Source: American Realty Advisors, based on data from the Conference Board's CEO Succession Practices in the Russell 3000 and S&P 500: 2020 Edition; as of 2019.



Lion's share of Russell 3000 CEOs are between 55-65 years old, though the number of sitting CEOs 70+ outnumbers the number of CEOs under 40 six to one.

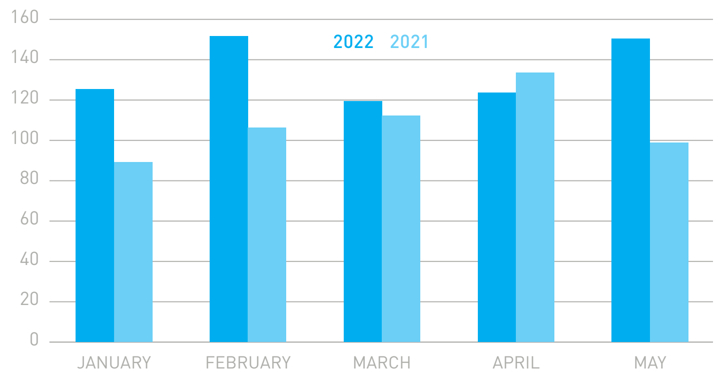
Over the last three years, nearly 4,300 companies saw turnover in their CEO position, as boards reimagined goals for their leadership and leaders reevaluated their willingness to serve in a rapidly changing business environment. And this pace is accelerating: through the first five months of 2022, CEO turnover increased 24% year-over-year *(Exhibit 2).*

Of course, not all turnover is a function of retirement. But of the 668 CEOs that have left through May of 2022, 183 stepped into other high-level roles within the firm, 39 left for new opportunities, and 155 (or 23%) retired. As the crest of the Baby Boomer wave isn't projected to reach retirement until 2030, the structure of corporate leadership, as well as their approaches to office space, is in the early stages of transformation.

Given the inevitable importance of Millennials in filling vacant C-suite roles, the cohort's values and struggles may provide insight into how their leadership styles may evolve, and what the corresponding impact may be on the office landscape. Millennials, like most office workers, have become accustomed to the recent work-from-home experience. This enhanced work-life balance has created a fundamental shift in the Millennial worker's perspective on the way work can and should fit into their daily lives.

EXHIBIT 2: CEO DEPARTURES MONTH-OVER-MONTH, 2021–22

Source: American Realty Advisors, based on data from Challenger, Gray & Christmas, Inc.: May 2022 Challenger CEO Report

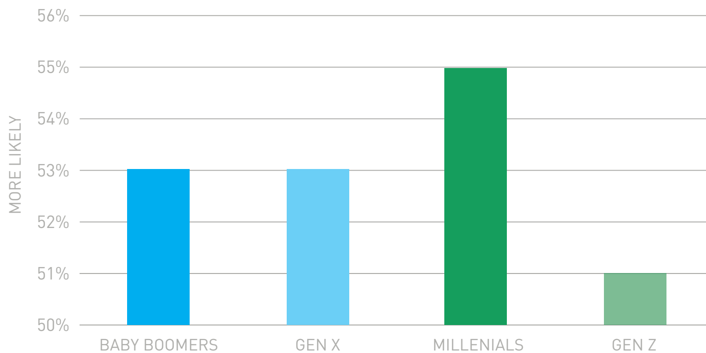


Note: The May 2022 Challenger CEO Report, Challenger, Gray & Christmas, Inc. is a global executive search company that conducts monthly studies on CEO departures and turnover over the last few decades.

Year-to-date CEO turnover through the first five months of 2022 was up 24% year over year.

EXHIBIT 3: COMPARED TO BEFORE THE PANDEMIC, HOW LIKELY ARE YOU TO PRIORITIZE YOUR HEALTH AND WELLBEING OVER WORK?

Source: American Realty Advisors, based on data from Microsoft's Work Trends Index Annual Report; as of March 2022.

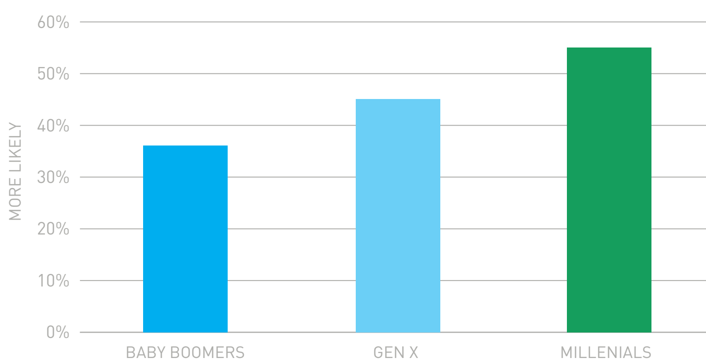


Note: The 2022 Work Trend Index outlines findings from a study of 31,000 people in 31 countries, along with an analysis of trillions of productivity signals in Microsoft 365 and labor trends on LinkedIn.

Recent survey results reflect this dramatic shift in priorities. Aaccording to the 2022 Work Trend Index[4], 55% of Millennial respondents stated they are now more likely to prioritize their health and wellbeing over work than they were before the pandemic *(Exhibit 3)*. Furthermore, when surveyed as to whether they felt there was a need to return to the office at all, 55% percent of Millennial respondents questioned the need, far outpacing the percentage of Gen X and Baby Boomer respondents who felt similarly *(Exhibit 4)*.[5]

EXHIBIT 4: DO YOU AGREE OR DISAGREE WITH THE STATEMENT: "I QUESTION THE NEED TO RETURN TO THE WORKPLACE AT ALL."

Source: American Realty Advisors, based on data from The Conference Board Survey; as of July 2021.



Note: The online survey was conducted between May 28–June 4, 2021, with more than 3,600 US workers across industries participating.

55% of Millennial respondents stated they are now more likely to prioritize their health and wellbeing over work than they were before the pandemic.

Millennials are also increasingly conscious of the positive impact work-from-home (WFH) and hybrid working could have on underrepresented groups. Millennials' early years of employment were marked by the growing focus on corporate diversity, equity and inclusion (DEI) efforts. It is safe to bet that these value pillars will continue to drive Millennial decision-makers and their approach to office-based work.

The shutdown of schools, child, and elder care facilities during the pandemic shined a renewed light on how much progress remains to be made when it comes to gender access and equality. With women spending on average between three to six hours per day on unpaid caregiving work, compared with an average of less than two hours per day for men[6], it comes as no surprise that the pandemic displaced 1.7 million more female workers than male.[7] WFH allows women to remain productive while balancing domestic responsibilities and provides firms more opportunities to improve the gender labor gap. Minority, immigrant, and ably challenged groups also benefit from flexibility, as WFH may reduce the impacts of microaggressions, prejudice, and the physical demands of commuting, all of which can cause employee burnout and impair well-being.

Through the dual lenses of work-life balance and greater labor equity, Millennials appear poised to add further challenge to the traditional office model when they inevitably step into leadership roles. Yet the desires of the subsequent generation (Gen Z) and the need for Millennial leaders to cater to this cohort, suggest the conclusion is not as clear cut. While the younger generation clearly values WFH flexibility (Gen Z is 77% more likely to engage with a job posting on LinkedIn if it states flexibility in the description), many are only beginning their professional careers and greatly fear they will miss out on pivotal professional development by not being in the office. Additionally, 41% of Gen Z respondents fear that fully remote work will prevent them from building relationships, receiving mentoring, and even being promoted due to possible "out of sight, out of mind" mindsets amongst leadership.[8]

These are specific generational preferences that will influence the future of office in the coming decade, but there are also more practical elements that come with every new generation entering the workforce that suggest a level of permanence. With many new graduates living with family or roommates, offices provide younger generations with dedicated workspaces that they don't have at home—spaces less useful or necessary for more senior colleagues.

With many firms currently operating in a hybrid model, this standard appears to best meet current and future employee demands for WFH flexibility and corporate community. Though the pandemic has shown that some work can be done asynchronously, many firms are expected to maintain a central location for collaboration and knowledge sharing. Furthermore, the office fulfills workers' social needs. This is a critical component to holistic wellbeing that has been proven to increase productivity and morale and reduce employee turnover. When asked to compare their social wellbeing, 50% of fully remote respondents reported feeling lonelier than they had pre-pandemic.[9]

It is safe to say we are already getting a glimpse into what the future of office will look like under Millennial leadership. Though there has been some reluctance to embrace the current environment as the new stasis, the pandemic's impact is too great and too ingrained to not have a lasting effect. As worker values have drastically changed over the past two years, it appears there is no going back to the office of the past, especially for younger generations.

ABOUT THE AUTHORS

Sabrina Unger is the Managing Director, Head of Research and Strategy and Britteni Lupe is an Associate, Research & Strategy at American Realty Advisors, one of the largest privately held real estate investment management firms in the US.

NOTES

[1] "Open End Diversified Core Equity (NFI-ODCE)," NCREIF, updated Q1 2022; ncreif.org/data-products/funds/.

[2] "US Office Outlook—Q1 2022," JLL, updated July 12, 2022; us.jll.com/en/trends-and-insights/research/office-market-statistics-trends, accessed April 2022.

[3] "CEO Succession Practices in the Russell 3000 and S&P 500: 2020 Edition," The Conference Board; conference-board.org/topics/ceo-succession-practices/ceo-succession-practices-2020.

[4] "Annual Work Trend Index Report," Microsoft, updated 2022; microsoft.com/en-us/worklab/work-trend-index.

[5] "Survey: Amid Higher Productivity, 43 Percent of US Workers Question Need to Return to Workplace," The Conference Board, updated July 2021; conference-board.org/press/Return-to-Work-Survey-June2021.

[6] Gaelle Ferrant, Luca Maria Pesando, and Keiko Nowacka, "Unpaid Care Work: The Missing Link in the Analysis of Gender Gaps in Labour Outcomes," OECD Development Center, updated December 2014; oecd.org/dev/development-gender/Unpaid_care_work.pdf.

[7] Tim Henderson, "As Women Return to Jobs, Remote Work Could Lock in Gains," PEW Charitable Trusts, updated May 3, 2022; pewtrusts.org/en/research-and-analysis/blogs/stateline/2022/05/03/as-women-return-to-jobs-remote-work-could-lock-in-gains.

[8] Erica Pandey, "Younger Employees Fear Being Left Behind by Remote Work," AXIOS, updated July 2021; axios.com/2021/07/13/gen-z-remote-work.

[9] "Annual Work Trend Index Report," Microsoft, updated 2022; microsoft.com/en-us/worklab/work-trend-index.

REVIEWER RESPONSE

The future of office is truly up-for-grabs in the aftermath of the COVID pandemic and the Great Resignation. As this article appropriately notes, the near-term outcome is not indicative of what the future outcome may be upon the transition of leadership from the Boomer generation—which was raised on the importance of being in the office—to Millennials, who may have seen how office presence is a bit overrated.

The fact that fifty years of office work culture was virtually destroyed by six months of working from home emphasizes that being in the office five days per week is not really necessary for getting most jobs done and done well. However, being in the office for some period of time does add value to many roles and many business outcomes. Finding that balance of corporate culture, innovation and personnel flexibility will take more than just saying three out of five days is enough.

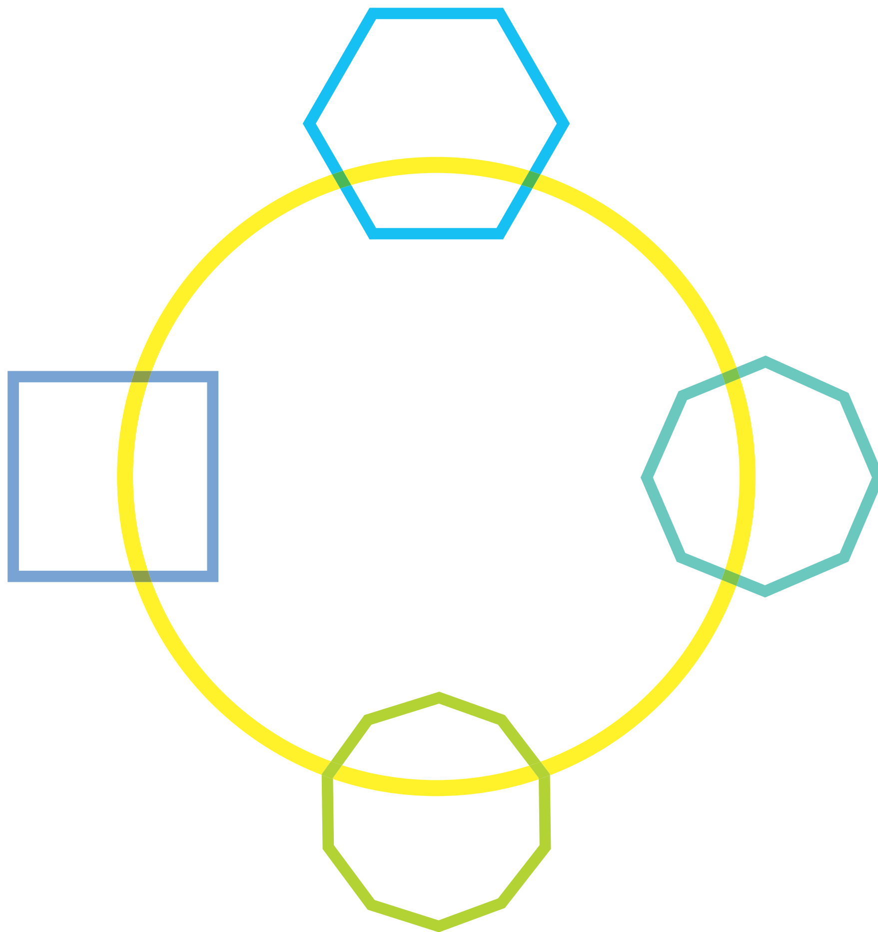
How this new thinking about employee presence will impact the use and need for office space is still to be seen. Surely leasing less space will appear to be the simple answer, but it is not guaranteed to be the best answer. Most office users had reduced their space/employee to a mere 125–150 SF per person, which was creating space that was not necessarily best suited for the best outcomes from employees, so getting back to the past levels of 200+ SF per person will utilize more space even with many of the employees not present more than 60% of the time. If corporate leadership is onboard with extensive hybrid or remote work, office space will need to find another use and will change central business districts and corporate culture forever.

The future of the office market in the US, and probably globally, is cloudy—but it isn't dark. This article is a great way to start the considerations and conversations.

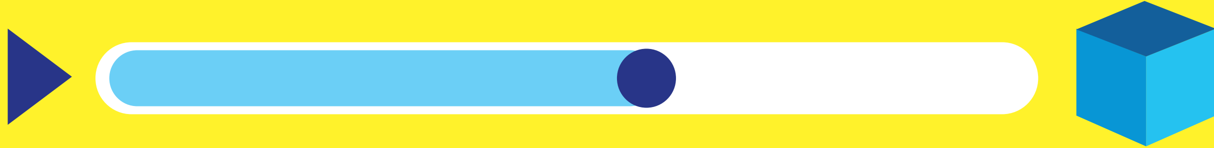
– Collete English-Dixon
Executive Director,
Marshall Bennett Institute of Real Estate, Roosevelt University

Member, Summit Journal Editorial Board

Through the dual lenses of work-life balance and greater labor equity, Millennials appear poised to add further challenge to the traditional office model when they inevitably step into leadership roles.



WHAT DRIVES LOGISTICS?



Hugues Braconnier
Head of Logistics
Allianz Real Estate

Dr. Megan Walters
Global Head of Research
Allianz Real Estate

The logistics sector was the winner of the pandemic recession—but is its rise built to last?

The logistics sector has come out of the COVID-19 recession more sought-after than ever. The European logistics sector had an outstanding 2021: investment volumes reached record levels, almost doubling year-on-year *(Exhibit 1);* yields continued to decline to historic lows with transacted cap rates recorded 60 BPS below the office sector. As a result, INREV fund-level logistics returns has posted a five-year annualized return of 17.2% *(Exhibit 2)*. This outperformed all other sectors, including residential (13.3%) and office (7.5%).

Macroeconomic and geopolitical developments since the start of 2022, however, represent headwinds to last year's bullish outlook. The situation in Ukraine disrupted global recovery and international trade, which had already taken a big hit from the pandemic. Shifting consumer spending from retail towards services and deteriorating household purchasing power due to high inflation levels have slowed down the pandemic-driven e-commerce boost. Furthermore, given historically low logistics property yields, the rise in real government yields since the start of this year implies repricing risk for the sector.

Despite these near-term headwinds, however, the European logistics sector's secular long-term demand drivers persist. As further yield compression is unlikely in the current environment, future returns will be driven by rental growth. Supply fundamentals are healthy with the European logistics vacancy rate at 3.3% in Q1 2022, an all-time low.[1] Development costs are rising amid spiking construction costs and higher interest rates, slowing down new supply. Long-term demand drivers remain in place, supported by an even greater importance on near-shoring of supply chains after Russia's invasion of Ukraine. As a result, rental growth in the logistics sector is expected to outperform other property sectors in Europe. Understanding logistics' long-term demand trends is therefore more important than ever.

EXHIBIT 1: EUROPE INDUSTRIAL INVESTMENT VOLUME (€ BILLIONS)

Source: Real Capital Analytics; as of Q2 2022, preliminary results

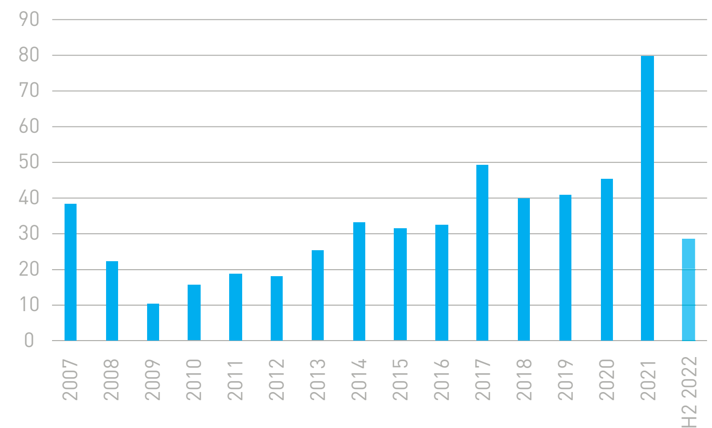
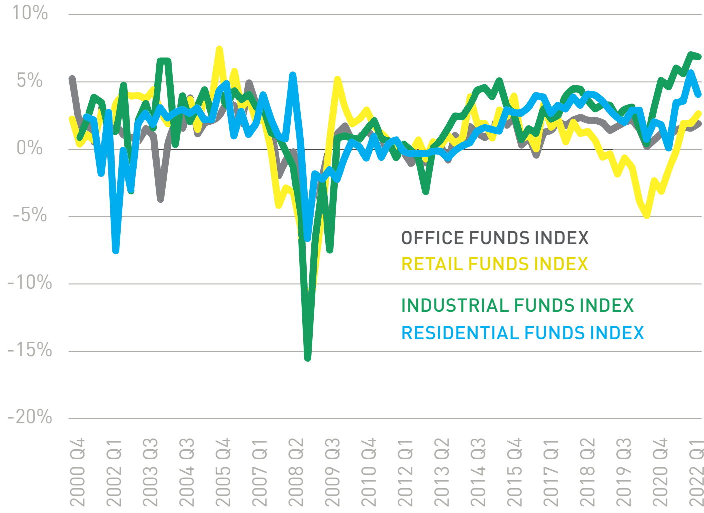


EXHIBIT 2: INREV FUND-LEVEL RETURNS

Source: INREV; as of Q1 2022



	1-YEAR ROLLING	3-YEAR ANNUALIZED	5-YEAR ANNUALIZED
OFFICE	7.45%	6.51%	7.51%
RETAIL	7.28%	-3.72%	-0.61%
INDUSTRIAL/ LOGISTICS	**29.01%**	**18.06%**	**17.22%**
RESIDENTIAL	18.77%	11.79%	13.32%
MULTI-SECTOR	11.51%	6.10%	6.51%

ACCELERATION OF E-COMMERCE

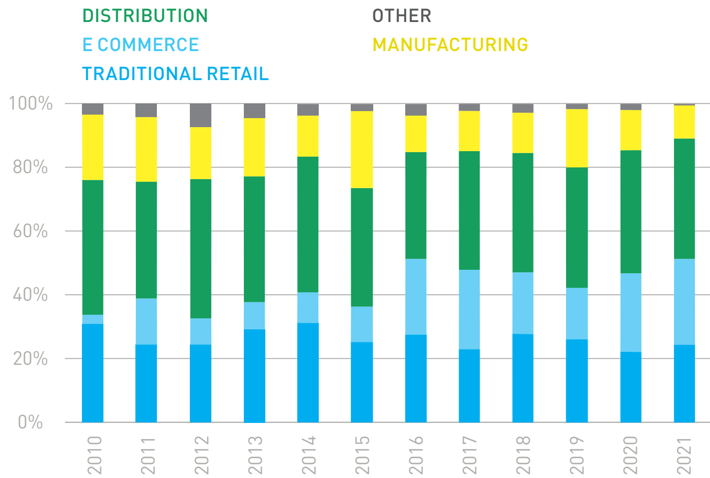
The rise of e-commerce has resulted in more complex global supply chains. Logistics now has more diverse space requirements than before. New necessities include e-fulfilment centers and parcel hubs, as well as sorting and delivery centers of varied sizes and locations. Facilities must be able to handle a greater product variety, easy returns, higher sales volatility, and lower space efficiency of parcel shipping.

The pandemic hastened ten years of e-commerce adoption into just a few months.[2] Even though some of the boost proved to be transitory, there are lasting impacts on consumer preferences. Lockdowns expanded online penetration of new product categories, such as online groceries and home improvement products. The pandemic also forced adoption by older age cohorts: 70% of Baby Boomers who bought groceries online in France from mid-March to mid-April 2020 were first-time buyers.[3] As a result, global e-commerce sales continued to rise in 2021, reaching US$3.1 trillion by the end of the year, marking an approximately 140% increase in five years. Global online penetration rose from 9% in 2016 to 20% in 2021.[4] CBRE estimates that annual global ecommerce sales will rise by USD 2.2 trillion to USD 5.2 trillion by 2026 which will require 160-200 million SF of additional e-commerce dedicated logistics space.[5]

The pandemic marked a tipping point in Europe's e-commerce adoption (16.3%)[6] which has typically lagged the US (approx. 20%) and Asia Pacific regions (South Korea >40%; China >25%).[7] Across Europe, divergent e-commerce penetration offers many different opportunities *(Exhibit 3)*. Most European countries are below the e-commerce penetration rates seen in Asia, and therefore would need more logistics space. Advanced ecommerce markets such as the UK and the Netherlands have been forerunners at the adoption of innovative solutions such as instant grocery delivery. Given that online penetration has exceeded a certain threshold with the help of the pandemic, online shopping will grow faster in lagging countries and new solutions will be more easily adopted going forward.

EXHIBIT 3: EUROPE LOGISTICS TAKE-UP BY TENANT TYPE

Source: PMA; as of Q2 2022



The impact of e-commerce demand is visible on logistics leasing activity. E-commerce share in take-up doubled in 2016 and remained high ever since making up around a quarter of overall logistics demand *(Exhibit 4)*. The pandemic has proved this relationship even stronger. Despite significant downturn in industrial production and international trade, logistics take-up in Europe increased concurrently with the fast rebound of e-commerce sales driven by lockdowns and pent-up demand *(Exhibit 5)*.

EXHIBIT 4: EUROPE LOGISTICS TAKE-UP (MILLION SQUARE METERS)

Source: PMA; as of Q2 2022; aggregate of 26 city markets.

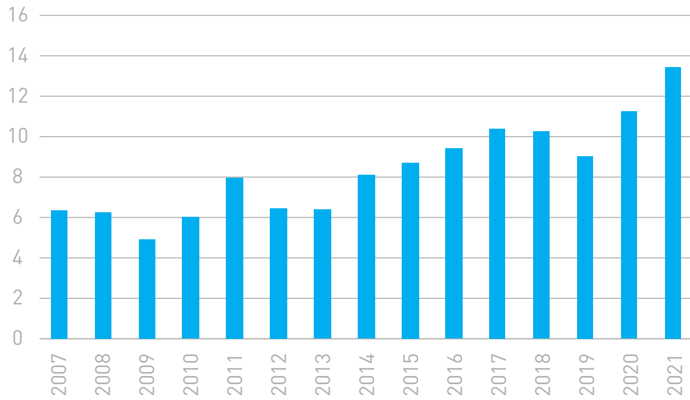
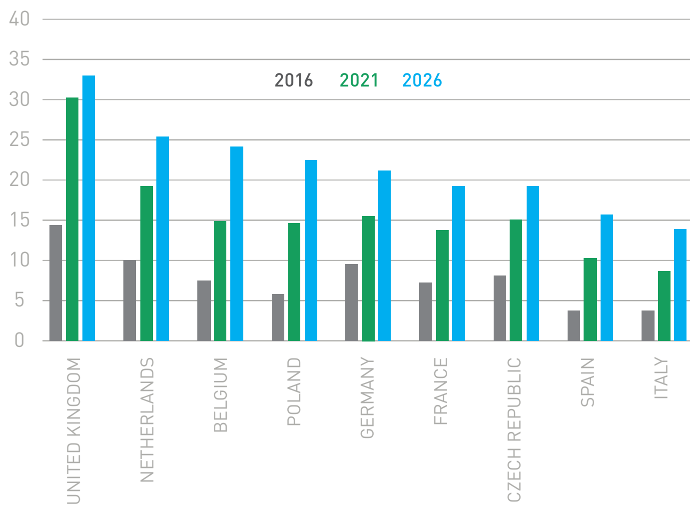
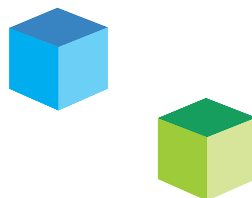


EXHIBIT 5: EUROPE E-COMMERCE PENETRATION

Source: CBRE; as of Q2 2022



Given that online penetration has exceeded a certain threshold with the help of the pandemic, online shopping will grow faster in lagging countries and new solutions will be more easily adopted going forward.

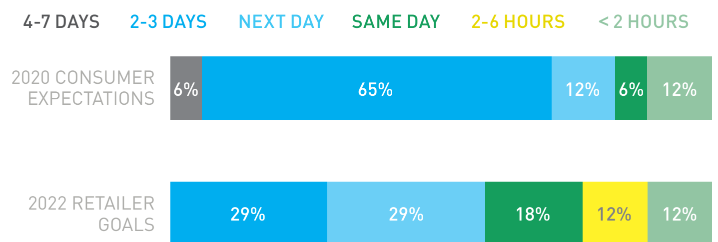


INCREASED IMPORTANCE OF URBAN LOCATIONS

Demand for urban logistics space will rise as delivery times continue to compress. Fast and reliable delivery provides a significant competitive advantage to retailers.[8] A survey published in March 2021 shows that retailers have ambitious delivery targets for the near future exceeding what consumers are currently asking for *(Exhibit 6)*. Improvements in delivery speed will require significant supply chain investment towards end-consumers.

EXHIBIT 6: DELIVERY SPEED: CONSUMER EXPECTATIONS AND RETAILER GOODS

Source: McKinsey, Retail speaks. Seven imperatives for the industry, 2021. Figures may not sum to 100%, because of rounding.



A social focus on sustainability and new technologies will also reinforce the trend towards urban logistics. An MIT study found that adding an urban fulfilment center in a given market cut transportation emissions in half compared to out-of-town distribution.[9] Moreover, cities offer wider opportunities for the use of electric vehicles, autonomous vehicles, drones, and green delivery options, such as bike couriers.

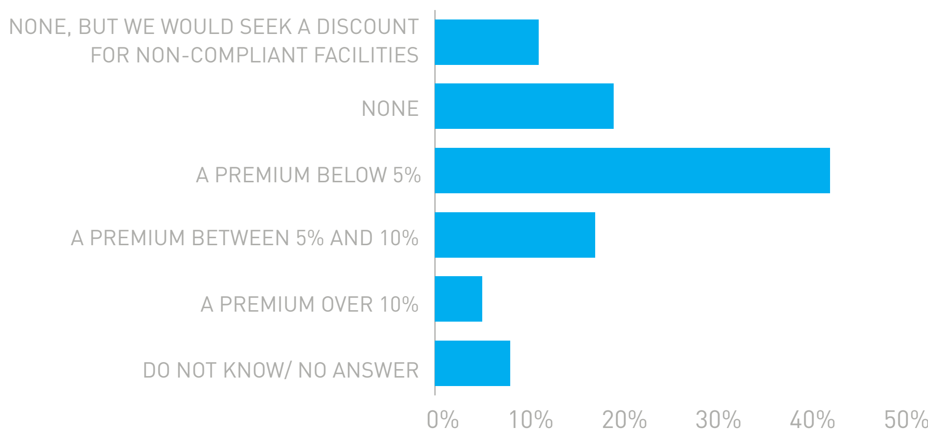
Dense European cities have scarce available land and many zoning restrictions, and so will require innovative approaches to logistics. There are a few viable solutions to accommodate more industrial space within densely populated cities. Multi-story warehousing, already used in Asia, may become more popular in Europe if the necessity for last-mile facilities and land values remain high. (New vertical last-mile logistics hubs include G Park London Docklands and Paris Air2 Logistique.) Alternatively, mixed-use buildings with logistics included may provide a compromise that opens up new locations.

FOCUS ON ESG PERFORMANCE

Strong demand for ESG performance will lead to green building rental premiums. This is especially true in Europe: the region has stringent regulations, higher consumer sensitivity, and ambitious corporate sustainability targets. According to a survey published in June 2022, 78% of occupiers have a net-zero target.[10] Consequently, occupiers' value considerations for space is affected by properties' green qualifications: 63% of survey respondents stated that they are willing to pay a premium for a green-certified property, whereas 11% said they would ask for a discount if the facility does not have a green certification *(Exhibit 7)*.

EXHIBIT 7: RENTAL PREMIUM FOR GREEN WAREHOUSES

Source: CBRE and Analytiqa, "European Logistics Occupier Survey 2022."



> Vulnerabilities of global supply chains were laid bare by the disruptions caused by the COVID-19 pandemic and have now been amplified by the war in Ukraine.

Europe's eco-friendly warehouses are setting new standards from design to construction and operations. Many new developments are designed to be carbon neutral with renewable energy sources such as solar panels and onsite wind turbines. Further innovative solutions include using rainwater to irrigate green spaces and clean interiors are also being tested.

Future-proofing assets to meet ESG expectations will require a holistic approach. Other parts of the supply chain will need to be transformed to make them more sustainable. For example, delivery vehicles are expected to electrify rapidly as more low-emissions zones are introduced in Europe. Similarly, there are efforts to decarbonize freight transport by using hydrogen as a fuel. In Germany, the government is supporting a company called Clean Logistics that converts heavy diesel trucks to hybrid hydrogen power. Warehouses will need to accommodate new requirements that come with these changes. For example, charging points for electric vehicles or easy access to hydrogen filling stations could become essential.

SHIFTING NEEDS IN SUPPLY CHAINS

Vulnerabilities of global supply chains were laid bare by the disruptions caused by the COVID-19 pandemic and have now been amplified by the war in Ukraine. The automobile sector alone was forecast to lose US$210 billion in revenue due to semiconductor shortages in 2021.[11] A McKinsey study has shown there have been more frequent and severe supply shocks in recent years: disruptions lasting a month or more now occur every 3.7 years on average. As a result, companies may lose more than 40% of a year's profits every decade.[12]

After the invasion of Ukraine, companies are thus under pressure to improve the resilience of their supply chains through re-shoring/near-shoring and to hold higher inventory levels closer to the centers of production or consumption. In Europe, Green Street estimates a modest change away from just-in-time would require 5-10% more industrial space.[13] Some early examples of supply chain diversification are evident in semiconductor manufacturing in Europe.

Against the backdrop of rising labour and transportation costs, logistics building costs (rent and service charges) are constrained representing less than 10% of total operating costs.[14] This increases the rationale for re-shoring/near-shoring and could present opportunities for Central and Eastern European countries once the geopolitical tensions are resolved. With accelerating automation, this trend could mitigate challenges of higher wages and tight labor supply, and thus spread across additional regions in Europe.

NOTES

[1] "Industrial Insights: Frugal Consumer = Slower Ecommerce Growth," Green Street, updated July 2022; greenstreet.com

[2] "How COVID-19 is Changing Consumer Behavior—Now and Forever," McKinsey & Company, updated 2020, mckinsey.com/industries/retail/our-insights/how-covid-19-is-changing-consumer-behavior-now-and-forever.

[3] "Share of First-Time Buyers Online Since the Confinement in France 2020," Statista, updated July 5, 2021, statista.com/statistics/1111384/online-grocery-shopping-coronavirus-generations-population-france/.

[4] "Global E-commerce Outlook 2022," CBRE, updated 2022, cbre.com/insights/reports/global-e-commerce-outlook-2022.

[5] Europe refers to simple average of nine countries covered by CBRE forecasts, data as of Q2 2022.

[6] "Global E-commerce Outlook 2022," CBRE, updated 2022, cbre.com/insights/reports/global-e-commerce-outlook-2022.

[7] Europe refers to simple average of nine countries covered by CBRE forecasts.

[8] "Consumer Insights Pulse Survey," PWC, updated June 2021, pwc.com/gx/en/industries/consumer-markets/consumer-insights-survey/archive/consumer-insights-survey-2021.html. Note: Consumer survey published in in June 2021 finds fast and reliable delivery ranked as the most important attribute of online shopping globally (41% of respondents).

[9] "Retail Carbon Footprints: Measuring Impacts from Real Estate and Technology," MIT Real Estate Innovation Lab, updated 2020, realestateinnovationlab.mit.edu/research_article/retail-carbon-footprints-measuring-impacts-from-real-estate-and-technology/.

[10] "European Logistics Occupier Survey 2022," CBRE and Analytiqa, updated June 2022, analytiqa.com/research/reports/european-logistics-occupier-survey-2022/.

[11] "Shortages Related to Semiconductors to Cost the Auto Industry $210 Billion in Revenues This Year, Says New AlixPartners Forecast," AlixPartners, updated September 23, 2021, alixpartners.com/media-center/press-releases/press-release-shortages-related-to-semiconductors-to-cost-the-auto-industry-210-billion-in-revenues-this-year-says-new-alixpartners-forecast/.

[12] "Risk, Resilience, and Rebalancing in Global Value Chains, " McKinsey & Company, updated August 6, 2020, mckinsey.com/business-functions/operations/our-insights/risk-resilience-and-rebalancing-in-global-value-chains.

[13] "Industrial: Supply Chain Disruption Beneficiary," Green Street, updated November 18, 2021.

[14] "European Logistics Occupier Survey 2022," CBRE and Analytiqa, updated June 2022.

ABOUT THE AUTHORS

Megan Walters is Global Head of Research and Hugues Braconnier is Head of Logistics for Allianz Real Estate. Additional contributors include Gizem Bartu, Clemens Ernst, and Luke Latham.

REVIEWER RESPONSE

The authors describe the demand drivers for logistics in post-pandemic Europe, arguing that higher demand from tenants leads to higher rental rate growth since value appreciation is unlikely to come from further cap rate compression.

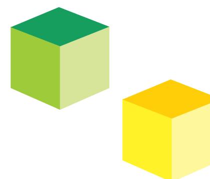
The authors focus on the changing nature of logistics based on today's complex supply chains resulting from an increase in overall consumption as well as an acceleration in adoption of e-commerce. These changes will alter the type of industrial real estate that users require, targeting urban locations and buildings that satisfy ESG criteria. The same trends supporting higher demand are certainly also prevalent in North America though not necessarily at the same levels.

The discussion on the evolution of the type of logistics facilities leaves the reader curious about exactly what type of requirements need to be fulfilled. Are there "must-haves" that future industrial buildings will need in order to get leased at any price?

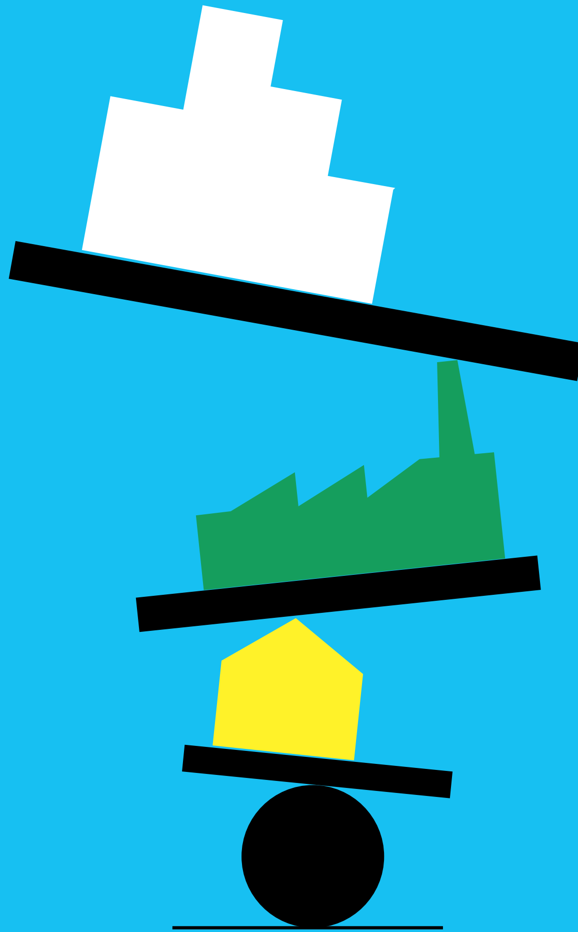
While the Authors concede that further cap rate compression is unlikely to support future value increases, it would be worthwhile to also examine the possibility of rising interest rates decreasing values despite higher demand. If logistics demand is driven largely by consumer demand for goods, how sensitive is rental rate growth to a recession? Is it likely to be less so than for other asset classes? Is some of the increase in demand for consumer goods based on consumers adjusting to a lockdown lifestyle and therefore could that be transient?

Lastly, it would be worthwhile to discuss the ability of new supply to keep up with the projected demand. Foreign investors, in particular, are less well positioned to understand the local nuances of geography and planning administrations on supporting or hindering the development of new supply.

– Peter Grey-Wolf
Vice President, Wealthcap
Member, Summit Journal Editorial Board



RENEWED PURPOSE



John Thomas
Partner
Squire Patton Boggs

Stacey Krumin
Partner
Squire Patton Boggs

From retail to office to abandoned factories and warehouses, owners of real estate are rethinking—and reinventing—the future of their investments.

The way humans need, use, and enjoy the built environment is more fluid now than ever. From retail to office to abandoned factories and warehouses, owners of real estate are rethinking the future of their investments, and in many cases—driven by necessity or opportunity—they are reinventing the properties.

Online retail and social media triggered a shift in the retail sector of the commercial real estate industry. By early 2020, COVID-19 became a part of our daily vocabulary and, as we well know, caused significant impacts on retail real estate. What then to do with these huge concrete boxes filled with clothes, toys, office supplies, and electronic devices?

Similarly, the office sector was performing well in early 2019, until our world realized we don't all need to sit together in an office to be productive and profitable. With remote work becoming more permanent, 30% of US office buildings, worth an estimated US$1.1 trillion, are now at high risk of becoming obsolete in a hybrid-work era.[1]

Finally, residential has gone through a similar transition. Take the Tampa/St. Petersburg/Clearwater metro area in Florida as an example. This residential real estate market has benefited tremendously from pandemic shifts in behavior, desires, work obligations, and so forth. The beach areas used to have a season. Now that season is year-round. Simple supply and demand has created a market where in some areas values have more than doubled in just two years. Rents are skyrocketing. How does the working class afford to live? Residential, especially reasonably affordable residential, will require creative thinking.

This brings us to adaptive reuse, or the notion of converting buildings that were built for one purpose into a different use. Adaptive reuse has been in practice for quite some time (for example, as the US economy shifted from manufacturing to services in the '80s and '90s, and the resulting number of warehouses and factories that have been converted to thriving mixed-use facilities). But the pandemic era has brought renewed interest to the practice.

Developers and investors who think creatively, given these behavioral and market-driven shifts, are those likely to outpace others who are following traditional investment guideposts. Following are a few examples to highlight this advantage.

THE GIFT THAT KEEPS ON GIVING

In Tampa, Florida, Armature Works (AW) is the anchor tenant at The Heights, an expansive riverfront neighborhood development. AW is a textbook adaptive reuse project. Developers Chas Bruck and Adam Harden of SoHo Capital looked at this old, abandoned streetcar repair and storage warehouse in a blighted area of Tampa, on the wrong side of the interstate—albeit along the busiest downramp in the State of Florida—and saw an opportunity to capture new value. It took thought, research, vision, creativity, time, and trust to turn AW into what it is: a bustling 73,000-square-foot mixed-use commercial space including Heights Public Market, a food hall and gathering space, event spaces, office, high-end restaurants, and a signature rooftop bar.

The thought and creativity that went into redeveloping Armature Works will pay dividends by driving occupancy of SoHo's other developments within the Heights, including the Pearl, a 314-unit luxury mid-rise apartment development, now fully occupied. Heights Union, two 150,000-square-foot luxury Class A office buildings were almost 95% occupied upon completion, with anchor tenants Pfizer and Axogen and sold for a record-breaking price.

CREATIVE AFFORDABLE HOUSING

Central Florida's economy is largely driven by hospitality, which requires an extensive work force, most of which unfortunately does not make a living wage. Affordable housing is a real challenge in and around Orlando, Florida. Old motels with exterior entrances, which are in abundance, are now considered obsolete in the hospitality industry. Developers are redeveloping these motels into micro-apartments with pro-forma rents set such that they will be affordable for someone making around minimum wage.

The redevelopment of these assets typically includes adding kitchens, combining rooms to create one- and two-bedroom apartments, new fixtures and finishes, upgrading pool areas, adding fitness rooms, and creating new outparcels with retail uses to serve the residents, such as quick service restaurants. The retail parcels can be sold off separately, which can make a huge impact on returns.

Adding these uses and creating new parcels can involve rezoning and platting, which can be timely but when run concurrently with the motel renovation, may not impact the project timeline. The results of this type of reuse are an example of win-win-win: Improvements to the city as blighted properties now look fresh and new; workers have a more affordable and enjoyable place to live; and developers create a profitable project.

Office buildings are a target for adaptive reuse because many are facing obsolescence for meeting their original program, and supply and demand underscores a need for more housing.

OFFICE TO HOUSING

In 2021, there were more than 20,100 apartment conversions and industry experts project at least 53,000 conversions in 2022. Roughly 40% of the conversions are from office buildings over the last two years.[2] Office buildings are a target for adaptive reuse because many are facing obsolescence for meeting their original program, and supply and demand underscores a need for more housing.

According to the National Association of Realtors, there was positive net absorption of apartment units in 27 major markets, but negative net absorption of office space through the third quarter of 2021, with New York City losing 21.8 million SF of office occupancy, Washington, DC 8.5 million SF, Chicago 6.4 million SF, and LA 6.1 million SF.[3]

BENEFITS OF ADAPTIVE REUSE

Adaptive reuse is often less expensive than new construction. The more of the existing structure that can be preserved, the more cost-effective the project is.

Adaptive reuse is often environmentally friendly compared to demolishing an existing building and starting over with new construction. Reuse avoids filling landfills with tons of debris that comes from tearing buildings down and new construction. The Environmental Protection Agency estimates that building-related construction and demolition debris account for 26% of all non-industrial waste generated in the United States.[4] Through adaptive reuse, developers can reduce both the emissions and demolition waste that come with building something new.

Depending on the location and characteristics of the building, government incentives may be available, such as historic, low-income, or new market tax credits, or tax increment financing. Projects located in opportunity zones also come with significant tax advantages for investors with capital gains.

In addition, reuse can bring a new project to market much faster than ground-up construction, resulting in additional cost savings, reducing the carrying costs of a project during construction, and bringing in revenue more expediently.

CHALLENGES OF ADAPTIVE REUSE

A critical challenge of adaptive reuse is the buildings systems themselves: original plumbing, floorplans, and especially lighting can be a challenge. Moody's Analytics estimates that less than 3% of the 1,100 offices in a study of the Manhattan market would be candidates for apartment conversions. Reasons include:

- **Cost:** office values would need to decrease another 30-40% for redevelopment costs, plus purchase price, to make financial sense
- **Design:** deep floor plates (100–120 feet) result in interiors that are too far from windows and lend to poor indoor environmental quality
- **Location:** especially relative to amenities or employment.[5]

DUE DILIGENCE

Recognizing the challenges of adaptive reuse, due diligence takes on added importance. Developers require a seasoned team of architects, engineers, contractors, and counsel to fully evaluate the adaptive potential of an older building. Questions include: are existing load bearing walls structurally sound; will existing systems (HVAC, electric, plumbing) support the new use; does existing zoning support the new use; Americans with Disability Act concerns; sufficient parking; and of course, as with any real estate development, what is the market demand for the new product. Developers should evaluate whether there are incentives or tax credits available, as historic and low income tax credits are particularly applicable to residential conversions.

GOVERNMENT CAN PLAY A ROLE

In some jurisdictions, such as Washington, DC, local government actively partners with developers to encourage adaptive development, often using a public-private partnership model. The District of Columbia is reaching out to the developer community to discuss how it can incentivize commercial-to-residential conversions that could help revitalize its office-heavy downtown.[6] The District's goals include increasing affordable and workforce housing units in downtown.

In Philadelphia, developers have brought more than 1,800 apartment units online in ten repurposed buildings over the past few years.[7] This is aided by the city's tax abatement for rehabilitated properties.

Many argue that local governments need to assist to make conversions happen. Governments can identify and help finance conversions. Tax incentives, expedited permitting, and relaxed zoning are all tools that governments have to promote conversions. In a post-COVID world where major downtowns and all the businesses that formerly thrived on robust office occupancy pre-COVID are now struggling, it is in the local government's interest to assist in the conversion of offices to residential. It is a path back to healthy and vibrant downtowns.

ABOUT THE AUTHORS

John Thomas is a Partner and leads the real estate practice at Squire Patton Boggs, and Stacey Krumin is a Partner and member of the Global Board at Squire Patton Boggs, a full-service global law firm.

NOTES

[1] Dees Stribling, "$1.1T In US Office Properties At Risk Of Complete Obsolescence," Bisnow.com, updated March 15, 2022, bisnow.com/national/news/office/more-than-1-trillion-in-office-properties-at-risk-in-post-pandemic-world-112245

[2] "Adaptive Use Reaches Record Levels," Rent Café, naahq.org/one-bedroom-rents-reach-all-time-high, accessed March 25, 2022.

[3] Scholastica Cororaon, "Strong Potential for Office-to-Housing Conversion of Class B Buildings in Metro Areas impacted by the pandemic," National Association of Realtors, updated November 16, 2021, nar.realtor/blogs/economists-outlook/strong-potential-for-office-to-housing-conversion-of-class-b-buildings-in-metro-areas-impacted-by, accessed November 16, 2021.

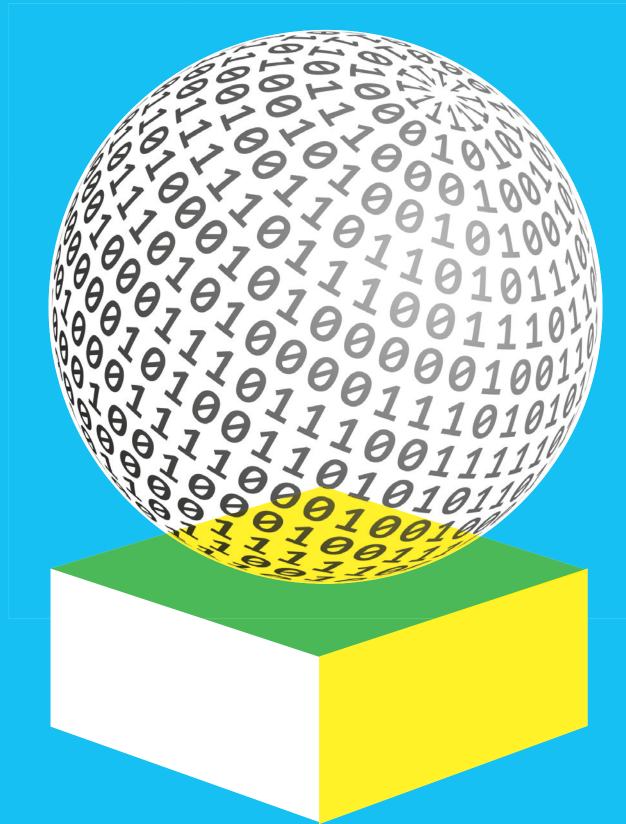
[4] "Construction and Demolition Debris: Material-Specific Data," US Environmental Protection Agency, updated December 21, 2021, epa.gov/facts-and-figures-about-materials-waste-and-recycling/construction-and-demolition-debris-material.

[5] "Why Office-to-Apartment Conversions are Likely a Fringe Trend at Best," Moody's Analytics, updated April 7, 2022, cre.moodysanalytics.com/insights/cre-trends/office-to-apartment-conversions/.

[6] Marissa J. Lang, "DC Mayor unveils plans to incentivize office-to-residential conversions as downtown struggles to recover," The Washington Post, updated December 14, 2021, washingtonpost.com/dc-md-va/2021/12/14/dc-downtown-offices-convert-to-housing/.

[7] Michaelle Bond, "Philadelphia is a leader in turning old factories and offices into apartments," The Philadelphia Inquirer, updated November 7, 2021, inquirer.com/real-estate/housing/philadelphia-redevelopment-apartments-historic-buildings-tax-credit-20211104.html.

DATABASICS



Max Shepherd
Executive Director, Global Real Assets
Sheffield Haworth

Jannah Babasa
VP, Global Real Assets
Sheffield Haworth

Isabel Ruiz Halter
Director, Global Real Assets
Sheffield Haworth

Data centers have become increasingly institutionalized as a real estate asset class in the past few years. Even before the pandemic, they typically generated a strong return, and then they proved resilient during COVID. It's no wonder that CBRE recently reported that 31% of investors now want to invest in data centers, compared with only 2% in 2018.[1]

According to JLL, total M&A activity in the data center space hit US$47.1 billion in 2021, up from US$34.5 billion in 2020.[2] In particular, some of the largest companies in the world with diversified business units, holdings, and innovations—also known as hyperscalers—are acquiring specialist data center developers to try and take advantage of increasing data center demand. Examples of this include KKR and GIP acquiring CyrusOne for US$15 billion in November 2021, and Blackstone Infrastructure Partners acquiring QTS Realty Trust for US$10 billion in June 2022.

However, even as the demand for data centers is set to increase, investors need to be aware of the unique challenges involved—including a growing shortage of experienced talent, which is essential to success in the sector.

Data centers have become an increasingly institutionalized property class over the past several years, but finding success in the sector depends on talent and expertise.

DEMAND FOR DATA CENTERS IS INCREASING

According to Forbes: "Due to the widespread digital transformation and digitization of industries globally, 90% of the world's data has been produced in the last two years."[3] Edge computing, which brings data storage closer to data sources, is booming.

The adoption of more hybrid work environments has also increased the need for better connectivity and access to systems. In addition to huge increases in the volume of data, governments are now imposing sovereignty laws which require data to be hosted in the country of the citizens of those countries. All these trends mean that the world needs a lot more data centers into the foreseeable future.

Importantly, due to the power needed to run data centers in North America and Europe, the cost of capital is high relative to many other asset classes. As a result, modular data centers that support better power and cooling system integration are on the rise. Compared with traditional brick-and-mortar facilities, these will result in lower carbon emissions and energy costs in the long run.

WHO ARE THE MAJOR PLAYERS IN THE SPACE?

Infrastructure, real estate, and private equity funds are all influential in this space, and each has specific strengths and weaknesses.

Infrastructure developers' experience in building roads, tunnels, and ports is an advantage for data centers, which also involve dealing with regulation and the need to source large quantities of power and water.

Real estate developers' experience of partnering with local or sector specialists on projects is useful and transferable to data center developments. These developers understand the fundamentals of location, tenancy, and development. However, as Francisco Porras of Merlin Properties explains, investors should be aware that they will need to constantly add capex into projects, because "data centers are typically all built-to-suit. It's very different to an office building that can work for many different tenants."

In that sense, real estate experience is mainly beneficial at the beginning of a data center development—the stage that involves land acquisition, licensing, and construction. On their data center projects, Merlin provides the capital and real estate expertise, and then partners with operations teams that have specialized (and hard-to-find) knowledge for data centers.

Private equity investors evaluate investments on a macro level and invest with customer demand in mind, which can be an advantage in this space. According to Eric Adler, CEO of PGIM Real Estate, data demands are the same for every country in the world. In fact, the demand might be greater in emerging countries than they would be for some developed countries. Therefore, PE investors are more comfortable than real estate developers to go into emerging markets.

> The sector comes with high barriers to entry, especially given the high demand for energy and growing ESG concerns.

DO NEW MARKET ENTRANTS STAND A CHANCE IN THIS SPACE?

There is a lot of interest from new market entrants in the data center space. Similar to the life sciences sector, data centers are inflation-proof, COVID-proof, require a long build time, have expensive set-up costs, come with high political and regulatory sensitivities, are in demand globally, and need highly specialized operators with deep knowledge of the end-user. This means the sector comes with high barriers to entry, especially given the high demand for energy and growing ESG concerns.

According to Dan Madrigal, Vice President of Cloud Infrastructure at Oracle, the most important requirement for successful development in this sector is access to power, as data centers consume huge amounts of it—especially hyperscalers such as Google and Microsoft.

In the US, hyperscale data centers cost US$6–$10 million per megawatt to build. Although Europe's development costs are typically comparable to the US, some locations are significantly higher, with Frankfurt recording a high of €12 million per megawatt and Bordeaux recording €9 million per megawatt. And while Asian markets benefit from lower labor, construction, and logistics costs, which reduces their average capital expenditure, the investment is still significant.

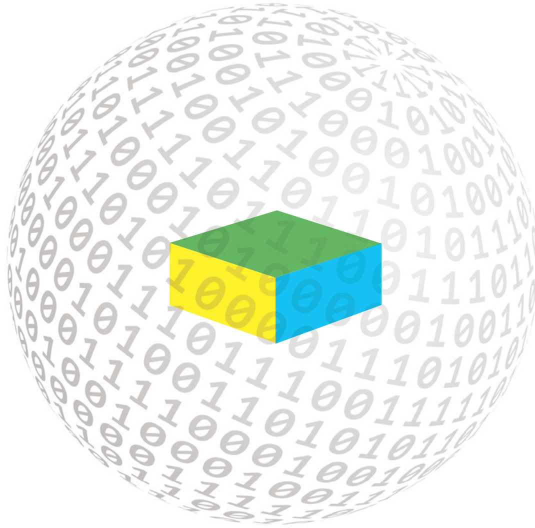
Compounding this problem is the fact that data center developers also need to purchase renewable energy from the grid or buy carbon credits due to internal or external goals or requirements to offset their carbon emissions. In both North America and Europe, large and small customers are increasingly more focused on becoming carbon zero or neutral. Lindsey Bruner, former Vice President of Project Development for CyrusOne, believes that adherence to both customer and internal targets for environmental consciousness on energy and water is now "more of a requirement than a differentiator," as investors, developers, and end users continue to be more attentive to these considerations.

On this point, Eric Adler adds, "If you are a city which does not have reliable access to a renewable energy source, then anyone wanting to build a data center will need to put in the infrastructure to channel renewable energy to the city."

Governments have recognized the drain on energy and water created by data centers. In Europe this has led to the introduction of the Climate Neutral Data Center Pact in 2021. Signatories to this pact include AWS, CyrusOne, Data4, Equinix, Gigas, Google or Atos, among others. This pact requires data centers to improve energy efficiency with measurable targets, including buying carbon-free energy and focusing on water conservation. Those investors with robust ESG agendas are unlikely to partner with firms who are not members.

A final barrier to entry is that the data center sector is still relatively small and thus tightly knit. In the US, newer entrants that have established a stronger presence in the sector either had the advantage of having a leadership team with prior data center experience, or else they've partnered with firms with existing track records, whether in real estate or infrastructure.

Despite this, Madrigal argues that a new entrant lacking a track record in data center development could still be worth partnering with "if they have developed something on a similar scale and complexity" and have experience of large-scale capital deployment and seeking regulatory approval.



WHAT ARE THE KEY CONSIDERATIONS FROM A TALENT PERSPECTIVE?

As a relatively niche and immature sector—especially in Europe and Asia—data center developers face a shortage of experienced talent. In the US, while northern Virginia remains the largest data center market, other cities such as Dallas, Phoenix, and Chicago have growing development pipelines to support the increasing demand. In Europe, various markets are also experiencing a similar, rapid pace of growth. Across these markets, the essential question is the same: Where to source talent?

"There is certainly no shortage of capital but there is a shortage of skills and resources. There is no data center university or MBA program," Madrigal points out. "However, the growth is so exponential that we are relying on cannibalizing competitors or trying to attract people from adjacent sectors."

Bruner agrees, noting that "many firms are competing for experienced candidates." Timing is an additional challenge, as the demand for talent in this space is urgent. Her view is that organizations need to "have a mindset of organizational design [rather] than hiring only for specific needs." Given the shallow pool of specialist talent, firms must think more about skills-based hiring and also invest in training and educating their own talent in order to maintain a sustainable workforce. That said, with the level of competition in the space, it is still important to prioritize candidates who bring existing familiarity with and knowledge of the sector, as this can provide organizations with an edge.

"Whether you are an infrastructure, real estate, or private equity investor, the most important thing is that you know what the end user wants. Data centers need to be highly tailored to the end user, which means that suitable data centers are typically built to suit or newly built with the current needs of the tenant front of mind," Madrigal adds.

Some developers are hiring engineers from heavy industrial sectors, such as oil and gas and manufacturing, due to the unique technical needs of data centers. Because data centers represent a convergence of real estate and infrastructure, those with experience leading complex processes involving multiple stakeholders at pace can work well in the data center context. This is especially true of those with experience of energy procurement and management.

According to Francisco Porras at Merlin Properties, the key to success in data center developments is similar to development of other real estate sectors: hiring hands-on technical professionals who understand their tenants and are customer oriented. However, the tenant requirements in data centers are more specific and are changing more rapidly compared to other real estate asset classes such as offices, which means that you need people who can stay up to date with regulations and be more flexible.

WHAT SHOULD INVESTORS LOOK FOR?

As we've discussed, the data center market comes with a series of very specific challenges to deter the unwary investor. ESG considerations are key, especially when it comes to sourcing renewable energy and conserving water usage. At the same time, most data center developments are highly bespoke. These factors all increase the capex of such investments.

When it comes to established operators, investors would do well to seek out those with a track record in the sector, while new market entrants with access to large amounts of capital and relevant experience from adjacent markets are also likely to thrive.

ABOUT THE AUTHORS

Max Shepherd, Executive Director, London; Isabel Ruiz Halter, Director, London; and Jannah Babasa, Vice President, New York; work for the Global Real Assets Practice for Sheffield Haworth, an executive search firm that provides highly tailored executive search and talent advisory services to help financial services companies find, attract, and retain talent.

NOTES

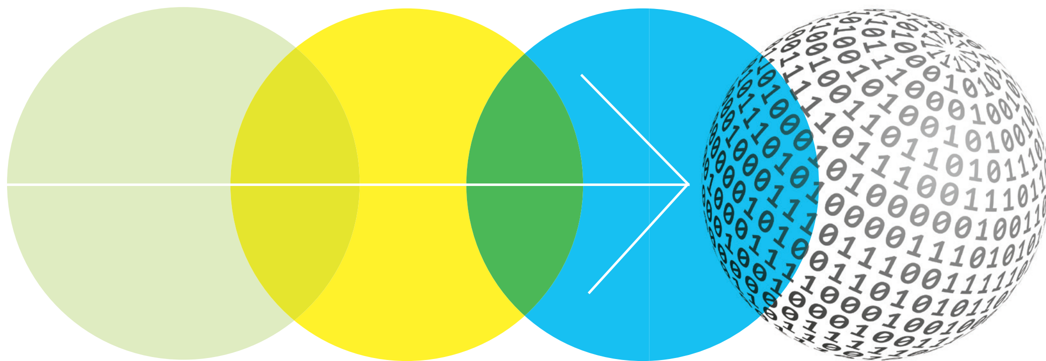
* Many thanks to our contributors: Eric Adler, President and CEO, PGIM Real Estate; Lindsey Bruner, VP Project Development, CyrusOne, Dan Madrigal, VP Oracle Cloud Infrastructure, Oracle and Francisco Porras, Leasing Manager, Merlin Properties.

[1] "Investor interest in data centers continues to spike into 2022, 15 fold since 2018," CBRE, updated February 3, 2022, cbre.com/press-releases/investor-interest-in-data-centres-continues-to-spike-into-2022.

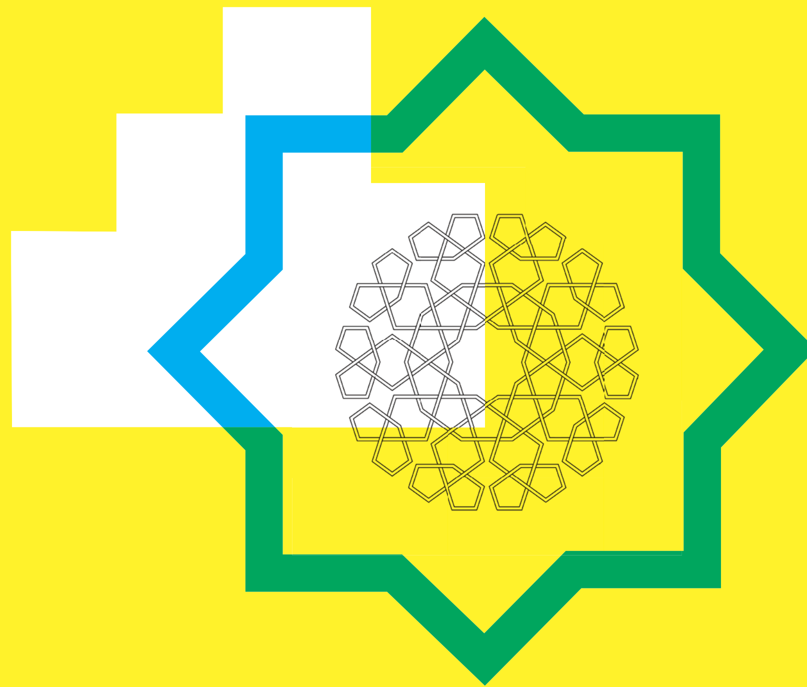
[2] Sharon Fisher, "JLL: 2021 Smashed Data Center Records," updated April 4, 2022, datacenterknowledge.com/colocation/jll-2021-smashed-data-center-records.

[3] Bernard Marr, "How Much Data Do We Create Every Day? The Mind-Blowing Stats Everyone Should Read," updated May 21, 2018, forbes.com/sites/bernardmarr/2018/05/21/how-much-data-do-we-create-every-day-the-mind-blowing-stats-everyone-should-read/?sh=27dcb7c460ba.

Even as the demand for data centers is set to increase, investors need to be aware of the unique challenges involved—including a growing shortage of experienced talent, which is essential to success in the sector.



COOPERATIVE INVESTMENT



Ishmam Ahmed
Master of Professional Studies, Real Estate
Georgetown University

Student Fellow
AFIRE

As insurance costs of residential and commercial spiral out of control, a 1400-year-old tradition is poised to offer long-term, sustainable growth for real estate investments.

Which tradition offers an alternative to current conventional insurance models that have resulted in skyrocketing costs, lack of trust, and instability for the real estate industry?

To answer that, let's look at the Islamic alternative to insurance known as تكافل *(takaful)*.

Takaful is a type of Islamic insurance where members contribute money into a communal pool system to guarantee each other against losses and damages occurred. Takaful insurance is based on shariah, or Islamic religious law, which outlines how individuals are to conduct transactions that allow parties to cooperate and protect one another.

Takaful products range from general property to family products. For example, conventional insurers offer property insurance, whereas takaful operators have a shariah-compliant alternative known as general property takaful, which can be used to cover a real estate asset during times of distress, such as a hurricane event. Family takaful products are used to provide families with protection and long-term savings as contributions are deposited into shariah-compliant savings accounts.[1] The takaful industry has seen double-digit growth and poised for continued expansion as Muslim populations increase and the broader appeal of Islamic financial products takes hold in non-Muslim countries such as the United States.

TAKAFUL AND HOW IT DIFFERS FROM CONVENTIONAL INSURANCE

Conventional insurance is prohibited in Islam as it possesses the following elements that are incompatible within the shariah:

الغرر *(Gharar)*—contractual uncertainty that leads to dispute.

Gharar exists in conventional insurance as one party in the contract, the insurer, has a right to profit from the investment of insurance premiums, while the other party (the insured or policy holder) does not have access to its funds.

ميسي *(Maisir)*—the element of speculation in a contract.

In conventional insurance, the insured pays a premium (i.e., a contribution) expecting a much greater amount in case of loss. However, the policy holder loses all premium contributions when an uncertain event does not occur. This is believed to be an unfair advantage for the insurer and can lead to fraudulent behaviors during claims from the policy holder.

الربا *(Riba)*—any amount that is charged in excess which is not in exchange for a due consideration.

Riba consists of two categories, including الربا الناصية *(riba an-nasiya),* which includes interest or any other increase on a loan of cash. The other is ربا الفضل *(riba al-fadl),* which is an exchange of unequal quantities or qualities of a given quantity. Within the conventional insurance industry, riba occurs when interest is paid when splitting the insurance premiums over a period of time instead of paying it upfront, or when late fees are incurred. We also see *riba* as part of the investment portfolio made by the insurer, leading to investments in interest-based bonds and other investments that aren't shariah-compliant.

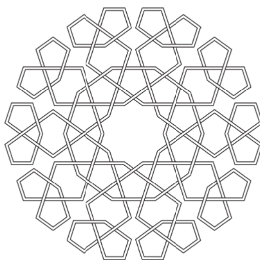
CURRENT MARKET ASSESSMENT AND =CHALLENGES

According to McKinsey, the world average growth has been around 4% percent for general insurance between 2010 and 2020.[2] However, due to the pandemic and other market trends such as higher claims, increased losses, and increased operational costs, premium growth slowed to approximately 1.2%.

The worst impact of these issues can be seen in the Florida insurance market, where rising homeowner and commercial insurance premiums paired with billions in losses, has led to six companies liquidating and with three more planning to pull out of the market. This leaves millions with 30% to 100% premium increases. Contrarily, we see takaful markets exceeding general insurance with double-digit growth rates ranging from 15% annually in Malaysia to 37% in Saudi Arabia. With the US market having little to no takaful operators, any firm that pursues takaful operations is likely to see high growth and a new source of revenue that is strong and stable as the current US Muslim population is nearly four million. This population is expected to become close to 10 million by 2050. Additionally, between 2005 and 2020, the number of takaful operators jumped from 77 to 324, with more planned as countries such as Morocco and the United Kingdom setting new regulations to ease the facilitation of takaful companies.[3] Overall, the US is behind on takaful when compared to other non-Muslim majority countries.

We also see that takaful model can slow premium increases and reverse mounting costs, while still providing the same coverage. However, there are some challenges:

- Setting up windows within existing insurers and creating new shariah-compliant insurers. Windows may take six to nine months for inception and regulations currently do not exist to create a guideline in the US.
- As many people within the Muslim community are not aware about the restrictions in Islam, let alone those outside of the faith, bringing takaful operations into non-Muslim markets will take educational efforts.
- As with any new concept, portfolio managers and investors may be hesitant to adopt a different model after being used to the conventional insurance model.



The takaful model can slow premium increases and reverse mounting costs, while still providing the same coverage.

HOW THE ISLAMIC MODEL CAN CREATE GROWTH

Despite the challenges of setting up takaful operations in North America and Europe, we can still see how takaful can provide growth opportunities for the real estate sector.

As the general insurance industry experiences premium price increases of 30% or more, and the dropping of millions of policies, this environment offers a unique window to capture value by offering takaful as an alternative to both Muslim customers and non-Muslims alike Lloyds of London started their takaful operations in 2017 in the United Kingdom, and these operations have experienced zero claims since its inception. By being able to replicate those numbers in a volatile environment where customers are desperately looking to save, takaful can prove to be a viable alternative.

Additionally, with mechanisms built in place within takaful models, such as unused premiums being returned to the policyholder, investors and portfolio managers can expect to see reduced insurance costs as well as secondary dividend income. Operational savings of 10 to 250 BPS can translate to significant portfolio improvements, especially in low-cap rate environments. This leads to higher portfolio values and higher exit prices.

With movements towards the real estate industry to be more inclusive and diverse, investment firms can transition to takaful-based portfolios that can appeal to Muslim investors from MENA, GCC, and Asian regions. Having funds and product offerings that cater to the Muslim demographics will lead to more fundraising opportunities. With more fundraising, Fitch Ratings reports shariah-compliant portfolios have performed better, averaging 13% returns compared to general returns of 11% percent.[4]

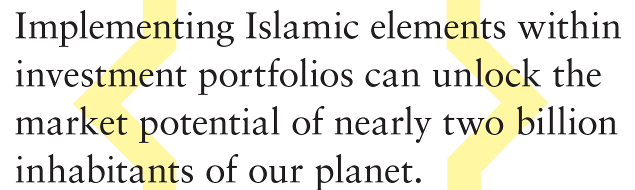
THE FUTURE OF TAKAFUL IN NON-TRADITIONAL MARKETS

The Islamic model of takaful offers insurance policy holders the benefit of having their unused premiums returned as an annual dividend or rolled over to the next year as a reduction in premiums. This can lead to portfolio performance increase of up to 5% and reduce the increases we have seen the last two years within the conventional market.

With the implementation of takaful operations in non-traditional markets such as the US, Canada, or the UK, we can expect to see challenges such lack of regulations, lack of consumer awareness, and limited data. As companies begin operating takaful windows or launching insurance providers, real estate investors should ask some of the following questions:

- As insurance costs rise and make it increasingly difficult to reach performance targets, what are some of the ways I can help to ease the implementation of takaful? How can I use takaful afterwards?
- Can Islamic finance and a portfolio covered by takaful be part of the value proposition to potential investors looking for faith-based alternatives?
- What would be the performance improvements to my portfolio?
- How do I stay informed and engaged about takaful and Islamic finance?

As the real estate investment industry continues to evolve, we see that to be more inclusive and diverse with our practices, implementing Islamic elements within investment portfolios can unlock the market potential of nearly two billion inhabitants of our planet. We can continue to strengthen our relationships with countries across the globe and use the real estate market to capture a US$44 billion market by 2024—an increase of US$23 billion from 2020. With the creation of multicultural and diversity sensitive real estate spaces we can nurture those bonds, leading to increased returns, a better understanding of Islamic alternatives, and reduced points of conflict.


Implementing Islamic elements within investment portfolios can unlock the market potential of nearly two billion inhabitants of our planet.

ABOUT THE AUTHOR

Ishmam Ahmed is a student fellow for AFIRE and is pursuing his master's degree in real estate from Georgetown University, with a focus on Islamic finance and shariah-compliant investment.

NOTES

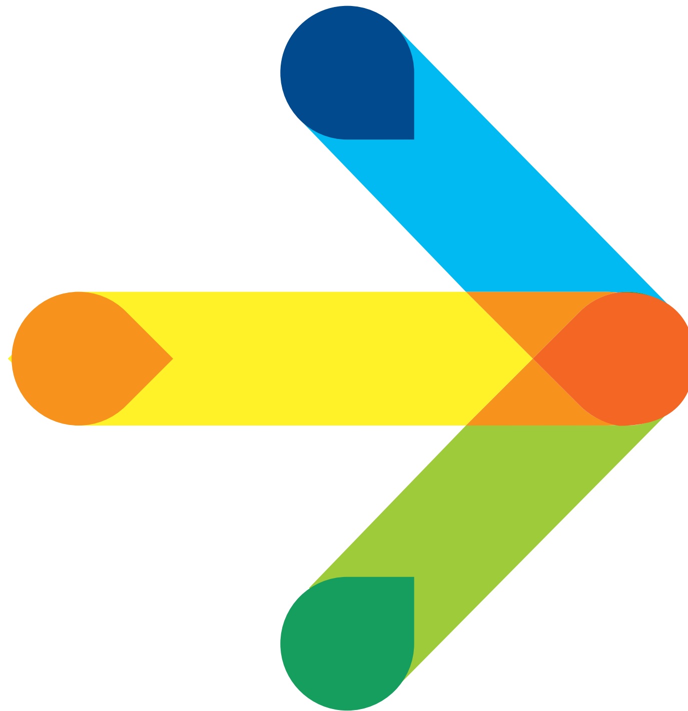
[1] "Creating Value, Finding Focus: Global Insurance Report 2022," McKinsey & Company, updated February 15, 2022, mckinsey.com/industries/financial-services/our-insights/creating-value-finding-focus-global-insurance-report-2022.

[2] "Creating Value, Finding Focus: Global Insurance Report 2022," McKinsey, 2022.

[3] Cate Deventer, "Will 2022 Bring the Collapse of the Florida Homeowners Insurance Market?" Bankrate, updated May 23, 2022, bankrate.com/insurance/homeowners-insurance/florida-homeowners-insurance-crisis/.

[4] Sunil Singh, "Shariah-Compliant Funds Top in AUM Growth Rate Globally," CityWire, updated February 15, 2022, citywiremiddleeast.com/news/shariah-compliant-funds-top-in-aum-growth-rate-globally/a2379507.

DOMESTIC MIGRATION TRENDS JUNE 2022



Ethan Chernofsky
VP Marketing
Placer.ai

Dive into the report to understand if and how COVID impacted domestic migration patterns on a state, city, and zip code level.

The United States is one of the most geographically mobile countries[1] in the world. FiveThirtyEight[2] states that the average American moves an average of eleven times in his or her lifetime, and while it is hard to find accurate data on other countries, research suggests that they don't move quite as much.[3] There are many factors that drive these high rates of internal migration—unlike the European Union, all of the US speaks the same language, meaning that relocating for a work opportunity across the region is easy for someone moving from Florida to Washington State. Moving from Romania to Portugal—not as simple.

These migration trends were thrust into light as COVID began to take hold. The sudden option to work from home also led to questions about where people would live if commuting to an office was no longer a necessity. Many assumed that there would be mass exoduses from cities as people,[4] feeling constrained by lockdowns, would seek outdoor space.

Foot traffic data tells a slightly different story. While some people made big moves, most stayed in place. Others moved, but stayed close to their region of origin. And many of those who did relocate across state lines chose areas whose population had already been trending up pre-pandemic.

Moving is expensive, time-consuming, and emotionally and socially costly, so even a slight uptick in internal migration is significant.

Still, moving is expensive,[5] time-consuming, and emotionally and socially costly, so even a slight uptick in internal migration is significant. This whitepaper examines some of the population shifts within the United States over the past few years. We looked at population changes on a state, county, and zip code level to understand if and how COVID impacted these trends and where migration patterns are headed.

COVID DIDN'T UPEND MIGRATION PATTERNS

The beginning of the pandemic saw many think-pieces predicting[6] that the areas in which Americans would choose to live would forever be changed. But taking a wider view and looking at the population shifts since 2018 shows that—with some exceptions—much of the migration over COVID followed trends that had already been taking place.[7]

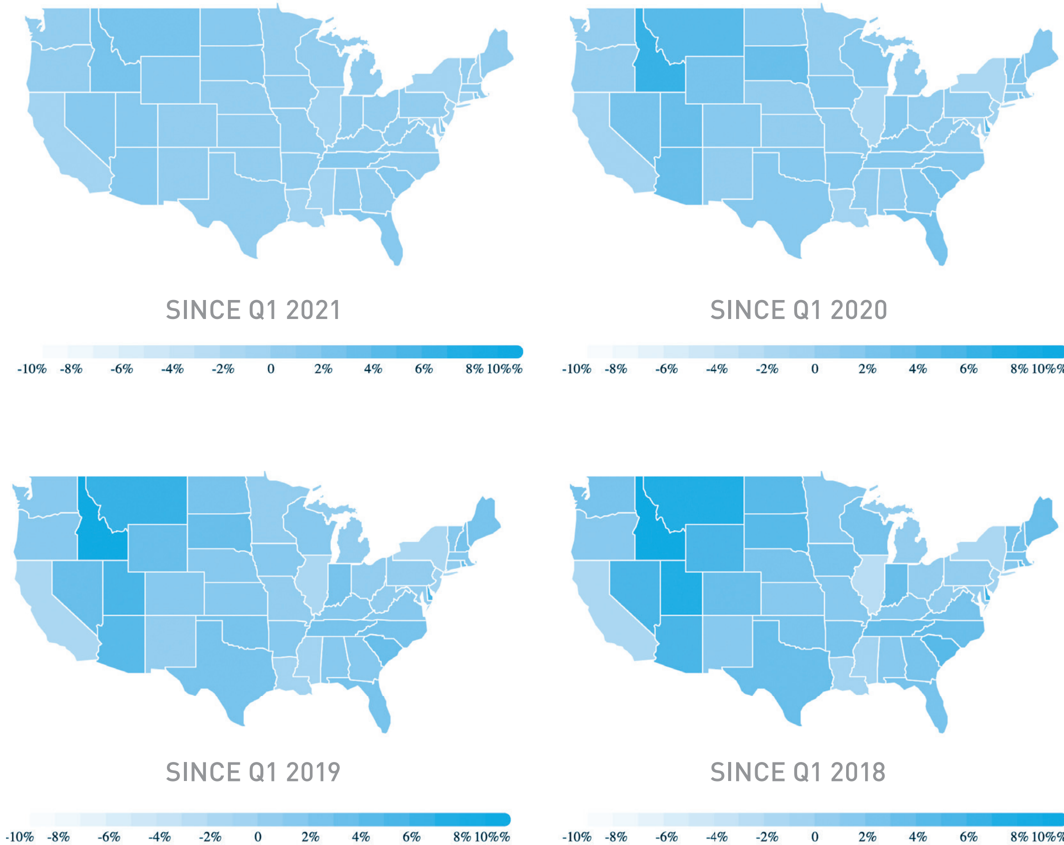
According to around 30 million change-of-address requests to the US Postal Service in 2020 analyzed by the New York Times,[8] migration patterns during the pandemic mostly looked a lot like migration patterns pre-pandemic. Certain smaller metro areas and vacation spots became more popular, and some larger cities did see their population decrease. But overall, areas that were already attracting new residents kept growing, and those that were already losing residents lost more.

The change in net population across states between Q1 2021 and Q1 2022 (shown in the top left map below) stayed between the range of -0.9% (in Illinois and New Jersey) and 2.3% (in Idaho). Even when we compared the population in Q1 2022 to Q1 2019 and Q1 2018, the changes still remained relatively small in most states. And the states that did see more substantial population growth in the past 3 to 4 years are states with a more rural and sparse population like Idaho (12.2% population growth since Q1 2018) and Montana (7.7% population growth since Q1 2018) where populations were small to begin with—so even a slight increase is likely to have a dramatic impact on the population rates.

But while the pandemic did not necessarily change the direction of internal migration, COVID may have accelerated some trends already in place. Several states with large urban populations saw their populations shrink somewhat, with New York, Illinois, and California all seeing gradual declines in population of 1.1%, 2.2%, and 1.1%, respectively, since Q1 2018. And some cities with dense office areas also saw declines in population as remote work became the norm.

But whether people relocated because of COVID or because of factors and trends already in place pre-pandemic, the data does show that a small, but significant, share of the population has moved across state lines since 2018. And since moving out of state[9] is both expensive and labor intensive, families and individuals with the resources available make up a very specific demographic that can have an outsized impact on foot traffic to dining, retail, recreation, health, and cultural venues.

EXHIBIT 1: NET POPULATION CHANGES ACROSS STATES—Q1 2022



THE STRONG GOT STRONGER

Our data, illustrated in the two graphs below, shows that areas that were already attracting new residents throughout 2019 continued to do so during the pandemic. Florida and Arizona, two states known for typical winter population surges as "snowbirds" arrive, have seen their winter population increase every year since 2019. The populations of Texas and Colorado have also been trending up for years.

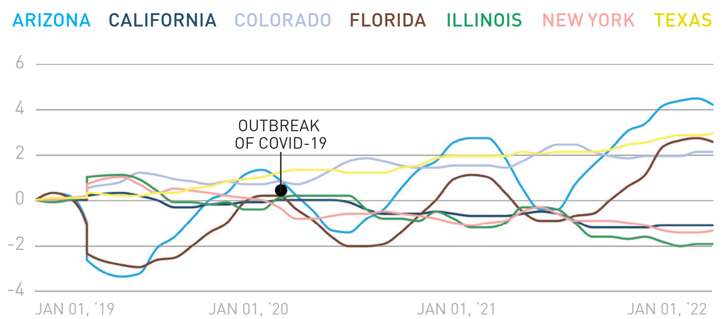
But the pandemic also caused some declines in states with pre-pandemic stagnant populations such as New York, Illinois, and California. So while COVID did not reverse any growth trend, not all the relocation patterns seen over the past two years started before 2020. Still, it's important to note that the population declines in previously stagnant states were generally smaller than the equivalent increases in the growing states. This means that the trends that were already in place on the eve of the COVID outbreak generally had a larger impact on population patterns.

> A positive or negative 2% to 4% change in statewide population over three years may seem small, but it is still significant.

At the same time, a positive or negative 2% to 4% change in statewide population over three years may seem small, but it is still significant. And the chart below indicates that not only were some of these trends in place pre-COVID—the trends continued in 2021 even after many of the pandemic-related restrictions eased up. Arizona, Texas, Florida, and Colorado saw an increase in population between January 2021 and January 2022, while California, New York, and Illinois saw their populations decrease slightly. Should these shifts continue, the impact on everything from housing supply to city planning to retail performance could be dramatic.

EXHIBIT 2: MONTHLY CHANGE IN NET POPULATION ACROSS STATES

Compared to January 2019 Baseline



COUNTY-LEVEL MIGRATION TRENDS

> Much of the migration in and out of cities is intra-regional migration—people moving from suburbs to cities or people moving from cities to surrounding areas while remaining rooted around their city of origin

On a more granular level, certain counties saw their growth trends accelerating—or decelerating. But as will be discussed further down, much of the migration in and out of cities is intra-regional migration—people moving from suburbs to cities or people moving from cities to surrounding areas while remaining rooted around their city of origin.

AUSTIN AND BOULDER

Both Travis County, Texas (Austin) and Boulder County, Colorado, have seen their populations expanding over the past few years. Austin has been the fastest growing major metropolitan city in America for nine years straight, adding an average of 169 new people per day[10] between 2018 and 2019. This has led to an explosion of investments into the city's hi-tech infrastructure,[11] building, and commercial retail, with many companies choosing to open campuses there, including tech giant Apple.[12] Meanwhile, Boulder, ranked as the best place to live in America in 2021, has seen its own hi-tech investment, with Google setting up a hub there in 2006.[13] Since then, Google has continued to expand[14] in the area—always a draw for a growing city.

The presence of these tech behemoths helped spur already existing migration trends and cemented these areas as attractive, up-and-coming cities for young professionals. The net population of these two counties—along with the population of Texas and Colorado—continued to rise over COVID. By April 2022, their net populations were 3.6% and 6.1% higher for Austin and Boulder, respectively, than they were in January 2019.

Many of those leaving larger cities are choosing to settle in smaller urban or suburban areas nearby.

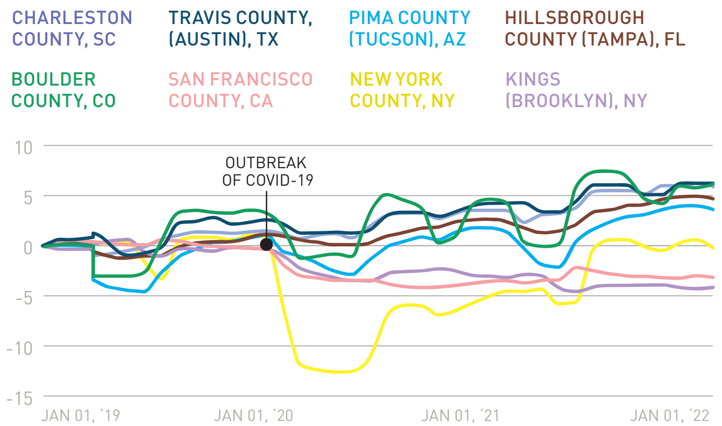
PANDEMIC-INDUCED MOVES

Some areas did see their population numbers drop as a direct result of the pandemic. The New York City area saw many leaving, whether to upstate New York[15] or to other nearby regions. And while most of the population of Manhattan (New York County) seems to have returned to the city, the population of Brooklyn (Kings County) was still down 4% year-over-three-year (Yo3Y) in April 2022. Another famously expensive city,[16] San Francisco, also saw its population drop—and as of April 2022, the population of San Francisco County was 3.1% smaller than it was in January 2019.

So while the excitement of living in Manhattan seems to have been enough to bring residents back from their COVID-induced exodus, other urban areas haven't fared as well. The data in this section may indicate that large, well-established cities are facing increasing competition from up-and-coming centers with increasing employment opportunities, accessible nature, and affordable housing.

EXHIBIT 3: MONTHLY CHANGE IN NET POPULATION ACROSS COUNTIES

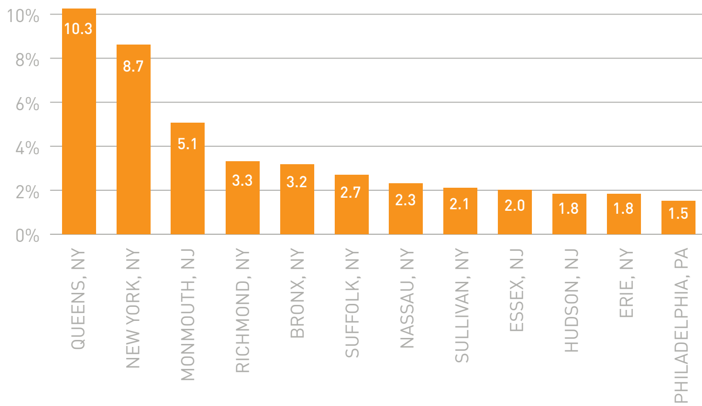
Compared to January 2019 Baseline



It's also important to note that many of those leaving larger cities are choosing to settle in smaller urban or suburban areas nearby. Many of those leaving Brooklyn, for instance, have relocated to Upstate New York, New Jersey, or Connecticut so that they still maintain a connection with their original city. These people may frequently return to New York to go to the office, meet friends, or shop. So the migration out of major urban areas may shift, rather than eliminate, some of the demand for dining and retail options in those cities with shrinking populations.

EXHIBIT 4: TOP RELOCATION DESTINATIONS FROM KING COUNTRY (BROOKLYN) NY

April 2020-2022. Net Population Change: -1.8%



Intra-Regional Migration Trends

> Despite the popular pandemic narrative of everyone moving out of the city to the suburbs, the data shows a different reality.

SUBURBAN FOLKS MOVING TO THE BIG CITY

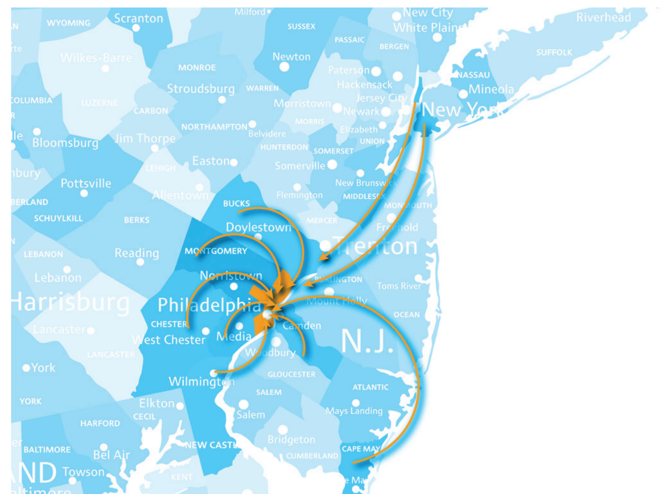
Much of the internal migration over COVID was intra-regional migration (migration within a given state). And despite the popular pandemic narrative of everyone moving out of the city to the suburbs, the data shows a different reality. Over the past two years, many people moved to cities—or to growing neighborhoods within cities—in search of convenience, job opportunities, and social connection. So while some major cities saw population declines, a lot of up-and-coming urban areas have been growing. And notably, a majority of incoming residents to these growing urban areas are coming from the surrounding regions.

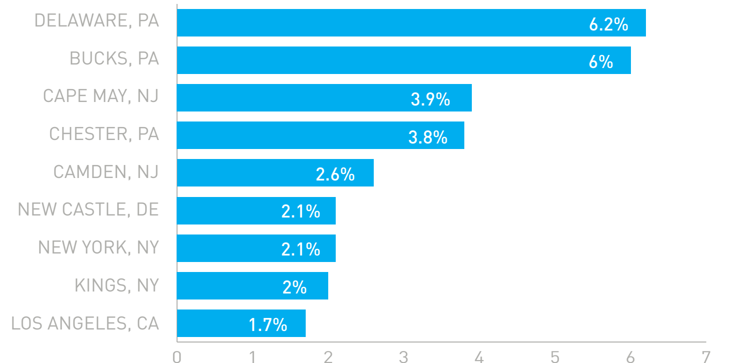
PHILADELPHIA, PA

After remaining steady throughout most of the pandemic, Philadelphia's net population grew 0.8% between April 2021 and April 2022—a small but significant increase for a city of over 1.5 million. As the chart below illustrates, many of the newcomers came from surrounding states and counties. Perhaps this is due to the city being ranked one of the top 30 tech hubs[17] in the world in 2021.

EXHIBIT 5: TOP 10 ORIGINS OF RELOCATION TO PHILADELPHIA COUNTY, PA

April 2021-2022. Net Population Change: +0.8%





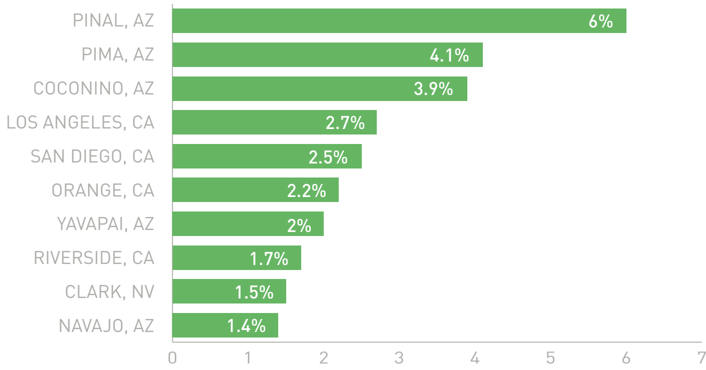
PHOENIX, AZ

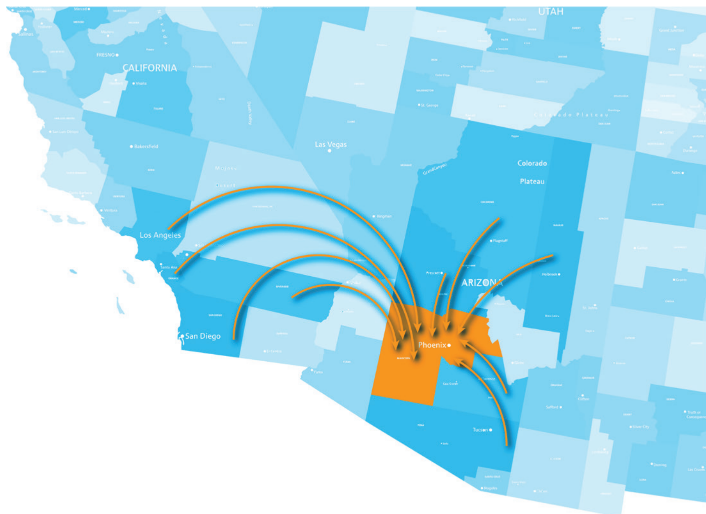
Maricopa County in Arizona is home to Phoenix, the state's largest city with over 1 million residents. The county had the largest population growth in the United States[18] between July 2020 and July 2021.

Between April 2021 and April 2022 Maricopa County boasted a net population increase of 1.7%. Like with Philadelphia, many of the new residents came from nearby—some from the surrounding suburban towns, with others moving to Maricopa Country from neighboring California and Nevada.

EXHIBIT 6: TOP 10 ORIGINS OF RELOCATION TO MARICOPA COUNTY (SCOTTSDALE/PHOENIX),AZ)

April 2021-2022. Net Population Change: +1.7%



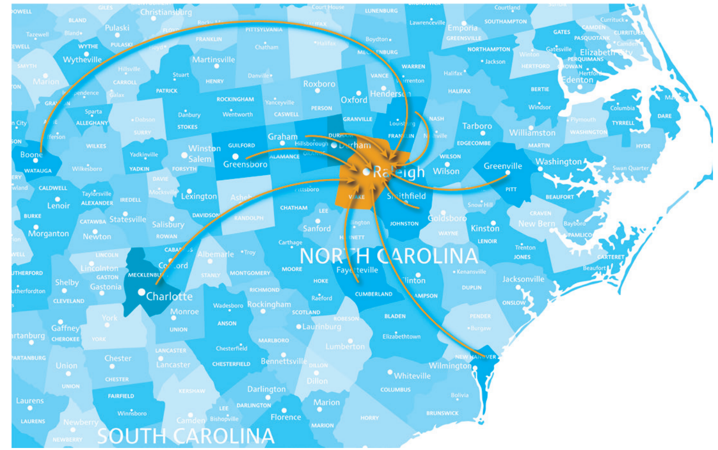


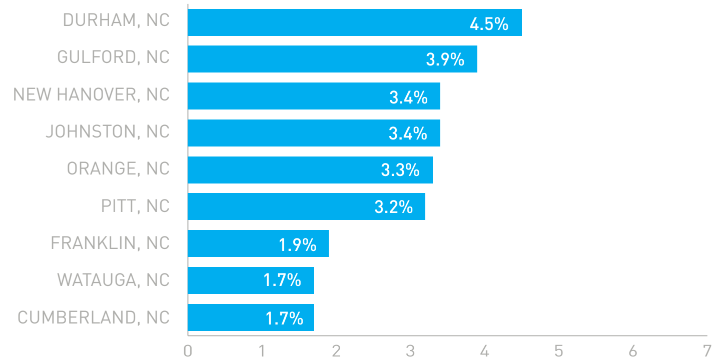
RALEIGH, NC

Wake County, North Carolina, includes the city of Raleigh, which recently ranked as one of the best places to live[19] in the United States. The county also saw an impressive 0.9% net population growth over the past year. Many of those relocating to Wake County came from nearby suburban areas—the top 10 origins of relocations all were nearby counties in North Carolina.

EXHIBIT 7: TOP 10 ORIGINS OF RELOCATION TO WAKE COUNTY (RALEIGH), NC

April 2021-2022. Net Population Change: +0.9%





Ultra-Local Migration and Demographic Changes

Cities that successfully adapt to fast-paced population shifts are ones that keep track of the changes happening at county, district, and even zipcode levels in as close to real time as possible.

CHICAGO'S FULTON MARKET

Once known as a gritty meatpacking district,[20] Fulton Market in Chicago is a perfect example of an area that has shifted rapidly over the past few years. Although Chicago's overall population decreased during COVID, Fulton Market saw explosive growth, with large residential[21] and office space[22] expansions plans in the works. And there are no signs that these trends are slowing down, with more and more offices, shops, restaurants, and up to 9,000 residential spaces[23] coming to the area.

Much like New York's Meatpacking District, the Fulton Market neighborhood of Chicago changed rapidly in the early 2000's. As newcomers moved in, attracted by the low prices and authentic atmosphere, galleries, bars, and trendy restaurants started to replace butcher shops and underground nightlife locales. Fulton Market also received significant hi-tech investments, and in 2013, Google announced[24] that it was moving its Chicago HQ to the Fulton Market Cold Storage warehouse.

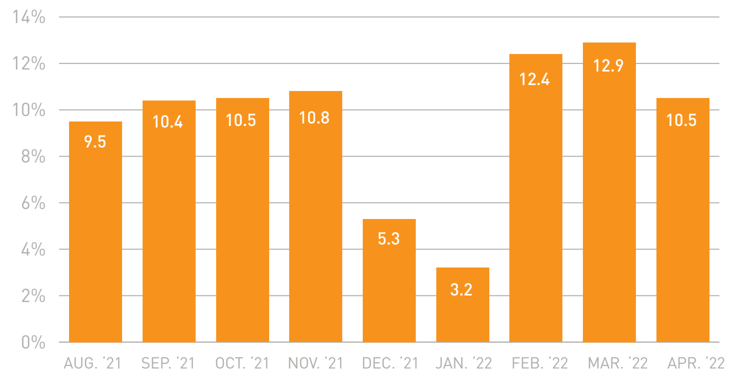
All this development is reflected in the data. The monthly net population of the 60607 zip code, which consists largely of the Fulton Market neighborhood, grew significantly on a year-over-year (YoY) basis. The April 2022 net population was 110.5% higher than in April 2021, highlighting the power of a growing tech presence and strong job market to pull newcomers to the area.

Urban development can also be significantly affected by changing demographics and migration patterns. Cities are constantly changing and shifting based on population demographics, work opportunities, and cultures. As these shifts take place, the changes that stem from them can exert a large influence on things such as urban planning, infrastructure investment, housing, and the layout of a city.

Understanding who is moving to a neighborhood helps developers and city planners anticipate the needs of newcomers to provide relevant services, retail options, and restaurants. It also provides a critical lens for the retailers and restaurant operators themselves, helping to uncover opportunities to reach key markets at the earliest possible stage. Cities that successfully adapt to fast-paced population shifts are ones that keep track of the changes happening at county, district, and even zipcode levels in as close to real time as possible.

EXHIBIT 8: MONTHLY NET POPULATION COMPARED TO PREVIOUS YEAR

Zip Code 60607—Fulton Market, Chicago



Google's presence is only expected to become more entrenched with its planned expansion of the Fulton Market offices.[25] And while a return to full-time office life may not happen in the near future, the company has required its staff to return to the office three days a week[26]—an incentive for these workers to choose to settle in the area and not leave the city. And Google isn't the only company setting up shop in the Fulton Market area—John Deere[27] has also announced that they are creating their technology center in Fulton Market, joining Dyson and Glassdoor[28] in relocating to this trendy area.

GENERATIONAL SHIFTS

Zooming into the population data shows that aside from increasing rapidly in size, the generational breakdown of the Fulton Market is shifting as well. Using the 2019 ACS Census data to compare 2019's age brackets with those of 2021 shows that the portion of Gen Z'ers—or those born between the late 90's until the early 2010's—decreased from 13.3% to 11.2%, while the population of Millennials increased from 52.7% to 54.7%. Gen X, or those born roughly between the late 60's to early 80's, have also increased their presence in the area, making a 1% jump from 19.4% to 20.4%.

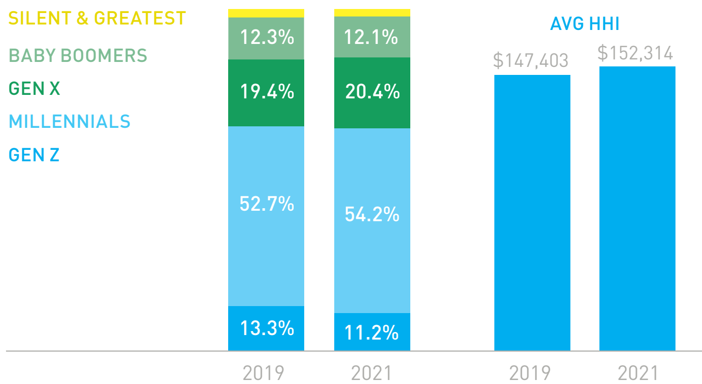
These shifts can indicate that, as demand for apartments in the area grows and Fulton Market becomes more established, younger generations starting out on their professional journeys may no longer be able to afford to live in the area. Although younger residents may have helped turn Fulton Market around, the neighborhood's character is changing again, with older Millennials and Gen X'ers with established careers are now giving the area a new vibe.

Taking a look at the average household income of the neighborhood's residents also buoys the idea that more established residents are moving to the area. Between 2019 and 2021, the average HHI increased from $147,403 to $152,314. The increase in HHI levels and the increase in established residents can very likely be attributed to the large pull that the strong tech industry in the area provides for upwardly mobile professionals.

Zooming into the population data shows that aside from increasing rapidly in size, the generational breakdown of the Fulton Market is shifting as well.

EXHIBIT 9: GENERATIONAL BREAKDOWN AND HHI COMPARISON OF CHICAGO FULTON MARKET NEIGHBORHOOD

2019 Compared to 2021



CHANGING DEMOGRAPHICS, CHANGING RETAILERS

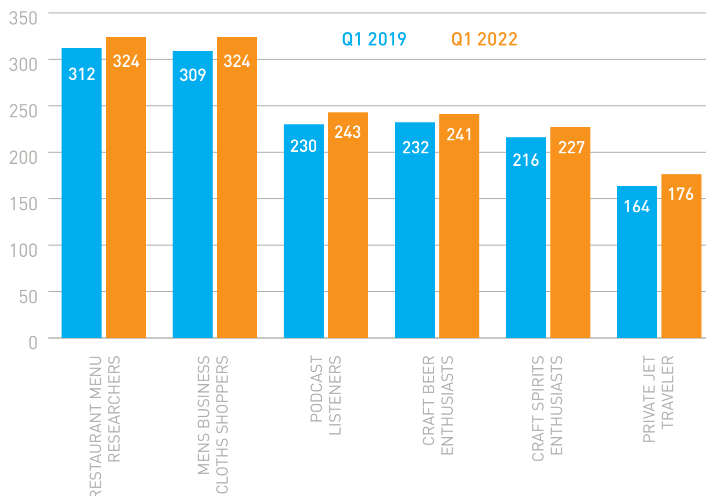
Changing demographics don't only affect things like age and household income—it also affects lifestyle choices and consumer preferences. Using GeoWeb[29] data on the Placer.ai platform, we took a look at search categories from Fulton Market to identify changes in local consumer interests. In the graph below, any search category with an index score over 100 indicates an above-national-average interest.

In September 2021 it was announced that Fulton Market will also be home to the country's second Guinness Brewery,[30] fitting for a neighborhood that has seen its search index for "Craft Beer Enthusiasts" increase from an index of 232 to 251 between Q1 2019 and Q1 2022. Similarly, searches related to "Men's Business Clothing" also saw increases in web searches, presumably as the blossoming tech industry brings more workers to the area.

The pandemic accelerated some trends, while also causing some small but significant changes to internal migration in the United States.

EXHIBIT 10: WEB SEARCHES: NATIONAL INDEX

National Index—Chicago's Fulton Market Neighborhood



MIGRATION WAVE MAY NOT BE OVER

Many of the patterns explored in this whitepaper are trends that preceded COVID. The pandemic accelerated some of these trends, while also causing some small but significant changes to internal migration in the United States. And critically, looking at changes in populations since 2021 indicates that the internal migration may not be over.

For most people, the default is still to stay in place, so the decision to move is a lengthy one that takes many months, or sometimes even years, to come together. Many of those who have not yet moved may be thinking about it, weighing their options, or waiting to see whether the shift to remote and hybrid work will remain in place post-COVID.

One thing, however, is certain. Those that have already relocated over the past two years—whether across state, city, or even zip code lines—will likely continue having a major impact on civic stakeholders' and business leaders' decision making for years to come.

KEY TAKEAWAYS

1. **COVID didn't upend migration patterns.**
While COVID did have a small but significant impact on relocations, much of the internal US migration over the past two years followed trends already in place pre-pandemic. Nevertheless, there were some exceptions, such as decreasing populations in some particularly expensive urban areas such as San Francisco and increasing population in other up-and-coming cities such as Charleston and Tampa.

2. **Many of those who did leave the city stayed close by.**
Many of those who left cities during or after the lockdowns relocated to nearby towns or counties. Brooklyn, for example, saw its population drop by 1.8% between April 2021 and April 2022, but many of those who left the borough stayed in New York City—10.3% of those leaving Brooklyn last year moved to Queens, and 8.7% moved to Manhattan.

3. **Popular states got stronger, some stagnant states lost populations.**
Cities and states whose popularity was rising pre-COVID continued to grow, while some more stagnant areas saw their populations decline. Florida, Texas, and Arizona saw their populations increase by 2% to 4% since 2019, while New York and California saw declines of 1% to 2% during the same period.

4. **Most migration was intra-regional.**
Many Americans who chose to move stayed local. Smaller metropolitan areas, like Philadelphia, Raleigh and Phoenix saw significant jumps in their population sizes, with most of the people moving to these cities from surrounding suburbs.

5. **Neighborhoods can create their own economic and residential reality.**
Ultra-local migration does not always follow the patterns of the wider region. For example, Fulton Market in Chicago is growing fast, even as Illinois' population somewhat declines. Retail and business investment has transformed the area from an up-and-coming neighborhood to an expensive, exclusive district with an older, wealthier population—a testament to the potential of neighborhoods to create their own economic and residential reality.

ABOUT THE AUTHOR

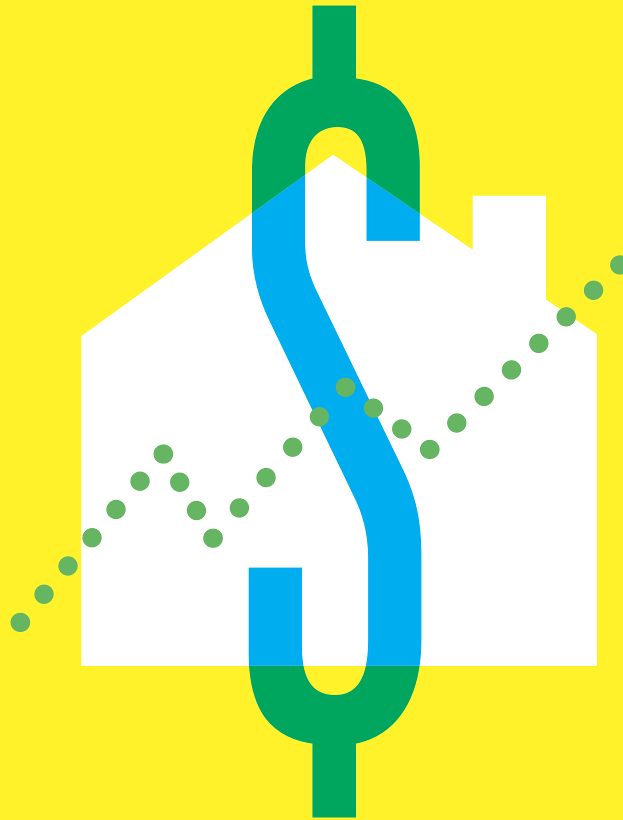
Shira Petrack is the content manager for Placer.ai, a foot traffic analytics platform that uses cell tower data to count shoppers in stores and retail centers around the US.

Ultra-local migration does not always follow the patterns of the wider region. For example, Fulton Market in Chicago is growing fast, even as Illinois' population somewhat declines.

For most people, the default is still to stay in place, so the decision to move is a lengthy one that takes many months, or sometimes even years, to come together.

Those that have already relocated over the past two years will likely continue having a major impact on civic stakeholders' and business leaders' decision making for years to come.

UP FRONT



David Wessel
Director
Hutchins Center on Fiscal and Monetary Policy
Senior Fellow, Economic Studies
Brookings Institution

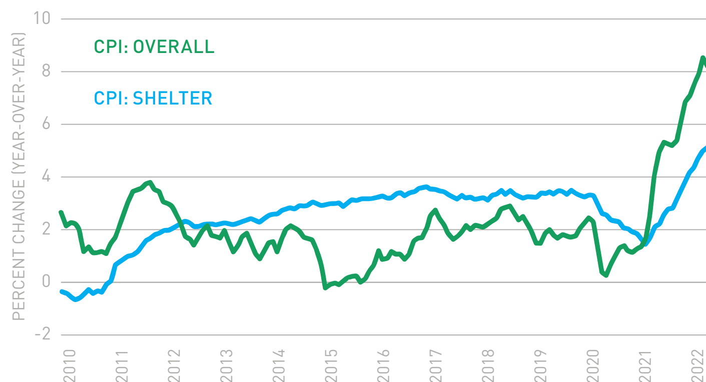
Sophia Campbell
Former Senior Research Assistant
Hutchins Center on Fiscal and Monetary Policy
Brookings Institution

How does the Consumer Price Index account for the cost of housing?

Housing represents about a third of the value of the market basket of goods and services that the Bureau of Labor Statistics uses to track inflation in the Consumer Price Index. A rise in the price of shelter, the US Bureau of Labor Statistics label for housing, contributed to the increase in inflation in early 2022. Measuring changes in shelter costs is more difficult than measuring changes in the prices of, say, apples or tires. This post explains how the US Bureau of Labor Statistics currently measures changes in the cost of housing for both renters and homeowners.

EXHIBIT 1: BOTH OVERALL AND SHELTER INFLATION ARE RISING RAPIDLY

Source: St. Louis Federal Reserve, FRED



HOW DOES US BUREAU OF LABOR STATISTICS CALCULATE THE PRICE OF SHELTER?

For tenant rent, the US Bureau of Labor Statistics counts cash rent paid to the landlord for shelter and any utilities included in the lease, plus any government subsidies paid to the landlord on the tenant's behalf.

If a housing unit is occupied by the owners, the US Bureau of Labor Statistics computes what it would cost the owner to rent a similar place, known as Owners' Equivalent Rent (OER). The cost of utilities paid by homeowners is measured separately in the CPI.

WHY DOES THE US BUREAU OF LABOR STATISTICS USE OWNERS' EQUIVALENT RENT (OER) INSTEAD OF HOME PRICES?

The CPI is intended to capture the price changes over time of the goods and services consumed by households. For housing, the US Bureau of Labor Statistics is trying to measure the cost of the consumption value of a home—the shelter services provided—not the change in the value of the house. Thus, the US Bureau of Labor Statistics uses the OER to measure the cost of shelter for homeowners. To give a concrete example, if a family buys a house for $300,000 in 2022 and lives there for the next ten years, their housing-related cost of living is not $300,000 in 2022 and zero in the subsequent ten years. Rather, their housing-related cost of living is the amount they would have had to spend to consume the same amount of housing services provided by their owner-occupied home.

WHERE DOES THE US BUREAU OF LABOR STATISTICS GET THE DATA FOR SHELTER PRICES?

The US Bureau of Labor Statistics collects the data on rent for about 50,000 residences through personal visits or telephone calls. One sixth of the sample is replaced each year to keep it representative. Since rents do not change frequently, the rent of each unit is sampled every six months.

The CPI measures price growth for the same basket of goods and services over time, so the US Bureau of Labor Statistics adjusts for changes in quality of the properties it observes. The adjustments account for the age of the property, neighborhood improvements, and physical renovations to the home like the number of bathrooms or new air conditioning systems.

Because the US Bureau of Labor Statistics only observes rent for renter-occupied units, they impute owner's equivalent rent for owner-occupied homes using the average rents paid for comparable rental housing within the same area.

WHAT ARE THE POTENTIAL PROBLEMS WITH THE MEASUREMENT OF THE OER?

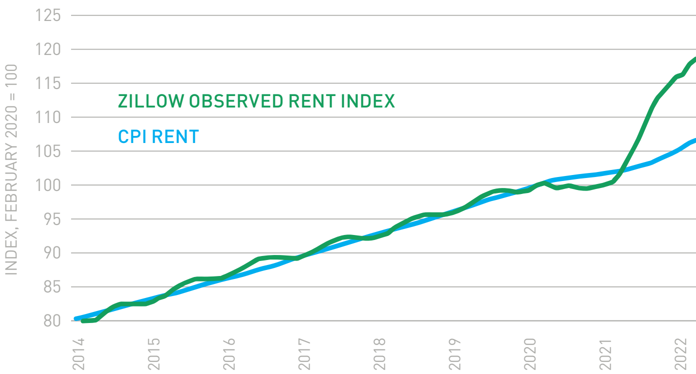
Finding rental housing that is comparable to an owner-occupied unit can be difficult. Predominantly renter-occupied neighborhoods are often geographically separate from owner-occupied ones—for example, a city center versus a suburb. Even within the same geographic area, housing characteristics can vary widely across rental and owner-occupied units—for example, the owner-occupied units in a neighborhood may be single-family homes, while the rental units may be multi-family buildings. Finding comparable rental housing is particularly difficult for large, expensive single-family houses.

WHY DO I SEE HEADLINES ABOUT RENTS RISING MUCH FASTER THAN THE CPI MEASURE?

Well-known indexes of market rents—like the one published by Zillow—capture rents of units currently advertised on the open market, and don't capture rents for units occupied by continuing renters like the CPI does. Rents change when leases expire, which typically happens annually. This can lead to a lag between changes in indexes like Zillow's and those in the US Bureau of Labor Statistics's rent measure. From the perspective of the CPI, this lag isn't a problem as the CPI is accurately capturing what households actually pay in rent. It does suggest that the CPI's shelter inflation will likely increase in coming months as the tight housing market shows through to rents on all rental units.

EXHIBIT 2: RENTS OF ADVERTISED UNITS HAVE INCREASED MUCH FASTER THAN AVERAGE RENTS DURING THE PANDEMIC

Sources: St. Louis Federal Reserve, FRED; Zillow



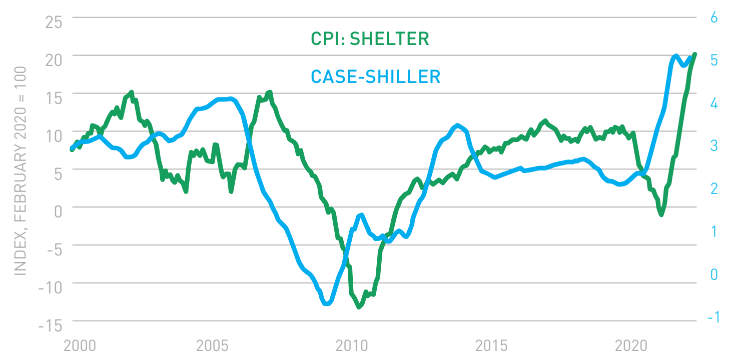
HOW DO HOUSE PRICES AFFECT THE CPI MEASURE OF HOMEOWNERSHIP COSTS?

House prices and rental prices are determined by supply and demand factors that don't always move in tandem. For example, if demand for homeownership rises because mortgage rates fall, house prices will rise but rents will not. If home construction costs increase, on the other hand, the price of both rental and owner-occupied housing would likely rise.

Over time, changes in house prices do predict changes in rents—although the relationship is far from 1-to-1 and occurs with long lags. Xiaoqing Zhou and Jim Dolmas of the Dallas Fed find house price growth's correlation with OER inflation peaks at about 0.75 after sixteen months; the correlation with rent inflation peaks at after eighteen months.

EXHIBIT 3: CPI'S SHELTER INFLATION LAGS HOUSE PRICE GROWTH (YEAR-OVER-YEAR CHANGE IN CPI SHELTER VS. CASE-SHILLER NATIONAL HOME PRICE INDEX)

Sources: US Bureau of Labor Statistics; S&P Case-Shiller National Home Price Index



If the historical relationship between housing prices and rent inflation hold true, rent inflation will increase by about 7% in 2022 and 2023, almost twice the pre-pandemic five-year average.

WHAT IS LIKELY TO HAPPEN TO THE CPI MEASURE OF SHELTER COSTS IN THE COMING YEAR?

The tightening of the housing market during the pandemic led to a divergence between housing market prices and CPI measures of shelter inflation. "Despite record growth in private market-based measures of home prices and rents," economists Marijn A. Bolhuis, Judd N. L. Cramer, and Lawrence H. Summers note, "government measured residential services inflation was only four percent for the twelve months ending in January 2022."

Given recent trends in rents and house prices, however, analysts anticipate the shelter component will boost the CPI inflation measure in coming months. If the historical relationship between housing prices and rent inflation hold true, both Bolhuis, Cramer, and Summers and researchers at the San Francisco Fed project (as of February 2022) that rent inflation will increase by about 7% in 2022 and 2023, almost twice the pre-pandemic five-year average. With shelter making up about a third of the CPI, these findings imply that housing will boost headline CPI inflation about 1.1 percentage points above its historical average by the end of 2022.

ABOUT THE AUTHORS

David Wessel is Director of the Hutchins Center on Fiscal and Monetary Policy and a Senior Fellow for Economic Studies at the Brookings Institution. Sophia Campell is a former Senior Research Assistant for the Hutchins Center on Fiscal and Monetary Policy at the Brookings Institution.

NOTES

* This article is reprinted with permission from the authors and the Brookings Institution. See more: David Wessel and Sophia Campbell, "How Does the Consumer Price Index Account for the Cost of Housing," Brookings Institution, May 18, 2022, brookings.edu/blog/up-front/2022/05/18/how-does-the-consumer-price-index-account-for-the-cost-of-housing/

ABOUT AFIRE

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

Established in 1988, AFIRE is a nonprofit trade association headquartered in Washington, DC, and is an essential forum providing high-value thought leadership for real estate leaders from around the world.

AFIRE's members includes nearly 200 leading global institutional investors, investment managers, and supporting partners from 25 countries representing approximately US$3 trillion in real estate assets under management (AUM) in the US.

Through *events, research, publishing,* and analyses of real estate capital markets, geopolitics, economics, urbanism, technology, and future trends, AFIRE's members gather around a shared mission to help each other become Better Investors, Better Leaders, and Better Global Citizens.

MEMBERSHIP

Membership at AFIRE is organization-based, and member companies are represented by designated executive delegates at AFIRE events, summits, and other programs.

AFIRE membership is exclusive, granted by invitation only, and currently includes around 175 global organizations—the world's leading institutional investors, investment managers, and service providers for real estate investing within and beyond the US.

Member companies are represented by delegates, such as C-suite and senior executives, as well as rising leaders within these organizations, all with privileged access to a wide range of AFIRE's exclusive events, networking opportunities, industry research, executive education, and other benefits.

BENEFITS

AFIRE member companies are represented by delegates, such as C-suite and senior executives, and are able to access a wide range of benefits, including:

- Intimate and informative meetings and events
- Original surveys and collaborative research
- Mentorship program and professional development
- In-depth analyses of US markets
- Capital markets analysis and data
- Subscription to Summit Journal and the AFIRE Podcast
- Participation in working committees for ESG, ethics + more
- Executive education sessions and networking
- Global member directory
- Access to the members-only mobile app, AFIRE Global

LEARN MORE ABOUT AFIRE, VISIT AFIRE.ORG

ABOUT SUMMIT JOURNAL

Launched in 2019, Summit Journal is the official, award-winning publication of AFIRE, the association for international real estate investors focused on commercial property in the United States. Readers stand at the intersection of real estate, institutional investing, data science, and economics.

Published multiple times per year in digital and print formats, Summit features articles and original ideas and research from investors, executive leaders, and academics from around the world, focused on the research and analysis of real estate capital markets, cross-border issues, policy, demographics, technology trends, and management topics.

Summit is a free, open access trade journal.

ISSN 2689-6249 (Print)
ISSN 2689-6257 (Online)

GUIDELINES

Summit Journal seeks original articles, research, and critical analysis of real estate capital markets, cross-border issues, policy, economics, technology, and management from contributors involved in any aspect of the real estate industry.

Summit articles must be written in *English* and are limited to a *maximum length of 1,500 words*. Citations and additional endnotes may also be included, with a maximum total length of 200 words.

There is no fee to submit or be published in Summit.

Summit encourages the use of graphics, charts, and tables to illustrate submissions. The editors assume that the contributor owns the right to have the graphics reproduced. Such assets should be sent as separate, standalone files (not embedded within Word documents), and can be presented as EPS, TIFF, JPG, PNG, PSD, or AI files. When able, please also provide raw data for charts and tables.

The editors reserve the right to edit all article content to ensure compliance with these guidelines.

View all journal policies at afire.org/summit/policies

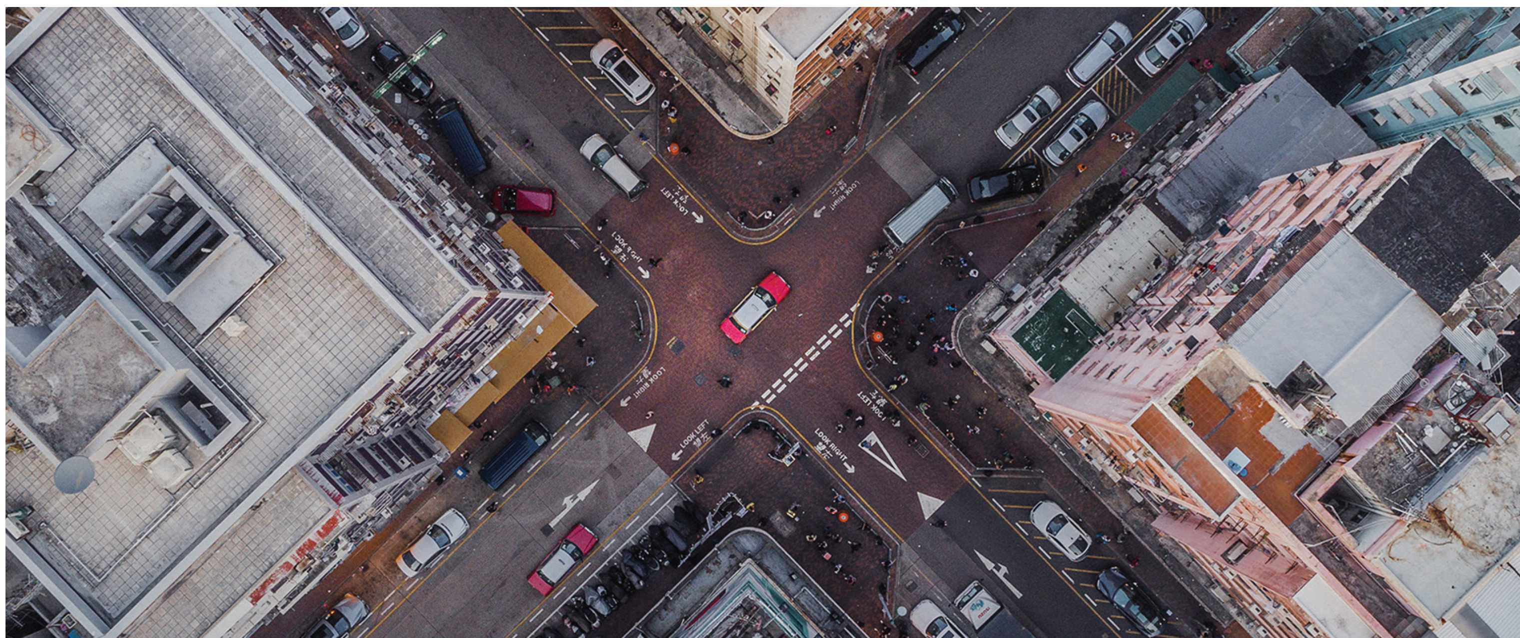
DISCLAIMER

The publisher of Summit is not engaged in providing tax, accounting, or legal advice through this publication. No content published in Summit is to be construed as a recommendation to buy or sell any asset. Some information included in Summit has been obtained from third-party sources considered to be reliable, though the publisher is not responsible for guaranteeing the accuracy of third-party information. The opinions expressed in Summit are those of its respective contributors and sources and do not necessarily reflect those of the publisher.

SUMMIT JOURNAL IS NOW AVAILABLE FOR SPONSORSHIPS, LICENSING, AND OTHER MARKETING OPPORTUNITIES.

TO LEARN MORE AND REQUEST A MEDIA KIT, VISIT AFIRE.ORG/SUMMIT

THIS ISSUE OF SUMMIT JOURNAL
IS UNDERWRITTEN BY



With an over 35-year history and 110+ investment professionals,* *Aegon AM's Real Assets* cycle-tested platform focuses on delivering yield-oriented and total return solutions spanning the risk/return spectrum.

ABOUT AEGON ASSET MANAGEMENT REAL ASSETS

Aegon Asset Management is an active global investor that manages and advises on assets of $329 billion* for global pension plans, public funds, insurance companies, banks, wealth managers, family offices, and foundations. Aegon AM's Real Assets platform focuses on delivering yield-oriented and total return solutions spanning the risk/return spectrum.

With an over 35-year history and $25 billion* in AUM/AUA, the Real Assets business is built on a cycle-tested platform, deep and broad market access, and long-term relationships.

Our real assets debt and equity strategies seek to deliver strong relative value and returns through a research-intensive process. The process encompasses thoughtful top-down research and intelligent bottom-up analysis deployed by an experienced multidisciplined team of over 110 investment professionals.*

Each capability is underpinned by dedicated, in-house support and service teams including applied research, engineering and environmental, valuation, accounting, client service, legal and risk management.

*As of June 30, 2022. The assets under management/advisement described herein incorporates the entities within Aegon Asset Management brand as well as the following affiliates: Aegon Asset Management Holding B.V., Aegon Asset Management Spain, and joint-venture participations in Aegon Industrial Fund Management Co. LTD, La Banque Postale Asset Management SA, and Pelargos Capital BV.