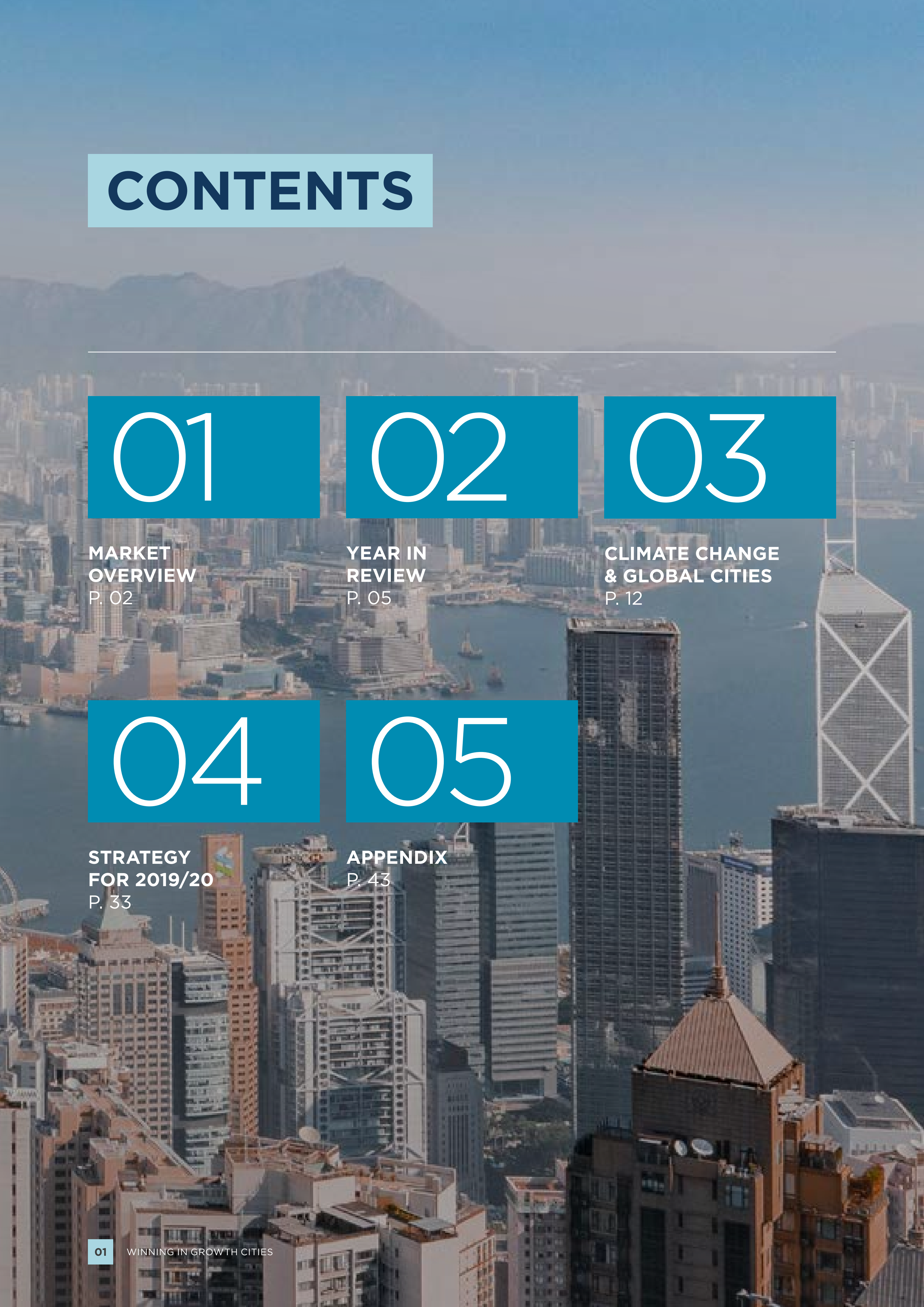
WINNING IN GROWTH CITIES

2019/2020

A Cushman & Wakefield
Global Capital Markets Report

CUSHMAN & WAKEFIELD



CONTENTS

01 MARKET OVERVIEW

Global investment fell 0.7% last year but demand remains at record levels, with domestic and regional investors, rather than global players, driving activity.

Whilst demand is strong, high pricing and stock shortages have held back activity, with investors by and large unwilling to embrace riskier markets or push up pricing, given the uncertain interest rate and growth environment.

As a result, the biggest cities have been most in-demand, with their market share increasing in all regions. By sector, investors have continued to spread their net more widely, with residential the strongest area of growth last year.

Geopolitical risks from the UK to Hong Kong, Brazil and the Middle East are on most investors minds and can be cited as factors slowing the market, but most countries have struggled to match their performance from the previous year and the easing in the market is widespread.

New York remains out in front as the largest real estate market in the world, followed by Los Angeles, San Francisco and London, with Paris fifth globally.

Among international buyers, London is again the market to beat, with Brexit considered by many, to be a tactical issue with respect to timing and price, rather than a structural hit to its appeal. New York came back strongly to regain second place amidst increased competition from a range of cities such as Paris, Madrid and Sydney.

Muted economic growth and ongoing headwinds mean the growth side of the equation will remain in doubt in the months ahead, but it also means quantitative easing and negative interest rates are back on the agenda. As a result, investors have a more certain environment in which to plan – and one with which they have become very familiar. The recovery in US activity in Q2 is an indicator of how markets can respond once interest rate uncertainty is reduced.

On pricing, yield compression had appeared to be ending in most markets in Q1 but with bond yields down heavily, downward pressure will be returning to yields in the leading and most liquid markets. However, further yield falls will be selective.

Hence, the question for what differentiates markets going forward will be less about growth – that will be down – and more about relative financing costs, the timing and direction of structural market shifts and, as ever, finding stock in a global market with relatively limited distress.

INVESTORS HAVE CONTINUED TO SPREAD THEIR NET **MORE WIDELY**, WITH RESIDENTIAL THE **STRONGEST AREA OF GROWTH** LAST YEAR

STRATEGY IN THE YEAR AHEAD

Strategy needs to evolve in the face of the changes in the market, with a focus on sustainable income but also on targeting appropriate returns, given the varying risk and liquidity of different asset pools. The key themes behind that evolution in 2020 will be:

1 ECONOMY DOWN BUT NOT OUT

The economic backdrop will be muted and volatile in 2020 with the biggest risk likely to be trade wars. However, slower economic growth suggests slower rather than negative property performance and with credit conditions set to remain loose, the cycle has further to run. That of course is an average – and there will be both areas of gain and areas of loss which investors need to look through, diversify and follow longer-term and local trends where possible.

2 UNDERSTAND THE OCCUPIER

Structural changes continue to impact in all sectors, meaning occupiers are frequently in the wrong place and the wrong space, hence there are latent gains to be extracted by providing the right solutions. Developing and integrating new technology will be an ongoing focus for businesses and while investors need to guard against the end of the cycle, they must also be aligned with the structural shifts impacting users, recognising these as both an opportunity and a threat to levels of demand and affordability, as well as the hierarchy of cities themselves.

3 SECTOR AGNOSTIC

As occupier needs change, distinctions between sectors are blurring and mixed-use is becoming ever more important to provide flexibility and drive growth. One investor's 'alternative' may be mainstream for another, but new sectors in general are clearly in fashion and hence carry some risk of becoming overpriced given the shortage of opportunity that frequently exists. Nonetheless, the fundamentals are strong, in terms of the upside for creating a platform of scale, the positive gains to portfolio performance, and the imperative to embrace a wider mix of uses to make property work.

4 CLIMATE CHANGE IS HERE

Occupiers are leading in driving changes in property demand as a function of climate change and investors must take note. While linked to sustainability, the two shouldn't be confused. Climate change needs its own distinct response from investors to include an appreciation of the locations at risk (both physically and in human terms), and the contributions the asset can make to reducing global risks. Winners and losers will be seen along the way, with northern cities in the Nordics and Canada perhaps having most to gain if current predictions are right. However, having the governance and infrastructure to cope will be key as will potential changes brought about through altered migration patterns.

5 LONG TERM MARKET LIQUIDITY TO STAY

Demographic changes will maintain high savings rates and with interest rates staying low, this will keep up institutional demand for stable long-term incomes – and keep core yields down.

All in all therefore, we face a market with a broadening range of opportunities by region and a growing need for investors to diversify to both gain exposure to the right cities and also reduce risk. The winning markets of 2020 will remain focussed on the biggest and best across gateway and challenger cities, but increasingly will be those that have the right mix of strong innovative governance on the one hand and appeal to talent on the other.

KEY THEMES FOR INVESTMENT IN THE YEAR AHEAD

CORE

THEME
Urban Logistics

WHERE?
Global Gateways

WHY?
Structural change driving demand and densification

THEME
US Sunbelt

WHERE?
Office, logistics, residential

WHY?
Demographic growth and quality of life

THEME
Late-cycle offices

WHERE?
Berlin, Munich, Singapore, tier 2 US

WHY?
Low vacancy, sustained demand

THEME
"No cycle" sectors

WHERE?
"Living" sectors, global

WHY?
Diversification, demographic growth, income resilience

THEME
Lending

WHERE?
US and Europe

WHY?
Diversification, yield, downside protection

CORE-PLUS TO VALUE-ADD

THEME
UK

WHERE?
London

WHY?
Attractive pricing and post-Brexit bounce

THEME
China

WHERE?
Beijing, Guangzhou & Chengdu plus Shanghai and Shenzhen

WHY?
Attractive mix of growth, pricing and supply for the short to medium term

THEME
Mixed use

WHERE?
Gateways: repositioning

WHY?
Driving performance in "supply constrained markets"

THEME
Retail

WHERE?
Global Gateways

WHY?
Attractive pricing due to distress but signs emerging of long-term potential

OPPORTUNISTIC

THEME
Development

WHERE?
Gateways, global

WHY?
Meeting office and multifamily supply shortfalls in CBDs

THEME
Debt

WHERE?
Global

WHY?
Existing debt can offer attractive pricing and a route to control stock via a loan to own route

THEME
Platform acquisitions

WHERE?
Global

WHY?
Driving performance through management

THEME
Emerging markets

WHERE?
India, Vietnam, Mexico, Peru, Brazil, Colombia

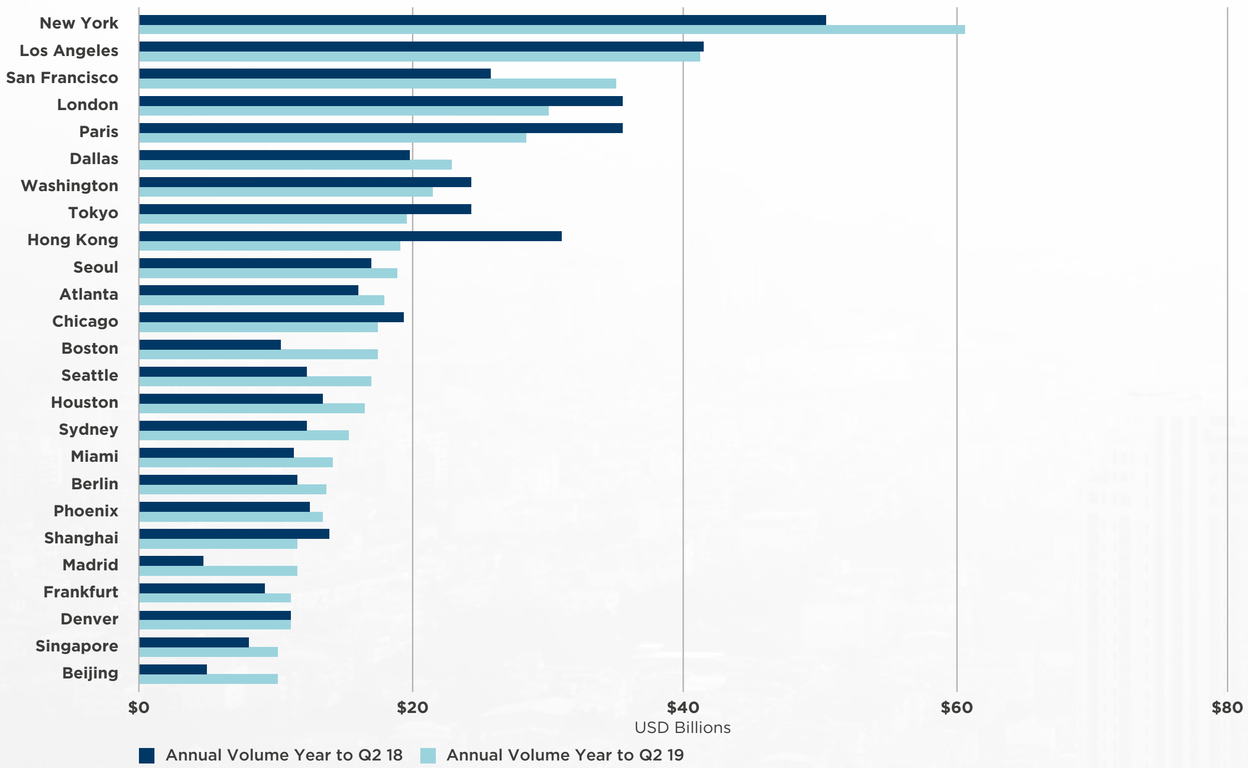
WHY?
Short- and medium-term potential emerging as occupier needs mature

02 YEAR IN REVIEW

Global real estate investment volumes plateaued last year, decreasing by 0.7% in US$ terms in the 12 months to June 2019, compared to the same period in the year prior (excluding development sites).

However, trends were quite different market by market, with North America posting a near 13% gain in activity – its strongest performance in five years – while Europe and Asia saw volumes fall 12% and more precipitous declines were seen in Latin America at -38.5% y/y, and the Middle East at -65.5%.

FIG 1: TOP CITIES FOR INVESTMENT (EX DEVELOPMENT)



SOURCE: CUSHMAN & WAKEFIELD, RCA

Despite seeing a fall in volumes of 19%, Tokyo was the highest ranked Asian market and reclaimed its top regional spot from Hong Kong.

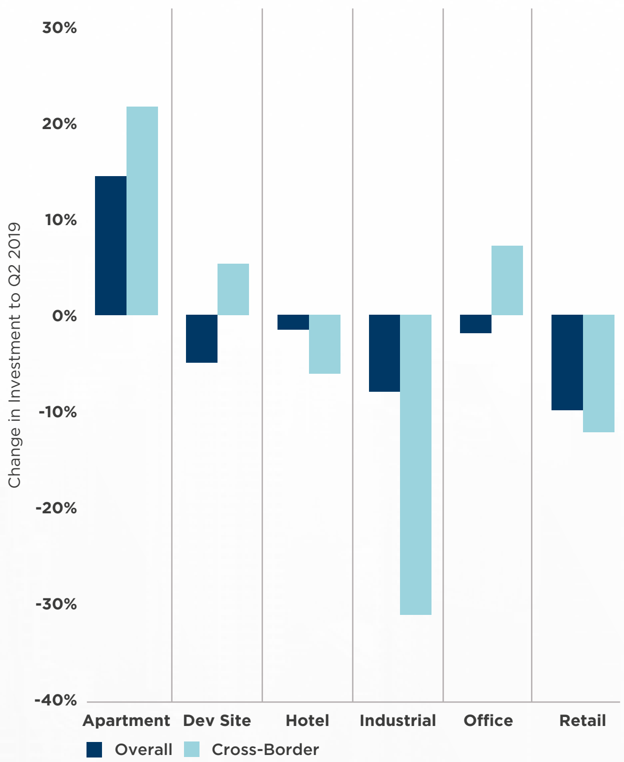
These trends were replicated at a city level, with New York strengthening its position as the number one global city for investment with volume growth of 20%. Overall the US took 13 of the top 25 places in the global ranking, nine of which saw volumes rise on the previous year, led by Boston, up 66% y/y, Seattle up 38%, and San Francisco, up 35% y/y.

APAC meanwhile claimed seven of the top 25 cities compared to five in Europe. As with North America, a number of these destinations were in growth mode and the top 25 overall again outperformed, with volumes rising 5% and their market share increasing from 53% to 56% as investors focussed on the biggest and most liquid markets.

Despite seeing a fall in volumes of 19%, Tokyo was the highest ranked Asian market and reclaimed its top regional spot from Hong Kong which saw a more notable fall of 38% y/y. Beijing meanwhile was the fastest growing major Asian city, with volumes doubling, resulting in the city moving up 11 places in the ranking to number 25.

In Europe, London and Paris remained dominant, both ranking in the global top five, but both also saw a fall in volumes. Madrid was the fastest growing European target, with volumes up 144%, ahead of Berlin, up 20% y/y, and Frankfurt, up 19%.

FIG 2: SECTORS OF ACTIVITY



SOURCE: CUSHMAN & WAKEFIELD, RCA

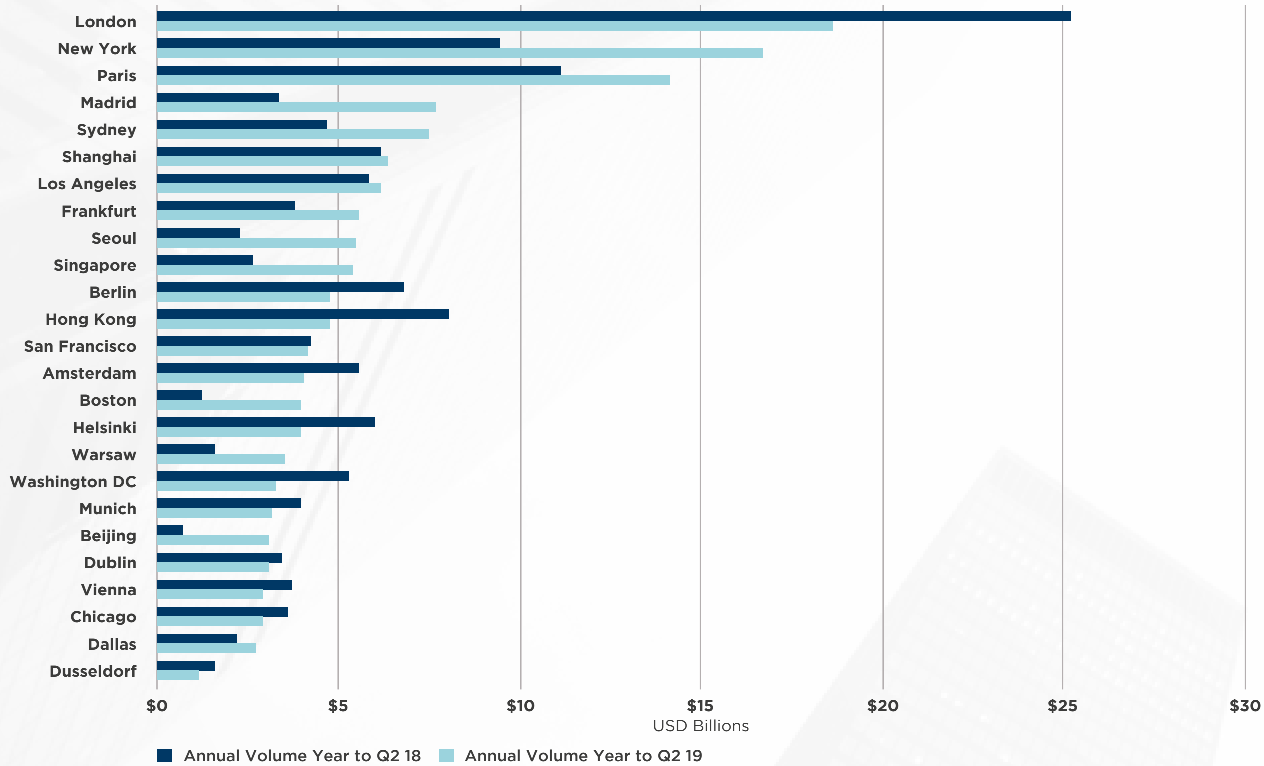
SECTOR TRENDS TO WATCH

Sector trends have diverged in the past year, with alternatives such as residential gaining further favour globally, while retail has struggled to find its floor, with volumes down 10% thanks to falls in Europe and Australia. Interestingly, however, retail volumes were up in Asia and North America, with Beijing, Dallas, Houston and Miami instrumental in driving this, underlining the fact that the sector is in demand when pricing and the macro environment are aligned.

Logistics meanwhile remained highly favoured but stock shortages and a reduction in the number of very large portfolio trades have left volumes down. However, along with residential, logistics is one sector where volumes are still well above the five-year average, underlining the structural shift in portfolio allocations that has taken place. Offices and hotels are holding their ground, while retail now stands 15% below its five-year average, after volumes peaked globally in 2015.

Cross-border investment has followed a broadly similar trend, with logistics down most notably due to the importance of foreign capital in the large portfolio trades seen in 2017/18. Development and office investments meanwhile have seen an increase in foreign investment, particularly in Asia and for offices, in Asia Pacific and North America.

FIG 3: TOP CITIES FOR CROSS-BORDER INVESTORS (EX DEVELOPMENT SITES)



SOURCE: CUSHMAN & WAKEFIELD, RCA

INBOUND CROSS-BORDER ACTIVITY

The importance of geopolitics has of course been manifest in the past year, impacting cross-border inflows into the US, UK and Hong Kong for example, while encouraging a more robust performance in secure, stable markets such as Australia, Singapore and Sweden.

Nonetheless, even though volumes spent by inbound investors dropped 26% on the year, London was still the top city for international real estate investment. Despite a general weakening in global demand in the US, New York leap-frogged Paris into second place for global capital, driven by a handful of major deals from Canadian and German players in particular, led by Brookfield and Allianz.

European cities remained the most visited by foreign investors, with 12 of the top 25 global targets, followed by seven in the USA and six in Asia. However, it was the Asian cities which made the most impressive gains in market share over the past year, most notably Beijing which rose 52 places in the global ranking. Other strong risers in APAC were Seoul, up 25 places, Singapore up 19 and Sydney, rising eight places into the global top five as the most popular Asia Pacific market for international capital.

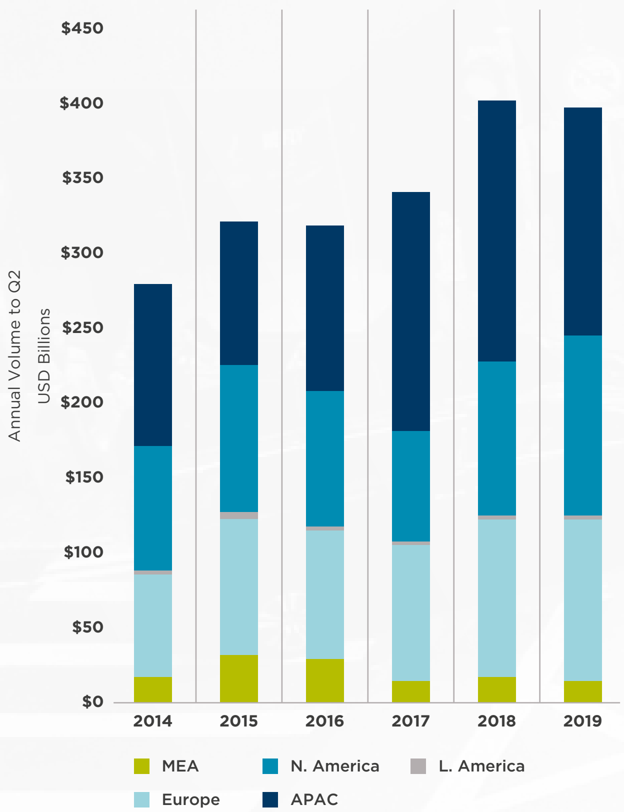
ASIAN CITIES HAVE MADE THE MOST IMPRESSIVE **GAINS IN MARKET SHARE** OVER THE PAST YEAR

Among European cities, London and Paris are perennial top five targets but there was some switch around in other areas, with Madrid rising 19 places to 4th globally, Frankfurt up eight to take a top 10 spot and Warsaw rising 26 to break into the top 20. Berlin meanwhile dropped back after a strong 2018, with foreign investors struggling to find stock, as they did in some other strong performers from 2017/18 such as Helsinki, Munich and Vienna.

In the US, New York easily regained its top five spot as a cross-border metro target, which it lost for the first time the previous year as geopolitical tensions impacted. The biggest increase in cross-border volumes in the US was however in Boston, which rose 40 places to number 16.

WHERE IS CAPITAL COMING FROM?

FIG 4: SOURCES OF INTERNATIONAL CAPITAL



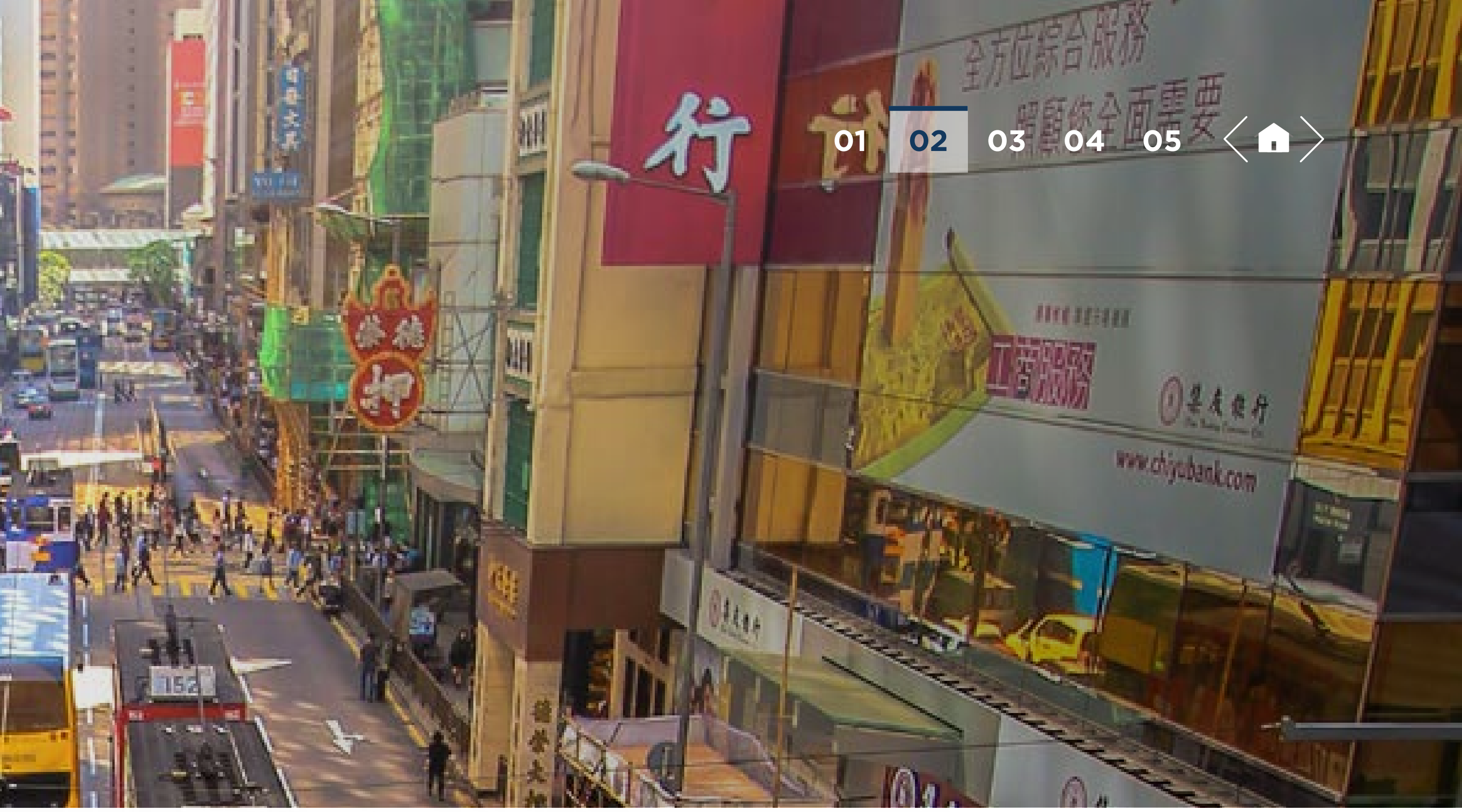
SOURCE: CUSHMAN & WAKEFIELD, RCA

The sources of capital crossing borders into real estate became more diverse in the past 12 months. APAC remained the biggest source region overall, for the 4th year running, but outbound volumes dropped nearly 13% and its market share eased to 38% overall. By contrast North American capital increased 18%, capturing a market share of 30% which was its highest since 2015, while European outbound capital rose 3.3% to 27% of all cross-border spending.

In North America, the US was the largest source of capital, accounting for 22% of all cross-border investment globally, but Canada rose strongly, with volumes more than doubling and the country taking a 17% global share.

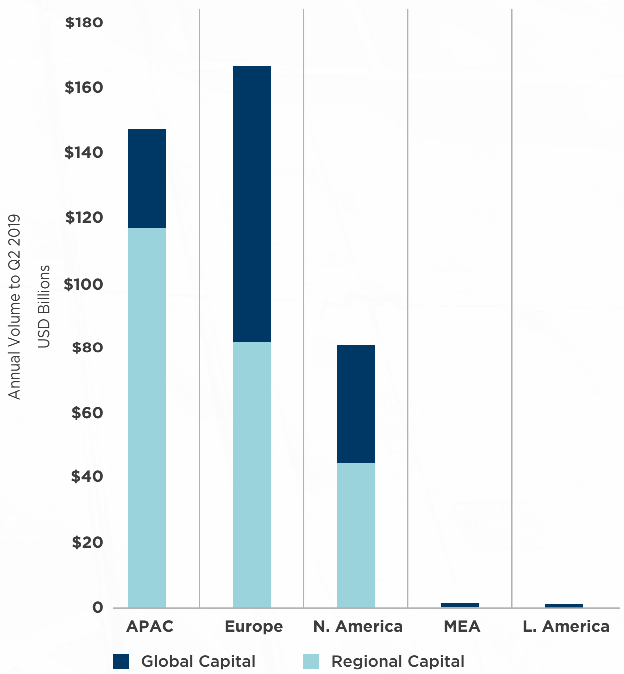
Among investors from APAC, those from Singapore were the most prolific, ranking 4th globally, followed by South Korea, ranking 7th after a 50% increase in cross-border spending over the year. Japanese capital also continued to stir, rising 61%, ranking as the 13th largest source of international capital. Last year's regional leaders, China and Hong Kong, both fell back into 11th and 8th place respectively.

Amongst Europeans, Germany ranks highest and, alongside the UK and Switzerland, increased overseas investment last year. France and Sweden are also major overseas players, meaning five of the top 10 source countries are in Europe, with an increased share looking at global not just regional investment.



Middle Eastern capital stabilised after two years of decline, with Israel, Qatar, Bahrain, UAE and Kuwait the leading investors, but Qatar the most dynamic, with volumes rising 183% year on year. Outflows from Latin America also stabilised and, indeed, led by Mexico and Chile, started to expand while capital from Africa fell back after a record 2017/18.

FIG 5: CROSS BORDER INVESTMENT TARGETS



SOURCE: CUSHMAN & WAKEFIELD, RCA

TARGETS FOR INVESTMENT

Europe remains the top cross-border target, but all regions are tending to see increased interest, if not necessarily an increase in transactions, depending on deal availability, pricing and competition. The overseas money flowing into Europe and North America is relatively evenly divided between global and regional sources, while in APAC, regional sources remain very much dominant, particularly Hong Kong followed by Singapore and mainland China. Next on the target list for APAC capital after Asian cities has tended to be Europe, led as ever by London but with Paris and Frankfurt closing the gap and others such as Warsaw and Prague seeing very strong demand growth. In general among APAC investors, offices are very much the favoured target at 57% of all investment, followed by logistics.

Among European buyers, offices are also the top sector target at 48% of investment, but residential is now number two at 19% and after Europe, US cities have been preferred. For Middle Eastern investors, North America and Europe have switched round as targets this year, with the US taking the lead, and demand is across a diverse group of sectors, led by offices but with residential and hospitality next in line. US and Canadian buyers meanwhile have again favoured Europe, albeit Canadian flows into the US have been strong. Office followed by retail and apartments have been the top targets.

03 CLIMATE CHANGE & GLOBAL CITIES

Earlier this year, France and the UK became the first major economies to commit to carbon neutrality by 2050, just as headlines in Paris warned of the hottest day on record and Londoners learned that the climate of their city would resemble Barcelona's by the year 2050, even assuming global emissions were brought under control.

It is therefore clear that climate change, and what governments around the world are or aren't doing about it, must be firmly on the real estate agenda.

In this spring's Investment Atlas, we outlined what were, in our view, the three main climate considerations for investors – the asset, the location, and its management – and how each of these should be considered when making climate change-conscious investment decisions.

Focussing in on location, in the following pages we outline in more detail the four climate resilience factors that we view as paramount for investors to assess when deciding how to allocate capital across different geographies: existing and future physical risk, existing and planned government policy, location preparedness and resources, and migration and socio-economic impact.

In examining this topic, it is important to differentiate between sustainability and resilience, as the two are often conflated, which is unsurprising given the relatively recent spotlight on these topics by investors. For the purposes of this report, sustainability will be taken to refer to all measures designed to decrease, mitigate or avoid a negative impact on the environment. This often takes the form of measures such as reducing carbon emissions and water usage, using renewable forms of energy, and the like. While this is an important and laudable endeavour, it differs from climate resilience, which refers to the degree to which a location is prepared for the anticipated effects of climate change, such as more severe weather patterns, rising sea levels, or drought. This can take a variety of forms and will largely be dictated by the specific threats faced by a city, often including a focus on infrastructure and governance.

The following discussion focusses on resilience and is intended as a starting point for discussion around what measures investors should be taking to mitigate their exposure to what are becoming very real threats, and how strategy should be adapted.

EXISTING AND FUTURE PHYSICAL RISK

The first and probably most immediate factor that investors must consider when assessing the climate resilience of their portfolios is the potential physical risk to their assets as a result of climate change and extreme weather events. As there are a range of potential threats to an asset depending on location, comparing the risk across markets may be challenging, requiring the quantification of the risk of flooding, drought, extreme heat, severe storms, and more, and assessing the potential impact to both the asset and its occupiers and other stakeholders.

While past physical losses are not necessarily indicative of, and may in some cases severely understate future risk, they are nonetheless useful to get a sense of the level of existing exposure and vulnerability to weather-related events across different countries and geographies.

Weather-related fatalities and economic losses are two historic measures that can be used, and the Global Climate Risk Index 2019 (CRI), developed by Germanwatch, compares death and death rates, as well as economic losses and losses per unit of GDP, all on an annual average basis over the 20 years between 1998 and 2017.

All data collected for this ranking reflected existing physical climate risks only. However, the index may also serve as a red flag for existing high-ranking countries who should understand the level of exposure and vulnerability to extreme weather events as a warning in order to be prepared for future extreme weather events that may be more frequent, more severe, or both.

Below is a selected list of top global real estate investment destinations and their CRI ranking.

A low CRI ranking number (out of 181 countries) indicates a higher level of risk, showing the marked disparity between cities even with comparable levels of wealth. Singapore has the second lowest level of risk for example, while Sweden and Finland also perform well. France, Germany and the USA however have high levels of risk as a function of past climate related losses.

FIG 6: CLIMATE RELATED LOSSES

Country	City	20-year average fatalities	Fatalities per 100,000 inhabitants	Loss in US$m (PPP)	Loss per unit GDP in %	CRI Ranking
France	Paris	1120.55	1.82	2,205.34	9.80%	18
Germany	Frankfurt	474.75	0.58	3,945.82	12.40%	25
United States	New York	450.50	0.15	48,658.91	34.50%	27
Spain	Madrid	695.05	1.57	979.18	6.90%	34
Australia	Sydney	47.90	0.22	2,394.19	25.20%	36
China	Shanghai	1240.80	0.09	36,601.07	28.80%	37
United Kingdom	London	152.20	0.25	1,481.00	6.80%	60
Austria	Vienna	23.90	0.29	570.30	16.70%	60
Netherlands	Amsterdam	84.50	0.51	220.04	3.10%	71
Korea	Seoul	55.55	0.11	1,120.64	8.40%	80
Japan	Tokyo	79.40	0.06	2,737.65	6.40%	93
Canada	Toronto	11.30	0.03	1,742.02	13.00%	100
Ireland	Dublin	2.10	0.05	173.50	8.70%	125
Sweden	Stockholm	1.35	0.02	194.70	5.20%	146
Finland	Helsinki	0.20	0.00	32.08	1.60%	167
Singapore	Singapore	0.00	0.00	2.87	0.10%	180

SOURCE: GERMANWATCH. DATA AVAILABLE AT NATIONAL LEVEL ONLY

EXISTING AND PLANNED GOVERNMENT POLICY

The quality, innovation and direction of government action will be key to how well each city evolves in the face of urgent need for increased attention to climate adaptation. Academic research suggests that central and local government play different roles in adaptation activities, with local authorities delivering direct adaptation (management, planning, policy, and practice and behaviour functions), whereas higher jurisdictions can deliver the policy needed to create a supportive environment. In this section, we consider the progress made by local governments.

Among the current top 30 cross border real estate investment destinations, most are located either by the sea or a major river. This inevitably puts these cities and their real estate assets in a more vulnerable position to rising sea levels, flooding, hurricanes, etc. Hence, their policy response to climate change cannot be ignored.

A global study published in 2016 (M.Araos et al, Environmental Science & Policy) was the first systematic assessment of adaptation reporting in large urban areas. Researchers reviewed 997 local government adaptation initiatives in over 400 urban areas with a population over 1 million and classified the cities into five categories.

As at 2016, most of the current top 30 markets had some level of adaptation policies in place (see Figure 7). London, New York and Toronto were among the most “Extensive adaptors”, considered global leaders in this area, and had adaptation initiatives responding to all five impacts identified by the Intergovernmental Panel on Climate Change (IPCC): heat spells, drought, coastal exposure, inland flooding, and human health issues. Paris, Los Angeles and Singapore, among other global cities, were classified as “High Moderate adaptors” (scoring 4), having made efforts to integrate climate change into city planning, but not yet as comprehensively as the “Extensive adaptors”. Other strong performers included Boston, Melbourne, Seoul, Chicago and Seattle.

The research also discovered that over 80% of the urban areas reviewed had no publicly-available documentation of climate change adaptation. Eight out of the current top 30 real estate investment cities, six of which are US cities, were in this category (scoring 1), including Washington, Madrid and Beijing.

However, it is important to note that in the current climate, cities are tending to move much faster than national governments in introducing new policy around climate resilience, and investors seeking to make comparisons across municipalities would benefit from reviewing the action, or lack thereof, of their target cities.

Extreme weather events should no longer be considered purely operational. In order to ensure business continuity and safeguard assets, capital expenditure for resilience and adaptation measures and full engagement in adaptation policy making is essential to the long-term prosperity of any real estate market.

FIG 7: LEVEL OF CLIMATE CHANGE ADAPTATION IN KEY GLOBAL CITIES

Investment volume rank (Year to H1 2019)	City	Climate change adaptation classifications
1	New York	5
2	Los Angeles	4
3	San Francisco	3
4	London	5
5	Paris	4
6	Dallas	1
7	Washington	1
8	Tokyo	3
9	Hong Kong	3
10	Seoul	4
11	Atlanta	1
12	Chicago	4
13	Boston	5
14	Seattle	4
15	Houston	1
16	Sydney	2
17	Miami	3
18	Berlin	3
19	Phoenix	1
20	Shanghai	3
21	Madrid	1
22	Frankfurt	n.d.
23	Denver	1
24	Singapore	4
25	Beijing	1
26	Philadelphia	2
27	San Diego	2
28	Austin	3
29	Melbourne	5
30	Toronto	5

SOURCE: M.ARAOS ET AL, ENVIRONMENTAL SCIENCE & POLICY 2016, RCA, CUSHMAN & WAKEFIELD
NOTE: 5=Extensive adaptors; 4=Moderate adaptors (high); 3=Moderate adaptors (low); 2=Early stage adaptors; 1=Non-reporting; n.d.=No data

Money alone is clearly not enough to solve climate-related crises, which is why it remains important for investors to consider a city's wealth alongside political will.

LOCATION RESILIENCE & RESOURCES

It is evident that two of the key factors shaping which cities will be best able to respond to climate change are, firstly, their inherent exposure to climate-related effects, and secondly the level of action being taken to identify those possible impacts and legislate to mitigate them. However, there is a third variable that undoubtedly will play a large role in determining which cities are able to deal with the consequences of climate change effectively, and which are not. This factor is access to capital, as the best laid plans will not be effective if there are not enough resources deliverable at both the national and local level to effectively implement climate adaptation strategies.

Measuring relative expenditure and ability to spend can be challenging and is dependent on the type of risk being faced by a given city. Different measures may produce contradictory results – for example, an analysis of 10 global megacities placed New York in the top spot for overall expenditure and per capita spend, while a different analysis of US cities ranked New York poorly in relative terms for what it described as 'Climate Readiness'.

The slower the redress, the more difficult it will become for a city to 'buy' its way out of climate-related impact.

However, money alone is clearly not enough to solve climate-related crises, which is why it remains important for investors to consider a city's wealth alongside political will, as demonstrated by some wealthy cities which have experienced severe weather-related events but taken little action to mitigate the effects. Moreover, the slower the redress, the more difficult it will become for a city to 'buy' its way out of climate-related impact.

It also needs to be remembered that the cities most vulnerable to climate change will often be those with the least resource to meet this problem. Similarly, it will often be the less wealthy districts of richer cities that are most at risk. This mismatch in resource allocation between and within cities will therefore be a source of growing tension.

There are many ways to measure a city's ability to respond; the table below presents GDP per capita as one such measure.

FIG 8: WEALTH BY CITY

City	GDP per capita 2018
San Francisco	$105,646
Frankfurt	$99,644
Seattle	$ 91,479
Tokyo	$86,358
Boston	$85,899
Washington	$80,326
New York	$79,964
Los Angeles	$75,659
Denver	$71,191
Houston	$69,591
Philadelphia	$69,257
Dallas	$68,649
London	$68,509
Austin	$67,908
Sydney	$66,880

City	GDP per capita 2018
Chicago	$66,540
San Diego	$66,436
Paris	$65,850
Atlanta	$61,761
Melbourne	$58,178
Singapore	$57,683
Miami	$52,613
Phoenix	$48,497
Hong Kong	$47,589
Toronto	$45,379
Berlin	$41,552
Madrid	$40,271
Seoul	$32,778
Shanghai	$18,263
Beijing	$16,913

SOURCE: CUSHMAN & WAKEFIELD, OXFORD ECONOMICS

SOCIO-ECONOMIC IMPACT & MIGRATION

Aside from the physical impacts of climate change and a city's ability to cope, there is another future outcome that will undoubtedly play a role in shaping cities and their investment potential – namely their role in the relocation of communities displaced by climate change.

While the focus of climate resilience forecasting tends to be on the physical risks imposed, it is expected that climate change will disrupt migration patterns both within and across borders.

The scale of these movements can be globally significant, encompassing temporary and permanent relocation. Plans to stabilise Jakarta included relocating 400,000 people from most at-risk areas of the city for example, while Hurricane Maria caused 130,000 people to leave Puerto Rico in 2018. Figure 9 shows the recent history of such internal displacements, that is to say within a country's own borders, dominated by cities in Asia, Africa and North America.

TOP 3 INTERNAL DISPLACEMENTS OF PEOPLE BY NATURAL DISASTERS IN 2018

INDIA

1,967,258

SOUTHWEST MONSOON

CHINA

1,610,000

TYPHOON MANGKHUT

PHILIPPINES

1,570,804

TYPHOON MANGKHUT

FIG 9: CLIMATE & DISASTER-LED POPULATION DISPLACEMENTS (2018)

Country	Event Name	Disaster Type	Number of Displaced People
India	Southwest monsoon	Flood	1,967,258
China	Typhoon Mangkhut	Storm	1,610,000
Philippines	Typhoon Mangkhut	Storm	1,570,804
Philippines	Southwest Monsoon (Habagat) / Tropical Cyclone Son-Tinh	Storm	902,312
Nigeria	Flood – 12 states	Flood	600,000
China	Typhoon Maria	Storm	517,800
United States	Hurricane Florence	Storm	463,674
Indonesia	Lombok	Earthquake	445,343
Philippines	Super Typhoon Yutu	Storm	438,691
India	Cyclone Titli	Storm	400,336
United States	Hurricane Michael	Storm	375,000
Afghanistan	Drought – 20 provinces	Drought	371,318
Kenya	Flood – 47 counties	Flood	326,612
China	Typhoon Ampil	Storm	290,000
Somalia	Flood – 9 regions	Flood	289,176

SOURCE: THE INTERNAL DISPLACEMENT MONITORING CENTRE

It is thought that most climate-related migration will be domestic, increasing the rate of urbanisation as citizens in rural areas find their lives and livelihoods more and more difficult to sustain. This will be inherently difficult to measure, as in a large proportion of cases, the relationship between climate change and relocation will not be directly causal, with climate effects one of a series of impacting factors.

At the same time, while much of the movement will be local, the potential cross border movement is also significant. Europe saw an inflow of more than one million people from Africa in 2015, while half a million people left Central America heading towards the USA in the past year. In both cases there were multiple factors, but climate change was thought to be one key driver.

PLANS TO STABILISE JAKARTA INCLUDED RELOCATING **400,000** PEOPLE FROM MOST AT-RISK AREAS OF THE CITY WHILE HURRICANE MARIA LED TO **130,000** PEOPLE LEAVING PUERTO RICO IN 2018

There is also the possibility that some cities, in the long-term horizon, will risk being uninhabitable due to extreme climate impacts. The most immediate example of this may be in the Middle East: with average temperatures in the summer months already very high, future increases may test the limits of human tolerability. However, this may also manifest itself in cities with rising sea levels where, at some point, little more can be done to further manage this without radically damaging ecosystems.

It is also worth noting that there are some cities which may stand to benefit from climate change, as existing harsh weather conditions moderate, potentially opening new opportunities. These cities should be aware of the possibility of more migration as they increase in attractiveness due to improved climate or job opportunities.

The potential for such large scale and volatile population movements will clearly be a destabilising factor in both the areas they leave and the cities they move into. Winning cities, therefore, will be those that are able to invest not only in physical resilience, but also in the quality of their offering and infrastructure, and are able to retain their population or absorb additional net migration.

INVESTOR IMPLICATIONS

It has become abundantly clear that the impact of climate change is no longer an abstract concept for the future but rather is already upon us, and investors who do not actively consider the climate mitigation strategies of the cities in which they invest, do so at their own peril. As such, investors should examine the physical risk, government access to resources and political will, and threat from migration that their target cities face. Though these factors can be difficult to measure and may not immediately paint a clear picture, they will go a long way in helping investors better understand the relative risks in their portfolios.

While major developed gateways ostensibly have more resources to throw at any problem, some have in the case of climate mitigation been slow to act, whether through a lack of willingness to acknowledge the seriousness of the situation, lack of access to resources, or backlash from citizens seeking to avoid disruption in the short term.

The outlook for emerging markets is equally complex, with those markets with the least resource to address climate change often the most exposed, and often already grappling with rapid urbanisation straining infrastructure. However, in some cases this rapid growth provides opportunities to leapfrog older cities, with new neighbourhoods addressing these threats from the outset, unconstrained by the need to retrofit.

While the cities that have the potential to benefit from climate change are by and large located in the global north, the issue is by no means as simple as one of latitude, and the changing climate will pose risks everywhere, not least to ecology, with the externalities of human intervention difficult to predict.

Winning cities will therefore have the right combination of resources, political will, and ingenuity, to explore creative solutions to preserve their infrastructure, quality of life, and appeal to investors. In some cases, this will mean having the courage to break with long-established traditions with regard to architecture, urban planning, and governance.

Investors should now start to consider how this should impact their global weightings, and start to act accordingly.

GREEN BUILDINGS

The whole life cycle of a building, from design to construction, occupancy to demolition, has extensive direct and indirect impacts on the environment. In the UK the built environment contributes about 40% of the total carbon footprint. Below we track the number of green certified prime offices as a percentage of all prime office buildings in major office markets globally, either with LEED or BREEAM certification, or a local green certification. With higher building standards and tighter government regulations in recent years, some emerging markets and those with a newer CBD appear high in the ranking. Conversely, some cities received a low ranking for their prime CBD, but may have newer submarkets not included that have much higher levels of accreditation.

TOP 3 CITIES WITH GREEN CERTIFIED PRIME OFFICE BUILDINGS

LONDON

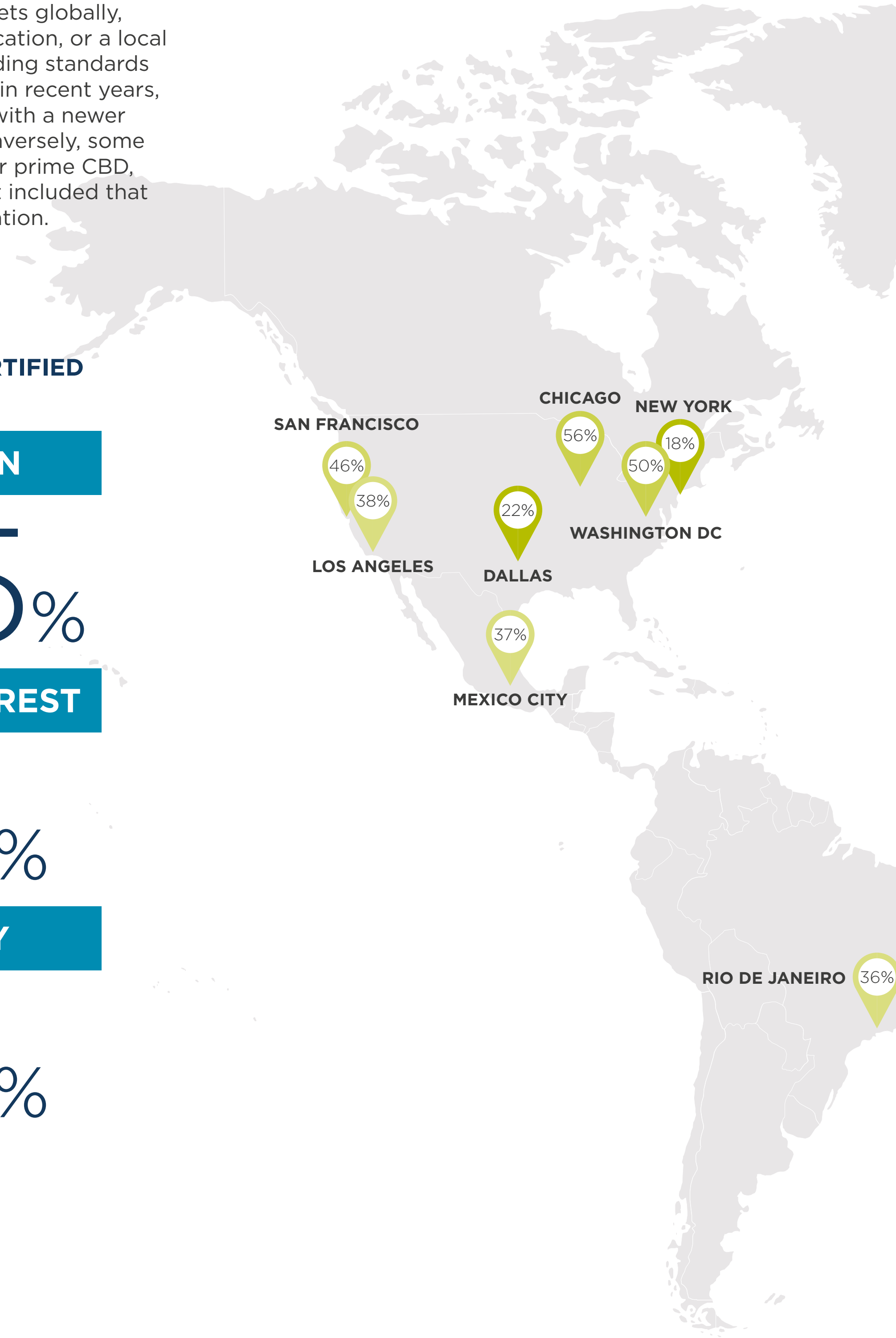
75%

BUCHAREST

71%

SYDNEY

71%



SOURCE: CUSHMAN & WAKEFIELD

CASE STUDIES

Find out how climate change is impacting the following cities, and what is being done to address it.

JAKARTA – CITY RELOCATION

After months of speculation, it was announced in August this year by the Indonesian President Joko Widodo that the government plans to relocate its capital city from Jakarta to a new site in East Kalimantan, the Indonesian portion of the island of Borneo. If the Indonesian parliament approves this proposal, this initiative would be the first case of its scale.

Jakarta's problem is a cocktail of natural disasters and environmental issues caused by intense human activity. The biggest physical risk related to climate change for Jakarta is land subsidence and rising sea levels, which combined with the unregulated draining of aquifers for many years, means that over 40% of the city below sea level. As Jakarta becomes one of the fastest-sinking cities in the world – up to 2.5 metres in the past ten years, sea water floods the north part of the city frequently. In addition, as the city is built on land that was originally swamp, river overflow often floods the east of the capital.

The 180,000 hectare yet-to-be-built new capital's exact location has not yet been announced, but as per President Widodo's televised speech, minimising natural hazards is a priority. This includes physical risks related to climate change and extreme weather, such as rising sea level and flooding, as well as natural disaster threat such as earthquake and volcano eruption. This move would take 10 years and cost over US$30bn, making this an extraordinary example of how far a government will go to combat climate risks.

> Jakarta's problem is a cocktail of natural disasters and environmental issues caused by intense human activity.

SINGAPORE – COASTAL DEFENCES

According to the CRI 2019 report, Singapore has had no deaths and very limited financial loss due to extreme weather in the past 20 years, which places it as one of the least affected countries in the world by extreme weather events. However, this doesn't mean that the city-state is immune from climate risk. Prime Minister Lee Hsien Loong devoted a large portion of a major policy speech in August 2019 to how the low-lying city should prepare itself for climate change and its impact. He fully acknowledged that Singapore is more vulnerable to climate change than the global model suggests, due to its proximity to the equator. He highlighted rising sea levels as "one grave threat", especially to its eastern coastline.

As one of the most advanced economies in the world, Singapore has the financial means to implement "a 50- to 100-year solution". Two potential solutions have so far been highlighted, namely building coastal defences such as polders and dykes along the eastern coastline or reclaiming a series of islands and connecting them with barrages. Both options would result in reclamation of land, which could then be used for new developments such as housing and other uses.

Although such plans are not expected to complete in the current generation, this could lead to the creation of a "Great Eastern Waterfront", which would be built with rising sea levels in mind and would therefore be well insulated from its risks. In the shorter term, the government has also introduced new policy requiring new developments to be built at least 4 metres above sea level, up from 3 metres previously, with critical infrastructure built even higher, to help future-proof these investments.

> Prime Minister Lee Hsien Loong devoted a large portion of a major policy speech in August 2019 to how the low-lying city should prepare itself for climate change and climate risks.

TOKYO – FLOOD RISK MANAGEMENT

Greater Tokyo is a prime example of long and well-established flood disaster prevention and one of the few regions in the world that has taken significant measures to address flooding risk.

Greater Tokyo is located on an alluvial floodplain with half of its population and 75% of gross assets concentrated in the lowlands. Greater Tokyo has invested billions of dollars into flood preparation and developed extraordinary storm water infrastructure over the last few decades. This includes the Kandagawa River Ring Road No.7 Underground Regulation Reservoir, which is designed to store up to 540,000 cubic metres of flood water. Further regulating reservoirs are currently under construction to create a total reservoir capacity of 3.3 million cubic metres in Greater Tokyo. A series of underground tunnels, costing US$2 billion in total, have also been constructed to store and discharge excess rainwater into the Edo River. An artificial wetland, Watarase-yusuichi, is built in the centre of the Kanto plain to act as a detention basin as part of the green infrastructure.

The national and city government has also made great efforts to provide information and educate the Greater Tokyo population to respond to flooding in terms of what to do and where to go. A number of parks in the Greater Tokyo area are designated “disaster prevention parks”, for example, where people who have to be evacuated from their homes can access cooking facilities, emergency toilets, solar powered lighting, etc.

Despite this preparation, it is clear that Tokyo can’t rest easy, with risks changing as extreme weather events increase and investment needs to be maintained. According to the Japan Meteorological Agency’s estimates, the frequency of rainfall of more than 3 inches an hour jumped by 70% over the past 30 years, while the frequency of rainfall of two inches an hour increased by 30%. Global warming has not only brought more rainfall but also more intense and extreme weather conditions which are tests to a city’s flood risk management capacity.

CENTRAL AMERICA – CLIMATE REFUGEES

Guatemala, El Salvador and Honduras in Central America, known as “the northern triangle”, are the largest source of asylum seekers crossing the US border in recent years. It is estimated that over half a million Salvadorans, Guatemalans, and Hondurans left their home countries and headed north in the eight months between Oct 2018 and May 2019. Climate change, which has made an agricultural livelihood impossible to sustain locally, is believed to be one of the main drivers behind this migration.

The northern triangle is known for its high poverty rate, low employment rate, widespread violence and poor governance which have been forcing its people to look for economic opportunities and a more secure life elsewhere for years. Yet its high vulnerability to natural disaster also played a key role. The Central American Dry Corridor, which encompasses 58% of El Salvador, 38% of Guatemala, and 21% of Honduras, is extremely susceptible to irregular rainfall. Repeated droughts since 2014 and changing weather patterns have been highly disruptive to farming and may take years to recover.

For instance, western Honduras used to be a prime coffee-growing area, but more extreme and unpredictable weather in the region, such as later summer rainfall, drought fuelled by El Nino and disastrous flooding rains, devastated coffee plants which are sensitive to temperature and rainfall changes. Moreover, it is estimated that 70% of coffee farms have been affected by an epidemic called “leaf rust”. The fungus is expected to die during cooler evenings but warmer than normal nights in recent years have allowed it to ravage coffee plants. All these irregular conditions are believed to link to climate change and global warming.

As a result, food security has become a pressing issue for many in the region to the point that some have had to abandon their land and home. It is understood that many opt for an internal relocation first to look for employment in the cities, but many are not able to survive due to the lack of employment opportunity or the prevalence of organised crime. As a result, climate change is often an underreported reason for migration. Leading media commentators have suggested that in many ways, the migrant caravans are carrying climate refugees. We would go one step forward to say that this could be a forestate of more widespread population movements to come.

> Reservoir levels in September reached 80% of capacity, meaning that crisis has been averted, for now.

CAPE TOWN – DROUGHT

Last spring, Cape Town was being held up as one of the first victims of climate change, with a prolonged 3-year drought dropping water reservoir levels perilously close to 10%. However, Day Zero, or the day taps would run dry and Capetonians would have to queue at one of 200 water centres for 25 litres per person per day (enough for a two-minute shower and no more), was narrowly avoided, through a series of government and community led strategies, and a very well-timed end to the drought. Reservoirs levels this September reached 80% of capacity, meaning that crisis has been averted, for now.

In the three months prior to Day Zero, both the government and civic organisations launched campaigns educating citizens about water saving tactics, posting signs in bars and restaurants encouraging people to use the minimal amount of water necessary for hygiene, and other grassroots-level initiatives such as 'dirty shirt' challenges at the office. The city, in an effort to gamify the reduction of water consumption, posted online a household-level map of water usage, so that residents would be able to compare their consumption to their neighbours, and be encouraged to cut back even further.

The city prohibited the use of municipal water for non-essential purposes such as pools or lawns, and water allocated to agriculture was reallocated to the city. In the months leading up to Day Zero, the city also implemented a new water pressure system, improving overall water efficiency in the city and estimated to have decreased consumption by 10%.

The tactics appear to have been effective, not just in the avoidance of Day Zero, but also in long-term habit forming. Peak water usage in Cape Town has decreased by more than 50% in 3 years, and while dam water levels have recovered, the habits of 2018 remain – all the better, as living with water scarcity is likely Cape Town's new reality.

Over time this scarcity will have an economic impact, with Cape Town contributing approximately 22% of South Africa's national agricultural GDP. Should water rationing impact the industry's access to water, it is possible that some farms will no longer be viable, which could affect migration patterns in the region, potentially increasing the urban population and straining infrastructure.

Cape Town is not the only city suffering from climate change related drought – this year, Chennai has been battling sever water shortages, where reservoir levels have already dropped below 10%, and citizens have been forced to buy water from private resellers, as the city's public water management system has not proven sufficiently robust. According to the Council of Energy, Environment and Water in India, an NGO, approximately 750m people in South Asia will face extreme shortages and 1.8bn chronic shortages by 2050.

Implications for resource availability will be a key area of threat emerging from climate change and while Cape Town shows the potential of community led action to influence behaviour, it also shows the need for long-term holistic planning to effectively mitigate its consequences.

CHINA – SPONGE CITIES

Several decades of rapid urbanisation have proven extremely successful for China from an economic perspective; however, the environmental costs have often been high. Among these, the rapid paving over of many lakes and rivers has led to increased incidence of flooding, including a large-scale flood in Beijing in 2012, killing around 80 people and forcing the evacuation of over 50,000. The Sponge City initiative was launched shortly afterward in 2015, and aims to address this flood risk in future.

The pilot project began with 16 'model sponge cities', later extended to 30 cities, including Shanghai. The goal is for 'sponge districts' in these cities to contain 20% of built area with "sponge" functions, meaning that at least 70% of storm water should be captured, reused, or absorbed. This is being implemented through a number of measures, including storage ponds, marshes, green roofs, rain gardens, and permeable surfaces replacing concrete where possible.

While managing storm water and flooding is one obvious benefit, the scheme has a second benefit for citizens – two thirds of Chinese cities regularly suffer from water shortages, and traditional sewage systems mix rainwater with sewage, making it unusable. Through capturing and storing rainwater, it can be treated for use when supplies run low.

By 2030, 80% of each of the 30 cities is expected to perform sponge functions. This may prove tricky, as government subsidies will end in 2020, so further works will need to be funded by local councils, or in public-private partnership. This lofty goal will require new neighbourhoods to overcompensate for the rest of the city, as it would be extremely challenging to retrofit existing districts in such a short period of time.

PARIS – EXTREME HEAT

With multiple cities across Europe reaching record-high temperatures this summer, it is clear that the extreme summer weather that has been predicted for some time has arrived. With temperatures only predicted to increase in the coming decades cities will need to tackle this challenge head-on, and Paris is doing just that, with a number of measures put to the test in this summer's heatwave.

After the intense heatwave of 2003, which caused nearly 15,000 people in France to die prematurely, the city of Paris put in place a number of measures to help citizens, especially vulnerable ones such as children and the elderly, stay cool when temperatures rise to extreme highs. This is especially important given the heat island effect of cities: the use of concrete, stone, and other materials that retain heat causes cities to get noticeably warmer than surrounding areas, with particularly prone areas in Paris estimated to get up to 10 degrees hotter than areas outside the city.

> Measures include public realm cooling interventions such as misting machines in squares, turning fire hydrants into water fountains, and leaving parks open much later than normal so that citizens can remain cool in public spaces.

Measures include public realm cooling interventions such as misting machines in squares, turning fire hydrants into water fountains, and leaving parks open much later than normal so that citizens can remain cool in public spaces. Measures are also put in place to ensure that those who cannot cool their homes effectively have somewhere to go, such as opening air-conditioned spaces in town halls, libraries or churches to the public, with public pools remaining open later than usual as well.

For those who may be less able to visit such centres, such as the elderly or less mobile, the government has introduced Chalex – a service that anyone who feels they are particularly vulnerable to extreme heat can register for. When temperatures climb registrants are checked on, provided advice, and, if necessary, visited by a medical professional or taken to a cooling centre.

Provision is also being made for children, with kindergartens receiving air conditioners, children being sent home with 'heat wave kits' to help keep them cool, and exams even being postponed when the temperatures have been deemed too extreme.

The provisions appear to have been successful, with just 15 people in Paris reported to have died as a result of this year's heatwave, where temperatures reached record highs of over 42 degrees Celsius, down from approximately 500 people in 2003. They are also part of a larger set of initiatives by the city's mayor, Anne Hidalgo, to boost the city's resilience.

This year, the city launched its Paris Climate Action Plan, which includes 500 measures aiming to improve both sustainability and resilience, and make Paris carbon neutral by 2050. The city has recently announced aims to have 50% of the city covered in porous, planted areas by 2030, which will both help to mitigate the heat island effect, and also help with water absorption during severe rainfall, to prevent flooding. As the first four schemes, including spaces outside Paris' city hall, the Opera Garnier, and along the banks of the Seine demonstrate, this ambitious goal will be a shift for the city away from formal gardens and may alter the city's relationship with its architecture, demonstrating that in order to become climate resilient, cities may require the courage to break with tradition and be willing to look at their assets in a new way.

In order to become climate resilient, cities may require the courage to break with tradition and be willing to look at their assets in a new way.

ROTTERDAM – FLOOD PLAIN MANAGEMENT

With approximately one third of the country and 80% of the city itself below sea-level, it's no surprise that Rotterdam has proven very adept at addressing growing climate risks.

After the North Sea flood of 1953, which led to water levels up to 5.6m above average and known in Dutch parlance simply as 'The Disaster' due both to the scale of damage to property and the human toll, the Dutch government began implementing a series of construction projects known as the Delta Works, aimed at preventing similar destruction in the future. The works, spanning several decades, involved a litany of projects such as new dams, levees, locks, and storm surge barriers, at a cost of approximately $7bn. The project culminated in 1997 with the completion of the Maeslantkering, a barrier protecting Rotterdam and the surrounding region from storm surges, and designed to withstand the force of a 1 in 10,000 year surge.

The precautions are warranted – aside from the potential disruption and damage to Rotterdam and its citizens, as Europe's largest port disruption to Rotterdam would mean disruption to the movement of goods across the continent.

Since these massive works, however, the attitude of the Dutch has evolved somewhat – after another two serious floods in 1993 and 1995, where the dikes nearly burst and approximately 200,000 people were evacuated, the ongoing vulnerability of the region was thrown into sharp relief. This led to a change in thinking, and in the mid-2000s a new project, called Room for the River, was launched. Where previously the focus was on keeping water out, the new set of projects, which are still ongoing, focus on finding ways to mitigate the impact of storm flooding rather than trying to fight against it. This involves a number of infrastructure projects, including increasing the size of floodplains, to redirect floodwaters to safe locations away from cities.

On a city level, Rotterdam is also focusing on civic infrastructure such as parks, plazas, and even parking garages have been designed to flood, so that damage from flooding, when it inevitably does happen, can be minimised.

Rotterdam has learned to adapt and innovate to the risks it faces, and demonstrates that good governance and early intervention are the cornerstones of its continuing success in heading off climate-related risk.

MIAMI – SEA LEVEL RISE

With its coastal position, altitude so low it's barely above sea-level, and predisposition for ending up in the pathway of many a hurricane and tropical storm, it is no wonder that Miami is viewed as a harbinger for what may befall many coastal cities, as sea levels are predicted to rise in coming decades. To date, proposed solutions have involved building a sea wall or sea gate system like the Maeslantkering in the North Sea protecting Rotterdam, to mitigate rising sea levels and intense storms, as well as raising the ground level in areas where flooding is already so prevalent it occurs every full moon. Work has already begun on the sea wall, with over 2,700 feet built to H2 2018.

However, Miami's quandary is relatively unique, as the city is built on porous limestone, which means that water will not only rise around it, but also through the ground itself. This will make preventing flooding over the long term more complicated than in other cities, where measures along the coast would make a greater impact. Miami Beach, technically a different city to mainland Miami and already experiencing regular flooding, began adaptation efforts a few years ago, raising roads in prone areas by two feet. However, there has been backlash from local residents, who fear that elevated roads will mean increased flooding of their homes, which remain at a lower elevation, despite local authority assurances that these issues will be resolved through engineering. The issue of rising water levels is further complicated through the potential for aquifer contamination through the salination of groundwater through saltwater contamination. Should this occur, the primary solution, desalination plants, would be hugely expensive.

A report from the Centre for Climate Integrity suggests that the cost for a basic seawall will be approximately $900 per person in Miami Beach, compared to $290 for mainland Miami, which has proportionally less coast. Over the longer term, the various local and state governments of Miami and Florida will need to make considered choices about how best to approach the issue of climate adaptation and resilience, and work together to find integrated solutions to safeguard the iconic city.

> Miami's quandary is relatively unique, as the city is built on porous limestone, which means that water will not only rise around it, but also through the ground itself.

LONDON – TIDAL FLOODING

Rotterdam was not the only city to implement major infrastructure works after the North Sea Flood of 1953, and in the UK the most well-known outcome of the damage was the construction of the Thames Barrier, designed to withstand a 1 in 1,000 year storm surge and safeguarding London and the Thames Estuary from tidal and storm flooding. Operational since 1982 it was no small endeavour, taking eight years to construct and costing £1.2bn at today's values.

While the barrier was initially designed to last until 2030 at its current level of protection, the Environmental Agency's Thames Estuary 2100 plan, which outlines how the agency will protect the Thames Estuary region including London through to the turn of the next century, now expects the barrier to remain in full use until 2070, along with a host of strategies to ensure that the city and surrounding area is well protected from future storm flooding.

It's not the only precaution London is taking against flooding. The city also created a Sustainable Drainage Action Plan, published in 2016, addressing the pressure from increased rainfall that the city will face, especially given an outdated sewage system designed for a population approximately half that of London today. The plan includes measures to alleviate day-to-day pressure on the sewage system, to prevent the system being overloaded during significant rainfall. This has involved promoting water conservation measures, green roofs, permeable paving, and encouraging homeowners to re-green their front gardens, over half of which are paved over in the city which prevents drainage into the soil beneath. Together with measures to update the sewage system itself, it is hoped that these measures will help to avoid flooding.

It may be no surprise that the British can cope with a little rain; however, London may also need to look to cities such as Paris in the near future to more fully address the urban heat island effect. This causes the city to, in extreme temperatures, be up to 10 degrees hotter than the surrounding rural areas. Given that the city's climate is expected to more closely resemble Barcelona's than its own by 2050, and the tendency of British architecture to maximise sunlight indoors to fight off perennially grey weather, existing buildings are often ill-suited to higher summer temperatures. Changes in building design as well as innovative governance will be necessary to keep the city functioning in the summer months.

LOS ANGELES – WILDFIRES

California's wildfires have become much worse in recent years, with seven of the state's most destructive wildfires have occurred in the last decade. While the exact causes of this are complex, and are in part linked to decades of what is now considered to be poor forestry management through the suppression of fires that are necessary for forest renewal, it is thought that rising temperatures have also played a part, with summers in Northern California having warmed by about 2.5 degrees Celsius since the 1970s.

> Seven of the state's most destructive wildfires have occurred in the last decade.

While typically affecting smaller cities and towns, and most destructive in what is known as the 'wildland-urban interface', or where human activity and nature meet, extreme weather modelling suggests that intensifying megafires have the potential to encroach on major Californian cities such as Los Angeles. While current climate-related concerns surrounding Los Angeles are typically centred around rising sea levels, as temperatures continue to rise and weather patterns continue to become more extreme, the potential risk from fire even to large cities should not be underestimated. In fire-prone areas of California, there are already reports of insurers refusing to renew fire insurance, or increasing rates for those covered.

04 STRATEGY FOR 2019/20

Risks in the property investment market are clearly up but with the return of lower interest rates, structural changes driving occupier demand and a tight supply of the right space, the market is far from being bereft of opportunities. But where can they best be found?

ECONOMY DOWN BUT NOT OUT

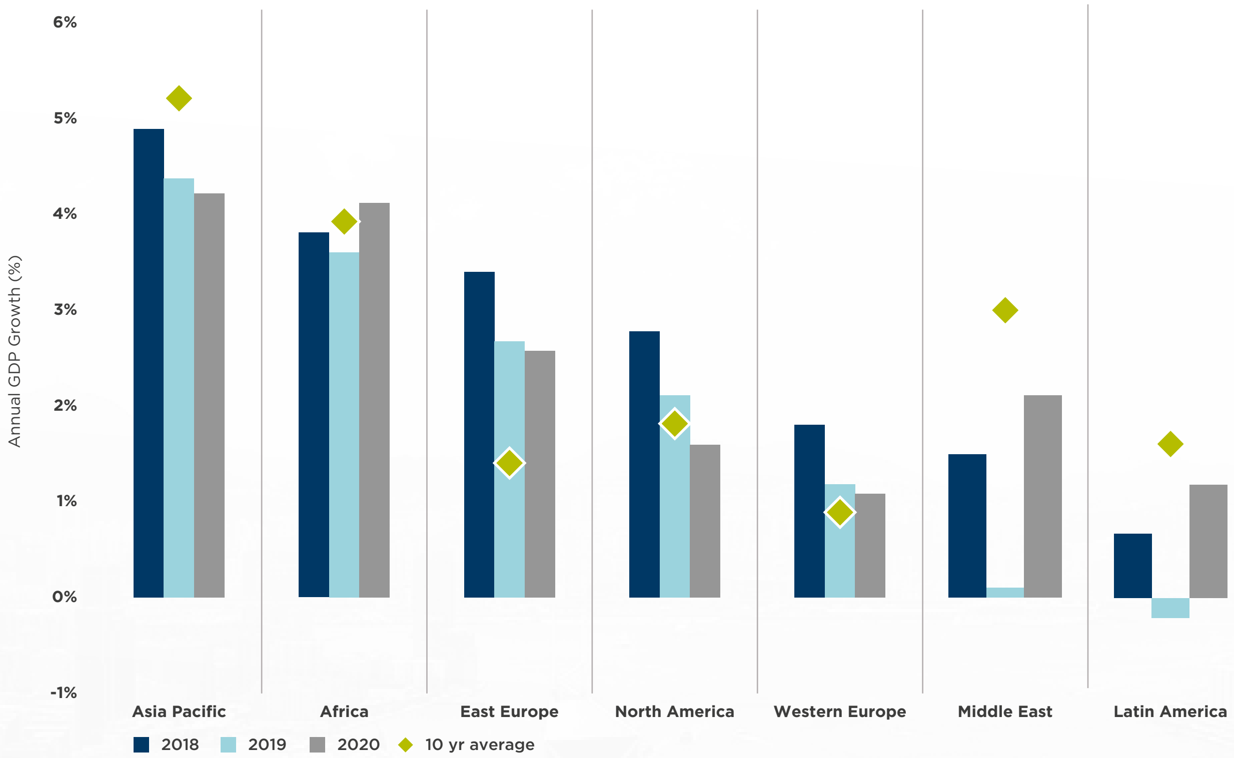
The global economy is in a worse than expected state and is also giving off mixed signals, with different patterns evident in different markets and sectors and a renewed fall in bond yields indicative of the fears many harbour.

This is particularly true in terms of the differences between internal and external demand evident in many countries, and more notably still, between services and manufacturing, with the former robust while the latter has fallen precipitously in some cases.

But are the recession harbingers of negative yield curves and falling industrial output to be believed when they stand alongside robust labour markets and strong equity pricing? Certainly, the negative headwinds of trade wars, a slowing in China's growth and the lagged impact of monetary tightening, will bear down on demand and deliver sluggish growth, with those most exposed to trade and production suffering more than average. However, even if it is slowing, growth is continuing, helped by tight labour markets supporting consumer confidence and some measure of wage growth. Indeed, many developed markets are forecast to have GDP growth at or above the 10-year average while growth in some emerging markets is forecast to improve.

CHINA'S GROWTH AND THE LAGGED IMPACT OF MONETARY TIGHTENING, WILL BEAR DOWN ON **DEMAND** AND **DELIVER SLUGGISH GROWTH**

FIG 11: ECONOMIC GROWTH EXPECTATIONS BY REGION



SOURCE: CUSHMAN & WAKEFIELD, OXFORD ECONOMICS

UNDERSTAND THE OCCUPIER

While the cycle may be slowing, much of the property market is being driven by structural changes: new ways of working, living and playing for which there is uncertainty, but also a lack of suitable stock and a need to develop and reposition existing assets.

Critical to taking advantage of this trend is understanding the occupier, with expansion frequently resulting in less take-up, as tenants focus on gaining space efficiencies and flexible solutions. Even in the retail sector, consolidation is being driven by those who are getting it right, not just failing players. Hence, investors need to work with their tenants to deliver space that works for their businesses and helps them experiment along the way.

While leasing markets have generally remained resilient, as in investor markets, supply shortages are often a brake on activity. However, with affordability on the minds of many corporates, rental growth will remain restrained in general. This calls for stronger management, increased capital expenditure and more risk taking, underlining the fact that owners and their assets have to work harder to deliver returns than in the past. This is particularly true given that we are probably now on the last leg of yield compression, meaning performance needs to be driven by sustaining and growing income.

SECTOR AGNOSTIC

As occupier needs change, distinctions between sectors are blurring and mixed-use assets become ever more important to provide flexibility and drive growth.

The overlap and convergence of sectors is already evident in many buildings and in how distribution, servicing and retailing are coming together for example. Historic performance is a key reason to allocate to one sector, but as drivers of occupation change, past relationships are at best weakening and in some cases becoming redundant.

Investors must respond with flexible buildings that can be adapted and with more focus on mixed-use. This can counter the impact of falling in-store retailing for example, by increasing the range of other attractions and reasons to visit a centre or location, be that with entertainment or other services including health and education.

CLIMATE CHANGE IS HERE

One structural change that is now coming through strongly is climate change. Occupiers have tended to lead on this, but investors must take note because there will be winners and losers along the way and many cities are being forced to play catch-up.

While linked to sustainability, the two shouldn't be confused. Climate change needs its own distinct response from investors to include an appreciation of the locations at risk (both in physical and human terms) and the contribution the asset can make to reducing global risk.

The physical risks posed by extreme and changing weather patterns and rising sea levels are easily measured but are also changing to the extent that the character of many cities – and hence their business appeal and function – are being altered. At its simplest, currently more moderate, colder cities in the north will frequently see an improved operating environment, while southern cities will become less hospitable over the next few decades.

This is not as simple as a north:south divide of course – as shown by the fact that many cities "at risk" have lived with this reality for a long time, and have the human resources and infrastructure to cope better than most. However, the degree to which they have been ready to act and invest does vary and therefore the wealth, resources, infrastructure and strength of governance in each city will be key indicators of success.

One area that will require particular attention will be migration, with unchecked climate change likely to lead to an increased flow of voluntary relocators, economic migrants and refugees. The likely scale of this flow will vary by city and will bring both opportunities and threats.

Finally, with respect to the asset itself, its construction, management and operation will need to change. Real estate contributes 40% of a city's carbon emissions in terms of construction and energy use according to The United Nations. However, urbanisation means cities are getting bigger, with more real estate needed. Hence the imperative on each asset to do more to fight climate change and reduce emissions will increase to a critical level.

> There will be winners and losers as a result of climate change, and many cities are being forced to play catch-up.

LONG-TERM MARKET LIQUIDITY IS HERE TO STAY

Demographic changes will maintain high savings rates and with interest rates staying low, this will keep up global institutional demand for stable long-term incomes – and push core yields down once more in some markets.

This liquidity does not extend to all assets, however, and will be subject to change when quantitative easing goes into reverse. It is also not reflected in a widespread availability of debt finance away from low risk areas of the global market.

Nonetheless, this sustained high demand, together with ongoing capital raising, record dry powder and cheap financing away from riskier assets, all point to the potential for global activity to increase if and when some of the ongoing macro uncertainties start to resolve themselves. With or without these uncertainties, the market faces a shortage of stock to meet demand and this is likely to continue until interest rates get back on to a rising path and more investors adjust strategy and/or seek to cut debt. Hence in the coming months, while demand will remain high, activity may edge down from the record levels seen in 2018, with a circa 5% drop globally.

STRATEGY RESPONSE

In this environment of slow growth combined with looser monetary policy, what are the implications for investment strategy? In our view, they suggest ongoing demand for quality property but with a need to focus on the most liquid markets and the quality of growth and level of sustainability, though perhaps 'survivability' would be a more accurate term.

This requires an emphasis on local market fundamentals, and a clear appreciation of what the occupier is looking for – even if the latter still requires some guesswork. Indeed, experimentation should be an increasing feature of investor strategy as we look to make the transition in business and operating practices that new technological, economic, social and environmental trends demand.

THEMES AND TRENDS TO WATCH

SECTORS TO WATCH

By sector the focus will be late-cycle plays in the office and logistics sector or "no-cycle" plays, meaning sectors driven by social and demographic factors rather than the economic cycle. These include rented residential, senior living, student accommodation, health, and data centres.

Retail is also not off the agenda, but caution on pricing and timing of market entry is needed and there must also be a recognition of the need to innovate and add value through management and improving the use mix.

DEBT STRATEGIES

Increased interest in debt strategies remains an appropriate response to the macro and changed regulatory environments, driven by superior risk adjusted income returns at this mature stage of real estate cycle.

Investing into debt funds or other lending strategies can help to limit downside risk and provide relatively secure income returns but also opens up higher risk opportunities in terms of accessing future distress with a "loan to own" approach.

GATEWAYS VS CHALLENGERS

By location, gateway cities will attract most interest from the risk averse, but tier 2 cities are not necessarily a second choice. The war for talent and changing technology is exposing a wider band of "challenger cities" to greater popularity from occupiers, usually due to a mix of higher living standards, greater affordability, a skill or cultural cluster, good access and appeal to younger workers.

PLATFORMS AND M&A

REITs and quoted property companies provide an interesting route into the sector in many global markets, with direct investment and take-private activity likely.

With notable disparities between valuations and stock market views on pricing, risks may be fully discounted and, in some cases, overdone, with respect to core offices in New York or London or, for example, high quality retail or hospitality.

Niche or specialist operators in highly sought-after sectors such as logistics or residential may also be of interest, with the premium justified by the added value of the management platform but also possibly a breakup value.

REGIONAL STRATEGY TRENDS AHEAD

THE AMERICAS

In the USA, amber signals for a slowdown are flashing but barring policy missteps, a recession is not imminent and demand metrics for real estate remain positive. The much-discussed negative yield curve for example highlights the risk aversion of investors, which is maintaining demand for quality real estate. Indeed, the current cycle continues to break records, and while caution is appropriate, particularly as we move towards an election year, occupiers continue to underpin market opportunities and low debt costs amplify this further. Structural trends are apparent – positively if we think of the demographic growth of the sunbelt, negatively if we focus on the impact of extreme climate events – and overall, traditional and alternative market segments are in play with debt and equity strategies.

A range of tier 2 cities remain strongly in favour, such as Atlanta, Dallas, Denver and Phoenix, with incoming investment and business relocations underpinned by a combination of quality of life and affordability. Less traditional asset types such as senior housing are also in the spotlight for an increasing number of investors.

While growth in Canada is slowing, the economy has proved resilient in the face of trade and demand headwinds and real estate has benefitted from ongoing jobs growth. Investors continue to face stock shortages however, pushing them towards suburban areas and smaller cities, with office and industrial preferred in markets that provide demographic and locational advantages for businesses.

BARRING **POLICY MISSTEPS**, A **RECESSION** IN THE US IS **NOT IMMINENT** AND **DEMAND METRICS** FOR REAL ESTATE REMAIN **POSITIVE**.

In South America, risks to growth are still notable but conditions vary significantly across the region, from accelerating growth in Colombia to ongoing declines in Argentina. However, real estate in general has performed better in most areas, with office vacancy down and demand firm. In Brazil, political risk remains elevated but with interest rates being cut and modest progress seen on reform, key sectors of real estate are seeing more interest, led by Class A office and logistics in Sao Paulo. Mexico meanwhile is also seeing more investor demand than its spluttering economy may suggest, with logistics a key sector of interest. Elsewhere, the long-term promise of Colombia will attract attention, particularly for retail and logistics, while for core assets, Santiago is attractive, albeit with tight investment availability.

APAC

In Asia Pacific, growth may be set to slow further next year whether looking at consumption or employment figures, but overall will remain attractive on a global basis and more foreign capital is likely to flow towards the region. Occupier markets are mixed, with some seeing increased supply and others slowing demand, but the market offers a wide range of cities as investment options and sector-by-sector there are attractive areas for short- and medium-term returns. These may be in still demand-driven parts of the CBD office market, the largely undersupplied logistics sector, or demographically driven residential markets.

Resilient markets in terms of their balance of supply and demand include Tokyo, Osaka, Singapore, Sydney, Melbourne and Beijing, with core locations and strong covenants favoured. For logistics, growth in demand is widespread and land prices are strong as a result, with Singapore, Sydney, Tokyo, Osaka, Shanghai and Beijing well positioned for performance but short of up-and-built stock. In a slowing economy meanwhile, turning to residential opportunities will bear fruit, driven both by demographic changes and increased rental demand due to affordability constraints, with cities such as Tokyo, Osaka, Shanghai, Beijing and Sydney currently leading the way. However, stock is limited and hence development will be the main route into the market.

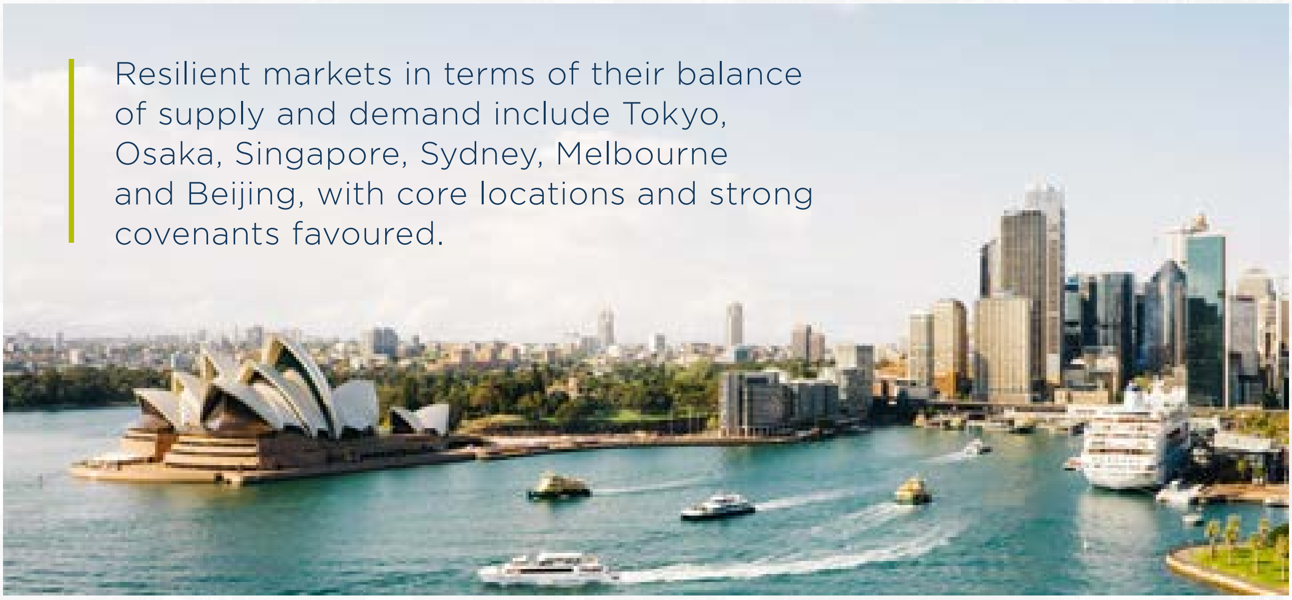
With China seemingly set for a period of slower growth, much of Asia will feel a chill, but some relative winners are likely among low cost producers such as Vietnam, Malaysia and Pakistan or more advanced tech markets such as Taiwan.

Geopolitical impacts are also likely, favouring Singapore as an independent, reliable base for business in the region or India as a growing powerhouse with supportive fiscal policy, although tensions over Kashmir may have some impact

As a deep market across a range of cities and sectors, mainland China remains an attractive market for investors. While for some, the current market is challenging, with softer demand and restricted availability of debt, long term prospects are good and there are emerging opportunities for well-financed buyers as some vendors seek to restructure their portfolios. There are opportunities in tier 1 and select tier 2 cities for short- to medium-term investors and the winning markets tend be where supply is relatively modest, notably Beijing, and/or where pricing is comparatively attractive, such as Guangzhou and Chengdu.

For mid- to long- term investors, opportunities also lie in cities with extensive infrastructure development and rapid socioeconomic growth but higher levels of supply such as Shanghai and Shenzhen.

Hong Kong meanwhile is another victim of geopolitics with social unrest impacting tourism and services, and likely to affect business and investment decision making if it drags on. Ongoing trends such as catering for affordable rented residential, business decentralization due to high costs and the growth of co-working will however reassert themselves as stability returns.



Resilient markets in terms of their balance of supply and demand include Tokyo, Osaka, Singapore, Sydney, Melbourne and Beijing, with core locations and strong covenants favoured.

EMEA

In Europe, real estate fundamentals are good but not as well-placed as a year ago. However, with near full employment in many markets, businesses need to invest where they can afford it, to retain and attract talent and drive productivity. Hence with prime supply limited and interest rates down, the cycle will remain positive in the next 12 months.

Deal underwriting has become more challenging with prime yields stabilising at record lows in most top cities. Nonetheless, with ongoing high demand for security and liquidity, together with negative bond yields and renewed quantitative easing, there is the strong prospect of a further fall in yields in 2019/20 for the best tier 1 and tier 2 cities.

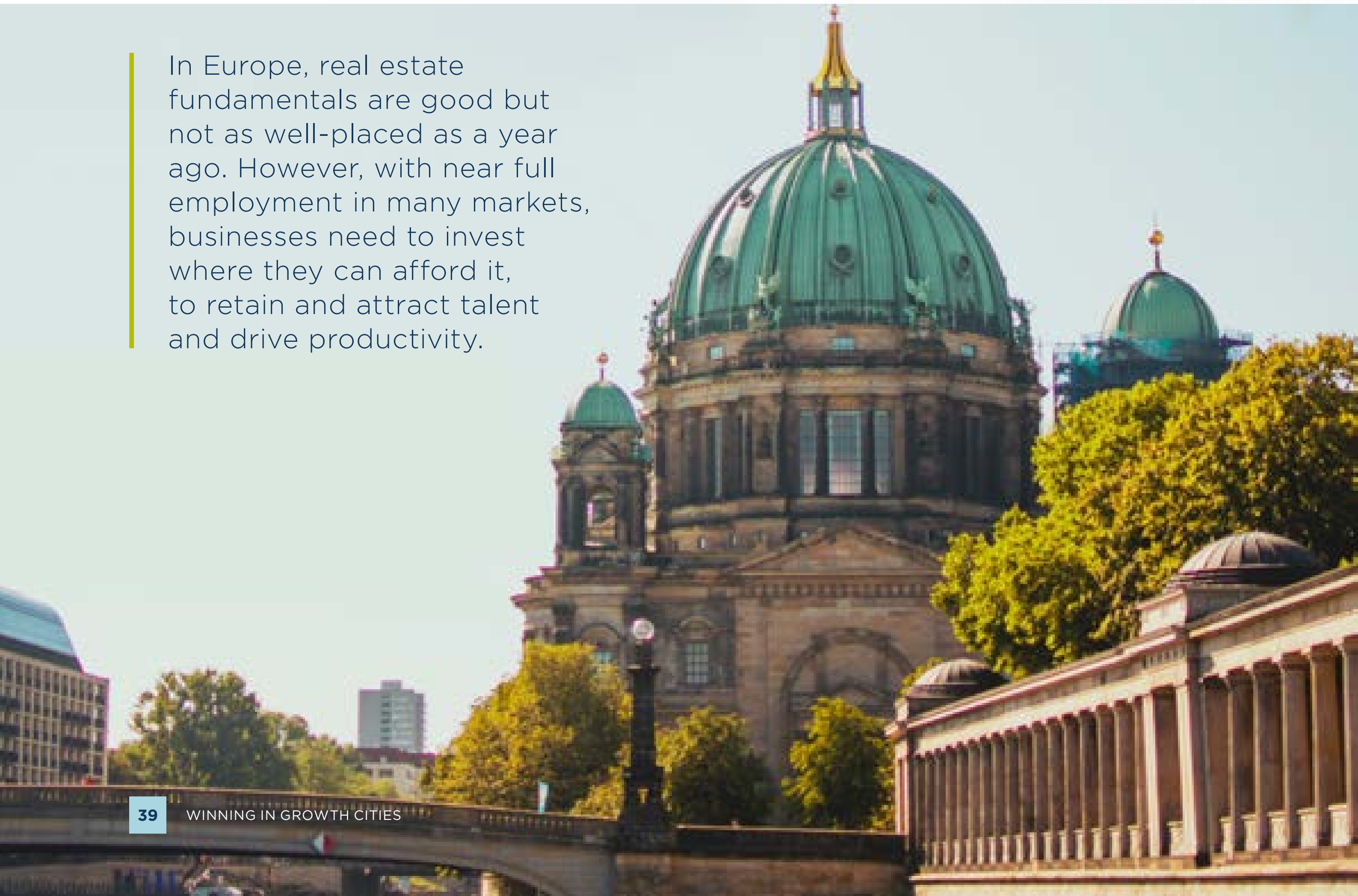
Conditions are highly variable market by market, however, with Central & Eastern Europe and Nordic markets set to out-perform economically over the next three years, while Italy, Portugal, German and Belgium may underperform. Spain is the best of the rest in between these leaders and laggards, followed by the Netherlands and France.

The UK should see similar economic growth to Spain, subject to an orderly exit from the EU. That of course is still an area of uncertainty, but given the robustness of the occupier sector and level of yields compared to other markets, a number of investors are waiting for the right time to invest in London in particular.

While there is a good chance that Sterling is already oversold, it could get cheaper yet, so timing this investment decision is difficult. However, with the worst-case scenario of leaving without a deal apparently ruled out by legislation, the right time to enter may be approaching.

In the short term European offices are well placed to outperform given their supply dynamics, but over the medium-term logistics and residential are favoured with retail variable but subdued. Tech driven markets, east and west, with good universities, will perform best, led by Berlin, Frankfurt, Madrid, Amsterdam, Helsinki, Budapest and Prague but also including Dublin, London, Paris and Copenhagen over a 3-5 year period. However, as affordability is squeezed, decentralised tier 1 and better-quality tier 2 markets will gain and should also be a focus of investment strategy as a result.

Demand will continue to grow across a growing range of less traditional sectors, such as health, data centres and student accommodation. Strong performance from rented residential markets in particular will encourage investor demand, both in the established markets of Germany, the Netherlands and the Nordics as well as those playing catch up such as the UK and down the line, France.



> In Europe, real estate fundamentals are good but not as well-placed as a year ago. However, with near full employment in many markets, businesses need to invest where they can afford it, to retain and attract talent and drive productivity.

FIG 12: TARGETS FOR INVESTMENT IN 2019/20

CORE

Americas

OFFICES:
Gateway CBDs: Manhattan, LA, Boston, Chicago, Washington DC, San Francisco and core Canadian cities (Toronto, Vancouver). Core assets in non-majors such as Denver, Atlanta and Phoenix.

RETAIL:
Class A neighbourhood and community centres, grocery-anchored and other personal service or experiential retail in gateway cities in the US and Canada.

APARTMENTS:
Class A suburban multi-family in top US cities plus build-to-core strategies particularly in the southern sunbelt markets.

LOGISTICS:
Key Canadian markets and US distribution hubs (inland Empire, Dallas, Atlanta), plus port cities (LA) and along key supply chains.

APAC

OFFICES:
Sydney, Melbourne, Singapore, Osaka and Fukuoka.

RETAIL:
Singapore and Tokyo.

LOGISTICS:
Singapore, Melbourne, Sydney, Hong Kong, Tokyo and Osaka.

ALTERNATIVES:
Residential and senior living in Tokyo and Osaka, data centres in Tokyo.

EMEA

OFFICES:
London, Paris, Copenhagen, Munich, Frankfurt, Berlin, Madrid, Hamburg, Amsterdam and Brussels.

RETAIL:
Dominant centres, flagship high streets and outlet centres in core German and Nordic cities, plus Paris, London, Milan, Madrid, Barcelona, Lisbon, Dublin, Amsterdam and Brussels.

LOGISTICS:
London, Paris, Hamburg, Munich, Berlin, Rotterdam, Antwerp and Copenhagen.

HOTELS:
Indexed leases key cities (affordable/economy).

ALTERNATIVES:
Senior living in Germany, Datacentres in hub cities and managed residential (Nordics and UK).

SOURCE: CUSHMAN & WAKEFIELD GLOBAL CAPITAL MARKETS

CORE-PLUS

Americas

OFFICES:

Class A in growth markets (Dallas, Miami, Atlanta, Seattle, Denver, Phoenix and Austin), Transit rich secondary markets and near-in suburbs of gateway markets.

MULTIFAMILY:

US Class B in cities and suburbs of tier 1/2 markets, emphasis on repositioning in the Sunbelt.

RETAIL:

US Class A neighbourhood and power centres serving larger conurbations with repositioning opportunities in tier 1/2 markets.

LOGISTICS:

Development in space constrained top 10 US markets, Class B product along supply chains and cold storage.

Class A logistics platforms in Lima, Santiago, Bogota and Medellin plus build to suit/sale & leaseback platforms in Sao Paulo.

APAC

OFFICES:

Brisbane, Perth, Seoul, key Indian cities: NCR, Mumbai and Bangalore, plus Shanghai, Beijing, including emerging CBD markets underpinned by new transport routes and stronger tier 2 Chinese cities.

Fringe office locations in core cities such as Sydney, Melbourne and Tokyo.

RETAIL:

Growth markets such as Singapore, Jakarta, Kuala Lumpur and Seoul, plus centres in core areas of Shanghai and Beijing and tier 1 Indian cities.

Tier 2 logistics hubs linked to China's belt and Road Initiative, led by Chengdu and Chongqing.

ALTERNATIVES:

Data centres, student housing, rented residential and medical serving core cities.

EMEA

OFFICES:

Select tier 2 cities, tech and culture-led, plus Budapest, Barcelona, Stockholm, Helsinki, Vienna, Milan, Lisbon, as well as repositioning in core cities and medium-term gains in Polish cities.

RETAIL:

Refurbishment in core cities in Northern Europe. Core space in larger cities in France, Italy, Spain and Central Europe. Dominant retail parks around larger cities, led by UK, Germany and Spain (leisure anchored).

LOGISTICS:

German and French tier 2, Dublin, Madrid, Warsaw, Prague and Budapest. Developing urban logistics.

STUDENT HOUSING:

Forward commitments and development.

HOTELS:

Germany, UK, Spain, tourist-led Central and Eastern European cities.

OPPORTUNISTIC

Americas

MIXED-USE:
Class A assets or platforms in Brazil with office and logistics in São Paulo a long-term target and Lima also attractive, for office and mixed-use.

OFFICE:
High-energy markets such as Houston, Edmonton & Calgary plus repositioning/redeveloping suburban office product in major and secondary US markets.

RETAIL:
Heavy repositioning/ redevelopment of Class B+ US malls into mixed-use with experiential retail or industrial component.

Brazilian tier 1 shopping centres with low relative pricing and proven resilience. Class A in Santiago, Mexican and Colombian cities.

MULTIFAMILY:
Affordable housing in the US, Mexican and Colombian cities, in infill high transit locations of Santiago, Class A in São Paulo.

INDUSTRIAL:
US cold storage, infill distribution product in tertiary markets, Class B and development in secondary markets. Markets servicing key Brazilian and Mexican cities.

APAC

OFFICES:
Emerging growth markets of Manila, Jakarta, Kuala Lumpur, Bangkok, Ho Chi Minh City and brownfield development in tier 1 and 2 Indian markets.

RETAIL:
Emerging markets such as Bangkok, New Delhi and other top Indian cities.

LOGISTICS:
Gateway Chinese cities - Shanghai, Beijing, Ho Chi Minh City, Guangdong and Indian hubs, plus Kuala Lumpur, Bangkok and Vietnamese hubs (including light industrial).

CHINA:
Underperforming assets for upgrade or conversion (e.g. retail to co-working or office towers to residential) and over-leveraged developers, via investment in local platforms.

DATA CENTRES:
Multi-let in Japan, plus other growing regional hubs.

EMEA

OFFICES:
Spec development and repositioning in core West and Nordic cities, plus leased property in the EU East and Moscow.

RETAIL:
Repositioning and active management/development in larger cities, established centres in EU East.

LOGISTICS:
Development serving large Central & Eastern European cities and peripheral Western cities: e.g. Oporto, Barcelona and Milan.

AFRICA AND UAE:
Schemes serving key hubs for technology and hospitality.

HOTELS:
Asset management in key Western cities and development (Southern Europe).

DATA CENTRES:
Central and Eastern Europe.

05 APPENDIX

TOTAL INVESTMENT VOLUMES EXCL. DEVELOPMENT SITES

City	12 months to Q2 2019 ($bn)	Growth
New York	**60.62**	20%
Los Angeles	**41.28**	-1%
San Francisco	**35.03**	35%
London	**30.06**	-16%
Paris	**28.52**	-20%
Dallas	**23.04**	16%
Washington	**21.71**	-11%
Tokyo	**19.66**	-19%
Hong Kong	**19.21**	-38%
Seoul	**19.03**	11%
Atlanta	**18.18**	12%
Chicago	**17.50**	-10%
Boston	**17.48**	66%
Seattle	**17.15**	38%
Houston	**16.65**	22%
Sydney	**15.47**	24%
Miami	**14.23**	24%
Berlin	**13.86**	20%
Phoenix	**13.46**	7%
Shanghai	**11.63**	-17%
Madrid	**11.59**	144%
Frankfurt	**11.24**	19%
Denver	**11.10**	-1%
Singapore	**10.23**	25%
Beijing	**10.21**	104%
Philadelphia	**9.10**	16%
San Diego	**8.88**	14%
Austin	**8.73**	50%
Melbourne	**7.31**	-19%
Toronto	**7.22**	-39%
Charlotte	**6.94**	60%
Orlando	**6.58**	7%
Helsinki	**6.50**	-29.3%
Amsterdam	**6.44**	-28%
Tampa	**6.36**	29%
Stockholm	**6.20**	19%
Minneapolis	**6.09**	7%
Las Vegas	**5.91**	-7%
Baltimore	**5.81**	36%
Raleigh	**5.73**	27%
Portland	**5.53**	32%
Munich	**5.49**	-30%
San Antonio	**5.08**	35%
Hamburg	**4.92**	-18%
Vienna	**4.77**	-23%
Nashville	**4.65**	13%
Brisbane	**4.32**	-13%
Osaka	**4.23**	49%
Dublin	**4.22**	-8%
Dusseldorf	**3.99**	-2%

TOP 10 CITIES FOR INVESTMENT BY SECTOR

RETAIL

	City	12 month volume ($bn)*	Growth**
1	New York	$7.01	-10%
2	Hong Kong	$6.32	-31%
3	Los Angeles	$5.72	-26%
4	Beijing	$3.90	265%
5	Seoul	$3.76	-7%
6	Dallas	$3.33	89%
7	Houston	$2.96	103%
8	Chicago	$2.69	2%
9	Miami	$2.67	65%
10	San Francisco	$2.65	21%

OFFICE

	City	12 month volume ($bn)*	Growth**
1	New York	$23.68	13%
2	Paris	$23.19	-20%
3	London	$18.62	-15%
4	San Francisco	$18.21	64%
5	Tokyo	$13.79	-12%
6	Seoul	$13.59	14%
7	Los Angeles	$10.79	-11%
8	Sydney	$10.32	37%
9	Hong Kong	$8.90	-47%
10	Frankfurt	$8.79	38%

INDUSTRIAL

	City	12 month volume ($bn)*	Growth**
1	Los Angeles	$11.11	16%
2	New York	$6.81	36%
3	Chicago	$5.48	6%
4	Dallas	$4.44	29%
5	San Francisco	$4.30	-23%
6	Atlanta	$3.87	43%
7	Singapore	$2.99	21%
8	Hong Kong	$2.93	-35%
9	Miami	$2.52	39%
10	Seattle	$2.51	93%

* 12 months to Q2 2019

** Growth compared to previous 12 months

GLOBAL YIELDS Q2 2019

Country	City	Location	Office	Shops	Industrial
Argentina	**Buenos Aires**	Americas	8.80%	7.70%	10.00%
Australia	**Sydney**	APAC	4.56%	4.25%	4.95%
Australia	**Melbourne**	APAC	4.77%	4.60%	5.88%
Austria	**Vienna**	EMEA	2.80%	2.85%	5.75%
Bahrain	**Manama**	EMEA	8.00%	7.80%	8.00%
Belgium	**Brussels**	EMEA	4.15%	3.30%	5.25%
Brazil	**Rio di Janeiro**	Americas	10.50%	7.50%	10.00%
Brazil	**Sao Paulo**	Americas	7.78%	8.00%	10.00%
Bulgaria	**Sofia**	EMEA	7.50%	7.50%	8.50%
Canada	**Toronto**	Americas	4.38%	4.50%	4.63%
Canada	**Vancouver**	Americas	4.38%	3.63%	3.88%
Canada	**Montreal**	Americas	5.75%	5.00%	5.75%
Chile	**Santiago**	Americas	7.30%	N/A	N/A
China	**Beijing**	APAC	4.50%	3.60%	N/A
China	**Shanghai**	APAC	4.83%	4.66%	N/A
China	**Hong Kong**	APAC	2.23%	2.60%	2.80%
Colombia	**Bogota**	Americas	8.37%	8.36%	9.10%
Cyprus	**Limassol**	EMEA	4.75%	5.00%	N/A
Czech Republic	**Prague**	EMEA	4.20%	3.75%	5.00%
Denmark	**Copenhagen**	EMEA	4.00%	3.25%	5.75%
Estonia	**Tallinn**	EMEA	6.60%	6.60%	7.80%
Finland	**Helsinki**	EMEA	3.25%	4.00%	5.50%
France	**Paris**	EMEA	3.00%	2.50%	4.50%
Germany	**Berlin**	EMEA	3.05%	3.10%	4.15%
Germany	**Frankfurt**	EMEA	2.80%	3.40%	4.10%
Germany	**Hamburg**	EMEA	2.90%	3.40%	4.10%
Germany	**Munich**	EMEA	2.50%	2.80%	4.10%
Greece	**Athens**	EMEA	6.90%	6.10%	9.00%
Hungary	**Budapest**	EMEA	5.10%	4.60%	7.25%
India	**Bangalore**	APAC	8.30%	8.50%	8.25%
India	**Mumbai**	APAC	8.40%	8.00%	8.25%
India	**New Delhi**	APAC	8.40%	8.00%	8.25%
Indonesia	**Jakarta**	APAC	5.70%	10.00%	10.00%
Ireland	**Dublin**	EMEA	4.00%	3.25%	5.00%
Italy	**Milan**	EMEA	3.50%	2.75%	5.25%
Italy	**Rome**	EMEA	3.75%	2.75%	5.75%
Japan	**Tokyo**	APAC	3.20%	3.20%	3.70%

Country	City	Location	Office	Shops	Industrial
Kuwait	**Kuwait City**	EMEA	9.00%	7.80%	7.50%
Latvia	**Riga**	EMEA	6.50%	6.50%	7.80%
Lithuania	**Vilnius**	EMEA	6.75%	6.75%	8.25%
Luxembourg	**Luxembourg**	EMEA	4.00%	3.25%	8.00%
Macedonia	**Skopje**	EMEA	9.25%	9.25%	12.25%
Malaysia	**Kuala Lumpur**	APAC	6.50%	5.50%	7.00%
Mexico	**Mexico City**	Americas	9.90%	10.80%	11.50%
Netherlands	**Amsterdam**	EMEA	3.50%	2.85%	5.00%
New Zealand	**Auckland**	APAC	5.25%	N/A	4.75%
Norway	**Oslo**	EMEA	3.60%	4.00%	5.00%
Oman	**Muscat**	EMEA	7.70%	7.50%	8.00%
Peru	**Lima**	Americas	9.50%	N/A	N/A
Philippines	**Manila**	APAC	7.50%	7.70%	7.70%
Poland	**Warsaw**	EMEA	4.75%	5.00%	6.25%
Portugal	**Lisbon**	EMEA	4.00%	4.00%	6.25%
Qatar	**Doha**	EMEA	7.50%	7.50%	7.50%
Romania	**Bucharest**	EMEA	7.00%	7.50%	8.50%
Russia	**Moscow**	EMEA	9.25%	11.50%	11.00%
Saudi Arabia	**Riyadh**	EMEA	7.50%	6.50%	7.50%
Serbia	**Belgrade**	EMEA	8.00%	7.00%	10.00%
Singapore	**Singapore**	APAC	3.20%	4.50%	6.00%
Slovakia	**Bratislava**	EMEA	5.75%	7.50%	6.20%
Slovenia	**Ljubjana**	EMEA	7.75%	7.00%	10.00%
South Korea	**Seoul**	APAC	4.50%	N/A	N/A
Spain	**Madrid**	EMEA	3.25%	3.30%	5.25%
Spain	**Barcelona**	EMEA	3.50%	3.30%	5.00%
Sweden	**Stockholm**	EMEA	3.50%	3.25%	4.55%
Switzerland	**Geneva**	EMEA	3.00%	4.00%	6.00%
Switzerland	**Zurich**	EMEA	3.45%	3.50%	5.55%
Taiwan	**Taipei**	APAC	2.67%	2.35%	2.76%
Thailand	**Bangkok**	APAC	7.00%	8.00%	8.00%
Turkey	**Istanbul**	EMEA	7.75%	7.25%	9.25%
UAE	**Dubai**	EMEA	7.80%	7.50%	8.00%
Ukraine	**Kyiv**	EMEA	12.00%	9.50%	12.75%
United Kingdom	**London**	EMEA	4.25%	2.50%	4.00%
United Kingdom	**Manchester**	EMEA	4.75%	5.25%	4.75%
United Kingdom	**Birmingham**	EMEA	5.00%	5.25%	4.75%

GLOBAL YIELDS Q2 2019

Country	City	Location	Office	Shops	Industrial
United Kingdom	**Edinburgh**	EMEA	4.50%	5.25%	5.75%
United Kingdom	**Glasgow**	EMEA	5.00%	4.50%	5.75%
USA	**New York**	Americas	4.10%	4.15%	3.75%
USA	**Chicago**	Americas	5.35%	5.35%	5.50%
USA	**Los Angeles**	Americas	4.50%	4.75%	3.75%
USA	**San Francisco**	Americas	4.25%	3.30%	4.50%
USA	**Washington DC**	Americas	4.60%	4.50%	5.00%

ABOUT THE REPORT

This report has been written by David Hutchings, Carolina Dubanik, and Catherine Bai in our Capital Markets Investment Strategy team with support from Research, Capital Markets and other specialist teams. The report has been prepared using data collected through our own research, as well as information available to us from public and other external sources. The transaction information used relates to nonconfidential reported market deals, excluding indirect investment and future commitments. All investment volumes are quoted pertaining to deals of USD 5 million and above, unless otherwise stated. Alongside Cushman & Wakefield information, data has been used from Real Capital Analytics (RCA). Where the data was sourced from RCA, it is as at 09 August 2019.

In respect of all external information, the sources are believed to be reliable and have been used in good faith. However, Cushman & Wakefield cannot accept responsibility for their accuracy and completeness, nor for any undisclosed matters that would affect the conclusions drawn. Certain assumptions and definitions used in this research work are given within the body of the text. Information on any other matters can be obtained from Cushman & Wakefield.

FOR MORE INFORMATION, PLEASE CONTACT:

DAVID HUTCHINGS
EMEA Investment Strategy

E david.hutchings@cushwake.com
T +44 20 7152 5029

CAROLINA DUBANIK
EMEA Investment Strategy

E carolina.dubanik@cushwake.com
T +44 20 7152 5773

CATHERINE BAI
EMEA Investment Strategy

E catherine.bai@cushwake.com
T +44 20 7152 5160

SOURCES

Investment Data: Cushman & Wakefield, Real Capital Analytics.

Other Sources: World Economic Forum, Germanwatch, International Displacement Monitoring Centre, World Bank, Greater London Authority, City of Paris, City of Cape Town.

CAPITAL MARKETS

Capital Markets provides comprehensive advice and execution services to clients engaged in buying, selling, investing in, financing or developing real estate and real estate-related assets across the globe. Our solutions are tailored to meet the objectives of private and institutional owners and investors, as well as corporate owners and occupiers.

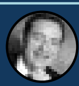
Whether you are seeking to dispose of an asset in Hong Kong, finance the purchase of a hotel in New York, or structure a complex cross-border portfolio deal in Europe, Cushman & Wakefield's expertise in capital markets is the gold standard. Located in major markets around the world, our professionals create and execute customised acquisition and disposal strategies across all major property types. Additionally, we provide our clients with unique access to opportunities and capital sources worldwide. As a global leader in investment transactions, we have an unsurpassed network of buyers and sellers, access to international capital and superior market data.

SOME OF OUR SERVICES INCLUDE:

- Investment sales and acquisitions
- Investment advisory services
- Investment strategy and market analysis
- Investment management
- Equity, debt and structured finance
- Corporate finance and investment banking

GLOBAL SOURCING TEAM

EMEA



STEPHEN SCREENE
International Partner,
Global Capital, EMEA

MIDDLE EAST

HASSAN FARRAN
Partner,
Middle Eastern Capital Flows

APAC

ARGIE TAYLOR
International Partner,
APAC Capital Flows

JONGHAM KIM
Partner,
South Korean Capital Flows

AMERICAS

DOUG HARMON
Chairman,
Capital Markets Americas

ADAM SPIES
Chairman,
Capital Markets Americas

JANICE STANTON
Executive Managing Director,
Capital Markets Americas

CECILIA XU
Analyst Global Capital,
Capital Markets Americas

ASIA

DENNIS YEO
Chief Executive Officer,
Singapore

JASON LQ ZHANG
Head of Outbound Investment,
Greater China

JOSH CULLEN
International Director,
Head of Capital Markets Australia

RICK BUTLER
International Director, Capital Markets,
Australia & New Zealand

CARLO BAREL DI SANT'ALBANO
Global Chairman of
Capital Markets & Investor Services

JAN WILLEM BASTJIN
CEO EMEA Capital Markets

"Our experienced and geographically diverse platform gives our clients unrivalled access to global capital at a time of intense interest from overseas investors. This global network is built on established and trusted local relationships. The global team focus on their particular markets, ensuring that the right capital is sourced for the right product in the right geography."

ENERGY, INFRASTRUCTURE & SUSTAINABILITY

Our Energy, Infrastructure and Sustainability (EIS) team is focused on environmental impact reduction, making buildings healthier and more productive places and enhancing social well-being.

FOR MORE INFORMATION, PLEASE CONTACT:

ANDREW BAKER
Partner, Head of Energy, Infrastructure & Sustainability
E andrew.baker@cushwake.com
T +44 79 2050 6095

WE ARE ACTIVELY ADVISING CLIENTS IN THE FOLLOWING AREAS

- ESG, CARBON AND WELLBEING STRATEGY, **TARGET SETTING AND IMPLEMENTATION**
- **ISO 14001 AND ISO 50001** CERTIFICATION
- **SCIENCE BASED** TARGETS
- GREEN ASSET **VALUATIONS**
- **RISK MANAGEMENT** LEGISLATIVE AND STRATEGIC
- **NET ZERO CARBON** BUILDINGS AND STRATEGIES
- **'GREEN' FUNDS** AND LOANS
- BUILDING CERTIFICATIONS INCLUDING **LEED, BREEAM, WELL AND FITWEL**
- RESOURCE EFFICIENCY STRATEGY, PROJECTS AND **EMISSIONS REDUCTION PROGRAMMES**
- **STRATEGY CONSULTING**
- **GREEN PROCUREMENT**
- **INTELLIGENT BUILDING**, RENEWABLE AND LOW CARBON TECHNOLOGIES

ABOUT CUSHMAN & WAKEFIELD

Cushman & Wakefield is a leading global real estate services firm that helps clients transform the way people work, shop, and live. The firm's 45,000 employees in more than 70 countries provide deep local and global insights that create significant value for occupiers and investors around the world. Cushman & Wakefield is among the largest commercial real estate services firms with revenue of $6 billion across core services of agency leasing, asset services, capital markets, facility services (C&W Services), global occupier services, investment & asset management (DTZ Investors), project & development services, tenant representation, and valuation & advisory. To learn more, visit www.cushmanwakefield.com or follow @CushWake on Twitter.

FOLLOW US

linkedin.com/company/cushman-&-wakefield

facebook.com/cushmanwakefield

My C&W Research App: cushwk.co/app