GLOBAL RESIDENTIAL IMPACT STUDY:

Which Gateway Markets are Primed to Rebound Post-Pandemic?

JUNE 2021

CUSHMAN & WAKEFIELD

ABOUT THIS STUDY

The nature of the pandemic negated the traditional advantages of global urban centers and has some questioning whether residential demand will ever bounce back to pre-pandemic levels. In this study, we examine 27 global gateway markets to assess:

I. The impact the pandemic had on residential market performance, both rental and ownership housing. Housing structures vary widely across the globe, including the extent that purpose-built rental or build-to rent (BTR) inventory exists at scale. Our focus in this report is to address BTR market where it is mature (e.g., the "multifamily sector" in the U.S.) and combine it with private rental sector (PRS) trends where BTR is still nascent or developing (the majority of the non-U.S. markets). Social, government-subsidized, or "affordable" housing is an integral component in these housing markets, but this sector is not the primary focus of this report.

II. The key drivers of future rental market performance, which include:

1) Supply risk
2) Renter favorable demographics
3) Covid recovery
4) Risk of renters switching to homeownership
5) The economic dominance of a market relative to competing national markets
6) Reliance on international migration

III. How liquid the multifamily sector has been in recent years as a proxy for investment potential.

Finally, we combine these factors together into a “rebound ranking” score for each city.

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KEY TAKEAWAYS

Global Multifamily Impact Study

Short on time?

Click here to go straight to the results of our study

Global gateway residential markets are primed to rebound strongly over the next several years:

1

Mid-pandemic housing markets showed global gateway resilience.

Of 27 global gateway markets in 2020, rents fell in all but 9 markets. Home prices, however, rose in all but 5 markets, suggesting that many residents in effect “doubled-down” on global urban markets. This provides confidence in a general rebound in rental demand as an end to the pandemic nears.

2

Market momentum, supply, demand and liquidity combine to shape the outlook for market rebound.

We analyze market momentum through the pandemic, supply risk, capital market liquidity and five demand drivers to assess potential rebound velocity in the next 3-5 years.

3

Strengths and weaknesses vary across regions and markets.

For example, European gateways have favorable demographics currently, but U.S. markets have a larger renter cohort coming in. U.S. and U.K. markets are closest to fully exiting from the pandemic through vaccination campaigns. Northern European and select North American markets depend most on international migration.

4

Amsterdam, London, Atlanta and Los Angeles have the greatest rebound potential.

The top ranked markets are concentrated in Europe and North America. Strengths vary by region: better demographics and liquidity in North America, less supply risk in Europe and less reliance on international migration in APAC. Each market, however, has its own distinct strengths and weaknesses.

5

U.S. has the richest investment opportunity set, but markets are maturing globally.

The opportunity set for global multifamily investment is widening and the variation among key global markets allows for a variety of investment strategies. We identify investment opportunities by regional focus and risk profile.

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PANDEMIC PERFORMANCE HAS VARIED

ACROSS MARKETS AND HOUSING SECTORS

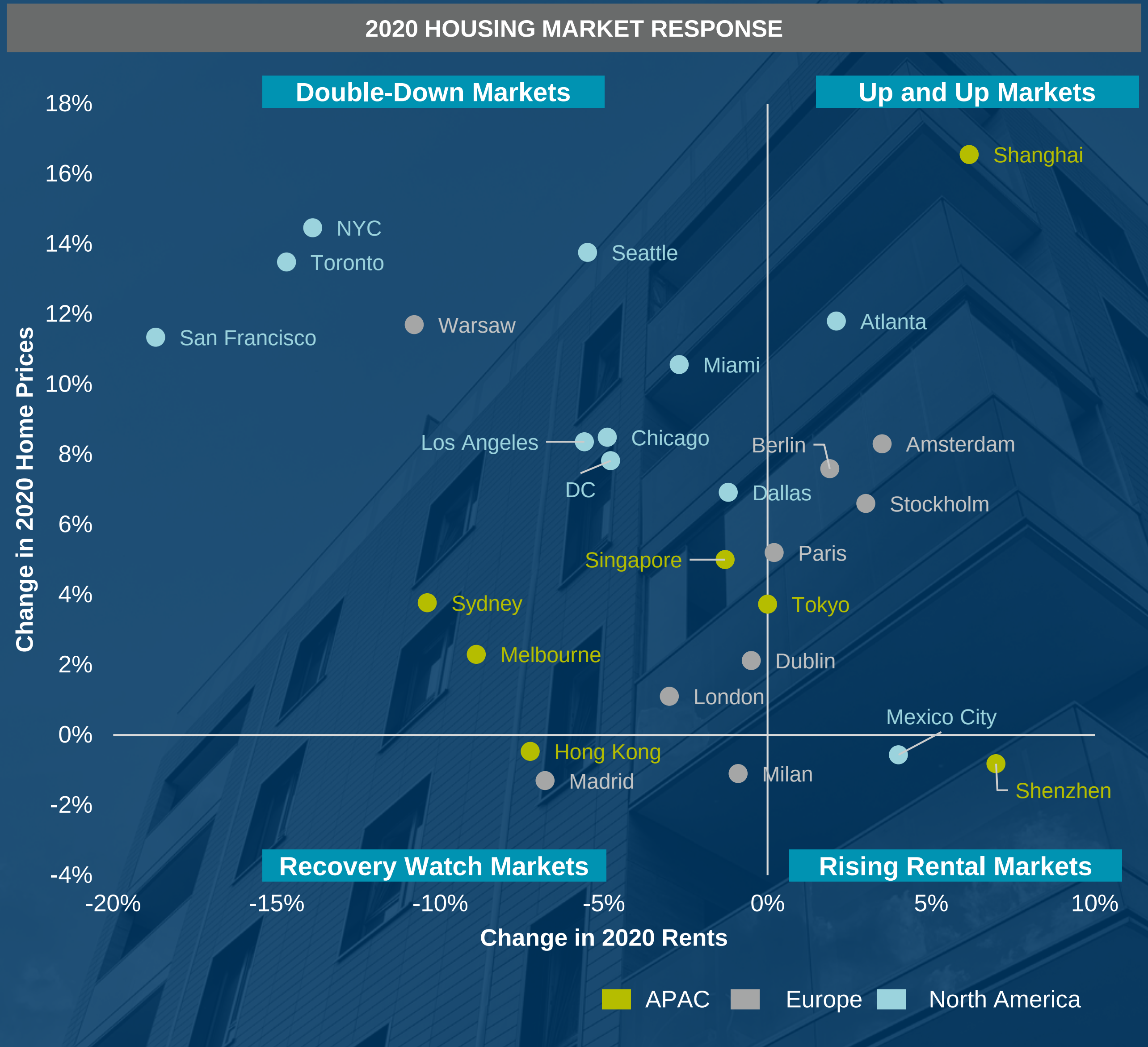
GLOBAL SUMMARY: The pandemic disrupted life in gateway markets across the globe. The effects on housing markets have varied, however, across markets and between the rental and ownership sectors. Rents fell in 18 out of 27 markets in our global survey. In contrast, ownership prices rose in 22 out 27 markets, indicating that residents have confidence in these global urban centers. Homeownership has outperformed rental pricing in large part because the pandemic has more severely impacted renters compared to homeowners and those with the means to become homeowners. Housing sales have accelerated and been brought forward due to the pandemic, which indicates that sales may drop off in the near-term post-pandemic, particularly as pricing has heated up and will price out potential buyers.

UP AND UP MARKETS: Both rents and sales pricing increased through the pandemic. While growth rates in some of these markets slowed in 2020, overall growth indicates persistent broad-based housing demand in Paris, Amsterdam, Berlin, Atlanta, Stockholm, and Shanghai.

RISING RENTAL MARKETS: Only Shenzhen and Mexico City fall in this group. While the Shenzhen luxury ownership market experienced notable price appreciation, overall property prices softened. Two factors largely account for Shenzhen's rental and secondary luxury ownership price gains. First, the market started at a lower base compared to markets such as Shanghai. Second, the market continues to grow strongly as a leading tech hub and China's Silicon Valley.

RECOVERY WATCH MARKETS: Rents and home prices both declined in these markets. In each case, however, the declines were fairly modest. Hong Kong is the most expensive housing market globally, so it is not entirely surprising that in the pandemic prices remained essentially flat while rents fell in-line with most markets. Madrid and Milan, meanwhile, suffered some of the worst outbreaks in 2020, which helps account for their underperformance relative to other regional markets, though this still amounted to limited declines.

DOUBLE-DOWN MARKETS: Most global gateway markets exhibited rising home prices and falling rents in 2020, indicating that residents "doubled-down" on these markets with a greater commitment by purchasing homes rather than fleeing. Rents fell in general because the advantages of urban living were discounted during the pandemic, resulting in fewer inflows. Home prices rose as affluent renters accelerated their transitions to homeownership, often in search of more space. **We therefore see rising home prices as a sign of confidence in the long-term economic prospects of these markets, prospects that will also attract renewed renter demand post-pandemic.**



Source: Cushman & Wakefield

SEVERITY OF COVID-19 IMPACT & RESPONSE

STRINGENCY & MOBILITY VS. RENT CHANGE

Source: Oxford University, Google Mobility, Cushman & Wakefield Research. Covid Impact Index is the cumulative density function of the composite z-score formed by a 30% weighting of the Oxford lockdown stringency index z-score and a 70% google mobility time spent at home z-score. For each measure, the March – December 2020 average was used.

COVID-19 IMPACT SCORE: In order to estimate the relative impact upon a market, we created a COVID-19 Impact Index which combined regulatory stringency scores and net change in time spent at home vs. other activities. Across the global gateway markets in our study, the Impact Index accounted for 16% of the variation in rental impact—30% excluding two outliers. The relationship was strongest in North American markets (46%).

ASIA PACIFIC: Many markets in the Asia Pacific region experienced more stringent lockdowns to combat the virus. As the outbreak came under control, life returned to relative normalcy, even if punctuated by subsequent shorter lockdowns. The impact on rental markets was mostly moderate with rents falling 5.6% on average. Australian markets underperformed within this group, partly explained by high impact scores. Additionally, hard border closures by the Australian government removed international immigrants from the demand pool for these markets.

EUROPE: COVID-19 caseloads reached peaks early in 2020 for some markets (Milan) while arriving later for others (London, Dublin). Despite the pandemic, rents rose in several northern European markets (Berlin, Stockholm, Amsterdam) where COVID impact was relatively low. Even in higher impact markets, such as Paris, Dublin and Milan, rent impacts were modest. Rents fell more sizably in higher priced markets like London, where one bedroom rents average 46% of the median gross income. This would point to a greater impact of COVID-19 on the residential landscape for higher priced markets.

NORTH AMERICA: North American markets most closely followed a linear correlation between impact index and change in rents. Sunbelt markets such as Dallas, Atlanta and Miami had both a relatively lower COVID-19 impact and a corresponding smaller downward effect on rents. Meanwhile, higher priced coastal markets such as New York City and San Francisco were heavily impacted.

OUTLOOK: The connection between COVID-19 restrictions and rental market fundamentals has been pronounced. Accordingly, progress towards socioeconomic normalization will be critical in driving market performance. As the analysis above indicated, the pandemic is not the only factor at play. In the coming pages, we assess a range of factors that will shape the resilience or recovery velocity potential across global gateway markets.

CONTENTS

WHAT DETERMINES RENTAL MARKET REBOUND VELOCITY

RENTAL MARKET MOMENTUM

As detailed in the preceding section, rental market performance during the pandemic has varied significantly across markets. These initial conditions – or momentum – contribute to the outlook for market rebound.

SUPPLY

The pandemic created or exacerbated supply-demand imbalances by weakening demand in most markets. Markets with more new supply coming online – whether through development or conversion of other property types – will have greater difficulty recovering to their pre-pandemic rent and occupancy trajectories

LIQUIDITY

For investors, it is not enough that market fundamentals rebound—there must be a sufficiently liquid market from which they can source investment opportunities. We therefore incorporate this factor into our market rebound model framework.

DEMAND

The pandemic has above all been a demand shock to urban markets. Accordingly, the rebound outlook is primarily determined by the outlook for demand recovery. We analyze five factors driving the outlook.

RENTAL SUPPLY SHIFTS

GLOBAL: Pre-pandemic rental supply development pipelines positioned markets for varying levels of risk leading into this crisis. In this report, we focus on purpose-built rental housing—or what is referred to globally as built-to-rent (BTR) housing—where it is mature (e.g. the "multifamily sector" in the U.S.) and combine it with larger private rental sector (PRS) trends where BTR is still nascent or developing (the majority of the non-U.S. markets).

In addition to the BTR development pipeline, supply risks were exacerbated by pandemic-specific, near-term increases in rental housing via short-term rentals (STRs) converting to long-term as well as ownership units entering the rental market. Metros such as Toronto, Mexico City, Dublin, Sydney, Melbourne and Stockholm experienced these short-term rental supply impacts to a greater or lesser extent. Longer-term impacts to supply include the conversion of other commercial real estate uses to rental housing.

Oversupply risk is an influential differentiating factor among markets in terms of their relative potential for a quicker or slower rebound. Overall, however, oversupply among the global urban markets is minimal given the level of persistent housing demand in these metros, many of which face significant barriers to development.

NORTH AMERICA: Rental apartment deliveries in the U.S. were projected to peak in 2020. Among the major markets, Seattle, Miami, and Dallas entered the pandemic with the most new supply to absorb relative to their existing rental housing stock. Nationwide, more than 340,000 units delivered in 2020, but interruptions in the supply chain in addition to record steel, lumber, labor construction costs, and permitting-related delays dampened deliveries and pushed some off to 2021. More than 400,000 units are now projected to enter the market. Given that institutional investors have become amenable to non-major metros, we expect deliveries to be more dispersed and therefore less risky to any individual market. In the U.S., short-term rentals (STRs) have less of an impact on supply trends given the relative size of the rental market. However, in Toronto and Mexico City, STRs have had a meaningful dampening effect, contributing to market softness.

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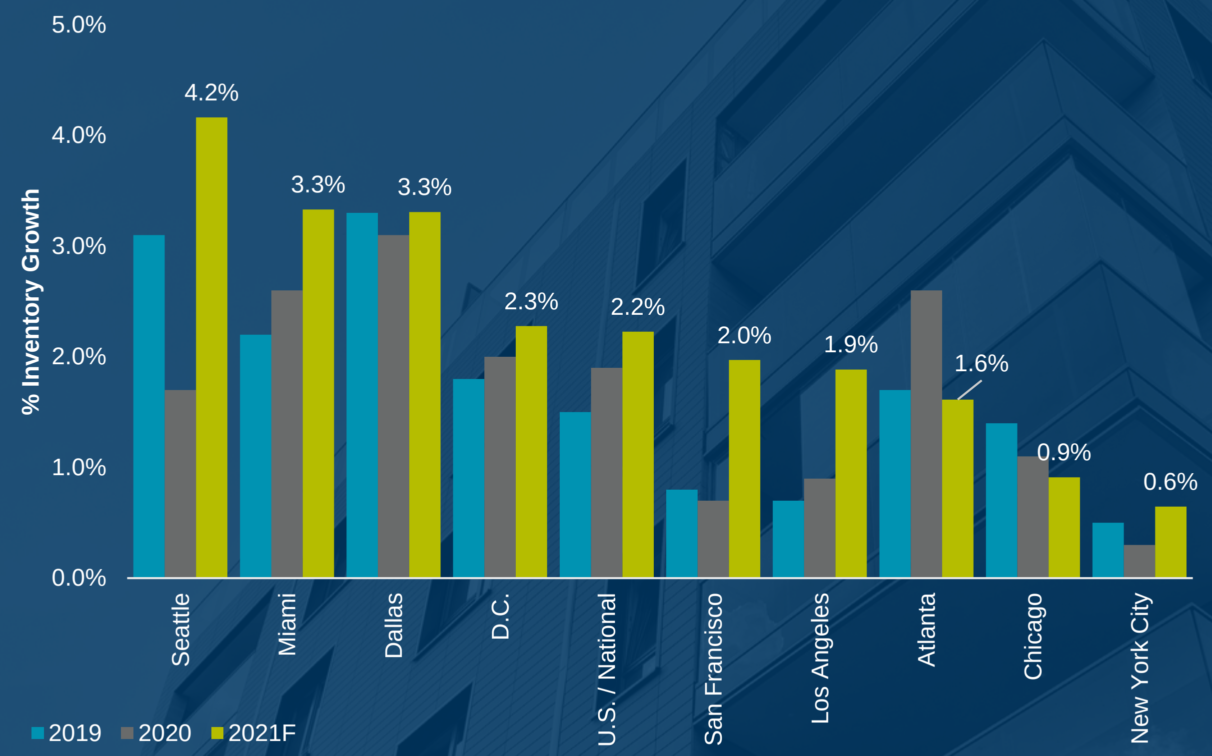
U.S. PURPOSE-BUILT RENTAL DEVELOPMENT PIPELINE



Source: Axiometrics, Cushman & Wakefield Research

RENTAL SUPPLY SHIFTS

ASIA PACIFIC: BTR markets are in early stages of development across some APAC markets and essentially nonexistent in others. This is at least partly due to government policies favoring ownership and controlling supply, notably Singapore's Housing Development Board and Hong Kong's control of land. Tokyo is the most established in terms of institutional investment, as the housing market has historically been a safe haven to deploy capital in the region. Per the Brookings Institute, 40% of newly constructed housing units in Japan in 2020 were rental units. Sydney and Melbourne are the fastest growing BTR markets in the region having had effectively no BTR inventory as of five years ago to now having a slate of new deliveries in coming years. In terms of pandemic effects, Australian markets serve as examples of how short-term rentals such as Airbnb have entered the long-term rental supply. In Hong Kong meanwhile, despite lack of any significant BTR pipeline, property conversions to rentals are an unconventional supply threat.

EUROPE: Development activity of multifamily space to rent is increasing across Europe in response to occupier and investor demand, but rent and development regulations still act to keep supply in check in many European markets. In Berlin, the Federal Constitutional Court ruled in Q2 2021 the city's 2019 rent caps unconstitutional but rent regulations stand in other markets such as Paris and Stockholm. A third factor controlling overproduction is the fragmentation of the market among individual owners. The result is there is limited large scale rental production in markets ranging from Milan to Dublin, Warsaw to Stockholm. Dublin and Stockholm's BTR markets, among others, are now ramping up supply (including social housing), but these restraining factors are long-term trends that will continue to influence the supply pipeline.

SELECT GLOBAL MARKETS DEVELOPMENT HIGHLIGHTS

- **Stockholm** – Annual new construction rental deliveries has doubled from 2014 (1,200) to 2019 (2,400) with a slowing in 2020, as deliveries constituted 1.1% of inventory in 2019 versus 0.5% in 2020.
- **Melbourne** – Melbourne is the epicenter (50%+) of the BTR pipeline in Australia (estimated at 15,000 units as of Q1 2021) in large part due to site availability that is attracting developers such as Gurner, Mirvac, Greystar, UAG, Oxford Properties and Sentinel. As of early 2021, Melbourne has 23 BTR projects announced versus 12 in Sydney. More are being announced and the BTR development is projected to accelerate given the newly instituted tax cuts in Victoria and New South Wales. The Victorian tax cut will half taxes levied on BTR from 2022 - 2040. Despite this change, tax issues are still cited as a constraint to development.
- **Hong Kong** – The Hong Kong market is supply-constrained and is an example of how other CRE sectors are adapting. CK Asset Holdings Ltd. obtained approval to convert two hotels into 5,758 residential units the majority of which are for ownership. Land banking in the New Territories is an opportunity for new development, but there is limited incentive for private developers from the government.
- **Toronto** – In 2020, 3,400 new construction rental units delivered, which is on par with the number of deliveries in 2019. The pipeline shows no signs of slowing with +11,500 rental units under construction as of Q1 2021 compared to 8,700 in Q1 2020. New rental deliveries in Ontario constitute roughly 1.6% of inventory and Toronto vacancy, although elevated YoY, remained low at 2.3% in 2020 and therefore rental production appears to be disciplined.

KEY DRIVERS OF URBAN HOUSING DEMAND

We have identified five factors that we believe will determine the speed of recovery in rental housing market demand compared to their pre-pandemic path in the next several years. In the coming pages, we analyze our set of global gateway markets across each dimension and then combine into a single composite model.

1

Generational turnover influences whether rental demand is sustained, grows or shrinks.

The propensity to rent varies over the course of a person's lifetime. We evaluate how favorable to renting the age structures of markets are with additional focus on how large Generation Z is relative to the Millennials they are replacing as the prime renter cohort.

2

Market dominance vs. competitors

We analyze the extent to which a gateway metro faces competition from other national markets. The more exceptional or dominant the market is, the less other markets could serve as a suitable substitute. Said differently, we assess how strong a gateway metro's magnet effect is, relative to others.

3

Relative rental market insulation and risk of homeownership conversion.

Housing market structure norms - share of rent vs. own – combine with home affordability to shape the risk of demand leakages from the rental market to the ownership market.

4

Severity of COVID-19 impact and response.

The extent of COVID-19 spread and the accompanying governmental response has at minimum temporary implications on housing demand in each market. Looking forward, we assess how close each market is to fully exiting the pandemic through containment and vaccination.

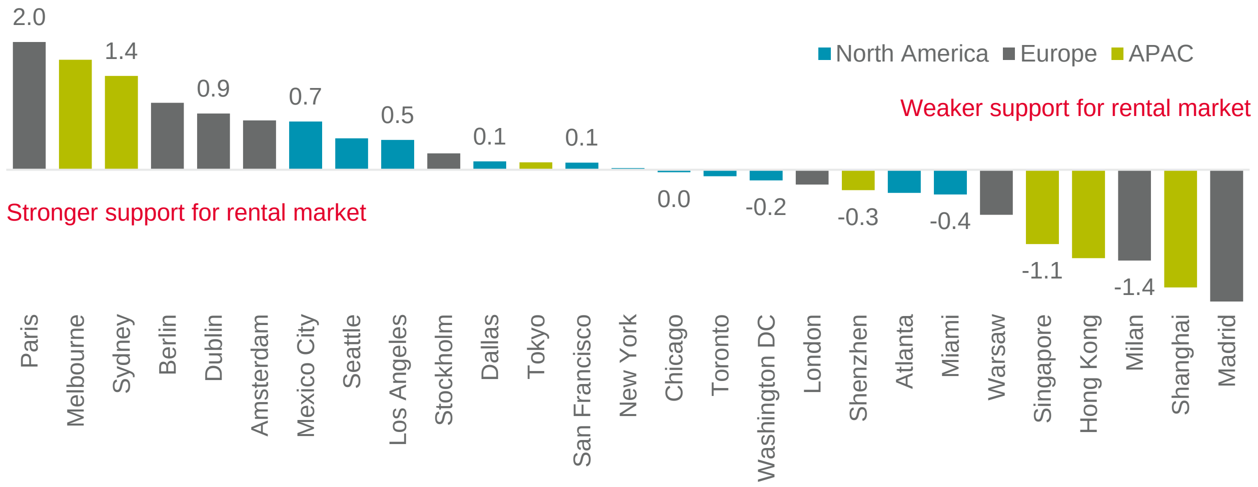
5

A market's reliance on international migration for growth.

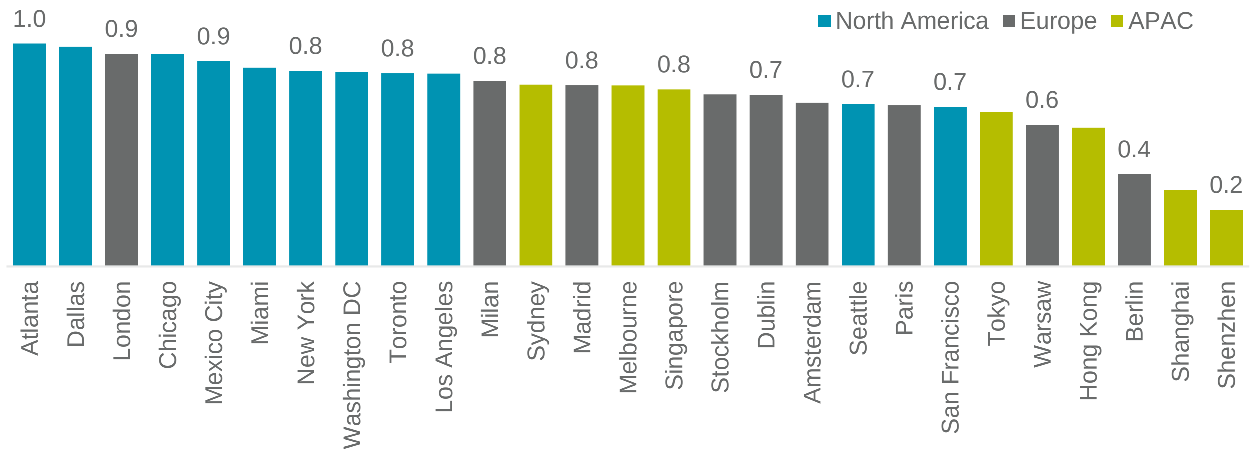
Pandemic related shutdowns in migration will impact markets that rely on international migration for population growth to a greater extent.

DEMAND DRIVER #1:
GENERATIONAL TURNOVER

RENTER FAVORABILITY OF MARKET AGE PROFILE (Z-SCORE)



RATIO OF GEN Z TO MILLENNIALS



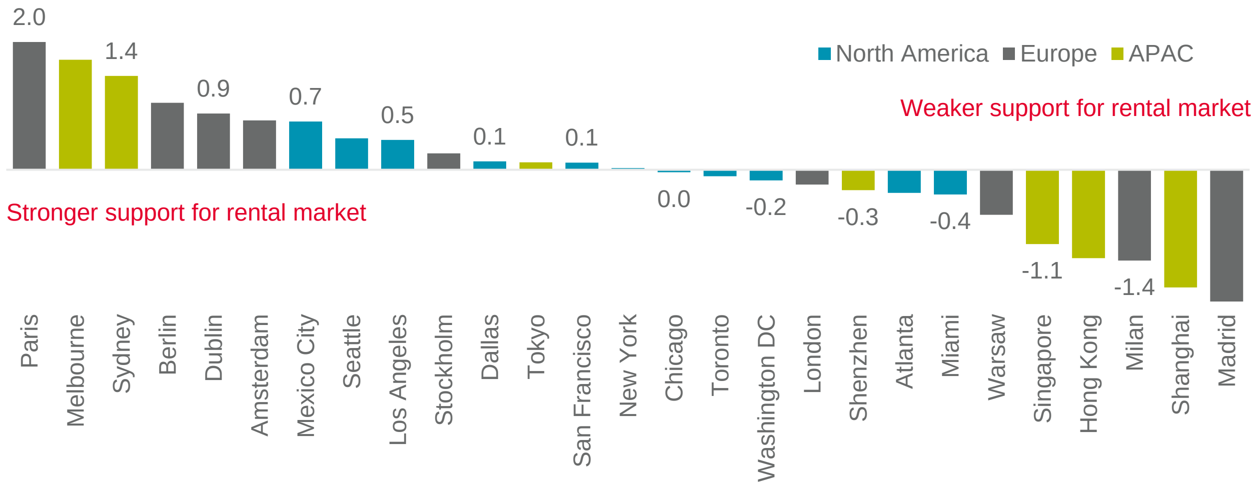
Source: Moody's Analytics, Cushman & Wakefield Research

Lifecycle-related milestones drive changes in lifestyle choices, including housing preferences. For example, in Japan, there is a clear turning point when homeownership rates by age cohort jump from 9% (25-29) to 26% (30-34) to 44% (35-39). Looking forward, renter demand will be shaped by the demographic profile of each market in terms of its overall propensity to rent. We determine this propensity or "renter favorability" by age, based upon the following assumptions: high renter favorability from ages 18 to 35, progressively lower rentership rates from ages 35 to 65, and finally reemergent rentership rates among the elderly (e.g., senior housing). These patterns are shared across markets, though the intensity of the shifts vary based on differences in overall housing market structure, which we address separately.

GLOBAL: Gen Z is the largest living generation at nearly two billion, or 26% of the world's population, and will be key to replacing renter demand as Millennials age into homeownership. On the other end of the spectrum, Baby Boomers will pass the 65-year-old threshold by 2030 and will face another turning point in their housing choices. Per the United Nations (UN), 94% of European and North American governments and 88% of East and Southeast Asian governments cited an aging population to be a major concern for the next 20 to 30 years, and this concern is shaping housing policy in response. By 2030, Baby Boomers will be ages 66 to 84 and squarely in the active adult or senior housing phase; Gen X will be approaching retirement age at 50 to 65; Millennials or Gen Y will be 34 to 49; and, Gen Z will be 18 to 33, fueling core rental demand as well as edging into the homeownership space in certain markets.

DEMAND DRIVER #1:
GENERATIONAL TURNOVER

RENTER FAVORABILITY OF MARKET AGE PROFILE (Z-SCORE)



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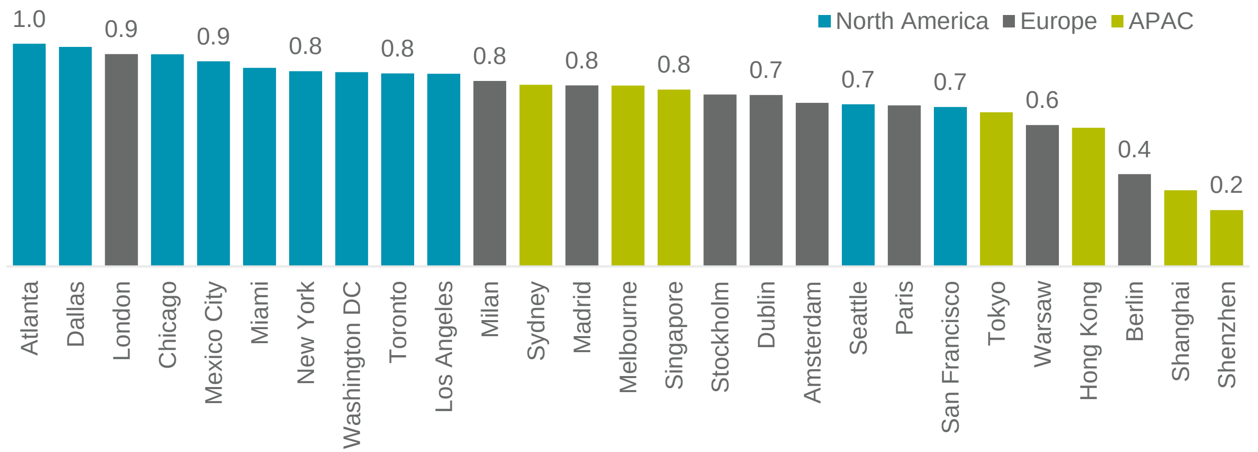


Source: Moody's Analytics, Cushman & Wakefield Research

ASIA PACIFIC: Among the APAC global gateways, Melbourne and Sydney have demographic profiles most favorable to a growing rental market sector. On the other hand, Chinese markets rank low on the renter favorability score. This is offset, however, by continued strong domestic migration into these markets. In Hong Kong SAR, affordability mitigates unfavorable renter demographics. A decades-long rise in home prices—400% increase in the past 15 years—has helped insulate Hong Kong's rental market. The greater competitive threat to the wider rental market comes from potential renters choosing to live with their parents due to a low-to-middle-market rental supply gap in the private rental sector.

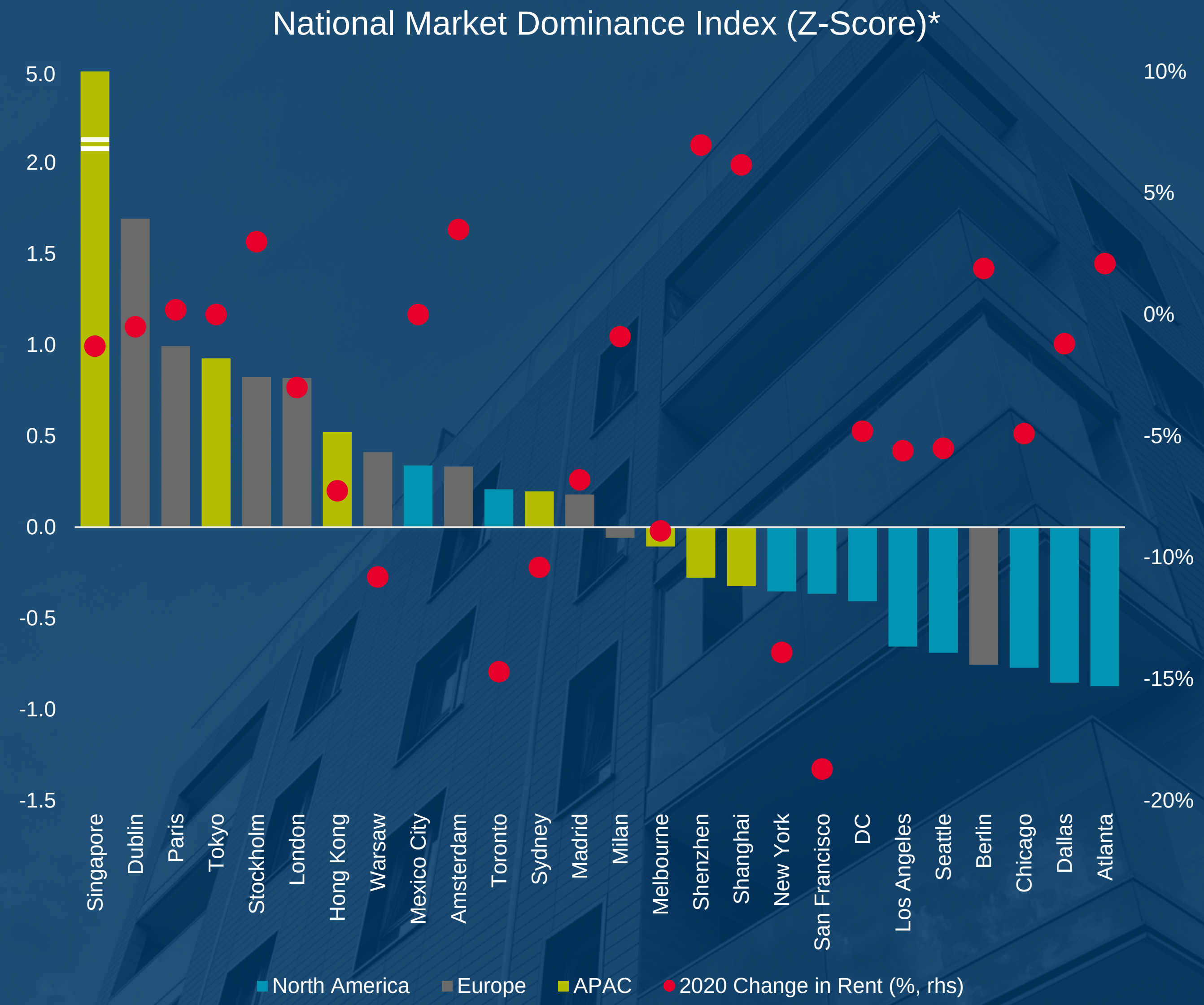
EUROPE: In EMEA, Paris has a clear advantage in terms of renter favorability while London, Milan, and Madrid show the strongest prospects of replacement renter demand from Gen Z. When analyzing global gateways such as London, the homeownership rate spikes by 18 percentage points from ages 25-34 (29%) to 35-44 (47%) per 2019 data. Therefore, Gen Z backfill is integral to the maturation of the burgeoning European BTR/PRS sector and the ongoing vitality of urban centers over the next decade. As with the mainland China markets, a lower Gen Z to millennial ratio can also be interpreted as a market's reliance on continued strong in-migration of young workers. Berlin is a good example of such a market.

NORTH AMERICA: Of the North American markets addressed in this report, U.S. markets show the most promise in terms of Gen Z regenerating rental housing demand. This is important in preserving rental housing demand particularly in urban markets where the millennial generation drove an urban renaissance in the years preceding the pandemic. Even then, migrations of millennials into homeownership (and suburbs) was already increasing and has continued to do so amid the pandemic: 48% of buyers ages 31 to 40 were first-time home buyers. Mexico City boasts a stronger overall demographic profile for renter favorability and has among the highest replacement ratios.

For more information on Millennial and Gen Z trends and their milestones regarding work and office life, please refer to our global demographic report here.

DEMAND DRIVER #2:
MARKET DOMINANCE

ASIA PACIFIC: Singapore, as a city-state, is a clear outlier. After that, Tokyo, Hong Kong and Sydney are the most dominant markets in the region relative to other national markets. The Tokyo metro area accounts for a third of Japan's output, Sydney for a fifth of Australia's, while Hong Kong is still comparable to China's other leading cities in size and is significantly wealthier on a per capita basis, a fact that highlights its still tremendous importance. Rents have remained largely stable in these first two markets as their dominance has combined with effective pandemic control. Hong Kong's decline in rents during the pandemic is less a reflection of its competitive position as it is of the nature of its private rental sector, which is small in size and dominated by individual owners who are more susceptible to economic shocks. Shenzhen and Shanghai are more substitutable, reflecting China's vast size and considerable number of teeming metropolises, though they are still more dominant than any of the U.S.'s leading cities. Rents have continued to rise in these two markets as a result of effective virus containment and these markets' continued growth and importance to China's economic future. Looking forward, we expect that agglomeration effects in the dominant markets will continue to drive rents and values, while higher growth rates will compensate for lower pre-eminence in the mainland China markets.



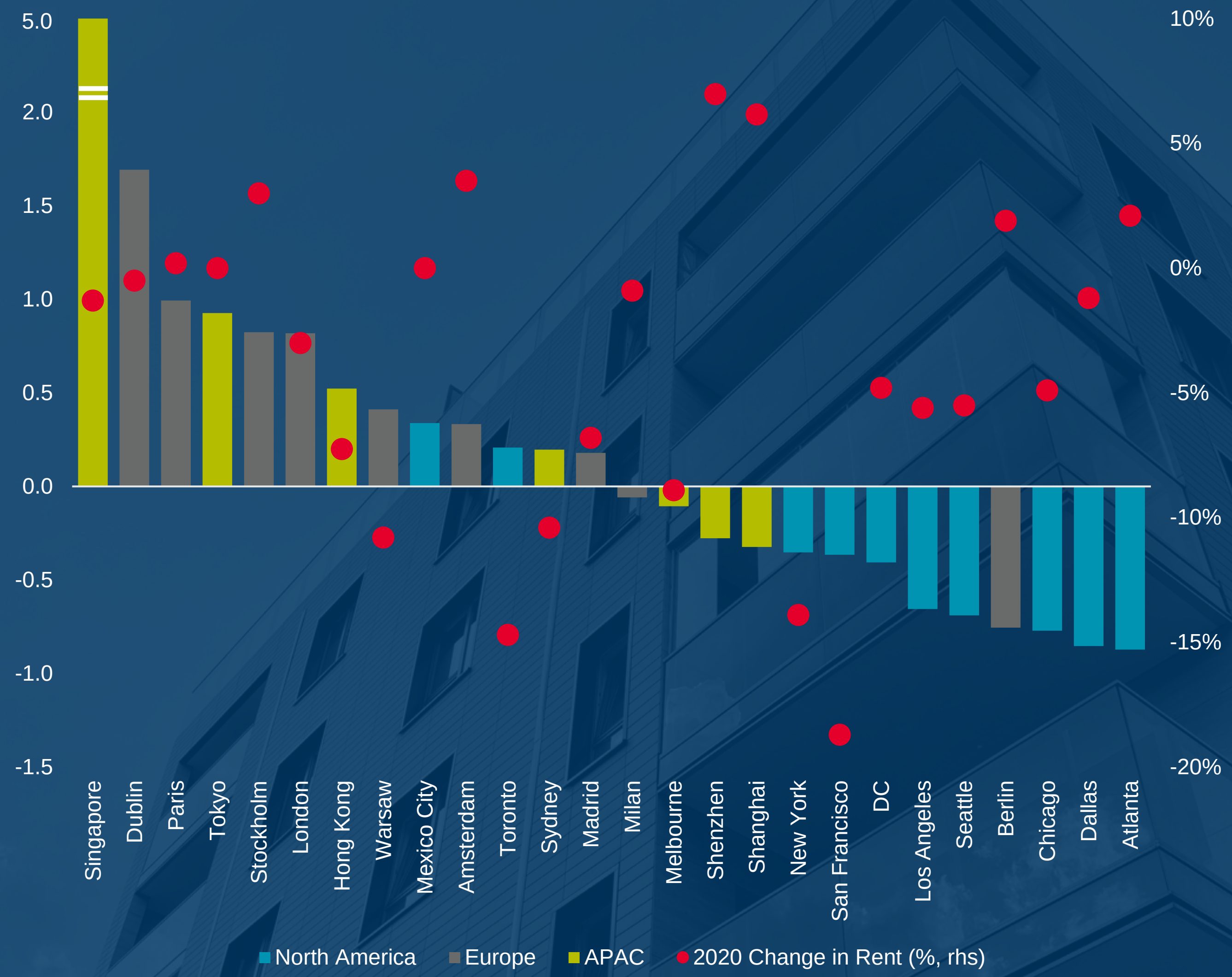
Source: OECD, Moody's, Various, Cushman & Wakefield Research

*Cross-country z-scores were computed for the metro share of national GDP and the ratio of metro output per capita and national output per capita. The index is a 70/30 weighting of these two scores.

DEMAND DRIVER #2:
MARKET DOMINANCE

EUROPE: The most dominant cities within their national boundaries in Europe are Dublin and Paris, followed by Stockholm and London. One of two things drive this dominance: the scale of the cities directly or their relative share of national wealth and activity. The least dominant market we analyzed in this group Berlin, which is no surprise given the federal nature of Germany and the more marked dispersal of economic scale and power across a range of competing but also complementary cities. While the level of concentration is typically much higher in the Europe sample than for APAC or North America, cities are more easily substituted in the residential market than some other sectors. While larger dominant cities and their close-in suburbs remain the first port of call for many cross-border investors—a high level of population density and scale is still a prerequisite for most investors and operators—the threshold for interest nonetheless tends to be less than in, say, the office sector. This can be even more the case where investors are looking at single family as opposed to multifamily housing, where smaller individual scheme sizes can be tolerated and hence investors find it easier to push down to smaller towns and cities. The link between the dominance of the leading cities and recent levels of rental growth is very mixed meanwhile, with the fallout from lockdowns certainly impacting demand more in some larger, more expensive and denser cities. But equally, while the focus of demand may have shifted, a restricted level of the right modern supply is often supporting or driving rents higher, and this will only increase as we move into a period of recovery and transition post-pandemic.

National Market Dominance Index (Z-Score)*



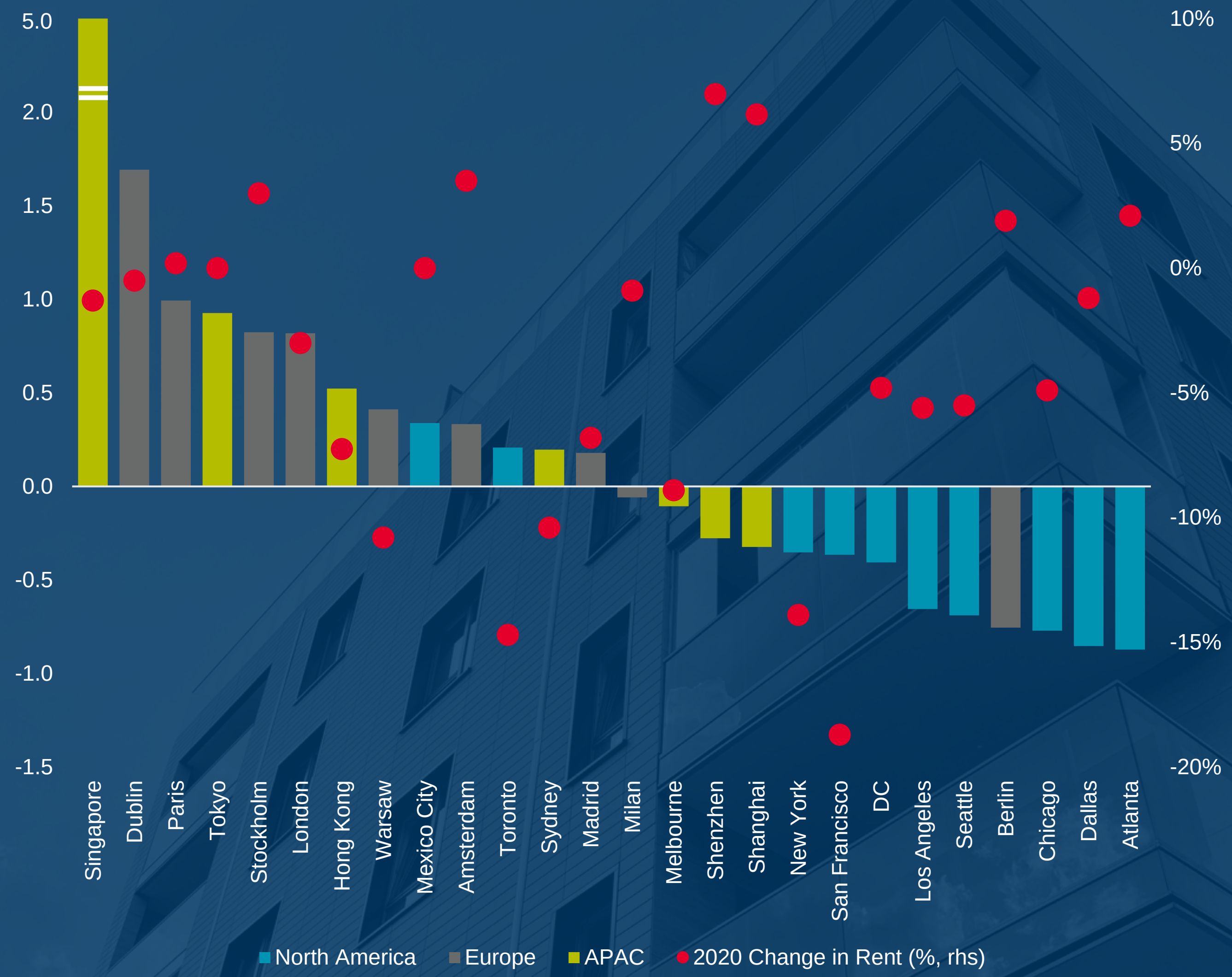
Source: OECD, Moody's, Various, Cushman & Wakefield Research

*Cross-country z-scores were computed for the metro share of national GDP and the ratio of metro output per capita and national output per capita. The index is a 70/30 weighting of these two scores.

DEMAND DRIVER #2:
MARKET DOMINANCE

NORTH AMERICA: Mexico city and Toronto are far more dominant in their respective countries compared to any of the U.S. cities. This is consistent with feedback from our focus groups, which indicated continued demand for quality residential product in the Mexico City core, while in Toronto, there have been some modest shifts in demand into suburban areas, though still part of the Toronto metro. The U.S. has the greatest substitutability among its great cities of any of the countries in our survey. The least substitutable (most dominant) of these cities are San Francisco, New York and Washington DC—technological, financial and political centers, respectively. This dominance, however, has not been associated thus far with rental market performance. Several factors are at work here: 1) the negative effects of higher density and more restrictive lockdowns have temporarily outweighed the dominance effects which were in any case relatively weak on a global comparative basis 2) the social, cultural and economic agglomeration effects underlying market dominance have been reduced under pandemic conditions and 3) the most pre-eminent markets are also relatively high cost. The result is that the most substitutable markets, which are also lower cost and have higher economic freedom, have outperformed in the U.S. Going forward, however, we expect that the underlying competitive position of the dominant markets will reassert themselves, driving a recovery in rental values and continuing to support home prices.

National Market Dominance Index (Z-Score)*



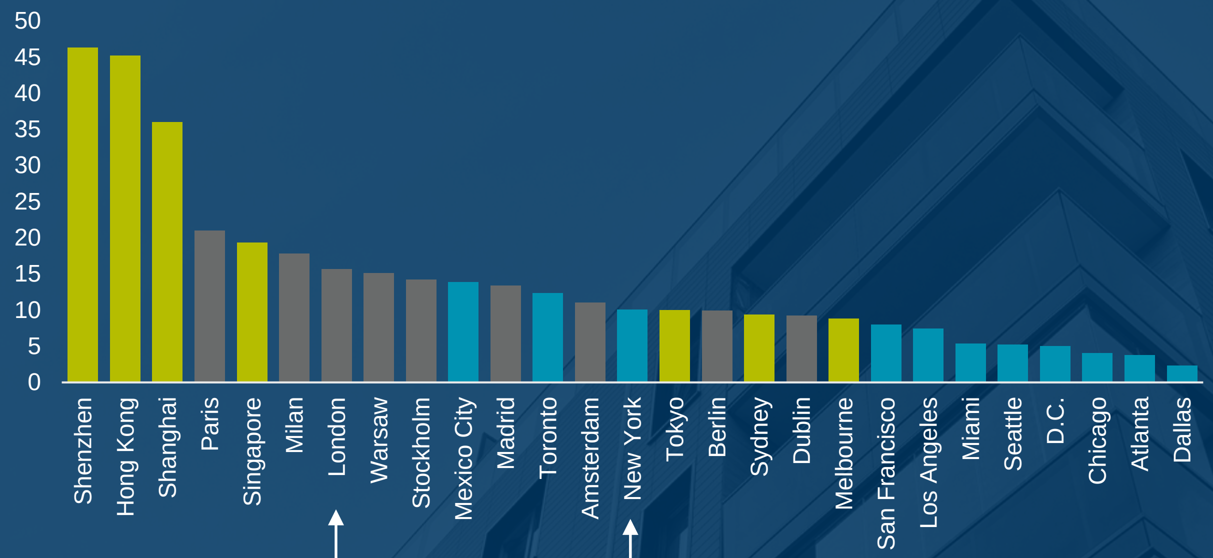
Source: OECD, Moody's, Various, Cushman & Wakefield Research

*Cross-country z-scores were computed for the metro share of national GDP and the ratio of metro output per capita and national output per capita. The index is a 70/30 weighting of these two scores.

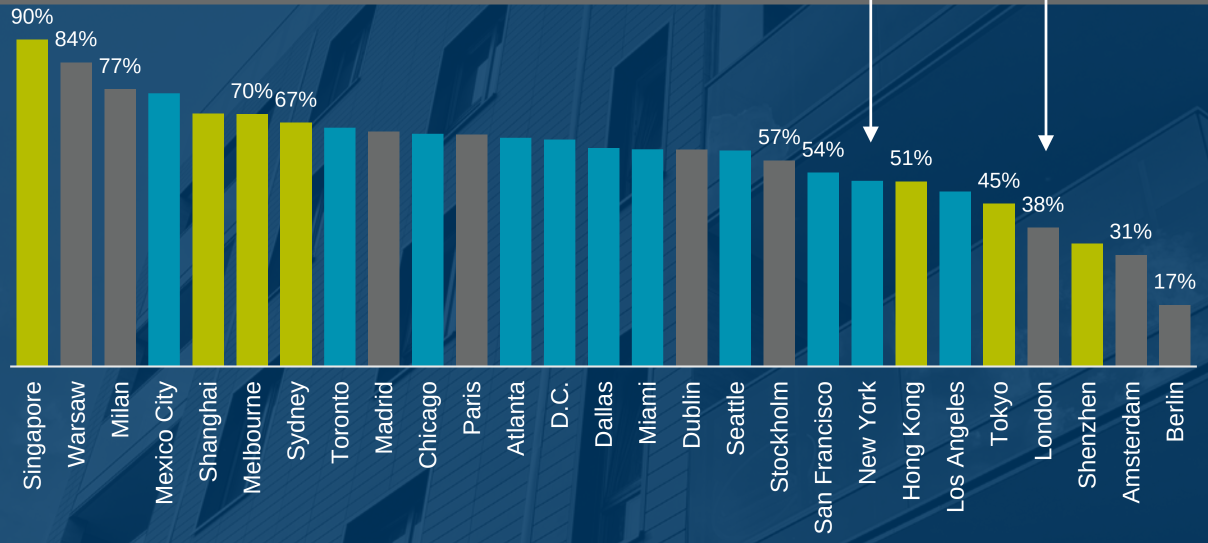
DEMAND DRIVER #3:
HOUSING NORMS

GLOBAL: The potential for growth and investment in purpose-built rental housing in various markets is limited by homeownership incentives as well as social norms surrounding renting versus owning. Government policies—availability and cost of debt, land control, financial incentives, rental subsidies, and general regulation—shape or distort homeownership patterns, which are a key barrier to entry that helps insulate certain rental markets.

OWNERSHIP PRICE-TO-INCOME RATIOS (AFFORDABILITY)



HOMEOWNERSHIP RATE BY MARKET



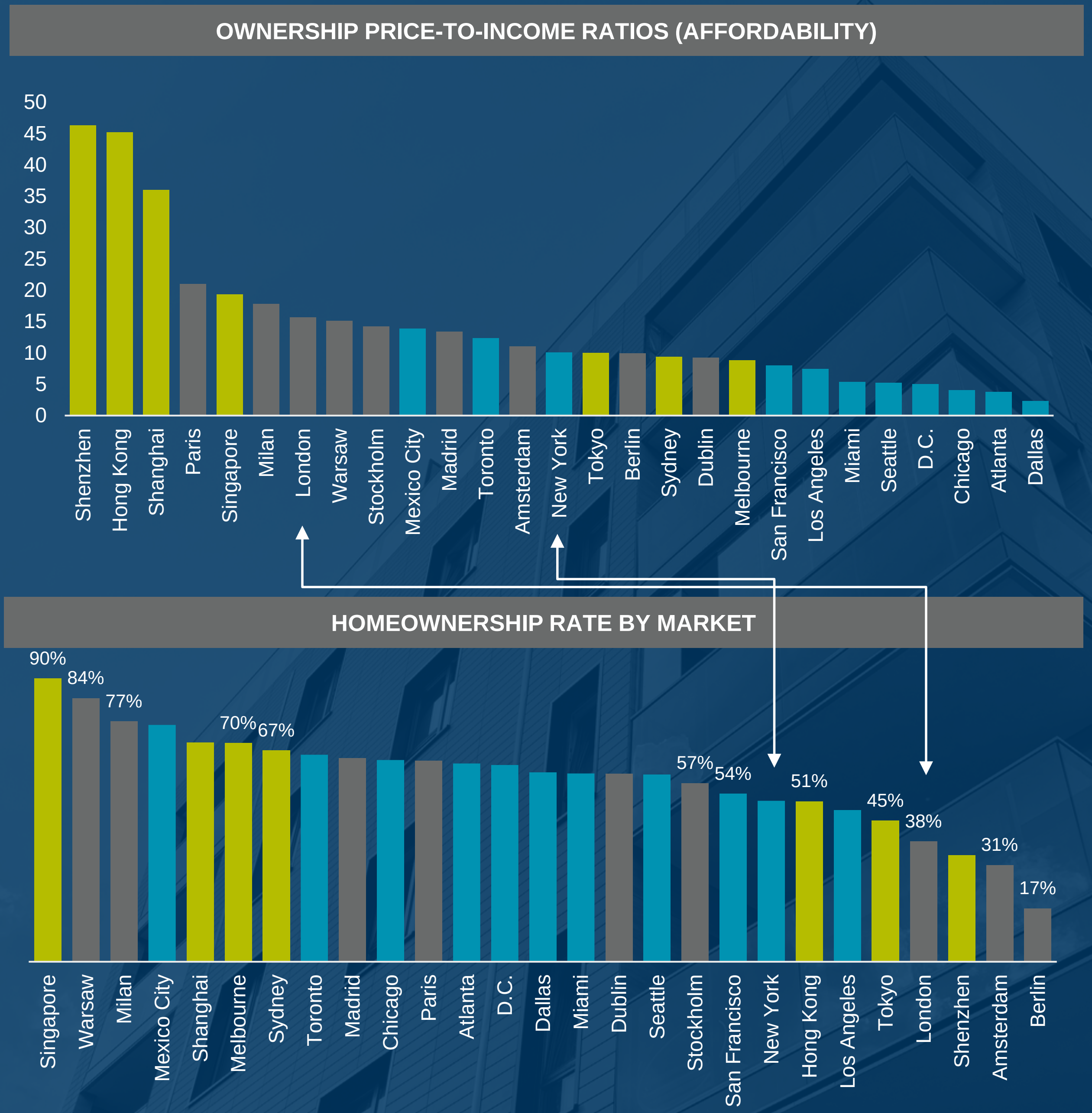
Source: Various local sources; ESRI; Numbeo; Cushman & Wakefield Research

DEMAND DRIVER #3:
HOUSING NORMS

ASIA PACIFIC: Reflecting government promotion of ownership, roughly 90% of Singaporean residents own their homes with Housing Development Board (HDB) sponsoring 79% of the housing stock, indicating that housing tenure norms do not favor rentership. On the other hand, Tokyo's ownership rate is on the lower end, closer to that of Los Angeles at 45%, despite its relatively low price-to-income ratio. In addition to healthy multifamily stock, Tokyo has more tenant-friendly law structure that gives tenants an automatic renewal right – keeping rent growth low and rentership attractive. Per Demographia's 2020 median multiple analysis, the multiples for Hong Kong (20.7), Sydney (11.8), and Melbourne (9.7) render them among the most severely unaffordable (>5.1 median multiple) markets.

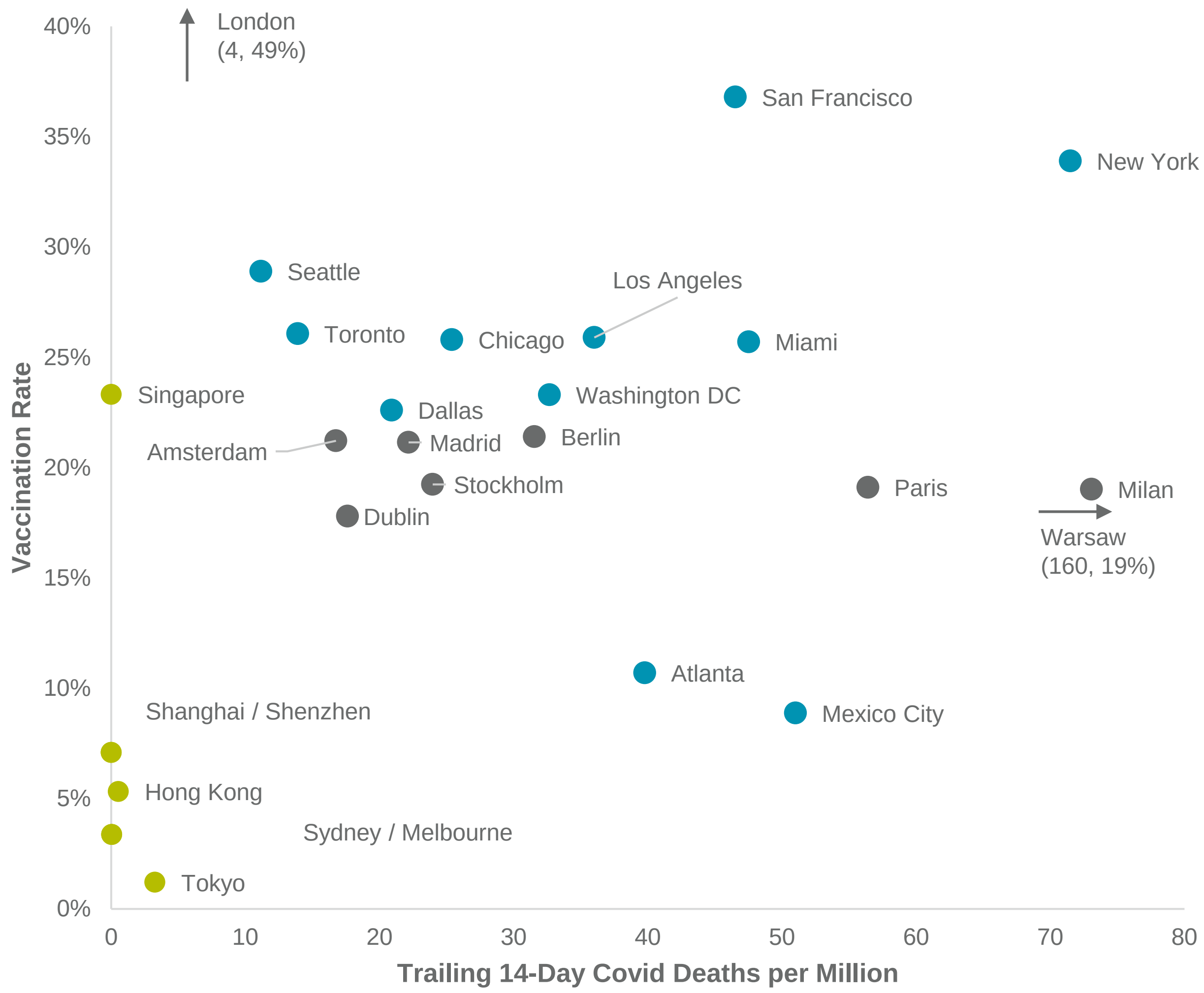
EUROPE: Overall, Europe has trended towards renting in the past decade, with ownership having peaked in 2009 at 73% compared to 69% as of 2020. However, the number of housing transactions rebounded in H2 2020 in several EU countries after a pause in Q2. EU markets run the gamut in terms of housing tenure (renting vs. owning) norms with Berlin on the low end (17%) being predominantly renters to 77%-84% in Milan and Warsaw, which are more secondary and emergent global rental markets. Cultural norms in Berlin, Warsaw, and Stockholm play a notable role, but low ownership affordability is a key underlying factor in lower ownership rates in these markets, particularly absent the level of government incentives that are present in Asian markets. According to EuroStat's Housing Price Index (HPI), house prices among EU-27 rose nearly 6% in 2020, continuing their steep rise since 2015. Ownership affordability eroded the most in Netherlands and Germany with their ratios increasing by 29-30%+ since 2015, followed by Sweden and Spain (21-22%), per OECD's price-to-income ratios, which is an alternate calculation to Demographia's median multiple.

NORTH AMERICA: In the U.S., ownership rates peaked in 2006 at 69% and since the 2008 Great Financial Crisis, renting by choice has become more socially acceptable, particularly as new rental supply increasingly accommodated desires for condo-quality housing. Roughly 34% of Americans rent as of 2020 and we do not foresee this changing dramatically due to affordability issues and lack of first-time homebuyer inventory. Compared to several global markets, even the most expensive homeownership North American markets—Toronto with a 9.9 median multiple and San Francisco with 9.6 median multiple—are relatively affordable. Both Toronto and Mexico City have high homeownership rates and condominium production has been healthy in the past few years.



Source: Various local sources; ESRI; Numbeo; Cushman & Wakefield Research

DEMAND DRIVER #4:
COVID-19 RECOVERY



Source: OurWorldinData, New York Times, Various, Cushman & Wakefield Research as of 4/21/2021
Note: Conditions are dynamic. Data may have changed since this analysis was conducted. Market-level data used for U.S. markets. National level data for other regions.

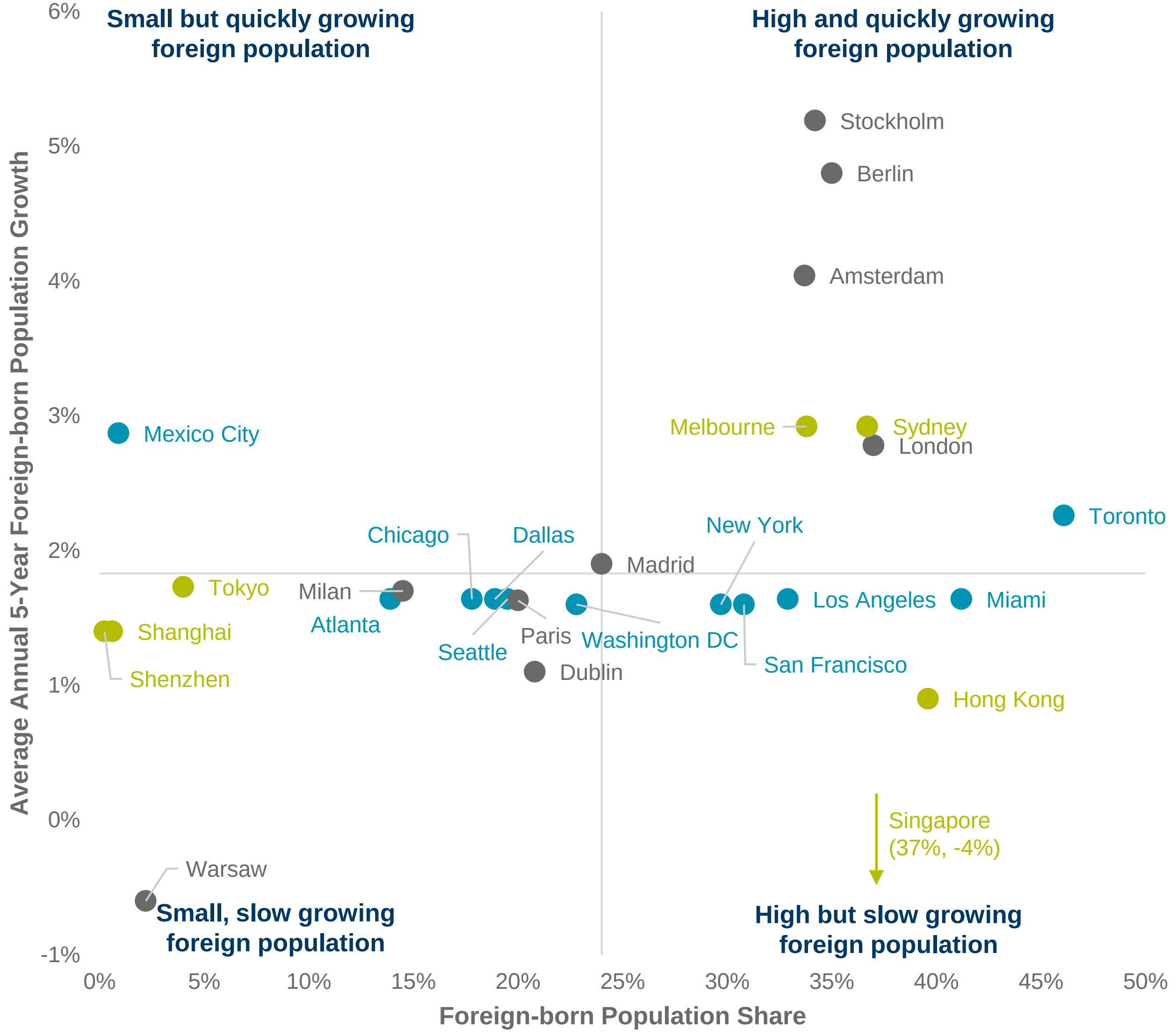
COVID-19 containment, particularly through vaccination, is critical to economic growth globally and even more so to the life of global gateway markets. Progress in this respect is therefore a critical factor in shaping the demand outlook for markets.

ASIA PACIFIC: Markets continue to contain the virus, though this sometimes comes at the cost of periodic lockdowns and extreme caution around international migration. Underlying populations have little to no natural immunity and also little tolerance for growth of infection among the population. These conditions enable socioeconomic activity to continue in a mostly normal fashion, but moving forward, these markets will be more constrained compared to markets that favored a vaccination strategy.

EUROPE: The U.K. and by extension London has had great success in vaccinating its population with the result that its containment level is now similar to APAC markets, a situation that should ultimately enable authorities to further liberalize international travel and migration in addition to daily activities. Continental European markets have lagged and were forced to engage in more severe and prolonged lockdowns to contain winter COVID-19 resurgences. The pace of vaccinations, however, has accelerated, raising confidence that these markets will be transitioning beyond the pandemic before the end of year.

NORTH AMERICA: U.S. markets have been aggressive in rolling out their vaccination campaigns with early centers of the pandemic, such as New York and Seattle, having among the highest vaccination rates. New cases and deaths are now falling across much of the country and policymakers have acted to re-open their economies. The main challenge facing the U.S. is that new vaccinations are slowing, likely related to a significant proportion of the population being skeptical of vaccines. This means that containment levels will likely lag Europe (as well as Asia) going forward, but coupled with greater willingness on the part of the population and government to accept this risk in exchange for socioeconomic liberalization.

DEMAND DRIVER #5:
INTERNATIONAL MIGRATION



Source: UN, Various, Cushman & Wakefield Research.

GLOBAL SUMMARY: Immigration flows have been heavily disrupted by the pandemic as countries around the world have closed their borders to varying degrees. As the name implies, "gateway markets" tend to be the primary recipients of immigrants, both high skill and low skill, in their respective countries and regions. In absolute terms, however, demand reliance on immigration varies considerably even across these select markets.

ASIA PACIFIC: Melbourne and Sydney are clear outliers among Asia Pacific markets with large and fast-growing foreign-born populations. Accordingly, continued restrictions on international travel and migration are liable to have larger impacts on the performance of these economies including demand for rented and owned housing. While travel and immigration could be liberalized sooner, it is unlikely to occur before widespread vaccination, an area where Australia has been slow. Every other Asia Pacific market in our study has experienced below average foreign population growth in recent years, though the foreign share vary significantly. Hong Kong and Singapore have relatively high foreign population share, but in each case the foreign population was growing slowly before the pandemic. Accordingly, pandemic conditions represent a limited demand shock. This is truer still of Shanghai, Shenzhen and Tokyo where the foreign population share was already negligible. Tokyo's foreign population has grown somewhat faster in recent years but off of a low base, which in a country with a shrinking population, is important. While we expect flows to resume after the pandemic, Japan too has been slower to roll out vaccinations which will delay normalization. Pre-pandemic, Japan had begun to modestly experiment with immigration liberalization; it remains to be seen whether this resumes. Looking past the market recovery, Singapore is also highly reliant on immigration.

EUROPE: Stockholm, Berlin, Amsterdam and London all have large and recently fast-growing foreign populations while Warsaw sits at the other extreme. Immigration therefore presents a quite different risk in the years ahead market by market. Different rates of vaccination will be key in determining short-term patterns, with the UK set to see travel barriers reduce first but coordinated action across the Schengen Area to open-up much of Europe at least to regional travel over the summer. Political change will also impact immigration, with Brexit potentially altering the attractiveness of the UK. Populist pressures in a number of countries are promoting a slowdown in immigration. This is notable in Central and Eastern Europe (CEE), although the outward movement of population that has typified many CEE markets over recent decades is now more balanced, with some migrants returning home and some countries such as Poland attracting migrants from other areas of Eastern Europe such as Ukraine.

NORTH AMERICA: Toronto, Miami, San Francisco, Los Angeles and New York are the North American markets most exposed to immigration risk, each having above average foreign shares, particularly Toronto. While most of these markets were experiencing below average foreign population growth pre-pandemic, foreign population was nonetheless growing faster than domestic demand, pointing to a greater impact. Other regional markets with similar growth but relatively more dependent on native-born flows should prove more resilient in the near-term. We expect demand flows to recover swiftly across all markets as immigration restrictions are reduced following successful vaccination campaigns, particularly in the U.S. where in addition the political conditions have become more supportive.

CAPITAL MARKET LIQUIDITY

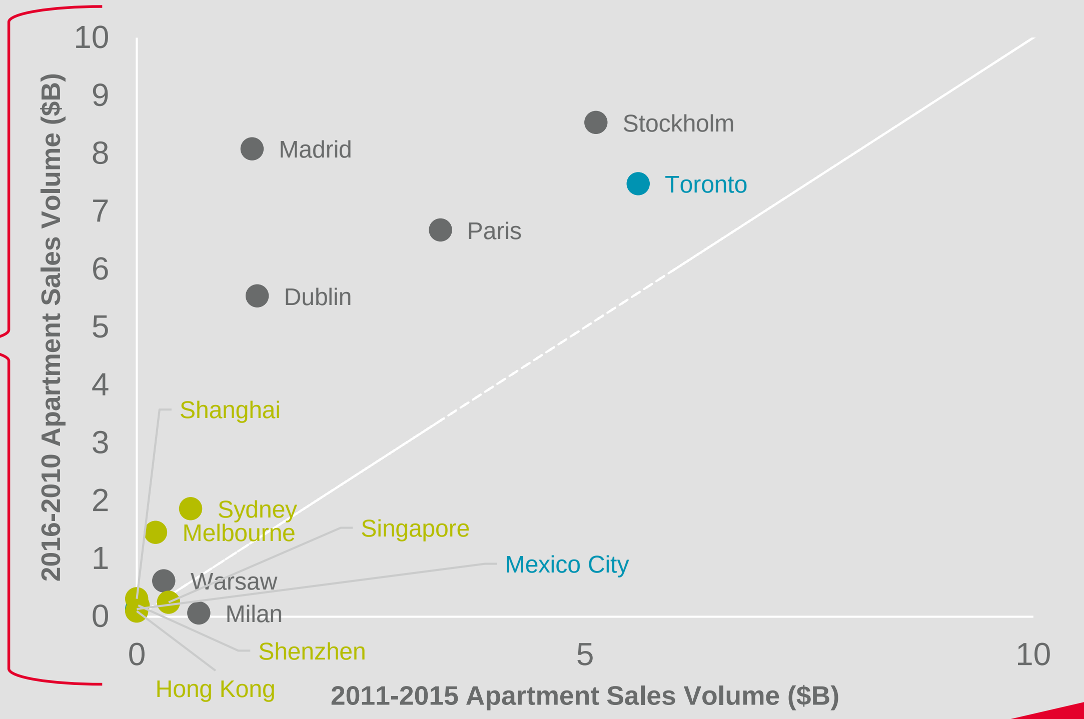
Source: RCA, Cushman & Wakefield Research
Excludes condo sales.

GLOBAL: Institutional multifamily capital markets are in varying states of development across countries and markets. The state of development necessarily enlarges or constrains investment opportunities. Investors must take this under consideration in addition to the supply and demand factors discussed elsewhere in this report. Multifamily liquidity has grown, often significantly, across global gateway markets in recent years. If anything, the pandemic appears to have strengthened sentiment towards institutional multifamily investment overall, even though sales volume has been impacted adversely in the short-term.

NORTH AMERICA: U.S. markets are by far the most liquid and have been for some time. Over the last five years, transaction activity has shifted dramatically towards Sunbelt markets, such as Dallas and Atlanta but also towards traditional gateways, namely Los Angeles.

EUROPE: Berlin, London and Amsterdam are by far the largest, most liquid investment markets in the region, though Paris, Stockholm, Madrid and Dublin are rapidly scaling.

ASIA PACIFIC: Tokyo is the only market comparable to other regions in depth. Singapore and Hong Kong have little liquidity in multifamily but have seen large condo sales volumes. As the BTR sector develops, liquidity will come along with it in these immature markets.



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MULTIFAMILY MARKET REBOUND RANKING

	Market	Rent Momentum (8%)	Supply Shifts (15%)	Generational Turnover (15%)	Market Dominance (15%)	Homeownership Conversion Risk (12%)	Covid-19 Recovery (12%)	International Migration Reliance (8%)	Capital Market Liquidity (15%)	Overall
1	Amsterdam	4.4	4.4	3.5	3.5	4.6	3.0	1.9	3.5	3.6
2	London	3.1	2.0	3.6	4.2	4.2	5.0	2.5	3.4	3.6
3	Atlanta	4.2	3.3	3.7	1.8	3.1	3.0	3.9	4.7	3.4
4	Los Angeles	2.5	2.9	3.8	2.0	3.9	4.0	2.3	5.0	3.4
5	Stockholm	4.4	4.5	3.2	4.2	3.1	3.0	2.0	2.4	3.3
6	Tokyo	3.8	2.0	2.8	4.3	4.0	3.0	3.3	3.1	3.3
7	Paris	3.9	4.0	4.2	4.4	2.4	2.0	3.1	2.2	3.3
8	Singapore	3.5	5.0	2.2	5.0	1.3	4.0	4.3	1.6	3.3
9	Dallas	3.5	1.4	4.0	1.8	3.4	4.0	2.9	4.9	3.3
10	Dublin	3.7	3.0	3.7	4.8	3.1	2.0	3.6	2.1	3.2
11	New York	1.2	4.4	3.5	2.4	3.7	3.0	2.0	4.3	3.2
12	Chicago	2.7	4.1	3.8	1.9	3.0	4.0	2.6	3.5	3.2
13	Berlin	4.2	4.0	2.3	1.9	4.9	3.0	1.5	3.5	3.1
14	Washington DC	2.7	2.4	3.3	2.4	3.1	3.0	3.0	4.5	3.1
15	Mexico City	4.5	4.0	4.1	3.5	1.9	2.0	3.5	1.6	3.1
16	Seattle	2.5	1.1	3.2	2.0	3.3	4.0	3.7	4.0	3.0
17	San Francisco	1.0	2.8	2.9	2.4	3.6	3.0	2.4	4.3	2.9
18	Miami	3.2	1.4	3.2	1.7	3.3	4.0	2.3	3.6	2.9
19	Sydney	1.6	3.0	4.2	3.3	2.6	3.0	2.5	1.8	2.8
20	Toronto	1.2	3.3	3.4	3.3	2.6	3.0	2.2	2.3	2.8
21	Madrid	2.2	3.0	1.7	3.3	2.6	4.0	3.0	2.3	2.7
22	Hong Kong	2.1	5.0	1.6	3.8	2.2	3.0	2.7	1.6	2.7
23	Melbourne	1.8	2.0	4.3	2.8	2.5	3.0	2.9	1.7	2.7
24	Shenzhen	4.8	2.0	1.2	2.6	3.4	3.0	4.5	1.6	2.6
25	Milan	3.6	4.0	2.2	2.9	1.8	2.0	3.0	1.6	2.5
26	Shanghai	4.7	2.0	1.1	2.5	1.6	3.0	4.7	1.6	2.4
27	Warsaw	1.5	2.0	2.0	3.6	1.5	1.0	4.3	1.7	2.2

We rated each market on a five-point scale across the market performance drivers discussed in the preceding pages.

A higher rating indicates that conditions are more favorable for a rebound in rental market fundamentals and investment compared to the pre-pandemic trend over the next three to five years.

European markets were most represented among the top 10, followed by U.S. markets. The top markets tend to score particularly highly in capital market liquidity and rental demographics while having relatively low threat from home ownership conversion and new rental supply. Elevated supply threat accounts for the lower ranking of U.S. sunbelt markets than would otherwise be expected.

The bottom markets conversely tended to have greater supply threat and less developed multifamily capital markets. As liquidity improves in coming years, these markets will become more competitive as destinations for capital investment.

Source: Cushman & Wakefield Research

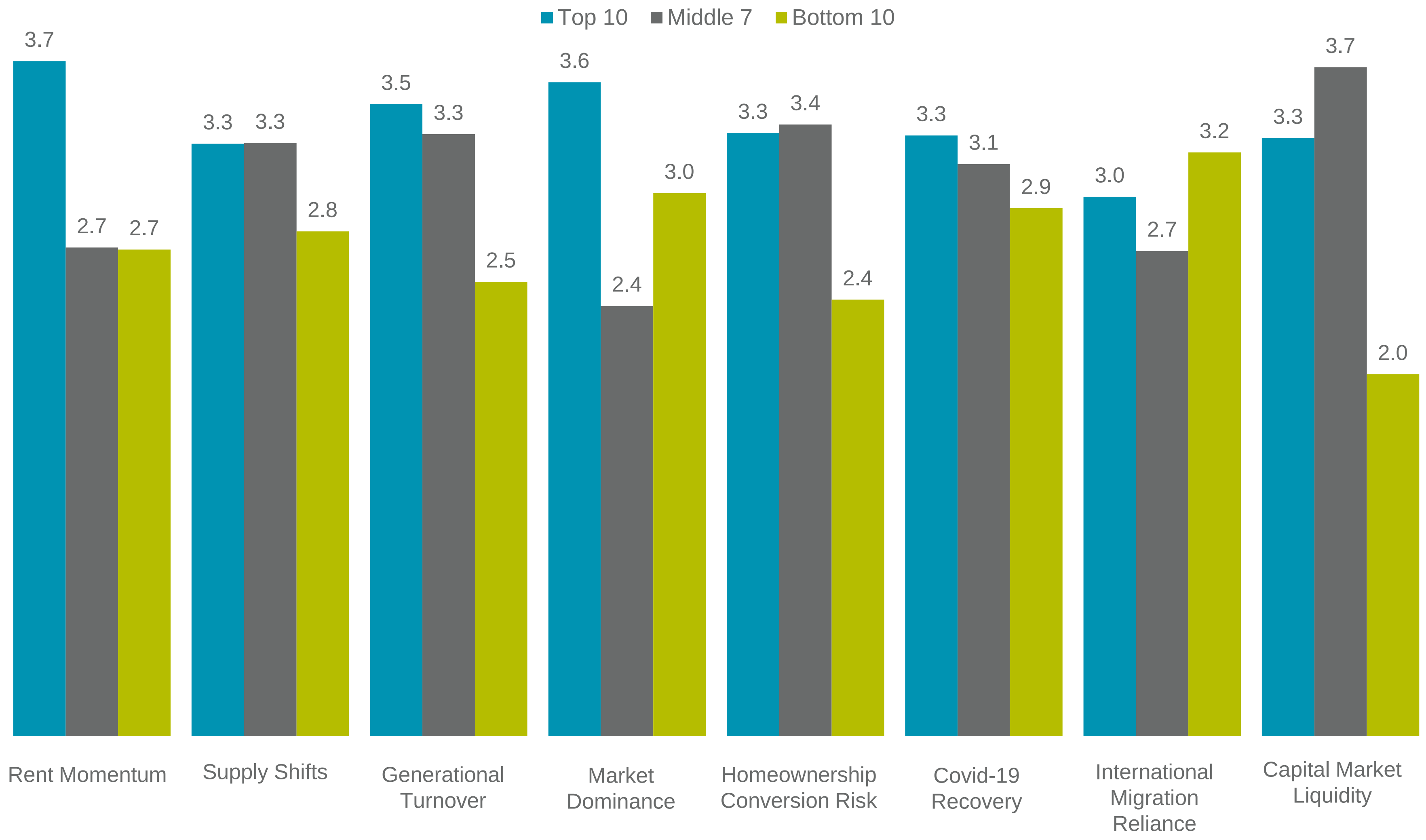
WHAT DIFFERENTIATED MARKETS?

MARKET LEVEL OBSERVATIONS

Rental Market Momentum	• Shenzhen, Shanghai, Mexico City, Amsterdam, Stockholm, and Atlanta maintained rental market momentum through the pandemic (2020) and therefore are better positioned to rebound post-pandemic while other markets have more ground to recover.
Supply Shifts	• Singapore, Hong Kong, Stockholm, and Amsterdam demonstrate low oversupply threat. • London & Melbourne are growing BTR markets with supply ramping up off a low inventory base. • U.S. primary markets have historically low oversupply threat due to barriers to entry while U.S. major secondaries have had influx of both BTR deliveries to meet growing demand.
Generational Turnover	• Melbourne, Paris, Sydney, Mexico City, and Dallas have the most favorable renter demographics • Chinese markets lag in generational turnover, in part due to the legacy of population control policies. However, this demand factor is mitigated by growth through domestic migration.
Market Dominance	• Markets that serve as the center of gravity within their countries are Singapore (as a city-state), Dublin, Paris, Tokyo, Stockholm, and London. • U.S. markets generally rank lower in dominance given the distributed strength of major markets and the ease of movement among them.
Homeownership Conversion Risk	• Due to low ownership affordability and a preponderance of renter households, Berlin, Amsterdam, London demonstrate low risk for homeownership conversion. • Government support and promotion of homeownership in Singapore, Shanghai, and Hong Kong and cultural norms for homeownership in Warsaw, Milan, and Mexico City impede maturation of their respective rental markets.
COVID-19 Recovery	• COVID-19 containment and vaccination favorable in London, Singapore, most US markets and Madrid. Vaccinations have accelerated in Europe since our data was collected. • Containment has been broadly successful in APAC markets while vaccination lags, holding down scores.
International In-Migration Reliance	• Reliance on international migration for market growth is lowest in Shanghai, Shenzhen, Warsaw, Singapore, Atlanta, and Seattle, thereby minimizing the impact of closures on their rebound. • Berlin, Stockholm, Amsterdam, and New York, Toronto rely relatively more in international migration.
Capital Market Liquidity	• U.S. markets top the list in terms of liquidity, particularly sunbelt markets (e.g., Dallas and Atlanta) • Outside the U.S., Berlin, Amsterdam, London, Singapore and Tokyo are most liquid. • As BTR markets continue to develop, as in the Australian markets, liquidity will follow.
Composite Score	• Amsterdam, London, Atlanta, and Los Angeles rank the highest in overall score for varying reasons. Amsterdam demonstrates broad-based rebound potential with weakness only in its reliance on immigration; London is similar but with greater supply risk. U.S. markets are notable for their capital markets liquidity across the board, but Atlanta stands out among them for its rent momentum while Los Angeles is favorable for its low homeownership conversion risk and COVID-19 recovery.

WHAT DIFFERENTIATED MARKETS?

BY RANKING



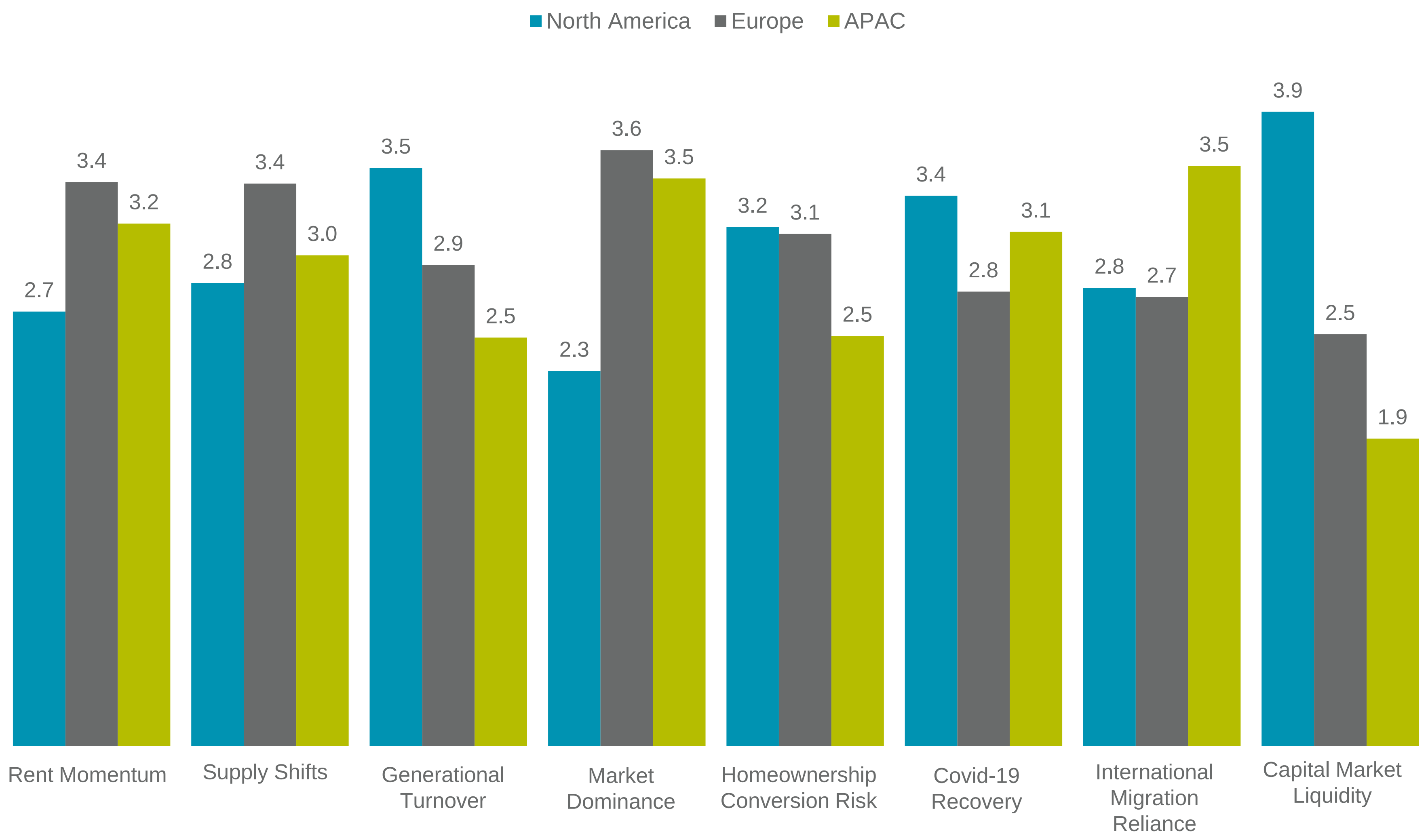
The **Top 10 markets** scored above average in all categories except for international migration. They were most distinguished relative to middle seven and bottom 10 markets in respect of rent momentum and market dominance.

Top 10 and middle seven markets were largely comparable in respect of supply risk, homeownership conversion risk and generational turnover.

Bottom 10 markets tended to score below average across all metrics with particular weakness in respect of renter demographics, homeownership conversion risk and liquidity. Conversely, they tended to be less reliant on international migration for demand.

WHAT DIFFERENTIATED MARKETS?

BY REGION



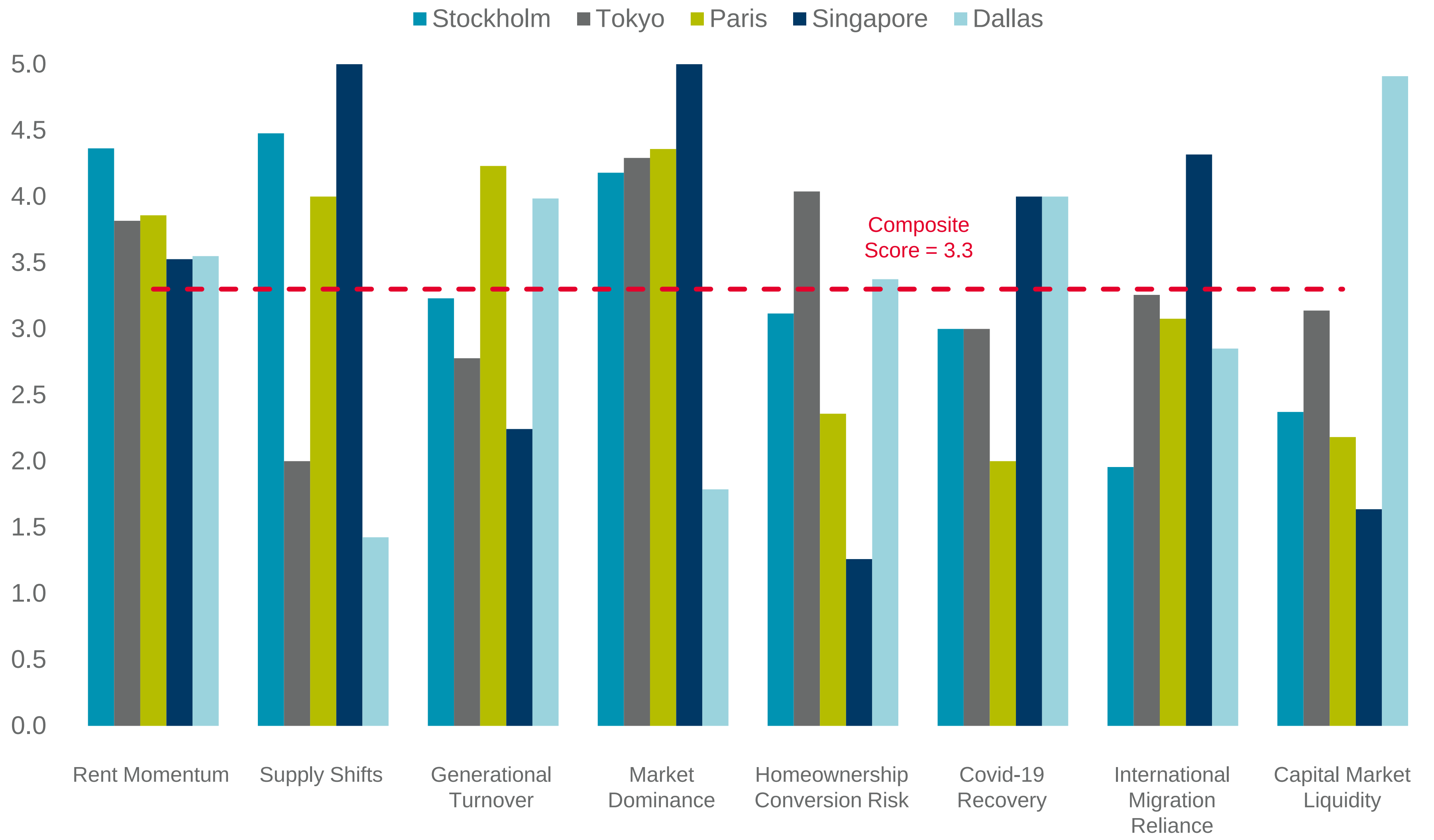
North American markets tended to have the strongest renter demographics and capital market liquidity ratings compared to other regions while tying with Europe in respect of homeownership conversion risk. Conversely, North American markets exhibited less market dominance and rent momentum compared to other regions.

European markets exhibited stronger rent momentum and market dominance coupled with lower supply risk.

APAC markets were less reliant on international migration, but this was offset by less favorable renter demographics, homeownership conversion risk and liquidity.

WHAT DIFFERENTIATED MARKETS?

SIMILARLY RANKED MARKETS ARE FAR FROM UNIFORM



Stockholm, Tokyo, Paris, Singapore and Dallas are ranked five through nine in our model framework; however, they all share a score of 3.3. From this, we learn two things:

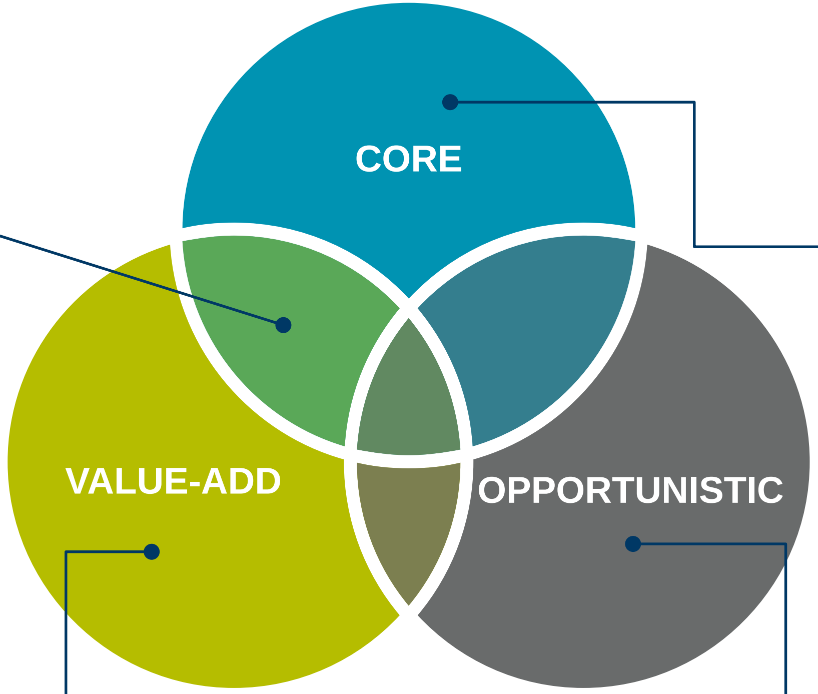
First, the overall strength of these markets is far more similar than the ranking suggests, an insight that should be taken into general consideration when interpreting the results of our study.

Second, even though the composite scores were the same, the markets differ greatly in their component scores. All the markets scored above average in rent momentum, but everywhere else there are notable contrasts. For example, most of these markets scored highly in market dominance with the distinct exception of Dallas. The opposite is true of market liquidity.

While we have suggested what we believe the relative priority should be for different metrics, investors should compare this with their own intuitions and look for ways to offset weaker market areas with asset selection.

INVESTMENT RECOMMENDATIONS

BALANCING FUNDAMENTAL OUTLOOK, MULTIFAMILY MARKET DEVELOPMENT AND RISK TOLERANCES



Core / Value-add

- Dense gateways with lower supply risk, benefit from urban reflation
- Forward funding in tier 1 cities and social housing provision
- Deepening build-to-rent markets: Sydney, Melbourne

Core

- High growth sunbelt and mountain west markets, particularly stabilized properties in submarkets with supply barriers
- Build-to-rent or sell in northern European gateways
- High-density gateways with institutional market: Tokyo, Osaka

Value-add

- Repositioning and development in core markets; high end product in Mexico City, Sao Paulo.
- Repositioning in tier 1 and 2 cities and student housing development in major academic hubs
- Build-to-rent in Tier 1 mainland Chinese cities

Opportunistic

- Senior housing development; niche strategies (e.g. coliving, SFR)
- Build-to-core in eastern European capitals and leading Italian cities
- Build-to-rent in mainland Chinese provincial capitals

North America
Europe
APAC

Source: Cushman & Wakefield Research

GLOBAL RESIDENTIAL IMPACT STUDY:

Which Gateway Markets are Primed to Rebound Post-Pandemic?

JUNE 2021

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