GLOBAL OFFICE IMPACT STUDY & RECOVERY TIMING

September 2020

This study is the first in a four-part series that provides a new perspective on COVID-19's effects on the commercial real estate industry and the future of the office. Beginning with this global impact study, the series explores the cyclical and structural changes impacting the global office market as well as the implications for the timing of a recovery. In part two, we do a thorough review of academic literature and industry studies, examining the benefits of office and working from home (WFH) focused on several key areas including productivity, culture, branding, employee engagement and creativity. In part three, the series will shift to perspectives on finding the optimal model that incorporates flexibility and a future workplace ecosystem made up of the office, work from home and places to create greater employee satisfaction, productivity and profitability. Finally, in the last part of the series, we will explore the future beyond 2020. By focusing on the aspects that influence the built environment—including the economy, geo-demographics, technology, societal shifts and the political landscape—we strive to answer how changing behavior patterns will affect decision making.

INTRODUCTION

COVID-19 is disrupting the economy, accelerating shifts and creating structural changes that will persist for years to come. The pandemic has created several forces that directly impact the office sector's fundamentals. Some of the impacts are cyclical—for example, the COVID-19 recession will result in office-using job losses, higher vacancy, and will place downward pressure on rental rates. Other impacts are structural, such as a greater share of employees who will regularly work from home (WFH). In this study, we examine both the aggregate cyclical and structural impacts on the office sector's fundamentals, and we present three forecast scenarios that illustrate probable and/or possible outcomes based on the information at hand today.

Lastly, our study makes predictions only at the regional level; we acknowledge that not every city will follow the same path as laid out in our aggregated findings. Further, although we believe the range of scenarios is wide enough to capture possible and probable outcomes and that assumptions we make are well reasoned based on the data available today, we acknowledge the unprecedented level of uncertainty in today's outlook.

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KEY FINDINGS

- In our study, we conclude that the structural impacts of work-from-home trends will be offset by factors such as economic growth, population growth, and office-using penetration, which means demand for office will continue to grow over the 10-year forecast horizon.
- Globally, office leasing fundamentals will be significantly damaged in the near-term. The COVID-19 recession and structural impacts will result in 95.8 million square feet (msf) of negative net absorption[a] between 2020 Q2 and 2021 Q3 worldwide. This impact is greater than that of the Great Financial Crisis (GFC) when 85 msf of negative absorption occurred. The contrast is starker for the West. During the GFC, Canada, Europe and the U.S. recorded a combined -120.5 msf of absorption peak-to-trough. Our forecast for these regions, including 2020 Q2 figures, is 211.7 msf of negative absorption peak-to-trough.
- Global office vacancy will rise from 10.9% pre-crisis (2019 Q4) to 15.6% in 2022 Q2. Global rents are forecast to decline 10.9% peak-to-trough from 2020 Q2 to 2022 Q1.
- Of the 95.8 msf of negative absorption, 82% is related to cyclical factors—namely office-using job losses and coworking impacts. The remaining 18% is related to structural factors, largely based on the assumption that the share of both permanent remote workers and agile workers—those who work remotely some of the time—will increase.
- In our study, we assume that the share of people working permanently from home in the U.S. and Europe increases from ~5-6% pre-COVID to ~10-11% post-COVID and that the share of agile workers increases from ~32-36% to just under 50%. These structural impacts are significantly lower across Asia Pacific and Greater China, where WFH is (and is expected to remain) less common.
- One offsetting effect is the potential reversal of a decades-long trend of densification in which businesses have been absorbing less space per office-using employee. COVID-19 is requiring society to social distance in the near-term and disrupting the trend. It is still unclear if a structural reversal of densification—dedensification—will persist, however. At a minimum, we believe that densification will stop and that practices that allow for distancing, such as agile working and rotating shifts, will increase.
- Should densification begin to reverse in the aggregate, it might offset some of the loss in demand caused by more remote working—possibly offsetting it fully. For example, permanently expanding pre-COVID-19 footprints by 50% per worker would fully offset the anticipated negative effects of increased remote work in the U.S. by 2030. We concede that although some counterbalance is possible, based on the information at hand today, we conclude there is not enough evidence to support building in any offsetting factor at this time.
- As the economy and employment recover, the globe's office sector begins absorbing space in 2022 Q1 and vacancy begins trending downwards from that point forward. Global office vacancy returns to pre-crisis levels of approximately 11% by 2025.
- Globally, rents bottom in 2022 Q1 and begin appreciating from that point forward, returning to pre-crisis peak levels in 2025.

[a] Net absorption is used interchangeably with demand is this study and specifically refers to the net change in occupied inventory, which captures the net effect of move-ins (associated with leasing activity) and move-outs.

5-YEAR OFFICE OUTLOOK BY REGION

Factoring in both the cyclical and structural impacts—methodology described in the appendix—we offer the following 5-year office outlook under the baseline scenario:[b]

	2019	2020	2021	2022	2023	2024	
Asia Pacific							
Net Absorption (msf)	68.9	20.5	28.0	83.4	73.2	75.2	• Demand slows but remains positive, and returns to trend in 2022Q1 • Vacancy peaks in 2021Q4 • Adv. economy rents bottom in 2022Q1 • Emerging economy rents bottom in 2021Q4
Vacancy	11.6%	12.0%	15.8%	15.5%	14.0%	11.4%	
Adv. Economy Rents (YoY%)	3.8%	7.4%	-13.1%	-4.7%	4.8%	7.1%	
Emerg. Economy Rents (YoY%)	-0.9%	0.1%	-1.7%	1.1%	3.6%	4.2%	
Greater China							
Net Absorption (msf)	30.9	5.5	38.2	54.4	54.9	55.5	• Demand turns positive in 2020Q2 • Vacancy peaks 2021Q4 • Rents bottom in 2022Q1
Vacancy	18.7%	22.0%	25.0%	25.9%	25.0%	22.4%	
Rents (YoY%)	-4.2%	-8.0%	-5.2%	0.1%	4.7%	5.6%	
Europe							
Net Absorption (msf)	63.3	9.7	-41.8	56.0	99.3	69.3	• Demand turns positive in 2022Q3 • Vacancy peaks 2022Q1 • Rents bottom in 2022Q1
Vacancy	6.1%	6.4%	8.9%	10.5%	9.1%	7.6%	
Rents (YoY%)	3.1%	0.2%	-7.8%	-1.7%	3.9%	4.3%	
U.S.							
Net Absorption (msf)	58.9	-59.1	-61.8	24.1	62.1	76.7	• Demand turns positive in 2022Q3 • Vacancy peaks 2022Q2 • Rents bottom in 2022Q1
Vacancy	12.8%	14.0%	16.2%	17.4%	16.9%	15.7%	
Rents (YoY%)	4.3%	3.0%	-6.5%	-2.3%	2.6%	3.5%	
Canada							
Net Absorption (msf)	2.4	-5.9	-0.7	13.6	9.9	6.9	• Demand turns positive in 2021Q4 • Vacancy peaks in 2021Q3 • Rents bottom in 2021Q3
Vacancy	9.7%	10.3%	12.1%	11.2%	10.0%	8.9%	
Rents (YoY%)	3.8%	2.8%	-3.6%	3.6%	6.3%	4.6%	

[b] Vacancy rate and rental growth rates are annual averages.

STUDY OVERVIEW

The COVID-19 pandemic has profoundly impacted commercial real estate (CRE) in a number of ways. Some are cut and dry, and others are not so simple. One of the most widely discussed and fiercely debated topics is the future of office real estate, the role it will play and how occupier strategies will evolve in a post-pandemic world.

In this study, we evaluate the potential impacts that several forces may have on office demand—and therefore on office fundamentals. Appreciating the level of uncertainty not just in the global economic trajectory but also in the assumptions we made for a number of parameters, we treat our framework as a sensitivity or scenario analysis. We believe the range of scenarios is wide enough to capture possible and probable economic outcomes and that assumptions we make are well-reasoned based on the data available today. That said, we acknowledge the unprecedented level of uncertainty in today's outlook.

First, we consider the effects of job losses during and after recessions as well as the potential for coworking/flex operators to come under cyclically-induced duress. This latter effect is minor because in most cities—and certainly at the regional level—coworking/flex operators occupy a small share of inventory. However, in select markets, flexible office is likely to exacerbate vacancy and contribute to slightly softer fundamentals. We consider these forces tied to the economic downcycle triggered by the pandemic.

Structurally, there are multiple ways in which occupier behavior and decision-making may change, and some of these changes may become permanent—or at least be long-lasting. This study focuses on the impact of increased WFH on office demand and the sensitivity of that impact to varying assumptions. We have not included subnational impacts that may arise from a more geographically-distributed workforce or from long-term urbanization or preference shifts for CBD and suburban offices.

The pandemic has forced organizations to allow widespread WFH. The results have shown that flexible, remote work has benefits.[7, 12, 14-18, 43] Workers themselves reported a preference for this kind of flexibility and continue to assert that preference today, despite also having a desire to be in the office at least some of the time.[12, 30, 53] Further, executives report that they are planning on implementing more flexible work practices, including greater ability to work from home post-COVID-19.[8-11, 27-29, 39, 46-48]

However, it is nonsensical to take recent events and extrapolate to a future world where everyone works from home. For most businesses the choice is not binary. While WFH has benefits, a common workplace provides critical value to both firms and workers. We believe the workplace ecosystem of the future is a mix of traditional office spaces, home offices and semi-public spaces. We also believe that it is very unlikely for the pendulum to permanently swing so far in one direction, particularly for firms that rely on innovation, knowledge spillovers and creativity to generate value and revenue. Cities are the epicenter of these kinds of phenomena. For example, in the U.S., 37 cities comprising 44% of the population accounted for over 75% of all patents between 2000 and 2015.[c, 6] According to the 2019 World Intellectual Property Report, 30 global hotspots (measured as centers of scientific research publications and patent issuance) in 16 different countries account for 70% of patents and around 50% of scientific articles, and these hotspots tend to be highly populated urban areas.[56]

Further, despite its benefits, WFH has also challenged organizations and their employees. For example, opportunities for learning, mentorship and bonding have deteriorated. According to a 2019 Gensler study, the number one reason workers prefer to be in the office is simply for social connection and team bonding. During COVID-19, that preference has been corroborated by data from over 60,000 respondents at over 100 firms around the world in Cushman & Wakefield's XSF@Home survey.[12] Perhaps unsurprisingly, 65% of respondents worldwide said they would prefer to work from home more often than they did pre-COVID-19. In Asia Pacific (excluding Greater China), Canada, Europe and the U.S., this share was similar at about 64-65%, whereas in Greater China the share was 30%. Within Asia Pacific, emerging markets' share was 40% whereas advanced economies' share was just under 58%. Of note is that anywhere from 35% of workers (primarily in advanced economies) to 70% in Greater China do not want to change their WFH behavior long-term.

These figures are generally consistent with our estimates of peak WFH potential in each region, which leverage analysis of O*Net and other employment data from StatCan, the University of Chicago and the U.S. Bureau of Labor Statistics, as well as from other sources.[2, 21-26, 37, 40, 49] These estimates suggest that around 60% of office employment is compatible with WFH across the globe.[d] Such figures provide a potential upper bound for the

[c] Population data sourced from the U.S. Census Bureau via Moody's Analytics. Identical MSA vintages were used for consistency with patent data.

[d] In regions, figures are weighted by office-using employment. That data are sourced from Moody's Analytics and Cushman & Wakefield Research (which produced estimates for China and India using data from the International Labour Organization, Moody's Analytics, Oxford Economics and the World Bank).

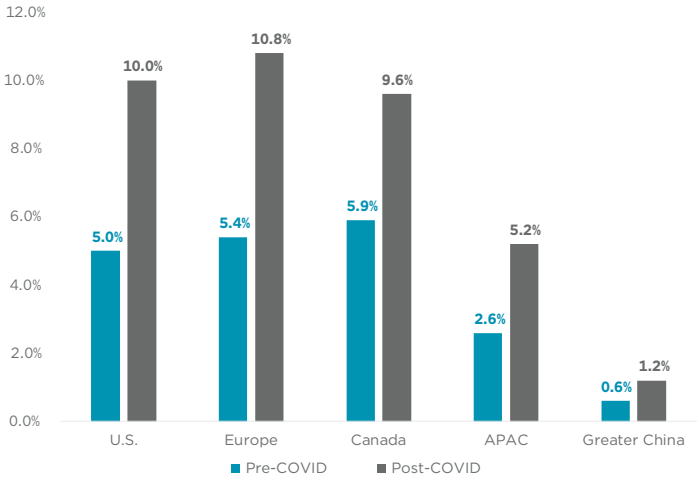
long-term structural changes that may occur over the coming decade. However, even historically, this potential was not realized. Over time, it is possible that current preferences will fade as society returns to a more normal operating environment, and pandemic fears subside. Combining multiple sources of survey data about agile WFH, we construct estimates on the likely utilization rate (what is achieved versus the potential upper bound) within each region pre- and post-COVID-19.

Multiple surveys of both workers and executives show that most people want to be in an office at least a few days per week, but with some changes, including increased flexibility to work from home, social distancing in the office, more private desks, more private defined space and fewer shared desks.[8-12, 27-30, 39, 46-48, 53] So even with aggregate increases in WFH, not all firms plan on reducing office footprints.[11, 39, 46-48] For these reasons, we believe our assumptions about WFH are grounded in a balanced view of the future—the reality that higher rates of work from home will be sustained while at the same time, the office will continue to serve a critical role in the way firms operate.

The way that these effects play out regionally varies tremendously. These variations are due not only to the numerous assumptions about WFH but also the regional outlooks under various economic scenarios. For example, in Asia Pacific's emerging markets, the demographic outlook is particularly strong.[e] For those countries as well as Mainland China, the growing penetration of office-using employment in the broader labor market has significant long-term growth consequences—especially since India and Greater China are the two most populous countries on earth. Our findings show that these regions are the least impacted from a structural perspective. In the baseline scenario, net office demand from 2022-2030 (a comparable time period across regions after which most negative cyclical effects have worn off) is only 4.5% lower in Asia Pacific and 2.9% lower in Greater China, than it otherwise would be.

For the West, WFH has a greater potential to disrupt structural office demand. From 2022-2030, under the baseline scenario, we estimate that the net office demand impact ranges from -14.8% in Canada to -15.8% in the U.S. and -17.4% in Europe. Generally, these regions are most affected by aging labor forces and the associated slowdown in total and office-using employment, as well as the increase in permanent WFH, which is a fundamental drag on absorption. Permanent WFH was approximately 5-6% in the West pre-COVID-19, and we assume that it will approximately double to 10-11% by 2030.[2, 22-24] The differences between the starting and ending shares are larger than in Asia Pacific and Greater China. We find

PERMANENT WFH DOUBLES OVER NEXT 5 YEARS



Source: Various Sources

that the results are sensitive to our assumptions about dedensification (View Table). Our baseline assumes only a halt in densification; however, a reversal of this decades-long trend would provide some degree of offset.

Though the near-term outlook varies significantly as well, a common theme is softening vacancy caused by weaker demand and high levels of construction. We forecast that vacancy will increase most in Greater China. However, Asia Pacific's advanced markets are expected to register the largest rental declines. (In Asia Pacific's advanced economies, 2020-2022 new supply totals 15.3% of 2019 inventory; in its emerging economies, it totals 23.0%; and in Greater China, it totals 26.0% of 2019 inventory.) The immediate imbalance provides an outlook for 2020-2021 that differs in tone from the long-term outlook.

In the West, the pipeline will peak in 2021 and 2022, but construction levels at the onset of the COVID-19 recession were generally more conservative than in prior downcycles. It is not our thesis that structurally lower demand in Canada, Europe and the U.S. result in structurally higher vacancy—and our results do not support the thesis. Indeed, the forecasts for the supply-side respond to lagged market conditions and as a result, future development will be muted in the early-to-mid 2020s until Europe and North America start to realize stable positive demand. It is the balance of how supply couples with demand which determines the path of vacancy and, in conjunction with the economic backdrop in each scenario, the expected trajectory for rents.

[e] This subset includes countries that overlap with inventory in the region: India, Indonesia, Malaysia, the Philippines, Thailand and Vietnam. Advanced economies include Australia, Japan, Singapore and South Korea.

ASIA PACIFIC OFFICE OUTLOOK

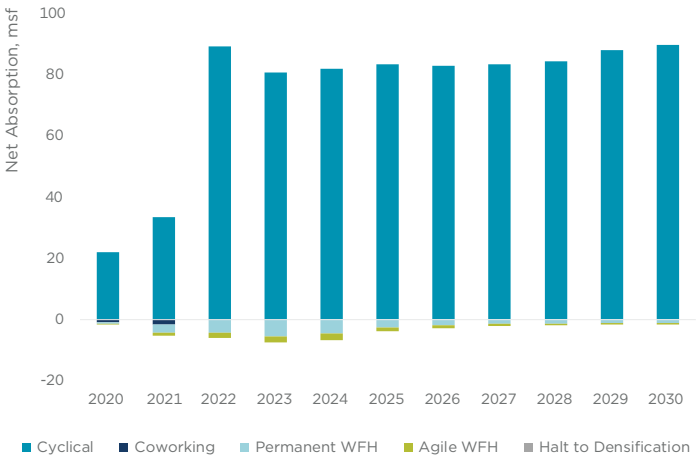
BASELINE SCENARIO: 50% PROBABILITY[f]

Under the baseline scenario, net absorption in 2020 in Asia Pacific (excluding Greater China) declines by 70% year-over-year to 20.5 msf before moderately improving to 28.0 msf in 2021, accounting for both cyclical and structural impacts on office demand. For 2020, this is a significant decline and represents an absorption rate of 2.0%, the lowest on record dating back to when record keeping began in 2007. Tied to the region's office employment base the outlook for demand masks a few competing effects. Demographic growth in emerging markets helps to mitigate office job losses in the aggregate. Advanced economies[g] are expected to lose 340,000 office jobs in 2020, more than four times the loss during the GFC in 2009 and three times the loss during the Asian Financial Crisis in 1998-99. Emerging markets are expected to fare better, adding 683,000 office jobs in 2020. Even so, this is still more than a 50% drop-off in net new office jobs in emerging markets compared to the average of the last 10 years, and it is 10% lower than 2008 office job growth, the year of the GFC nadir for emerging markets in Asia Pacific. This slowdown, combined with outright job losses in the advanced economies, will challenge the region's office leasing fundamentals over the coming 6-18 months.

Despite the challenge, demand is forecast to remain positive—not only for the current year, but also through 2030. The most recent data provides early evidence that Asia Pacific will be more resilient relative to the other global regions, particularly the Western world. In the U.S., for example, in the second quarter of 2020, net absorption was -23.1 msf versus 2.9 msf in Asia Pacific. Nevertheless, the regional office market is not immune to the negative impacts of the pandemic on demand.

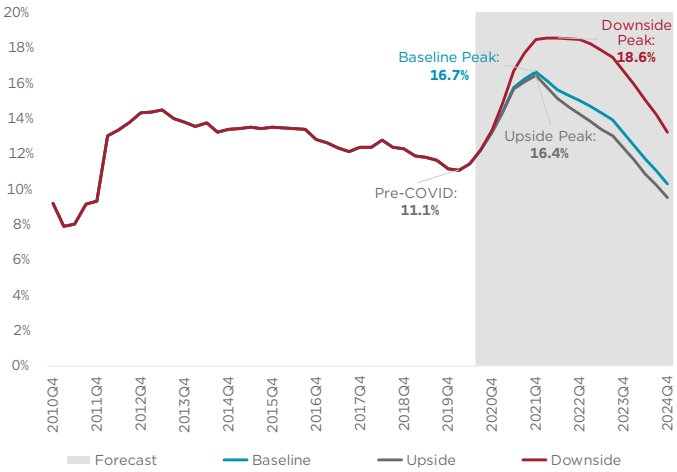
Further, Asia Pacific enters the crisis with a formidable supply pipeline. A robust wave of office development is slated for delivery in 2020-2022. Over 211 msf of new supply is expected by the end of 2022, up 5% when compared to 2017-2019. As of 2020 Q2, over 230 msf has broken ground, representing 20.8% of the region's inventory. Inevitably, the combination of weaker demand and substantial new supply will push vacancy higher, which is expected to peak at 16.7% in late 2021 and remain elevated for the following year before decreasing more rapidly. This level of vacancy is over 500 basis points (bps) above pre-COVID-19 (2019 Q4) levels and will be the highest recorded vacancy on record. While this is a steeper increase than was anticipated at the start of the year, because new supply had already started pushing vacancy up prior to the pandemic, these forecasts reflect an intensification of that trend.

PARSING OFFICE DEMAND: BASELINE SCENARIO



Source: Cushman & Wakefield Research

OFFICE VACANCY RATES



Source: Cushman & Wakefield Research

[f] There is a 50% chance the economy does better than in this scenario, and there is a 50% chance it does worse.

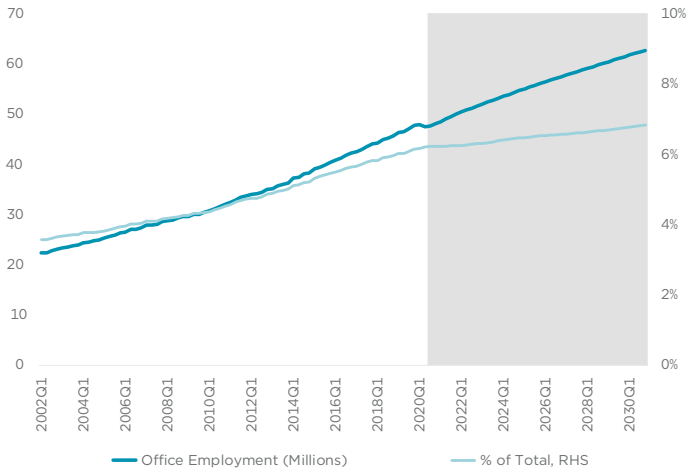
[g] This subset includes countries that overlap with inventory in the region. Advanced economies include Australia, Japan, Singapore and South Korea. Emerging economies include India, Indonesia, Malaysia, the Philippines, Thailand and Vietnam.

At the aggregate level, the impacts of the current global recession are more benign and shorter-lived in Asia Pacific than elsewhere around the world. However, as a large and diverse region, individual market experiences will vary. For the most part in the baseline, all economies in the region return to pre-COVID-19 GDP levels at around mid-2021, ranging from Q1 2021 for South Korea and Malaysia, to year-end 2021 for Japan and Indonesia.[h] A much clearer divide is seen in employment growth between emerging and advanced economies. Driven by robust population growth, domestic demand and rapid urbanization, emerging markets are forecast to experience only minor and short-lived employment declines. Moreover, the increasing penetration of office employment, as emerging markets move up the global value chain, is significant when a country as large as India is factored in. Annual average office job creation for the region is forecast to be 1.47 million per year (from 2021-2030). Ultimately, for emerging markets, this results in a shallow and short decline in office rents of just 2.6% over the next 18 months, returning to pre-COVID-19 levels in the second half of 2022 (Q4 specifically) with continued growth thereafter.

In contrast, advanced economies in the region appear to be more sensitive to global economic conditions as they lack the strength of domestic demand and demographic drivers seen in emerging markets. When factoring in both employment declines that are more severe, and more elastic rent responses to declining occupancy levels, a sharper peak-to-trough rental decline of 21.3% is forecast over the next 21 months. New office construction in advanced economies totals 15.3% of inventory as of 2020 Q2, and with less demographic pressure supporting labor force growth, the path back to recovery is more protracted. Aggregate rents do not return to pre-COVID-19 levels until 2026.

Increased flexible working and WFH practices do not meaningfully alter the outlook for Asia Pacific's office market. We expect net office demand from 2022-2030 to be only 4.5% lower as a result of these effects. Their impact is dwarfed by the region's overall high-growth backdrop. A key factor is India, which makes up 56.5% of tracked inventory in the region and where WFH adoption is expected to be lower than in advanced economies. Consequently, Asia Pacific's occupied inventory is forecast to increase by 84.0%, equivalent to over 760 msf, as it increases from 908 msf in 2020 Q2 to over 1,670 msf by the end of the decade.

OFFICE EMPLOYMENT
CONTINUES TO INCREASE AS A % OF OVERALL JOBS



Source: International Labor Organization, World Bank, Oxford Economics, Moody's Analytics, Cushman & Wakefield Research

TABLE 1: BASELINE FORECAST

Metric	2019	2020	2021	2022	2023	2024
Office Employment (Average, 000s)	46,886	47,779	49,265	51,022	52,579	54,092
Office Job Growth (Average, %)	4.2%	1.9%	3.1%	3.6%	3.1%	2.9%
New Supply (msf)	75.6	57.5	77.3	76.5	58.8	43.1
Net Absorption (msf)	68.9	20.5	28.0	83.4	73.2	75.2
Vacancy Rate (Average, %)	11.6%	12.0%	15.8%	15.5%	14.0%	11.4%
Advanced Economies Rent Growth* (Average, %)	3.9%	7.3%	-13.0%	-4.8%	4.7%	7.1%
Emerging Economies Rent Growth* (Average, %)	-0.9%	0.1%	-1.7%	1.1%	3.6%	4.2%

Source: International Labor Organization, World Bank, Oxford Economics, Moody's Analytics, Cushman & Wakefield Research

*Underlying rent data are for gross Class A rents. Rents are converted to USD using a fixed 19Q4 FX rate.

[h] Based on real GDP data in local currency units

UPSIDE SCENARIO: 10% PROBABILITY[i]

Key Assumptions

- Commodity prices rebound amidst improving global demand.
- Global political tensions ease, resulting in greater trade flows.
- Although this scenario provides an improved outlook, there is comparatively little economic and employment uplift between the upside and baseline scenarios at the regional level. Asia Pacific and Greater China are the least-affected regions in the baseline and their office sectors stand to gain less from an upside playing out in the West.
- Consequently, improvements in the office market are also marginal: office employment increases by 399,000 versus 348,000 in the baseline. In both scenarios, we forecast 14.65 million new office jobs from 2021-2030.
- Given the new supply trajectory, peak vacancy is still high by historical standards, reaching 16.4% by the end of 2021, with 51.2 msf of absorption in 2020-2021 combined. Vacancy gradually decreases to 8.3% by 2025. Gross rents fall peak-to-trough by 20.7% and 2.3% over 2020-22 for advanced and emerging economies respectively. Rents recover to pre-crisis levels by 2025 and by the second half of 2022, respectively.

TABLE 2: UPSIDE FORECAST

Metric	2019	2020	2021	2022	2023	2024
Office Employment (Average, 000s)	46,886	47,791	49,365	51,154	52,650	54,127
Office Job Growth (Average, %)	4.2%	1.9%	3.3%	3.6%	2.9%	2.8%
New Supply (msf)	75.6	57.5	77.3	76.5	59.2	44.8
Net Absorption (msf)	68.9	20.5	30.7	90.0	75.2	76.3
Vacancy Rate (Average, %)	11.6%	12.0%	15.7%	15.0%	13.1%	10.6%
Advanced Economies Rent Growth* (Average, %)	3.9%	7.3%	-12.9%	-3.7%	6.1%	7.2%
Emerging Economies Rent Growth* (Average., %)	-0.9%	0.1%	-1.5%	1.4%	3.9%	4.1%

Source: International Labor Organization, World Bank, Oxford Economics, Moody's Analytics, Cushman & Wakefield Research

*Underlying rent data are for gross Class A rents. Rents are converted to USD using a fixed 19Q4 FX rate.

[i] There is at most a 10% chance the economy the does better than in this scenario, and at least a 90% chance it does worse.

DOWNSIDE SCENARIO: 10% PROBABILITY[j]

Key Assumptions

- Stimulus measures are insufficient to overcome suppressed demand and so unemployment rises further and household consumption plummets.
- Governments face large fiscal deficits and are less able to provide further stimulus.
- Reduced business investment keeps real GDP below pre-COVID-19 levels through the forecast horizon.
- Due to the much weaker outlook, job growth is stymied, with office employment falling by 160,000 in 2020. Data for the region's office employment began in 2002 (controlling for a consistent sample for the countries studied in this report); this would be the first time office employment growth is negative since then. Office employment ends the decade approximately 300,000 jobs lower than in the baseline.
- Given the new supply trajectory, peak vacancy climbs even higher to reach 18.6% by the end of the first half of 2022, with 28.2 msf of absorption in 2020-2021 combined. Vacancy remains elevated for a prolonged period and gradually moves to 11.1% by 2025. Gross rents fall peak-to-trough by 25.8% and 5.0% over 2020-22 for advanced and emerging economies, respectively. Rents recover to pre-crisis levels by late 2026 and by the first half of 2024, respectively.

TABLE 3: DOWNSIDE FORECAST

Metric	2019	2020	2021	2022	2023	2024
Office Employment (Average, 000s)	46,886	47,570	48,455	50,045	51,679	53,362
Office Job Growth (Average, %)	4.2%	1.5%	1.9%	3.3%	3.3%	3.3%
New Supply (msf)	75.6	57.5	77.3	76.5	55.5	34
Net Absorption (msf)	68.9	18.9	9.3	62.0	68.0	73.4
Vacancy Rate (Average, %)	11.6%	12.0%	17.0%	18.5%	17.6%	14.6%
Advanced Economies Rent Growth* (Average, %)	3.9%	7.3%	-14.9%	-10.0%	1.5%	7.4%
Emerging Economies Rent Growth* (Average, %)	-0.9%	-0.1%	-3.2%	-1.1%	2.6%	4.5%

Source: International Labor Organization, World Bank, Oxford Economics, Moody's Analytics, Cushman & Wakefield Research

*Underlying rent data are for gross Class A rents. Rents are converted to USD using a fixed 19Q4 FX rate.

[j] There is at most a 90% chance the economy the does better than in this scenario, and at least a 10% chance it does worse.

GREATER CHINA OFFICE OUTLOOK

BASELINE SCENARIO: 50% PROBABILITY[k]

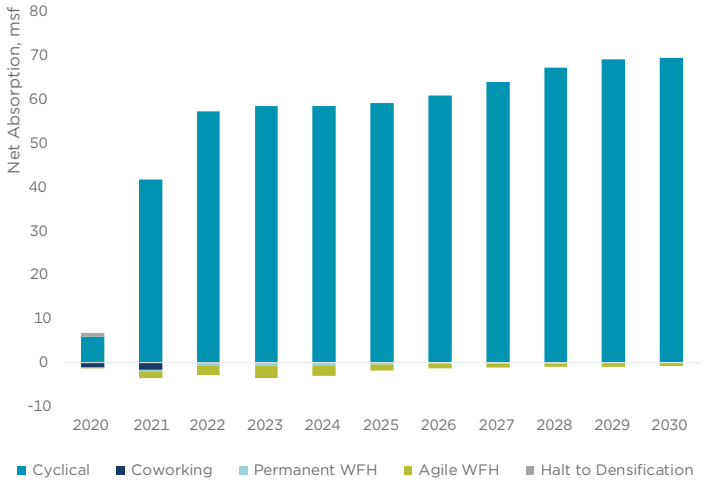
The baseline scenario for Greater China[l] is for office-using employment to slow sharply in 2020, creating 787,000 office-using jobs for the year—nearly 80% lower than its 10-year average of 3.5 million per year. Looking closer, however, the employment situation is more a tale of two halves. In the first half of 2020, particularly in Q1, Greater China lost an estimated 90,000 office-using jobs. By the second quarter, mainland China's economy was starting to rebound, and the office employment outlook started improving. Thus, the cyclical impact of the COVID-19 pandemic on the office sector was felt primarily in the first quarter of the year. In 2020 Q1, negative absorption was recorded for the first time since 2008 Q4 although a rebound in Q2 brought 2020 H1 absorption to 1.2 msf. In the second half of 2020—factoring in both the cyclical and structural impacts—the baseline forecast indicates that demand for office space will slowly gain momentum, registering 4.3 msf of net absorption.

As annual average office job creation accelerates through 2021, the rate will still be lower over the coming decade than it was in the 2010s, due to a demographically-driven decline in the size of the labor force. It is therefore key to note that office employment is expected to increase from its 10.6% share of total employment to 15.3% by the end of the decade, supporting an average increase of 3.2 million office jobs per year from 2021-2030. In the baseline scenario, the demand side of equation in the region rebounds but remains weaker in 2020 and 2021 relative to pre-COVID-19 levels, and then gains momentum in 2022.

However, much like other parts of Asia Pacific, Greater China enters the crisis during an office construction boom. There is 192.6 msf of new supply expected to deliver between 2020-2022, representing a 26.0% increase above 2019 year-end inventory levels, after accounting for delays and a tighter debt financing environment. That 26.0% increase represents the most substantial completions rate of all the global regions, albeit just slightly more than Asia Pacific's emerging markets (23.0%). The trending increase in Greater China's vacancy rate pre-COVID-19 is therefore expected to accelerate in the face of weaker demand. The baseline forecast is for vacancy to peak at 26.2% by year-end 2021 from its 21.1% level in 2020 Q2. Demand for space begins to catch up with new supply in late 2022, and vacancy begins trending down in 2023. Like Asia Pacific, the level of occupied stock is expected to continue rising over the entire forecast horizon despite weaker near-term demand, supported by other structural factors.

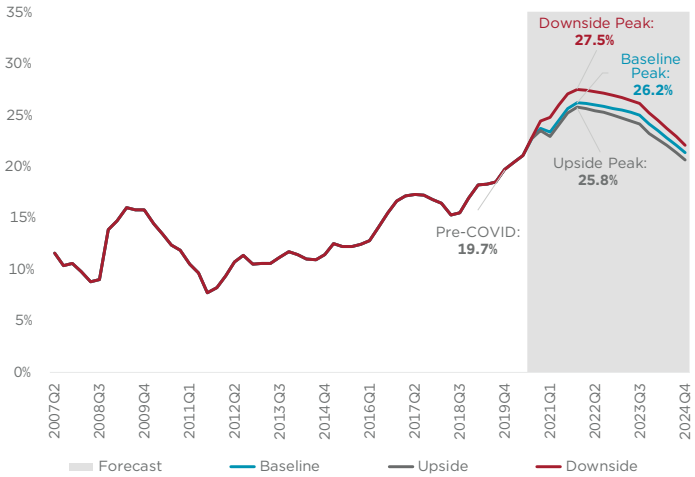
Gross effective rents on Greater China's Class A product are set to soften as vacancy rises to new records. Annual average rents fell by 4.2% in 2019. We forecast that they will end 2020 8.0% below 2019 average levels—they were down by 6.0% in 2020 H1 alone—before declining by

PARSING OFFICE DEMAND: BASELINE SCENARIO



Source: Cushman & Wakefield Research

OFFICE VACANCY RATES



Source: Cushman & Wakefield Research

[k] There is a 50% chance the economy does better than in this scenario, and there is a 50% chance it does worse.

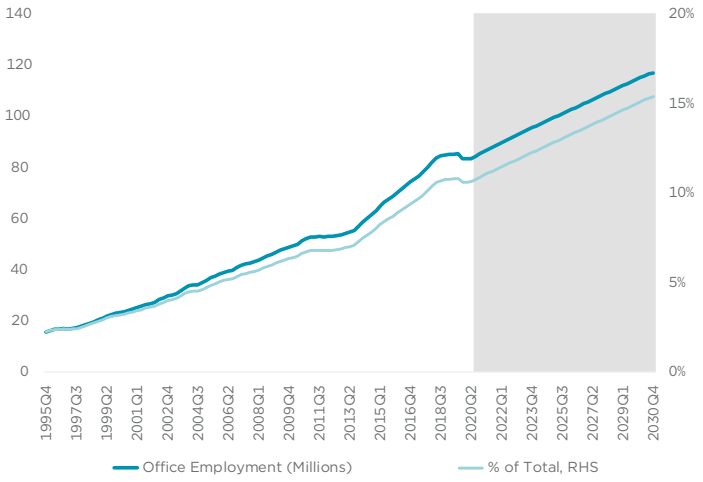
[l] Greater China includes Hong Kong, Mainland China and Taiwan

5.2% in 2021. We anticipate 2021 is the nadir for rents as a strong employment backdrop, slowing development and rising occupancy rates support growth thereafter. Rents are expected to surpass 40 USD/sf by the end of 2024.

Although new supply will have a significant impact on aggregate rents across the region, certain cities and office submarkets have a more positive outlook than others as deliveries are weighted heavily to lower cost locations. Thus, some of the forecasted rent decline in Greater China is simply due to growing inventory in lower cost Chinese markets. This same phenomenon was also observed during the GFC. In the aggregate, rents in Greater China declined by 35% during the GFC, but some markets, including Beijing and Guangzhou, were far more resilient. The overall rent decline region-wide was accentuated by the expansion of lower cost markets and the emergence of new office clusters.

Of all the regions studied in this report, Greater China's structural office demand is estimated to be the least impacted by WFH from 2022-2030. Mainland China's short and successful lockdown in 2020 Q1 allowed for a rapid return to normal office-based working with little time to fundamentally change working habits. Additionally, we estimate that in Mainland China over ~85% of tenant demand comes from domestic companies. Typically, these firms display marked corporate culture differences from their Western counterparts, and often there is a prevailing skepticism that full-time WFH arrangements will result in positive outcomes or be adopted in the mainstream. Thus, it is not surprising that pre-COVID-19, permanent WFH was only done by 0.6% of the workforce. Even allowing this to double over the next decade along with an increase in agile working, we find that the structural impact only reduces demand by 2.9% from what it otherwise would be.

OFFICE EMPLOYMENT
CONTINUES TO INCREASE AS A % OF OVERALL JOBS



Source: International Labor Organization, World Bank, Oxford Economics, Moody's Analytics, Cushman & Wakefield Research

TABLE 1: BASELINE FORECAST

Metric	2019	2020	2021	2022	2023	2024
Office Employment (Average, 000s)	84,698	84,039	87,394	90,835	94,201	97,428
Office Job Growth (Average, %)	1.2%	-0.8%	4.0%	3.9%	3.7%	3.4%
New Supply (msf)	55.4	47.6	78.3	66.6	54.2	35.3
Net Absorption (msf)	30.9	5.5	38.2	54.4	54.9	55.5
Vacancy Rate (Average, %)	18.7%	22.0%	25.0%	25.9%	25.0%	22.4%
Rent Growth* (Average, %)	-4.2%	-8.0%	-5.2%	0.1%	4.7%	5.6%

Source: International Labor Organization, World Bank, Oxford Economics, Moody's Analytics, Cushman & Wakefield Research

*Underlying rent data are for direct Class A gross effective rents. Rents are converted to USD using a fixed 19Q4 FX rate.

UPSIDE SCENARIO: 10% PROBABILITY[m]

Key Assumptions

- The pandemic remains contained in Mainland China and Taiwan and is resolved in Hong Kong during Q3. No major future outbreaks occur.
- Global political tensions ease, resulting in greater trade flows. Global demand rebounds faster.
- Although this scenario provides an improved outlook, there is comparatively little economic and employment uplift between the upside and baseline scenarios at the regional level. Asia Pacific and Greater China are the least-affected regions in the baseline and their office sectors stand to gain less from an upside playing out in the West.
- Office employment rebounds more rapidly in 2020, with job growth of 2.1 million versus 1.8 million in the baseline. Annual average office job creation still averages 3.1 million per year from 2021 onward.
- Given the new supply trajectory, vacancy still reaches 25.8% by the end of 2021, with 47.2 msf of absorption in 2020-2021 combined. Vacancy gradually decreases to 18.8% by 2025. Rents fall by 10.8% from their 2019 Q4 levels and surpass 40 USD/sf by mid-2024.

TABLE 2: UPSIDE FORECAST

Metric	2019	2020	2021	2022	2023	2024
Office Employment (Average, 000s)	84,698	84,190	87,703	91,116	94,475	97,549
Office Job Growth (Average, %)	1.2%	-0.6%	4.2%	3.9%	3.7%	3.3%
New Supply (msf)	55.4	47.6	78.3	66.6	54.8	37
Net Absorption (msf)	30.9	7.3	39.9	56.8	58.4	55.2
Vacancy Rate (Average, %)	18.7%	21.9%	24.5%	25.3%	24.1%	21.7%
Rent Growth* (Average, %)	-4.2%	-8.0%	-4.6%	0.3%	4.8%	5.7%

Source: International Labor Organization, World Bank, Oxford Economics, Moody's Analytics, Cushman & Wakefield Research

*Underlying rent data are for direct Class A gross effective rents. Rents are converted to USD using a fixed 19Q4 FX rate.

[m] There is at most a 10% chance the economy the does better than in this scenario, and at least a 90% chance it does worse.

DOWNSIDE SCENARIO: 10% PROBABILITY[n]

Key Assumptions

- An outbreak in a major city blows up to a full second wave of cases, forcing the country to re-enter lockdown.
- Political and economic tensions with the U.S. escalate once again, weighing on global trade and demand.
- Office employment only increases by 787,000 in 2020, with a significantly weaker second half of the year. Pent-up demand causes 2021-2022 office job growth to be stronger than in the baseline scenario. However, the decade's average annual office job creation still averages 3.2 million per year.
- Given both the new supply trajectory and an even weaker demand backdrop, vacancy reaches 27.5% by the end of 2021, with 32.3 msf of absorption in 2020-2021 combined. Vacancy gradually decreases to 20.0% by 2025. Rents fall by 14.0% from their 2019 Q4 levels and surpass 40 USD/sf in 2025.

TABLE 3: DOWNSIDE FORECAST

Metric	2019	2020	2021	2022	2023	2024
Office Employment (Average, 000s)	84,698	83,572	86,412	90,031	93,593	96,953
Office Job Growth (Average, %)	1.2%	-1.3%	3.4%	4.2%	4.0%	3.6%
New Supply (msf)	55.4	47.6	78.3	66.6	52.4	30.3
Net Absorption (msf)	30.9	0.0	32.3	53.9	55.1	54.3
Vacancy Rate (Average, %)	18.7%	22.2%	26.4%	27.2%	26.1%	23.3%
Rent Growth* (Average, %)	-4.2%	-8.0%	-7.1%	-0.4%	5.2%	6.2%

Source: International Labor Organization, World Bank, Oxford Economics, Moody's Analytics, Cushman & Wakefield Research

*Underlying rent data are for direct Class A gross effective rents. Rents are converted to USD using a fixed 19Q4 FX rate.

[n] There is at most a 90% chance the economy the does better than in this scenario, and at least a 10% chance it does worse.

EUROPEAN OFFICE OUTLOOK

BASELINE SCENARIO: 50% PROBABILITY[o]

The baseline scenario for European[p] office employment is for a loss of 1.2 million jobs in 2020, more than the 0.9 million jobs lost in 2008-10 due to the GFC. Accounting for this job impact alone, net absorption (demand) in the European office sector is forecast to contract by 39.4 msf (1.1% of inventory) over the next two years, with most of that (-29.1 msf) occurring in 2021. Cyclical stress on coworking/flex operators results in another -5.8 msf of negative absorption over the coming years, assuming only 10% of the coworking/flex footprint comes back to the market. The cyclical impact is the main drag on demand for office space in the near-term, accounting for approximately 80% of the negative absorption expected to occur over the next two years. However, the structural effect from an increase in remote working is expected to reduce office demand by an additional 10.2 msf during 2020-2021, bringing the combined cyclical and structural impact to -57.9 msf peak-to-trough. Positive demand in the first nine months of 2020 and in the latter half of 2022 reduce the magnitude of the annual figures for these years.

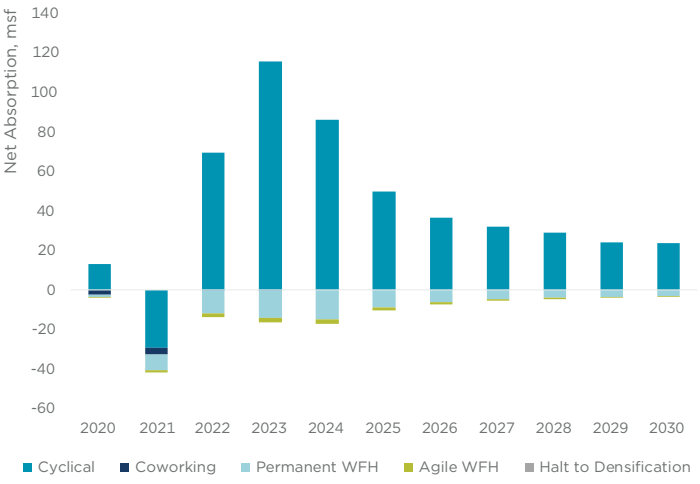
On the supply side, European office completions are set to rise in 2020-21, supported by high pre-leasing activity over recent years. Deliveries averaged only 1.2% of inventory from 2010-2019 due to the tighter financing requirements that resulted from the last crisis, but the pipeline stands at 1.5% in 2020 and is peaking at 2.1% in 2021.

A simultaneous reduction in demand and an increase in new supply pushes up vacancy rates from an historic low of 5.9% in 2019 Q4 to a peak of 10.6% by 2022 Q1, a 470 basis points (bps) increase that significantly exceeds the 270 bps rise recorded post-GFC. The peak level of vacancy is in line with but slightly higher than the peak vacancy rate of 10.2% recorded in 2009 Q4. As such, prime headline rents are expected to decline by 10.7% peak-to-trough, consistent with the 10.6% fall from the GFC but less than the 13.4% drop after the Dot Com bubble. Prime rents return to their pre-crisis levels by late 2024.

In 2022, office demand again turns positive, driven by an improving labor market. Office-using job employment is expected to reach its pre-crisis level by the third quarter of 2022, which represents a 10-quarter recovery period consistent with the GFC. Office demand peaks in 2023 as annual employment growth decelerates slowly, and the developer response to that slowing demand leads to a completions rate equal to or less than 1% of inventory from 2023 onwards. Long-term, both supply and demand adjust to slower labor force growth, and structurally lower—albeit demographically driven—office job growth.

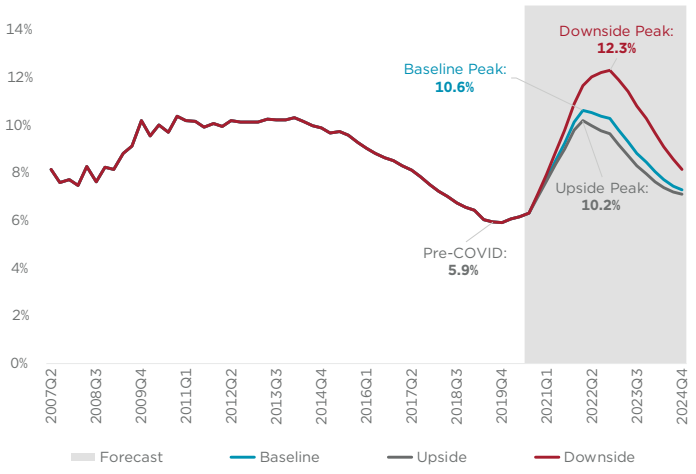
The reduction in office demand from structural WFH factors is greatest by 2023-24 as WFH increases at an

PARSING OFFICE DEMAND: BASELINE SCENARIO



Source: Cushman & Wakefield Research

OFFICE VACANCY RATES



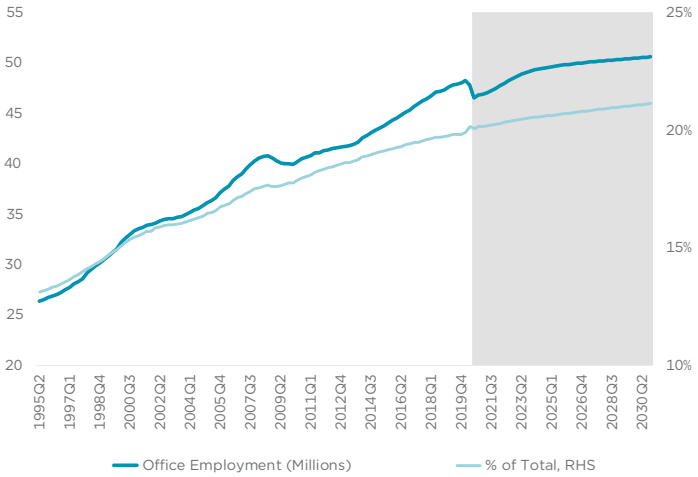
Source: Cushman & Wakefield Research

[o] There is a 50% chance the economy does better than in this scenario, and there is a 50% chance it does worse.

[p] For this study, Europe includes the EU28, Norway and Switzerland.

accelerating rate in the first half of the 2020s. However, the cyclical recovery more than offsets the structural drag, which, combined with lower levels of development, compresses the vacancy rate from the peak of 10.6% in early 2022 to a low of 7.0% by mid-2025. This is higher than before the pandemic but lower than in 2006-07, which was after a more significant demand hit and a much shorter recovery phase following the Dot Com crash.

OFFICE EMPLOYMENT
CONTINUES TO INCREASE AS A % OF OVERALL JOBS



Source: Eurostat, Various Agencies, Moody's Analytics, Cushman & Wakefield Research

European office demand is expected to be 17.4% lower from 2022-2030 due to increased remote working and short-term coworking distress, with most of this adjustment occurring between 2021 and 2024 when cyclical demand is highest. Further, if permanent WFH was to increase by only half of the amount assumed in our baseline scenario (to 8.0% in contrast to 10.6%), then the net demand impact for 2022-2030 would be only 10.6% lower than it otherwise would be. Any dedensification that happens in the near-term or permanently would act as an offset as well.

Europe is a diverse region with some countries and office markets more likely to undergo stronger structural shifts from an increase in remote working than others. We estimate the propensity to work remotely for major European cities using a weighted index of six driving factors[q]. Cities such as London and Paris are ranked highest, indicating that these office markets may reach a higher relative proportion of remote working than others, driven by higher residential prices, longer commute times, greater congestion and a greater adoption of working from home. Generally, the UK has a higher propensity to work remotely because of these factors: higher workplace densities relative to much of Europe,[r] a sizable share of the population that work from home[s] and a large office employment sector. The Nordic countries also rank highly due to a wider adoption of working from home (prior to COVID-19) and a large ICT (information and communications technology) employment share. At the lower end of the spectrum are a selection of markets in the Central and Eastern Europe region, semi-core[t] and Benelux which typically have a smaller population, lower population density, lower working from home adoption and a lower workplace density.

TABLE 1: BASELINE FORECAST

Metric	2019	2020	2021	2022	2023	2024
Office Employment (Average, 000s)	47,861	47,373	47,171	48,133	48,983	49,951
Office Job Growth (Average, %)	1.6%	-1.0%	-0.4%	2.0%	1.8%	1.0%
New Supply (msf)	43.9	52.3	76.1	68.9	34.5	27.6
Net Absorption (msf)	63.3	9.7	-41.8	56.0	99.3	69.3
Vacancy Rate (Average, %)	6.1%	6.4%	8.9%	10.5%	9.1%	7.6%
Rent Growth* (Average, %)	3.1%	0.2%	-7.8%	-1.7%	3.9%	4.3%

Source: Moody's Analytics, Cushman & Wakefield Research

*Underlying rent data are for prime rents. Rents are converted to USD using a fixed 19Q4 FX rate.

[q] Our propensity to work remotely index includes population, population density, working from home population, workplace density, office employment share and ICT employment share.

[r] Cushman & Wakefield, Global Occupier Metrics

[s] Eurostat

[t] Semi-core is comprised of markets in Italy, Spain and Portugal.

UPSIDE SCENARIO: 10% PROBABILITY[u]

Key Assumptions

- European office employment contracts by 0.9 million jobs in 2020. However, with a less prolonged shock and a more front-loaded recovery, average annual office job growth is 356,000 from 2021-2030 versus 377,000 in the baseline.
- The ECB initially keeps policy rates unchanged despite the rebound and supports the recovery with large asset purchases and further LTROs.
- Eurozone governments introduce further common support for economies, improving the institutional infrastructure of the currency bloc.
- Economic activity declines less and recovers sooner than in the baseline, translating into a higher long-term level of GDP.
- The combined cyclical and structural net absorption impact is -42.1 msf over 2020-21. Vacancy rates peak at 10.2% in early 2022 before gradually moving to a low of 7.0% by early 2025. Prime rents fall peak-to-trough by 8.7% over 2020-22 and recover to pre-crisis levels by 2025.

TABLE 2: UPSIDE FORECAST

Metric	2019	2020	2021	2022	2023	2024
Office Employment (Average, 000s)	47,861	47,492	47,578	48,542	49,314	49,701
Office Job Growth (Average, %)	1.6%	-0.8%	0.2%	2.0%	1.6%	0.8%
New Supply (msf)	43.9	52.3	76.1	68.9	24.6	28.0
Net Absorption (msf)	63.3	11.0	-31.1	67.7	93.6	58.1
Vacancy Rate (Average, %)	6.1%	6.4%	8.7%	9.9%	8.5%	7.3%
Rent Growth* (Average, %)	3.1%	0.2%	-6.5%	-0.9%	3.9%	3.6%

Source: Moody's Analytics, Cushman & Wakefield Research

*Underlying rent data are for prime rents. Rents are converted to USD using a fixed 19Q4 FX rate.

[u] There is at most a 10% chance the economy the does better than in this scenario, and at least a 90% chance it does worse.

DOWNSIDE SCENARIO: 10% PROBABILITY[v]

Key Assumptions

- European office employment contracts by 1.8 million jobs in 2020. Annual average job growth from 2021-2030 is 416,000, with a delayed but strong recovery in 2022 and 2023, when over one million office jobs are added in each year.
- The ECB keeps policy rates unchanged and supports the economy with further asset purchases and liquidity infusion.
- A sustained period of low investment in innovative industries and human capital weighs on productivity growth, eroding the economy's potential.
- The combined cyclical and structural net absorption impact is -95.4 msf over 2020-21. Vacancy rates peak at 12.3% in late 2022 before gradually moving to 7.3% by 2025. Prime rents fall peak-to-trough by 16.3% over 2020-22 and recover to pre-crisis levels by 2028.

TABLE 3: DOWNSIDE FORECAST

Metric	2019	2020	2021	2022	2023	2024
Office Employment (Average, 000s)	47,861	47,132	46,105	46,885	47,959	48,702
Office Job Growth (Average, %)	1.6%	-1.5%	-2.2%	1.7%	2.3%	1.6%
New Supply (msf)	43.9	52.3	76.1	68.9	34.4	26.4
Net Absorption (msf)	63.3	7.3	-68.0	9.3	106.1	104.4
Vacancy Rate (Average, %)	6.1%	6.4%	9.4%	12.0%	11.1%	8.9%
Rent Growth* (Average, %)	3.1%	0.0%	-10.9%	-4.9%	3.0%	5.9%

Source: Moody's Analytics, Cushman & Wakefield Research

*Underlying rent data are for prime rents. Rents are converted to USD using a fixed 19Q4 FX rate.

[v] There is at most a 90% chance the economy the does better than in this scenario, and at least a 10% chance it does worse.

U.S. OFFICE OUTLOOK

BASELINE SCENARIO: 50% PROBABILITY[w]

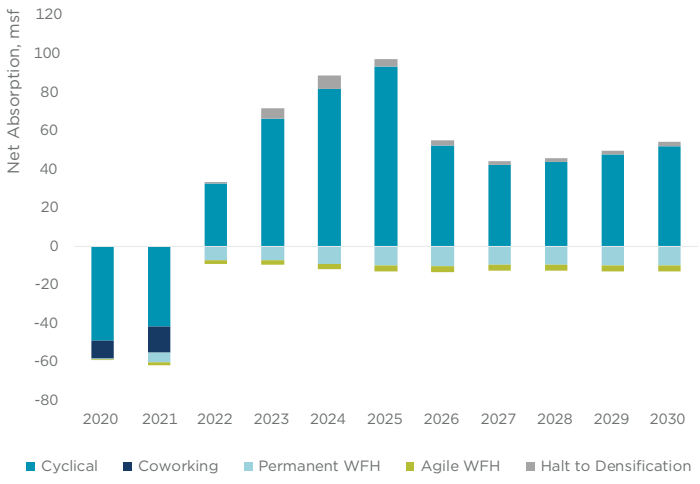
In the baseline scenario, factoring in both cyclical and structural impacts, the U.S. office sector is expected to shed 145 msf over the next two years (2020 and 2021) as it works through the effects of 1.7 million office job losses during 2020. (The baseline forecast for 2020 office job losses calls for an improvement from the Q2 reduction of 2.6 million office jobs.) In 2020 Q2, absorption was -23.1 msf, meaning that there is potential for another 122 msf of negative absorption. The hit to demand for office space —measured by the level of net absorption— is approximately 20% more severe than what occurred during the GFC period of 2008 and 2009, excluding the idiosyncratic risk of coworking/flex operators. When viewed as a share of inventory, the difference is less stark but still sobering. During the Dot Com Recession and the GFC, negative absorption ultimately was -2.4% and -2.2% of 2001 Q1/2008 Q1 inventory (respectively); whereas in this scenario, forecasted negative absorption totals -2.7% of 2020 Q1 inventory. (Each figure is based on the inventory for the period in which absorption turned negative for the first time in the downcycle.)

It is noteworthy that in the near-term, the cyclical effects of job loss and coworking/flex operator space returning to the market are driving most of the demand movement, but that with time, the permanent effects of increased full-time and part-time remote work begin to weigh on absorption rates. In a world without COVID-19, absorption rates were already in structural decline due to densification—i.e., businesses were absorbing less space per office-using employee. In this scenario, we assume that structural trend of densification comes to a halt. However, a new structural trend emerges in the form of increased remote working, which has a similarly negative effect on absorption rates. More remote workers lead to less demand for office space per employee. The net effect of the halt in densification in combination with the increase in remote working is that absorption rates will be marginally lower (20 bps) over the coming decade than they otherwise would have been.

Although the U.S. had a relatively conservative pipeline entering the current recession, there are still 134 msf under construction (as of 2020 Q2) and demand and pre-leasing rates were already slowing prior to COVID-19. U.S. office vacancy is expected to rise steadily from 13.0% in 2019 Q4 and to peak at 17.6% by mid-2022. This increase will be tied with the highest vacancy rate on record in the aftermath of the Dot Com Recession (2003 Q3). Asking rents are expected to fall by 9.3% peak-to-trough, more than the 8.6% decline during the GFC but less than the 17.8% drop after the 2001 recession.

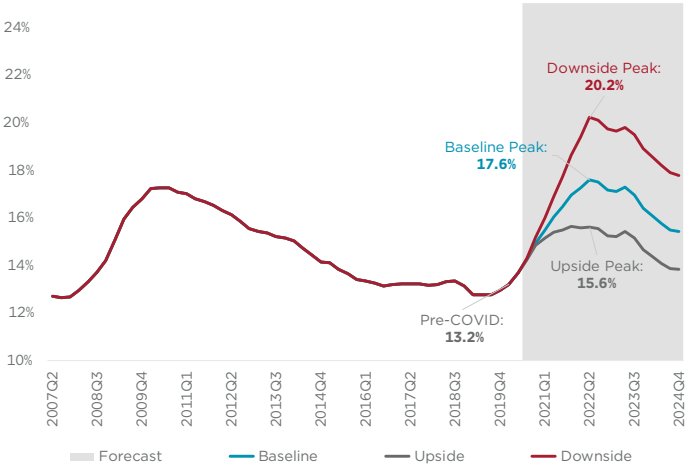
Owners may look for creative solutions, including offering free rent and increased tenant improvement concessions, but aggregate annual average asking rents

PARSING OFFICE DEMAND: BASELINE SCENARIO



Source: Cushman & Wakefield Research

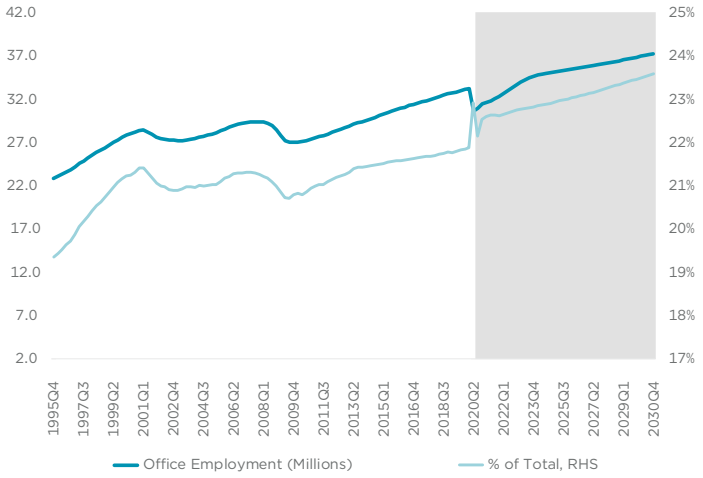
OFFICE VACANCY RATES



Source: Cushman & Wakefield Research

[w] There is a 50% chance the economy does better than in this scenario, and there is a 50% chance it does worse.

OFFICE EMPLOYMENT
CONTINUES TO INCREASE AS A % OF OVERALL JOBS



Source: U.S. Bureau of Labor Statistics, Moody's Analytics, Cushman & Wakefield Research

are ultimately expected to decline by 6.5% in 2021 and another 2.3% in 2022 as the market adjusts towards its equilibrium clearing price. Asking rent declines usually lag deterioration in broader fundamentals, and we expect to see rents continuing to grow in 2020 despite weakening occupancy levels. As the U.S. economy returns to its pre-crisis GDP level (2022 Q2 in the baseline scenario), and as office-using employment surpasses its pre-COVID-19 peak a quarter later, the office sector will begin absorbing office space again and the demand metrics will begin to improve.

Over the 2022-2030 period, under the baseline scenario, we expect office demand to be 15.8% lower than it otherwise would be due to a structural increase in WFH, despite holding density at pre-COVID-19 levels. This estimate does not include any effect that dedensification could have: if companies expand per worker footprints by 25% due to health safety requirements, and if the effect is permanent, demand over this timeframe is decreased by only 8.2%. If companies were to expand per worker footprints by 50% permanently, the effect of work from home is fully offset.

TABLE 1: BASELINE FORECAST

Metric	2019	2020	2021	2022	2023	2024
Office Employment (Average, 000s)	32,921	31,580	31,980	33,163	34,359	34,970
Office Job Growth (Average, %)	1.7%	-4.1%	1.3%	3.7%	3.6%	1.8%
New Supply (msf)	57.6	49.3	57.1	42.8	24.5	25.4
Net Absorption (msf)	58.9	-59.1	-61.8	24.1	62.1	76.7
Vacancy Rate (Average, %)	12.8%	14.0%	16.2%	17.4%	16.9%	15.7%
Rent Growth* (Average, %)	4.3%	3.0%	-6.5%	-2.3%	2.6%	3.5%

Source: Moody's Analytics, Cushman & Wakefield Research

*Underlying rent data are for gross overall asking rents.

UPSIDE SCENARIO: 10% PROBABILITY[x]

Key Assumptions

- Office-using job losses total 940,000 in 2020 and 3.6 million office jobs are added between 2021-2024, with two-thirds of those added in 2021-2022. Office employment recovers in 2021 Q3.
- Policy assumptions are the same as those in the baseline scenario: Congress passes another bill totaling $1.5 trillion in relief and the Federal Reserve remains highly aggressive.
- Due to the relatively stronger outlook, the return to full employment is more front-loaded in the forecast horizon, resulting in higher rates of office job growth in the near-term.
- A fast resolution to both the virus and the economic damage results in less stress on coworking operators.
- The combined cyclical and structural net absorption impact is -69.9 msf over 2020-21. Vacancy rates peak at 15.6% in late 2021 and into 2022 before gradually moving to 13.5% by 2025. Gross asking rents fall by 5.5% peak-to-trough over 2020-22 and recover to pre-crisis levels by the first half of 2024.

TABLE 2: UPSIDE FORECAST

Metric	2019	2020	2021	2022	2023	2024
Office Employment (Average, 000s)	32,921	31,791	33,302	34,311	35,037	35,609
Office Job Growth (Average, %)	1.7%	-3.4%	4.8%	3.0%	2.1%	1.6%
New Supply (msf)	57.6	49.3	57.1	50.0	31.9	34.9
Net Absorption (msf)	58.9	-54.7	6.7	63.0	60.3	74.7
Vacancy Rate (Average, %)	12.8%	14.0%	15.4%	15.5%	15.1%	14.0%
Rent Growth* (Average, %)	4.3%	2.9%	-5.1%	1.7%	3.0%	2.6%

Source: Moody's Analytics, Cushman & Wakefield Research

*Underlying rent data are for gross overall asking rents.

[x] There is at most a 10% chance the economy the does better than in this scenario, and at least a 90% chance it does worse.

DOWNSIDE SCENARIO: 10% PROBABILITY[y]

Key Assumptions

- Office-using job losses continue into 2021 and total 2.9 million (more than the GFC). In 2022, pent-up demand is unleashed, and 3.5 million jobs are added from 2022-2024, with office employment recovering by 2024 Q1.
- Congress does not enact another fiscal package. The expiration of household income support and forbearance causes a 'fiscal cliff' to emerge, contributing to significant contraction in aggregate demand.
- Due to the much weaker outlook and a higher path of bankruptcies, there is more stress on coworking operators.
- The combined cyclical and structural net absorption impact is -291.1 msf over 2020-21. Vacancy rates peak at 20.2% in mid-2022, by far the highest vacancy rate recorded in the last 25 years, before gradually moving to 16.3% by 2025. Gross asking rents fall by 15.9% peak-to-trough over 2020-22 and recover to pre-crisis levels at the start of 2028.

TABLE 3: DOWNSIDE FORECAST

Metric	2019	2020	2021	2022	2023	2024
Office Employment (Average, 000s)	32,921	31,252	30,451	31,163	32,737	33,673
Office Job Growth (Average, %)	1.7%	-5.1%	-2.6%	2.3%	5.1%	2.9%
New Supply (msf)	57.6	49.3	57.1	35.0	17.8	16.9
Net Absorption (msf)	58.9	-72.3	-140.0	-30.9	58.8	76.0
Vacancy Rate (Average, %)	12.8%	14.1%	17.3%	19.9%	19.5%	18.1%
Rent Growth* (Average, %)	4.3%	3.0%	-8.4%	-7.5%	0.8%	4.6%

Source: Moody's Analytics, Cushman & Wakefield Research

*Underlying rent data are for gross overall asking rents.

[y] There is at most a 90% chance the economy the does better than in this scenario, and at least a 10% chance it does worse.

CANADA OFFICE OUTLOOK

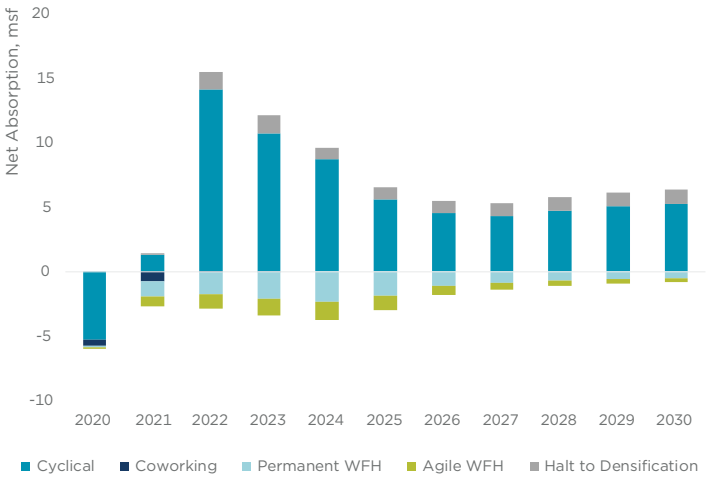
BASELINE SCENARIO: 50% PROBABILITY[z]

Over one third of the Canadian economy is tied to exports, exposing the region to contagion effects of weaker external demand for energy, automobiles and aerospace goods. Given the unprecedented scale and scope of the global pullback in early 2020, Canadian GDP and labor markets experienced the most rapid rise in job losses in history. The unemployment rate hit 13.0% in 2020 Q2 and, like the U.S., labor force participation fell concurrently. The baseline forecast calls for office job losses, which totaled 27,900 in 2020 Q1, to decrease by another 251,000 in Q2 before abating. This puts the peak-to-trough loss at 278,900, unprecedented on both a nominal and relative basis. The annual loss of 77,600—on par with the level of job losses recorded during the GFC—relies on a sharp snapback in 2020 H2 as the global economy stabilizes and aggregate demand begins to improve. Structural and cyclical impacts are expected to lead to total negative absorption totaling 8.4 msf from 2020 Q2 into 2021 Q3, more than the 5.3 msf and 4.9 msf shed during the Dot Com Recession and GFC, respectively. On an annual basis, these figures are lower due to positive absorption in 2020 Q1 and 2021 Q4.

Canada's construction pipeline has scaled back from its peak in 2017 when 9.0 msf was delivered. However, 10.6 msf is coming online over 2020 and 2021, which is an additional factor pushing vacancy from 9.8% in 2020 Q2 to 12.4% in mid-2021. The Canadian office market has reached persistent levels of vacancy over 10% only twice before—in the aftermath of the Dot Com Recession and the 2014 oil price collapse. It should be noted, however, that Calgary, which has not recovered since the last oil price decline, contributes 30.5% of Canada's total available space, even though it includes only 13.3% of the inventory. As a result of weaker fundamentals, the Canadian construction pipeline starts to taper in 2023. The lag between a downcycle commencing and developers pulling back tends to be about two years, as most near-term deliveries have broken ground already.

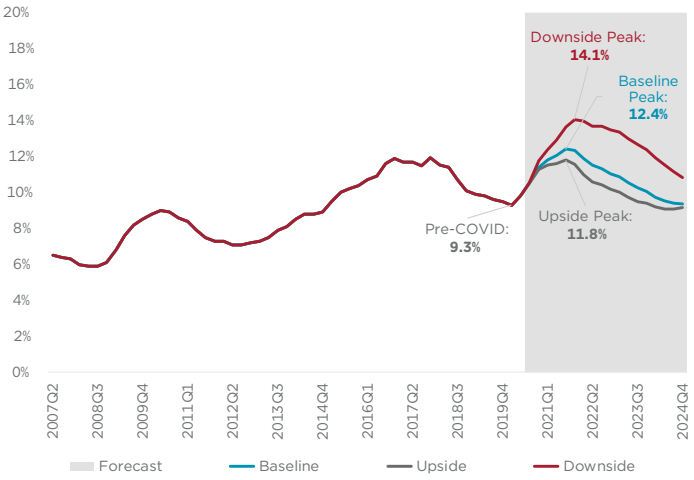
Asking rents are expected to start softening by the end of 2020, with the peak-to-trough decline reaching -5.5% before year-end 2021. Canadian asking rents are "stickier" than those in the U.S. in terms of how changes in occupancy translate into rent pressure. This is partly why rent declines are nearly twice as large in the U.S. The baseline forecast has office employment recovering by 2021 Q2, a typical length for Canada, where such recoveries have ranged from three to five quarters after consecutive quarters of office job losses. A full rent recovery occurs by 2022 Q3. In the near-term, national asking rents are likely to be pulled down by markets exposed to highly cyclical (energy) industries where rents in recent years have tended to be lower. In 2021, however, national rents may be buoyed by new product and vacancies in core gateway markets like Vancouver and Toronto. Rising availability, particularly in CBD Vancouver

PARSING OFFICE DEMAND: BASELINE SCENARIO



Source: Cushman & Wakefield Research

OFFICE VACANCY RATES



Source: Cushman & Wakefield Research

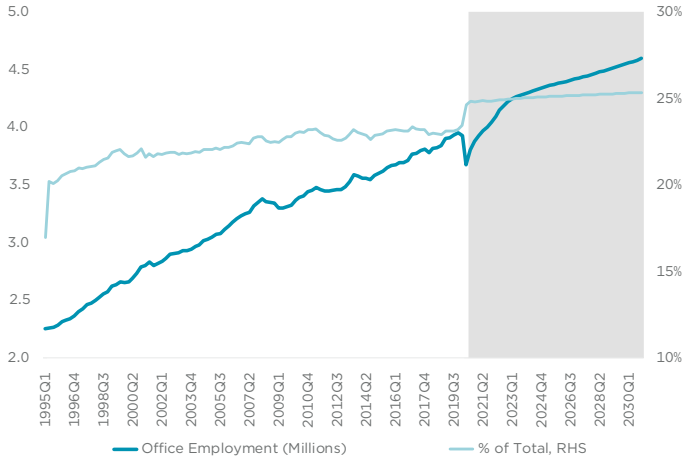
[z] There is a 50% chance the economy does better than in this scenario, and there is a 50% chance it does worse.

and Toronto, will generate some downward pressure on older Class A product rental rates as tenants relocate into the new towers. Both of these markets have record new supply coming to market.

The U.S. and Canada had similar levels of remote work before the pandemic, including both permanent remote workers and agile workers who only work remotely part-time. The effects of WFH on absorption rates are therefore similar on a relative basis—i.e., in relation to the inventory size differences. (U.S. inventory is approximately 10 times that of Canada.) Over the 2022-2030 period, under the baseline scenario, we expect office demand to be 14.5% lower due to a structural increase in WFH, despite density holding (office workers per square foot) at pre-COVID-19 levels. This estimate does not include any effect that dedensification could have: if companies were to expand per worker footprints by 25%, and if this effect burns out over the decade, demand would be reduced by 11.8%. If the effect turns out to be permanent, however, demand over this timeframe would be decreased by only 8.0%. If companies expand per worker footprints by 50% permanently, the effect of work from home would be almost fully offset.

While historically Canadian office job growth was dominated by resource, financial and energy sectors, the TAMI (technology, advertising, media, information) sector has become the leading driver of office demand in the gateway markets of Vancouver, Montreal and Toronto. Further, tech-related growth has also changed demand profiles in most markets, including Edmonton, Ottawa and across the booming tech corridor between Kitchener-Waterloo and Toronto. TAMI is anticipated to create an outsize share of office jobs as the evolution to a digital economy continues. Given the huge cost advantages in both occupancy and labor costs relative to U.S. markets, Canada is well-positioned to attract an increasing share of tech growth driven by international tech titans seeking competitive locations with highly skilled labor forces. Despite the rise of remote work triggered by the pandemic and related falloff in office demand, the outlook for TAMI and its continued prevalence in office employment are drivers of the medium-term outlook, which has occupied inventory and asking rents returning to pre-COVID-19 levels by mid-2022.

OFFICE EMPLOYMENT
CONTINUES TO INCREASE AS A % OF OVERALL JOBS



Source: Statistics Canada, Moody's Analytics, Cushman & Wakefield Research

TABLE 1: BASELINE FORECAST

Metric	2019	2020	2021	2022	2023	2024
Office Employment (Average, 000s)	3,924	3,820	3,985	4,162	4,270	4,323
Office Job Growth (Average, %)	2.9%	-2.7%	4.3%	4.5%	2.6%	1.2%
New Supply (msf)	2.6	6.1	4.4	6.4	3.8	2.3
Net Absorption (msf)	2.4	-6.0	-1.2	12.6	8.8	5.8
Vacancy Rate (Average, %)	9.7%	10.3%	12.2%	11.4%	10.4%	9.5%
Rent Growth* (Average, %)	3.8%	2.8%	-3.6%	3.6%	6.3%	4.6%

Source: Moody's Analytics, Cushman & Wakefield Research

*Underlying rent data are for gross overall asking rents. Rents are converted to USD using a fixed 19Q4 FX rate.

UPSIDE SCENARIO: 10% PROBABILITY[aa]

Key Assumptions

- Office-using job losses total 29,000 in 2020 and 430,000 office jobs are added between 2021-2024, with three-fourths added in 2021-2022. Office employment recovers in 2021 Q1.
- The Bank of Canada holds the overnight rate at 0.25% until mid-2022 with aggressive but tapering liquidity facilities in the near-term. CERB unemployment benefits and the CEWS wage subsidies are extended.
- Due to the relatively stronger outlook, the return to full employment is more front-loaded in the forecast horizon, resulting in higher rates of office job growth in the near-term.
- A fast resolution to both the virus and the economic damage results in less stress on coworking operators.
- The combined cyclical and structural net absorption impact is -5.8 msf over 2020-21. Vacancy rates peak at 11.8% in the second half of 2021 before gradually moving into the low 9.0% range by early 2024. Gross asking rents fall peak-to-trough by 4.0% over 2020-21 and recover to pre-crisis levels by the first half of 2022.

TABLE 2: UPSIDE FORECAST

Metric	2019	2020	2021	2022	2023	2024
Office Employment (Average, 000s)	3,924	3,841	4,027	4,203	4,296	4,338
Office Job Growth (Average, %)	2.9%	-2.1%	4.8%	4.4%	2.2%	1.0%
New Supply (msf)	2.6	6.1	4.4	6.4	4.1	2.7
Net Absorption (msf)	2.4	-5.3	2.4	13.1	7.9	3.8
Vacancy Rate (Average, %)	9.7%	10.2%	11.6%	10.5%	9.7%	9.1%
Rent Growth* (Average, %)	3.8%	2.8%	-2.9%	4.5%	6.2%	4.0%

Source: Moody's Analytics, Cushman & Wakefield Research

*Underlying rent data are for gross overall asking rents. Rents are converted to USD using a fixed 19Q4 FX rate.

[aa] There is at most a 10% chance the economy the does better than in this scenario, and at least a 90% chance it does worse.

DOWNSIDE SCENARIO: 10% PROBABILITY[bb]

Key Assumptions

- Office-using job losses continue into 2020 Q3 and total 288,000 by 2020 Q3. Annual office employment in 2020 is down by 154,000 jobs after a rebound in 2020 Q4; this is still more than two times the losses registered during the GFC. In 2021 H2, pent-up demand is unleashed, and 386,000 jobs are added from 2022-2024, with office employment recovering by 2022 Q2.
- External demand for Canadian exports weakens, dealing a blow to its production-oriented industries.
- The Bank of Canada holds the overnight rate at 0.25% through 2024. Lending facilities remain operational for an additional year, with the BoC not tapering the QE program until 2022. CERB unemployment benefits and the CEWS wage subsidies are extended.
- Due to the much weaker outlook and a higher path of bankruptcies, there is more stress on coworking operators.
- The combined cyclical and structural net absorption impact is -16.6 msf over 2020-21. Vacancy rates peak at 14.1% in late 2021 before gradually moving to 9.7% by 2025. Gross asking rents fall peak-to-trough by 8.5% over 2020-22 and recover to pre-crisis levels by the second half of 2023.

TABLE 3: DOWNSIDE FORECAST

Metric	2019	2020	2021	2022	2023	2024
Office Employment (Average, 000s)	3,924	3,766	3,840	4,017	4,146	4,242
Office Job Growth (Average, %)	2.9%	-4.0%	2.0%	4.6%	3.2%	2.3%
New Supply (msf)	2.6	6.1	4.4	6.4	3.5	1.6
Net Absorption (msf)	2.4	-7.9	-8.5	9.0	9.8	7.7
Vacancy Rate (Average, %)	9.7%	10.3%	13.3%	13.7%	12.8%	11.4%
Rent Growth* (Average, %)	3.8%	2.8%	-5.9%	0.6%	6.1%	5.6%

Source: Moody's Analytics, Cushman & Wakefield Research

*Underlying rent data are for gross overall asking rents. Rents are converted to USD using a fixed 19Q4 FX rate.

[bb] There is at most a 90% chance the economy the does better than in this scenario, and at least a 10% chance it does worse.

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APPENDIX A:
ECONOMIC SCENARIO ASSUMPTIONS

	BASELINE	UPSIDE	DOWNSIDE
World/All Regions	• A vaccine is available by mid-2021 after medical/government approval by the end of 2020. • No major second wave that requires widespread lockdowns. • Businesses reopen gradually as the virus still ebbs and flows until a vaccine is available. • Bankruptcies pick up as businesses adjust to lower demand and policy support expires in certain countries. • Financial market sentiment improves in 2020 H2. • Improving global demand supports a recovery in trade flows and commodity prices. • Real GDP returns to pre-COVID-19 levels by 2021 Q3.	• A vaccine is available by the start of 2021. • COVID-19 infections are contained well below the baseline. • Businesses can reopen more quickly, and travel restrictions are relaxed sooner. • Business and consumer confidence return more rapidly, and consumers start spending on tourism sooner. • Fewer firms go bankrupt. • Less damage and a faster recovery support investment and gains in productivity, raising the economy's long-term potential above the baseline. • Real GDP returns to pre-COVID-19 levels by 2021 Q1.	• A vaccine is not available until late 2021, eroding business and consumer confidence to a greater degree in 2020 and 2021 H1. • COVID-19 infections are above the baseline, weighing on tourism and broader consumer activity. • Business reopening is much more gradual with some instances of non-essential businesses reclosing. • More firms go bankrupt and permanently close. • Damage in the labor market is more severe and permanent. More damage and a much slower recovery erode investment and gains in productivity, lowering the economy's long-term potential below the baseline. • Real GDP returns to pre-COVID-19 levels by 2022 Q4.
Asia Pacific	• Cautious international travel policies and weak global demand and tourism weigh on the near-term recovery. • Countries successful at containment gain a long-term advantage in investor supply chain interest. India's near-term outlook is fragile considering the virus outbreak there. • Central banks in the region remain aggressive: The Reserve Bank of India (RBI) lowers its policy rate further in 2020 to 3.75% and maintains this level through 2021. The Bank of Japan (BOJ) holds its target rate at -0.1% through 2025. The Reserve Bank of Australia (RBA) holds its rate at 0.25% through 2022. The Monetary Authority of Singapore (MAS) keeps the policy band at a neutral slope until at least 2021, targeting zero currency appreciation. • Real GDP returns to pre-COVID-19 levels by 2021 Q3.	• Stronger global demand supports a more rapid recovery. • Currencies appreciate in the region, supporting domestic consumption. • Monetary policy is aggressive in the near-term: The RBI targets market liquidity but starts to raise rates in 2021. The BOJ holds its target rate at -0.1% through 2023, while the RBA starts to raise rates sooner in December 2020 (but it maintains QE). • Additional fiscal support for wage subsidies, loan/loan guarantees, tax incentives and cash transfers in some countries (e.g., Singapore, South Korea) while other countries allow policies to expire in the face of improved demand (e.g., Australia, Japan). For the latter countries, this improves international investor concerns about fiscal space. • Real GDP returns to pre-COVID-19 levels by 2021 Q2.	• Weaker global demand delays the recovery. • International financing conditions are tighter, and currencies depreciate. • Central banks are forced to ease policy further and are required to maintain those conditions for longer. • Lower levels of fiscal support in some countries (e.g., Singapore) and higher levels of support/deficit growth in others (e.g., Australia, India, Japan, South Korea). The latter countries cause concern among international investors due to diminished fiscal space. • Real GDP returns to pre-COVID-19 levels by 2022 Q2.
Canada	• Reopening of U.S.-Canadian border is delayed, weighing on tourism. • Improving trade and commodity prices support a nascent and slow recovery in the country's production base. • The Bank of Canada (BoC) holds its target for the overnight rate at 0.25% until early 2023 and its emergency lending facilities remain operational through the end of 2020. Tapering of QE begins in 2021. • CERB unemployment benefits are not extended but the CEWS wage subsidy program is briefly extended. • Real GDP returns to pre-COVID-19 levels by2022 Q3.	• A stronger recovery in tourism, trade and energy markets improves the economic outlook. • The BoC holds its target for the overnight rate at 0.25% until mid-2022 and its emergency lending facilities remain operational until QE tapering begins in early 2021. • CERB unemployment benefits eligibility is extended and the CEWS wage-subsidy program expires later than scheduled. Mortgage deferral allowance is extended as well. • Real GDP returns to pre-COVID-19 levels by 2021 Q4.	• Manufacturing and exporters are hurt more severely by weaker external demand. • The BoC holds its target for the overnight rate at 0.25% until the final months of 2024 and its emergency lending facilities remain operational until tapering begins in late 2022. • Existing unemployment and wage subsidy programs are extended but are unsuccessful at confronting deteriorating conditions. • Real GDP returns to pre-COVID-19 levels by 2024 Q1.

	BASELINE	UPSIDE	DOWNSIDE
Europe	• Fiscal policy aimed at wage subsidies is successful at preventing mass layoffs and the destruction of human capital. • The European Central Bank (ECB) keeps policy rates unchanged for several years and continues large-scale asset purchases/QE. • Political developments in the euro zone do not result in widespread anti-EU sentiment, containing sovereign debt spreads. • Real GDP returns to pre-COVID-19 levels by 2022 Q3.	• The ECB initially keeps policy rates unchanged despite the rebound and supports the recovery with large asset purchases and further LTROs. • Eurozone governments pass further support for economies, improving the institutional infrastructure of the currency bloc. • Brexit negotiations lead to an agreement that grants the U.K. almost full access to the EU market. • Real GDP returns to pre-COVID-19 levels by 2022 Q1.	• Brexit negotiations stall, increasing the likelihood that the U.K. is left without preferential access to the EU market. • Political gridlock in the EU leads to a rise of anti-EU populism and a jump in government bond spreads, with contagion spreading to other parts of financial markets. • Real GDP returns to pre-COVID-19 levels by 2023 Q4.
Greater China	• Weak global demand weighs on the recovery, however, the economy improves faster than in other regions. Travel restrictions weigh on Hong Kong in particular. • The People's Bank of China (PBOC) continues to support market liquidity while providing direct aid for at-risk industries. • Monetary Authority in Hong Kong uses a variety of tools to support banking sector liquidity. • Fiscal stimulus increases deficits by more than in the pre-pandemic baseline. • Debt holiday for SMEs in Hong Kong ends in October as scheduled. • Real GDP returns to pre-COVID-19 levels by 2020 Q2 in Mainland China and by 2021 Q2 in Hong Kong and Taiwan.	• Political tensions with the U.S. ease while civil unrest in Hong Kong lessens after social distancing measures are lifted. • The People's Bank of China (PBOC) continues to support market liquidity while providing direct aid for at-risk industries. • No further cuts by the PBOC to the loan prime rate or reserve ratio. Interest rates begin to normalize by the end of 2020. • Monetary Authority in Hong Kong uses a variety of tools to support banking sector liquidity. • Fiscal stimulus increases the budget deficit by less than in the baseline, but still well above pre-pandemic levels. • Debt holiday for SMEs in Hong Kong ends in October as scheduled. • Real GDP returns to pre-COVID-19 levels by 2020 Q2 in Mainland China, by 2021 Q1 in Hong Kong and by 2020 Q4 in Taiwan.	• Political tensions with the U.S. increase and civil unrest in Hong Kong does not abate. • Another major city is forced into a state of lockdown as a result of a resurgence in the virus. • The PBOC cuts the loan prime rate by 100-150 bps and the loan reserve ratio by 150-200 bps. It continues to support market liquidity and provide direct aid to at-risk industries. • Monetary Authority in Hong Kong uses a variety of tools to support banking sector liquidity. • Greater degree of fiscal stimulus pursued, including infrastructure spending, extended wage subsidy support and more direct consumer transfers. • Debt holiday for SMEs in Hong Kong extended through the end of 2020. • Real GDP returns to pre-COVID-19 levels by 2020 Q2 in Mainland China, by 2023 Q2 in Hong Kong and by 2022 Q3 in Taiwan.
U.S.	• Congress passes a fifth stimulus bill ($1.5T) supporting state and local governments ($500B), household income ($600B), health-related spending ($300B) and other miscellaneous spending ($100B). • The Fed remains aggressive: the target range for the fed funds rate is held at 0% to 0.25% into 2023. The Fed's emergency lending facilities remain operational through 2020 and tapering of QE starts in 2021. • Real GDP returns to pre-COVID-19 levels by 2022 Q2.	• Congress passes a fifth stimulus bill ($1.5T) supporting state and local governments ($500B), household income ($600B), health-related spending ($300B) and other miscellaneous spending ($100B). • The Fed keeps the federal funds rate near 0% through early 2022 and its emergency lending facilities remain operational through the end of 2020, with tapering of QE starting in 2021. It successfully targets the long-term Treasury yield at 0.5% - 1.0% in 2020. • Political tensions with China ease. • Real GDP returns to pre-COVID-19 levels by 2021 Q2.	• Congress does not pass another fiscal stimulus package, resulting in a second recession that pushes the unemployment rate higher. • The Fed keeps the federal funds rate near 0% through mid-2024 and its emergency lending facilities remain operational through mid-2021. It also succeeds at keeping the long-term Treasury yield above 0% amid a flight to quality. • Political tensions increase with China. • Real GDP returns to pre-COVID-19 levels by 2023 Q2.

Source: Moody's Analytics; for China/India, sources include the International Labor Organization, Moody's Analytics, Oxford Economics, and the World Bank.

*Note: Real GDP recovery dates are based on PPP units. Asia Pacific includes Australia, India, Indonesia, Japan, Malaysia, the Philippines, Singapore, South Korea, Thailand and Vietnam. Europe includes the EU 28, Norway and Switzerland. Greater China includes Mainland China, Hong Kong and Taiwan.

APPENDIX B: MODELING ASSUMPTIONS

CYCLICAL EFFECTS

Job Destruction & Creation

Employment changes in office-using industries drive demand for office real estate. Using the statistical time-series relationship between such employment and net absorption and using pre-COVID-19 structural trends that have persisted throughout multiple business cycles, we model demand for each region. These relationships vary by region, as do the industry classification systems for employment. (We exclude non-traditional office employment such as medical users and government as generally buildings owned by such users are not included in competitive inventory sets.) The absorption estimates attained in this analysis tell us what current job destruction would mean in a world where the downcycle was not caused by a pandemic, per se. These estimates therefore include an ex-ante density trend that is evolving at the same rate as it was pre-COVID-19.

Note that the econometric models estimate the relationships between the square feet absorbed per net office gained/lost. This distinction is important because firms do not generally absorb space at density levels (e.g., 175 sf/worker). The former is a "flow" metric whereas the latter is a "stock" metric.

Coworking/Flex Operator Stress

Coworking/flex office operators are coming under stress, particularly those operators and/or locations whose cash flows are disproportionately dependent on microbusinesses and SMEs, or whose expansions have been funded by the capital markets rather than by operating revenues. Over the coming years, we expect this stress to translate into up to 25% of U.S. coworking space being put back on the market, based on a risk analysis of operators' exposure. In other regions, where we do not have as detailed information about the specific nature of the coworking footprint, we make a conservative assumption that at least 10% of such space will return to the market. The path of this effect is tied to bankruptcies, with a lag, which peak in late 2020 H2 and remain elevated in 2021 H1. In the aggregate, this effect is not large—such impacts will matter much more at the city level.

STRUCTURAL EFFECTS

Permanent WFH

Prior to COVID-19, a minority of workers permanently worked from home. In the West, this share is approximately 5-6% (5.0% in the U.S., 5.4% in Europe and 5.9% in Canada) while in Asia Pacific it is lower at 2.6%.[2, 21-24, 26, 37, 40] This lower share is weighted based on each country's employment base, with emerging markets generally having much lower shares and advanced economies having higher shares. Greater China had the lowest rate at 0.6%.[49]

Surveys indicate that permanent WFH could double over the years.[8-11, 27-29, 39, 46-48] In the baseline scenario, for most regions, we model a doubling of the permanent WFH group over the next ten years, although most of this increase is realized within the next five years. In other words, this effect increases at an accelerating rate in the first half of the decade and then begins to slow down towards the latter half of the decade. In Canada, surveys of executives deviate from post-COVID-19 estimates from StatCan, so in this instance, we take the average of these survey results.[22] Permanent WFH has a purely negative impact on office demand; it also creates the most significant drag on future demand.

Agile WFH

Not all people will permanently work from home. Most will balance time in the office with time working elsewhere, either at home, or in other remote locations. Such workers are often called "agile workers." Although not all firms believe that increasing agile workers will result in a reduction in their demand for office space, multiple surveys show that about 70% of CFOs and real estate executives will reduce their footprint directly as a result of increasing the agility of their workforce.[11, 39, 46-48] Thus, we factor the 70% figure into our modeling.

Prior to COVID-19, government data generally show that a relatively small share of people worked from home sometimes. Most of this data, however, represent the total labor force or total employment rather than the office-using subset. Research from the University of Chicago, Deloitte, Eurofound, StatCan, the U.S. Bureau of Labor Statistics and the International Labor Organization shows that WFH has a higher potential among office-using industries, and in fact, some other surveys by government agencies show the take-up of WFH was higher in them pre-COVID-19.[2, 21-26, 37, 40, 49] Further, non-government surveys consistently show higher rates of partial WFH/agile working than government survey data; these estimates are generally consistent with pre-COVID-19 government data specific to office industries, where they are available.[12, 30-33, 52-53]

Our research indicates that about 23-35% of the workforce was agile pre-COVID-19, with Greater China at the lower end of the spectrum and Europe at the upper end. According to Cushman & Wakefield data and analysis of other sources, about 70-90% of these workers still had workstations, versus nearly 100% for those who were in the office full-time pre-COVID-19.[19, 31-32, 36, 38, 50-52]

We then constructed an estimate for the upper bound potential WFH for office industries based on O*Net and other employment data, as well as academic analysis of such data. [cc, 2, 21-26, 37, 40, 49] These estimates had a smaller variance generally—ranging from 55-65%. These figures represent an upper bound and not the expected realization of future agile working. Cultural norms, worker preferences and expectations of executives have historically prevented the potential from being realized. Post-COVID-19, while many workers and executives would like to and are willing to increase agile working, surveys generally indicate the share is likely to be lower than this bound. Our final estimate of realized agile WFH is around 50% for most regions. Like permanent WFH, this effect happens at an accelerating rate in the first half of the decade and slows down, while still increasing in the second half.

Density

In the coronavirus era, rather than businesses expanding their space requirements to accommodate social distancing, we assume most will utilize near-term solutions (e.g., increasing agile workers beyond the long-term desired level, rotating shifts, spacing people out within the same floor plate, leveraging technology). This assumption is made due to numerous surveys which indicate this is how executives are planning for the near-term.[8-11, 27-29, 39, 46-48] We also assume that densification does not continue—that is, there is a halt to structural densification. This assumption does not benefit projections for demand in a meaningful way because job losses and higher rates of WFH post-COVID-19 naturally de-densify office space. Only in some regions (e.g., U.S. CBDs and Canada) is future job growth sufficient to cause this effect to offset the drag from WFH.

In our baseline, we do not assume that there is market-wide dedensification on a structural basis. To date, there is no data or evidence to support such an assumption, although we note that parameter is unusually uncertain at this point. Therefore, we show the sensitivities of the demand impact under varying dedensification pathways.

Other

- Structural impacts are factored in as existing leases roll. Firm-level responses during the emergency may result in drastic changes to WFH in real-time, but marginal impacts to office demand are realized as companies implement these new policies via longer-term real estate decisions. Lease roll rates vary by region and are based on weighted-average lease terms (WALTs). We do not assume a permanent effect on WALTs.[dd]
- The supply side of the market is responsive to lagged market conditions, most notably to vacancy rates that, in some instances, are standard deviations above long-term averages.
- We assume that each region's ratio of desks per worker remains constant. In reviewing space design studies from Rapal/Optimase, Gensler and the International Facilities Management Association (IFMA), historically there have not been large swings in regional desk-per-worker ratios over time.[30-34, 36, 50-51] Feedback from workers in Gensler's "Back to the Office" survey showed that workers would prefer to return to working in the office at least some of the time, but with changes, including more private offices, more private defined space and eliminating the use of shared workstations.[30] Importantly, a constant desk-to-worker ratio is applied to the workers who are in the office: although predominantly driven by an increase in permanent WFH, increased agile working also reduces the number of individuals factored into these ratios.

TABLE 1: SENSITIVITY TO ASSUMPTIONS
IMPACT ON NET GLOBAL DEMAND 2022-2030

% PERMANENT WFH BY 2030	% DEDENSIFICATION 0%	25%	50%
0%	20.3%	22.5%	24.7%
5%	2.1%	4.2%	6.4%
10%	-13.0%	-10.8%	-8.7%
15%	-23.9%	-21.8%	-19.7%

Source: Cushman & Wakefield Research

Note: Pre-COVID permanent WFH and partial WFH assumptions consistent with baseline for each region in the above matrix. We assume that the effect of social distancing on dedensification wears off over the 2020s; in other words, there is a burn out effect over time.

[cc] In regions, figures are weighted by office-using employment. That data are sourced from Moody's Analytics and Cushman & Wakefield Research (which produced estimates for China and India using data from the International Labour Organization, Moody's Analytics, Oxford Economics and the World Bank).

[dd] These estimates are sourced from Cushman & Wakefield data.

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