



# Green Street Advisors

— REAL ESTATE ANALYTICS —



## OFFICE OUTLOOK



— 16 JANUARY 2020 —

IMPORTANT DISCLOSURE ON PAGE 26

This report contains copyrighted subject matter and is covered under Green Street's Terms of Use.  
Green Street reserves all rights not expressly granted.



# Executive Summary

## Introduction

This report serves as a deep dive into the fundamentals and valuation of the European office sector and 25 key markets. It offers insight by utilizing Green Street's extensive experience analysing and forecasting fundamentals in the office sector, proprietary time series on cap rates, investor return expectations, and pricing versus the bond market. Office fundamentals grew at a steady rate throughout '19 as services held up despite a decelerating macroeconomic backdrop of global trade tensions and a pan-European manufacturing slowdown. Supply appears to be picking up to levels not seen for almost a decade, with annual deliveries expected to exceed 1% of stock by the end of '24. The structural issues of high leasing concessions and increased tenant efficiency ("densification") are likely to persist for the next few years. Office landlords operating in "tight" occupational markets (e.g., Paris, London, Berlin), strong demographic tailwinds (most Nordic markets), and/or tech-related demand (e.g., Berlin, Amsterdam, London, Barcelona) should enjoy better relative fundamental growth by '24 (M-RevPAM growth possibly beating inflation). Overall, the office sector in Europe screens fairly priced versus fixed-income alternatives. Low nominal cap rates in historical terms, inflation-like fundamental growth, and elevated cap-ex requirements are set against record-low financing costs across most investment corners of Europe.

## Key Takeaways

- European office fundamentals have accelerated from '14 to '18, driven by demand/supply imbalance
- Office occupancy rates are typically above c. 95% in the top 25 markets
- The pace of fundamental growth this cycle has been weak compared to prior upcycles
- Soft demand has been the primary culprit, driven in part by tenant space efficiencies ("densification")
- Supply growth remains mostly in-check after a long stretch of virtually zero net deliveries post GFC
- Fundamental growth to match inflation (c. 2% p.a.) through '24, ahead of retail but lagging industrial
- London: solid occupational demand + modest net-supply outlook point to better fundamentals
- Berlin: near-term conditions remain tight with limited new supply and tech inflows to the city
- Paris: large performance differential b/w submarkets; upbeat on CBD, downbeat on La Défense
- Capital expenditures (TIs and maintenance) are the sector's biggest return drag (albeit below the US)
- Office NOI growth should decelerate over time (excl. Nordics) once reversionary leases are renewed
- Office has been a long-term underperformer in the US (in terms of total returns), not so in Europe
- Cap rates for B/B+\* stock are at historic lows across most markets... a *Four* handle is the new *Six*
- European office values continue to nudge higher at a modest pace; now c. 30% above '07 peak
- Expected unlevered returns (IRRs) for the 25 top markets are in the low-5% p.a. range
- Office pricing screens fair vs. investment grade bonds and other property types in the private market
- Munich, Barcelona and Berlin have the strongest forecasted 5-yr cumulative M-RevPAM growth
- UK & Ireland office markets offer superior return spreads to local sovereign bond rates

## Authors

Peter Papadakos, *Managing Director*

Marie Dormeuil, *Analyst*

Ryan Miller, CFA, *Analyst*

Weston Mui, *Senior Associate*

Andres Toome, *Senior Associate*

**Detailed market-level estimates accessible in Atlas - Green Street's interactive mapping and analytics platform.**

*\*This report focuses its analysis and forecasts on "average" institutional-quality office real estate, or "B/B+" quality*

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

T +44 (0) 20 3793 7000 / greenstreetadvisors.com

**Important disclosure on page 26**

© 2020, Green Street Advisors, LLC

# Table of Contents

Sections	Page:
I. Pan-European Office Outlook Summary	4
II. Major Risk Factors	6
III. Top Office Owners	7
IV. The Forces Shaping Office Demand	8
a. Office-Using Employment	9
b. Creativity	10
c. Attracting Millennials	11
d. Office Space per Worker	12
e. Flex Office's Impact	13
V. Supply Landscape	15
a. Tension	16
VI. Fundamentals	
a. M-RevPAM Growth	17
VII. Asset Values	18
a. Notable Transactions	19
VIII. Valuation	
a. Economic NOI and Capital Expenditures	20
b. Financing Environment and Valuation	21
c. Market-Level Return Expectations	22
d. Private and Public Sector Returns	23
IV. Office Real Estate Pricing vs. History	24

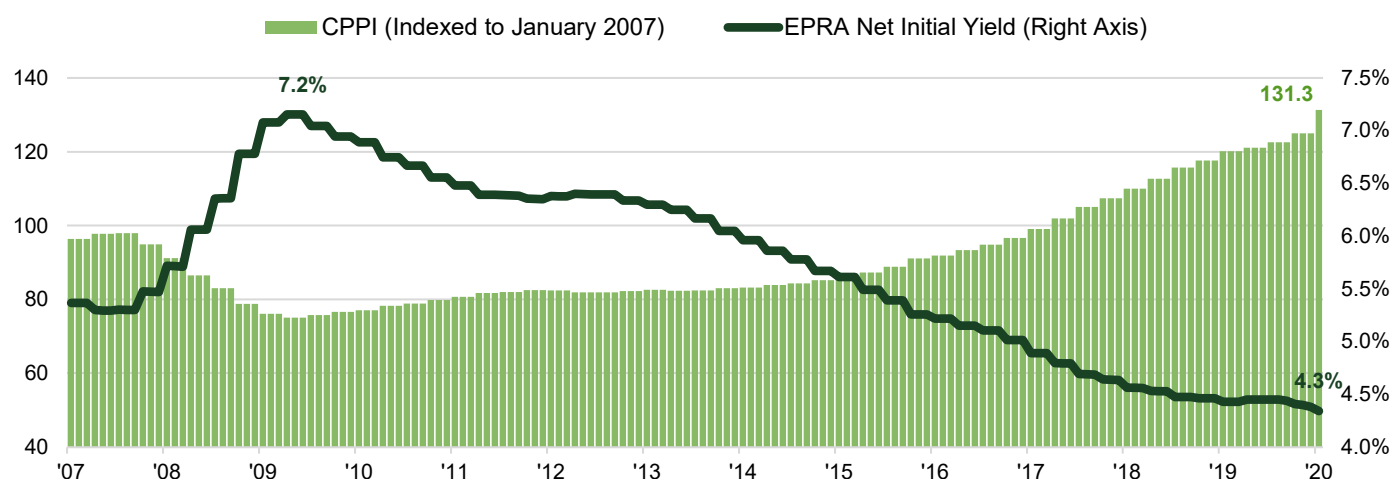
## Appendices

A. Office Market Grades	25
-------------------------	----

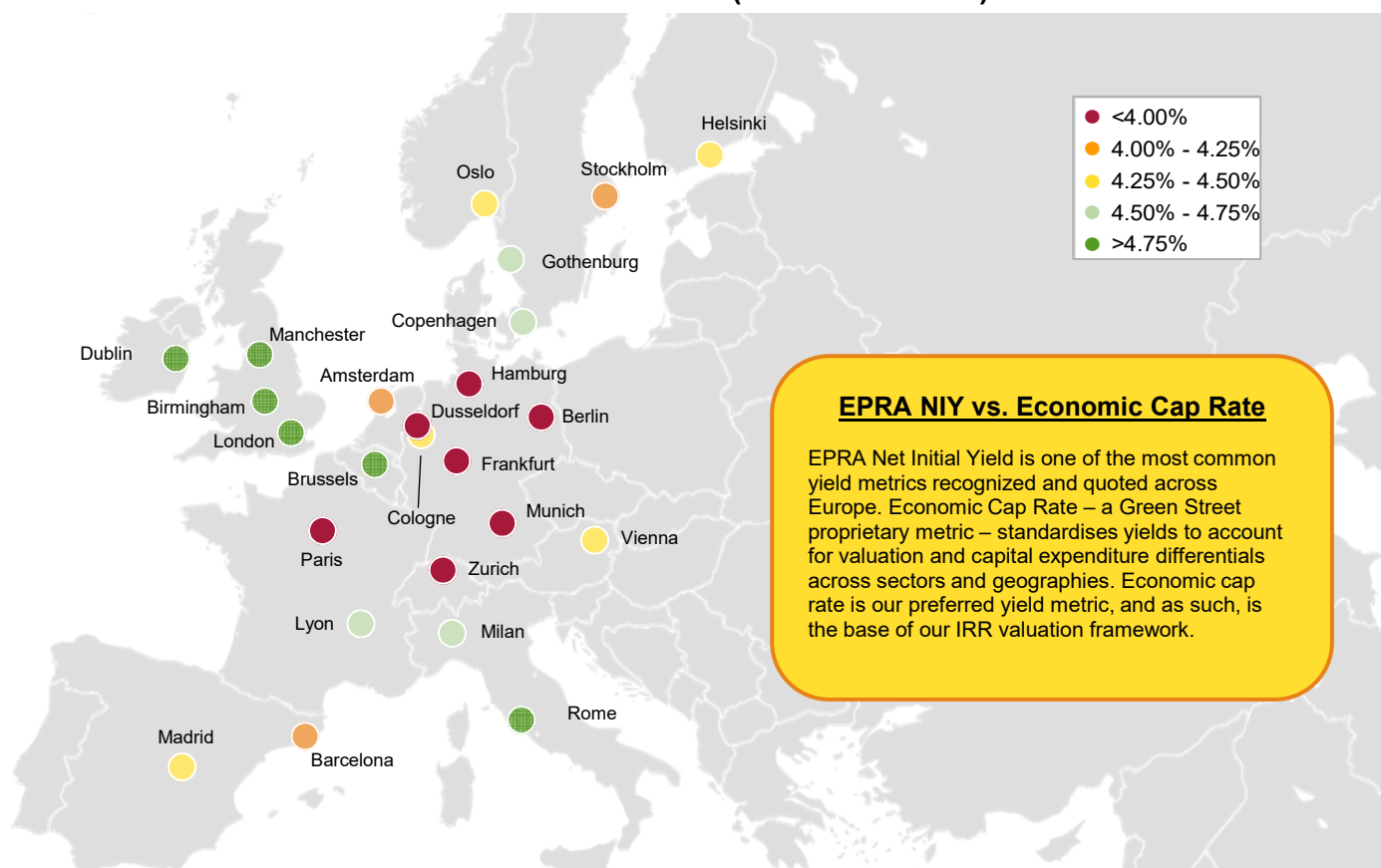
# I. Pan-European Office Outlook Summary

**Even Lower?:** Just as most market participants thought B/B+ quality offices would not trade below 6%, then 5%, the last eighteen months have seen yields continue falling to below even mid-4% levels. For cap rates to go below four percent would require class-A office cap rates to move well into the twos (already true for well-located Berlin, Munich, Paris, and Zurich offices). The magic of low interest rates explains most of these yields.

## Pan-European B/B+ Office Pricing



## EPRA Net Initial Yields (for B/B+ Assets)



Source: Green Street Advisors

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

T +44 (0) 20 3793 7000 / greenstreetadvisors.com

**Important disclosure on page 26**

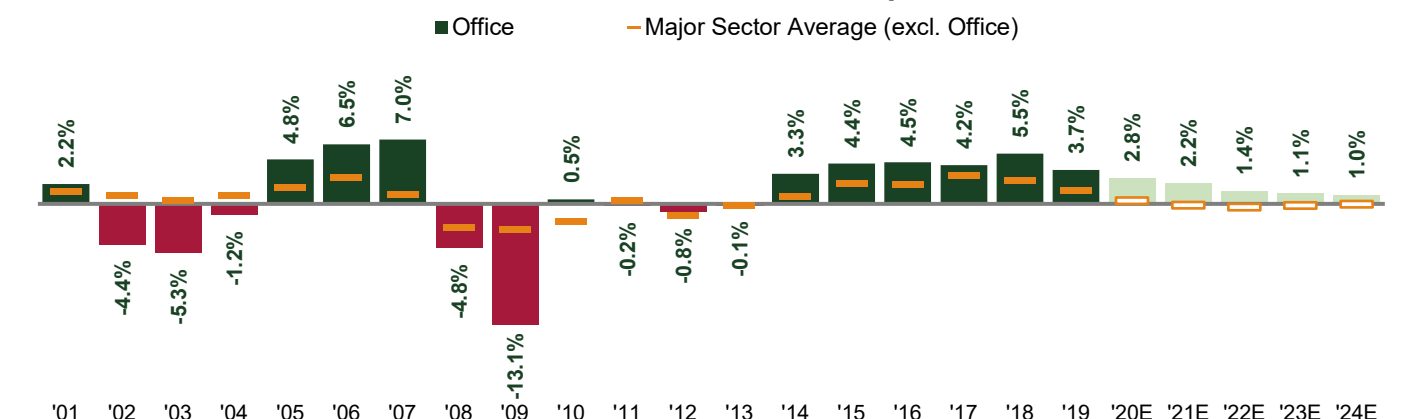
© 2020, Green Street Advisors, LLC

This report contains copyrighted subject matter and is covered under Green Street's Terms of Use. Green Street reserves all rights not expressly granted.



# I. Pan-European Office Outlook Summary (cont'd)

## Office Market-RevPAM\* Growth - Top 25 Markets



Market	M-RevPAM Growth	'20E	'20E - '24E	Employment Growth '20E - '24E	Market GDP Growth '20E - '24E	Supply Growth '20E - '24E
Munich	3.1%	4.1%		•	•	+
Barcelona	3.1%		6.2%	++	-	--
Berlin	3.0%	3.8%		•	+	-
Oslo	2.9%	2.7%		+	++	+
Madrid	2.7%		5.2%	++	•	•
Amsterdam	2.1%	2.8%		•	+	--
Hamburg	2.1%	3.4%		--	--	+
London	2.0%		4.5%	++	++	--
Dusseldorf	1.7%	3.1%		--	--	++
Birmingham	1.7%	2.1%		--	-	++
Copenhagen	1.7%	1.4%		++	++	•
Lyon	1.7%		3.6%	+	+	--
Manchester	1.6%	2.6%		+	+	+
Stockholm	1.6%	3.0%		++	++	-
Helsinki	1.6%	2.3%		-	--	++
Frankfurt	1.5%	2.6%		--	--	--
Dublin	1.4%	2.5%		+	++	--
Gothenburg	1.3%	2.8%		+	+	-
Cologne	1.3%	2.3%		--	--	•
Vienna	1.2%	1.3%		-	•	+
Rome	1.2%	1.5%		-	--	++
Paris	0.9%	0.9%		•	•	-
Zurich	0.9%	1.7%		-	-	++
Milan	0.6%	1.4%		-	-	-
Brussels	-0.1%	0.1%		--	-	•

Rank: 1-5 ++ 6-10 + 11-15 • 16-20 - 21-25 --

Source: Oxford Economics, and Green Street Advisors

\*A single measure that combines changes in market-level occupancy and rent

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

Important disclosure on page 26

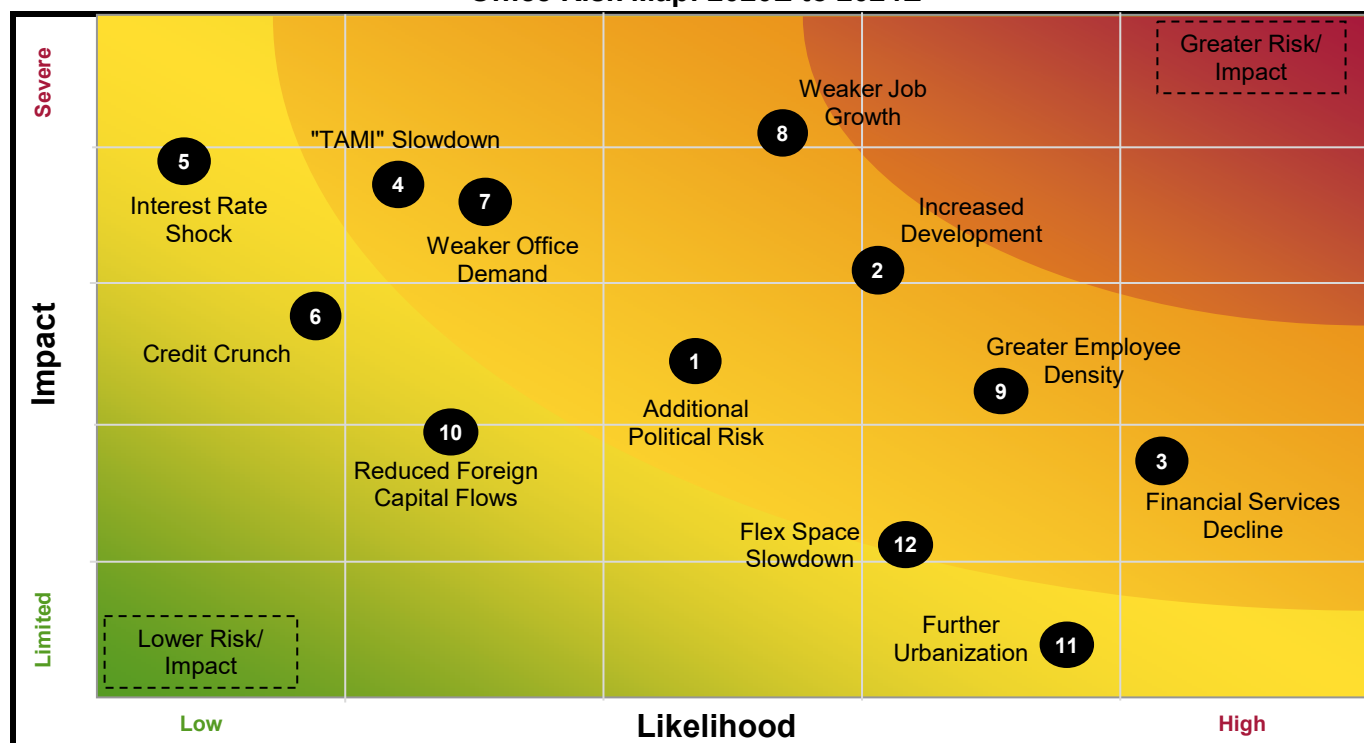
T +44 (0) 20 3793 7000 / greenstreetadvisors.com

© 2020, Green Street Advisors, LLC

## II. Major Risk Factors

**Potential Landmines:** A number of macroeconomic and tenant preference issues could adversely impact underlying office real estate fundamentals and asset values over time.

Office Risk Map: 2020E to 2024E



- 1 **Additional Political Risk:** Rising populism and gov't instability in many countries places a lid on economic growth.
- 2 **Increased Development:** If office supply growth accelerates strongly, market rent growth could prove muted.
- 3 **Financial Services Decline:** Technological advances (e.g., Fintech) to further disrupt large profits for this tenant group.
- 4 **"TAMI" Slowdown:** Demand from tech, advertising, media, and information tenants has helped boost rents this cycle.
- 5 **Interest Rate Shock:** A sharper-than-expected rise in real interest rates would hurt office property values.
- 6 **Credit Crunch:** Widening debt spreads and reduced availability could threaten asset values.
- 7 **Weaker Office Demand:** A decline in office usage relative to employment growth would be negative.
- 8 **Weaker Job Growth:** European business confidence has weakened, casting doubt on the job growth outlook.
- 9 **Greater Employee Density:** Space efficiency drive may prove longer / deeper than expected, reducing net absorption.
- 10 **Reduced Foreign Capital Flows:** Renewed trade tensions / currency wars may reduce foreign demand for property.
- 11 **Further Urbanization:** Top 25 markets to continue drawing human & other capital away from more provincial cities
- 12 **Flex Space Slowdown:** Positive net absorption driven by freelance workers moving into office space (from home, coffee shops, etc.) outstripped by densification headwind as flex office increases its market share.



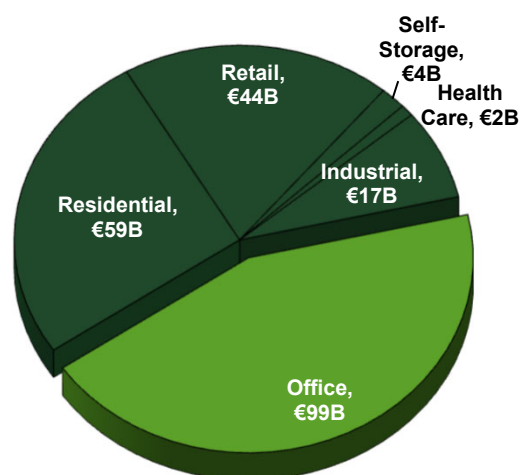
### III. Office 101: The Players

**Well Represented:** Major listed European office landlords control c. 25M sqm of leasable office space.

#### % of Real Estate Controlled by Public Companies

Retail	30%
Office	15%
Residential	10%
Industrial	10%
Self-Storage	5-10%
Healthcare	5-10%

#### Public Companies' Equity Market Cap (€B)\*



#### Notable European Office Owners

	Name	Sq. M. (000)	Market Cap	Geographic Profile
1	Covivio	3,160	€ 9,100	France and Italy
2	Aroundtown	2,997	€ 9,700	Germany and Netherlands
3	Castellum	2,320	€ 5,800	Sweden
4	alstria	1,556	€ 3,000	Germany
5	Icade	1,540	€ 7,200	France
6	Wihlborgs	1,470	€ 2,500	Sweden and Denmark
7	Merlin Properties	1,425	€ 5,800	Spain and Portugal
8	CA Immobilien Anlagen	1,395	€ 3,700	Germany, Austria, and CEE
9	Gecina	1,315	€ 12,200	France
10	Kungsleden	1,185	€ 2,100	Sweden
11	Fabege	1,115	€ 4,900	Sweden
12	Entra	988	€ 2,700	Norway
13	Inmobiliaria Colonial	900	€ 5,900	Spain and France
14	Swiss Prime Site	680	€ 8,100	Switzerland
15	PSP Swiss Property	595	€ 5,900	Switzerland
16	Landsec	490	€ 8,300	United Kingdom
17	Derwent London	465	€ 5,200	United Kingdom
18	British Land	455	€ 6,400	United Kingdom
19	Workspace Group	310	€ 2,400	United Kingdom
20	Hufvudstaden	195	€ 3,700	Sweden

Source: Company disclosure, and Green Street Advisors.

\*For companies within Green Street's coverage universe

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

**Important disclosure on page 26**

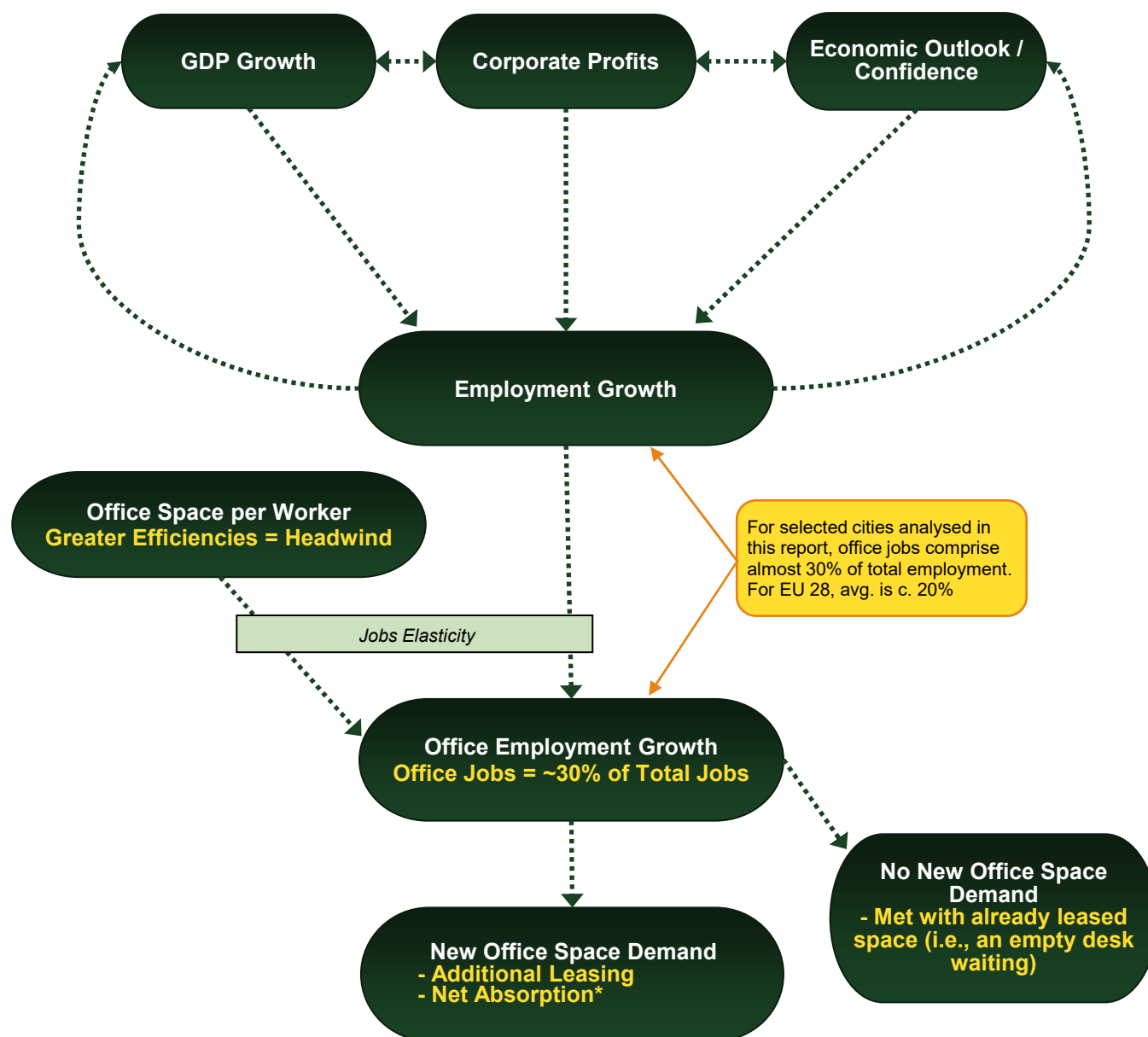
T +44 (0) 20 3793 7000 / greenstreetadvisors.com

© 2020, Green Street Advisors, LLC

## IV. The Forces Shaping Office Demand

**Jobs, Jobs, Jobs:** Employment growth in the white-collar sector is the key demand driver for the office business. Job growth is affected by many factors, including business confidence in the economic outlook. From there, the relationship between office demand growth and employment growth depends on several factors, including how efficiently tenants are using space.

### 2020E - 2024E Office Demand Forecasts

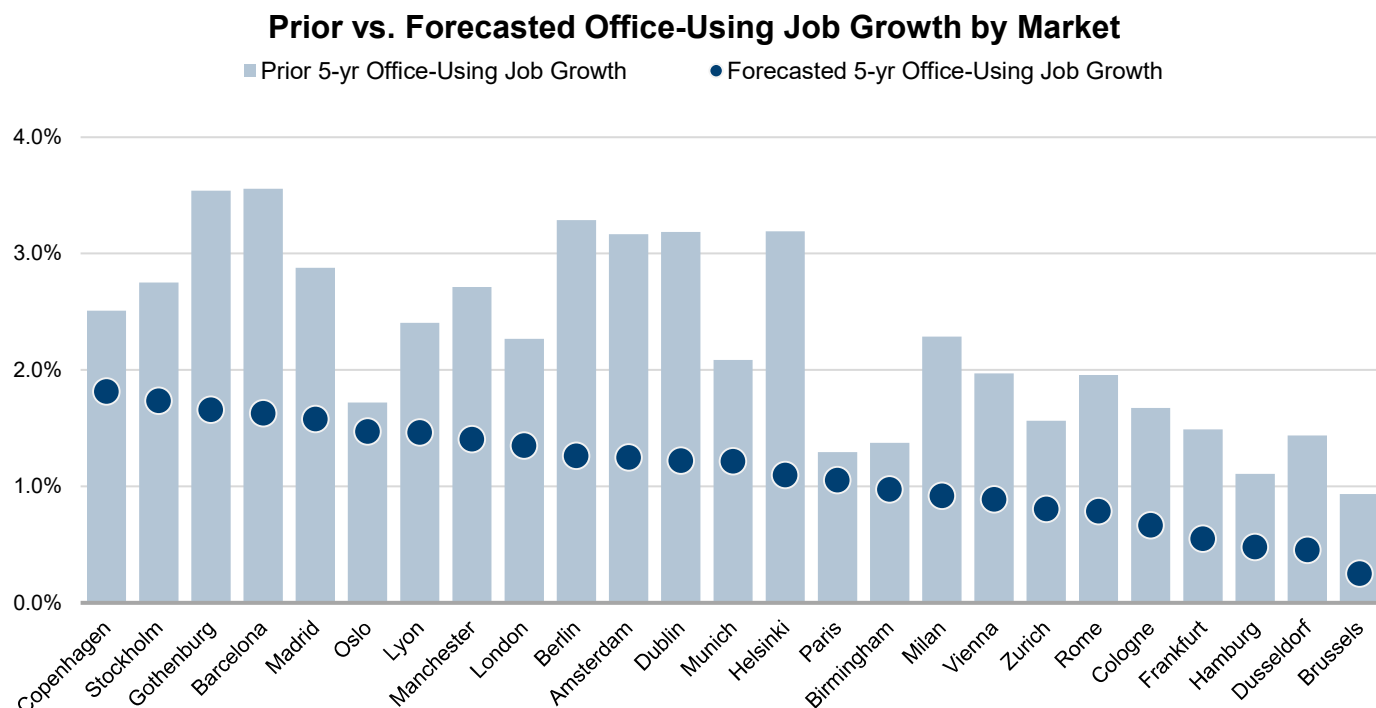
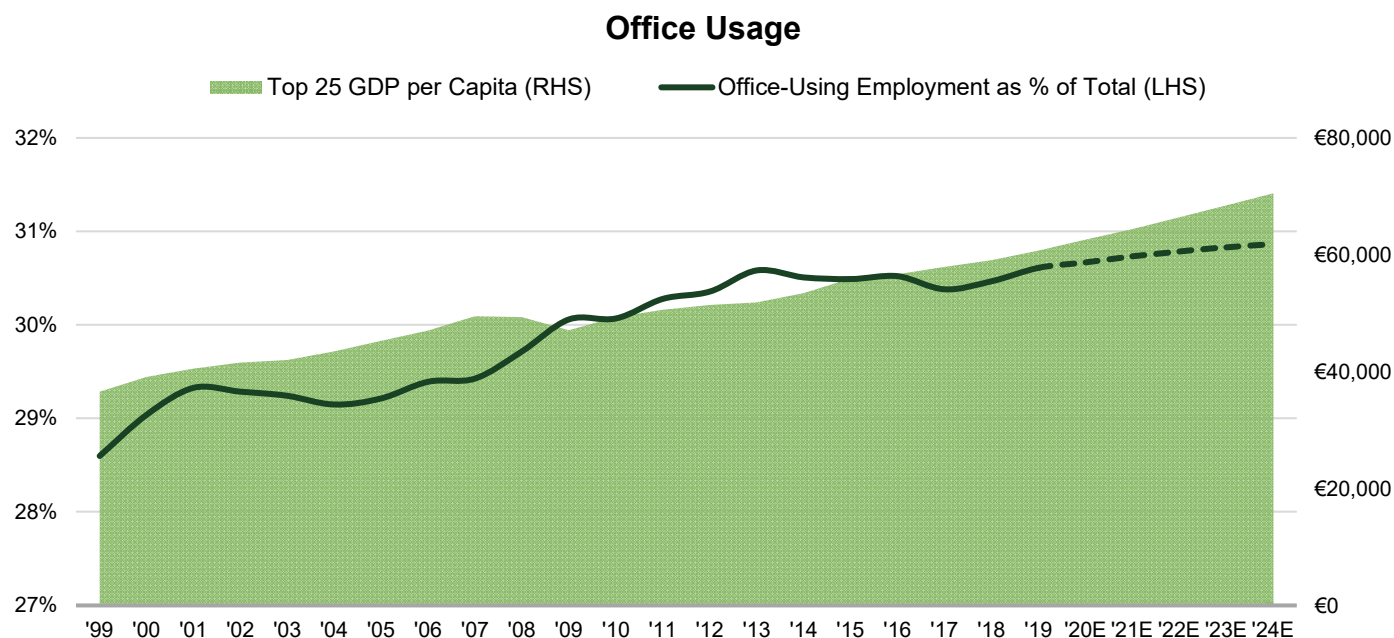


*\*Net absorption is equal to the amount of square metres occupied at the end of a period minus the amount of square metres occupied at the beginning of a period. The calculation takes into consideration space vacated during that same period and any occupancy of newly constructed space.*



## IV. Demand: Office-Using Employment

**Glass Half Empty:** Office usage has not kept up with economic productivity since '13. Europe's tough labour laws meant that companies held onto more workers than their profitability would otherwise justify, meaning that hiring of office-using employees was weak during the more recent uptick in economic performance. The Nordics and Spain continue to lead the way in office-using job growth among the top 25 markets.



Source: Oxford Economics, and Green Street Advisors

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

T +44 (0) 20 3793 7000 / greenstreetadvisors.com

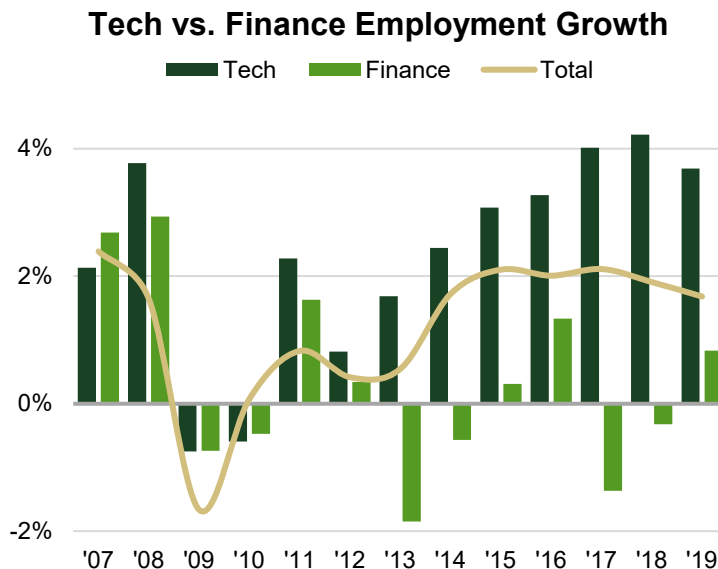
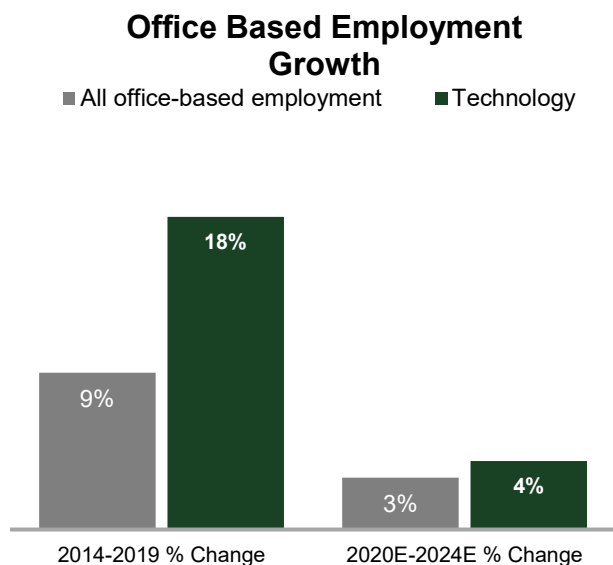
**Important disclosure on page 26**

© 2020, Green Street Advisors, LLC

This report contains copyrighted subject matter and is covered under Green Street's Terms of Use. Green Street reserves all rights not expressly granted.

## IV. Demand: Creativity

**Growing Fast:** The technology sector includes a diverse and often highly-innovative set of activities that are having a marked impact on European office markets. Employment in the technology sector is a major driver of office demand: the sector's contribution to office take-up now typically exceeds banking and finance.



**European Tech Ranking:** London, Paris and Berlin are European tech leaders, driven by their ability to attract talent. Moreover, the widespread adoption of new technologies across industries (e.g. banking, insurance, life sciences, travel and retail) suggests the boundaries and influence of tech are becoming wider.

### Four Key Drivers in Assessing a City's Tech Attractiveness

#### 1. Market Scale

- Measured by existing technology sector employment, captures the fact that tech firms tend to be drawn towards existing tech clusters since they need abundant skilled labour, supporting infrastructure and financial and advisory functions

#### 2. Employment Growth

- Technology sector employment growth has far exceeded that of other office-based employment over the past five years, and is expected to do so over the next five years, albeit by a smaller margin
- For a number of reasons including labour force upskilling, several of these jobs are evolving from process-outsourcing markets into viable destinations for more higher-value functions

#### 3. Active Requirements

- Manifestation of short-term office demand pressures by tech firms

#### 4. Innovation Measures

- Capturing the outcome of technology R&D at city level. These measures are considered in conjunction with a location's attractiveness to start-up and student activity, which are also indicators for the degree of innovation in a city.

Rank	Selected Cities
1	London
2	Paris
3	Berlin
4	Munich
5	Madrid
...	
11	Stockholm
...	
15	Barcelona
...	
18	Milan
...	

Source: CBRE, Oxford Economics, and Green Street Advisors

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

T +44 (0) 20 3793 7000 / greenstreetadvisors.com

**Important disclosure on page 26**

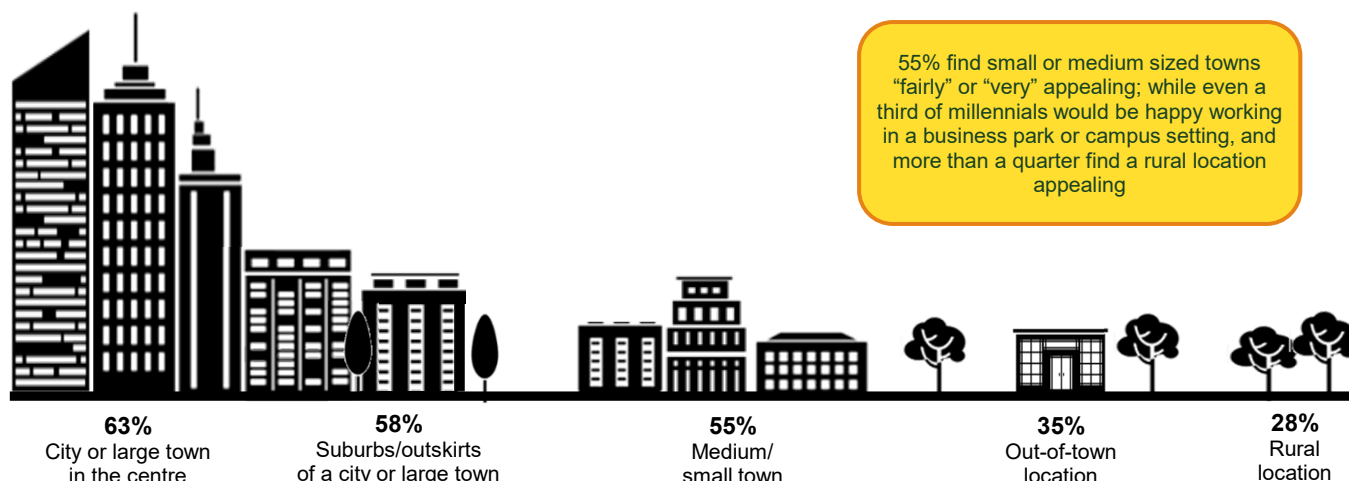
© 2020, Green Street Advisors, LLC



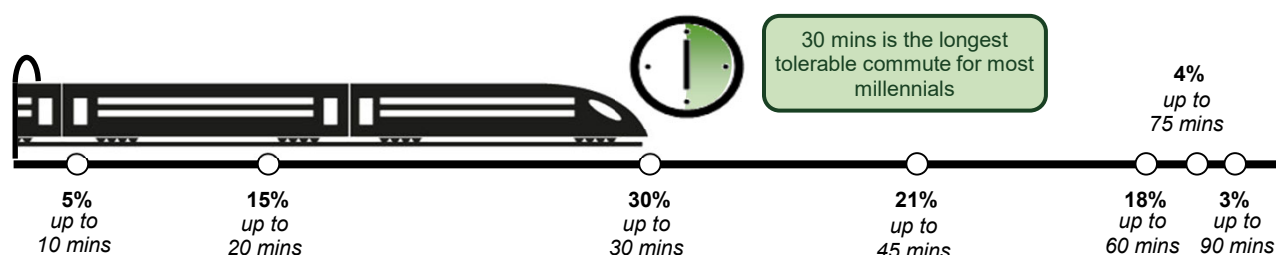
## IV. Demand: Attracting Millennials

**Trending:** Employers are positioning their office space as a tool to retain/attract talent. Central city locations emerge as the favourite place to work for most workers in Europe. Albeit currently in vogue, offices featuring open seating with ample "collaborative" and "agile" areas could eventually see some pushback as concerns around compromised productivity are being raised.

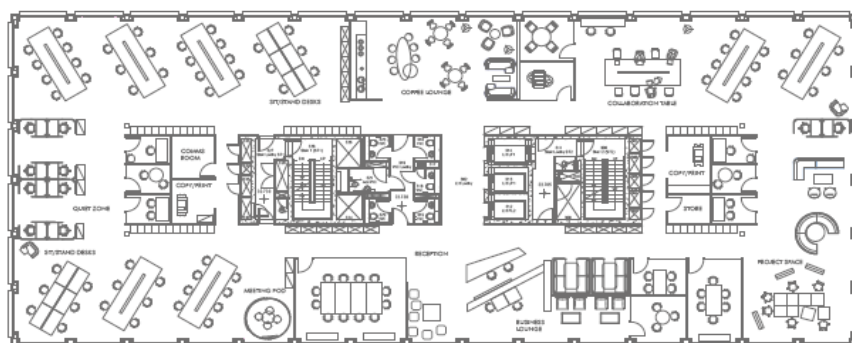
### Work Location Appeal



### Commuting Time



### Favoured "Agile" Office Environment<sup>(1)</sup>



Space	Area (sqm)	Work Settings
Open plan desks/benches	385	70
Study pods (open plan)	50	10
Meeting rooms	110	8
Quiet rooms	24	4
Informal meeting spaces	44	4
Coffee lounge	60	5
Recreation room	10	
Support space	35	
Reception/lounge	70	
Circulation space	212	
<b>Total</b>	<b>1000</b>	

(1) Illustrative general arrangements of an office floor plate of 1,000 sqm (10,764 sq ft) usable area to suit both traditional and agile ways of working. Source: CBRE, and Green Street Advisors

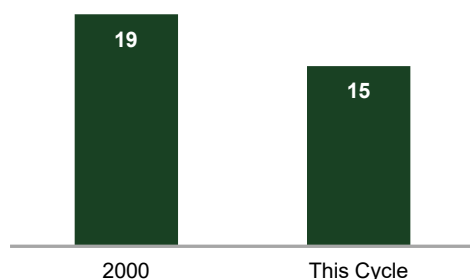
## IV. Demand: Office Space per Worker

**Packing Them In:** The trend of using less space per employee (a.k.a., "densification") is not new to this cycle, but has become a more significant impediment to office demand over the past decade, and should remain a headwind for several years. The trend has accelerated "economic obsolescence" for buildings with more traditional, lower-density layouts and put upward pressure on landlords' cap-ex budgets.

### Broad Themes:

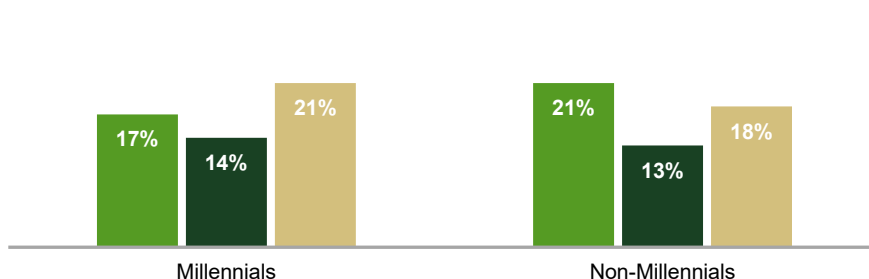
- Employers requiring less office space per worker than in the past, a headwind for office demand
- "Creative" (open/bench seating) layouts seek collaboration/communication among employees
- Less personal space (fewer private offices), but often more social/common spaces
- Technology is also driving efficiencies (e.g., less space required for law libraries, server rooms)
- Shared office growth (e.g., "hoteling", rise of flex office) driven by more mobile/independent workforce
- Rules of thumb: 19 sqm required per worker pre-Global Financial Crisis (GFC) to 15 sqm post-GFC<sup>(1)</sup>
- There could be limits to density for buildings with structured parking - 1 to 4 spots per 10 sqm typical
- Key long-term question: will morale/productivity/employee retention suffer from these changes?
- Some studies/media reports suggest signs of dissatisfaction (e.g. inadequate privacy) with open plans
- Anecdotal evidence suggests that density < 16 sqm/worker impairs acoustics/productivity
  - Communication gains may prove elusive if employees use headphones to block noise
- Millennials are credited with driving these changes, but their preferences could evolve as they age
  - That may include tastes for both space layouts and geography (moving back to 'burbs eventually?)

### Typical Sqm per Worker



### Office Environment Distribution Preference

■ Private/shared Office ■ Open Plan ■ Activity-based working



(1) CBRE Report, September 2017: *Quality, Not Quantity - Exploring the demand elasticity of European office space*.

Source: CBRE, and Green Street Advisors

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

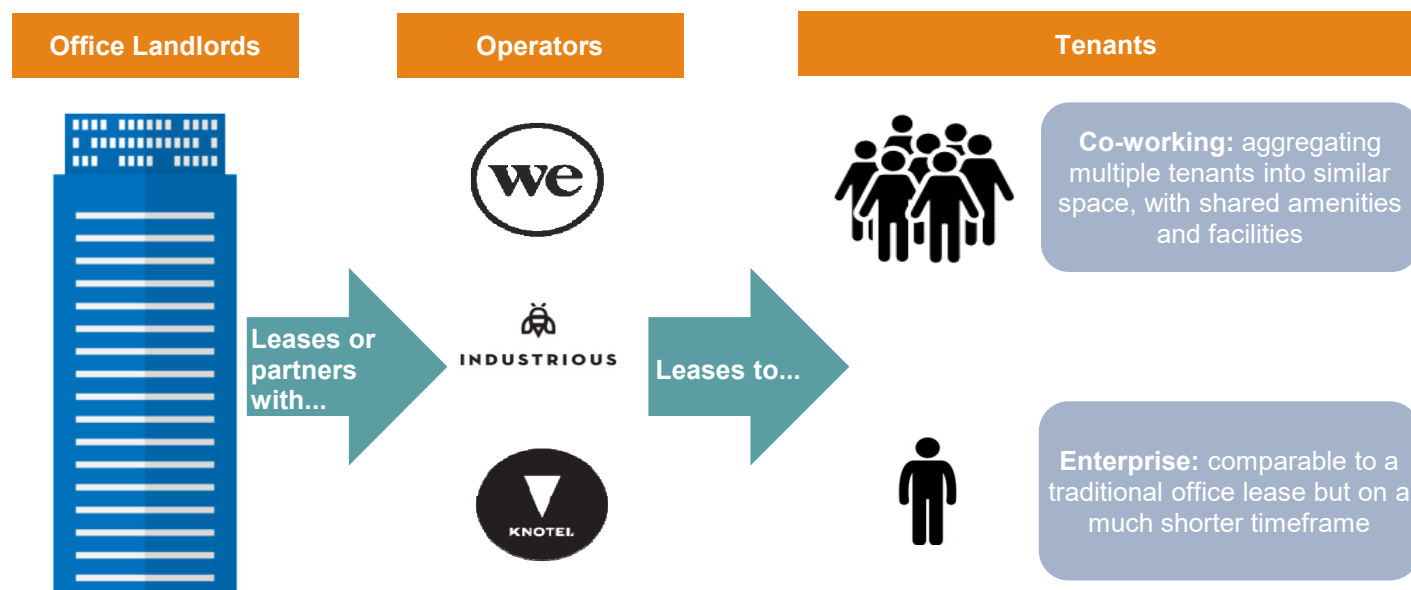
T +44 (0) 20 3793 7000 / greenstreetadvisors.com

**Important disclosure on page 26**

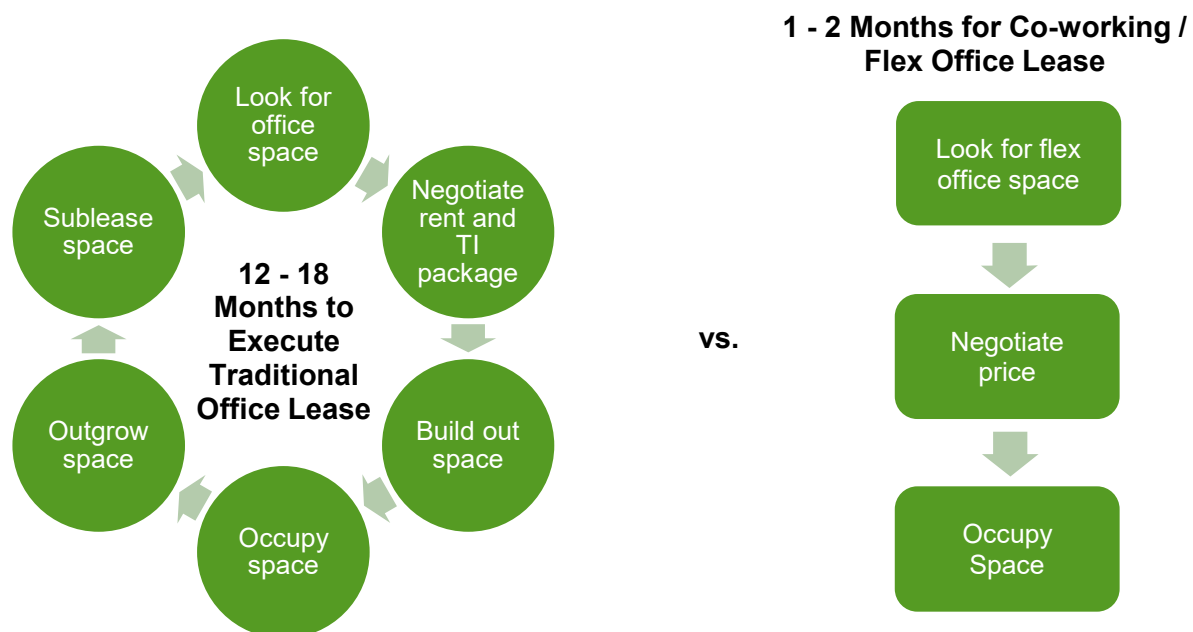
© 2020, Green Street Advisors, LLC

## IV. Demand: Flex Office's Impact

**A Middleman:** Flexible office operators are an interesting mix of competitor, customer, and partner for office landlords. They both aggregate demand for office landlords as well as poach enterprise tenants who may have otherwise signed a direct lease with a landlord. At their core, however, flex operators are a middleman between owners and tenants seeking space that have disrupted the traditional demand channels. We bifurcate the industry by the type of service provided (co-working or enterprise) – an admittedly simple distinction but one that provides for helpful comparative analysis.



**Benefits to Tenants:** From a tenant standpoint, the process of finding office space can be burdensome, costly, and time consuming. Tenants have shown a willingness to pay a premium for a simpler and more efficient process compared to the traditional method of finding office space. Incrementally, flex providers have an advantage in addressing space demand uncertainty in a tenant's core business.



Source: Green Street Advisors

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

T +44 (0) 20 3793 7000 / greenstreetadvisors.com

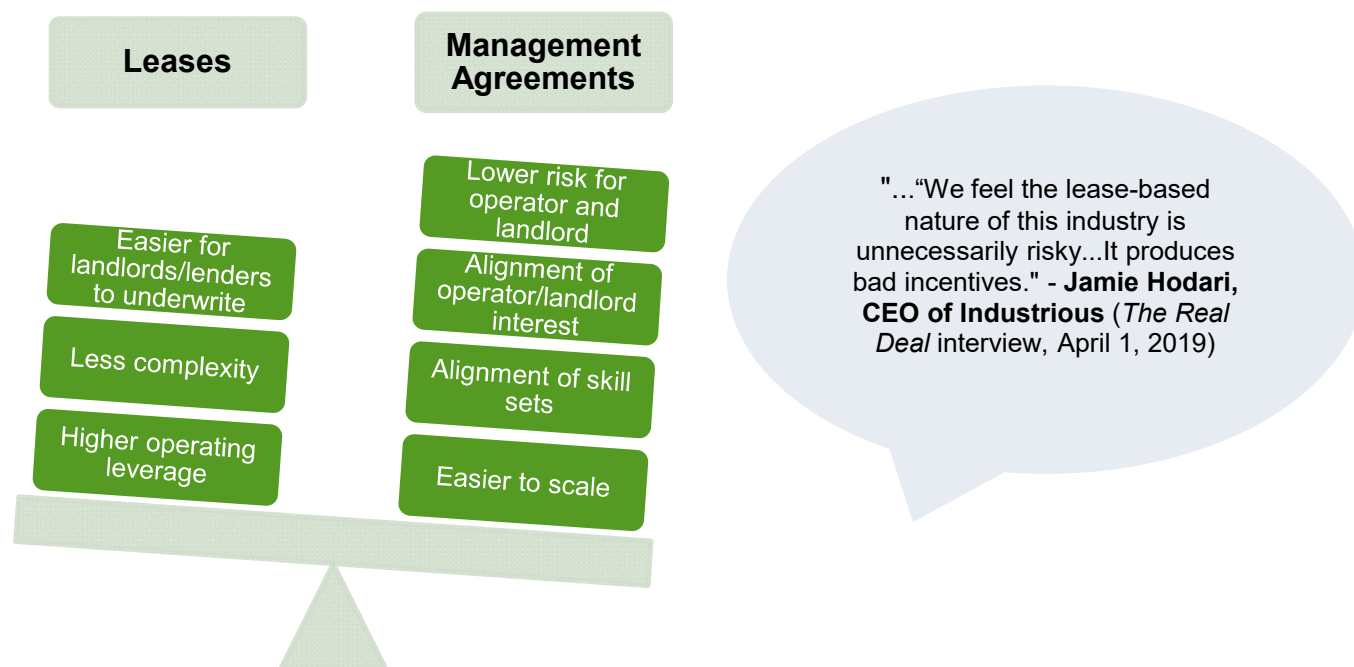
**Important disclosure on page 26**

© 2020, Green Street Advisors, LLC



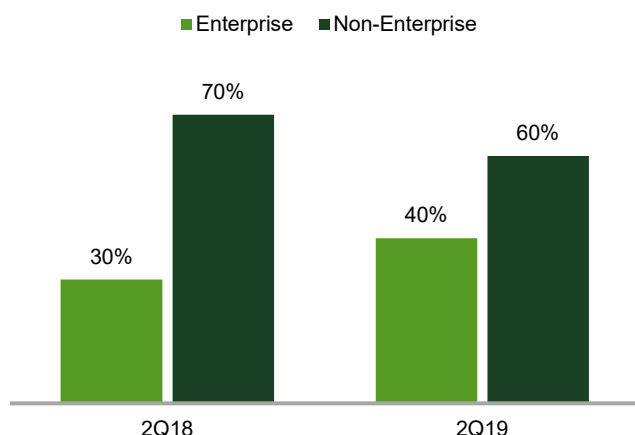
## IV. Demand: Flex Office's Impact (Cont'd)

**Tilt Towards Partnerships:** The most common criticism of flex office operators is the inherent duration mismatch: having long-dated lease liabilities but short-term and potentially volatile revenues. The management agreement in which landlords and flex operators share in the revenue appears to be the "best" way for both operators and office landlords to meet tenant demand for flex office services.

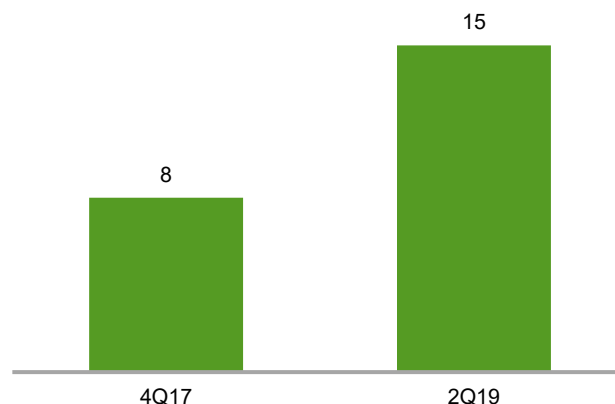


**The Startup Goes Corporate:** The WeWork failed IPO provided important disclosure on its tenants ("members") and indicated a clear shift to more corporate-like tenants and longer lease terms from individuals. This is in-line with commentary from other flex office operators. As the industry shifts its focus toward corporate tenants via flex office services, the competition for "traditional" office users will likely intensify. High-growth in enterprise tenants in a flex wrapper is slightly negative for office landlords as it tends to quicken the pace of office densification. It also accelerates the need for landlords to beef up amenities.

**WeWork's Membership Mix**



**WeWork's Avg. Membership Term (Months)**



Source: Company disclosure, and Green Street Advisors

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

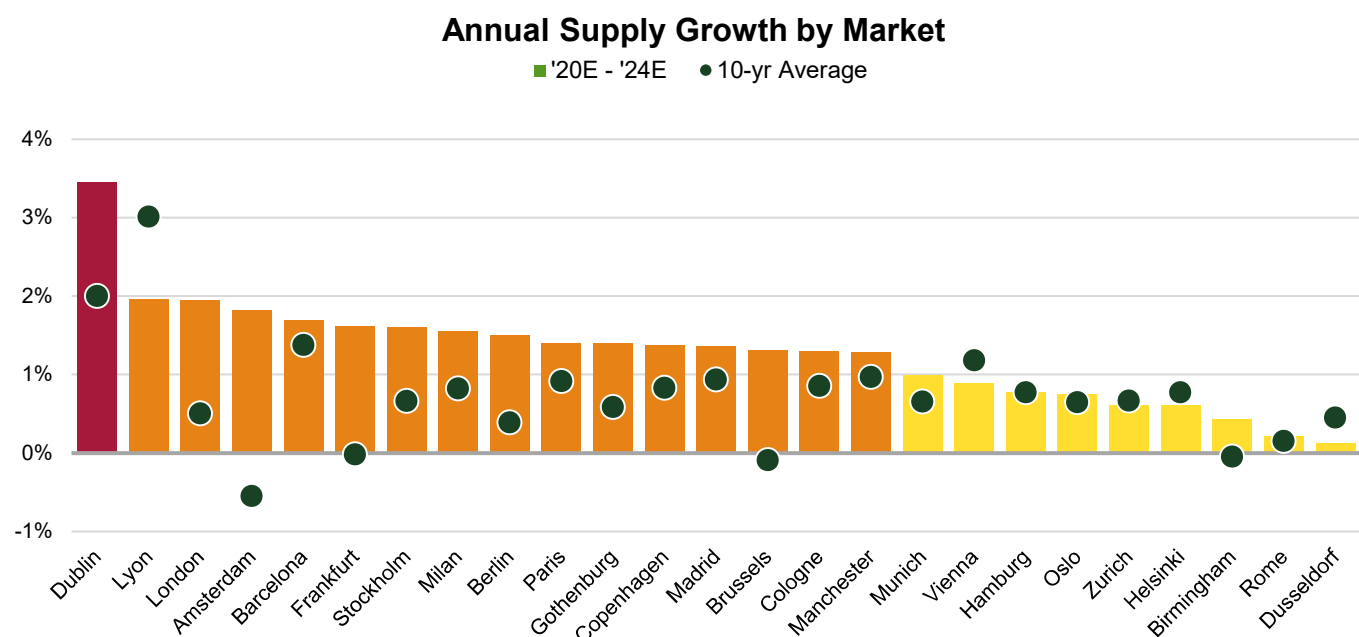
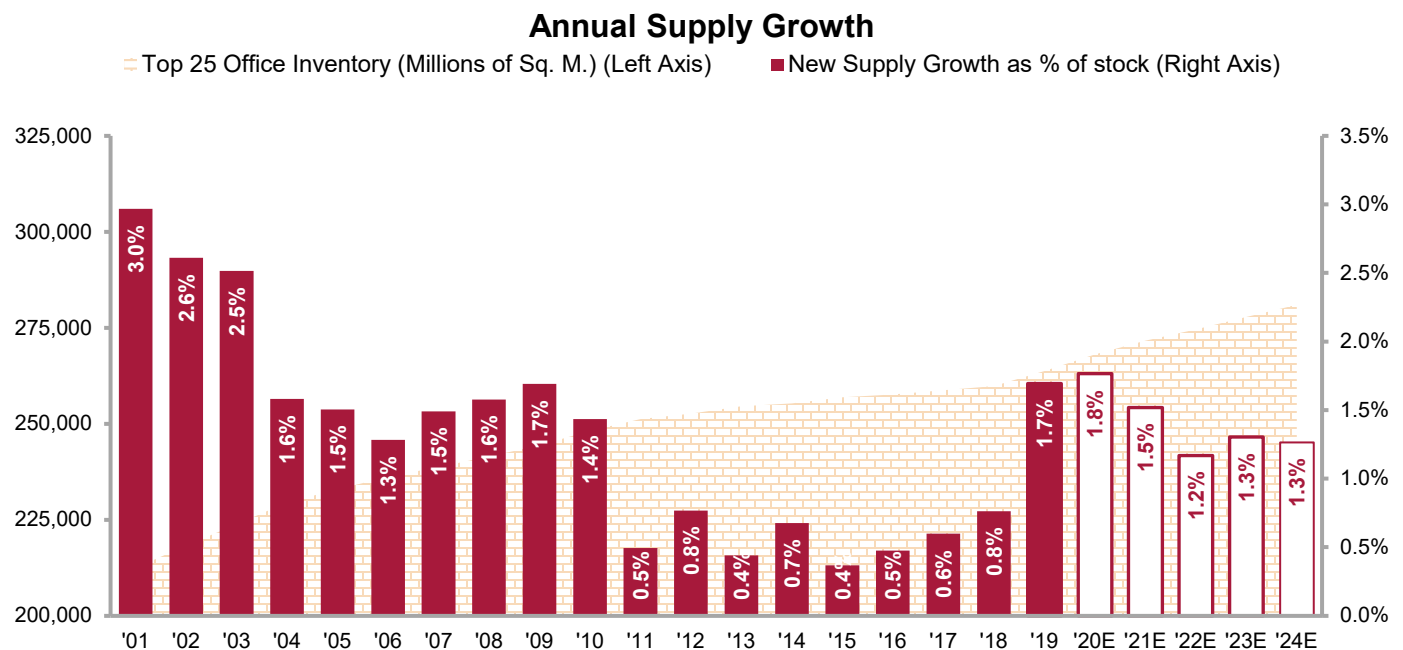
T +44 (0) 20 3793 7000 / greenstreetadvisors.com

**Important disclosure on page 26**

© 2020, Green Street Advisors, LLC

## V. Supply Landscape

**Modest Uptick:** Until recently, supply had not really picked up since the 2008/'09 downturn as job growth recovered only slowly. Development finance remains expensive and difficult to access. Only Dublin is expected to see deliveries exceed 2% p.a. of existing stock over the next five years.



Source: CBRE, and Green Street Advisors

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

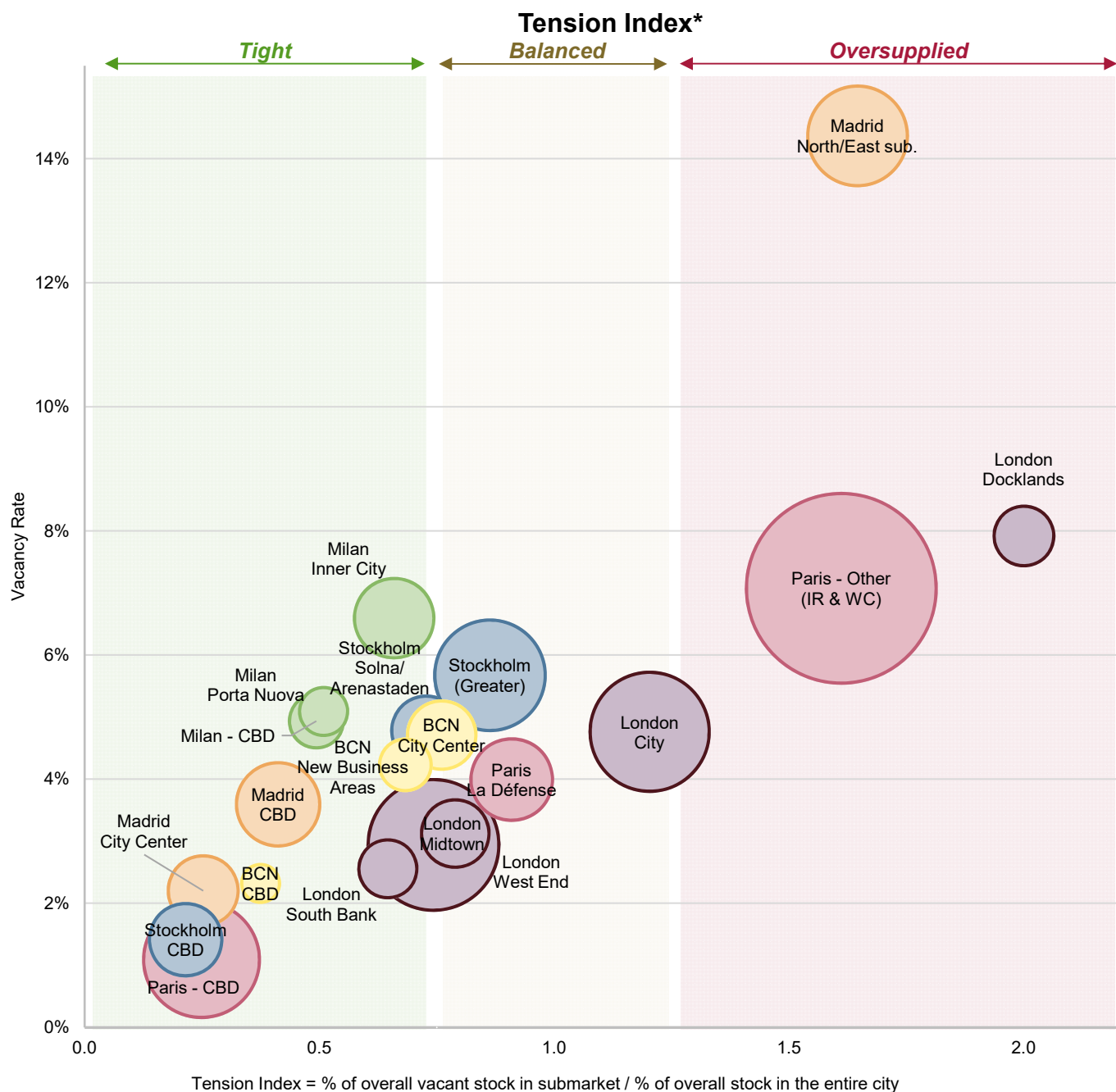
T +44 (0) 20 3793 7000 / greenstreetadvisors.com

**Important disclosure on page 26**

© 2020, Green Street Advisors, LLC

## V. Supply Landscape: Tension Index For Key Submarkets

**Where Is Tension Tightest?:** Green Street produces a proprietary index, termed "Tension", that seeks to encapsulate in one figure how 'tight' a particular office submarket is from an occupational angle. The 'tighter' a submarket is, the higher the odds of positive M-RevPAM growth going forward, although the risk of submarket substitution must also be considered. Submarkets with a disproportionately small percentage of a city's overall available office stock would qualify as being notably 'tight'. Central Business Districts (CBD) across several European cities fit this bill.



\*Bubble size represents a sub-market's size in terms of leasable area (e.g. London City's office is ~250m Sq. Ft.)

Source: CBRE, Green Street Advisors

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

T +44 (0) 20 3793 7000 / greenstreetadvisors.com

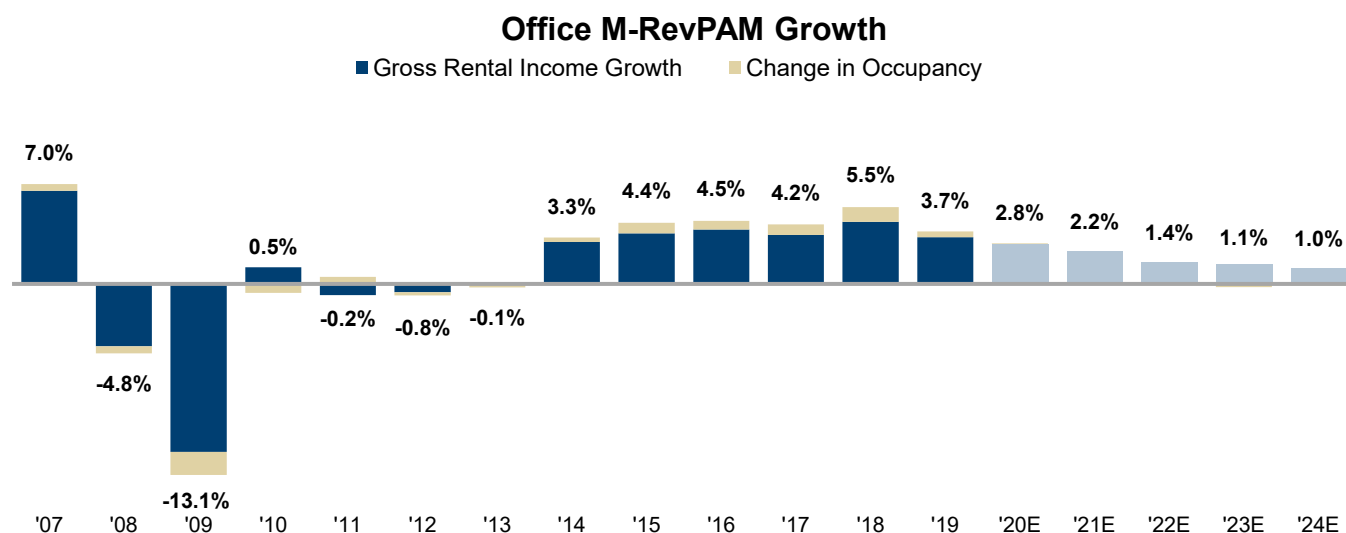
**Important disclosure on page 26**

© 2020, Green Street Advisors, LLC

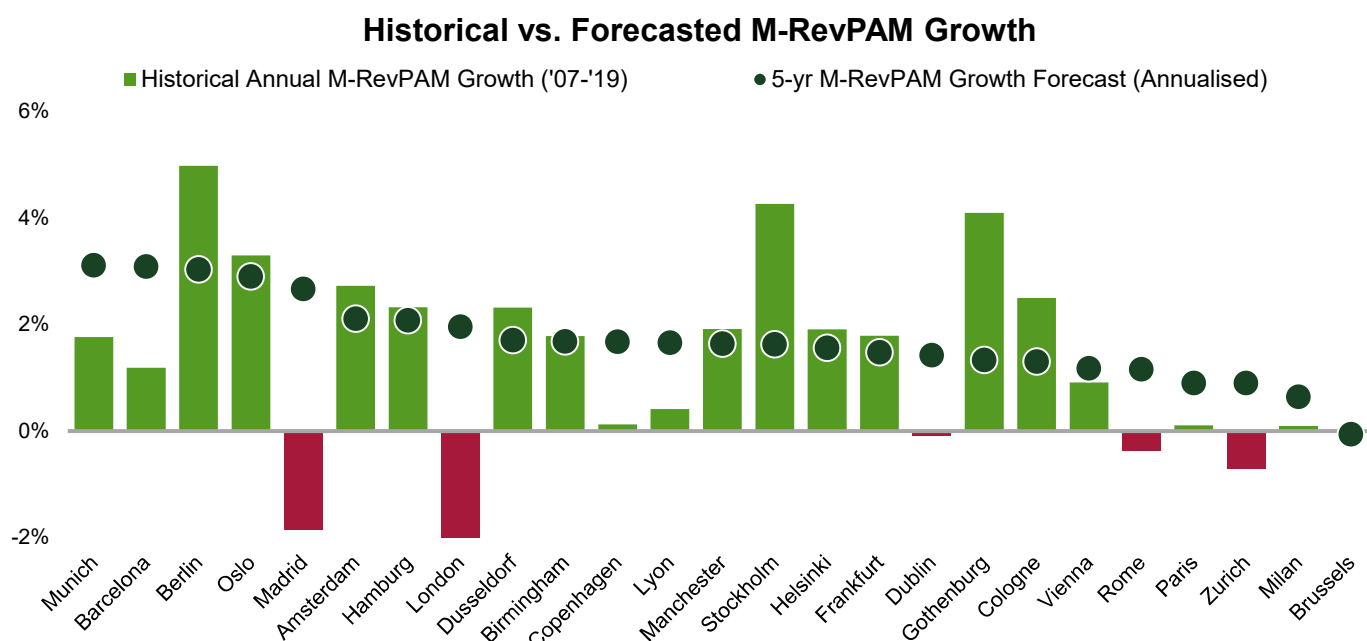
This report contains copyrighted subject matter and is covered under Green Street's Terms of Use.  
Green Street reserves all rights not expressly granted.

## VI. Fundamentals: M-RevPAM Growth

**Cruising Towards Inflation:** The office sector exhibits substantial cyclicity, especially in gateway markets. Current pent up tenant demand should provide for robust rent growth over the next two years; however, with the rebound of supply growth, out-year rent growth should decelerate towards inflation-like levels.



**Wide Dispersion Historically:** German and Swedish cities have re-rated into quality business hubs, benefiting from a diverse range of industries predominantly outside of finance. On the other hand, London's fate has been marred by the double whammy of (i) the Global Financial Crisis of 2008/09 and (ii) Brexit-related uncertainty, though its long-term prospects are significantly more promising than recent performance.



Source: Green Street Advisors

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

T +44 (0) 20 3793 7000 / greenstreetadvisors.com

**Important disclosure on page 26**

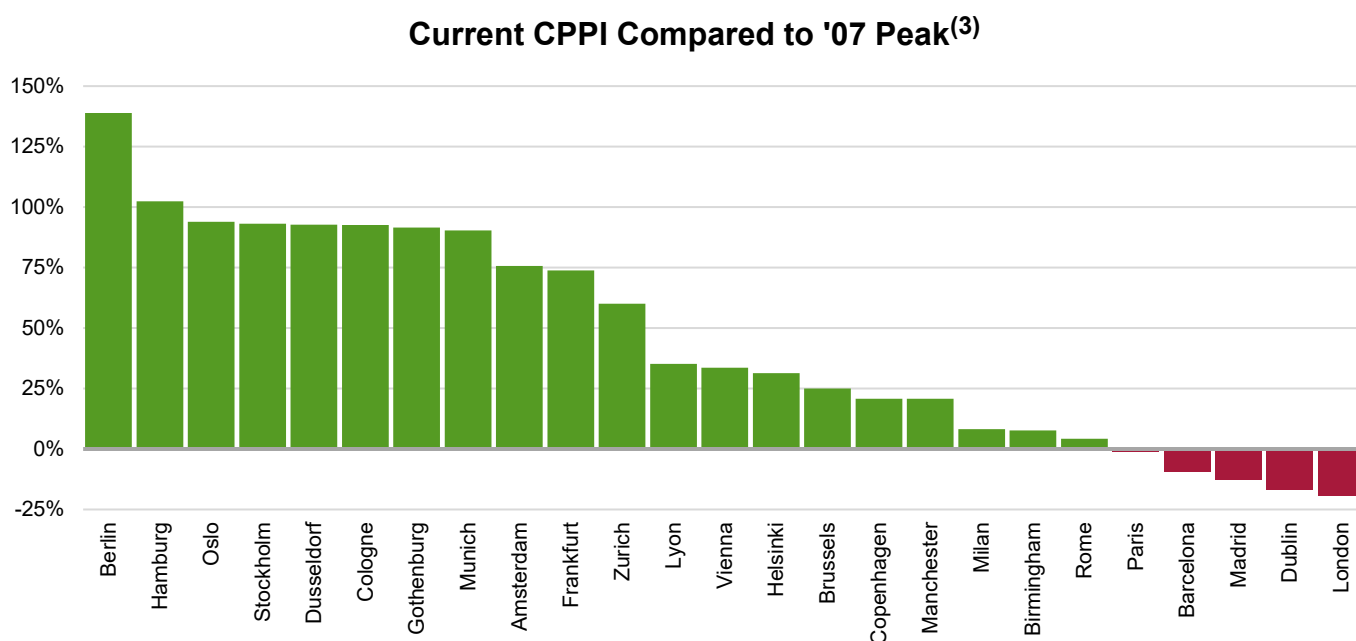
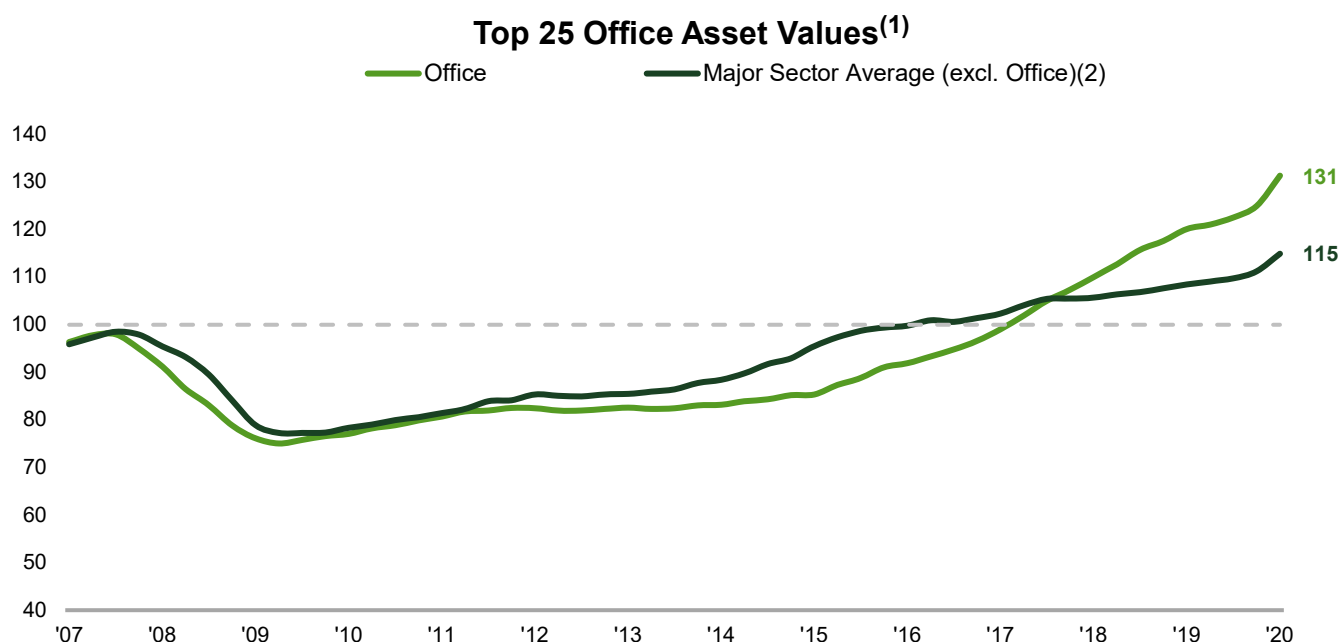
© 2020, Green Street Advisors, LLC

This report contains copyrighted subject matter and is covered under Green Street's Terms of Use. Green Street reserves all rights not expressly granted.



## VII. Asset Values

**Europe on High:** Green Street's proprietary valuation index (CPPI, or Commercial Property Price Index) is 30% above the '07 peak. Only London, Dublin, and Spanish cities are more than 10% below. The winners emerged from tech-oriented markets, the ECB's loose monetary policy, or some combination of the two.



(1) Asset values are Green Street's market level CPPIs calculated in local currency and then GDP weighted to roll up into a single value.

(2) Equal weighted average of Industrial and Retail sectors.

(3) CPPIs are calculated using local currency.

Source: Green Street Advisors

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

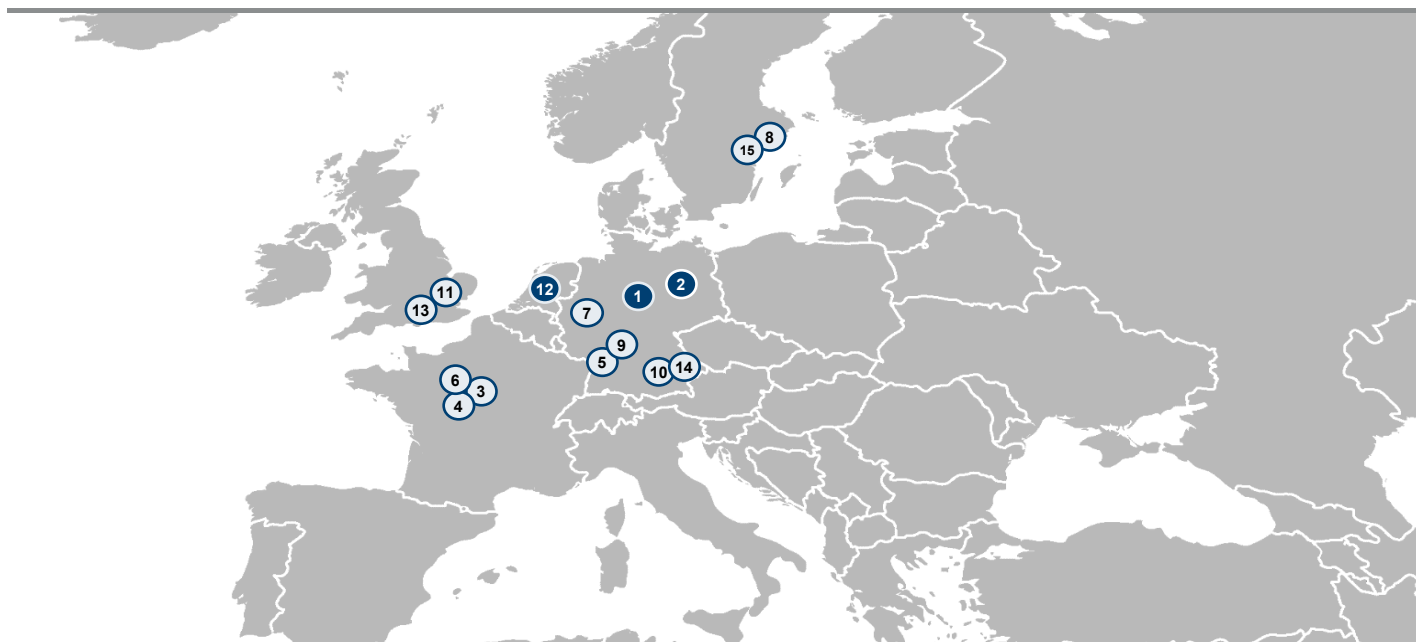
T +44 (0) 20 3793 7000 / greenstreetadvisors.com

**Important disclosure on page 26**

© 2020, Green Street Advisors, LLC

This report contains copyrighted subject matter and is covered under Green Street's Terms of Use.  
Green Street reserves all rights not expressly granted.

## VII. Asset Values: Notable Transactions



#	Property Name	MSA	Price (M)	Price / sqm	Date	Buyer	Seller
1	Millennium*	Germany	€2,500	€7,100	Sep-19	Commerz Real	Generali RE
2	Omega*	Germany	€800	€1,845	Oct-19	IMFARR	HVB
3	EQHO**	La Défense	€745	€9,490	Aug-19	South Korean Investors	Icade
4	Crystal Park	Neuilly-sur-Seine	€670	€15,225	Aug-19	South Korean Investors	Icade
5	SQUAIRE Business Complex	Frankfurt-am-main	€600	€5,500	Dec-19	South Korean Investors	Blackstone
6	PB6	La Défense	€530	€8,835	Sep-19	GIC	CNP Assurances
7	Stadthaus	Cologne	€500	€5,000	Dec-19	DIC Asset	Mirae AM
8	Trygg Hansa	Stockholm	€400	€8,630	Nov-19	KPA Pension	Areim
9	Taunusanlage 8	Frankfurt-am-main	€400	€13,715	Jul-19	Wirtgen Invest	Mirae AM
10	Kustermann Park	Munich	€400	€5,405	Sep-19	Swiss Life AM	Blackrock
11	Premier Place	City of London	€385	€17,710	Dec-19	Malaysian EPF	Morgan Stanley / Greycoat JV
12	Office Portfolio*	The Netherlands	€370	€2,935	Nov-19	CCP 5 LLC	Commerz Real
13	Alban Gate	City of London	€350	€9,860	Dec-19	King Street Capital	Blackstone
14	Ludwig	Munich	€350	€12,965	Sep-19	Pacific Eagle	Allianz RE
15	Bremen 2/4	Stockholm	€350	€5,845	Sep-19	Humlegården	Länsförsäkringar Sak

Source: Green Street Advisors

\*Portfolio transaction \*\*JV sale grossed-up

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

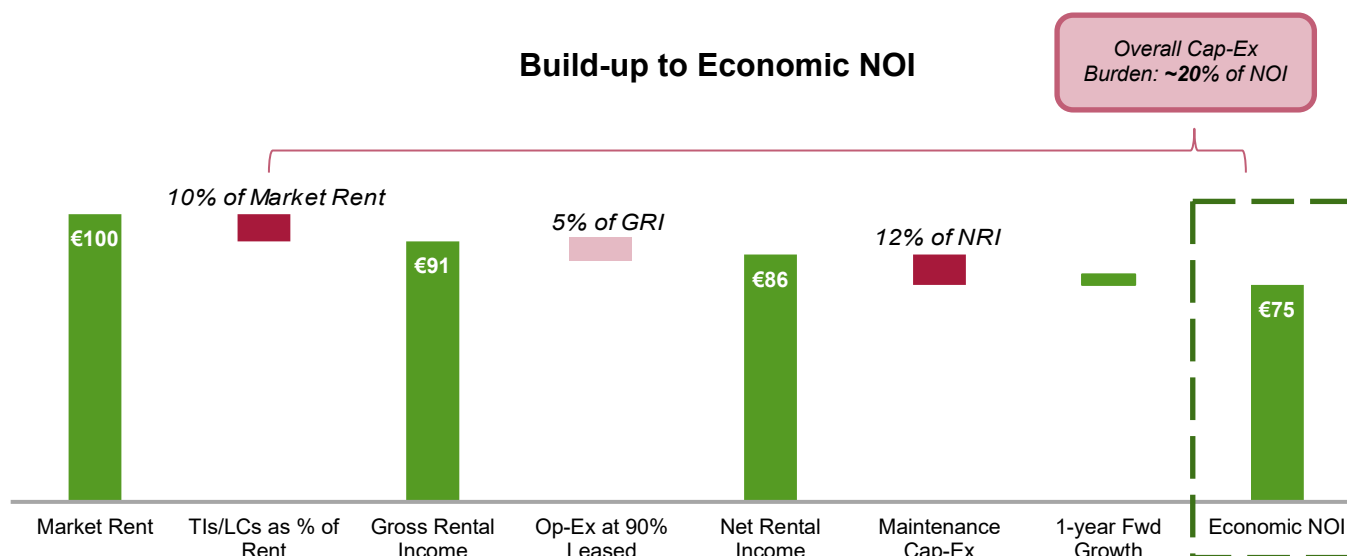
**Important disclosure on page 26**

T +44 (0) 20 3793 7000 / greenstreetadvisors.com

© 2020, Green Street Advisors, LLC

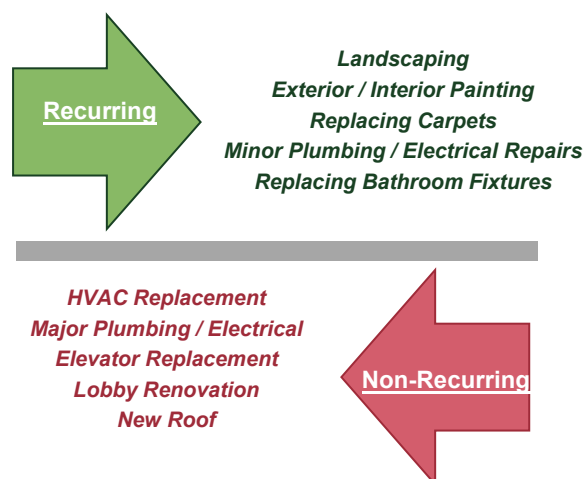
## VIII. Valuation: Economic NOI and Capital Expenditures

**Cost of Doing Business:** The cost of attracting tenants and maintaining the competitive nature of a building is one of the least understood, yet most important inputs to potential returns. Green Street's cap-ex estimates are sourced from public real estate companies' disclosures and conversations with multiple market participants. Our estimates try to capture a thoughtful look-forward reserve level for the cost of maintaining an asset as a percentage of cash flow (Economic NOI).

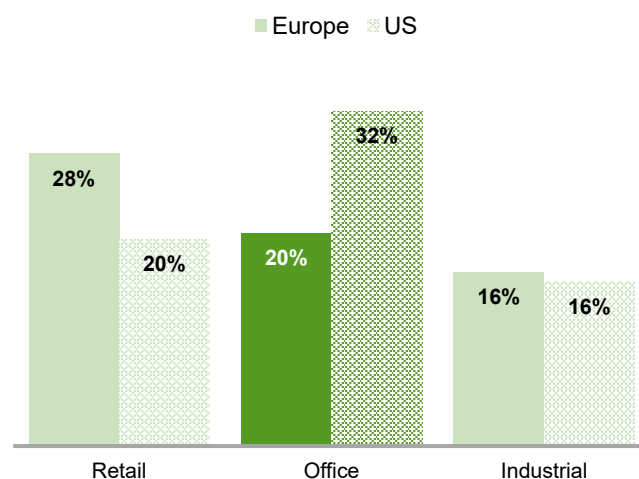


**Why Europe's Cap-ex is Lower Than the U.S.:** Mostly due to lower leasing commissions versus the US (transfer duties are higher in Europe) as well as higher rents (i.e. higher NOI/sqm as a denominator in the cap-ex reserve equation).

### Components of Maintenance Costs:



### Cap-Ex Burden (% of NOI\*)



Source: Green Street Advisors

\*Net Operating Income is a US metric that equals Rental Income less Operating Expenditures

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

**Important disclosure on page 26**

T +44 (0) 20 3793 7000 / greenstreetadvisors.com

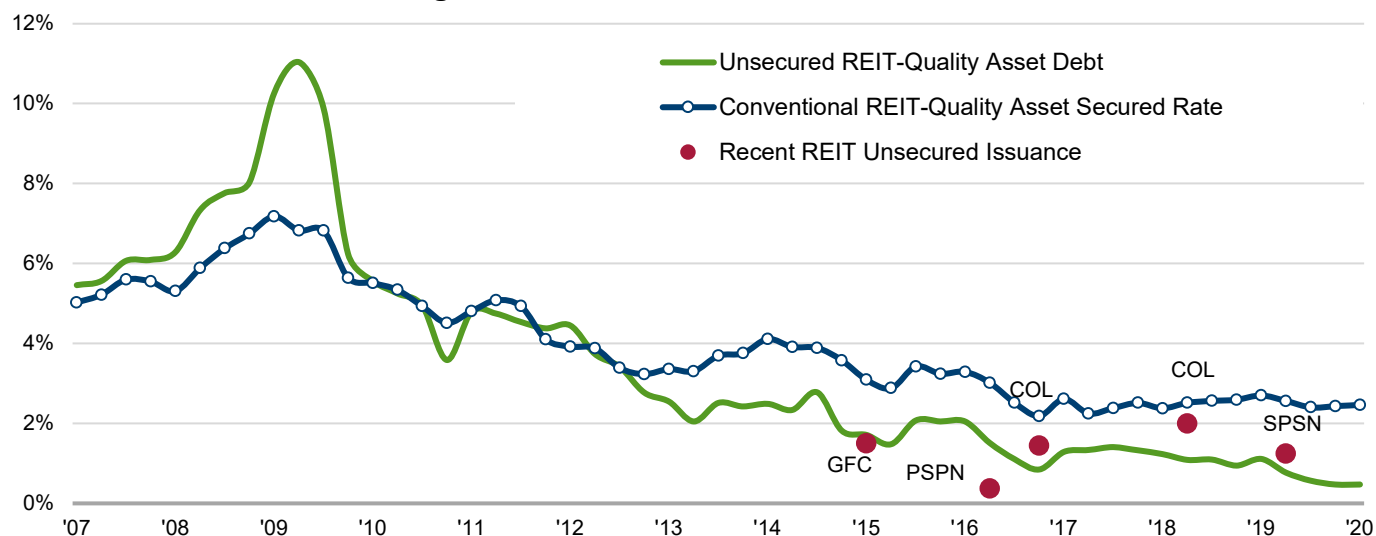
© 2020, Green Street Advisors, LLC

This report contains copyrighted subject matter and is covered under Green Street's Terms of Use.  
Green Street reserves all rights not expressly granted.

## VIII. Valuation: Financing Environment and Valuation

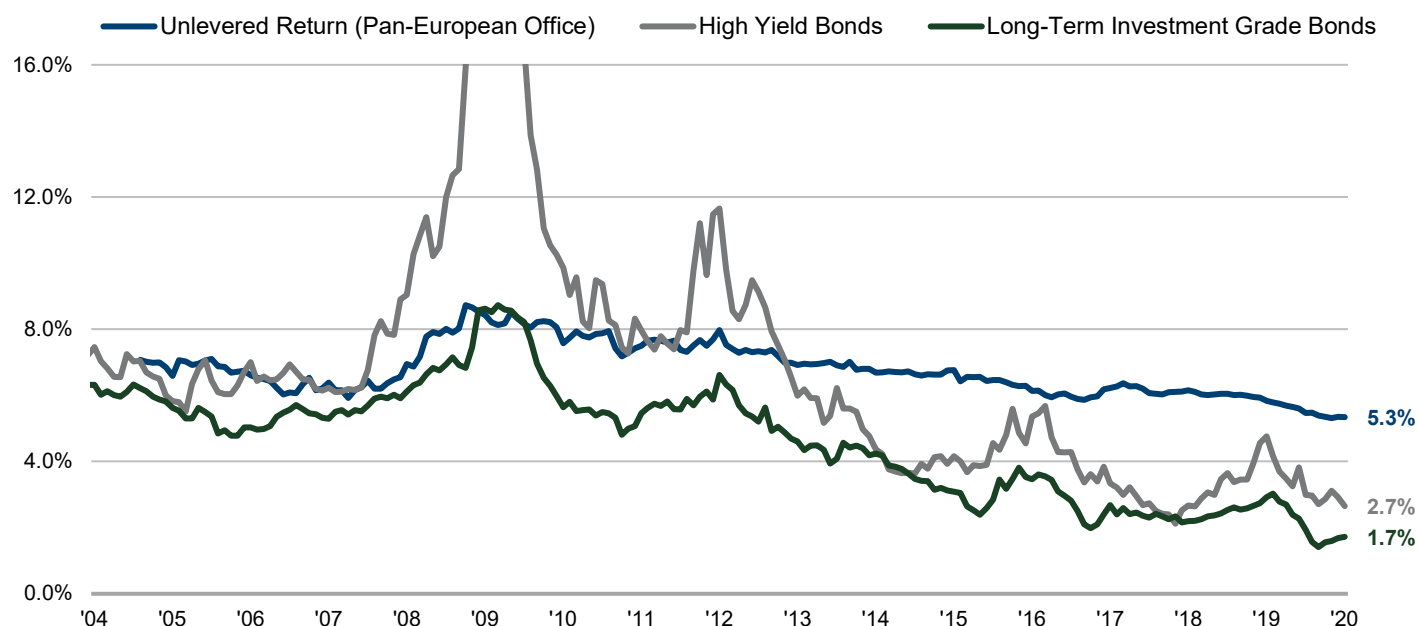
**Almost "Free" Money:** Debt markets remain wide open, with all-in costs for long-term real estate financing now typically below 1.5% p.a. in the Eurozone and close to zero in Switzerland. The UK is still above mid-2% p.a. Outside of a recession-type scenario, today's reality of cheaper unsecured debt likely will persist.

### Long-Term Secured and Unsecured Rates



**Five is the New Seven:** Prior to late '13, unlevered IRRs on average offered 7% p.a.; since then the average dropped to 6% p.a. Today, prospective returns are estimated to be no better than a low-5% p.a.

### Unlevered Total Return Expectations on Real Estate vs. Corporate Bond Yields



Source: Bank of America, Bloomberg, IHS Markit, and Green Street Advisors

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

T +44 (0) 20 3793 7000 / greenstreetadvisors.com

**Important disclosure on page 26**

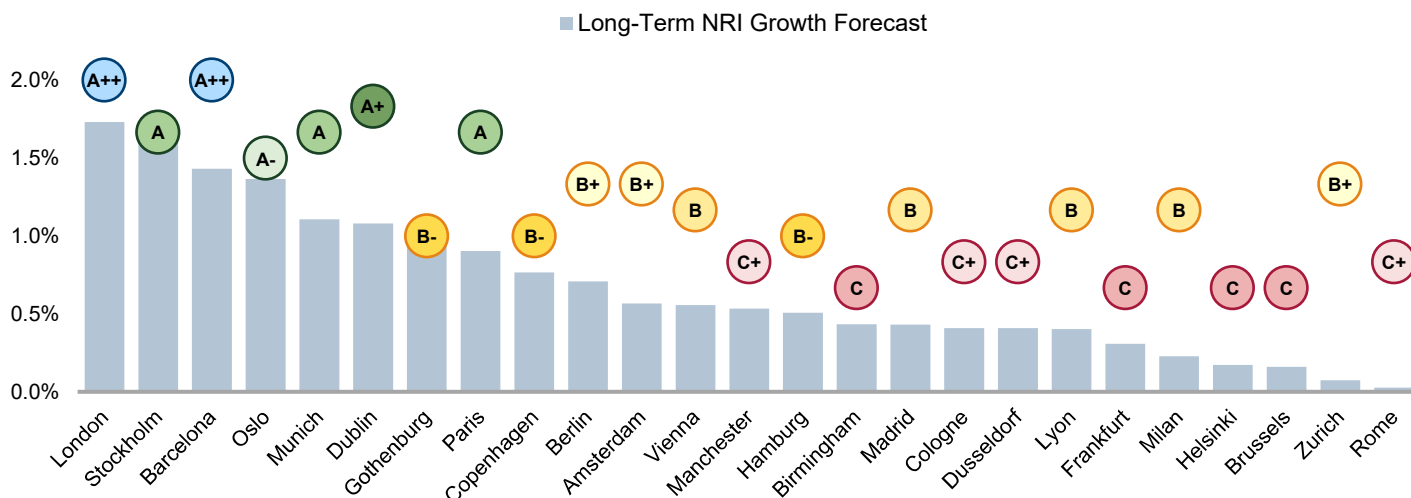
© 2020, Green Street Advisors, LLC



## VIII. Valuation: Market-level Return Expectations

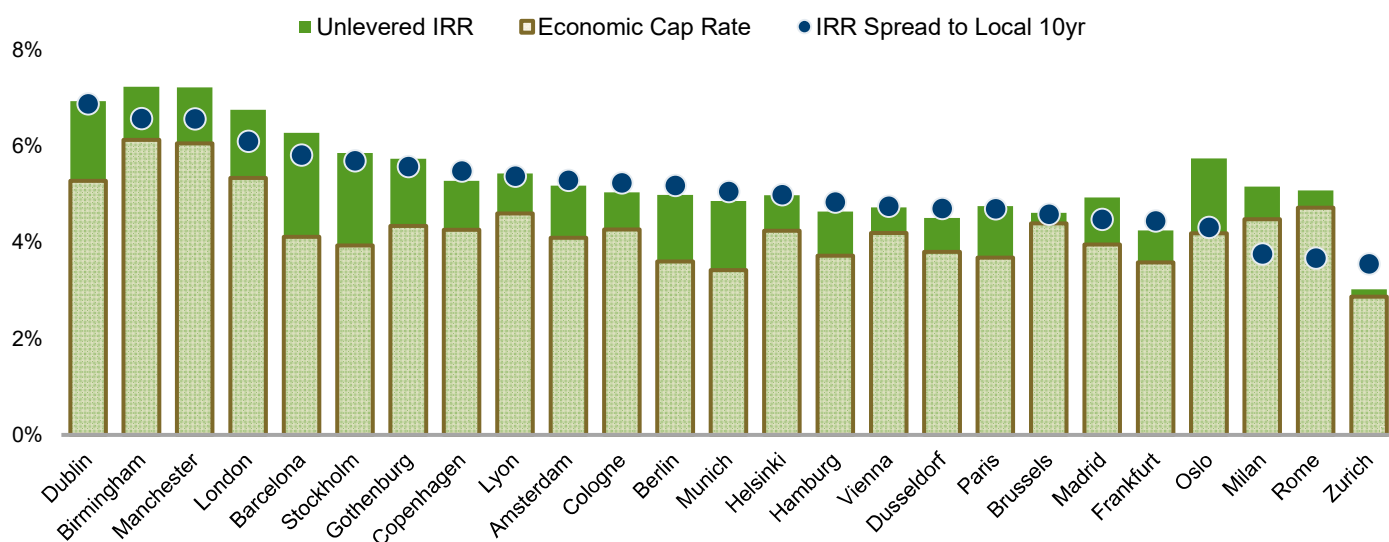
**Eyes On the Long-Term:** Green Street assigns letter grades\* to the top 25 markets across Europe. Grades are based on ten variables specific to the office sector and are meant to represent relative long-term rent growth potential relative to inflation. Public implied pricing of inflation swaps is used to determine country-level inflation expectations, which used in conjunction with Green Street's proprietary grading framework, determines the market long-term rent growth potential.

**Long-Term NRI Growth Forecast vs. Market Grade**



**A Global View:** Any cross-border comparison of asset valuations needs to take into account differences in appropriate hurdle rates in each country. There is no single “right” way to accomplish that task, but sovereign bond yields implicitly convey most of the necessary information. After those yields are subtracted from the unlevered returns offered by each market, the resultant return premiums provide a ranking of the relative attractiveness. Even with higher sovereign yields, the UK and Nordic Office markets typically screen more attractive using this framework.

**Top Office Markets: Unlevered IRRs and Cap Rates**



Source: Green Street Advisors

\*See Appendix A for more information on Green Street's market grades.

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

**Important disclosure on page 26**

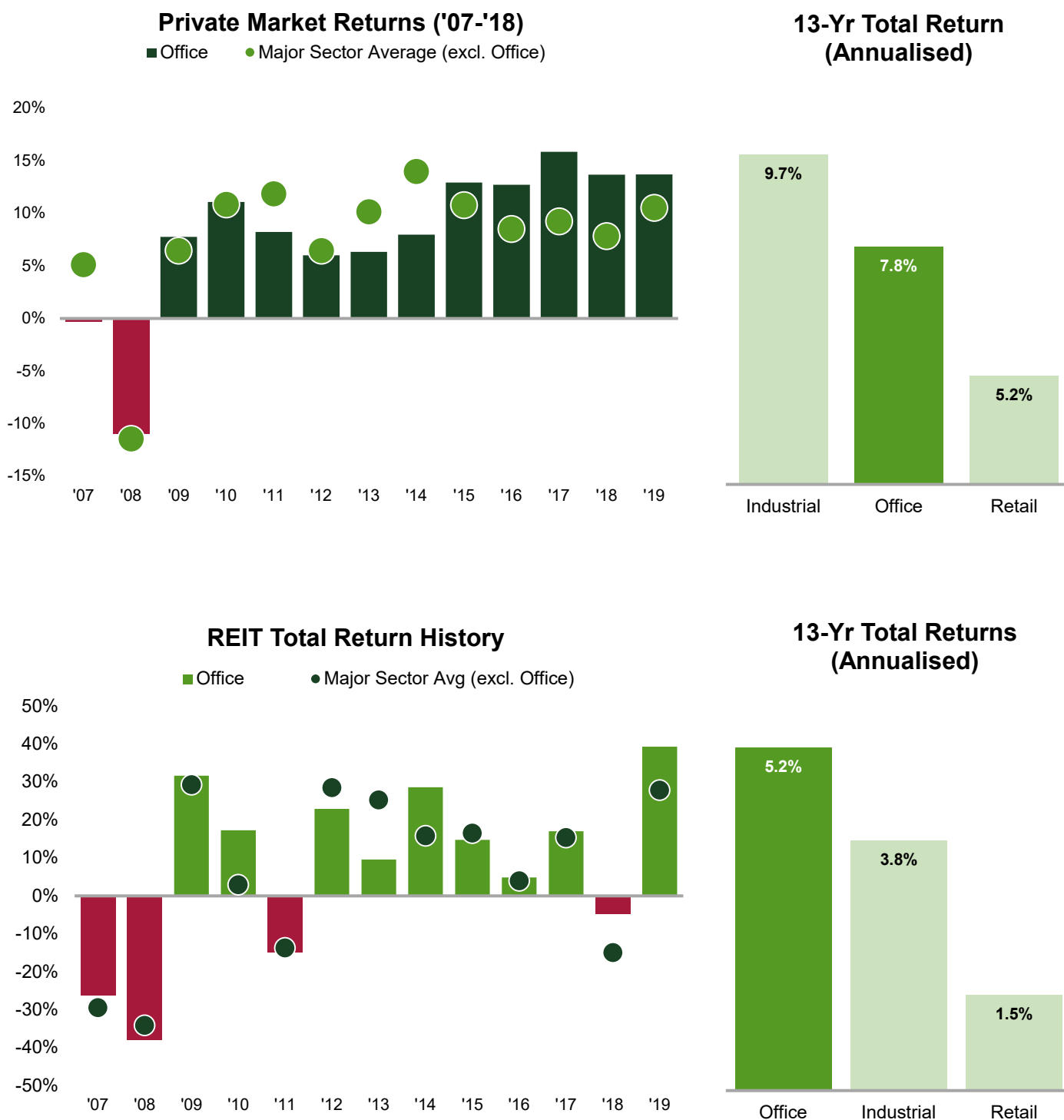
T +44 (0) 20 3793 7000 / greenstreetadvisors.com

© 2020, Green Street Advisors, LLC

This report contains copyrighted subject matter and is covered under Green Street's Terms of Use. Green Street reserves all rights not expressly granted.

## VIII. Valuation: Private and Public Sector Returns

**Middle of the Pack:** Office returns have outpaced retail recently as major technological disrupters have not negatively impacted sentiment towards the former (e.g. AI, remote working, FinTech, flex office growth, etc.) as they have affected the latter (e.g. ecommerce).



Source: Bloomberg, and Green Street Advisors

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

T +44 (0) 20 3793 7000 / greenstreetadvisors.com

**Important disclosure on page 26**

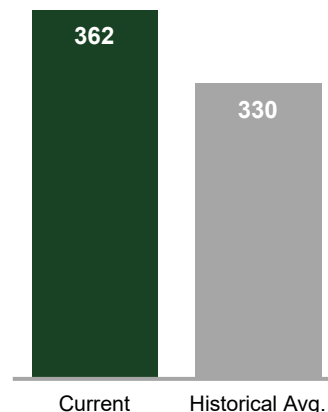
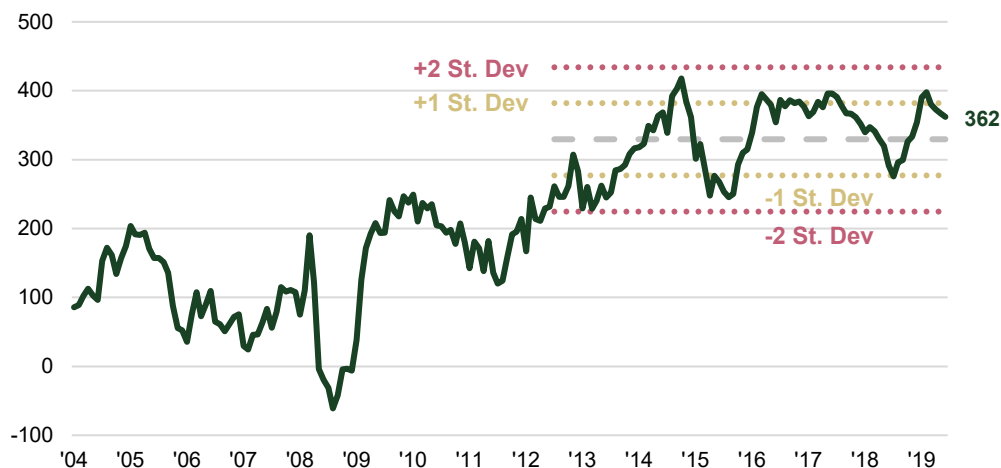
© 2020, Green Street Advisors, LLC

This report contains copyrighted subject matter and is covered under Green Street's Terms of Use.  
Green Street reserves all rights not expressly granted.

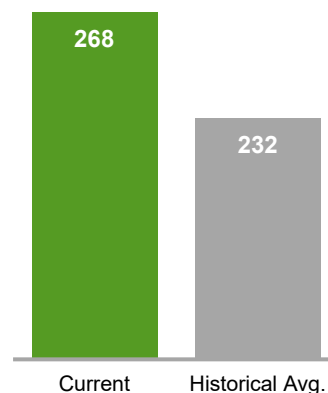
## IV. Office Real Estate Pricing vs. History

**Pricing vs. History:** Comparing the current office return spread vs. corporate bonds to the historical average provides insight on how the sector is priced versus history, but should not be used to derive any conclusions about relative cross-sector valuation. While absolute levels of cap rates are at historically-low levels, positive market rent growth expectations for the next couple years provides a much-needed offset.

### Office Unlevered IRR Spread to Corporate Bonds



### Office Unlevered IRR Spread to BAML High Yield Index



**Comparing to Corporate Bonds:** Green Street evaluates private-market real estate pricing (i.e., buy-and-hold unlevered return expectations) against long-maturity investment-grade corporate bonds and high-yield corporates — investments that historically have offered returns similar to those available on real estate. The spread of real estate returns to government bonds provides a very broad measure of the risk premium offered by real estate and it is heavily influenced by the health of the economy. Using corporate bonds as the benchmark eliminates some, though not all, of the macro risk from the comparison (corporate bonds tend to widen relative to government bonds when the economy weakens and vice versa) and better answers the question, “how is real estate priced relative to assets with similar risk?”

Source: Bank of America, Bloomberg, IHS Markit, and Green Street Advisors

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

T +44 (0) 20 3793 7000 / greenstreetadvisors.com

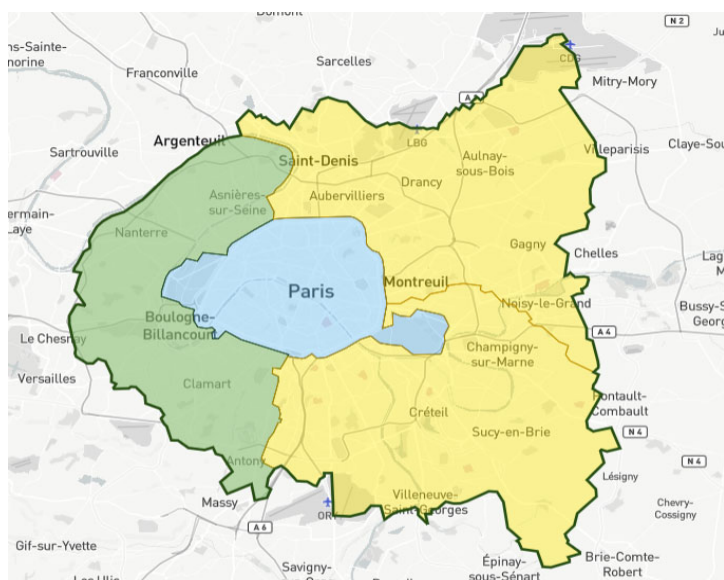
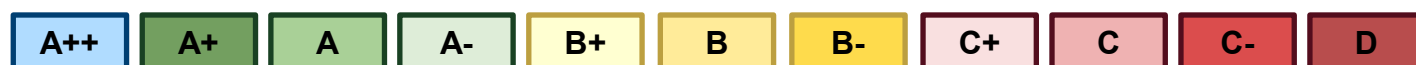
**Important disclosure on page 26**

© 2020, Green Street Advisors, LLC

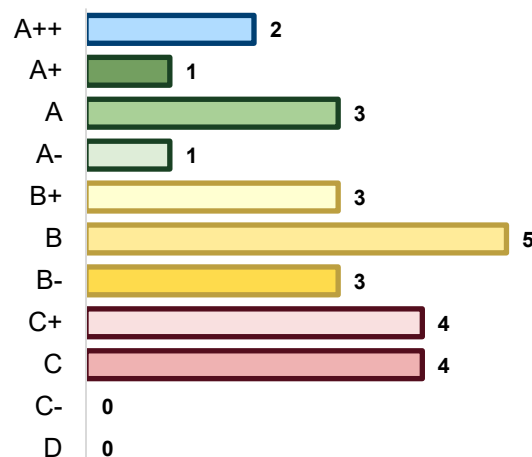
This report contains copyrighted subject matter and is covered under Green Street's Terms of Use. Green Street reserves all rights not expressly granted.

## Appendix A: Office Market Grades

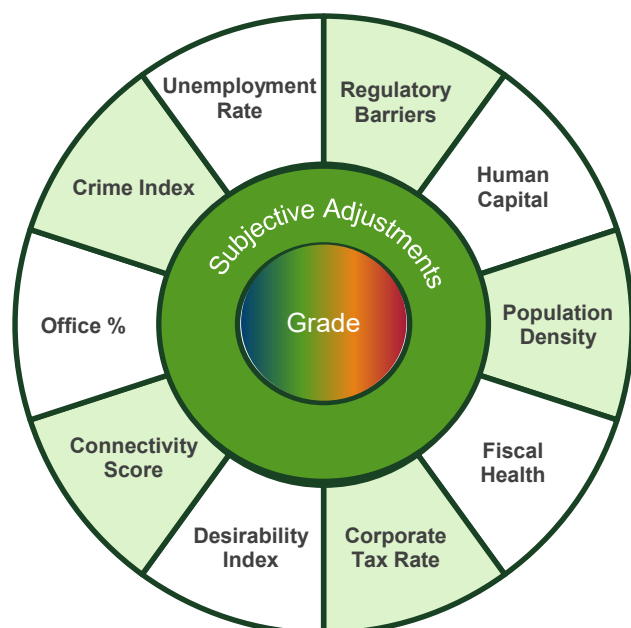
**Market Grades:** Green Street assigns letter grades to the top 25 markets across Europe. Grades range from A++ to D, and are meant to represent relative long-term rent growth potential.



**Grade Distribution - Top 25 Markets**



**Variables:** Grades are based on ten variables specific to the office sector at the NUTS3 level and then rolled up to the market. Variable weightings are proprietary, and some grades include a subjective adjustment.



NUTS3 Variable Ranges: Top 25 Markets			
Variable	Min	Max	Wtd. Avg.
Regulatory Barriers	Very Low	Very High	Average
Human Capital	32	82	46
Population Density	510	20,700	5,914
Fiscal Health	Concerning	Healthy	Stable
Corporate Tax Rate	13%	31%	23%
Desirability Index	0	100	49
Connectivity Score	Very Low	Very High	Average
Office %	28%	67%	46%
Crime Index	Very Low	Very High	Average
Unemployment Rate	2.8%	12.5%	6.2%

Source: Eurostat, Oxford Economics, and Green Street Advisors

20 Balderton Street, 5th Floor, London, W1K 6TL, United Kingdom

T +44 (0) 20 3793 7000 / greenstreetadvisors.com

**Important disclosure on page 26**

© 2020, Green Street Advisors, LLC



## Green Street's Disclosure Information

GSA (US) accepts all responsibility for the content of this report.

**Issuers of this Report: US and EEA:** This report has been prepared by analysts working for Green Street Advisors (GSA (US)) and/or Green Street Advisors (U.K.) Limited (GSA (UK)). GSA (US) is the parent company of GSA (UK).

**This report is issued in the USA by GSA (US).** GSA (UK) accepts no responsibility for this report to the extent that it is relied upon by persons based in the USA. GSA (US) is regulated by the United States Securities and Exchange Commission, and its headquarters is located at 660 Newport Center Drive, Suite 800, Newport Beach, CA 92660.

**This report is issued in the European Economic Area (EEA) by GSA (UK).** GSA (US) accepts no responsibility for this report to the extent that it is relied upon by persons based in the EEA. GSA (UK) is registered in England, (Company number. 6471304), and its registered office is 20 Balderton Street, 5th Floor, London, W1K 6TL. GSA (UK) is authorized and regulated by the Financial Conduct Authority in the United Kingdom and is entered on the FCA's register (no. 482269).

The information provided in this report is not a regulated activity and as such is not supervised by the FCA.

**References to "Green Street" in Disclosures in this section and in the Other Important Information section apply to:**

- GSA (US) to the extent that this report has been disseminated in the USA; or
- GSA (UK) to the extent that this report has been disseminated in the EEA.

Green Street Advisors US is exempt from the requirement to hold an Australian financial services license under the Act in respect of the financial services; and is regulated by the SEC under US laws, which differ from Australian laws.

Green Street Advisors UK Ltd. is exempt from the requirement to hold an Australian financial services license under the Act in respect of the financial services; and is regulated by the FCA under UK laws, which differ from Australian laws.

Swiss recipients: the funds, the REITs, the investment companies and any collective investment schemes referred to in these reports may not have been registered with the Swiss Financial Market Supervisory Authority (FINMA) and no Swiss representative or paying agent has been appointed in Switzerland. This report is provided in Switzerland for the use of the addressees only and may not be distributed, copied, reproduced or passed on to any third parties.

Green Street reserves the right to update the disclosures and policies set out in this document at any time. We encourage a careful comparison of these disclosures and policies with those of other research providers, and welcome the opportunity to discuss them.

**Affiliate Disclosures:** Green Street does not directly engage in investment banking, underwriting or advisory work with any of the companies in our coverage universe. However, the following are potential conflicts regarding our affiliates that should be considered:

- Green Street has an advisory & consulting practice servicing investors seeking to acquire interests in publicly-traded companies. Green Street may provide such valuation services to prospective acquirers of companies which are the subject(s) of Green Street's research reports.
- An affiliate of Green Street is an investment manager implementing a real estate securities strategy focused on REITs. The affiliate employs an investment strategy based on Green Street's published research and the portfolios managed by this affiliate contain securities of issuers covered by Green Street's research department. The principals of Green Street Advisors, Green Street Investors and its affiliates have invested in GSREF, L.P. Green Street Investors is located in separate offices.

**For EEA recipients:** GSA (US) has approved the content of this report. In addition, the following foreign research analysts contributed to the material in this report: Peter Papadakos, Marie Dormeuil, Ryan Miller, Weston Mui, and Andres Toome. Notwithstanding the contributions of those foreign research analysts, the GSA (UK) analyst identified in the Analyst Certification above is responsible for its production and distribution to EEA recipients, on behalf of GSA (UK).

**For US recipients:** GSA (US) has approved the content of this report. In addition, the following foreign research analysts contributed to the material in this report: Peter Papadakos, Marie Dormeuil, Ryan Miller, Weston Mui, and Andres Toome. The foreign research analysts who contributed to this report may not be registered as research analysts with the NYSE and/or FINRA. These foreign analysts may also not be associated persons of GSA (US) and therefore may not be subject to NASD Rule 2711 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

## **Other Important Information**

**Management of Conflicts of Interest:** Conflicts of interest can seriously impinge the ability of analysts to do their job, and investors should demand unbiased research. In that spirit, Green Street adheres to the following policies regarding conflicts of interest:

- Green Street employees are prohibited from owning the shares of any company in our coverage universe.
- Green Street employees do not serve as officers or directors of any of our subject companies.
- Neither Green Street nor its employees/analysts receives any compensation from subject companies for inclusion in our research.
- On occasion, Green Street analysts may be contacted by companies within the firm's coverage universe regarding potential employment opportunities. Additional disclosure will be made when appropriate.
- The research analysts who authored this report may hold shares of the non REIT companies mentioned in this research report. These are not companies in our coverage universe.

Please also have regard to the Affiliate Disclosures listed above when considering the extent to which you place reliance on this research report and any research recommendations made herein.

Green Street, at times, assists Eastdil Secured, a real estate brokerage and investment bank, when Eastdil Secured provides investment banking services to companies in Green Street's coverage universe. Green Street is never part of the underwriting syndicate or the selling group, but Green Street may receive compensation from Eastdil Secured for consulting services that Green Street provides to Eastdil Secured related to Eastdil Secured's investment banking services. Green Street does not control, have ownership in, or make any business or investment decisions for, Eastdil Secured.

A number of companies covered by Green Street research reports pay an annual fee to receive Green Street's research reports. Green Street may periodically solicit this business from the subject companies. In the aggregate, annual fees for GSA (US) and GSA (UK) research reports received from subject companies represent approximately 3% of each of GSA (US)'s and GSA (UK)'s respective total revenues.

Green Street publishes research reports covering issuers that may offer and sell securities in an initial or secondary offering. Broker-dealers involved with selling the issuer's securities or their affiliates may pay compensation to GSA upon their own initiative, or at the request of Green Street's clients in the form of "soft dollars," for receiving research reports published by Green Street.

The information contained in this report is based on data obtained from sources we deem to be reliable; it is not guaranteed as to accuracy and does not purport to be complete. This report is produced solely for informational purposes and is not intended to be used as the primary basis of investment decisions. Because of individual client requirements, it is not, and it should not be construed as, advice designed to meet the particular investment needs of any investor. This report is not an offer or the solicitation of an offer to sell or buy any security.

For Green Street's advisory customers, this research report is for informational purposes only and the firm is not responsible for implementation. Nor can the firm be liable for suitability obligations.

GSA (US) generally prohibits research analysts from sending draft research reports to subject companies. However, it should be presumed that the analyst(s) who authored this report has/(have) had discussions with the subject company to ensure factual accuracy prior to publication, and has/(have) had assistance from the company in conducting due diligence, including visits to company sites and meetings with company management and other representatives.

## **Terms of Use**

**Protection of Proprietary Rights:** To the extent that this report is issued by GSA (US), this material is the proprietary and confidential information of Green Street Advisors, LLC, and is protected by copyright. To the extent that this report is issued by GSA (UK), this material is the proprietary and confidential information of Green Street Advisors (U.K.) Limited, and is protected by copyright.

This report may be used solely for reference for internal business purposes. This report may not be reproduced, re-distributed, sold, lent, licensed or otherwise transferred without the prior consent of Green Street. All other rights with respect to this report are reserved by Green Street.

**EEA Recipients: For use only by Professional Clients and Eligible Counterparties:** GSA (UK) is authorized by the Financial Conduct Authority of the United Kingdom to issue this report to "Professional Clients" and "Eligible Counterparties" only and is not authorized to issue this report to "Retail Clients", as defined by the rules of the Financial Conduct Authority. This report is provided in the United Kingdom for the use of the addressees only and is intended for use only by a person or entity that qualifies as a "Professional Client" or an "Eligible Counterparty". **Consequently, this report is intended for use only by persons having professional experience in matters relating to investments. This report is not intended for use by any other person. In particular, this report intended only for use by persons who have received written notice from GSA (UK) that he/she/it has been classified, for the purpose of receiving services from GSA (UK), as either a "Professional Client" or an "Eligible Counterparty". Any other person who receives this report should not act on the contents of this report.**

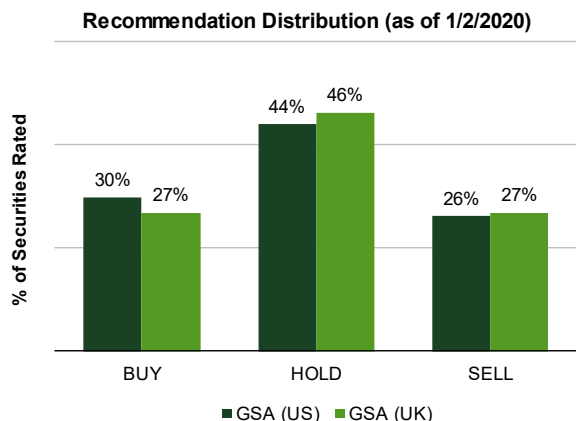
## **Review of Recommendations:**

- Unless otherwise indicated, Green Street reviews all investment recommendations on at least a monthly basis.
- The research recommendation contained in this report was first released for distribution on the date identified on the cover of this report.
- Green Street will furnish upon request available investment information supporting the recommendation(s) contained in this report.

**This report contains copyrighted subject matter and is covered under Green Street's Terms of Use.  
Green Street reserves all rights not expressly granted.**

## Green Street's Disclosure Information

At any given time, Green Street publishes roughly the same number of "BUY" recommendations that it does "SELL" recommendations.



Green Street's "BUYs" have historically achieved far higher total returns than its "HOLDs", which, in turn, have outperformed its "SELLs".

**Total Return of Green Street's Recommendations<sup>1,2</sup>**

Year <sup>3</sup>	Buy	Hold	Sell	Universe
2019	40.8%	26.1%	23.5%	29.0%
2018	1.8%	-6.9%	-20.9%	-8.5%
2017	30.9%	19.2%	11.1%	19.9%
2016	5.4%	2.1%	-2.3%	1.9%
2015	22.8%	14.4%	10.5%	16.1%
2014	35.6%	28.3%	24.1%	29.8%
2013	16.3%	7.6%	9.4%	11.2%
2012	39.8%	29.3%	17.0%	29.8%
2011	-7.6%	-8.2%	-12.7%	-9.2%
2010	13.1%	0.3%	7.9%	9.2%
2009	10.0%	5.5%	1.6%	7.0%
<b>Cumulative Total Return</b>	<b>515.9%</b>	<b>183.6%</b>	<b>78.2%</b>	<b>232.8%</b>
<b>Annualized</b>	<b>19.2%</b>	<b>10.6%</b>	<b>5.8%</b>	<b>12.3%</b>

The results shown above are hypothetical and for illustrative purposes only. Hypothetical results do not represent actual trading. Actual performance will vary from the hypothetical performance shown above due to, but not limited to, (1) advisory fees and other expenses incurred; (2) transaction costs; (3) exchange rate movements; (4) the inability to execute trades at the last published price (the hypothetical returns assume execution at the last closing price); (5) the inability to maintain an equally-weighted portfolio in size (the returns above assume an equal weighting); and (6) market and economic factors that will almost certainly cause one to invest differently than projected by the model that simulated the above returns. All returns assume reinvestment of dividends. Hypothetical and past performance does not guarantee future results.

- Results are for recommendations made by Green Street's European Research Team only. Since 5 July 2017, performance is calculated whenever a recommendation is changed using the share price at the most recent market close. Previously, performance was based on recommendations provided in Green Street's "Real Estate Securities Monthly" (RESM) and assumed no change in recommendation between RESM publications. Results from 1 September 2009 through 4 January 2016 were independently verified by an international "Big 4" accounting firm. The accounting firm did not verify the stated results subsequent to 4 January 2016. As of 4 January 2016, the annualised total return of Green Street's recommendations since 1 September 2009 was: Buy +19.6%, Hold +11.4%, Sell +8.5%, Universe +14.1%.
- Beginning 5 July 2017, all companies in Green Street's European coverage universe are included in the performance calculation. Previously, inclusion in the calculation of total return had been based on whether the companies were listed in the primary exhibit of Green Street's RESM.
- From 1993 until 3 July 2017, the returns for each year cover the period following the first RESM issued in the respective year through the first RESM issued in the following year and are not based on a calendar year. Subsequent to 5 July 2017, returns are based on calendar months.
- Green Street has only three recommendations: BUY ("B"), HOLD ("H") and SELL ("S"). The firm does not consistently publish price targets and therefore price targets are not included in this graph. Per NASD rule 2711, "Buy" = Most attractively valued stocks, in which we recommend overweight position; "Hold" = Fairly valued stocks, in which we recommend market-weighting; "Sell" = Least attractively valued stocks, in which we recommend underweight position.

Green Street Advisors (UK) Limited's track record will continue to be published monthly in RESM – Europe Edition. The results may not be relied upon in connection with any offer or sale of securities. Neither Green Street Advisors (UK) Limited, its affiliates nor any of their respective directors, employees, agents or representatives makes any implicit or explicit representation or warranty with regard to the accuracy or completeness of this information or accepts or assumes any responsibility for the accuracy or completeness of this information or any loss whether direct or indirect, incidental, special or consequential that may arise from or in connection with the use of this information or otherwise.

Green Street will furnish upon request available investment information regarding the recommendation