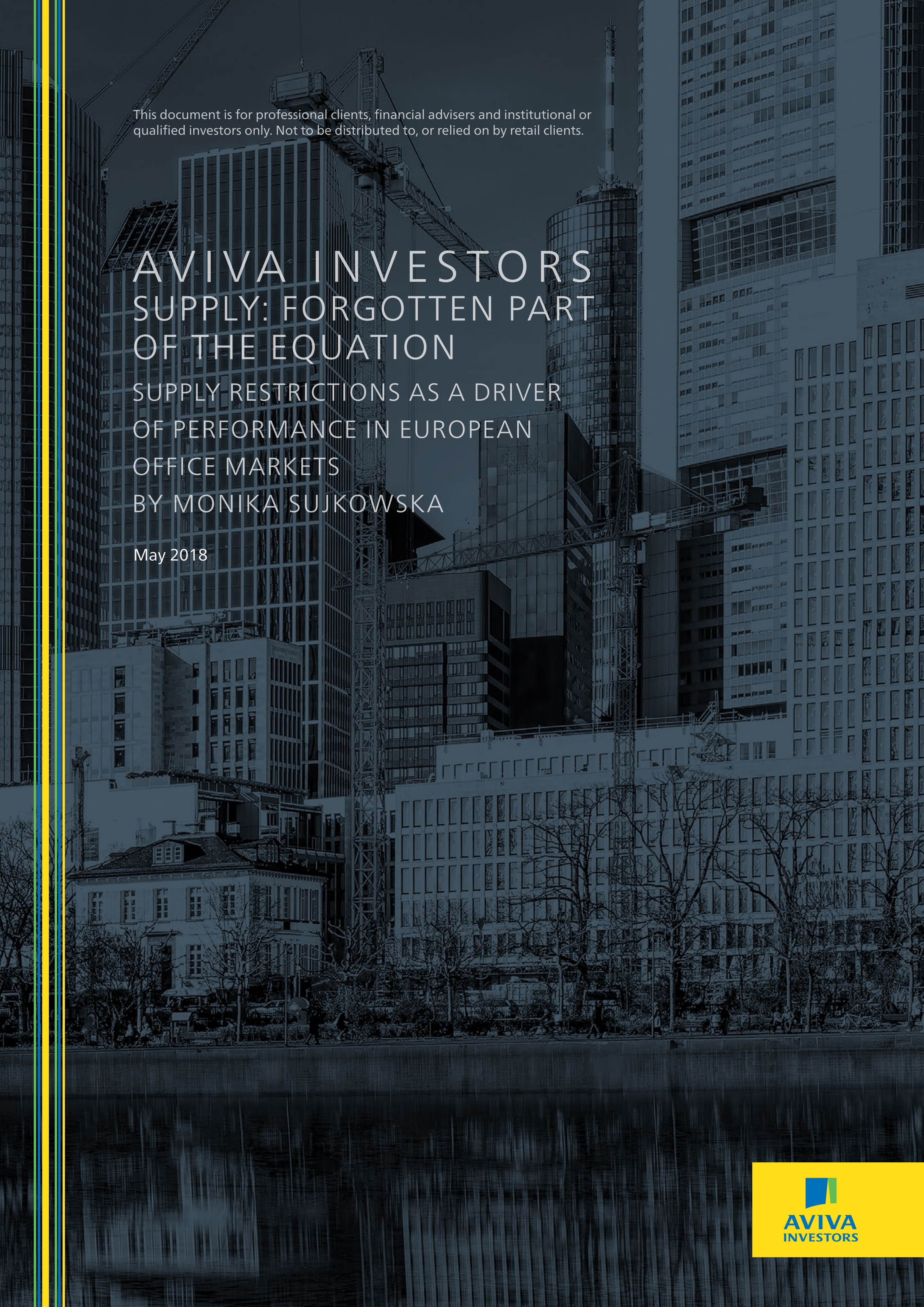

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AVIVA INVESTORS

SUPPLY: FORGOTTEN PART OF THE EQUATION

SUPPLY RESTRICTIONS AS A DRIVER OF PERFORMANCE IN EUROPEAN OFFICE MARKETS

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May 2018

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Main responsibilities

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Contents

INTRODUCTION

Supply side factors are often underestimated by real estate investors with demand drivers receiving an unfair share of attention. Yet cities vary markedly in terms of the ease of developing commercial real estate. Geographical, regulatory and fiscal barriers to entry for development are more significant in some cities than others. Key local players' attitudes towards development also vary and play an important role in how much office space is built in response to rising demand.

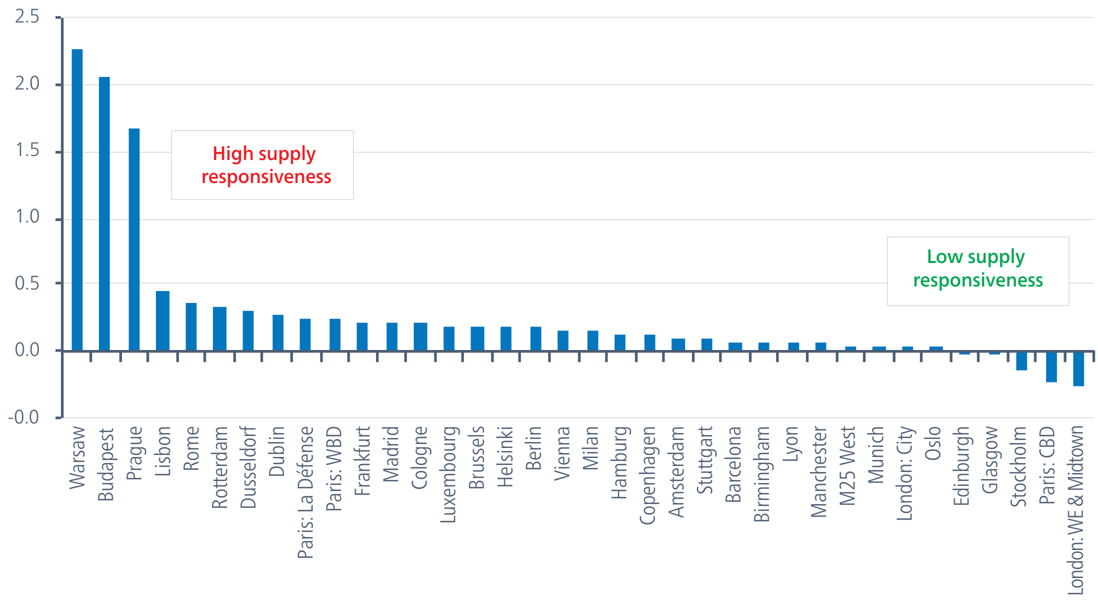
Understanding these dynamics enables investors to make better judgments about the level of supply risk in individual markets. It also allows them to make better predictions about the outlook for rents, and time their investments accordingly. In particular, it is crucial investors monitor the potential for regulatory change in their target markets as shifts in regulatory frameworks can decisively alter a city's capacity for supplying real estate.

Image shown: Large-scale redevelopment in Alexanderplatz, Berlin.

HISTORICAL BALANCE OF SUPPLY AND DEMAND

There are significant differences in the supply responsiveness between cities. To distinguish between markets, it is helpful to look at the historical balance of supply and demand in the office sector (Chart 1). The supply response tends to be relatively strong compared to demand in cities such as Warsaw, Lisbon, Rotterdam, Dublin and Paris's La Défense district. Conversely, weak supply response is a feature of London's West End & Mid-town districts, Paris's central business district, and Stockholm.

Chart 1: Supply balance by city - offices (1994-2017 average)*



*Supply balance is calculated as net additions as a % of stock (net supply) minus net absorption as a % of stock (net demand)

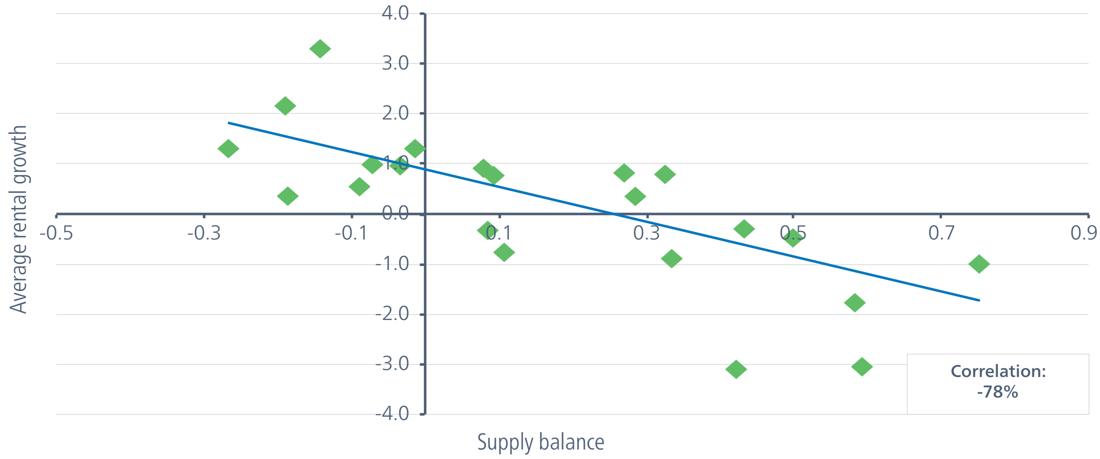
Source: PMA, Aviva Investors, March 2018

Image shown: A mixed-use development project in the harbour district of Amsterdam.

RENTAL GROWTH IN CITIES WITH HIGH SUPPLY RESPONSIVENESS HAS UNDERPERFORMED

Unsurprisingly, supply responsiveness is negatively correlated with rental growth. Chart 2 plots supply balance (net supply minus net demand[1]) and average rental growth in 2003-2016. Cities with high supply responsiveness (i.e. high supply balance) have underperformed in terms of average market rental growth. Meanwhile, those with low supply responsiveness (i.e. low supply balance) have outperformed.

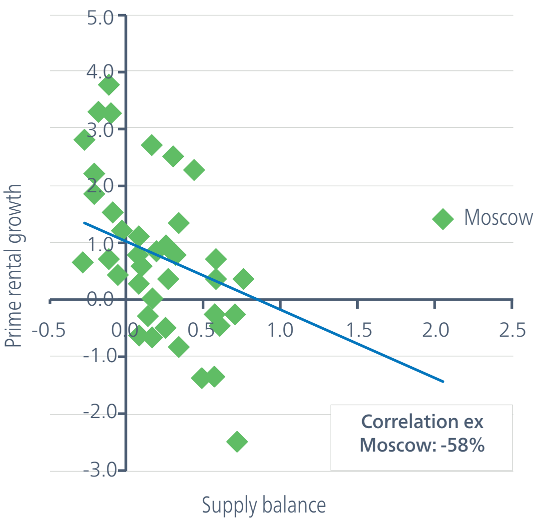
Chart 2: Supply balance vs average market rental growth (2003-2016)

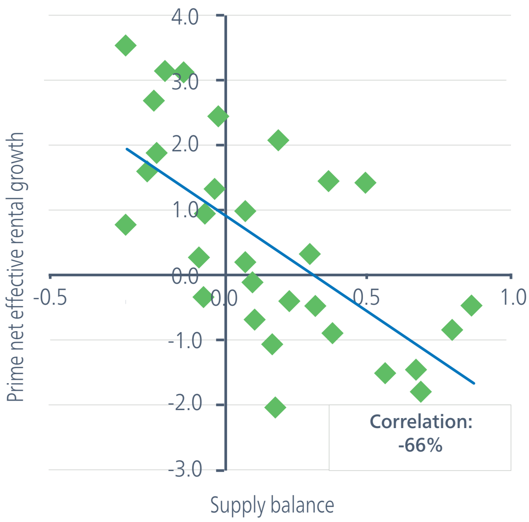


Source: PMA, Aviva Investors, March 2018

The relationship also holds for prime rental growth. The most attractive office space can be more resilient to oversupply in the overall market compared to secondary office space. For some occupiers, demand elasticity is very low as they need to be in the most attractive locations and buildings in order to promote their brands and attract talent. But prime real estate is not immune to oversupply. Most occupiers will negotiate their rental agreements based on conditions in the overall market. The correlation between supply balance (i.e. supply responsiveness) and prime rental growth is -58% when we exclude Moscow – a clear outlier. It's even stronger, at -66%, when we strip out incentives and use net effective rental growth.

Chart 3 & 4: Supply balance vs prime and prime net effective rental growth (2003-16)





Source: PMA, Aviva Investors, March 2018

[1] Net absorption as a % of stock is used to measure net demand while net additions as a % of stock are a measure of net supply.

BARRIERS TO OFFICE DEVELOPMENT

It is clear from the data that some European cities are more supply-constrained than others. Based on our own research and existing literature, we identified various barriers to entry for developers in more supply-constrained cities, including:

- **Regulatory constraints:** land-use regulations including height restrictions, green belts, conservation areas, viewing corridors
- **Natural constraints:** mountains and sea shores
- **Fiscal constraints:** level of property taxes, devolution of property and corporation taxes
- **Existence of established, dense city cores:** land scarcity limits the potential for new development
- **Efficiency of transportation infrastructure:** poor connectivity within a city limits competition from surrounding areas
- **Local agglomeration effects:** clustering of businesses from a particular industry in one micro location has extensive agglomeration benefits for tenants. Other districts are unable to attract such occupiers by merely providing cheaper office space.
- **Attitudes of residents and planners:** the extent of NIMBYism (Not in My Backyard) attitudes
- **Behaviour of developers:** Academic research[2] suggests developers act more rationally in some markets (they base decisions on anticipated changes in demand) and less rationally in others (they respond to current levels of demand).

In this paper, we explore the barriers to entry for development in the UK, Germany and France. It is difficult to assess the full extent and impact of all factors that contribute to constraining development as they are complex and diverse.

There are factors that are more cyclical in nature that can play an important role in determining the strength of supply response in the short to medium term. These are beyond the scope of this paper. They include construction costs, availability of labour, the level of interest rates and availability of financing for development. For example, anecdotal evidence suggests labour shortages are constraining development activity in Europe at this point in the cycle. The availability of development financing in Europe has been limited for an unusually extensive period of time following the global financial crisis, which also appears to have slowed down the supply response. After a few years of robust rental growth, we are only just beginning to witness a pick-up in building starts in Europe's key office markets.

Image shown: City of London: Eight viewing corridors ensure the view of St Paul's Cathedral is not obscured by skyscrapers.

[2] Franz Fuerst, Patrick McAllister, (2010) "Supply elasticities and developers' expectations: a study of European office markets", Journal of European Real Estate Research, Vol. 3 Issue: 1, pp.5-23

NEW REGULATIONS CAN RAPIDLY REDUCE OR INCREASE SUPPLY CONSTRAINTS

Investors should monitor the potential for regulatory change in their target markets. Indeed, supply restrictiveness can change strikingly as a result of government intervention. The City of London in the 1980s, New York in 2000s and Amsterdam post the global financial crisis, are examples of markets where such a shift has taken place.

– **New York**

New York is conventionally regarded as a city with significant supply constraints, mainly due to its high density. However, the pro-growth agenda introduced by mayor Bloomberg following the 9/11 attacks in an attempt to boost tax revenues eased barriers to development in the city. Promoting real estate development played a central role in the mayor's revenue-boosting strategy. It was an easy choice given the city's property tax is the highest of all major US metropolitan areas. During Bloomberg's tenure, nearly 40 per cent of the city was re-zoned[3]. Brownfield sites were re-zoned for office and residential development and higher density developments were permitted in business districts.

– **City of London**

Planning regulations in London's traditional financial district were extremely strict for decades. The deregulation of financial markets introduced by Margaret Thatcher in the 1980s boosted London's importance as a global financial centre and led to an explosion of demand for office space from financial companies. Lack of space in the City prompted some firms to head east to a new business district in Canary Wharf. City policymakers reacted to this new competition by reducing regulations and allowing for a surge in the construction of new skyscrapers in the early 1990s.

– **Amsterdam**

The Dutch capital learnt about the perils of allowing too much development the hard way. The office vacancy rate in the city climbed to over 20 per cent at the end of 2005. Many secondary sub-markets lost occupiers to abundant new modern office space in more attractive parts of the city. Ghost business districts filled with obsolescent vacant towers were eyesores. Amsterdam's established policy of ensuring ample land for office development had been aimed at stimulating local economic growth and realising a profit through land development. As a result, the city permanently oversupplied office space. It finally backfired in the mid-2000s, with the glut further prolonged by the global financial crisis. As a result, tighter planning regulations were put in place. Although the vacancy rate has since fallen into single digits, the city continues to restrict development of new office towers to just two a year while also incentivising conversions of existing office space to other uses.

[3] Regulation: The Barrier That Matters, Green Street Advisors, June 27 2017; The Bloomberg Years Reshaping New York, New York Times, August 18, 2013.

UK: HOME TO THE MOST EXPENSIVE OFFICE SPACE IN EUROPE

Office space in UK cities is among the most expensive in the world. P Cheshire and C A L Hilber demonstrate in their academic work that exceptionally high regulatory barriers to development are a key driver. They came up with an innovative regulatory tax concept that measures the cost of regulatory constraints by comparing market prices to marginal construction costs. The estimated UK cities' regulatory tax is considerably greater than in any other country analysed.

UK'S CENTRALISED TAX FRAMEWORK PLAYS AN IMPORTANT ROLE

The regulatory tax increased significantly as a result of the 1990 conversion of business rates (commercial property taxes) from a local to a national basis, according to Cheshire and Hilber. The change removed local authorities' financial incentive to permit developments, since the cost of providing additional services for the occupiers of new commercial properties ceased to be offset by additional tax revenues. The resulting reluctance to permit development increased the cost of space.

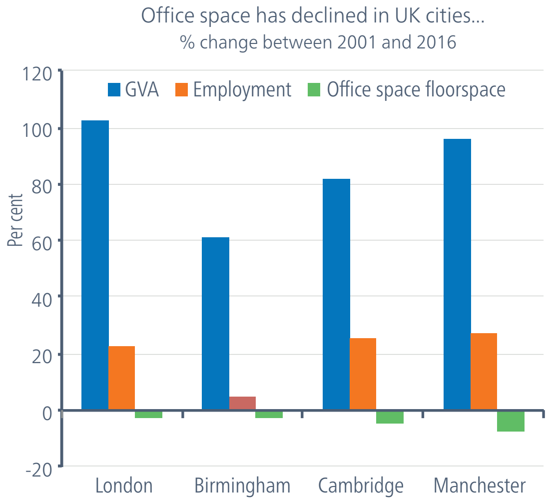
The partial reversal of this tax rule in 2013 – whereby local authorities are now allowed to retain up to half of the business rate income - is expected to have a positive effect on the provision of office space in UK cities. The impact will be even greater if full devolution of business rates is introduced. There appears to be the political will to do so and the new system is already being piloted by Greater Manchester and the Greater London Authority.

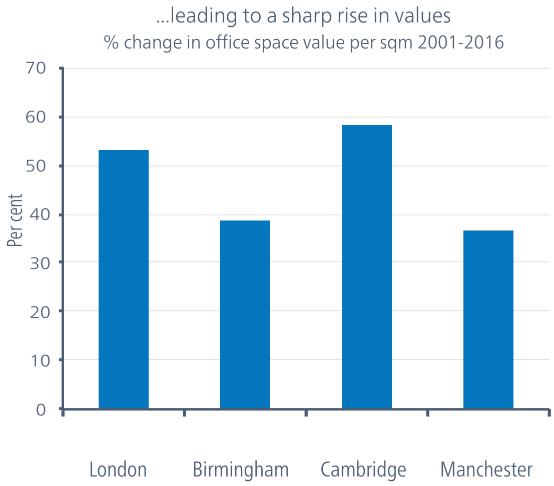
UK PLANNING REGULATIONS ALSO IMPACT

Fiscal disincentives are not the only thing constraining the supply of commercial real estate in the UK. Measures limiting vertical and horizontal expansion of cities exist across the country. Height restrictions are applied in all main cities. They take several forms, including view corridors of historic sites like St Paul's Cathedral and Monument in London, conservation areas (applicable to the external appearance of buildings but also their height) and finally plot ratios, which control the total size of buildings relative to the size of the plot of land. In London, the 'green belt' additionally constrains horizontal expansion of the city (sprawl), particularly for residential development.

In addition, the nature of the UK's planning system differs from that of its continental European peers. Local plans are not legally binding and allow for more negotiation before the decision is given. Planning is flexible and discretionary, in contrast to the rest of Europe where decisions are based strictly on compliance (or lack of compliance) with local plans.
The UK's flexible system has its benefits but is also a source of uncertainty for developers, increasing their risks and costs, and therefore acting as a barrier to entry.

Chart 5 & 6: Office market supply-demand dynamics in the UK





Source: ONS, VOA, March 2018

SPOTLIGHT ON... CAMBRIDGE

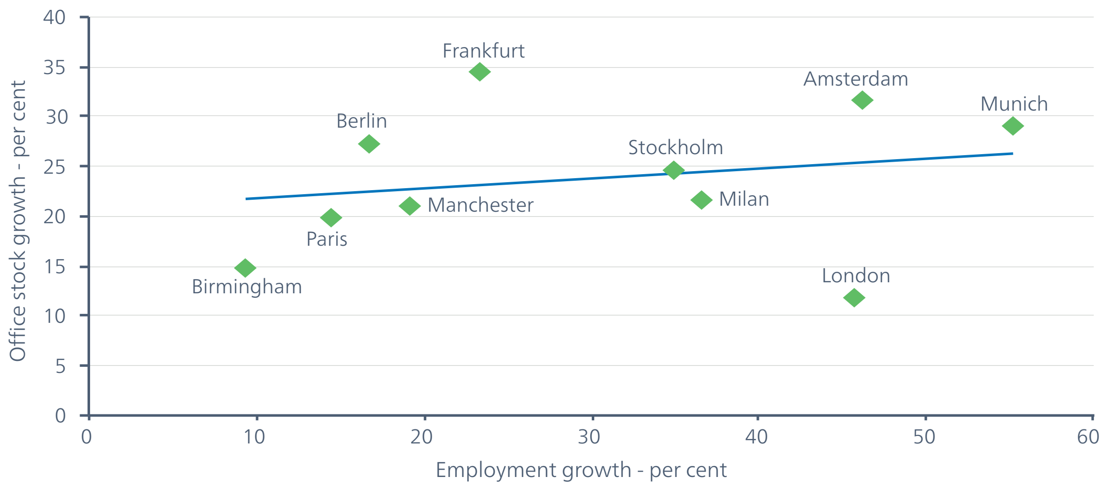
One UK office market that has seen outsized rental growth since the GFC has been Cambridge. Analysis of its performance has, understandably, focussed on the demand side. The city has a growing population, thriving economy, highly educated workforce and is a globally recognised hub for biotech, life sciences and technology-related organisations. But key to its success as a real estate market is the supply side dynamic. An historic city, peppered with centuries-old churches, housing, shops and hundreds of university buildings, there is little scope for widespread development of modern office buildings here. The ring roads and the River Cam create further barriers which constrain the city core, and as such the office market is largely confined to a tightly-controlled area around the railway station. The absence of sprawling development adds a great deal to the city's appeal – it is a pleasant, if expensive, place to live, work, learn and play. And it has created a crucible of high value real estate, over which global blue chip organisations compete intensely. The market's structure is highly conducive to long term rental outperformance.

Image shown: Cambridge, UK.

GERMANY: FEDERAL STRUCTURE ENCOURAGES DEVELOPMENT

German cities have seen relatively strong office stock growth, given employment and economic growth, over the past 20 years. The decentralised nature of Germany's tax system, its governance in general and more transparent land use regulations, distinguish Germany from the UK.

Chart 7: Office stock vs employment growth 1995-2017



Source: Oxford Economics, PMA, March 2018

GERMAN LOCAL AUTHORITIES RECEIVE MUCH MORE TAX IN COMPARISON TO THE UK

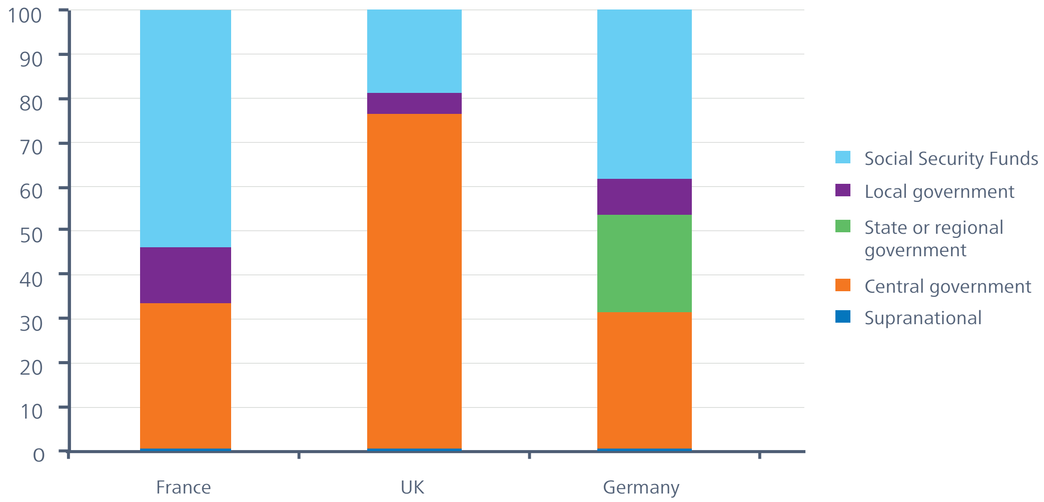
The German tax system incentivises local authorities to approve development of commercial real estate. Trade tax (Gewerbesteuer) – the most significant source of income for cities and towns in Germany - is set by each town and village individually. Gewerbesteuer averages 14% across all local authorities and municipalities and has to be paid on top of the 15% corporation tax which is levied by the federal government. Local authorities receive virtually 50 per cent of tax revenue from companies and they have extensive control over it.

This contrasts with the UK tax system. In England, the amount of tax revenue received by local authorities is much smaller than that levied centrally. In the 2012-13 tax year, the central government kept at least 80 per cent of all tax paid by corporations[4].

Devolved tax powers create a powerful incentive for German local authorities to attract new businesses and ensure there is sufficient real estate provision for them to expand locally. For example, Eschborn – a small town of approximately 20,000 people - decided to set the trade tax at half the level in the neighbouring Frankfurt in order to attract business. Through this move, it managed to encourage a host of companies, including the Frankfurt Stock Exchange, Arcor and Vodafone, to establish prominent offices in this small town. The Frankfurt Stock Exchange relocated 1,000 staff there in 2008.

[4] Revenue from business rates equalled £26.1bn and only up to 50% of it could have been kept by the local authority. Corporation tax meanwhile amounted to £40.4bn. Source: https://www.ifs.org.uk/budgets/gb2014/gb2014_ch11.pdf.

Chart 8: Tax revenues by level of government (as % of total tax revenue)



Source: OECD, April 2018

GERMAN PLANNING SYSTEM IS RELATIVELY TRANSPARENT

The second difference between Germany and the UK is in the nature of land use regulations. While the planning system is no more efficient than in the UK, it is more transparent. For example, it takes an average of 126 days to obtain a permit for a warehouse building worth around €2m in Berlin, compared to 86 days for a similar building in London[5]. Local land-use plans are not discretionary like in the UK, but legally binding. Construction permit decisions are made purely based on compliance (or lack of compliance) with local plans. This removes uncertainty and reduces costs for developers.

BARRIERS TO ENTRY EXIST BUT ARE LOWER COMPARED TO THE UK

Barriers to entry do exist in German cities. German planners are generally averse towards large-scale office buildings. Development is strongly influenced by local planners' ideas about how a city should look. Height restrictions exist in all German cities with the exception of Frankfurt, which prioritises sustaining its international competitiveness as a financial centre over protecting its historical centre which is almost non-existent anyway. Height restrictions are particularly strict in Munich where constructing buildings higher than the cathedral is prohibited.

While there are no explicit green belt policies in German cities, there is a planning premise of internal before external development, meaning development on brownfield land is preferred to building on farmland. This is aimed at limiting cities' horizontal expansion.

Nevertheless, Germany appears to be a market with much lower barriers to entry compared to the UK.

[5] World Bank, Ease of Doing Business ranking 2018.

SPOTLIGHT ON… BERLIN

Berlin's real estate market has gone through a deep structural change over the last 25 years as a result of the unification of East and West Germany. Previously divided, it found itself with swathes of land right at the heart of the city centre in 1989 when the Berlin wall was dismantled by the city's residents. The place left by the wall as well as the area either side of it - previously occupied by security checkpoints and border reinforcements – turned into a construction site. After a spike in office rents in 1989-91, the rapid increase in the supply of office stock caused a dramatic decline in rents. Prime office rents declined by 44 per cent between 1992 and 1997 and average rents fell by 43 per cent over the same period. After a brief recovery, rents then continued their downward trajectory with prime rents only bottoming out in 2010.

More recently, the city has seen an extraordinary boom in occupier demand. Vacancy has been eradicated and prime office rents grew by an impressive 36 per cent in the four years to 2017.

However, with the long-anticipated supply response on the back of this strong performance having now begun, the question is: Will it lead to another period of sharp rental declines?

We think while the collapse in rents in the mid-1990s is unlikely to be repeated, a moderate correction is a possibility. That is because Berlin remains a market with limited supply constraints. While the city's structure is gradually becoming denser, the amount of land available for development remains significant. And there are no natural barriers for development such as mountains. While the city's local authority is renowned for being sluggish, which tends to delay the supply response, it doesn't affect the strength of the eventual supply response, as illustrated in chart 9. After double-digit growth in rents, investors in Berlin should brace themselves for a slowdown.

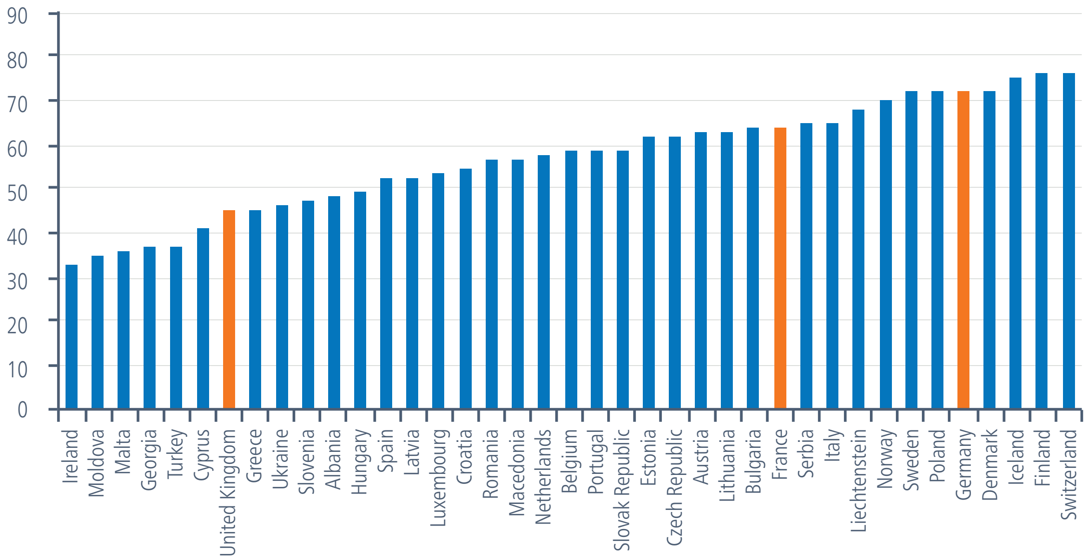
Chart 9: Rental growth and net supply in Berlin offices

Source: PMA, April 2018

FRANCE

France appears to sit between the UK and Germany in terms of supply restrictiveness. As in the rest of continental Europe, its planning system is legally binding. This makes it easier and less costly for developers to comply. But France is a more centralised country compared to Germany, with local authorities enjoying less autonomy.

Chart 10: Local autonomy index (Higher = more autonomy)



Source: Eurostat, April 2018

Image shown: La Défense - Paris's purpose built office district - enjoys much lighter planning regulations compared to the CBD.

FRENCH TAX SYSTEM DOES NOT INCENTIVISE DEVELOPMENT

As in the UK, the French tax system is relatively centralised. Sub-central government receives 13 per cent of total tax revenue, compared to 30.2 per cent in Germany. Local authorities in France do receive a larger slice of the tax cake than the UK however, where only five per cent goes to the local government.

France has an equivalent to the UK's business rates– Cotisation Foncière des Entreprises (CFE). Similar to the UK, this tax is based on the rateable value of the property occupied by the business. The tax is capped at 3 per cent of value added by businesses and so is relatively small. In addition, it is split between communes, departments and local public institutions. It is therefore by no means a meaningful incentive for local authorities to promote development of commercial real estate.

PLANNING RESTRICTIONS VARY ACROSS PARISIAN DISTRICTS

French planners tend to restrict vertical and horizontal expansion of cities. But these restrictions vary by location and their strength fluctuates over time. For example, Paris introduced a cap on new tall buildings of 36 meters in 1977 in response to a public outcry following the completion of Tour Montparnasse. Height restrictions were then relaxed in 2010 to 180 meters in an attempt to boost the city's competitiveness as an international business hub. While conservation regulations are very strict in certain 'historic' parts of Paris, La Défense – a purpose built office and commercial centre on the edge of the historic centre – enjoys very light planning regulations.

Image shown: The Avenue Charles de Gaulle and La Defense, Paris.

CONCLUSIONS

Supply risks are underestimated by real estate investors despite large variations between cities and a clear link between supply responsiveness and rental growth.

Provision of real estate is particularly constrained in the UK. We identified the country's highly centralised taxes and the discretionary nature of its planning system to be the key barriers to development. Germany incentivises the development of commercial real estate to more extent than France or the UK, mainly through its decentralised tax system.

Restrictions to vertical growth of cities exist in London, Paris and all major German cities except for Frankfurt. These include height restrictions, view corridors, conservation areas and plot ratios. Measures liming city sprawl also exist in all three countries, with explicit green belts in London and Paris and a policy favouring development on brownfield sites over rural areas in Germany.

Investors should strive to understand how supply is likely to respond to changes in demand in individual locations. Such expertise will provide them with a competitive edge as it will allow them to project rental prospects more accurately and time their investments accordingly. Cities with high regulatory and fiscal barriers to entry as well as dense, established urban cores with a concentration of high value-add activities are likely to generate robust rental growth in the long term.

Investors should monitor the potential for regulatory change. Market dynamics can change strikingly as a result of government intervention. Such transformation took place in the City of London in the 1980s, New York in early 2000s and Amsterdam after the global financial crisis.

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J39139-RA18/0570/01052019

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