Real Estate Research

April 2023



The Transformation of European Offices

Identifying optimal locations for best-in-class office refurbishment

IN A NUTSHELL

- Structural changes to the way we work, alongside environmental pressures, present a clear opportunity to transform well-located, Grade B offices into Sustainable Next Generation Office space.
- A value-add office refurbishment strategy will prove most successful in dynamic, fast-growing and sought-after cities. In order to identify target markets, we analysed and scored 30 major European cities on four key metrics.
- Seven European cities were identified as strategic primary targets for an office refurbishment strategy. A further seven cities were classified as tactical target markets, where a value-add strategy would be feasible depending upon pricing and micro-location.

The European office market is in a period of transition. We foresee lower aggregate demand for office space in the years ahead but believe offices will remain a key part of corporate strategy to facilitate collaboration, as well as attract and retain talent. Climate change, decarbonisation of the economy and ESG considerations are increasingly at the forefront of both occupier and investor decisions, and increasingly driving demand for highly sustainable office buildings. The definition and drivers of a Sustainable Next Generation Office (SNGO) is addressed in our "Sustainable Next Generation Office" paper.

With the above in mind, alongside the notable repricing evident in secondary office stock, transforming old, but centrally located office assets into best-in-class SNGO assets presents an attractive value-add investment opportunity. This report highlights the European office markets in which our analysis suggests such a redevelopment strategy would be most attractive.

The brand DWS represents DWS Group GmbH & Co. KGaA and any of its subsidiaries, such as DWS Distributors, Inc., which offers investment products, or DWS Investment Management Americas, Inc. and RREEF America L.L.C., which offer advisory services. There may be references in this document which do not yet reflect the DWS Brand.

Please note certain information in this presentation constitutes forward-looking statements. Due to various risks, uncertainties and assumptions made in our analysis, actual events or results or the actual performance of the markets covered by this presentation report may differ materially from those described. The information herein reflects our current views only, is subject to change, and is not intended to be promissory or relied upon by the reader. There can be no certainty that events will turn out as we have opined herein.

Marketing Material. In EMEA for Professional Clients (MiFID Directive 2014/65/EU Annex II) only; no distribution to private/retail customers. In Switzerland for Qualified Investors (art. 10 Para. 3 of the Swiss Federal Collective Investment Schemes Act (CISA)). In APAC for institutional investors only. In Australia and New Zealand for Wholesale Investors only. In the Americas for Institutional Client and Registered Rep use only, not for public viewing or distribution. In Israel for Qualified Clients (Israeli Regulation of Investment Advice, Investment Marketing and Portfolio Management Law 5755-1995). For investmenta: This is not an offering of securities or interests in any product. Such securities may be offered or sold in Bermuda only in compliance with the provisions of the Investment Business Act of 2003 of Bermuda which regulates the sale of securities in Bermuda.

1.1 Scoring methodology

DWS framework to rank office markets based on four key indicators

To identify target office markets, we analysed, scored, and ranked 30 of Europe's largest investible office markets. We separated both London and Paris into clearly definable submarkets, given the often-contrasting dynamics within these large cities. Central Paris, by which we are referring to Paris Central Business District and the adjacent neighbourhoods, operates very differently from La Défense, while London's West End and Docklands have very different market fundamentals. Each of the chosen 30 (sub)markets were then scored on four key indicators: investment appeal, office market fundamentals, office-related city characteristics, and macro-economic outlook. Within these four overarching themes, a total of fifteen variables were analysed, incorporating both quantitative and qualitative factors.

Investment Appeal (30%)	Office Market Fundamentals (30%)	City Characteristics (20%)	Macro-economic Outlook (20%)
Certified Buildings	Vacancy	Business Friendliness	Office Employment Growth
Grade A vs. B Rent Premium	Supply Barriers	Productivity	GDP Growth
Liquidity	Net Additions	Climate Event Risk	Workforce Growth
		Desirability	Fiscal Health
		Public Transportation	

Table 1: Market Scoring Methodology

Source: DWS, Oxford Economics, Green Street, April 2023

Investment appeal

The ranking of the investment appeal aimed to identify the markets most suitable for an office refurbishment strategy. Firstly, the current percentage of certified buildings relative to the total office stock indicates the scarcity of such offices. For example, markets such as Warsaw have a high share of certified buildings, which makes a refurbishment strategy less impactful. Secondly, a value-add refurbishment strategy also requires a sufficient rental premium between Grade A and Grade B office to justify the required capital expenditure. Lastly, liquidity is a key consideration when selling a fully refurbished best-in-class office asset.

Office market fundamentals

The scoring of the office market fundamentals largely involved analysis of supply metrics and the evidence of absorbing net additions over time. Those markets with low vacancy and/or high barriers to future supply, such as Munich, scored the highest.

City characteristics

Non-property city characteristics were incorporated into the scoring; factors such as business friendliness were considered to identify those markets that have the greatest competitive advantage in attracting and retaining businesses. Dublin, for example, scored highly given Ireland's favourable corporate tax laws. Importantly from an ESG angle, climate event risk was analysed to assess the likelihood of environmental risks such as flooding and extreme heat. Characteristics such as desirability and public transportation connection identified those cities that are most desirable to and accessible to a large workforce.

Macro-economic outlook

The macro-economic outlook of each city was examined to gauge future office demand by identifying cities with strong economic, employment and workforce growth rates. Nordic cities, such as Stockholm, ranked highest here.

The overall score was determined by weighting the respective indicators, with investment appeal and office market fundamentals considered the most important features for determining key target markets. In some cases, an adjustment was incorporated to reflect the feasibility of executing a refurbishment strategy. For example, Copenhagen's overall score was adjusted downwards given structural factors

such as rent regulation and a predominance of out-of-town business park office stock. As such, weaker rental growth prospects make office investment less viable, a feature that would not have been accounted for in the framework.

1.2 The results

What office markets should we be targeting?

Based on our scoring methodology, the analysis highlighted seven (sub)markets seen as the most attractive for an office refurbishment strategy. We have therefore identified these markets as our 'primary strategic' target markets:

- London West End & City: A dynamic and highly integrated global city. Despite Brexit, London's vibrant culture and abundant employment opportunities continue to attract migrants from both Europe and further afield. Unrivalled access to talent makes London an attractive location for high-productivity firms most able to afford best-in-class office space.
- Central Paris: A truly cosmopolitan city, Paris attracts workers from around the world. Low structural office vacancy and a high supply barrier market, Central Paris continues to attract office occupiers from less central locations as many are choosing to upgrade in terms of location and quality, while reducing their footprint.
- Munich: An established location for a magnitude of large domestic and international companies, investment into high-tech infrastructure is increasingly attracting fast-growing and high-productivity sectors. Munich's liquid office market is supported by low vacancy and high barriers to future new supply.
- Berlin: Renowned for its diversity, rich history and social scene, Berlin's position as a cultural 'hot spot' improves the attractiveness to international workers and firms. A relatively low proportion of existing certified buildings should support greater green premiums for best-in-class sustainable office stock.
- Amsterdam: A vibrant and desirable city that attracts young and educated workers, the city is proving a key beneficiary of Brexit. Amsterdam benefits from world class international connections and a strong inner-city transportation system. Strict current and future energy efficiency regulations require a high standard of office buildings.
- Stockholm: Well-regarded for its high quality of life, Stockholm is supported by strong urbanisation and a young demographic. A highly qualified workforce attracts innovative firms from fast-growing sectors such as life sciences. Environmental sustainability is top of the agenda from both a public and policy perspective, driving demand for best-in-class, certified offices.
- Madrid: A high proportion of city-centre living means employees are more willing to commute easy distances to the office and Madrid continues to see some of the strongest office occupancy post-Covid. A positive outlook for office employment growth will continue to drive demand for office space over the coming years.

We do anticipate that across Europe Grade B office stock will continue to see capital value decline over the coming years. Construction costs, the potential for rental uplift and exit price at stabilisation are also important factors when determining the profit margin.

With that in mind, a further seven 'Tactical Target' cities have been identified as potential target markets, where given an adequate correction in pricing, an office refurbishment strategy would also be viable.

Strong tactical target markets include:

- Milan: A desirable location for both employers and employees, supported by strong inward migration. The notable rent premium between Grade A and secondary office stock makes a refurbishment strategy viable.
- Dublin: Despite immediate challenges facing the tech sector, longer-term fundamentals continue to look supportive. The city scores highly on business friendliness and Dublin has become increasingly important for US firms post-Brexit.
- Frankfurt: Although the macro-economic outlook is somewhat weaker than other target cities, Frankfurt remains a high productivity city and global hub for business. A highly liquid office market provides further comfort.

Figure 1: European Real Estate Transformational Office Markets



Source: DWS, April 2023

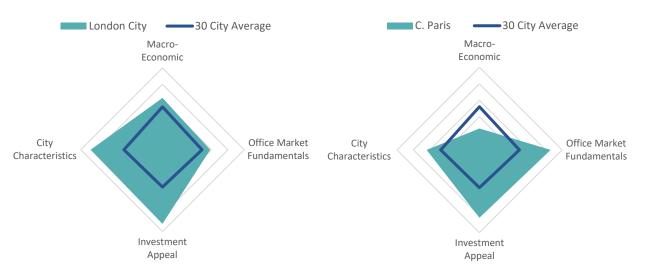


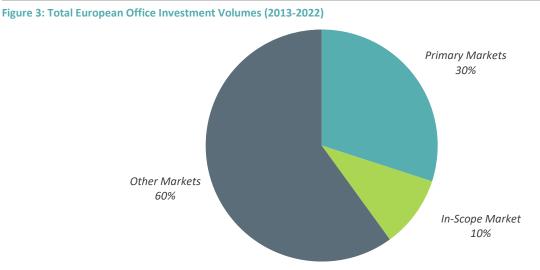
Figure 2: Scoring Methodology Examples

Source: DWS, Oxford Economics, Broker Sources, April 2023

The micro-location within these markets is also exceptionally important. Centrally located and well-connected assets with strong live-workplay amenities are expected to outperform. Different submarkets within cities also perform differently. For example, the Central London submarkets of West End and City of London scored the highest overall, but London's Docklands submarket ranked much lower given lower employment growth prospects and concerns around current and future supply. Similarly, Central Paris is a clear target market, whereas, for several reasons, particularly around supply, the Paris Western Business District would not be considered a target market for an office redevelopment play.

It is worth noting, that the successful execution of such a value-add office strategy in these strategic and tactical markets does depend on the availability of suitably priced grade B assets and overall liquidity of the office market for disposals to crystalise investment gains. As such, it is important that over the last ten years the seven primary target markets in our analysis accounted for circa 30% of all European office transactions by volume (Figure 2). Together with the seven tactical target markets, the share of transaction volumes increases to roughly 40%.

Furthermore, research commissioned by the Urban Land Institute (ULI) and New Climate Economy (NCE) concluded that larger and more dense cities are associated with higher returns for real estate investment¹, further supporting our investment call to target Europe's key gateway cities.



Source: DWS, RCA April 2023

1.3 Summary and conclusion

Through this detailed analysis we have identified seven primary target markets, that we expect to provide the best opportunities to successfully execute this strategy in terms of both access to stock and outperformance in rental and value growth over a five year hold period. We believe investing in these cities provide a strong basis for this sort of strategy, taking advantage of current repricing, market fundamentals, and long-term structural changes.

Seven further European cities have been identified where a value-add, office refurbishment strategy would also be viable, although further a repricing in secondary office stock values may need to be evident before required returns could be met.

¹ Urban Land Institute, 'Supporting Smart Urban Growth: Successful Investing in Density', 2018

This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are not a reliable indicator of future performance. Forecasts are based on assumptions, estimates, opinions, and hypothetical models that may prove to be incorrect. Investments come with risk. The value of an investment can fall as well as rise and your capital may be at risk. You might not get back the amount originally invested at any point in time. Source: DWS International GmbH.

Real Estate Research Team

Office Locations

Chicago

222 South Riverside Plaza 34th Floor Chicago IL 60606-1901 United States Tel: +1 312 537 7000

Frankfurt Mainzer Landstrasse 11-17 60329 Frankfurt am Main Germany Tel: +49 69 71909 0

London

Winchester House 1 Great Winchester Street London EC2N 2DB United Kingdom Tel: +44 20 754 58000

New York

875 Third Avenue 26th Floor New York NY 10022-6225 United States Tel: +1 212 454 3414

San Francisco

101 California Street 24th Floor San Francisco CA 94111 United States Tel: +1 415 781 3300

Singapore

One Raffles Quay South Tower 20th Floor Singapore 048583 Tel: +65 6538 7011

Tokyo

Sanno Park Tower 2-11-1 Nagata-cho Chiyoda-Ku 18th Floor Tokyo Japan Tel: +81 3 5156 6000

Teams

Global

Kevin White, CFA Global Co-Head of Real Estate Research Simon Wallace Global Co-Head of Real Estate Research

Americas

Brooks Wells Head of Research, Americas

Ross Adams Industrial Research

Sharim Sohail Property Market Research

Europe

Ruben Bos, CFA Head of Real Estate Investment Strategy, Europe

Siena Golan Property Market Research

Carsten Lieser Property Market Research

Asia Pacific

Koichiro Obu Head of Real Estate Research, Asia Pacific

Hyunwoo Kim Property Market Research Liliana Diaconu, CFA Office Research

Joseph Pecora, CFA Apartment Research

Tom Francis Property Market Research

Rosie Hunt Property Market Research

Martin Lippmann Property Market Research

Natasha Lee Property Market Research

Seng-Hong Teng Property Market Research

AUTHORS



Ruben Bos, CFA Head of Real Estate Investment Strategy, Europe



Rosie Hunt Property Market Research

Important information

For North America:

The brand DWS represents DWS Group GmbH & Co. KGaA and any of its subsidiaries, such as DWS Distributors, Inc., which offers investment products, or DWS Investment Management Americas, Inc. and RREEF America LL.C., which offer advisory services.

This material was prepared without regard to the specific objectives, financial situation or needs of any particular person who may receive it. It is intended for informational purposes only. It does not constitute investment advice, a recommendation, an offer, solicitation, the basis for any contract to purchase or sell any security or other instrument, or for DWS or its affiliates to enter into or arrange any type of transaction as a consequence of any information contained herein. Neither DWS nor any of its affiliates gives any warranty as to the accuracy, reliability or completeness of information which is contained in this document. Except insofar as liability under any statute cannot be excluded, no member of the DWS, the Issuer or any office, employee or associate of them accepts any liability (whether arising in contract, or negligence or otherwise) for any error or omission in this document or for any resulting loss or damage whether direct, indirect, consequential or otherwise suffered by the recipient of this document or any other person.

The views expressed in this document constitute DWS Group's judgment at the time of issue and are subject to change. This document is only for professional investors. This document was prepared without regard to the specific objectives, financial situation or needs of any particular person who may receive it. No further distribution is allowed without prior written consent of the Issuer.

Investments are subject to risk, including market fluctuations, regulatory change, possible delays in repayment and loss of income and principal invested. The value of investments can fall as well as rise and you might not get back the amount originally invested at any point in time.

An investment in real assets involves a high degree of risk, including possible loss of principal amount invested, and is suitable only for sophisticated investors who can bear such losses. The value of shares/ units and their derived income may fall or rise.

War, terrorism, sanctions, economic uncertainty, trade disputes, public health crises and related geopolitical events have led, and, in the future, may lead to significant disruptions in US and world economies and markets, which may lead to increased market volatility and may have significant adverse effects on the fund and its investments.

For Investors in Canada. No securities commission or similar authority in Canada has reviewed or in any way passed upon this document or the merits of the securities described herein and any representation to the contrary is an offence. This document is intended for discussion purposes only and does not create any legally binding obligations on the part of DWS Group. Without limitation, this document does not create any legally binding obligations on the part of DWS Group. Without limitation, this document does not create any legally binding obligations on the part of DWS Group. Without limitation, this document does not you are considering, and not the document contained herein. DWS Group is not acting as your financial adviser or in any other fiduciary capacity with respect to any transaction presented to you. Any transaction(s) or products(s) mentioned herein may not be appropriate for all investors and before entering into any transaction you should take steps to ensure that you fully understand such transaction(s) and have made an independent assessment of the appropriateness of the transaction(s) in the light of your own objectives and circumstances, including the possible risks and bear on your own advisers in making this assessment. If you decide to enter into a transaction with DWS Group, you do so in reliance on your own judgment. The information contained in this document is based on material we believe to be reliable; however, we do not represent that it is accurate, current, complete, or error free. Assumptions, estimates, and opinions contained in this document to submit as of the date of the document and are subject to change without notice. Any projections are based on a number of assumptions as to market and services in creating uirbailty of these products and services in creating uirbailty of these products. The distribution of this document and availability of these products and services in creating and there can be no guarantee that any projected results will be achieved. Past performance is

For EMEA, APAC & LATAM:

DWS is the brand name of DWS Group GmbH & Co. KGaA and its subsidiaries under which they do business. The DWS legal entities offering products or services are specified in the relevant documentation. DWS, through DWS Group GmbH & Co. KGaA, its affiliated companies and its officers and employees (collectively "DWS") are communicating this document in good faith and on the following basis.

This document is for information/discussion purposes only and does not constitute an offer, recommendation, or solicitation to conclude a transaction and should not be treated as investment advice

This document is intended to be a marketing communication, not a financial analysis. Accordingly, it may not comply with legal obligations requiring the impartiality of financial analysis or prohibiting trading prior to the publication of a financial analysis.

This document contains forward looking statements. Forward looking statements include, but are not limited to assumptions, estimates, projections, opinions, models, and hypothetical performance analysis. No representation or warranty is made by DWS as to the reasonableness or completeness of such forward looking statements. Past performance is no guarantee of future results.

The information contained in this document is obtained from sources believed to be reliable. DWS does not guarantee the accuracy, completeness, or fairness of such information. All third-party data is copyrighted by and proprietary to the provider. DWS has no obligation to update, modify or amend this document or to otherwise notify the recipient in the event that any matter stated herein, or any opinion, projection, forecast, or estimate set forth herein, changes or subsequently becomes inaccurate.

Investments are subject to various risks. Detailed information on risks is contained in the relevant offering documents.

No liability for any error or omission is accepted by DWS. Opinions and estimates may be changed without notice and involve a number of assumptions which may not prove valid.

DWS does not give taxation or legal advice.

This document may not be reproduced or circulated without DWS's written authority.

This document is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country, or other jurisdiction, including the United States, where such distribution, publication, availability, or use would be contrary to law or regulation or which would subject DWS to any registration or licensing requirement within such jurisdiction not currently met within such jurisdiction. Persons into whose possession this document may come are required to inform themselves of, and to observe, such restrictions. © 2023 DWS International GmbH

Issued in the UK by DWS Investments UK Limited which is authorised and regulated by the Financial Conduct Authority (Reference number 429806). © 2023 DWS Investments UK Limited

In Hong Kong, this document is issued by DWS Investments Hong Kong Limited and the content of this document has not been reviewed by the Securities and Futures Commission.

In Singapore, this document is issued by DWS Investments Singapore Limited and the content of this document has not been reviewed by the Monetary Authority of Singapore.

© 2023 DWS Investments Singapore Limited

In Australia, this document is issued by DWS Investments Australia Limited (ABN: 52 074 599 401) (AFSL 499640) and the content of this document has not been reviewed by the Australian Securities Investment Commission.

© 2023 DWS Investments Australia Limited

For investors in Bermuda: This is not an offering of securities or interests in any product. Such securities may be offered or sold in Bermuda only in compliance with the provisions of the Investment Business Act of 2003 of Bermuda which regulates the sale of securities in Bermuda. Additionally, non-Bermudian persons (including companies) may not carry on or engage in any trade or business in Bermuda unless such persons are permitted to do so under applicable Bermuda legislation.

For investors in Taiwan: This document is distributed to professional investors only and not others. Investing involves risk. The value of an investment and the income from it will fluctuate and investors may not get back the principal invested. Past performance is not indicative of future performance. This is a marketing communication. It is for informational purposes only. This document does not constitute investment advice or a recommendation to buy, sell or hold any security and shall not be deemed an offer to sell or a solicitation of an offer to buy any security. The views and opinions expressed herein, which are subject to change without notice, are those of the issuer or its affiliated companies at the time of publication. Certain data used are derived from various sources believed to be reliable, but the accuracy or completeness of the data is not guaranteed, and no liability is assumed for any direct or consequential losses arising from their use. The duplication, publication, extraction, or transmission of the contents, irrespective of the form, is not permitted.

© 2023 DWS Group GmbH & Co. KGaA. All rights reserved. (4/23) 095633_1