

Institutional Investment in Real Estate

by

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3 Disclaimer

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5 List of Abbreviations

Where abbreviations are jurisdiction specific, the relevant jurisdiction is shown in brackets and where it is unclear as to what an abbreviation may refer, further information is shown in brackets.

AI, Artificial Intelligence.
AIF, Alternative Investment Fund (European Union)
BER, Building Energy Rating (European Union)
BREEAM, Building Research Establishment's Environmental Assessment Method
CAPEX, Capital Expenditure
CSRD, Corporate Sustainability Reporting Directive (European Union)
EIA, Environmental Impact Assessment
EPC, Energy Performance Certificate (European Union)
ERV, Estimated Rental Value
ESG, Environmental, Social, and Governance
EU ETS, E.U. Emissions Trading Scheme (European Union)
E-Waste, Electronic Waste
FDA, Federal Drug Administration
FRI, Full Repairing and Insuring
GenAI, Generative Artificial Intelligence
GDV, Gross Development Value
GFC, Global Financial Crisis
GLA, Gross Lettable Area
GHG, Greenhouse Gases
HMRC, His Majesty's Revenue and Customs (United Kingdom)
HVAC, Heating, Ventilation, and Air Conditioning
IoT, Internet of Things
IRR, Internal Rate of Return
JCT, Joint Contracts Tribunal (United Kingdom)
LED, Light Emitting Diode
LTV, Loan-to-Value
MoIC, Multiple on Invested Capital
MSA, Mean Species Abundance
NLP, Natural Language Processing
NOI, Net Operating Income
PBSA, Purpose Built Student Accommodation
RECAST EPBD, Recast Energy Performance of Buildings Directive (European Union)
REIT, Real Estate Investment Trust
SFDR, Sustainable Finance Disclosure Regulation
SPA, Sale and Purchase Agreement
SPV, Special Purpose Vehicle
TNFD, Taskforce for Nature-related Disclosures
U.K., United Kingdom of Great Britain and Northern Ireland
U.S., United States of America
VAT, Value-Added Tax
WAULT, Weighted Average Unexpired Lease Term
YtC, Yield to Cost
YtP, Yield to Purchaser

6 Executive Summary

This paper is focused on: (i) institutional investors, such as pension funds, insurance companies, real estate investment trusts, and private equity firms, investing in real estate; and (ii) lenders providing debt capital for the acquisition and development of real estate.

Since the end of Q2 2022, rising interest rates across the world have progressively impacted the market valuations of commercial real estate. Capitalisation rates¹ (“cap rates”) have increased as a result of: (i) the rise in the cost of finance; (ii) a slowdown in rental growth rates in some sectors and regions; (iii) demand uncertainty for certain types of real estate; and (iv) challenges in price discovery partly as a result of lower deal volume. As of the end of Q2 2024, the general downward price adjustment in real estate values continued albeit at a slower pace than in the previous four quarters while quarterly real estate investment volumes around the world remained significantly below historical averages.

However, the extent of the impact of rising interest rates is much more complex and much more heterogenous across different real estate markets and types of property. The performance of commercial real estate assets is “hyper-local.” For example, there is a polarisation in rental income and value between prime and secondary offices in most locations.

Information Asymmetries

The real estate investment industry places a high value on information that is not widely known. Details of many transactions are not disclosed. Compared with the equity securities markets of the world, the real estate market is opaque and somewhat secret; and there are many ‘off-market’ transactions. Investors in real estate need to have access to the details of such off-market transactions either through a wide network of contacts or through extensive due diligence on investments to avoid or mitigate risks.

Real Estate Investment Relies of Debt Finance

The acquisition and development of real estate nearly always involves an element of debt finance. Thus, there is considerable focus in the paper on the availability of debt finance and the terms and conditions upon which a lender is likely to provide such finance.

Real Estate Development

Real estate development offers potentially the highest returns in the asset class. It is however characterised by difficulties in estimating both revenues and costs and requires specialist skills in navigating planning and construction permits, project management, and financing. The risk of being able to rent or sell a completed development can be substantially mitigated if a lease can be put in place or pre-sales are arranged respectively before the development work

¹ In the context of property valuation, the capitalisation rate (“cap rate”) is a rate that is applied to the net operating income of a property to determine its estimated market value or sale price. By dividing the net operating income by the cap rate, an investor can derive the property's potential value based on its income-generating capacity. If a commercial property generates EUR510,000 in net operating income annually, and investors expect a 7.5% cap rate for similar properties in that market, the estimated value of the property would be calculated as:

$$\begin{aligned} \text{Property Value} &= [\text{Net Operating Income}] / [\text{Cap Rate}] \\ &= \text{EUR}510,000 / 0.075 \\ &= \text{EUR}6,800,000. \end{aligned}$$

commences. The importance of collateral warranties in real estate development are identified and discussed. This section ends with a real estate development case study whereby an existing office building is converted to ground floor retail units and several floors of luxury residential units. The case study views the development through the lens of a lender to the project as this makes all the risks of the development and their mitigants more salient.

Speculative construction of real estate in all sectors has been damped by rising construction costs, a sharp rise in interest rates pushing up the cost of debt finance, a retraction in the availability of debt, and in some market segments rising vacancy rates.

Purpose Built Student Accommodation (“PBSA”) Investing

In the last three years, the U.K., Italy, and France have seen significant growth in purpose-built, institutional-grade developments of student accommodation. The paper looks at the development of PBSA from the perspective of a developer while paying close attention to the terms and conditions likely to be required by a lender to the development. The key parameters to consider in the development of PBSA include choice of location in the city, the ratio of students to beds in that location, the uneven distribution of rental income over a calendar year, and average weekly room rate.

Office Real Estate Investing

This section of the paper explores the investment criteria an institutional investor might consider when buying an office block or a group of office blocks with a view to selling the portfolio on at a later stage. These include location, the seller, the age, the size, the distribution of gross lettable area across floors, number of parking spaces, occupancy rate, credit risk profile of tenant or tenants, weighted average unexpired lease term, differences between passing rent and contracted rent, tenant arrears, a range of valuation metrics, and fit with the institutional investor’s portfolio. In the E.U., the energy performance of an office block as measured by its energy performance certificate provides information on the energy efficiency of the building and recommended improvements. The pathway to improve the energy performance of the building and the capital expenditure required to do so, are currently very important investment criteria. This section also covers the due diligence issues an institutional investor might consider before making a real estate investment, including: (i) commercial aspects; (ii) technical factors; (iii) legal considerations; (iv) environmental, social, and governance (“ESG”) concerns; (v) tenants’ covenants; and (vi) findings from site visits. The need for a business plan for the property once it is purchased is discussed covering capital expenditure, lease management, ultimate sale of the property, and the factors affecting the exit cap rate.

Industrial and Logistic Real Estate Investing

The discussion of industrial and logistic real estate investment is illustrated through the lens of a developer with significant equity finance seeking to acquire a site, develop the industrial or logistic building, lease it, and sell the portfolio once the rents have been stabilised. The key parameters in such an investment decision include access to key transport infrastructure such as motorways, airports, and ports, an assessment of supply and demand in the area, technical specifications, rents, the findings from due diligence, risks & their mitigants, and the exit cap

rate. The paper then looks at data centers as a particular class of industrial buildings and discusses how artificial intelligence will increase the demand for data centers and their energy and water consumption. Significant attention is given to the ESG aspects of data centers and the E.U.'s delegated regulation on ESG reporting for data centers.

Retail Real Estate Investing

In the last decade retail real estate has suffered significant upheaval driven mainly by:

- (i) a move to online shopping which hit the turnover of physical retailers;
- (ii) a change in consumption patterns and a gradual shift in the generations of shoppers has changed where people spend their money and what they spend it on; and
- (iii) the COVID lockdowns.

Retail real estate is now required to offer much more of an experience, rather than purely fulfil the function of purchasing.

The paper discusses the restructuring of retail real estate with a focus on three factors: (i) consumer megatrends; (ii) urban planning; and (iii) economic factors. The drivers of exit cap rates in the sector are reviewed and there is a discussion of the notable trend among luxury goods groups to acquire prime retail properties in major cities and sought-after shopping destinations. This section of the paper closes with a discussion of the ESG issues in retail real estate.

Residential Real Estate Investing

Residential real estate is perhaps the biggest asset class in the world. This section of the paper examines the drivers of residential prices and rental levels and the demand for rented residential accommodation from the perspective of an institutional investor before moving on to look at multi-family rented residential accommodation and single-family rented residential accommodation. The section closes with a case study on the development of a multi-family residential block for rent.

Life Sciences Real Estate

The paper outlines the different types of life sciences real estate, how they differ from offices, the demand drivers for life sciences real estate, the clustering of such real estate, and issues to consider when converting existing space to life sciences real estate. The key tenets of life sciences real estate investing are then explored through a case study which examines life sciences real estate investing in India, the pharmacy of the world.

Environmental, Social, and Governance Issues in Real Estate

ESG issues in real estate are becoming increasingly more salient driven by regulation, increased demand for properties with high ESG ratings, their impact on property values, and the contribution of the built environment to greenhouse gas emissions. The paper discusses the likely implications of the E.U.'s Recast Energy Performance of Buildings Directive with particular focus on the capital required for the refurbishment of existing buildings to improve

their energy efficiency.

Smart buildings aim to create a more efficient, comfortable, and sustainable environment by leveraging technology to automate processes, reduce energy consumption, and enhance the overall experience for occupants. Smart buildings are examined from a demand perspective and from the perspective of the landlord. For the latter, a smart building may bring higher compliance costs and increased capital expenditure to maintain the building. The choice between: (a) repurposing an existing building with its embodied carbon; and (b) demolishing and rebuilding the building has become a focus of legal cases in the U.K.

In Ireland, Dublin City Council has started to block developers from knocking down old buildings and indicated significant justification is now required for demolition. Physical risk such as flood, wildfire, wind, and temperature risks and the ability to obtain insurance against these risks are explored. The implications of ESG issues for valuation are discussed. The increasing regulatory focus on biodiversity and its implications for landlords in terms of assessing biodiversity impacts and reporting on them are noted.

Real Estate Investment Trusts

The essential taxation, legal, and regulatory characteristics of real estate investment trusts (“REITs”) are identified and their different correlation to equity market returns in the short-term and in the longer-term are discussed. Metrics for assessing the investment performance and volatility of REITs are developed. A number of benchmarks for evaluating the performance of REITs in different markets are identified.

Artificial Intelligence

Artificial intelligence (“AI”) can be deployed in real estate for a number of purposes including the management of building systems, predictive maintenance models, investment decision making, estimation of property values, summarising the key characteristics of leases, identification of emerging trends in markets, and risk assessment and mitigation. In jurisdictions where pseudo anonymised personal cell phone data can be accessed, AI can be used to evaluate the potential performance of retail assets deriving insights into where customers come from, visit frequency, time spent in retail outlets. When cell phone data are combined with other data such as the demographics and disposable income of the surrounding population powerful investment insights can be gained.

7 Introduction

7.1 Jurisdiction Specific Nature of Real Estate Investing

Real estate investing is highly jurisdiction specific for the following main reasons:

- (i) The legal and regulatory framework governing real estate transactions, landlord-tenant relations, zoning laws, rent controls on residential property, planning permission, etc., differs greatly between countries. It may even differ greatly between provinces and cities within a country. The legal and regulatory framework can significantly impact the costs, risks, and potential returns from real estate investments, and types of property in which it makes sense to invest.
- (ii) Taxation of capital gains and how the rate depends on whether the gain arises from trading or investing in property; value-added tax on construction, sale, and rental of certain types of property; tax deductibility of interest payable on loans to finance property development or purchase and limits on the deductibility of such interest; corporate income tax; and transaction taxes such as stamp duty².
- (iii) Real estate markets are inherently local, driven by factors like the domestic political situation, international relations, local economic conditions, job markets, population trends, supply, and demand of housing, and foreign direct investment to name but a few. The value of properties, rents, and vacancy rates can vary enormously between cities and neighbourhoods within the same city. Local market knowledge is therefore crucial.
- (iv) Financial variables related to property such as mortgage lending criteria, rules relating to tax deductions for interest on property loans, property refurbishment, incentives for investing in property, etc., and interest rates, tend to be highly jurisdiction specific.
- (v) Cultural norms such as the length of a rental period, the time of the year that rental periods tend to end, and the expectations of landlords and tenants are often quite localised.

7.2 Information Asymmetries

The real estate investment industry places a high value on information that is not widely known; details of many transactions are not disclosed; and there are many ‘off-market’ transactions. Investors in real estate need to have access to the details of such off-market transactions either through a wide network of contacts or through extensive due diligence on investments to avoid or mitigate risks.

To be successful in the field of institutional investment in real estate, one must be highly attuned to the hyper-local market dynamics, the planning and legal environment, and the business practices in each city. Strategies that work well in one jurisdiction may translate very

² Irish commercial property stamp duty has been amended by the government about every five-and-a-half years over the past two-and-a-half decades, which is not an ideal recipe for a stable real estate investment taxation environment.

poorly elsewhere. This hyper-localisation is a defining characteristic of real estate as an asset class.

The highly jurisdiction specific nature of real estate investing makes writing a paper like this somewhat difficult as it is not possible to cover the multitude of nuances of the differences outlined in (i) to (v) above between different jurisdictions. For that reason, the authors confine the contents of the paper to general investment principles in property investment.

7.3 Economic Fundamentals of Real Estate Investing

The economic fundamentals for investing in real estate include interest rates, availability of debt financing, construction costs, inflation, and returns on real estate relative to other investments. Increasingly, there is a greater focus on: (i) the energy efficiency of buildings; and (ii) the risks arising from climate change and the cost of property insurance for perils such as flooding and storm damage.

Property market prices and rents tend to follow economic trends albeit with different impacts in different regions and types of property.

Real estate investment nearly always involves an element of debt finance. Thus, there is considerable focus in the paper on the availability of debt finance and the terms and conditions upon which a lender is likely to provide such finance.

7.3.1 *Price Discovery*

While the level of transparency about prices and terms of commercial real estate transactions can vary significantly between cities and countries, with some markets being more open than others, commercial real estate markets in major cities often suffer from a lack of public information about prices and terms of transactions.

In terms of price discovery, commercial real estate transactions tend to have the following characteristics:

- (i) They are often unique, making direct comparisons difficult and reducing the relevance of individual transaction data.
- (ii) Deals are conducted privately between parties, with transaction details kept confidential.
- (iii) Some transactions involve complex terms, financing structures, and contingencies that are not easily captured in simple price metrics.

This lack of public information can create an advantage for larger, more established players who have access to private networks and proprietary databases making it challenging for new entrants, smaller investors, and researchers to fully understand market dynamics and make informed decisions.

7.3.2 *Interest Rates*

In an attempt to dampen inflation caused by supply chain issues and a spike in energy prices caused by the Russian invasion of Ukraine, in the United States of America (“U.S.”), during the period from March 2022 to July 2023 base interest rates rose 525bps. This was one of the fastest and steepest rises in interest rates in modern times. Europe and the U.K. have experienced similar rate rises albeit to a lower maximum level.

Higher interest rates reduce the demand for owner-occupier residential real estate unless residential unit prices are falling due to an expansion in supply or disposable income is very high due to a skilled workforce in an area of strong employment growth.

Higher interest rates may cause traditional bank lenders to: (a) tighten lending criteria such as initial loan-to-value (“LTV”) and other requirements; and (b) increase the allowance for credit losses in their pricing models both of which lead to a lack of supply of bank finance for the purchase and development of all types of property.

For institutional investors with commercial real estate financed by debt, rising interest rates impact on: (i) the debt service coverage ratio (“DSCR”); and (ii) the LTV ratio because the valuation of the real estate is done at a higher cap rate. These impacts may have significant borrowing covenant implications. Further, in a rising interest rate environment, the credit risk associated with tenants’ rental payments is in general likely to increase.

7.3.3 *Availability of Debt Finance*

As a general trend, private debt funds and banks are restructuring their real estate lending books and are increasingly focusing their lending on core real estate assets. Core assets are those that are well-located, energy efficient, free from climate risks, sustainable properties with long leases and good covenants with potential for increased value in the future from higher rental income or capital appreciation. Aside from a few specialist lenders, there is a shift away from lending secured on non-core assets and on operational real estate such as hotels.

Further, climate change, energy efficiency, and building regulations are shifting lending trends away from secondary properties with poor energy efficiency and climate change risks towards prime properties with high energy efficiency and an absence of exposure to climate change risks.

In this ‘higher for even longer’ interest rate environment, some lenders are imposing requirements on borrowers to:

- (i) Hedge their exposure to floating interest rates. For example, a lender may insist that one third of borrowings are at a fixed interest rate, one third are covered by an interest rate swap to hedge against the floating interest rate rising, while allowing the remaining third to be at a floating rate; and
- (ii) Establish an interest reserve account to fund short-term cashflow problems in servicing the interest on a loan and to top up the interest reserve account using

borrower equity or a cash sweep.

Generally, a borrower can trade the initial LTV ratio for the requirement to run an interest reserve account or a full cash sweep, but a borrower is unlikely to get favourable terms on both from a lender in today's environment.

7.3.4 *Construction Cost Inflation*

Inflation spurred on by the rising price of materials, supply chain disruptions, a shortage of skilled construction workers, and increased regulation³ has pushed up the cost of construction significantly since early 2020. Absent matching inflation of rents, rising construction costs tend to diminish the returns for investors focused on real estate development or embarking on major capital expenditure projects in relation to their real estate portfolios.

Rising construction costs may lead to a reduction in future supply in a sector of the real estate market, which may underpin returns for existing investors in that sector of the market.

7.3.5 *Relative Returns*

Macroeconomic factors, such as interest rates, inflation, and economic growth, can influence the relative performance of different asset classes. If these conditions become more favourable for other asset classes compared to real estate, institutional investors may adjust their allocations to capitalise on those opportunities.

Example 1

In the 7 years ending October 2023, weekly inflows to long-dated US sovereign debt funds were the highest on record at USD5.7bn as fixed income and cash products looked more attractive and safer than asset classes like real estate.

Institutional investors evaluate investments based on their risk-adjusted returns, which consider both the expected returns and the associated risks. If other asset classes, such as equities or fixed-income securities, offer higher risk-adjusted returns compared to real estate, institutional investors may shift their allocations away from real estate and toward those more attractive opportunities. When compared to fixed income securities of the same duration and credit risk as the rental income stream, real estate assets generally offer an additional yield to compensate for their lack of liquidity.

Institutional investors also seek to diversify their portfolios to manage risk and reduce overall portfolio volatility. If other asset classes provide better diversification benefits relative to real estate, institutional investors may adjust their allocations to real estate accordingly.

³ For example, the E.U. Recast Energy Performance of Buildings Directive, ("RECAST EPBD").

Example 2

In the U.K., there was a marked shift in investment away from commercial real estate funds between April 2016 and September 2023. Assets under management in U.K. property funds fell from GBP35bn to GBP10bn in that period. In 2023, M&G⁴ closed its £565m commercial real estate fund, Canada Life Asset Management⁵ closed its commercial real estate funds, and St James' Place⁶ suspending trading in its £829.5m commercial real estate fund.

7.3.6 Property Insurance

Rising property insurance costs driven by climate change could have far-reaching implications for real estate investment decisions, asset valuations, portfolio diversification, and risk management strategies employed by institutional investors in the real estate sector.

Properties are insured for their replacement cost rather than their market value. Replacement costs have been pushed up by the rise in the cost of construction. Property owners may respond to such rising insurance costs by increasing the size of their deductibles to reduce their premiums leading to less comprehensive coverage. The number of insurers willing to provide cover for certain perils in certain geographic locations may reduce leading to less competition and higher premiums. Further, the perils that insurers may cover or the extent of coverage for certain perils may reduce leading to relatively poor property insurance coverage.

Real estate investors financed by debt may not be able to rely on insurance to protect against losses caused by climate-related perils. Property insurance policies are generally annually renewable. Insurers may decide to withdraw cover for certain perils following large losses. Thus, while a loan may be for, say, a seven-year term there is no guarantee that property insurance will be available for the full term of a loan.

Investors are likely to place greater emphasis on assessing climate-related risks during the due diligence process for real estate acquisitions. Properties with higher exposure to climate risks or lacking adequate mitigation measures may be less attractive or command a lower price to compensate for the perceived risks.

As property insurance premiums increase due to the risks associated with climate change, the operating costs for real estate investments will rise. This reduces the net operating income and overall returns for investors, making certain properties less attractive from an investment perspective.

In areas perceived as high-risk for climate-related events, such as coastal regions or areas prone to wildfires or flooding, property values may have to be reduced to account for the higher insurance costs and potential for future damage or loss.

⁴ Source: <https://www.reuters.com/business/finance/mg-shut-flagship-open-ended-property-fund-citing-weakened-investor-demand-2023-10-19/>

⁵ Source: <https://portfolio-adviser.com/canada-life-to-shutter-uk-property-fund-after-wave-of-redemptions/>

⁶ Source: <https://www.sjp.co.uk/media-centre/latest-news/st-jamess-place-suspends-property-fund>

Institutional investors may shift their real estate portfolios away from regions or markets that are deemed to be at higher risk from climate change impacts. This could result in a concentration of investment in areas perceived as lower risk, potentially leading to oversupply in those markets.

7.4 Opportunities in the Current Environment

The commercial real estate markets have been in what might be described as a 'value correction' cycle for the two years ending June 2024 due to the rise in interest rates. The current environment is characterised by a lack of consensus on property valuations, rising finance costs, scarcity of debt finance, a tightening of building energy performance standards by governments, and, in some segments of the market, a supply demand imbalance due to rising construction costs.

7.4.1 *"Distressed" Commercial Real Estate*

When discussing "distressed commercial real estate," the term "distressed" typically refers to the financial situation of the property owner rather than the physical condition of the property itself, although the two can sometimes be related.

A property owner may be experiencing financial difficulties that affect their ability to service debt on the property or maintain the property effectively for reasons such as:

- (i) Cash flow problems such as may arise if there is difficulty in collecting rent from existing tenants;
- (ii) Over leverage in terms of a debt service coverage ratio⁷ below 1.0; and
- (iii) Market downturns affecting property values or rental income.

A property owner may be under pressure to sell a property quickly, often at a discount, to resolve their financial issues such as the threat of foreclosure or, in the case of a property fund, the need to meet unit holder redemptions.

Often, financial distress may lead to reduced maintenance or inability to make necessary improvements, potentially affecting the property's condition or appeal to tenants.

Real estate fund managers who can allocate a portion of their portfolio to the purchase of distressed, but well-located, energy efficient, and sustainable properties not exposed to climate change risks, with long leases and good covenants, at attractive prices are likely to achieve attractive returns. Their returns may be further enhanced by downward interest rate adjustments and future inflation of rents.

⁷ DSCR = [Net Operating Income] / [Total Debt Service]. What is considered as a distressed DSCR varies with the type of commercial property, market conditions such as the COVID-19 pandemic, lender policy, loan terms, and the overall financial strength of the borrower.

8 Real Estate Development

Typically, the highest return and potentially highest risk investments in real estate have some element of development exposure. Real estate development projects are different from investments in standalone properties in several ways:

- (i) Development projects require highly specialist management skills;
- (ii) During the development process, the property is improved, or a new one is created;
- (iii) There is significant uncertainty associated with development because of planning law issues and project management risks; and
- (iv) Developments require an ongoing stream of cash payments for their funding.

Development projects can run from acquisition of green-field sites through to the completion of new property. Strong project management skills and oversight in the acquisition, forecasting, design, and construction stages of the development are key.

In development projects, both revenues and costs are difficult to estimate, and development projects can expose a developer and its lenders to large losses if not carefully managed.

Due diligence on a proposed development project will need to carefully assess the mitigants for key project risks such as obtaining planning permission and the letting or sale of the developed property not being achieved at or close to the expected rent or sale price respectively.

Where the development project is being conducted by an open-ended investment fund, the trends in subscriptions and redemptions and the schedule of capital and other expenditures of the development project and the existing real estate assets of the fund need to be compared with estimated rental, or other income, to ensure that the development project can continue to be funded until it is completed.

The risk of being unable to rent or sell a completed development can be substantially mitigated if a lease can be put in place or pre-sales can be arranged respectively before the development work commences.

In some cases, suffering a loss on a development may be acceptable if over the medium to long term there is a high probability that the lettable space will increase in value and the rental income will also grow to offset the loss on development.

8.1 Collateral Warranties in Real Estate Development

8.1.1 *Law of Privity of Contract*

The law of privity of contract states that only parties to a contract can enforce its terms or be bound by them. In other words, a contract cannot confer rights or impose obligations on any person who is not a party to the contract.

The law of privity of contract can pose difficulties for a tenant entering a full repairing and

insuring (“FRI”) lease of a new building. Under the terms of such a lease, the tenant is liable to pay for the costs of repairs.

The tenant has no contractual relationship with the team of professionals and builders who designed and built the new building respectively (collectively, the “Contractors”). If a defect were to be discovered by the tenant in the new building and was found to be the result of negligence on the part of the Contractors, the tenant would not have any course of action at law against the Contractors for compensation. Additional contractual protections known as collateral warranties are necessary to protect third parties with an interest in the building, such as the tenant signed up to an FRI lease in our example, because of the law of privity of contract.

In essence, a collateral warranty affirms the effect of certain terms in the underlying building contracts and the contracts appointing architects, engineers, and other professionals engaged in the construction project to which the warranty is collateral; it is a secondary contract usually given by the Contractors in relation to construction projects.

The warranties are granted in favour of parties with an interest in the development but who are not party to the underlying contracts for the build. Such parties include developers, purchasers, providers of finance, mortgagees, future tenants taking on an FRI lease, and future purchasers.

Collateral warranties are likely to be sought from the building contractor and several subcontractors such as the heating, ventilation, and air conditioning (“HVAC”) system subcontractor. Collateral warranties are usually only valid for a fixed period of time and are rarely evergreen.

Collateral warranties in effect give third parties a contractual right to bring a claim against the contractors in circumstances where they would otherwise be prohibited by law from doing so if a defect were to arise in the property.

There is no guarantee that a warranty claim will be successful or that the contractors will still be in business and make payments under the collateral warranty should the claimant be successful.

Due diligence enquiries will reasonably seek the existence of collateral warranties in relation to property development projects to assess if the collateral warranty contains the following clauses at the very minimum:

- (i) A duty of care to permit the beneficiary of the warranty to:
 - a. rely on the contractors having undertaken the works or design using reasonable skill and care; and
 - b. bring a contractual claim against the Contractors if the works or the design is defective.
- (ii) A provision that the contractors have not used or specified for use any materials that may be harmful to either people or the structure.

- (iii) The sponsor or lenders providing finance for a development project may wish to ensure that they can step into the shoes of the party who is employing the contractors to ensure that the development is completed if the employing party becomes insolvent.
- (iv) A clause specifying the number of times the benefit of the warranty may be assigned to say, future purchasers of the property.

Due diligence is likely to focus on any clauses in the collateral warranty agreements which seek to limit the contractors' financial exposure in the event of a claim under the warranty.

8.2 Real Estate Development Case Study

8.2.1 *Background to Case Study*

With the surge in demand for residential space and a falloff in the demand for antiquated office space, some developers have started to convert office buildings into residential space. Such conversions are not without their challenges including: (i) the ability of the rents or the prices in the local market to support the financing costs of conversion of an office building to residential use; (ii) ability to obtain planning permission for the conversion; (iii) the centralised nature of HVAC systems and plumbing in many multi-story office buildings; and (iv) a requirement for a fire safety certificate for each residential unit covering fire sprinkler systems and safe exit route in the event of a fire.

8.2.2 *Case Study Details*

The case study is based on turning a 10-storey office building into a block of residential apartments with retail outlets on the ground floor of the former office block. The aim will be to sell both the residential units and the ground-floor retail units, preferably off the plans before construction is completed. The location of the building is assumed to be London.

The case study views the development through the lens of a lender such as a bank or a private debt fund providing the debt finance for the development because a lender's due diligence on such a development project tends to highlight the risks in the project and how they might reasonably be mitigated.

8.2.2.1 Planning Permission

For the purposes of the case study, it is assumed that planning permission for the development has been granted. A lender would be reluctant to lend for a real estate development project that has not yet secured planning permission for several reasons including:

- (i) Without proper planning permission, there is a significant risk that the project may not be able to proceed as envisioned or at all. This introduces major uncertainty around whether the development can generate enough revenue to repay the loan.
- (ii) Obtaining planning permission can be a significant cause of delay in starting the project. This increases costs like construction loan interest accrual, labour cost inflation, increased retrofit costs arising from the regulatory developments in relation to building energy efficiency, and inflation of material prices to name but a few such

- costs.
- (iii) If planning permission is eventually denied or requires major design changes, it could significantly alter the project's costs, revenue projections, and overall economics upon which the loan was initially underwritten.
 - (iv) The undeveloped land alone, without planning permission, may provide insufficient collateral coverage for the lender compared to the full prospective completed project value.
 - (v) Lenders typically require a level of pre-sold units or pre-leased tenants for cash flow purposes. This is difficult to achieve without having secured development approvals.
 - (vi) The project may encounter local community or government opposition that prevents planning approval which presents both financial and reputational risks to the lender if the project becomes controversial.

The persons providing the equity finance for the development in this case study are a developer and an equity provider (collectively, the “Sponsors”). The developer and the equity provider are likely to enter into a joint venture agreement.

The lender would expect: (i) the developer to have at least a decade of experience in developing the type of property under construction and a track record of other successful development projects in London; and (ii) the equity provider to have significant real estate investment experience.

8.2.3 *Developer*

The developer will normally appoint design and other consultants to manage the project with a particular focus on cost control, deal with the building contractor on all aspects of construction, and oversee the marketing and sales campaigns to sell the residential units.

8.2.4 *Lender*

The lender is likely to be willing to advance a percentage of the acquisition cost⁸ of the land and the building and a percentage of the total capital expenditure. The lower the advance for acquisition cost, the higher the advance for capital expenditure. For example, if the advance for acquisition costs were, say, 30% of acquisition costs, the advance for capital expenditure might be as high as 80% of capital expenditure costs. Typically, the principal amounts drawn down under loans for development are repaid in a single lump sum at the end of the loan term or any extension of the loan term.

8.2.4.1 Underwriting Metrics

The lender will require an independent valuation of the current market value of the land and building and the gross development value (“GDV”) once the construction work has been completed. The lender will wish to ensure that the current market value is at least equal to the

⁸ Acquisition costs include the purchase price of the land and building, stamp duty, upfront fees paid to the lender, the legal, due diligence, and independent valuation costs of the lender, any acquisition fee paid to the developer, and legal and due diligence costs of the Sponsors.

purchase price of the land and building. The GDV will be ascertained on both a unit-by-unit basis and as a single lot. The latter is likely to be 20% to 30% less than the former. The lender is also likely to ask the independent valuer for the expected rental value and yield as a percentage of GDV of the units. The lender would expect the independent valuer to support the valuations with details of comparable transactions in the vicinity of the land and building. The lender is also likely to consider any differences between the Sponsors' proposed pre-sale prices and those of the independent valuer.

In structuring the loan, the lender will consider metrics such as the initial loan-to-cost and loan-to-gross-development-value for the combination of the acquisition and capital expenditure loans, and the maximum accrued loan-to-cost and loan-to-gross-development-value during the period of construction.

The lender is likely to require the Sponsors to provide all the equity for the project upon the acquisition of the land and building ensuring that all the equity is committed to the deal prior to the advance of the loan.

The lender will likely evaluate the profit for the Sponsors both in absolute terms and as a percentage of total cost as the Sponsors are more likely to renege on the loan if they are going to suffer a loss.

The lender is likely to be attuned to a conflict of interest in the pricing of the construction contract if either the developer or the equity provider is affiliated with the company which is awarded the building contract (the "Contractor") or were to potentially receive any payment from the Contractor.

The lender will require that deposits on sales of units to be placed in a bank account controlled by the lender. In some jurisdictions, such deposits must be insured if they are to be used to pay for construction works. The lender will wish to ensure that any recourse to the borrower for such deposits is junior to the lender's mortgage over the property.

In many jurisdictions, lenders require title insurance to ensure there is protection against a legal challenge to the element of their security package which contains a requirement for a "clear and marketable"⁹ title.

8.2.5 *Building Contractor*

The building contractor (the "Contractor") ought to have substantial experience, a good reputation, and a track record of successfully completing similar construction projects to the one proposed.

⁹ The title to a property is "clear" if the property's ownership rights that are free from any liens, encumbrances or claims likely to impact the property's ownership or value. The title to a property is "marketable" if it is free and clear of any defects likely to prevent a reasonable buyer from purchasing the property.

Its supply chain network should be very well developed and capable of bringing materials and, if needed, construction workers for the project into London without interruptions or visa issues. The supply chain is characterised by: (i) freight costs which depend on the location of the goods; (ii) storage costs of the goods which depends on the volume of goods to be stored and the time for which they need to be stored; and (iii) last mile delivery costs driven by distance from storage to the building site.

The Contractor will be required to appoint an independent building control inspection firm which provides formal checks and approvals to ensure accountability, quality, and safety for occupants and the public at large. In the U.K., this is an external validation process enforced by law.

8.2.6 *Building Contract*

In the U.K., a commonly used standard form of construction contract is the Joint Contracts Tribunal (“JCT”). The JCT Build and Design fixed-price contract is a model contract for procuring a project where the Sponsors wants a single party, the Contractor, which is responsible for both design and construction under a set of performance specifications. The Contractor takes on the risk of any cost overruns and has to complete the works within the agreed lump sum price. This gives the client a degree of certainty as to the cost of construction. Under the contract, the Contractor warrants that the works will be fit for their intended purpose as defined in the building contract. There are provisions in the contract for changes to the build to be instructed with an adjustment to the contract sum and completion date.

The contract will set down a list of requirements and provide for a range of eventualities including:

- (i) Payments under the contract are made in instalments in accordance with a schedule and the valuation of completed works each time the Contractor submits applications for payment.
- (ii) Events of default include a breach of terms, payment default, cross default on any other loans or commercial credit of the borrower, failure to obtain planning permission and construction permits within specified numbers of months from the granting of the loan, failure to put in place and maintain insurance, breaches of health & safety regulations, sale of units below the agreed listing prices, unauthorised use of the asset, failure to start construction within a particular timeframe, and quality control failures.
- (iii) A time period will be set for the completion of the construction work with extensions of time being granted to the Contractor for such matters as weather events, extended delays in obtaining regulatory clearances, changes in building safety regulations after the date of the construction contract.

- (iv) The Contractor will be required to conduct the construction in line with relevant building safety regulations.
- (v) The Contractor will be required to maintain public liability insurance with a sum insured of something of the order of one third of the total construction contract price until a *Notice of Completion and Making Good* is provided to the Sponsors and professional indemnity insurance for a sum insured of something of the order of 2/3rds of the total construction contract price.
- (vi) The construction contract is likely to include a schedule of liquidated damages, specified financial sums that the contractor must pay to the Sponsors if the Contractor fails to complete the project by the agreed completion date. The liquidated damages clause removes disputes about quantifying financial loss after the fact, incentivises on-time delivery by the Contractor, and provides an agreed framework for compensation for the Sponsors should delays under the Contractor's control occur.
- (vii) The contract will normally provide for the retention by the client of an amount, usually between 3% and 5% of the total construction contract price, until project completion or the issue of the Certificate of Making Good Defects.
- (viii) Arbitration is likely to be the chosen mechanism for dispute resolution.

8.2.7 *Project Manager*

The Sponsors will typically appoint a firm specialising in the project management of developments. The project manager will provide a range of services including assessing the project's hard costs¹⁰, testing the viability of construction methodologies and logistics, monthly reports on development metrics, forecast v. actual expenditures by quarter, and performing any of the functions of the Sponsors under the construction contract such as coordinating planning submissions, discharge of regulatory obligations of the Sponsors, and management of any remedial works.

The project manager will typically be required to have professional indemnity cover of at least 1/6th of the total construction contract price.

Project managers receive fees of something of the order of 1% to 2% of the total construction contract price.

8.2.8 *Mitigating the Risk of Construction Cost Overruns*

To mitigate the risk of construction cost overruns, the lender is likely to require some or all of the following conditions in the loan agreement:

¹⁰ Hard costs are those costs directly related to the physical construction and include costs of tangible building materials, equipment, and labour.

- (i) Setting aside in a separate account a sum of money until the completion of the project. While the sum of money is likely to depend on the rate of building cost inflation and complexity of a project, it might typically be of the order of 5% to 15% of hard costs.
- (ii) A guarantee from the developer to fund cost overruns up to a specified sum of money. If the lender considers that the developer's credit quality is poor relative to the size of the guarantee, the lender may require a performance bond for the guarantee from a highly rated counterparty and seek a security assignment over the performance bond which requires all sums payable under the bond to be lodged to an account controlled by the lender.
- (iii) A requirement to repay specified amounts of the loan at specified times during the development period if the Sponsors fail to achieve a set of pre-agreed sales targets.
- (iv) Holding of part of the loan advanced to fund debt service or other costs to which the lender might agree.

8.2.9 *Guarantee – Completed Project Free from Defects*

Notwithstanding the provisions of the JCT Build and Design fixed-price contract, the lender is likely to seek a guarantee from the parent company of the Contractor that the completed project will be free from defects in relation to the quality of materials supplied by the Contractor and the workmanship for a period of at the very least one year and, for a more complex project, a period of between two and five years. The essence of the guarantee is that the Contractor will remediate any defects identified during the guarantee period at its own expense and within a timeframe specified for repairs in the contract. In the case of construction in London, the guarantee is likely to be documented under English law.

The lender is likely to take legal advice on the enforcement of such a guarantee and the timetable for such enforcement. It's important to bear in mind that enforcement of the guarantee could take several years to complete due to the Contractor's right to appeal judgements in the English courts and subsequently in the jurisdiction of the parent company of the Contractor when the judgement is submitted for execution in that country. The lender may also seek a similar guarantee from the developer.

8.2.10 *Marketing*

Marketing of residential units is likely to commence once construction begins and will normally have four elements: (i) print media campaigns; (ii) website and social media campaigns; (iii) physical events in the target geographical markets possibly using 3-D images of the completed units; and (iv) at a later stage of the development, a finished residential apartment as a marketing unit. Marketing is likely to focus on building quality, building energy efficiency rating, unit layout, and views of the city available from the different units.

8.2.11 *Sales*

One or more selling agents are likely to be appointed by the Sponsors to sell the commercial and residential units in the development.

Selling agents are likely to charge a fee of between 1.5% and 3.0% of the selling price of each unit.

A deposit will be required from buyers of units upon signing the preliminary contract. The deposit will be a percentage of the listed price. The balance of the cost of the unit will be paid upon delivery of the unit. The percentage deposit will be chosen so that the monetary amount to be held during construction of the units is not likely to meet resistance from buyers.

8.2.12 *Due Diligence*

The lender will typically examine the absolute level and trend over the three most recent years in the following parameters based on the audited financial statements of the local subsidiary of the Contractor and its parent company:

1. Turnover or Income
2. Cost of Sales
3. Gross Profit
4. Profit before Tax
5. Fixed Assets
6. Current Assets
7. Non-current Assets
8. Total Assets
9. Creditors (falling due within 1 year)
10. Current Liabilities
11. Non-Current Liabilities
12. Net Asset Value

A similar financial due diligence will be performed on the developer and its parent company where the developer is providing a guarantee for overruns on costs.

Where weaknesses are identified in the financial standing of the developer or Contractor, the lender is likely to call for cash reserves to be held in an account controlled by the lender.

8.2.12.1 Legal Due Diligence

The lender will most likely seek external legal advice on the security package, the title documents of the land and building, charges on the property, third party rights, easements, the planning documents, corporate due diligence on the borrower, the fixed-price construction contract to ensure the costs are at the sole risk of the Contractor, background checks on key individuals, and routes to enforcement of the security package. Routes to enforcement might be split between direct enforcement and enforcement via judicial process. In addition, the tax structuring will be reviewed so that its design facilitates fast enforcement.

8.2.12.2 Technical Due Diligence

Technical due diligence is likely to focus on: (i) the planning, building regulation, environmental, and construction contract documents; (ii) an assessment of budgeted costs

relative to unit specifications by benchmarking them against a number of other live projects in the same city on a per square metre and per unit basis; (iv) the realism of the construction timeline; (v) the track record of the Contractor in the sector and its history of delivering projects on time and on budget; (vi) the track record of the major sub-contractors appointed or to be appointed by the Contractor; and (vii) a review of insurance policies held by the Contractor for: (a) All Risks; (b) Public Liability; and (c) Employer's Liability with a particular focus on the sums insured relative to the total construction cost.

8.2.12.3 Commercial Due Diligence

The commercial due diligence undertaken by the lender via real estate agents is likely to focus on factors like: (i) the supply and demand for the completed units in the particular area of the city; (ii) the number of transactions for new and second-hand units in the area per year and the percentage of total stock in the area such transactions represent; (iii) the percentage of the total market in the area that the project represents and the likely speed at which the units will be taken up; (iv) comparable offerings currently available or likely to become available before the completion of the project by value in the same or very similar types of areas; (v) competition from sales of second-hand units in the area; (vi) the age and energy efficiency of the existing stock in the area; (vii) sales track record of other similar project in the area; and (viii) the loan term and loan-to-value ratio that banks are prepared to offer buyers of the units.

8.2.12.4 Taxation Due Diligence

Tax due diligence will likely cover value-added tax ("VAT"), any requirement to make tax deductions on payments to subcontractors, capital gains tax, and any tax issues arising from the nature of the structure of the borrower such as restrictions on the deductibility of interest income which are often expressed as a percentage of EBITDA.

The tax due diligence is also likely to seek confirmation that the borrower's three most recent corporation income tax filings were filed on time and in accordance with the requirements of the taxation authorities, confirmation that any payroll taxes due by the borrower were deducted and returned to the taxation authorities, and confirmation that any transaction taxes, such as stamp duty, were paid to the taxation authorities on time and in full.

8.2.12.5 Environmental, Social and Governance Due Diligence

The ESG due diligence is likely to focus on the improvement in the building's energy efficiency rating, the building's use of water, the possible use of solar panels to cover all or a substantial portion of the building's annual energy needs, the installation of electric vehicle charging units in all or substantially all of the available parking spaces, development of green areas around the building, and possibly the replacement of hazardous construction materials by other materials less detrimental to human health.

8.2.13 *Risks and Mitigation of Risks*

The main risks for the lender and perhaps also for the Sponsors are likely to be: (i) completion of the development; (ii) sale price of units during the term of the loan; and (iii) inflation of

building costs. The possible means of mitigating the risks are shown in Table 1.

Table 1

Risk	Possible Means of Mitigating Risk
Authorisation to Change Use from Office to Residential	The ultimate mitigation of this risk is to have obtained authorisation from the planning authority. Absent this ultimate mitigation, all professional advisors based on their discussions with the planning authority are aligned on the likelihood of obtaining authorisation and there is a standard process for obtaining authorisation.
Bankruptcy of Contractor	Use a “tier 1” contractor with a strong track record of on-time and on-budget delivery.
Cost Overrun	Use of fixed-price construction contract. Guarantee from parent company of the Contractor for cost overruns albeit with an upper limit on the guarantee.
Completion of the Development	Choose a contractor with a strong track record of delivery of similar projects on-time and on-budget. Use a project monitoring firm to monitor the construction work.
Sale Price of Units During the Loan Term	Choose a developer with international marketing expertise and a strong track record of selling over 2/3rds of units prior to project completion Limit developments to areas where buyers are <i>unlikely</i> to require debt finance, typically the wealthiest and most prestigious areas of a city where there is a lack of new supply and strong demand. The areas should be accessible by public transport and private car and close to main artery routes. The lender may require the borrower to amortise the loan during construction if sales targets are not met at a series of specified times during the construction period. Ensure that the maximum debt per square metre is substantially less than the independent valuer’s assessment of price per square metre of comparable properties.
Inflation of Building Costs	Inflation of building costs can arise from a range of factors typically, rising wage costs for construction workers, rising costs of materials such as cement and steel, and scaffolding rental costs. Use a fixed-price design and build contract. Obtain a guarantee from the developer for cost overruns. Require the setting aside in a separate account controlled by the lender a sum of money equal to 5% to 10% of hard costs until the completion of the project.

8.2.14 Loan Terms

Table 2 provides details of possible loan terms for the proposed project.

Table 2

Loan Term	Comment
Amount of Loan	<p>Specification of the amount being lent for: (i) acquisition of the land and building both in money terms and as a percentage of total acquisition costs; and (ii) capital expenditure both in money terms and as a percentage of total construction contract price.</p> <p>The lender is also likely to examine the sum of loans (i) and (ii) above as a percentage of Gross Development Value (“GDV”) and limit the sum of loans (i) and (ii) above to somewhere between 45% and 55% of GDV with the percentage being determined by the lender’s risk appetite, the interest rate, and the security package.</p>
Term of Loan	<p>The term of the loan may be a fixed number of months or years but may include an option to extend the loan for a fee equal to something of the order of 1% to 2% of the value of the loan outstanding at the time of extension.</p>
Repayment of the Loan	<p>Typically, the principal amounts drawn down under loans of this type are repaid in a single lump sum at the end of the loan term or any extension of the loan term. Interest on the balance outstanding is paid by the borrower on a monthly basis.</p> <p>There may also be a requirement to pay down the loan from the proceeds of the sale of units in the development.</p>
Interest Rate	<p>The rate of interest on the loan is more likely to be a fixed rate than a variable rate.</p> <p>The lender will require interest on the balance outstanding to be paid by the borrower to the lender on a monthly basis.</p>
Fees	<p>The lender is likely to charge some or all of the following fees to cover its expenses in originating a loan and other contingent expenses or loss of profits:</p> <ul style="list-style-type: none"> (i) Commitment fee: Paid to the lender to "commit" to providing a loan in the future provided certain conditions are met. Values in the range of 2% to 3% of the total loan commitment would not be unusual. (ii) Upfront fee: A once off fee charged by the lender when the loan agreement is signed. Values in the range of 1% to 1.5% of total loan commitment would not be unusual. (iii) Termination fee: A fee charged by the lender should the borrower cancel the loan after committing to it. (iv) Non-utilisation Fee: A fee of between 2% and 2.5% of the undrawn total loan commitment charged annually. (v) Prepayment fee: A fee charged by the lender to compensate it for lost interest if the loan is repaid prematurely, a ‘make-whole’ provision. Prepayment fees are particularly common in fixed interest rate loans as a borrower may refinance the loan at a lower rate if interest rates fall. (vi) The cost of the project monitoring firm engaged by the lender will in all likelihood be charged to the borrower.

Table 2 (continued)

Loan Term	Comment
Security Package	<ul style="list-style-type: none"> (i) The security package is likely to consist of some or all of the following: (ii) First-ranking mortgage over the property acquired; (iii) Assignment of the construction contract, the associated contracts of the consultants to the construction, and any collateral warranties provided by the various contractors and consultants engaged in the conversion; (iv) First-ranking charge and sole control over the bank accounts of the borrower; (v) First-ranking charge over the shares in the borrower; and (vi) Floating charge over all of the borrower's assets.
Drawdown Schedule for Capital Expenditure	Lender will appoint a project monitoring firm which will review the planning, building regulation, environmental, and construction contract documents, report on the evolution of the construction project to the lender on a monthly basis and, review and, if thought fit, approve invoices and the drawdown of loan tranches for capital expenditure.
Loan Accrual	The loan agreement may provide for the loan to increase up to an amount equal to the minimum of the following: (i) a fixed monetary amount; (ii) a fixed ratio of loan to GDV; and (iii) a fixed ratio of the total capital expenditure.
Loan Covenants	Lender may specify a maximum ratio of loan amount outstanding to the most recent relevant GDV or where relevant the price at which units have sold. This ratio is unlikely to be more than 0.75 during the loan term. The lender may have a right to call for more equity from the borrower if the maximum ratio is likely to be breached.
No Further Indebtedness	The borrower entity is not permitted to increase its indebtedness by, for example, borrowing more money from other lenders.

8.2.15 Events of Default in Construction Loan Agreement

An event of default allows a lender to take measures to protect its interests including, for example, demand immediate repayment of the entire loan balance, stop future loan disbursements, increase interest rates, or other measures. Events of default can have severe consequences for a borrower.

Table 3 below sets out the likely events of default in a construction loan agreement and the reasoning behind the choice of event of default.

Table 3

Event of Default	Reason
<p>Failure to obtain a construction licence and environmental clearances within a reasonable period of the granting of a loan. The grace period is unlikely to exceed six (6) months.</p>	<p>Delays in obtaining appropriate licenses can increase project costs due to penalties, legal expenses etc. which will raise the total amount of finance required and change repayment schedules.</p> <p>Licensing issues that prolong the preconstruction and approval phases translate into longer loan durations being required.</p> <p>Banks calculate interest reserve requirements based on the expected construction timeline. Licensing delays may require renegotiation of interest reserve amounts.</p>
<p>Failure to commence construction with a specified period of the granting of the loan. The grace period is unlikely to exceed twelve (12) months.</p>	<p>Delays in the commencement of construction translate into longer loan durations being required.</p> <p>Further, banks calculate interest reserve requirements based on the expected construction timeline so that delays may require renegotiation of interest reserve amounts.</p>
<p>Insolvency of the borrower.</p>	<p>The insolvency of the borrower represents a massive credit risk event that jeopardises the success of the construction project and the likelihood of the lender getting fully repaid in line with the terms of the loan agreement. This justifies its status as an automatic default event.</p>
<p>Breach of borrowing covenants, for example, unauthorised use of the asset on which the loan is secured, failure to maintain required insurance coverages, and failure to maintain certain financial ratios.</p>	<p>These acts jeopardise the collateral position of the lender and its ability to recover the capital lent, so they are rightly treated as risky events allowing the lender to re-evaluate and protect its exposure to the borrower.</p>
<p>The ownership of the borrowing entity or the management control of the borrowing entity changes without the approval of the lender.</p>	<p>The lender underwrote and approved the original borrower based on their specific creditworthiness, financial condition, management team, etc. A change of ownership could introduce new owners/managers that the lender did not evaluate or approve.</p> <p>New owners may have different priorities, strategies, or financial capabilities than the original borrower raising uncertainty regarding their commitment and ability to repay the loan as agreed.</p> <p>Changes of control can affect control and rights over assets on which a loan is secured.</p> <p>Failure to obtain the approval of the lender denies the lender the opportunity to review and, if thought fit, approve the new owners, violating requirements for transparency.</p> <p>Unapproved changes in control may trigger cross-defaults in other loan agreements, thereby elevating overall default risk.</p>

Table 3 (continued)

Event of Default	Reason
Loss of any licence that would delay or hold up construction.	Delays in construction translate into longer loan durations being required. Further, banks calculate interest reserve requirements based on the expected construction timeline so that delays may require renegotiation of interest reserve amounts.
Default in any other loan or debt be it financial or commercial debt owed by the borrower. Clauses of this nature are normally subject to a materiality threshold.	A default on another obligation is likely to be a sign of a borrower in financial distress raising questions about the borrower’s ability to service all its debts. Cross default provides protection for lenders if the borrower runs into repayment issues with any other creditor. Cross default clauses incentivise a borrower to stay current on all its obligations.
The construction contract is for residential units. A failure to pre-sell a certain number of units above a specified price by a specified date or a failure to sell a defined number of units above a pre-defined price by the date of maturity of the loan.	Pre-sale requirements act as key milestones and risk mitigants for the lender against marketing, viability, cashflow, and recovery risks inherent in construction loans for residential development projects.
Payment default	Failure to make scheduled principal or interest payments on the loan by the due date is a sign of borrower distress and the lender needs to take early remedial action to secure its interests.

Were the Lender to take ownership of the building upon default of the borrower, it may acquire obligations under relevant building safety regulations.

8.2.16 Foundations

Although this case study did not involve the digging of foundations, foundations are a critical risk area to assess upfront in a development project for several reasons including:

- (i) The foundations provide the base on which the entire structure will rest. Any issues with the foundations can compromise the safety and stability of the building above the foundations.
- (ii) Existing utility lines such as electricity, water, and sewage, buried storage tanks, and archaeological remains¹¹ in the soil can create obstacles that require re-engineering foundation plans in the middle of a project if they are not identified in the soil assessment stage of a development project.
- (iii) Significant cost overruns can occur if there are unforeseen poor soil qualities such as rocks, expansive clays, or water saturation as these often necessitate more extensive and costly foundation work than planned.

¹¹ The risk of running into archaeological impediments can derail project timelines, increase costs significantly, force design changes, create regulatory issues, and generate negative public perception.

- (iv) Problems with foundations often occur in the initial stages yet can cause cascading delays that disrupt subsequent construction phases and timing.
- (v) Improper foundation depth, inadequate reinforcement, imprecise formwork, or poor concrete quality during the foundation pour all create hard-to-detect weaknesses.
- (vi) Once the structure is built upon the foundations, it becomes extremely expensive to go back and repair or replace faulty foundation elements underneath.

9 Purpose Built Student Accommodation Investing

9.1 Introduction

Purpose built student accommodation (“PBSA”) falls into the category of specialist use properties which also includes hotels and nursing homes. The key feature of a PBSA asset is rooms for rent in a shared structure with common services and spaces. In the last three years, the highest number of student accommodation beds added have been in the U.K., Italy, and France through purpose-built, institutional-grade developments. For the purposes of the discussion of PBSA, consider the development of a new PBSA from the perspective of the developer of the PBSA.

9.2 PBSA Location

PBSA asset ought to be close to both the university campus or campuses and close to the centre of the city in which the university campus or campuses are located. In this context, ‘close’ should be viewed: (i) relative to competing PBSA and soon to be completed PBSA; and (ii) the time it takes a student to walk to the tram station or bus stop nearest the proposed or actual PBSA that will take the student to a university campus and the city centre.

PBSA assets which are slightly further from the university campus or campuses and the city centre are likely to need to have a much higher specification and be of higher quality to compete effectively with other actual or proposed PBSA assets and to achieve similar rental income.

9.2.1 *[STUDENT]/[BED] Ratio*

In choosing a city for a PBSA, one of the key considerations is the [STUDENT]/[BED] ratio currently existing and coming on stream in the near-term taking account of planning applications submitted and planning applications granted for PBSA assets in the location.

The numerator of the [STUDENT]/[BED] should not include students living at home in the location as only a very small and unpredictable proportion of such students are likely to live away from home. Before considering other factors like the physical location and quality of the actual or proposed PBSA, the [STUDENT]/[BED] ratio ought to be at least 2.0 to ensure sufficient demand for the beds in the PBSA and hence rental income. For very high quality PBSA close to the university campuses or campus, a developer and its lenders may consider a somewhat lower ratio, but an acceptable [STUDENT]/[BED] ratio is unlikely to be below 1.5.

The rate of growth of the number of students at the university campus or campuses in the location over the last five years should also be examined as part of a decision to purchase an existing PBSA or construct a new one. The growth rate of the number of students at the university campus or campuses should ideally be split between foreign students and domestic students to understand the key driver of the rate of growth. A rate of growth that is heavily weighted towards foreign students needs to be examined more closely to assess continued political support for the granting of visas to foreign students. The figure of 2.0 for the [STUDENT]/[BED] ratio mentioned above should not include any growth in student numbers.

9.2.2 *Choice of City*

From an investment perspective, PBSA assets ought to be in cities with renowned universities. The size of the city in which the PBSA is located is important in terms of the number of university campuses in the city and the attractiveness of the city to both domestic and foreign students.

9.2.3 *Distribution of Rental Income Over Time*

The distribution of rental income from a PBSA over a calendar year is not even. An academic year is assumed to run for 41 weeks from August/September to May/June, and spans two succeeding calendar years. PBSA rental income is stronger in autumn, winter, and spring of each calendar year than in the summer months of a calendar year. While occupancy rates during an academic year are likely to be as high as 95% or more, during the summer months, they are more likely to be of the order of 20% to 50%.

During the summer months, the PBSA may be used by the operator to offer budget accommodation to tourists visiting the university city. The factors that will determine the summer occupancy rates for the PBSA include: (i) the number of tourists visiting the city seeking budget accommodation; (ii) the availability of other budget accommodation in the city; and (iii) the price, location, and quality of the PBSA accommodation relative to alternatives in the city.

The operator of the PBSA is likely to be remunerated based on a percentage of room rents achieved during each academic year and a significantly higher percentage of the summer room rents. The higher percentage of summer room rents is designed to encourage the operator to market the rooms during the summers.

In an attempt to improve calendar year-round occupancy rates, in at least one jurisdiction, some providers of PBSA have begun to insist that students agree to 51-week tenancies rather than leases for the typical 41-week academic year. In response, the authorities have moved to introduce legislation which will require that a condition for the granting of planning permission for PBSA will be that the maximum lease period is confined to the length of the relevant academic year.

9.2.4 *Average Weekly Room Rate*

The average weekly room rate charged during the academic term in a PBSA asset is determined by a range of factors including: (i) the city in which the PBSA asset is located; (ii) its proximity to the university and the city; (iii) the building's amenities such as gym, study room, food & beverage offerings, and cinema; (iv) the management of the asset; (v) the building characteristics; and (vi) the type of room such as studio, en-suite, and twin.

9.3 Issues for the PBSA Developer

In considering the development of a new PBSA from the perspective of its developer of the PBSA, we shall look at the issues the developer is likely to face in the process. It is assumed that the developer has significant experience in developing and operating PBSA assets in the jurisdiction and that it or an experienced and specialised PBSA operator shall be the operator of the PBSA asset under construction.

9.3.1 *Equity Partner*

Unless the developer of PBSA is an institutional investor with access to significant capital, it is likely to need an equity partner as no lender will provide all the funding for a PBSA unit. From the perspective of the lender, the developer's equity partner should ideally have significant investment experience in both commercial and residential real estate and have previously provided equity capital for the development of other PBSA assets. The larger the capital investment by the developer and the equity partner the greater the comfort the lender will have that incentives are aligned for all parties in the development of the PBSA asset.

9.3.2 *Lender*

All the issues identified in sections 8 (Real Estate Development), 9.2 (PBSA Location), and 15 (ESG) of the paper will be applicable in the lender's decision to grant a loan to the developer for the construction of a PBSA asset.

A lender is likely to look to the developer for a guarantee in relation to cost overruns on the construction of the PBSA of between 5% and 15% of hard costs of the construction project. The guarantee is likely to be in addition to any contingency for cost overruns in the construction budget.

Specifically in relation to the development of a PBSA asset, the lender will additionally look for at a minimum:

- (i) Description of the asset in terms of the number of studio units, the number of units with ensuite facilities, and the general quality of the asset relative to other assets in the location;
- (ii) Project completion timetable with a focus on the completion of the project before the commencement of an academic year;
- (iii) Percentage of units in the asset booked for the next relevant academic year;
- (iv) Average weekly room rate achieved from such bookings relative to: (a) the advertised rate for such bookings; (b) average weekly room rate in the location; and (c) the average weekly room rate for comparable competing accommodation;
- (v) Operating costs for the PBSA;
- (vi) Estimated stabilised net operating income ("NOI") of the PBSA asset;
- (vii) Assessment of likely buyers of the subject asset; and
- (viii) Details of sale prices achieved for comparable PBSA assets in the location over the last five years.

It is assumed that the loan will be an interest-only loan and that it will be repaid as a bullet at the end of the loan term when the rental income from the PBSA has been stabilised. The loan term is unlikely to be for a period of more than four years.

In view of the seasonality in the rental income stream from a PBSA, a lender is likely to require an interest reserve account. The security package for the loan will specify the minimum amount of cash to be held in such an account and how that minimum will be maintained, for example, by equity contributions from the sponsor or developer or by withholding the release of cash to the borrower.

9.3.2.1 Cashflow Analysis

For each of the years of the loan term sought by the developer, the lender will seek a cashflow analysis showing the developer's assumptions as to: (i) occupancy rate during academic terms; (ii) average weekly rent per room during the academic terms; (iii) the rate of growth of the average weekly rent per room for succeeding academic terms; (iv) the operating cost of the PBSA; and (v) the NOI of the PBSA.

The lender will stress the cashflows by assuming a lower occupancy rate, a lower average weekly rent per room during the academic terms, and zero growth in average weekly rent per room for succeeding academic terms. The level of stress applied to the first two parameters is likely to be determined by the [STUDENT]/[BED] ratio in the city and the average weekly rent per room during the academic terms assumed by the developer relative to competing PBSAs.

If the [STUDENT]/[BED] ratio is above 2.0, the lender might assume an occupancy rate of 85% and drop the average weekly rent per room by between 7.5% and 12.5% depending on the competition from other PBSAs in the city currently and projected to be available during the term of the loan.

If the [STUDENT]/[BED] ratio is closer to what might be the lower bound for such a ratio, namely, 1.5, the lender might assume an occupancy rate of 75% and drop the average weekly rent per room by 20% in stressing the cashflows.

The lender will examine the results of the stress test and in particular:

- (i) the total amount of the interest shortfall over the term of the loan;
- (ii) the free cashflow after payment of interest on the loan;
- (iii) the operation of the interest reserve account focusing on the dependence on the sponsor to top up the interest reserve account to the minimum specified level in cases where the withholding of free cashflow is insufficient to fund the interest reserve account; and
- (iv) the debt yield ratio at the end of each year during the loan term.

The debt yield ratio is defined as follows:

$$\text{Debt Yield} = [\text{Annual Net Operating Income}] / [\text{Total Loan Amount}]$$

The debt yield measures the amount of cashflow available from the PBSA relative to the loan amount and shows the lender how much income the property generates to cover the annual debt service on the loan.

The higher the debt yield, the more cashflow available to service the debt and therefore the lower the risk for the lender. The debt yield is used to ensure the loan size is not too large.

A lender experienced in lending on PBSA projects may have a minimum debt yield requirement which it uses for underwriting loans. The debt yield may therefore assist the lender in sizing a loan for a PBSA project and is likely to determine the amount of equity required from the developer and sponsor.

The LTV ratio at the end of the loan term will also be examined under the stress condition with value being determined on two possible bases: (i) market value for the sale of the PBSA as a going concern; and (ii) the vacant possession value of the PBSA.

9.3.2.2 Security Package for a PBSA Loan

The security package for the development loan of a PBSA is likely to consist of some or all the following:

- (i) A first ranking mortgage over the title to the property;
- (ii) Assignment of the construction contract, the associated contracts of the consultants to the construction, and the collateral warranties provided by the various contractors and consultants engaged in the construction of the PBSA;
- (iii) A charge over the bank accounts of the borrower and possibly its main subsidiaries;
- (iv) Assignment of insurance contracts related to the property including the business interruption policy;
- (v) Where the borrower outsources the operation of the PBSA to another entity, a duty of care agreement with the operator of the PBSA;
- (vi) A requirement for a debt service reserve account;
- (vii) A first ranking pledge over shareholder loans to the borrowing company;
- (viii) A first ranking pledge over the assets of the borrower; and
- (ix) A first ranking share pledge over the shares of the borrower and possibly its main subsidiaries.

9.3.2.3 Risks and Mitigants

Table 4 below lists the risks in a PBSA project for a lender and outlines possible means of mitigating the risks identified.

Table 4

Risk	Possible Means of Mitigating Risk
Marketing of the Completed PBSA	<p>Where a completed PBSA is likely to reach project completion before the end of an academic year or during the summer period of the academic year, there is a risk of the PBSA not achieving a high occupancy rate in its first academic year of operation.</p> <p>To mitigate this risk, the operator ought to have its website and social media marketing to potential students up and running long before the project completion to ensure a high level of occupancy during the first academic year of operation. An experienced sponsor and developer with a strong operating partner and a demonstrated history in managing this risk on the completion of other PBSAs helps to mitigate this risk.</p>
Bankruptcy of Contractor	<p>Use a “tier 1” contractor with a strong track record of on-time and on-budget delivery.</p>
Cost Overrun	<p>Use a fixed-price construction contract.</p> <p>Guarantee from the developer or sponsor for cost overrun albeit with an upper limit on the guarantee.</p>
Completion of the Development	<p>Choose a contractor with a strong track record of delivery of similar projects on-time and on-budget.</p> <p>Use of the project monitoring firm to monitor the construction work.</p>
Risk of an Increase in the Supply of PBSA in the Area	<p>This risk ought to be assessed by examining the [STUDENT]/[BED] ratio assuming: (a) no growth in student numbers over the term of the loan; and (b) PBSA projects that have been granted planning permission reach project completion during the term of the loan.</p> <p>A mitigating factor for (a) above is evidence of a strong trend in the growth of student numbers in the area while for (b) above, a mitigating factor is for the [STUDENT]/[BED] ratio to remain well above 2.5 during the term of the loan notwithstanding the additional PBSA projects that reach project completion during the term of the loan.</p>
Inflation of Building Costs	<p>Inflation of building costs can arise from a range of factors typically, rising wage costs for construction workers, rising costs of materials such as cement and steel, and scaffolding rental costs.</p> <p>Use a fixed-price design and build contract.</p> <p>Obtain a guarantee from the developer for cost overruns.</p> <p>Require the setting aside in a separate account controlled by the lender a sum of money equal to 5% to 10% of hard costs until the completion of the project.</p>

10 Office Real Estate Investing

10.1 Introduction

In this section of the paper, we explore the investment criteria an institutional investor might consider when buying an office block or a group of office blocks with a view to selling the portfolio on at a later stage.

The value of office buildings has fallen in the four years ending June 2024 due to lower occupancy rates and higher interest rates. However, the fall in value of office properties presents buying opportunities for institutional purchasers able to fund a significant proportion of the purchase price with equity capital.

10.2 Location

Ideally, an office block ought to be a good quality building, grade A, with quality materials, high quality finishings, have modern amenities; have a high energy performance rating; be in an area where demand for high quality offices outstrips supply; and have plenty of natural light on all sides, and high ceilings. Offices with lower head height and less natural light rent for lower cost per m².

The area ought to be affluent, well serviced by public transport, which is within a short walking distance, accessible to cars, and provide commuters with a wide range of shopping, restaurant, and other amenities.

10.3 Seller

It is useful to know the reason why the seller is disposing of an office block as that may inform the buyer's approach to due diligence and price offered. For example, if a pension fund or insurance company is selling the office block to fund payments to pensioners or redemptions respectively, certainty of execution may be a key consideration for the seller in choosing from a group of potential buyers. Buyers for whom obtaining debt financing is a condition precedent of the sale and purchase agreement ("SPA") are unlikely to be entertained by the seller. In such a case, a buyer who has the equity capital to complete the purchase while running the risk of closing unleveraged may be able to negotiate a lower price. To secure a property in these circumstances of sale, a buyer needs to have solicitors, surveyors, and funds in place at the time of making an offer.

10.3.1 *Buying from a Receiver*

Receivers generally wish to dispose of a property quickly and will not provide any guarantee in relation to the title to a property. Therefore, the buyer faces the risk that the property may be subject to charges, covenants, or other interests that take precedence over those of the buyer. When buying from a receiver, buyers should ensure that the receiver is validly appointed, check that outstanding charges registered against the property have been discharged, and that the discharges have been appropriately registered with the relevant registry in the required format.

A buyer from a receiver may consider taking out an insurance policy to insure against this risk.

10.4 Initial Considerations

Assuming the location of the office is close to public transport and local amenities, a range of key parameters might include the following:

- (i) Date of completion of construction of the office block;
- (ii) The energy efficiency rating of the office block; office blocks with poor energy efficiency ratings require CAPEX to bring them up to energy efficiency standards imposed by regulation;
- (iii) Size of the office block in metres square (m²), the number of floors, the gross lettable area (“GLA”) in m², the ratio of GLA to net lettable area¹², the distribution of the GLA across the various floors, and the number of car parking spaces;
- (iv) Percentage of the office block occupied including the number of tenants that use the office as a headquarters for their business and the percentage of contracted rent that such tenants represent;
- (v) Number of government or quasi government tenants, the percentage of contracted rent that such tenants represent, and an indication as to whether they are looking to increase their share of the floor area should it become available for lease;
- (vi) The number of tenants and their percentage of contracted rent that have given notice to terminate their lease at the next break point in the lease;
- (vii) Fit with the investor’s existing portfolio of properties;
- (viii) Vacancy rate of the office block;
- (ix) Weighted average unexpired lease term (“WAULT”);
- (x) Differences between the passing rent and the contracted rent¹³ as passing rent may lag the contracted rent until the next rent increase takes effect under the terms of the lease;
- (xi) Tenant arrears in the last two years, preferably none; and
- (xii) The parameters in Table 5.

¹² Net lettable area is significantly reduced below gross lettable area by a number of factors such as poor floor plate design, HVAC systems and ductwork, and if there are large areas given over to reception or atriums.

¹³ The contracted rent is the rental rate specified in the lease contract, which may differ from the passing rent if there are pre-determined rent increases built into the lease structure.

Table 5

Parameter	Explanation of Parameter
Value of Asset	As determined by a professional valuer.
Net Asset Price	The net asset price will reflect deductions from the value of the assets for capital expenditure (“CAPEX”) which the seller should have carried out such as fire safety upgrades and which will need to be remedied immediately upon purchase of the office block.
Passing Gross Yield to Purchaser (“YtP”)	<p>Passing Gross Yield to Purchaser is a metric that calculates the initial gross income yield a purchaser would receive based on the property's actual in-place gross rental income at the time of acquisition.</p> <p>Passing Gross YtP = [Current Gross Rental Income] / [Purchase Price]</p> <p>Current Gross Rental Income = The total annual rental revenue being received from existing tenants under their current leases.</p> <p>Passing Gross YtP looks solely at the top-line gross rental income stream, before deducting any operating expenses. Investors will analyse the Passing Gross YtP alongside metrics like the Passing Net YtP (using net operating income instead of gross rental income) and Reversionary Yield¹⁴ metrics that account for rental growth.</p>
Passing Net Yield to Purchaser (“YtP”)	<p>Passing Net Yield to Purchaser is a metric to evaluate the current income yield on a property based on the actual in-place net operating income.</p> <p>Passing Net YtP = [Current Net Operating Income] / [Purchase Price]</p> <p>Current Net Operating Income = The property's actual annual rental income minus operating expenses based on existing leases.</p> <p>The Passing Net YtP calculates the yield or return the purchaser would receive in the first year based solely on the net income being generated by the property at the time of acquisition. It does not account for any future rental income growth or reversions to market rental rates.</p> <p>The Passing Net YtP allows investors to analyse the initial stabilised yield on their investment given the rents and occupancy at purchase. It can then be compared to market cap rates and other benchmark yields. This metric is often compared with Reversionary Yield metrics that project the reversion potential to market rents and the upside yield upon lease rollovers.</p>

¹⁴ Reversionary yield refers to the anticipated yield of a property based on its estimated rental value (“ERV”) at the end of the current lease term or upon rent review, rather than its current passing rent. It is calculated by dividing the ERV by the property's current market value.
 Reversionary Yield = [Estimated Rental Value] / [Current Market Value].

Table 5 (continued)

Parameter	Explanation of Parameter
<p>Reversionary Gross Rental Income</p>	<p>Reversionary Gross Rental Income is the potential total gross rental revenue a property could achieve if all existing leases were renewed or rolled over to current market rental rates upon expiration.</p> <p>Reversionary Gross Rental Income = [Sum of all leasable space at the property] x [Current Market Rental Rates]</p> <p>It looks at the total potential rental income by applying current market rental rates across 100% of the leasable areas, ignoring any existing below-market or above-market lease terms.</p> <p>This Reversionary Gross Rental Income figure does not account for any operating expenses or vacancy factors.</p> <p>Investors analyse the Reversionary Gross Rental Income compared to the property's current in-place gross rents to gauge the rental upside or reversion potential as leases roll over time.</p> <p>For example, if a property's actual current gross rents are EUR1.2m but the Reversionary Gross Rental Income at market is EUR1.5m, there is a potential EUR300,000 rental upside available.</p> <p>The Reversionary Gross Rental Income metric allows buyers to examine the revenue growth and unleased rental upside that may exist, especially for properties with considerable existing leases below market rental rates.</p>
<p>Reversionary Net Rental Income</p>	<p>Reversionary Net Rental Income is the projected net rental income a property could achieve if all existing leases were renewed or re-set to current market rental rates upon expiration <i>less</i> operating expenses.</p> <p>Reversionary Net Rental Income is calculated as: Reversionary Net Rental Income = [Estimated Potential Gross Income at Market Rents] – [Projected Operating Expenses]</p>
<p>Reversionary Gross YtP</p>	<p>Reversionary Gross YtP = [Estimated Gross Market Rental Value] / [Purchase Price]</p> <p>This calculates the expected gross yield if the property's rental income reverts or resets to estimated gross market rental values upon lease expiries or renewals. It does not account for any operating expenses.</p>
<p>Reversionary Net YtP</p>	<p>Reversionary Net YtP = [Estimated Market Rental Value - Operating Expenses] / [Purchase Price]</p> <p>The net reversionary YtP factors in the recurring property operating costs.</p>

Table 5 (continued)

Parameter	Explanation of Parameter
<p>Reversionary Gross Yield to Cost (“YtC”)</p>	<p>Reversionary gross yield to cost is a metric that calculates the expected income yield based on estimated gross market rental income if all existing leases were reversed or reset to current market rents and the all-in costs of acquiring and repositioning a property. The all-in costs are the sum of purchase price, acquisition fees, transfer taxes, closing costs, upfront capital expenditures, lease-up costs for vacant space, and carrying costs during renovation/lease-up.</p> <p>Reversionary Gross YtC provides a view of the maximum potential unleveraged yield an investor could achieve based on capturing full market rental rates on the property expressed as a return on the total invested capital required to acquire and reposition the asset. It does not consider any operating expenses.</p> <p>Reversionary Gross YtC = [Estimated Gross Market Rental Value] / [Total Acquisition & Repositioning Costs].</p>
<p>Reversionary Net YtC</p>	<p>Reversionary Net YtC = [Estimated Market Rental Value - Operating Expenses] / [Total Acquisition & Repositioning Costs]</p> <p>Operating Expenses include recurring expenses like taxes, insurance, maintenance, utilities etc.</p> <p>The Reversionary Net YtC factors in the recurring operating costs to show the potential unleveraged net yield after reversing rents to market and stabilising operations.</p> <p>It represents the net cash flow an investor could achieve, as a percentage of their total invested capital in acquiring and repositioning the asset.</p>
<p>Service Charges</p>	<p>Understanding service charges and whether there is a legally enforceable cap on service charges is important in assessing the extent to which it may be possible to pass on a percentage of CAPEX costs to tenants. The percentage to be passed on will be determined by the need to keep the total costs, service charge plus rent, of tenants competitive.</p>

In terms of fit with the investor’s existing portfolio, the office block should contribute to the diversification of the portfolio by adding a prime property with limited leasing risk, provide attractive financial returns, and increase the size of the portfolio so that it becomes a more attractive portfolio to sell to other institutional investors seeking a stabilised portfolio.

An office block with many tenants is not efficient for a landlord as it is difficult to meet the requirements of all tenants. Interestingly, in the post-COVID era, the demand for smaller floorplates has increased as companies reduce their office space requirements due to hybrid working policies. The highest paying tenants normally require large floor plates. Consideration might be given to the cost of altering the floor plate to reduce the number of tenants per floor. In an area where there is an excess of demand for office space over supply of office space, being able to offer high quality tenants willing to pay market rates larger floor plates is an advantage and may help to reduce the number of tenants. Tenants who considered

servicing notice to leave at a break date, but who missed their break date notice should be approached for an early surrender if that would create a larger floor plate in combination with another tenant whose lease is up for renewal and may not wish to pay the estimated rental value (“ERV”).

Ideally, the vacancy rate of the office block should be less than 5% of GLA.

Leaving aside other considerations, if the WAULT is more than 4 years, it is likely to provide for a resale of the office block in three years’ time.

10.5 Due Diligence

10.5.1 *Commercial Due Diligence*

The commercial due diligence should verify the excess of demand over supply by such factors as a five-year track record of: (i) low percentage vacancy rates; (ii) high and rising m² take-up rates; (iii) strong evolution of prime rents; and (iv) a limited amount of future supply of grade A stock coming on stream. These conditions facilitate a reversion of passing rents¹⁵ to current market rents when leases expire and represent a value-add opportunity for an investor.

The commercial due diligence ought to provide:

- (i) a table covering a three-year history of office lease transactions for comparable buildings in the location showing: (i) GLA in m²; (ii) rent in EUR/m²; and (iii) name of tenant; and
- (ii) a table showing: (i) area in m²; (ii) number of floors; (iii) occupancy rate; (iv) name of building owner; and (v) the minimum, average, and maximum rent per m² per annum for comparable buildings in the location.

Trends indicated by the commercial due diligence ought to be confirmed by several local brokers and estate agents.

10.5.2 *Technical Due Diligence*

When purchasing an office block with a view to a sale in the future, a key area of the due diligence focus is likely to be on the technical due diligence because of its implications for capital expenditure (“CAPEX”). Certainly, the building ought to be high quality in good maintenance condition with no requirement for structural CAPEX.

In the E.U., energy efficiency requirements are driving significant increases in CAPEX for existing commercial buildings. While these investments can be substantial, they are increasingly viewed as necessary for long-term competitiveness, regulatory compliance, and risk management in the commercial real estate sector. Building owners and managers are having to carefully balance immediate costs against long-term benefits and regulatory

¹⁵ The passing rent is the current rent being paid by the tenant under the existing lease agreement. It is the actual rental income stream the landlord is receiving from that tenant at any given point in time during the lease term.

requirements.

10.5.3 *Legal Due Diligence*

Legal due diligence ought to review the seller's right to dispose of the property, title documents of the land and building, third party rights, easements, the planning documents, the sale and purchase agreement ("SPA"), and any loan agreement to provide finance for the transaction.

10.5.4 *ESG Due Diligence*

To provide the right amenities for today's standards of working environment, an investor may well consider CAPEX to enhance the common areas by including a number of the following:

- (i) a roof-top lounge and collaborative working spaces;
- (ii) replace existing light bulbs with energy saving light bulbs and introduce motion sensors to control lighting;
- (iii) upgrade to efficient air conditioning equipment to reduce electricity consumption;
- (iv) introduce energy efficient windows;
- (v) install smart electronic equipment with energy saving features at weekends and at nights;
- (vi) provide bicycle racks;
- (vii) install electric vehicle chargers; and
- (viii) install photovoltaic production systems for sustainability and energy efficiency.

The ESG due diligence ought to provide assurance that the asset is in compliance with legislation and any relevant building codes.

CAPEX may also aim to increase the environmental, social, and economic sustainability performance rating of the office block to bring it up to, say, Leadership in Energy and Environmental Design¹⁶ ("LEED") category "Gold" or its approximate equivalent Building Research Establishment's Environmental Assessment Method¹⁷ ("BREEAM") category "Very Good."

10.5.5 *Due Diligence on the Strength of Tenants' Covenants*

Aside from static credit assessments designed to assess ability to pay and provided by credit rating entities, an assessment of the strength of a tenant's commitment to the space might be made by considering the answers to a number of questions such as:

- (i) Is the rent a high proportion of the tenant's operating expenditure?
- (ii) Is the location a head office location for the tenant and are the senior management of the organisation located in the office unit?

¹⁶ LEED is a global "green" building certification programme which was developed by a U.S.-based non-profit, Green Building Council, covering rating systems for the design, construction, operation, and maintenance of green buildings.

¹⁷ BREEAM is a widely used sustainability rating system for buildings and construction projects in the U.K. and Europe. The "Very Good" rating is the 4th highest rating level out of six levels in the BREEAM certification scheme. To achieve a "Very Good" BREEAM rating, a building project must: (i) incorporate best practices in sustainable design, construction, and operation; (ii) demonstrate low environmental impact in areas like energy, water use, pollution, materials; and (iii) achieve minimum standards and credits across several environmental categories.

- (iii) Has the tenant recently renewed its lease?
- (iv) Has the tenant sought extra space in the office block in recent times and was it made available to the tenant?
- (v) Is the tenant's unit in the office block the only sales and marketing office for the company in the territory?
- (vi) Has the tenant been approached to reduce its space and rejected the approach?
- (vii) Is the tenant on a recruitment drive seeking to hire more staff?
- (viii) Has the tenant moved from a smaller office space into its current larger office space?

Identify tenants who considered serving notice to leave at a break date but who missed their break notice.

10.5.6 *Visiting the Office Block*

Several visits to the office block should be made. Visits should be spread across different days of the week and at different times of the day to assess the following:

- (i) The level of occupancy of any car park associated with the office block; a vibrant office ought to have at least 2/3rds of the car park filled on most days of the week;
- (ii) The occupancy of the individual rental units in the office block; a vibrant office block should be between 50% and 75% occupied by staff of the tenant companies on most days of the week;
- (iii) The extent to which individual tenants have invested in the fit out and amenities offered to their staff; this demonstrates the tenant's commitment to its space and would typically consist of pleasant breakout areas and a large, well-equipped kitchen area;
- (iv) The finish of the common areas of the office block; and
- (v) The extent to which the office block is surrounded by green space and other recreational amenities.

It is always useful to spend time talking with staff working for the facilities management company as they may be able to provide insights into issues and patterns of behaviour not evident from a small number of visits to the office block.

10.6 Business Plan for the Office Block

The investor ought to develop a business plan for the office block over the course of the holding period. The business plan would cover such matters as CAPEX, lease management, and the sale of the office block at the end of the holding period.

10.6.1 *CAPEX*

CAPEX might include upgrading the energy rating of individual units up to Energy Performance Certificate ("EPC") rating A or at least EPC rating B ahead of disposal, refurbishment of units becoming vacant during the holding period, and upgrade to HVAC systems and lifts to improve their energy efficiency. Such CAPEX is viewed as increasingly

viewed as necessary for long-term competitiveness, regulatory compliance, and risk management in the commercial real estate sector. The impact of any voids on rental income arising from CAPEX should also be considered. The business plan should identify the works to be undertaken, a timetable for the works, and contain a budget for CAPEX.

10.6.2 Lease Management

During the holding period, tenants not making use of all their space might be approached with a view to an early surrender of their lease in return for an upfront payment so that the space might be rented to other tenants at a higher rent. Units becoming vacant during the holding period might be considered for light refurbishment and leased as soon as possible to improve the WAULT of the office block.

10.6.3 Exit

The business plan should consider the range of buyers for the property at the end of the holding period. These may include existing tenants, private investors, and institutional investors. For the purpose of selling the property by the end of the holding period, the building should be fully refurbished, and the rent should be stabilised reflecting the income returns achievable in the general area in which the office block is located.

10.7 Risks and their Mitigation

The key risks for a purchaser holding an office block for a period are likely to be: (i) the extent of CAPEX during the holding period; (ii) the ability to release space that becomes vacant by finding new tenants at the ERV; and (iii) the cap rate at exit. Table 6 presents each risk and how it might be mitigated.

Table 6

Risk	Possible Means of Mitigating Risk
<p><u>CAPEX Risk</u> The risk is cost overruns and tenant disruption.</p>	<p>CAPEX risk can be mitigated by using a contractor with a track record of on time and on budget delivery of CAPEX projects. The CAPEX risk is further mitigated when the works are relatively straight forward and do not involve any significant tenant disruptions.</p>
<p><u>Leasing Risk</u> Trying to retain existing tenants whose lease has expired or find new tenants at the ERV.</p>	<p>Leasing risk is mitigated by a relatively long WAULT relative to the investor’s holding period. This limits the amount of releasing of units to be done over the holding period. A shortage of grade A space in the locality at the rent being sought by the owner of the office block also diminishes leasing risk. Leasing risk is further mitigated when the passing rent is lower than that of comparable offices in the area and the demand for office space in the area outstrips supply.</p>
<p><u>Exit Risk</u></p>	<p>The ability to hold on to an office block for longer than expected to get a lower exit cap rate is a key means of mitigating exit cap rate risk. The risk is also mitigated by location, high occupancy, the improvements to the office block arising from CAPEX, and the continuation of the supply demand imbalance in the area.</p>

10.7.1 *Exit Cap Rate*

A paper entitled “*Determinants of Cap Rates Across Multifamily, Industrial, Retail, and Office Asset Classes*” from the Economics Department, University of North Carolina at Chapel Hill, by Morgan Tsui, dated September 2023 provides some interesting insights into the possible issues to consider in relation to the choice of exit cap rate. The paper covers average cap rates from 2000 to Q1 2023 in the U.S. and reaches the following conclusions:

- (i) The **10-year US treasury yield had the highest impact on average office cap rates.**
- (ii) The average spread of office real estate cap rate over the 10-year treasury yield in the period ranged from just over 4.5% to 0.5%.
- (iii) Of the four categories of real estate examined in the paper, past cap rates were least impactful for office real estate.

10.8 Financial Projections

The financial projection will need to assume an exit cap rate and estimate the exit NOI. They will tend to focus on the internal rate of return on equity capital on both a leveraged and an unleveraged basis, collections of rent over the holding period, profit, and the multiple on invested capital (“MoIC”).

10.8.1 *Leverage*

Leverage can be created by financing the acquisition by borrowings. Leverage can potentially increase the investor’s IRR. To obtain leverage, the investor ought to engage several banks to tender for the finance of the acquisition. The quotations requested will be for a loan which will be repaid at the end of a term longer than the expected holding period or for a term equal to the expected holding period and a loan-term extension option. This is to allow for flexibility in the timing of the sale of the office block around the expected holding period. The quotation parameters are likely to be:

- LTV percentage which is unlikely to be above 55%;
- Basis points margin over the reference floating rate;
- Whether the lender requires any portion of the loan to be amortised over the loan term;
- Arrangement fee; and
- Any fee to extend the loan for a limited period which is unlikely to be longer than 18 months.

10.8.2 *Stress Tests*

The financial projections for the investment holding period ought to be conservative in their assumptions as to the length of time it takes to release a unit in the office block and therefore the length of voids where no rental income is received. To assess the impact of such factors, an investor is likely to carry out a range of stress tests.

The financial projections should be stressed for: (i) longer than expected holding periods ranging from 3 to 24 months longer than planned in 3-month steps; (ii) lower than expected

future rental rates by m^2 by an appropriate amount; (iii) a margin above current comparable cap rates considering the likely trend in reference interest rates.

Normally, the stress tests outputs are shown in tables which examine the movement in two variables at a time. Sample output might examine the impact of changes in the following pairs of variables:

- (i) CAPEX overrun of up to 25% relative to budget in steps of 5% *versus* changes in expected rental values per m^2 per annum ranging from +EUR50 to -EUR50 in steps of EUR10;
- (ii) Delays of up to 18 months in releasing office units that become vacant during the holding period in steps of 3 months *versus* changes in expected rental values per m^2 per annum ranging from +EUR50 to -EUR50 in steps of EUR10; and
- (iii) Changes in the exit cap rate from -100bps to +400bps in steps of 50bps *versus* the occupancy rate of the office block at exit ranging from 100% to 75% in steps of 5%;

on the internal rate of return (“IRR”) and the MoIC of the equity capital invested.

11 Industrial and Logistic Real Estate Investing

To illustrate the issues with industrial and logistics real estate, we shall assume that a developer with significant equity finance is seeking to acquire a site, develop a number of industrial or logistic buildings, lease them, and sell the portfolio once the rents have been stabilised.

11.1 Location

Industrial and logistics buildings are best located: (i) where there is an established industrial or logistics hub which is home to many different types of companies; (ii) a short distance from a ring road with access to multiple different arterial routes within the country; (iii) close to public transport for ease of employee access and ample parking spaces for employees and visitors; (iv) nearby an international airport or sea port; and (v) in an area where there is an excess of demand for industrial and logistics buildings over supply.

11.2 Supply-Demand Assessment

Any decision to develop or invest in industrial or logistics real estate must begin with a thorough investigation of supply and demand for the type of industrial or logistics buildings under consideration. It is useful to conduct the supply-demand assessment at both a national level and the level of the sub-market where the industrial or logistics buildings under consideration are or are to be located.

11.2.1 *Vacancy Rate*

On the supply side of the supply-demand assessment, vacancy rates are a key indicator of the health and performance of a particular property type or market segment. The vacancy rate is measured as the percentage of the total available space that is currently unoccupied or vacant using the following formula:

$$\text{Vacancy Rate} = [\text{Vacant Space in m}^2] / [\text{Total Rentable Space in m}^2] \times 100$$

where:

- (i) **Vacant Space in m²** is the total rentable area in m² that is currently not leased or occupied by any tenant in the relevant region. This includes spaces that are actively being marketed for lease as well as spaces that are simply sitting vacant; and
- (ii) **Total Rentable Space in m²** is the total rentable area in m² of the property that is available for lease in the relevant region. It includes both occupied and vacant spaces.

Examine the current vacancy rate and the five-year trend in the vacancy rate both nationally and at the submarket level. A current vacancy rate below 5% both as national and submarket level combined with:

- (i) a downward trend in the vacancy rate over the last five years; and
- (ii) a downward trend in supply over the same period

generally, indicates a higher demand for the type of property in the given market, while a higher vacancy rate may suggest an oversupply or weaker demand.

Significant differences between the national and submarket vacancy rates require explanation particularly where the national vacancy rate is significantly above the submarket level.

11.2.2 *Take-up Rate*

On the demand side of the supply-demand assessment, the take-up rate for a type of property refers to the amount of space that has been newly occupied or leased in a market in a one-year period. Again, it is useful to examine the take-up rate at both national and submarket level.

The Net Take-up Rate is defined as:

$$\text{Net Take-up Rate} = [\text{New Space Leased in m}^2] - [\text{Space Vacated in m}^2]$$

whereas the Gross Take-up Rate is defined as:

$$\text{Gross Take-up Rate} = \text{Total New Space Leased in m}^2$$

The Net Take-up Rate measures the change in the total occupied space over a year considering both new leases and spaces that have been vacated whereas the Gross Take-up Rate measures only the total amount of new space that has been leased or occupied during the period, without accounting for any vacated space.

The trend in both the Net Take-up Rate and the Gross Take-up Rate over the most recent 5-year period ought to be examined and it may be useful to assess the extent to which the two take-up rates are above or below their long-term average rates.

A high take-up rate for a particular property type, size, and grade in a region generally indicates strong demand and a healthy market, while a low take-up rate may signal weaker demand or an oversupply of space.

11.2.3 *Vacancy Rate and Take-up Rate – Drawing Conclusions*

For project decision making purposes, the vacancy rate needs to consider both:

- (i) units due for delivery during the lifetime of the proposed project; and
- (ii) current vacant space.

This should then be assessed in terms of the number of months it would take to absorb all the space in (i) and (ii) above based on the most recent annual take-up rate.

Where it is possible to obtain the data, it may be useful for decision making to understand:

- (i) the extent to which take-up occurred before the completion of new industrial and logistic building projects as this gives an indication of the length of the void period for new developments;

- (ii) the distribution of the size range¹⁸ in m² of transactions; and
- (iii) grades of quality, such as Grade A space, transactions.

11.3 Technical Specification

The technical specification of an industrial or logistics property ought to score highly under the following headings:

- (i) Accessibility as described in section 11.1 (Location);
- (ii) A minimum free height in the production or storage area of 8m;
- (iii) Modular to meet a range of tenant size demands;
- (iv) Office units located on a mezzanine floor with natural light from windows, quality air conditioning, and sound proofing probably making up between 10% and 30% of the gross floor area¹⁹;
- (v) Roof mounted solar panels and electric vehicle charging points in the parking area;
- (vi) Loading bays for medium-sized trucks for units below 1,000 m² in size and loading bays for larger trucks for units above 1,000 m² with at least 35m of turning room for trucks; and
- (vii) Biodiversity.

Technical specification can be a key differentiating factor in terms of leasing and ultimately in terms of the sale of the portfolio of industrial and logistics buildings. Ideally, there should be no industrial and logistics buildings of similar quality available in the submarket.

11.4 Rents

The ERV is another key consideration in assessing the financial merits of industrial or logistics real estate acquisition or development.

The ERV of an industrial or logistics property is based off current market rental rates for the generic type of property with adjustments for the location, size range, condition, ESG credentials, and amenities offered by the property. A survey of comparable rents in the submarket ought to be carried out considering the location, size range, condition, ESG credentials, amenities offered, and WAULT of the comparable property.

It would be important to examine the trend in rental values over the last five years for prime industrial and logistics real estate. Ideally, an investor would like to see a compound annual growth rate of rents of at least 3% per annum.

11.5 Commercial Due Diligence

Commercial due diligence is likely to focus on an assessment of supply-demand and the rents that can be charged by seeking a view from international and local real estate agents on the

¹⁸ Sizes might be split into eight categories as follows: < 250m², 250 – 500 m², 500 - 1,000 m², 1,000 - 1,500 m², 1,500 – 2,000 m², and > 2,000 m².

¹⁹ The percentage varies widely between jurisdictions and are influenced by such factors as planning laws on mixed use buildings, property tax classification considerations, and industry specific needs.

proposed project in terms of its size, its specifications, its ESG credentials, its location, potential term of leases, and the sensitivity of the developer’s exit cap rate to all those factors.

11.6 Risks and Mitigation of Risks

Aside from the development risks covered in section 8 (Real Estate Development), the main risk for an investor or developer of industrial and logistic properties is the ability to lease the property. The possible means of mitigating the risks are shown in Table 7.

Table 7

Risk	Possible Means of Mitigating Risk
Bankruptcy of Contractor	Use a “tier 1” contractor with a strong track record of on-time and on-budget delivery.
Unable to Lease Unit	This risk can be mitigated by creating modular sized units which can be combined to meet different size category requirements of tenants. Due diligence ought to show a history of consistent demand for leased space over a period of at least five years.
Oversupply	The development ought to have distinguishing characteristics such as: (i) divisible into units of different sizes to meet different tenant size demands; (ii) in a good location; (iii) good clear height in the storage or production area; (iv) high quality preferably Grade A; (v) easy truck access; and (vi) have excellent ESG characteristics such as BREEAM rating ‘Very Good’ for the industrial or logistics areas and BREEAM ‘Excellent’ for any associated offices in such buildings.
Rental Growth Rate Slows	Due diligence ought to demonstrate a 5-year track record of strong rental growth. The base financial projections for the project should assume the compound annual rate of rental growth over the past five years.
Cap Rate Increases	The base line financial projections ought to assume that the cap rate increases by 100bps. Further, stress tests ought to confirm that further increases in cap rate do not lead to a loss on the development project.
Availability of Debt Finance	The debt finance should be arranged in parallel with the project due diligence and be confirmed before the acquisition of the land and the commencement of development works.

11.6.1 Exit Cap Rate

A paper entitled “*Determinants of Cap Rates Across Multifamily, Industrial, Retail, and Office Asset Classes*” from the Economics Department, University of North Carolina at Chapel Hill, by Morgan Tsui, dated September 2023 provides some interesting insights into the possible issues to consider in relation to the choice of exit cap rate. The paper covers average cap rates from 2000 to Q1 2023 in the U.S. and reaches the following conclusions:

- (i) Of the four categories of real estate examined in the paper, **past cap rates were the most impactful for industrial real estate.**
- (ii) The 10-year US treasury yield had the least impact on average industrial cap rates of the four categories of real estate examined in the paper.
- (iii) The average spread of industrial real estate cap rate over the 10-year treasury yield

in the period ranged from 5% to just under 1%.

11.7 Exit Strategy of Developer

The developer's business plan is likely to consider the target market for the sale of the completed units when fully let. Possible purchasers include: (i) institutional investors looking to diversify their property portfolio to include industrial and logistics real estate with stabilised rents; and (ii) tenants seeking to buyout their units. The target market in (i) requires a deep understanding of the overall size of an industrial and logistics real estate park, the size of units within the park, and the locations in which potential purchasers are looking to buy.

11.8 Data Centers – A Class of Industrial Buildings

Data centers house servers, computing equipment, and data storage systems for businesses and organisations.

Let's look at two familiar examples of the use of data centers:

- (i) Employees working remotely or travelling for work need access to their employer's data which is typically stored in a data center that can permit access from anywhere in the world; and
- (ii) Customer data for every online transaction involving the purchase goods or services likely passes through a data center to facilitate the transfer of information to the order fulfilment agent and to the merchant for accounting purposes.

Data center landlords provide dedicated space, power, and cooling environment for their tenants to operate their data servers in the data centres. Tenants include: (i) cloud service providers such as Microsoft, Google, AWS, Oracle, and Alibaba; and (ii) large platform operators such as SAP, Meta, Salesforce, Apple, and Nvidia.

With the growth of artificial intelligence ("AI") and generative artificial intelligence ("GenAI") there is likely to be a significant increase in demand for data centers and for that reason we focus on this segment of the industrial and logistics real estate market.

Due to the unique design requirements, operational demands, and the sophisticated infrastructure required by data centers compared to traditional industrial buildings like warehouses or factories, data centers might be regarded as a distinct asset class due to their increasing importance in the digital economy and the specific expertise required in developing, managing, and leasing these specialised facilities.

However, data centers are generally included in the category of industrial buildings in the real estate industry for several reasons:

- (i) They are primarily used for industrial or technological purposes, like manufacturing plants, warehouses, or distribution centers.
- (ii) They tend to have similar physical characteristics as other industrial buildings, such

as high ceilings, large open floor plans, robust electrical and cooling systems, and heavy-duty infrastructure to support the specialised equipment and high-power demands.

- (iii) They are typically located in areas zoned for industrial or heavy commercial use, away from residential neighbourhoods due to their high energy consumption, noise levels, and security requirements.
- (iv) The primary tenants of data centers are technology companies, telecommunications firms, cloud service providers, and enterprises with significant data storage and processing needs, which align with the industrial tenant base.

11.8.1 *Artificial Intelligence and Data Centre Demand*

As AI and GenAI technologies continue to advance and become more integrated into various industries and applications, the demand for the computational resources, storage capabilities, and scalability offered by data centers is expected to increase significantly. GenAI and AI technology will likely increase the demand for data centers for a number of reasons including:

- (i) AI and GenAI systems require immense computational power for training and inference. These models often have billions of parameters, and their training and operation demand massive parallel processing capabilities that can only be provided by high-performance computing infrastructures found in data centers.
- (ii) AI and GenAI systems require access to vast amounts of data for training and fine-tuning. This data needs to be stored and managed efficiently, which necessitates the use of large-scale data storage facilities found in modern data centers.
- (iii) As the adoption of AI and GenAI technologies increases across various industries, there will be a growing need for scalable and highly available computing resources. Data centers are designed to provide the necessary scalability, redundancy, and fault tolerance to support these demanding workloads.
- (iv) Many AI and GenAI services are delivered through cloud computing platforms, which rely heavily on data centers. As the demand for these services grows, cloud providers will need to expand their data center infrastructure to meet the increasing computational and storage requirements.
- (v) Training and running large AI models can be energy intensive. Data centers are designed to optimise energy efficiency through advanced cooling systems, power management techniques, and the use of renewable energy sources with battery storage, making them well-suited for AI workloads.
- (vi) AI systems often process sensitive data, such as personal information or proprietary data. Data centers offer robust security measures, including physical security, access controls, and compliance with data privacy regulations, which are essential for the deployment of AI applications.

Server racks for cloud computing are estimated to consume just one quarter of the power of server racks for AI computing. With the growth of AI and GenAI, there is likely to be a significant increase in demand for more specialised data centres which are located close to both a source of electrical power and a source of water to cool the AI and GenAI server racks. Some

AI applications, such as real-time speech recognition, natural language processing, or image & video analysis, require low-latency processing capabilities. Data centers located close to end-users can provide the necessary low-latency infrastructure for these applications.

According to FT.com²⁰, on Monday 1 July 2024, Google reported its emissions jumped nearly 50 per cent over the past five years due to data centre expansion.

Data centers may come up against an impossible trinity of: (i) a country's growing general demand for a reliable source of electricity; (ii) electricity that is affordable for the vast majority of customers; and (iii) electricity that is generated sustainably. While it may become impossible to have all three at the same time, one may have any two at the same time. To 'solve' the trilemma, regulatory authorities may ultimately impose taxes or tariffs on renewable electricity sources used by data centers.

11.8.2 *Data Center Demand*

As the use of AI and GenAI grows across all segments of society, the demand for data storage space will increase exponentially adding further to the existing competition for data center space. Currently, in both the U.S. and most of Europe, prime data center real estate is generally pre-leased in the early stages of construction. According to a report by PGIM Real Estate²¹, the global co-location data centre market is set to grow at a compound annual growth rate of 11.3% through to 2026. The drivers of this demand include: (i) the adoption of AI and GenAI; (ii) the movement of more data to the cloud; (iii) growth in the Internet of Things; and (iv) increasing number of customers using 5G Internet speeds.

11.8.3 *Data Center Vacancy Rates and Rental Rates*

Average data centre vacancy rates in the key North American Tier 1 markets are now less than 3%²² while in the world's most constrained data center market, Singapore, they are less than 2%, highlighting the challenges on the supply side. In areas where it is difficult to expand capacity, rental rates are soaring, and any available capacity is quickly being leased.

11.8.4 *ESG and Location Issues for Data Centers*

Data centers need to be located: (i) close to an abundant source of highly reliable electrical power and an abundant source of water for cooling the equipment; (ii) a source of construction workers to build the data center; and (iii) a source of IT engineering personnel to fit out the data center with servers, firewalls, routers, storage devices, security access systems, etc.; and (iv) a source of personnel who will maintain the data center. As the energy cost of operating the cooling equipment scales with ambient temperature, locations with a high percentage of ambient temperatures throughout a year below a threshold level may be preferred all other factors being equal. While the threshold temperature will vary with the specific equipment,

²⁰ Source: Amanda Chu, U.S. Energy Reporter, FT.com 4 July 2024.

²¹ Source: <https://www.pgim.com/real-estate/commentary/data-center-growth-abounds-digital-age>

²² Source: PGIM Real Estate. The vacancy rate is down from 10% in 2018.

cooling system design, and energy efficiency goals, 20°C to 25°C range is widely accepted as a reasonable target for maximising free cooling opportunities and minimising energy consumption for cooling while maintaining optimal server performance. While multi-story construction of data centers is possible, data center construction tends to be confined to a single floor because of the floor load-bearing and cooling requirements of data centers. Most data center buildings whether measured by square area, number, or megawatt consumption tend to be in areas where there is an abundance of land.

Obtaining planning permission for a data center faces several major hurdles. Table 8 identifies the hurdles and comments on their possible resolution.

Table 8

Type of Hurdle Faced	Comment
Land zoning or re-zoning issues	A hyperscale data center would require between 9,000m ² and 14,000m ² of space. Finding that size of space with appropriate zoning, access to high-voltage electrical power with an additional capacity of between 60 and 120 MW or more depending on the specific models, hardware, and which is serviced by fibre-optic telecommunications is challenging. In areas where local authorities have lost property tax revenue due to the closure of retail outlets or the reduction in the number of offices, there may be a greater willingness on the part of local authorities to rezone land for use by data centers to replace lost property tax revenues from retail closures or reductions in the number of offices.
Electrical grid capacity	In view of their electricity consumption, data centers pose a significant challenge in the planning of the generation and transmission network of a country especially where the country does not have an interconnector with other countries to support demand growth and demand surges. The impact on the electrical grid becomes a significant issue if more fossil fuels will be needed to deliver the electrical power. Using renewable source of electricity such as solar power and battery storage contribute to a lessening of the impact on the electrical grid. Small modular reactors ²³ producing minimal emissions are also being considered to meet the energy needs of data centers in a reliable and responsible manner.
Water usage particularly in areas of water shortage	Energy efficient cooling systems can reduce water usage in cooling systems.
Development lead time and cost	The application for planning permission and accessing the electrical power requirements and the water demands of a data center requires significant engagement with planning, regulatory, and environmental agencies. A four-year lead time would not be unusual. The cost of building a hyperscale data center of size 14,000m ² depends on the location, the building cost per square meter, and the number of megawatts of commissioned IT load, but could range from EUR250m to EUR1,000m. ²⁴
Staffing	Data center staffing can be grouped into three broad areas: <ol style="list-style-type: none"> 1. Shift personnel for round the clock operations such as security personnel. 2. Staff to meet the maintenance workload requirements. 3. The management team to which issues are escalated for resolution. Data center staff require technical training required to properly maintain and operate the installed infrastructure. According to the Uptime Institute ²⁵ , data center staffing requirements will grow globally from about 2.0 million full-time equivalents in 2019 to nearly 2.3 million by 2025.

²³ Small modular reactors harness nuclear fission to produce energy, are physically a fraction of the size of a conventional nuclear reactor and can be assembled in a factory and transported as a single unit for installation at a data center.

²⁴ Source: <https://dgtlinfra.com/how-much-does-it-cost-to-build-a-data-center/>

²⁵ Source: <https://journal.uptimeinstitute.com/data-center-staffing-an-ongoing-struggle/>

Table 8 (continued)

Type of Hurdle Faced	Comment
Environmental	<p>Building a data center requires substantial amounts of land for the physical infrastructure of a data center. This is likely to lead to habitat loss, disruption of ecosystems, and the destruction of natural environments.</p> <p>The construction of data centers involves the use of concrete, steel, and electronic components. The extraction and production of these materials can have environmental impacts, such as air and water pollution, energy consumption, and greenhouse gas emissions.</p> <p>Data centers generate significant amounts of electronic waste (“E-Waste”) due to the regular replacement of outdated or faulty equipment. Improper disposal of E-Waste can lead to the release of hazardous substances, such as lead, mercury, and cadmium, into the environment.</p> <p>The cooling systems and other equipment used in data centers can generate significant noise levels, which can be disruptive to the surrounding environment and wildlife.</p> <p>Data centers emit large amounts of heat due to their high energy consumption, which can contribute to urban heat island effects and potentially impact local ecosystems.</p>
Objections from residents in the vicinity of the site of the proposed data center	<p>Early engagement with the local community and transparency about the project details, potential impacts, proposed mitigation measures, seeking input from residents, addressing their concerns, and incorporating their feedback into the project design may help diminish objections.</p> <p>An environmental impact assessment (“EIA”) ought to be conducted to identify and address potential environmental concerns, such as noise pollution, air quality, water usage, and traffic impacts. The findings of the EIA ought to be used to develop and communicate a robust mitigation plan.</p> <p>Communicate the sustainable practices in the data center design and operations, such as using renewable energy sources, implementing energy-efficient cooling systems, and implementing water conservation measures to residents.</p> <p>Address concerns about noise pollution and visual impact by incorporating noise-reducing measures such as sound barriers and vegetation buffers and architectural design elements that blend the data center with the surrounding environment.</p> <p>To minimise the impact of increased traffic during construction and operation phases, develop a comprehensive traffic management plan which might include designated routes, staggered schedules, and measures to reduce congestion.</p> <p>Offer community benefits, such as funding for local infrastructure improvements, educational programs, or community facilities, to offset potential impacts and demonstrate goodwill towards the community.</p> <p>Ensure strict compliance with all relevant regulations and permitting requirements and communicate this commitment to residents to reassure them that the project will meet or exceed environmental and safety standards.</p>

Many local authorities are developing regulations to mitigate the environmental impacts of data centers requiring data center operators to adopt a range of sustainable practices, such as using renewable energy sources, implementing energy-efficient cooling systems, recycling e-waste,

and implementing water conservation measures.

11.8.5 Repurposing of Offices for Data Centers

With the falloff in the demand for antiquated office space, consideration might be given to the use of office space for data centers. The main difficulties faced with the use of former office space as a data center are: (i) the load-bearing capacity of the floors of a multi-story office may not be able to bear the load of the weight of the servers and the racks that house them; and (ii) office ventilation and air conditioning systems would not meet the demands of a data center for advanced cooling systems and access to power and water without significant CAPEX.

11.8.6 E.U. Legislation on ESG Reporting for Data Centers

The European Commission has issued a delegated regulation which is directly applicable in all E.U. Member States. The regulation aims to increase disclosures in relation to the energy use of data centers.

The European Commission is required to create an E.U.-wide database of which will provide information in relation to data centers on among other data items: (i) the water usage; (ii) energy consumption; (iii) the use of waste heat; (iv) use of renewable energy; (v) the efficiency of cooling systems; (vi) the power demand of the servers and other equipment; and (vii) temperature set points²⁶. Operators of data centers will be required to report the information to the database starting from September 2024.

While the information on the performance of an individual data center will not be publicly available, aggregate information in the database such as power usage effectiveness, water usage effectiveness, energy reuse factor, and renewable energy factor, will be publicly available.

The aim of such disclosures is to improve energy efficiency and reduce the water consumption of data centers. Energy efficiency may be improved by using: (i) renewable energy such as by installing solar panels on the roofs and in the land around data centers; and (ii) liquid-cooled systems to extract waste heat and supply it for local projects such as district heating.

²⁶ By carefully selecting and temperature set points, data center operators can strike a balance between ensuring reliable and efficient operation of IT equipment while minimising energy consumption for cooling. Continuous monitoring and adjustments of set points based on factors such as IT load, outside air temperature, and energy costs can help optimise energy efficiency and reduce operational costs.

12 Retail Real Estate Investing

12.1 Introduction

In the decade ending Q2 2024, retail real estate has suffered significant upheaval driven mainly by:

- (i) a move to online shopping which hit the turnover of physical retailers;
- (ii) a change in consumption patterns and a gradual shift in the generations of shoppers has changed where people spend their money and what they spend it on; and
- (iii) the COVID lockdowns.

Many high-profile retailers have filed for bankruptcy or have significantly reduced the number of their outlets to focus on their best performing locations and to occupy smaller spaces. In the U.S., the entities affected include JC Penny's, Macy's and Sears; in the U.K., Mothercare, House of Fraser, and Debenhams; and in the E.U., Karstadt in Germany, Galeria Inno in Belgium, and V&D in the Netherlands.

Other retailers have undergone significant restructuring involving the closing down of shops to reduce their physical real estate footprint. For example, in the U.K., John Lewis and Marks & Spencer and in the E.U., fashion brands like Esprit in Germany, Camaieu in France, and WE Fashion in the Netherlands have downsized their real estate footprint significantly. The fashion store closures were probably precipitated by a gradual shift from spending on fashion to spending on content such as Apple TV and Netflix, entertainment, and gaming.

Empty retail space in a street or a shopping center is unsightly and drives shoppers away.

12.2 Restructuring of Retail Real Estate

This restructuring led to write-downs in retail real estate prices even before the COVID pandemic and now prices for retail real estate are at more attractive levels and are consistent with the rise in interest rates that took place between Q2 2022 and Q2 2024.

Rents have also fallen significantly allowing retailers to increase their bottom line and investors to potentially grow rental income over time. At the same time, the significant rise in construction costs and the cost of debt capital have curtailed the development of retail real estate narrowing the gap between supply and demand for retail real estate. Retail vacancy rates in the U.S. are at their lowest level in decades²⁷.

In densely populated areas, the hybrid working environment has improved community shopping locations and mega retail brands are now opening smaller versions of their stores in such locations. Digitally native retailers may even be able to increase their sales by opening small stores in areas where deliveries of online orders are very high as doing so facilitates customers who want to pick up or return goods quickly.

²⁷ Source: <https://www.cbre.com/insights/reports/2023-us-real-estate-market-outlook-midyear-review>

Particularly since the post COVID years, shopping has become a weekend leisure activity, a kind of entertainment, and this is impacting the growth of online shopping. Online shopping is now reported to have plateaued in the U.K. while in Europe it is not growing anymore. According to JP Morgan²⁸, e-commerce only makes up about 15% of all retail.

12.3 Retail Real Estate – Three Factors to Note

Retail real estate is about understanding the relationship between consumer preferences, urban planning, and economic factors.

12.3.1 *Consumer Megatrends*

Modern retailing is about creating experiences aligned with the consumer megatrends: self-improvement and wellbeing, the experience economy, social and environmental consciousness, convenience and connectivity, and localisation.

Experiential retail has increased in popularity particularly with “Gen Z”²⁹ and retailers need to adapt by providing greater in-store experiences, examples include:

- (i) Lego Stores offering interactive play areas;
- (ii) Nike has experimented with various in-store experiences, such as the Nike+ RunClub, where customers can participate in group runs or receive personalised coaching;
- (iii) Eataly, an Italian marketplace offering cooking classes, wine tastings, and demonstration kitchens, creating an immersive culinary experience for customers;
- (iv) Samsung stores feature product demonstration areas, virtual reality experiences, and interactive displays showcasing their latest technology; and
- (v) Lululemon: In addition to offering in-store yoga classes, Lululemon stores have incorporated experiential elements like meditation spaces and juice bars.

Aside from community shopping locations in densely populated areas, the attractive segment of the retail real estate market for investors is open-air centers which are:

- (i) anchored by grocery stores because of their ability to generate regular customer traffic and lower susceptibility to economic downturns;
- (ii) contain lifestyle service providers such as hairdressing salons, beauty salons, health club & fitness spaces, medical centers, and food and beverage;
- (iii) luxury retailers; and
- (iv) provide an element of entertainment for consumers such as cinemas and mini golf.

Landlords operating such centers will need to work harder to continuously curate tenant mix to optimise the attractiveness of such centers and in doing so may have to monitor and manage some tenants with poorer covenants.

²⁸ Source: <https://www.jpmorgan.com/insights/real-estate/commercial-real-estate/commercial-real-estate-trends>

²⁹ Generally considered to be born between the mid-to-late 1990s and the early 2010s. Common range is 1997 to 2012, though exact years can vary slightly depending on the source.

Buying existing open-air centers³⁰ which are anchored by grocery stores at attractive cap rates and improving them to incorporate the lifestyle service providers and provide an element of entertainment for consumers allows investors to increase rents.

Quality retail real estate assets strategically positioned in high-growth areas with strong transport links and mixed-use opportunities draw customers and increase average spend per customer.

12.3.2 *Urban Planning*

Good urban planning plays a crucial role in shaping the landscape for retail real estate investment. It provides clarity on permitted future development patterns, enables mixed-use environments, and improves public amenities. Where it permits moderately higher residential densities, it makes areas much more appealing for retail real estate investors to deploy capital.

Local government zoning codes dictate what types of commercial development, including retail, are permitted in different areas. For retail real estate investors and developers, mixed-use zoning allowing retail alongside residential, and office uses around dense walkable nodes creates built-in customer bases.

The development of transportation infrastructure like roads, public transit, parking, etc., determines the accessibility and footfall potential of retail sites. Planning that provides for public plazas, parks, and community spaces makes retail areas livelier and more appealing. Urban growth boundaries and green belts that concentrate development in defined areas boost retail densities.

Urban revival plans complemented with tax incentives focusing on rejuvenating downtown retail corridors through pedestrianisation, streetscaping etc., can encourage investment.

12.3.3 *Economic Factors*

Retail real estate developers and investors closely analyse metrics like income levels, employment, demographics, and tourism when evaluating where disposable incomes and retail spending potential will be highest to support new real estate development or acquisitions.

High levels of consumer disposable income are a key factor underpinning robust retail real estate investment. High levels of consumer disposable income are fostered by:

- (i) strong economic growth;
- (ii) high levels of employment in jobs and steady incomes;
- (iii) wage growth or tax cuts fuelling discretionary income available to spend at retail outlets;
- (iv) low inflation maintaining the purchasing power of money;
- (v) low interest rates freeing up more disposable income rather than servicing higher

³⁰ Open air centers tend to have lower operating costs due to natural ventilation and a reduced need for fire safety measures and sprinklers.

- interest costs on debt;
- (vi) areas with higher concentrations of working-age population and families that tend to have higher collective disposable incomes to spend at retail outlets; and
- (vii) regions with concentrations of affluent households.

Cities or areas that are major tourist destinations can see an influx of consumer spending from visitors on top of expenditure by local resident.

In looking at the potential amount of consumer spending in an area, it is important to examine the number of income earners that control say, 80% or more of the potential spending, as this may have implications for consumption patterns and therefore the mix of retail outlets in a given area.

12.3.4 *Exit Cap Rate*

A paper entitled “*Determinants of Cap Rates Across Multifamily, Industrial, Retail, and Office Asset Classes*” from the Economics Department, University of North Carolina at Chapel Hill, by Morgan Tsui, dated September 2023 provides some interesting insights into the possible issues to consider in relation to the choice of exit cap rate. The paper covers average cap rates from 2000 to Q1 2023 in the U.S. and reaches the following conclusions:

- (i) The **percent expected revenue growth had the largest impact on retail cap rates.**
- (ii) Of the four categories of real estate examined in the paper, past cap rates were the second most impactful for retail real estate.
- (iii) The average spread of retail real estate cap rate over the 10-year treasury yield in the period ranged from over 5.5% to 1.5%.

12.4 Luxury Retailers

There has been a notable trend among luxury goods groups and high-end retailers acquiring prime retail properties, especially in major cities and highly sought-after shopping destinations around the world. The trend is driven by several key factors including:

- (i) The desire on the part of luxury brands to ensure a premium retail experience for customers while in their stores;
- (ii) The alignment of historic and iconic properties with the luxury brand image; and
- (iii) The clustering of luxury brand boutiques in top global shopping destinations.

A recent example of the trend was the purchase of an 18th century building in via Montenapoleone, the heart of Milan's most exclusive shopping area, by Kering, the French luxury group. The building already hosts Saint Laurent's store and the historic Cova patisserie, which was purchased by French luxury group LVMH and is one of the largest properties in via Montenapoleone. In relation to points (i) and (ii) above, it is interesting to note that Kering said:

"This investment is part of Kering's selective real estate strategy, aimed at securing key highly desirable locations for its houses"

Other examples of this trend include:

- (i) the purchase by LVMH, owner of brands such as Louis Vuitton, Dior, and Celine, of a stake in prime London location on New Bond Street in 2019 and of the historic La Samaritaine building in Paris to house its brands;
- (ii) The purchase by Richemont, owner of brands such as Cartier, Van Cleef and Arpels, of the iconic Gianotti building on Via Montenapoleone in Milan in 2015 and its acquisition in 2017 of long-term leases on Rue du Rhone in Geneva;
- (iii) The purchase in 2020 by Chanel of several buildings on iconic Rodeo Drive in Beverly Hills and its acquisition in 2019 of the historic Galeries Lafayette Annapurna building in Paris.

12.5 ESG in Retail Real Estate

Environmental, social, and governance considerations have become increasingly important in the retail real estate sector as they help retail real estate companies enhance sustainability, benefit local communities, promote ethical conduct, and strengthen risk management.

12.5.1 *Environmental Considerations*

Environmental measures include:

- (i) Measures like light emitting diode (“LED”) lighting³¹, efficient HVAC systems, and renewable energy generated from photovoltaic cells on roofs reduce carbon footprint;
- (ii) Pursuing LEED, BREEAM or other green building ratings for new developments;
- (iii) Conserving water by using low-flow fixtures, efficient landscaping, and rainwater harvesting systems;
- (iv) Recycling programs, reducing packaging waste, and composting initiatives as part of waste management; and
- (v) Installing electric vehicle charging stations to support sustainable transportation.

12.5.2 *Social Considerations*

Social considerations include:

- Community engagement through outreach programs, public spaces, and supporting local businesses or causes;
- Ensuring properties are easily accessible for those with disabilities;
- Providing spaces for fitness, health services, community gardens to improve health and wellness amenities;
- Ensuring ethical supply chains and fair labour practices; and
- Embracing diversity in hiring, retail mix, and community services.

12.5.3 *Governance*

By implementing tailored governance policies, oversight, and practices specific to the retail real estate business model, companies can more effectively manage risks and maintain

³¹ LED lighting products produce light up to 90% more efficiently than incandescent light bulbs.

stakeholder confidence.

The composition of the board should ideally be diverse, consisting of a number of independent directors, include persons with relevant real estate and retail expertise, and their tenure and remuneration should be aligned with long-term investing horizons.

The board ought to develop robust ethics policy tailored to retail real estate such as in relation to product safety and marketing practices. Compliance programs should establish policies for permitting and construction.

Reporting and transparency can be greatly improved through detailed sustainability and ESG reporting following industry frameworks such as the Global Real Estate Sustainability Benchmark³², transparent disclosure on corporate governance provisions and lobbying, and asset-level reporting on operational performance and the efficiency of CAPEX.

Stakeholder engagement can be enhanced by formal structures to engage tenants, communities on development plans, channels for employee feedback on corporate culture, ethical concerns, and mechanisms to involve debt and equity investors on strategy and risk appetite.

³² The Global Real Estate Sustainability Benchmark is an investor-driven organisation that assesses and benchmarks the environmental, social, and governance performance of real assets, including real estate portfolios and infrastructure assets.

13 Residential Real Estate Investing

13.1 Introduction

Residential real estate is perhaps the biggest asset class in the world.

Institutional investors can achieve two potential levels of diversification by investing in residential real estate: (i) diversification within the real estate asset class; and (ii) portfolio diversification relative to investment in equity securities.

For institutional investors seeking consistent cash flows, rented residential real estate can provide a steady stream of income. From a capital value perspective, residential real estate is generally a good hedge against inflation as both rents and property values tend to increase during periods of rising inflation.

Prior to the Global Financial Crisis (“GFC”), with the exception of multi-family apartment blocks, residential property in general and single-family homes in particular were not seen as a suitable investment for institutional investors for perhaps two main reasons:

- (i) homeownership was a dream pursued by citizens and encouraged by politicians thereby making housing a very political and emotive topic; and
- (ii) the costs of searching for, screening, acquiring, managing, and collecting rent from thousands of rented single-family homes dotted over multiple different geographic locations.

13.2 Drivers of Residential Prices and Rents

The list of factors driving dwelling prices and rents in any local residential real estate market includes, population growth, household formation, employment growth, disposable income of the population, real GDP per capita, the unemployment rate, labour force participation, availability of mortgage finance, supply of new residential units, repossessions, and types of owners or investors in that housing market.

Types of owners or investors include small and medium-sized investors, institutional investors, and owner occupiers and matter in the sense that in areas where the supply of housing is restricted, the presence of investors tends to increase the ratio of the price of residences to median income, making homes less affordable for owner occupiers.

Institutional investors can achieve economies of scale through the acquisition and management of large portfolios of residential properties in a relatively small geographic area with strong employment and household formation growth. Further, their concentration of ownership of a large number of residential units for rent in a small geographical area provides an opportunity to significantly influence rents in the area.

13.3 Demand for Rented Residential Accommodation

A wide range of factors influence the demand for rented residential accommodation including:

- (i) The number of housing units built relative to demand for housing units in a particular location. A thriving global city with a strong labour market, high immigration, and a limited supply of new residential units is likely to fuel a surge in demand for rented accommodation.
- (ii) Planning laws and their local enforcement can limit housing supply. This is particularly true when they cause long delays in approvals, involve unpredictable decisions, or restrict building options in geographically constrained areas.
- (iii) Private sector builders of residential accommodation tend to focus on building homes that meet demand and can be sold without having to reduce their prices rather than the socially desirable need to build affordable residential units.
- (iv) When house prices are high relative to incomes, mortgage rates are high, and mortgage underwriting terms are tight, the demand for rented accommodation in a location with a strong labour market, high immigration, and a limited supply of new residential units is likely to rise. For example, according to the Economist magazine,³³ the proportion of people in the U.K. renting privately is one-fifth while in London, the proportion of people renting privately is one-third and, on average, in London, around 40% of tenants pre-tax incomes goes on rent.
- (v) The availability of buy-to-let mortgages and the taxation treatment of mortgage interest expense and capital allowances also influence the number of residential units available for rent in a location.
- (vi) Local authority or government enforced rent controls are likely to increase rents for new tenancies not covered by the rent controls and cause private landlords to withdraw their rental properties from the market. This can have the effect of pushing up rents faster than in other areas not subject to rent controls. Building residential units for rent under new tenancies not covered by rent controls can be an attractive investment for institutional investors in such a market.
- (vii) For tenants who want flexibility such as people moving from one city to another for work, renting may be a preferred option.
- (viii) Strong protections for tenants can strengthen a market making it more attractive to tenants. Such protections include rolling tenancies, an effective ombudsman for dispute resolution, and a ban on no-fault evictions. No-fault evictions can be used by unscrupulous landlords as leverage to raise rents unreasonably or avoid making repairs.

13.4 Multi-Family Rented Residential Accommodation

Multi-family residential property contains multiple housing units. In view of the concentration of housing units in a single location, the operational cost of managing a portfolio of rented residential units is significantly reduced for institutional investors.

³³ Source: Economist 4 April 2024. *Two cities show the problems faced by Britain's renters.*
<https://www.economist.com/britain/2024/04/04/two-cities-show-the-problems-faced-by-britains-renters>

Residential real-estate investment trusts, (“Residential REITs”)³⁴ obtain their capital to build or buy multi-family rented residential property for rent from real estate private equity firms, the state, or institutional investors such as pension funds investing in Residential REITs. The investment managers of Residential REITs search for and organise the construction of multi-family residential units with specific risk-return profiles.

In small markets, it may be difficult to obtain the required level of diversification of multi-family rented residential properties which may tempt RESIDENTIAL REIT operators in such markets to expand abroad. The major Residential REITs in U.S. are probably the most diversified in the world.

While the investment thesis of the RESIDENTIAL REIT manager is likely to be increase the rent roll and sell the property at the same or preferably a lower cap rate, the introduction of rent controls may impact the return of existing RESIDENTIAL REIT owners and investors. However, buyers of Residential REITs subject to rent controls can respond more flexibly to such rent controls by offering a lower purchase price for Residential REITs.

Residential REITs may attract negative publicity and government action where they are seen to price potential owner-occupiers out of the housing market, fail to respond sufficiently to maintenance requests from tenants, use their concentration of ownership in an area to increase rents, or increase evictions.

13.4.1 Case Study: Development of a Multi-Family Residential Block for Rent

Section 8.2 (Real Estate Development Case Study) of the paper illustrates much of the planning, development, financing, and construction issues involved in the development of a block of multi-family residential units. Here the focus is on issues specific to the development of a block of multi-family units for rent rather than for sale to occupiers. The developer may be incentivised to sell the block upon completion by such factors as: (a) lower rate of capital gains tax on trading profits; (b) demands of or costs charged by providers of finance; (c) demand for such units by investors in multi-family residential units.

13.4.1.1 Choice of Country – Economic Issues

All development must be considered in the context of the economy of the country in which it is taking place. Investors are likely to choose economies which exhibit the following characteristics prior to and during the construction and leasing phase of the project:

- (i) Strong history and future prospects of growth in: (a) GDP and (b) private consumption both in absolute terms and relative to other countries in the region.
- (ii) Low debt-to-GDP ratio, low or falling level of inflation, and low or falling level of unemployment.
- (iii) Attractive country in which to do business in terms of: (a) political stability; (b) low

³⁴ REITs and their favourable tax treatment are discussed in section 15 of the paper.

levels of corruption; (c) competitive taxation; (d) a legal environment that adheres to the rule of law and protects property rights; (e) low levels of regulatory bureaucracy with clear and consistent regulations; (f) educated, young, and growing workforce; (g) reliable power supply, modern communications network, and a transport infrastructure of roads, rail, ports, and airports; and (h) access to regional and international markets both physically and through trade agreements which provide for low or no tariffs.

13.4.1.2 Choice of Location within Country

To command rents which are at a premium to the average rent in a location, it ought to be characterised by the features including:

- (i) An undersupplied residential market with little or no development pipeline constrained by factors like: (a) a restrictive planning permission regime with long lead times for approval; (b) a lack of access to development finance at competitive terms; (c) high and possibly rising construction costs; and (d) completion of housing units consistently less than the household formation requirement;
- (ii) A location of high and growing employment preferably underpinned by jobs in sectors like business services sector, technology, and financial services;
- (iii) Strong rental growth prospects supported by a lack of supply, inflation, and a high level of per capita disposable income;
- (iv) Strong growth in population of working age and household formation partly supported by net migration of professionals who are likely to rent accommodation; and
- (v) Easy access to amenities like public transport, restaurants, bars, cafes, art galleries, theatres, and museums.

13.4.1.3 Residential Market

The residential market ought to be characterised by a poor supply of properties to rent and particularly in the kind of economy described above in Section 13.4.1.1 (Choice of Country – Economic Issues), a poor supply of properties designed specifically for rent with attractive fit out and landscaping. Undersupply in a market where renters have high disposable income underpins strong rental growth.

If the residential market is subject to caps on for example, rents or the rate of rental growth, a developer of new multi-family units would wish to ensure that the initial rent for new units is not constrained by such legislation.

A lender providing finance to a multi-family build-to-let residential accommodation developer will examine the proposed development in the context of:

- (i) Competing properties in the area under the following headings:
 - a. Location and types, 1-, 2-, or 3-bedroom units, of competing units.
 - b. Fit out and quality of amenities provided at competing units such as percentage of green space, landscaping, bicycle parking, electric vehicle chargers, common

- areas, and co-working areas.
- c. Status of the competing units in terms of whether they have applied for planning permission, been granted planning permission but not commenced construction, under construction, being leased, or have a stable stream of rental income with more than 95% of units let and more than 98% of the rent due collected from such tenants on time and in full.
- (ii) ERVs for the different types of units which are likely to be driven by the following factors:
 - a. Desirability of the property's location, proximity to amenities, and accessibility.
 - b. Size in m², number of bedrooms, amenities, and fit out of the property.
 - c. Current rental rates for similar properties in the same area.
 - d. Average occupancy levels for comparable properties.

13.4.2 *Exit Cap Rate*

A paper entitled “*Determinants of Cap Rates Across Multifamily, Industrial, Retail, and Office Asset Classes*” from the Economics Department, University of North Carolina at Chapel Hill, by Morgan Tsui, dated September 2023 provides some interesting insights into the possible issues to consider in relation to the choice of exit cap rate. The paper covers average cap rates from 2000 to Q1 2023 in the U.S. and reaches the following conclusions:

- (i) The **10-year US treasury yield had the second largest impact on average multi-family cap rates** of the four categories of real estate examined in the paper.
- (ii) The average spread of multi-family real estate cap rate over the 10-year treasury yield in the period ranged from just over 4.0% to just over 0.75%.

13.5 Single-Family Rented Residential Accommodation

In the period after the GFC, single-family homes shifted from “*not seen as suitable*” for institutional investors to renting of single-family homes becoming an “asset class” in the same way that multi-family housing rental was an asset class. Perhaps the U.S. best illustrates the point:

- (i) The GFC threw up large stocks of single-family homes which were:
 - a. repossessed by lenders for failure of the mortgagors to make payments to their lenders and eviction of mortgagors;
 - b. concentrated not only in geographic terms but also in terms of regions with strong growth in employment and household formation in the U.S.; and
 - c. for sale at deeply discounted prices.
- (ii) The operational cost of managing a portfolio of single-family rental homes became lower as the homes were geographically concentrated.
- (iii) The costs of searching, screening, and evaluating groups of single-family homes collapsed with the advent of the Internet and online aggregators which listed almost all single-family homes for sale across the U.S. Institutional investors therefore could quickly estimate property taxes, insurance, capital expenditure, and other costs and compare them to the likely rent to arrive at an estimated net operating income of a

- rented single-family home.
- (iv) The cost of debt finance as measured by the federal funds rate had fallen to close to zero and remained so until December 2015. This facilitated the financing of these clusters of repossessed single-family homes then up for sale using a high proportion of debt relative to equity.
 - (v) The concentration of ownership of a large number of single-family homes for rent in a relatively small geographic area by an institutional investor also provided an opportunity to significantly influence rents in the area. This allowed them to increase rents by more than the rate of inflation because tenants generally wished to remain close to where they worked or where their children went to schools.
 - (vi) The properties were also likely to increase in value over time as the housing market recovered in the years after the GFC.

13.6 Risks in Residential Property Investing

Investing in residential real estate is not without risks which include vacancies, maintenance costs, increases in the supply of residential properties in an area, changes in regulation such as the introduction of rent controls on existing tenancies, requirements to improve the energy performance of residential units, and reputation damage.

To manage publicity risks, institutional investors often emphasise their commitment to responsible property management, maintaining affordable housing options, and contributing to local communities. Some institutional investors may go further and use ‘partners’ or ‘intermediaries’ when investing in residential real estate in an attempt to distance themselves from reputation risks.

14 Life Sciences Real Estate

14.1 Introduction

The life sciences industry, composed of pharmaceuticals, therapies, medical devices, and biotechnology, is expanding rapidly all over the world due to ageing populations and pandemics like COVID-19.

The demand for life sciences real estate is driven by such factors as rising expenditure on health, rising incidence of chronic disease, and an emphasis on mitigating communicable diseases like COVID-19.

The countries with the longest established life sciences industries are the U.S. and the U.K. In the U.S., it is estimated³⁵ that there is 18 million square meters of research and development laboratory space with another 4 million square meters under construction while in the U.K., there is 2.8 million square meters of research and development space.

In these countries there are clusters of highly specialised real estate consisting of laboratory space, high-tech drug manufacturing, and offices. For example, in the U.S., Boston, San Francisco, and San Diego are the three largest clusters accounting for 11 million square meters or 61% of all U.S. laboratory space. In the U.K., the three largest clusters are Cambridge, Oxford, and London and they account for 1 million square meters of all laboratory space in the U.K.

While life sciences real estate is a niche asset class, it has nonetheless attracted a host of specialist investors who understand the dynamics of the life sciences real estate sector.

Laboratory spaces can be divided into three broad categories³⁶:

- (i) spaces for highly sophisticated testing and processing of drugs for humans;
- (ii) vivarium spaces for the early disease detection, treatment, and the prevention of the spread of disease in animals and plants; and
- (iii) contract research organisations ('CROs') which carry out laboratory research generally on behalf of multinational pharmaceutical companies.

In view of the specialised nature of life sciences real estate, investing in the development of life sciences real estate carries additional risks compared with investing in office, retail, or logistics properties. These risks include but are not limited to the recruitment and retention of experienced life sciences real estate development and leasing professionals, meeting the exacting demands and often regulatory requirements of life sciences real estate clients, and estimating rental income and exit capitalisation or cap rate to assess the likely return on development expenditure.

³⁵ Source: UBS Asset Management. Life sciences beyond borders: The UK versus US life sciences markets. June 2024.

³⁶ Chauhan, P. & Mendonca, M., 2021. Role of Regulatory Authorities on the Working of Contract Research Organization and Pharmaceutical Company's Clinical Trials in India: A study of strategic alliances between pharmaceutical companies and clinical research organisations in India. *Asia Pacific journal of health management*, 16(3).

Despite the risks of investing in life sciences real estate, historical evidence from past recessions suggests the global life sciences real estate sector has been particularly resilient to economic downturns as it witnessed stronger demand than the broader economy during such periods. However, life sciences real estate is not immune from downturns. Oversupply, such as occurred in the latter half of 2023 and early 2024 in the U.S. combined with a falloff in venture capital funding for life sciences research, led to downward pressure on net effective rents from cash-constrained biotechnology companies.

Before investing in life sciences real estate in any country a real estate investor would need to see robust evidence of:

- (i) Demand for life sciences products and services;
- (ii) Government commitment to development of the life sciences industry;
- (iii) Availability of talented scientists; and
- (iv) Evidence of continuing growth in these characteristics.

Such evidence and growth must not only be visible in that country as a whole but also in the proposed location or locations for development within that country.

14.2 Demand for Pharmaceutical Drugs Underpinning Demand for Life Sciences Real Estate

The demand for pharmaceutical drugs is driven by three main factors:

- (i) Rising expenditure on health: The World Health Organisation report, *Global spending on health 2020: weathering the storm*, shows that global spending on health continually rose between 2000 and 2018 and reached US\$ 8.3 trillion or 10% of global GDP³⁷.
- (ii) Rising incidence of chronic diseases: According to the Institute for Health Metrics and Evaluation, metabolic risks, namely high BMI, high blood sugar, high blood pressure, and high cholesterol, accounted for nearly 20% of total health loss worldwide in 2019, 50% higher than in 1990 (10.4%). They are also responsible for a huge number of deaths globally³⁸; and
- (iii) An emphasis on mitigating communicable diseases. An investor in life sciences real estate in any country or region within a country will wish to be assured as to what underpins the demand for life sciences real estate in that location.

14.3 Clustering of Life Sciences Real Estate

Life sciences real estate tends to be clustered in areas of a country. Life sciences employees need highly specialised training and education. Thus, life sciences companies will tend to locate to areas with: (i) a large pool of talented employees so that they can recruit quickly and

³⁷ *Global spending on health: Weathering the storm*, Geneva: WHO.

³⁸ Institute for Health Metrics and Evaluation, 2020. Institute for Health Metrics and Evaluation. [Online] Available at: <https://www.healthdata.org/news-release/lancet-latest-global-disease-estimates-reveal-perfect-storm-rising-chronic-diseases-and>

effectively; (ii) a supply of life sciences real estate into which a company can grow as it scales up; (iii) a community which embraces pharmaceutical research, development, and manufacturing; (iv) universities that specialise in teaching of and research in life sciences; and (v) local hospitals.

The five main factors underlying the success of a life sciences cluster are 'Communities of Practice,' government support, industry, universities, and access to suitable life sciences real estate.

14.4 Unique Characteristics of Life Sciences Real Estate

Laboratory spaces are typically constructed as ground floor with up to four additional floors. Factory spaces are typically constructed as either ground floor or ground floor plus one additional floor. The sizes of laboratory spaces and factory spaces are generally in the range of 14,000m² to 19,000m². Life sciences buildings generally have higher floor loading capacity than offices and depending on design may support between 400 kg/m² and 1,000 kg/m² and their heating, ventilation, and air conditioning systems are significantly more sophisticated than offices because of the need to handle the supply of gases, the exhaust of gases, and provide vacuum facilities.

The specifications for life sciences real estate are very different to those of offices. Therefore, the expertise required in the design, development, and leasing of life sciences real estate is very different to those of offices. Further, the requirements vary significantly by type of life sciences real estate and specialised architects are required for each type of life sciences real estate. There are a number of key areas where the requirements of life sciences real estate differ from those of offices:

- (i) Unlike offices, life sciences buildings must meet stringent audit requirements to obtain approval from pharmaceutical regulators such as the Federal Drug Administration in the U.S. of America.
- (ii) When it comes to heating, ventilation, and air conditioning: (a) office design generally focuses on the recirculation of air; (b) life sciences buildings may require one hundred per cent fresh air in specialised areas; and (c) the chiller capacity required for offices is a fraction of that required for laboratory spaces.
- (iii) Life sciences buildings need a separate loading dock for gas cylinders and for chemicals.
- (iv) The height of the ceiling in a drug manufacturing facility may be as high as seven meters which is significantly higher than that for offices.
- (v) In offices, the floor load capacity required is a quarter of that required for life sciences buildings.
- (vi) In life sciences buildings, the shafts are much larger to accommodate vacuum, exhaust, and gas lines.
- (vii) Electrical services measured in watts per meter squared ("W/m²") for life sciences real estate offices can be up to 40 times the requirement for offices.
- (viii) While both life sciences buildings and offices may both require a sewage treatment

plant, life sciences buildings may also require an effluent treatment plant, a range of holding tanks, chemical storage facilities, and specialist facilities for handling exhaust gases.

- (ix) Life sciences buildings are likely to require specialist fire and gas leakage alarm systems whereas offices need only comply with standard fire-safety requirements.
- (x) In terms of piping, offices are unlikely to require piping for much more than chilled water. Life sciences buildings require piping for gas distribution systems, for different types of water, vacuum, steam, and compressed air.
- (xi) In life sciences buildings, large common areas are required for utilities such as gas distribution systems, air handling units, and nitrogen generation plants.

14.5 Converting Existing Space to Life Sciences Real Estate

In view of these key requirements of life sciences real estate noted above, it is generally constructed from the ground up to deliver purpose-built buildings. The requirements and the need to rezone existing space for life sciences activities tend to rule out the conversion of most existing spaces to life sciences buildings. Occupiers of offices and residential areas near to a building which is being considered for conversion to life sciences activities generally don't wish to be near a research laboratory that deals in chemicals, diseases, and pharmaceuticals.

14.6 Case Study: Life Sciences Real Estate Investing in India

India illustrates the key tenets of investing in life sciences real estate for three main reasons:

- (i) The Indian pharmaceutical industry supplies something of the order of 40 per cent of generic drug demand in the U.S., about 25 per cent of all medicines in the U.K. and fulfils over 50 per cent of the global demand for vaccines.
- (ii) Outside of the U.S., India has the largest number of U.S. Federal Drug Administration ("FDA") compliant plants³⁹.
- (iii) The life sciences real estate sector in India is expected to grow at a compound rate of between 13 per cent per annum over the decade beginning in 2020.

The country has earned the title, 'pharmacy of the world'.

The key drivers of growth are as follows: (i) the relatively low cost of a large and skilled workforce compared to the U.S. or the U.K.; (ii) the Indian life sciences regulatory regime; (iii) the availability of capital from venture capitalist for life sciences companies; and (iv) the geopolitical environment.

Among the pioneering investors in Indian life sciences real estate are Ivanhoé Cambridge, a Canadian real estate investor in partnership with Lighthouse Canton, a Singaporean asset manager. In 2021, the two investors committed to invest USD100 million to develop about 93m² of laboratory space in Genome Valley, Hyderabad, a life sciences cluster which is home

³⁹ Government of India, Department of Pharmaceuticals, 2022. *Government of India, Department of Pharmaceuticals*. [Online] Available at: <https://pharmaceuticals.gov.in/pharma-industry-promotion>

to more than two hundred companies⁴⁰.

In India, the main life sciences clusters include:

- Ahmedabad in the Indian state of Gujarat;
- Mumbai and Pune in the Indian state of Maharashtra;
- Bengaluru, formerly Bangalore, in the Indian state of Karnataka;
- Hyderabad in the Indian state of Andhra Pradesh;
- Kolkata in the Indian state of West Bengal;
- Chennai in the Indian state of Tamil Nadu; and
- Delhi National Capital Region is a planning region centred upon the National Capital Territory of Delhi in India and encompassing Delhi and several districts surrounding it from the states of Haryana, Uttar Pradesh, and Rajasthan.

Hyderabad Pharma City in Hyderabad is an example of a cluster of life sciences companies focused on research and development and pharmaceutical manufacturing. The cluster has been recognized as a National Investment and Manufacturing Zone by the Government of India and has emerged as a leading life sciences hub in Asia. It houses more than 800 life sciences companies and accounts for one third of global vaccine output. The cluster is located about 25km from Hyderabad International Airport.

14.6.1 *Growth of Generic Drugs*

In the period from 2021 to 2026, the global generic drugs market in which India is a major player is forecast to grow at a compound annual growth rate of over 7% per annum. The market is expected to be worth USD 442.3 billion by 2026.

The major factor propelling this growth is the expiration of patents on branded drugs and the shift to prescribing of generic drugs for long-term chronic diseases in order to save on health costs. Over the next five years, patent expiries for a range of pharmaceutical drugs currently estimated to be worth in excess of USD200 billion will provide strong tailwinds to Indian life sciences companies which are likely to capture a significant share of the manufacturing of these soon-to-be generic pharmaceutical drugs.

14.6.2 *Favourable Indian Government Policies*

The Indian government encourages life sciences investment by promoting the development of life sciences clusters, offering tax incentives for life sciences investment, and speedy approval processes for life sciences projects. Indian government encouragement of life sciences has a long history.

14.6.3 *Low Cost of Manufacture*

A combination of highly skilled science and technology personnel available at a fraction of the

⁴⁰ Ivanhoé-Cambridge, 2021. *Ivanhoé Cambridge*. [Online]
Available at: <https://www.ivanhoecambridge.com/en/news/2021/07/office-labs-portfolio-in-india/>

cost of similar highly skilled labour in say, the U.S., low land costs on which to build life sciences real estate, low plant & equipment costs, low electricity costs, and low water costs, make India a highly competitive location for manufacturing generic drugs.

14.6.4 Talent

On an annual basis, India produces 1.2 million engineering graduates which provides abundant skilled science and technology professionals. Further, by contrast with China, in India, almost 50 per cent of all students graduate close to a major international hub, such as Delhi, Bangalore, Hyderabad, and Mumbai. All these cities or regions are close to an international airport. Proximity to a major international airport is high on the list of requirements of most multinational life sciences organisations when establishing offshore facilities. Life sciences real estate tends to be clustered in areas of a country. Delhi, Bangalore, Hyderabad, and Mumbai, the locations where almost 50 per cent of all students graduate, are four of the seven major life sciences clusters in India identified earlier.

14.6.5 Diversification of Supply Chains

Growing geopolitical tensions between China and the U.S. are driving global pharmaceutical companies to diversify their manufacturing bases and supply chains. Given India's current position as the 'pharmacy of the world' it is a natural choice of location for diversification of a pharmaceutical manufacturing base.

14.6.6 Growth in Pharmaceutical Drug Demand Drives Demand for New Life Sciences Real Estate in India

In 2021, the English edition of *The Economic Times*, referencing a report by Savills India, reported that in a conservative scenario, India has the potential to create demand for life sciences real estate of the order of 6.7 million square meters and that during the current decade Indian life sciences research and development real estate universe holds the potential to attract private equity institutional investment amounting to approximately USD 18 billion⁴¹.

By January 2022, Savills India had increased its estimate for the demand for life sciences real estate to around 9 million square meters of new real estate by 2030 and possibly as much as 14 million square meters.

Over the last decade, the life sciences industry has shifted from investing its capital resources in directly owned real estate to investing in research and development in search of the next blockbuster drug as the latter has significantly more upside potential. This shift is driving a demand for leased life sciences real estate. It is estimated that about 12.5 per cent of life sciences real estate is likely to be leased rather than owned by life sciences firms if the current trend in leasing life sciences real estate continues. For an investor in Indian life sciences real

⁴¹ The Economic Times, 2021. *The Economic Times*. [Online] Available at: <https://economictimes.indiatimes.com/industry/services/property/-construction/life-sciences-rd-real-estate-likely-to-create-96-million-sq-ft-demand-until-2030/articleshow/88186040.cms>

estate, it is the only the 12.5 per cent of life sciences real estate that will be leased that is of particular interest.

India's life sciences sector holds huge potential for growth in the current decade, with a large talent pool at significantly competitive cost making it a compelling destination for global R&D and manufacturing.

To put the estimated figures of 6.7, 9.0, and 14 million square meters in context, the top three life sciences clusters in the U.S. located in Boston-Cambridge, the San Francisco Bay Area, and San Diego, have a total commercial laboratory space of 8.8 million square meters⁴². Despite the wide range of estimates, only one of these life sciences real estate demand figures for India, 6.7 million square meters, is smaller than the cumulative space occupied by the top three live sciences clusters in the U.S.

⁴² *CBRE*. [Online]
Available at: <https://www.cbre.us/research-and-reports/US-Life-Sciences-Report-2020>

15 ESG

15.1 Introduction

The ESG characteristics of properties need to be considered for a range of reasons including: (i) compliance with regulatory requirements; (ii) increased market demand for properties with high ESG ratings; (iii) their impact on the value of a property; and (iv) the contribution of the built environment to the emission of greenhouse gases (“GHG”).

As an indication of the contribution of the build environment to greenhouse gas emissions, in the U.K., the build environment is responsible for approximately 25%⁴³ of the U.K.'s total greenhouse gas emissions. While in the E.U., the European Commission reports⁴⁴ that 42% of energy consumed in the E.U. in 2021 was used in buildings and over 1/3rd of the E.U.'s energy related emissions of GHG came from buildings.

Policy makers are nudging investors and developers to consider the whole-life cycle of a building from the way they source building materials, construct a building, operate a building, through to ultimately demolishing a building.

Investors in real estate and their potential tenants now demand information on the emissions from the energy used to operate a building and, in some cases, even the emissions baked into the materials, construction, and demolition of those assets. Further, there is a relentless focus on how those emissions can be reduced.

It is perhaps therefore not surprising that the real estate sector across Europe appears to be taking ESG very seriously.

Landlords holding real estate assets with poor carbon footprint credentials are facing a ‘flight to quality’ and a risk of asset obsolescence.

15.2 ESG – Lack of Alignment of Incentives

While energy renovations of buildings pay for themselves over time, by generating savings on energy bills, the payback period may be too long for some institutional investors. The environmental goals of a landlord and a tenant may not be fully aligned. On the one hand, landlords rarely have significant incentives to engage in CAPEX that has a very long payback period. While on the other hand, tenants may not wish to undertake improvements to a building where the costs will not be fully recovered over the remaining life of the lease. Thus absent a mutual commitment to sustainability, collaboration between landlords and tenants on sustainability may be hampered by a lack of alignment in the incentives of the two parties.

In 2023, a Knight Frank survey of 45 E.U. and U.K. real estate investment managers, property

⁴³ Source: <https://committees.parliament.uk/publications/22427/documents/165446/default/>

⁴⁴ https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/energy-performance-buildings-directive_en

funds, and listed property companies with GBP300m in assets under management found that all of the respondents are currently including provisions in their leases which aim to reduce the negative environmental impact of their building. The provisions impose legal obligations on both the landlord and tenant in relation to the sustainability profile of a building.

15.3 Impact of the Corporate Sustainability Reporting Directive

The Corporate Sustainability Reporting Directive (“CSRD”) requires most listed companies and all large companies in the E.U. to disclose their emissions of GHG and sustainability performance. Specifically, companies must:

- (i) measure, manage, and report their emissions of GHG from various sources, including carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), and other GHG that contribute to climate change;
- (ii) Report emissions from their direct operations (Scope 1), indirect emissions from energy consumption (Scope 2), and value chain emissions (Scope 3);
- (iii) Provide detailed information on their sustainability performance, including emissions of GHG, energy consumption, water usage, and waste management.

The first reports will be published in 2025 by in-scope companies based on their 2024 financial year.

The CSRD is likely to increase the demand for and value of energy-efficient, sustainable buildings in the E.U., while potentially decreasing the value of older, less energy efficient properties. However, the extent of the impact will depend on how companies respond to the directive and the specific real estate market conditions in different regions of the E.U.

15.4 Impact of the Sustainable Finance Disclosure Regulation

The Sustainable Finance Disclosure Regulation (“SFDR”) requires asset managers, pension funds, advisors, and financial products to disclose their approaches, policies and risks related to integrating sustainability into their investment process.

SFDR has an ambitious range of objectives. Chief among its objectives is to increase the transparency of sustainability disclosures to investors. The SFDR also aims to drive capital towards sustainable investments and to integrate: (a) remuneration policies with sustainability risks; and (b) ESG considerations into investment processes.

The SFDR requires financial market participants to disclose information about the sustainability of their investments. This means that investment managers of public and private debt and public and private equity funds are now asking their investee companies about, among other aspects of ESG, their carbon emissions, and reporting the findings to investors at the level of their funds on an aggregate basis.

The SFDR came into effect on 10 March 2021. It is an E.U. regulation rather than a Directive,

so it became immediately effective throughout the EU on that date. Specifically, SFDR may lead to an increased focus on sustainable financing options that align with ESG criteria. For the real estate sector, this is likely to mean a requirement to shift towards more sustainable practices, such as improving energy efficiency, and reducing greenhouse gas emissions.

Financial market participants such as investment managers, insurance undertakings, pension funds, and banks holding real estate in their portfolios may also need to disclose more information about their sustainability which will increase transparency and accountability in the financial services industry.

SFDR effectively created three types of funds: Article 6⁴⁵ funds which have no focus on ESG matters, Article 8 funds which have environmental or social investing objectives, and Article 9 funds which have sustainable investment objectives. So, while designed as a disclosure regime, SFDR seems to be used also as a labelling system.

Flows into Article 8 & 9 funds have significantly outpaced non-ESG Article 6 funds. This acceleration of flows into SFDR Article 8 and Article 9 funds is likely to lead to capital flows away from sectors and assets currently perceived as having high emissions of GHG to assets with zero emissions.

15.5 E.U. Legislative Initiatives

In April 2024, the E.U. adopted the Recast Energy Performance of Buildings Directive, (“RECAST EPBD”) as part of its plan which aims to achieve a fully decarbonised stock of E.U. buildings with zero emissions by 2050. As a result, the RECAST EPBD will introduce stricter requirements for the energy efficiency of buildings in the E.U. in six main ways:

- (i) Revision of the energy performance certificates for buildings to improve both their reliability and comparability across the E.U.. The improvement in the accuracy and quality of certificates will be achieved by a combination of on-site visits and quality control in the issuing of certificates. It is proposed that energy performance certificates will be accessible via a public database in each E.U. Member State.
- (ii) In the case of new buildings, the energy efficiency standard will be updated from near zero-energy to zero-emission. The concept of a zero-emission building is to be defined as one where the very low amount of energy consumed by the building is provided by energy produced either by locally produced renewables or on-site at the building but not by fossil fuels. The standard will apply to all new buildings from 1 January 2030. An earlier application of the standard, 1 January 2028, will apply to buildings which are owned by public authorities and, where a public body intends to lease a new building, the standard requires the public body to aim for that building to be zero-emission.
- (iii) Each Member States will be required to produce a detailed national building renovation plan so that all buildings achieve the zero-emission building standard by

⁴⁵ Assuming they do not opt to consider the principal adverse impacts of their investments.

2050.

- (iv) Existing public and non-residential buildings must be renovated so as to improve their energy performance from class G⁴⁶ to class F by 2027 and class E by 2030. Residential buildings will have to achieve class F by 2030 and class E by 2033.
- (v) From 1 January 2030, the calculation of the emissions for all new buildings must take into account the global warming potential over its whole life cycle which includes the production and disposal of the construction products used to build it. This requirement will apply from 1 January 2028 where a new building has a useful floor area in excess of 1,000m².
- (vi) There is a requirement to equip non-residential and public buildings with solar technology where doing so is economically feasible and technically suitable by various dates. For example, this must be done for new public buildings and new non-residential buildings with a useful floor area over 250m² by 31 December 2026 and for new residential buildings by 31 December 2029.

The requirement to refurbish existing buildings to improve their energy efficiency will require a significant amount of capital which may intensify existing inflationary pressures in areas such as wages for skilled labour, raw materials, and specialised inputs. Additionally, delays in obtaining planning permission because of queues for such permissions arising from the number of buildings requiring energy efficiency upgrades are likely to increase. These may cause project delays which tend to add to costs.

The RECAST EPBD will have the advantage of dampening the impact of a rise in energy prices on the cost of heating buildings in the E.U. as well as reducing greenhouse gas emissions. However, in the near term, the RECAST EPBD is likely to increase the costs of construction projects because of its focus on sustainable design features in buildings and its inevitable requirement to incorporate renewable energy sources into buildings. Thus, the RECAST EPBD will be of significant interest to institutional investors owning, developing, or acquiring buildings.

Table 9 below illustrates the dilemma for owner of existing commercial real estate with poor energy ratings.

Uncertainty arising from a Member State's implementation of the RECAST EPBD makes the decisions in Table 9 more challenging in the short term despite the fact that the overall direction of travel to zero emissions is crystal clear.

⁴⁶ G is the letter assigned to buildings with the worst energy performance.

Table 9
Landlord Options

Option	Costs to Landlord	Benefits to Tenant	Benefits to Landlord
Raise the building energy rating (“BER”) to A3 or higher.	The cost of the works depends in part on the difference between the current BER of the building and achieving a BER rating of A3 ⁴⁷ or higher for the building. Further, the greater the difference between the current BER rating and BER A3, the greater the length of the period during which no rent will be received by the landlord.	Institutional tenants required to report their CO ₂ under CSRD, or which have made net zero commitments will find a building with a BER rating of A3 or higher more attractive. Further, it should be easier for a tenant to assign the lease of a building with a BER A3 or higher.	Landlords that raise the BER of their buildings to BER A3 or higher are likely to command higher rents as soon as the works are completed. Further, such landlords ought to be able to market themselves as a leader in the provision of energy efficient buildings.
Take no action in relation to the BER of the building.	CAPEX costs avoided at least in the short term.	Building’s attractiveness to tenants is likely to decrease rapidly over time as its energy inefficiency increasing impacts the marketability of the building relative to other more energy efficient buildings.	Short-term rental income maintained but higher risk of voids and a stranded asset as time goes by.

15.6 National Building Renovation Plans of E.U. Member States

Under the RECAST EPBD, each E.U. Member State will be required to establish a National Building Renovation Plan by 31 December 2025. Such plans must:

- (i) Draw up details of the national building stock;
- (ii) Define the renovation, energy consumption, and emission reduction targets for the national building stock;
- (iii) Define the progress indicators for the targets in (ii); and
- (iv) Set out the financing measures, administrative resources, and investment needs to meet the targets in (ii).

Member States must also submit such plans to the E.U. Commission which may make recommendations which Member States must take into account.

15.7 Funding the Renovations Required under the E.U. RECAST EPBD

As noted above the National Building Renovation Plans of E.U. Member States must enable the deployment of sufficient finance at national level and encourage private investment at scale.

⁴⁷ The return on the capital expenditure to bring an existing building with a relatively poor BER rating up to BER A is unlikely to be adequate for private equity real estate owners with relatively short-term holding periods.

In the period from 2023 to 2030, more than EUR100 billion is estimated to be available from E.U. financing to support renovations. The source of E.U. finance includes the Cohesion Policy Funds, lending from the European Investment Bank, the LIFE Clean Energy Transition subprogramme⁴⁸, Horizon Europe⁴⁹ including the Built for People Partnership⁵⁰, and the ELENA Facility⁵¹.

15.8 Relaxation of State Aid Rules

The EU's State aid rules aim to prevent Member States from granting unfair advantages to certain companies or sectors through subsidies, tax breaks, or other forms of state support. This helps maintain equality and fair competition within the E.U.'s internal market. The Commission has taken numerous cases against Member States for breaches of E.U. State aid rules including, for example, Commission v France, where France was ruled to have granted illegal state aid to La Poste through an unlimited state guarantee, and Commission v Greece, where Greece was found to have granted unlawful state aid to Olympic Airways through tax exemptions and other measures. The State aid rules do allow state intervention to achieve objectives of common European interest like regional development and environmental protection.

The requirement to refurbish existing buildings to improve their energy efficiency will require a significant amount of capital. National Building Renovation Plans of E.U. Member States must enable the deployment of sufficient finance at national level and encourage private investment at scale.

In the RECAST EPBD, it is specifically stated that the incentives provided by E.U. Member States to improve the energy performance of buildings are not to be interpreted as constituting State aid. This ought to enable an efficient combination of public and private financing to retrofit buildings.

15.9 Financing the Refurbishment of Buildings

Under the RECAST EPBD, the E.U. Commission is charged with developing a “*comprehensive portfolio framework*” for ***voluntary*** use by financial institutions. The aim is to increase lending volumes for building renovation and at the same time support lenders in targeting and increasing lending volumes for this purpose. In this regard, financial institutions and private debt lenders will have regulated access to EPC data on buildings which should also facilitate the funding of renovations.

⁴⁸ LIFE Clean Energy Transition sub-programme is a E.U. funding programme that aims to support the delivery of E.U. policies in the field of sustainable energy, particularly the European Green Deal, the Energy Union (2030 energy and climate targets), and the European Union's 2050 long-term decarbonisation strategy.

⁴⁹ Horizon Europe is the E.U.'s key funding programme for research and innovation with a budget of €95.5 billion. It tackles climate change, helps to achieve the UN's Sustainable Development Goals, and boosts the E.U.'s competitiveness and growth.

⁵⁰ The partners co-programme E.U. research and innovation funding for the built environment, ensuring it is invested in projects which will accelerate innovations towards a sustainable, people-centric transformation of Europe's built environment sector.

⁵¹ The ELENA facility is a joint initiative by the European Investment Bank and the European Commission, launched in 2009. It provides funding for technical assistance focused on the implementation of energy efficiency, distributed renewable energy, and urban transport projects and programs.

The "*comprehensive portfolio framework*" would provide a structured approach for financial institutions to assess and manage portfolios of building renovation loans or investments. The goal is to make it easier and more attractive for these institutions to provide financing for energy-efficient building renovations. Some key aspects this framework might include:

- (i) Risk assessment methodologies for evaluating renovation projects and their expected energy savings.
- (ii) Portfolio management tools to aggregate and manage multiple renovation loans/investments.
- (iii) Standardised data collection and reporting protocols for energy performance.
- (iv) Guidelines on integrating energy performance into underwriting and due diligence processes.
- (v) Approaches to securitisation or bundling of renovation loans into investment products.

By having a comprehensive framework, it becomes easier for financial institutions to scale up their lending and investment activities related to building renovations in a systematic way across their portfolios.

15.10 EU Emissions Trading Scheme to Incentivise Building Renovation

The E.U. Emissions Trading Scheme ("EU ETS") has been in operation since 2005 and is considered a fundamental instrument of the E.U.'s policy framework and its efforts to reduce CO₂ emissions. The scheme obliges certain companies to hold a permit for every tonne of CO₂ tonne they emit. The target of the EU ETS is to reach net zero CO₂ emissions by 2050, with an intermediate target to reduce greenhouse gas emissions by at least 62% below 2005 levels by 2030. The EU ETS is the world's largest carbon market and is based on a cap-and-trade scheme. A cap is set on emissions and emission allowances are distributed for free and through auction.

As part of the 2023 revisions of the EU ETS, a new emissions trading system, named ETS2, was created, to cover and address the CO₂ emissions from fuel combustion in buildings, road transportation and additional sectors such as small industry not covered by the existing EU ETS.

The carbon price set by the ETS2 will provide a market incentive for investments in building renovations as it progressively pushes up the cost of fossil fuels used for heating, cooling, and other services in buildings. The ETS2 will become fully operational in 2027.

Fuel suppliers, rather than end consumers, will be required to monitor and report their emissions. These entities will be regulated under the ETS2, which means they will be required to purchase from the E.U. and then surrender sufficient allowances to cover their emissions. The additional costs faced by fuel suppliers will no doubt be passed on through increased fuel

costs to building operators.

The ETS2 cap will be set to bring emissions from transportation and buildings down by 42% by 2030 compared to 2005 levels.

According to a paper⁵² published in 2024 by two Australian academics, Chyi Lin Lee and Jian Liang, carbon pricing mechanisms

“... are central in cultivating a more extensive culture of sustainability and innovation within the real estate sector.”

and

“... firms in carbon-pricing environments can gain a competitive edge by aligning with rising investor and stakeholder expectations for ESG practices.”

15.11 Smart Buildings

A smart building is one in which the infrastructure of the building is energy efficient, sustainable, and such that it offers its users an exceptionally high-quality user experience. A smart building may also adapt its operations automatically to the demands of the electricity grid.

An exceptionally high-quality user experience focuses on the health and wellbeing of occupants, their productivity, and security. This can be achieved through indoor air quality, lighting conditions, improved ventilation, reliable office equipment, digital connectivity, and flexible workspace design.

Smart buildings use solar panels, intelligent lighting, reuse rainwater, employ low-flow water fittings, high-efficiency glass, heat pumps, and self-shading facades. All these features are monitored by digital sensors and feed their data into a central control system. The technological infrastructure uses AI and the Internet of Things (“IoT”) to optimise the building’s lighting, ventilation, heating, air conditioning, and security to self-adjust when it identifies inefficiencies or problems. The data collected by smart buildings provide accurate and reliable environmental data for sustainability reporting and benchmarking their ESG credentials.

Smart buildings have lower energy and operating costs because the technological infrastructure can identify issues for remediation to building management faster than in a building without such technology and therefore before they become costly to repair.

Other factors aside, smart buildings are in demand by investors and tenants and are likely to provide higher yields to investors. Compared to a building without such technology, investors benefit from the higher capital value while tenants enjoy lower service charge costs due to the

⁵² Chyi Lin Lee, Jian Liang, The effect of carbon regulation initiatives on corporate ESG performance in real estate sector: International evidence, Journal of Cleaner Production, Volume 453, 2024, 142188, ISSN 0959-6526, <https://doi.org/10.1016/j.jclepro.2024.142188>.

efficiencies. Likewise, lenders are more likely to offer a lower interest rate on borrowings to purchase a smart building because of its ESG credentials.

15.11.1 *Smart Buildings – Potential Issues for Landlords*

Landlords operating smart buildings need to consider at least two factors: (i) in relation to the data collected by the smart building, their obligations under data privacy legislation such as the General Data Protection Regulation (“GDPR”) and the need for increased cyber security to reduce the probability of cyber-attacks, ransomware demands, and data breaches; and (ii) the pace of technological change is so fast that the technology infrastructure may need to be upgraded frequently which may require increased CAPEX.

In relation to (i) above, in the triple net lease⁵³ model, the landlord is unlikely to have access to the data on the emissions of GHG, the intensity of energy consumption, water usage, waste recycling, and other utility data for the entire building. This data is needed to understand the environmental performance of the entire building and not just the relatively small floor space covered by the common areas so that the landlord can identify areas of improvement in the environmental performance of the building including in spaces controlled by tenants. In such cases, the lease must create a legally binding obligation on the tenant to share the data. This however is likely to lead to the landlord obtaining private data which will increase its data privacy oversight.

The E.U. Recast Energy Performance of Buildings Directive requires that E.U. Member States must ensure that the managers, tenants, and owners of buildings have direct access at no additional cost to the data gathered by the systems operating their buildings. Further, managers, tenants, and owners can direct that such data is made available to third parties at no additional cost.

15.12 Repurposing of Existing Buildings

When an existing building is repurposed, for example, when an office block is converted into residential units, the embodied carbon in the original structure is preserved. However, repurposing an existing building presents a range of challenges including:

- (i) Design issues;
- (ii) Consideration of the proximity of potential target office buildings to transport, schools, retail outlets, and other amenities;
- (iii) Current occupancy and timing of vacancy;
- (iv) Planning permission for the conversion;
- (v) Structural modifications of large floor plates found in offices into residential units with a range of electrical, water, sewage, and heating utilities, insulation, and soundproofing and in some cases adjustments to the height of floors and the

⁵³ In a triple net lease, the tenant is responsible for the following operating expenses: (i) all real estate taxes levied on the property; (ii) payment of insurance premiums covering the building and any associated liabilities; and (iii) all costs related to the maintenance and repair of the property, including the building's structure, systems, and common areas.

- availability of natural light through reconfiguring window layouts;
- (vi) Engineering report on the frame and impact of any change in the load on the foundations arising from the addition of more floors to the building;
- (vii) Market research to assess the attractiveness of the proposed residential spaces; and
- (viii) Finance.

15.12.1 *Embodied Carbon*

In relation to existing buildings, when the choice is between redevelopment of a site and refurbishment of the building, embodied carbon is now a key consideration in the reports of planning inspectors.

A recent case in the U.K. illustrates the point. Marks and Spencer plc sought planning permission to demolish an existing building in Oxford Street in London and construct a new nine-storey mixed office and retail outlet. Planning permission was granted by Westminster City Council in November 2021.

However, there were numerous objections to the redevelopment of the site on various grounds including environmental grounds resulting in an inquiry.

As part of the inquiry, a planning inspector's report considered whether the redevelopment would hinder the transition to a zero-carbon economy and the embodied carbon involved in redevelopment of the site, as opposed to refurbishment. The planning inspector concluded that the benefits of the proposal outweighed the harm, and that planning permission should be granted.

Secretary of State for Levelling Up, Housing and Communities refused the application in July 2023. A key pillar of Secretary of State's argument was that the redevelopment would impact the U.K.'s target of achieving a zero-carbon economy.

Ultimately, the High Court in London decided that the decision of the Secretary of State for Levelling Up, Housing and Communities to block Marks and Spencer PLC's planning application to demolish and rebuild the shop was unlawful. The judge noted that the Secretary of State had misinterpreted the National Planning Policy Framework in making his decision.

15.13 Lighting

In terms of energy efficiency, lighting ought to use LED bulbs and motion sensors should be fitted in common areas to conserve energy usage. Not only do LED bulbs represent a significant cost savings relative to fluorescent lights, but they also reduce the building's environmental impact by lowering greenhouse gas emissions associated with electricity generation. Moreover, LED lights typically have a longer lifespan than fluorescent lights, reducing maintenance and replacement costs over time.

15.14 Physical Risk Considerations

Consideration needs to be given to the key climate change risks over the expected useful lifetime of any asset which is probably likely to span 30 years or more. Physical risk considerations are likely to focus on the following risks:

15.14.1 *Flood Risk*

The flood risk assessment is likely to combine data from flood maps, hydrologic or hydraulic modelling, drainage studies, and a thorough evaluation of the building's construction relative to established flood protection codes and standards.

15.14.2 *Wildfire Risk*

The wildfire risk analysis is likely to focus on the following factors: (a) surrounding vegetation within 1km of the building and the extent of defensible space around the building; (b) topology of the area to assess the speed and intensity of wildfire spread; (c) an analysis of past and potential future fire weather conditions; (d) the fire-resistant material used in the construction of the building and its windows; (e) the adequacy of water sources for fire suppression; (f) accessibility of the building to the emergency services and evacuation routes for occupants. Examination of the past and expected future number of wildfires within 5km of the subject asset over the expected useful lifetime of the asset.

15.14.3 *Wind Risk*

The building should be able to withstand wind gusts up to 160 km/h for short periods. Sustained exposure to winds over 120 km/h lasting over 6-8 hours is likely to be damaging to many building structures. The 1/100-year past and expected future wind speeds around the subject asset over the expected useful lifetime of the asset should be less than 100 km/h.

15.14.4 *Temperature Risk*

Temperature risks are evaluated by reviewing: (a) historical temperature data, including the number of days per annum with temperatures above 33 degrees centigrade and the number of days per annum below zero degrees centigrade for the building's location. In this context, the thermal insulation properties of the building and its ability to minimise heat gain and heat loss while maintaining comfortable indoor temperatures; (b) the measures in place to protect water pipes, sprinkler systems, and other critical systems from freezing; and (c) the structural capacity of the roof and other building components to withstand heavy snow and ice loads.

15.15 ESG and Value

Along with location, the use to which a property will be put, the investment objective of investors and their risk appetites, ESG factors are increasingly a significant component of value. All other factors being equal, a property with excellent ESG credentials is likely to command a higher rent and suffer lower vacancy rates, both of which increase its market value.

Excellent ESG credentials include: (i) sustainable design features involving the use of renewable materials; (ii) a highly efficient HVAC system; (iii) zero or near zero energy consumption; (iv) low carbon emissions; (v) access to green roofs and parks; and (vi) proximity to public transport.

Where the features (i) to (iv) are evidenced by ESG certifications like LEED or BREEAM the property is likely to command a higher value all other factors being equal.

ESG factors that detract from a property’s value include: (i) environmental hazards such as those outlined in Section 15.14 (Physical Risk Considerations); (ii) a failure of governance by relevant local market stakeholders; (iii) anti-social behaviour in the area in which the real estate is located; and (iv) for real estate in the E.U., failure to meet the minimum energy performance standards of the RECAST EPBD.

15.15.1 Location and ESG

In the past, a property located in a highly desirable area would certainly have commanded a premium value in terms of price or rent, but today, its value will also be significantly impacted by its ESG credentials. For example, if its ESG credentials are excellent, it may command a premium value over and above its simple location value, while if it is prone to any one or more of the physical risks in Section 15.14 (Physical Risk Considerations), it may trade at a discount to its simple location value.

Table 10 below illustrates the types of real estate the value of which is particularly impacted by a range of ESG characteristics. The ESG characteristic with the widest impact on value footprint is energy efficiency as it appears to impinge on almost all property types except for industrial properties.

Table 10⁵⁴

ESG Characteristic	Type of Real Estate Impacted
Energy efficiency	Offices Residential Retail Logistics Hospitality
Water efficiency	Offices Residential Logistics Hospitality
Regulatory compliance	Offices Logistics Industrial Hospitality
Access to transport	Offices Logistics
Access to essential services	Residential Hospitality
Carbon footprint	Offices
Safety & security	Residential
Affordability	Residential
Social diversity & social sustainability	Retail
Waste management	Industrial
Community engagement	Retail
Environmental impact	Industrial

⁵⁴ Adapted from: *The future of real estate valuations: the impact of ESG*. Views from a European expert group. January 2024. Published by the Royal Institution of Chartered Surveyors (RICS).

15.16 Biodiversity

The Secretariat of the Convention on Biological Diversity⁵⁵ defines biodiversity as the “*variability among living organisms from all sources*”. Biodiversity is a vital infrastructure contributing to economic prosperity, human health, and food security. For example, a marine protected area is not just a scenic park in the sea, it is a carbon sink, produces food, and creates jobs.

According to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services⁵⁶ the five human-influenced direct drivers of biodiversity loss are:

1. Land, freshwater and sea-use change arising from, for example, agricultural expansion, mineral extraction, and infrastructure development;
2. Overexploitation of resources through, for example, overfishing, unsustainable timber harvesting, mineral extraction and hunting of species for animal-based products;
3. Climate change, leading to impacts from changing temperatures and weather patterns, which affect how ecosystems function and causing migration of species;
4. Pollution, with impacts to freshwater and ocean habitats because of plastic waste and nitrogen deposits, for example; and
5. Invasive species, which can disrupt the ecological functioning of natural systems, for example by outcompeting native flora and fauna.

For real estate investors, biodiversity due diligence ought to cover waste, water, land use, and wildlife fatalities as part of their asset assessment processes.

One metric that has grown in use as a measure of biodiversity footprint or impact is the Mean Species Abundance (“MSA”). It expresses the mean abundance of original species in a habitat relative to the abundance of the original species in an undisturbed habitat. MSA is recognised as a leading biodiversity metric by the E.U. and the Task Force on Climate-related Financial Disclosures.

Landlords and developers are likely to see increasing focus on the biodiversity impact of their property portfolios from lenders and other investors providing capital for real estate projects and who are particularly focused on biodiversity. MSA may be used to assess the biodiversity impact of a specific real estate project or a portfolios real estate investment.

MSA scores have scopes. Scope 1 analyses biodiversity loss from direct operations of a company. Scope 2 looks at biodiversity impacts arising from energy purchases. Scope 3 accounts for impacts due to other purchases and to the use and end-of-life of products and services.

⁵⁵ Source: <https://www.cbd.int/doc/legal/cbd-en.pdf>

⁵⁶ The IPBES is an independent intergovernmental body established by States to strengthen the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human well-being, and sustainable development.

In France, for example, asset owners and asset managers are subject to mandatory biodiversity disclosures regarding their practices in relation to biodiversity impacts. Currently, the MSA is the metric of choice used by French asset owners for such ecosystem disclosures. In the future, there is likely to be increasing requirements for real estate landlords and investors to report on their biodiversity impacts.

While the MSA metric does not currently cover the marine environment, that is less of a drawback for reporting the biodiversity impact of most of real estate investment. The metric has also been criticised for its focus on biodiversity at the ecosystem level rather than at the species or gene level; as a result, it fails to take account of the risk of extinction of species or the degradation of the diversity of genes.

15.17 Taskforce for Nature Related Disclosures

The concept of ‘nature’ is wider than the concept of ‘biodiversity’ as nature encompasses the atmosphere, land, ocean, and freshwater.

In September 2023, the Taskforce for Nature-related Disclosures (“TNFD”) published its recommendations listing a range of metrics and indicators for the risk management and disclosure of evolving nature-related risks and opportunities. The TNFD recommendations are based on four pillars:

- (i) Governance: The governance processes, controls, and procedures the organisation uses to monitor and manage nature-related issues;
- (ii) Strategy: The approach the organisation uses to manage nature-related issues;
- (iii) Risk & Impact Management: The process used by the organisation to identify, assess, prioritise, and monitor nature-related dependencies, impacts, risks, and opportunities; and
- (iv) Metrics & Targets: The metrics and targets used to assess and manage material nature-related dependencies, impacts, risks, and opportunities.

Each pillar is accompanied by a set of recommended disclosures.

It is hoped that the disclosures will move investment capital away from projects that harm nature and drive investment capital towards projects that support nature and biodiversity. TNFD lists core indicators for nature exposures that organisations ought to report upon or provide explanations for failing to do so.

16 Real Estate Investment Trusts

16.1 Introduction

A real estate investment trust (“REIT”) is a company that generates income by leasing space and collecting rent on the properties in its portfolio. The income generated is then paid out to shareholders in the REIT in the form of dividends.

REITs originated in the U.S. in the 1960s following the passing of the Real Estate Investment Trust Act of 1960. Since then, more than 40 countries have implemented REIT-type legislation.

REIT legislation aims to provide small investors with an opportunity to invest in large-scale, income-producing real estate potentially spread across different sectors of the property market such as offices, retail, residential, self-storage, and industrial. The latter sector includes factories, hotels, timberland, communications towers, data centers, and logistics facilities.

16.1.1 *Single Level Taxation Treatment*

A company investing in real estate that is not a REIT is subject to double taxation. First, the company pays corporate income tax on its earnings and then shareholders pay personal income tax on the dividends they receive from the company's after-tax profits. The essential tax advantage of a REIT is the income is only taxed once at shareholder level when dividends are received. REITs must meet certain investment, financing, shareholder, and income distribution requirements to qualify for the favourable tax treatment.

16.1.2 *Essential Characteristics*

The essential characteristics of a REIT are:

- (i) Legal form is that of a company the shares of which are listed on a stock exchange;
- (ii) Invest mostly in real estate assets or earn most of their income from real estate assets;
- (iii) Most of their income is distributed to their shareholders;
- (iv) Avoids double taxation by not being taxed at the corporate level, as long as it meets a range of requirements such as distributing a high proportion of its taxable income to shareholders. The income is only taxed once at the shareholder level when the dividends are received; and
- (v) Shares in a REIT are generally held by a large number of investors.

16.1.3 *Correlation of Performance – Equity Market versus Direct Property*

REITs offer investors the opportunity to diversify their portfolios by investing in real estate through companies listed on a stock exchange.

In the short-term, the performance of REITs tends to be more correlated with that of stock market performance than with that of direct property investment.

A study by MSCI on European REITs which was published in April 2017⁵⁷ showed that over periods of up to a year and a half, the liquidity advantage of REITs relative to direct property investment came at the price of greater volatility in the value of their security prices relative to the value of direct property investments. However, for periods beyond a year and a half, the performance of European REITs starts to exhibit a higher correlation with that of the underlying property market. At market turning points, REITs tend to reflect changes in the value of underlying properties more quickly than unlisted funds of direct property investments.

16.2 Characteristics of Irish REITs

Table 11 explores the characteristics of REITs in more detail and with specific reference to Irish REITs legislation.

Table 11

	Characteristic	Legislative Requirements (Ireland)
	Legal Form	Either a single company REIT or the parent REIT of a group of companies. The parent REIT or single company REIT must be resident in Ireland and subject to Irish taxation.
	Property Rental Assets	The property assets rented by the REIT may be either industrial, commercial, or residential properties.
	Listing Requirement	The shares in a REIT must be listed on the primary market of a stock exchange recognised by an E.U. competent authority as a regulated market in financial instruments which functions in accordance with the provisions of MiFID rules. Arising from this requirement, a REIT or a parent company REIT will be required to prepare accounts or consolidated accounts respectively under International Financing Reporting Standards.
	Large Number of Investors	For shareholders to benefit from the favourable single level taxation treatment of a REIT, after the first three years following the formation of a REIT, it must not be a company with five or fewer shareholders.
	Concentration of Investors	If a REIT makes a distribution to a shareholder entitled to 10% or more of the voting rights or distribution rights of the REIT, it will lose the single level taxation treatment as it will have to pay a corporation income tax charge of 25% of the amount distributed. The only exceptions to this rule are in relation to: (i) where the REIT takes reasonable steps ⁵⁸ to prevent the making of the distribution to such a person; and (ii) a distribution made to <i>qualifying investors</i> which include a pension scheme, charity, or life assurance company established in Ireland, a Qualifying Investor Alternative Investment Fund, and the National Asset Management Agency.

⁵⁷ Bert Teuben, Ian Cullen – MSCI. “Listed and Private Real Estate: Putting the pieces back together” – April 2017. A study of the Drivers of European Listed Real Estate Performance in Association with the European Public Real Estate Association.

⁵⁸ To the best of the knowledge of the authors, the Revenue Commissioners in Ireland have not issued any guidance on what would be considered “taking reasonable steps.”

Table 11 (continued)

	Characteristic	Legislative Requirements (Ireland)
Single Level Tax Treatment	<i>Taxation at REIT Level</i>	<p>There is no corporation income tax on the rental income or on the chargeable gains arising from the disposal of the property rental assets of a REIT. To avail of this tax treatment, assuming the REIT has sufficient distributable reserves, it must distribute a dividend to shareholders at the end of each accounting period⁵⁹ of at least 85% of the property income of that accounting period.</p> <p>Gains on disposals of property rental assets must be distributed as a dividend or reinvested within 24 months of such disposals. Otherwise, they are treated as part of the REIT's property income to which the annual 85% distribution rule applies. Currently, a REIT must withhold 25% of each dividend distribution out of rental income and gains and pay it over to the Revenue.</p>
	<i>Taxation at the Individual Investor Level</i>	<p>Irish resident individuals are liable to income tax at their marginal rate, universal social charge, and pay related social insurance on income distributions from a REIT but receive a credit for the current 25% dividend withholding tax. Any gain arising on the disposal of shares in a REIT is subject to capital gains tax at the current rate of 33%.</p>
	<i>Other Tests to Qualify for the Single Level Tax Treatment</i>	<p>By the end of the first accounting period, at least 75% of the aggregate income of a REIT must be derived from the renting of property and at least 75% of the market value of the REIT must relate to assets of the property rental business of the REIT. Within three years of commencement, the property rental business of the REIT must hold at least three separate property assets, no one of which has a market value more than 40% of the market value of the property rental assets.</p> <p>By the end of the first accounting period:</p> <p>(i) the following ratio:</p> $\frac{\{[\text{Property Income}] + [\text{Property Finance Costs}]\}}{[\text{Property Finance Costs}]}$ <p>must be at least 1.25⁶⁰; and</p> <p>(ii) the $\frac{[\text{Debt}]}{[\text{Market Value of All the REIT's Assets}]}$ ratio cannot exceed 50%.</p> <p>Loan arrangement fees, loan commitment fees, loan interest, net hedging costs and net swap costs can be included in [Property Financing Costs].</p>

⁵⁹ It usually has nine months from the end of the accounting period to do so. The time limit is set by the tax return filing date.

⁶⁰ In practice, this means that if a property business has very low profits compared to its financing costs, it may not be able to deduct all of those financing costs for tax purposes.

16.2.1 *Assessing the Performance of REITs*

The main metrics used by REIT analysts, investors, and management to evaluate the financial performance and cash flow generation ability of REITs are:

- (i) Difference between net asset value (“NAV”) and stock price of REIT;
- (ii) Funds from operations (“FFO”); and
- (iii) Adjusted funds from operations (“AFFO”).

The NAV is the underlying value of the real estate assets, but it is important to note that the calculation of NAV involves assumptions and estimates. Different REITs may use different valuation methods to calculate their NAV which makes NAV comparisons somewhat difficult.

FFO and AFFO are used to evaluate the performance and cash flow of REITs. They are not Generally Accepted Accounting Principles (“GAAP”) financial measures.

As FFO and AFFO are non-GAAP measures their calculation can be different from one REIT to another. When comparing these two metrics for different REITs, it is essential to understand the specific adjustments made by each REIT.

These metrics should be considered alongside other financial and operational metrics, as well as qualitative factors, to make informed investment decisions.

16.2.1.1 REIT Share Price v. REIT NAV

The difference between the share price of a REIT and its NAV is a commonly used metric to assess the performance and valuation of the REIT. The premium or discount to NAV can be used by investors and analysts to assess the relative valuation of a REIT compared to its peers and to the broader market.

Table 12 below interprets the possible meaning of the share price of a REIT being above its NAV and the share price of a REIT being below its NAV.

Table 12

Relationship	Interpretation
Share Price > NAV	<p>The share price of the REIT is above the NAV of the REIT. The REIT is said to be trading at a premium to its NAV suggesting that investors are willing to pay more than the NAV of the REIT for shares in the REIT. This may occur for several reasons including:</p> <ul style="list-style-type: none"> (i) Investors have a high level of confidence in the management of the REIT and its ability to create value beyond its current asset base; (ii) Scarcity value or limited availability of shares in the market; and (iii) Expectations of future NAV growth or asset appreciation.
Share Price < NAV	<p>The share price of the REIT is below the NAV of the REIT. The REIT is said to be trading at a discount to its NAV, suggesting that investors are willing to pay less than the NAV of the REIT for shares in the REIT. This may occur for several reasons including:</p> <ul style="list-style-type: none"> (i) Expectations of future declines in the NAV due for example to write-downs in the value of underlying assets; (ii) Lack of confidence in the management, its strategy, or its operational performance; and (iii) Limited demand for shares in REITs. <p>It is difficult for a REIT to raise new equity to acquire properties when its share price trades at a discount to its NAV.</p>

16.2.1.2 FFO

FFO aims to measure the cash flow generated from a REIT's operations, which can be used for distributions to shareholders, debt payments, and property acquisitions or improvements.

FFO is calculated by adding back expenses related to real estate properties to net income as defined by GAAP.

$$\text{FFO} = [\text{Net Income Calculated under GAAP}] + [\text{Depreciation}] + [\text{Amortisation}]$$

FFO provides a more accurate representation of the REIT's operating performance by excluding non-cash expenses that are specific to real estate investments.

16.2.1.3 AFFO

AFFO is often used as a measure of the sustainable cash flow available for distributions to shareholders because it accounts for the capital expenditures required to maintain the existing asset base and revenue stream.

AFFO adjusts FFO by subtracting recurring capital expenditures, for example, maintenance and tenant improvements, as these are necessary to maintain the REIT's properties and revenue stream.

While the calculation of AFFO can vary from one REIT to another, it typically involves adjusting FFO for the following items:

- Subtracting recurring capital expenditures from FFO;

- Subtracting or adding straight-line rent adjustments⁶¹ from or to FFO, respectively;
- Adding or subtracting other non-cash items such as stock-based compensation and amortisation of deferred financing costs⁶².

AFFO is often considered a more conservative measure than FFO, as it considers the capital expenditures required to maintain the existing portfolio of properties.

16.2.1.4 Understanding the Risk of a REIT

To understand the risk of individual REITs, investors may use graphs which show the annualised standard deviation of rolling 20-day returns and statistics such as the annualised standard deviation of daily returns, the kurtosis of daily returns, and the skewness of the distribution of daily returns. The kurtosis of daily returns is an indicator of the extent of variation of risk. For any given time period, the maximum peak-to-trough fall in value is a function of the mean level of risk and the extent of variation in risk.

16.2.2 *Benchmarking the Performance of REITs*

Benchmarks are useful for evaluating the performance of REITs, conduct peer group analysis, and make informed investment decisions. The choice of benchmark often depends on the specific investment objectives, geographic focus, and sector exposure desired. There are several benchmarks for benchmarking the performance of a European REIT or portfolio of European REIT investments. Three such benchmarks are:

- (i) FTSE EPRA Nareit Developed Europe Index is designed to track the performance of listed real estate companies and REITs. Index constituents are screened for free-float, liquidity, size, and revenue;
- (ii) S&P Europe Developed REIT Index tracks the performance of publicly traded REITs in developed European markets; and
- (iii) In addition to pan-European benchmarks, there are also national REIT indices for specific European countries. For example, the FTSE EPRA/Nareit U.K. REIT Index, the GPR 250 REIT Germany Index, and the GPR France Index.

⁶¹ Straight-line rent adjustments are made to bridge the gap between the actual cash rent received and the rental revenue that should be recognised on a straight-line basis.

⁶² When a company takes out a loan or issues bonds, it typically incurs various upfront costs. These costs are collectively known as deferred financing costs. Instead of expensing these costs immediately, accounting rules require companies to capitalise and spread out these costs over the life of the related debt instrument. This is done to match the costs with the periods in which the debt is outstanding, and the related interest expense is recognised.

17 Artificial Intelligence in Real Estate

In Section 15.11, Smart Buildings, we saw how AI can be integrated with building management systems and IoT devices to monitor and predict maintenance needs for properties. Predictive maintenance models can help investors optimise maintenance schedules, reduce downtime, and improve operational efficiency, ultimately enhancing the overall performance of their real estate assets.

AI can also be used to enhance the property investment decision-making processes for institutional investors. A few of these potential applications of AI in property investment decision-making are set out below:

- (i) AI can assist in automating and streamlining the due diligence process for property investments. Computer vision and image recognition techniques can be used to assess property condition and identify potential issues or areas of concern.
- (ii) Natural language processing (“NLP”) can be applied to analyse legal documents, property reports, and other unstructured data sources. For example, an AI system trained on thousands of lease agreements could be used to summarise in an instant the terms of a lease to focus on break dates, sub-letting, renewal options, and termination rights and their required notice periods.
- (iii) AI algorithms, particularly machine learning models, can be trained on historical property data, market trends, and other relevant factors to estimate property values and predict future price movements. These models can consider a wide range of variables, such as location, property characteristics, demographic data, and economic indicators, to provide more accurate and data-driven valuations.
- (iv) AI can be used to analyse vast amounts of data, including real estate listings, transaction records, economic indicators, and consumer behaviour patterns, to identify emerging market trends and potential investment opportunities. This can involve techniques like NLP to extract insights from unstructured data sources and machine learning models to detect patterns and make predictions.
- (v) AI can be employed to assess various risks associated with real estate investments, such as market risks, environmental risks, and regulatory risks. Machine learning models can analyse historical data and current conditions to identify potential risks and provide recommendations for risk mitigation strategies.

17.1 Use of Cell Phone Location Data in Retail Real Estate Investment

In some jurisdictions, it may be possible to use cell phone location data within the legislative requirements for privacy and ethical data practices.

Cell phone location data when used responsibly and in combination with other data sources can provide institutional investors with a powerful tool for assessing consumer behaviour and making more informed decisions in the retail real estate sector.

Cell phone location data can provide a detailed understanding of customer traffic patterns and foot traffic volumes in and around retail properties. This information can help investors evaluate the potential performance of a retail asset based on the number of potential customers passing by or visiting a location.

The analysis of cell phone location data alongside other data sources can identify:

- (i) Population density;
- (ii) Where customers are coming from;
- (iii) The distance they are willing to travel;
- (iv) Dwell times at specific retail locations;
- (v) Visit frequency;
- (vi) Daytime and nighttime population patterns;
- (vii) Demographics and disposable income of the surrounding population; and
- (viii) The performance of competing retail properties to identify potential investment threats or opportunities.

This information can help assess the property's potential customer base, identify opportunities for tenant mix optimisation or potential repositioning of retail assets, and inform leasing strategies. Tenant mix optimisation can maximise occupancy rates, rental income, and overall asset performance.

Aggregated cell phone location data can also act as a trend indicator providing insights into broader market trends, such as shifts in consumer preferences, changes in commuting patterns, or the emergence of new commercial or residential hubs to perform portfolio management decisions.

17.1.1 Potential of AI in the Analysis of Cell Phone Location Data

AI can revolutionise the analysis of vast amounts of historic and ongoing cell phone location data. AI algorithms can be used to identify patterns and group similar data points in cell phone location data. This can help identify areas with high foot traffic, detect customer movement patterns, and segment customers based on their behavior, demographics, or preferences.

Cell phone location data when combined with other data sources and analysed using AI models, it can be used to predict consumer behaviour, footfall, and sales performance for retail properties. These predictive models can assist investors in evaluating the potential success of a retail investment.

AI can be used to detect anomalies or deviations from normal patterns in cell phone location data. This can help identify events or factors that may influence consumer behavior or footfall, such as major construction projects, weather events, or changes in local infrastructure, allowing investors to adjust their strategies accordingly.

NLP can be used to analyse unstructured data sources, such as social media posts, reviews, and

customer feedback, to gain insights into consumer sentiment, preferences, and perceptions of retail properties or brands. This can complement the analysis of cell phone location data and provide a more comprehensive understanding of consumer behavior.

AI models can be used to simulate various scenarios and evaluate the impact of varied factors, such as changes in tenant mix, marketing strategies, or economic conditions, on customer behavior and footfall. This can help investors evaluate the potential outcomes of different investment decisions or operational strategies.

AI can be used to automate the generation of reports, dashboards, and visualisations that present the insights derived from cell phone location data analysis in a clear and easily understandable manner to facilitate more effective communication and decision-making for institutional investors in real estate.

17.1.2 Limitations of AI

AI-generated outputs are only as good as the inputs. Inputs must be up to date and correct, thus, data cleaning is a key step in the provision of training data for a machine learning model. Users of AI may require training to input appropriate prompts by asking the right questions. AI generated output needs to be reviewed by a subject matter expert before one can place reliance on it.

18 Conclusion

18.1 “Hyper-local” Nature of Real Estate

Real estate investing is “hyper-local” due in principle part to such factors as zoning, planning, and building regulations, each jurisdiction’s legal system relating to ownership, registration, and transfer of real estate, taxation, availability of finance, construction costs, transport infrastructure, environmental risks, cultural & community factors, the local economy, property specific characteristics in the area, and the supply-demand dynamics of the locality for the particular type of real estate. The hyper-local nature of real estate investing underscores the importance of thorough local market research and due diligence when considering real estate investments, as broad market trends may not accurately reflect the realities of a specific location or property.

18.2 Higher for Even Longer Interest Rates

The ‘higher for even longer’ interest rate environment following an extended period of low interest rates will cause distress among some real estate investors while opening opportunities for other investors. The latter half of 2024 and first half of 2025 are likely to prove to be ‘good vintages’ for disciplined opportunistic investors in real estate as more favourable entry prices emerge from distressed sellers. These disciplined opportunistic investors are sitting on the sidelines, waiting to deploy capital when they believe that the correction in real estate values is largely over. They expect to benefit from an environment where there is somewhat more certainty on the trajectory of interest rates⁶³ and their careful underwriting and prudent business plans⁶⁴ can enhance the value of the real estate assets purchased.

18.3 Real Estate Development - Construction

Construction starts in both the U.S. and Europe have fallen in the 9 to 24 months respectively, ending June 2024. The fall is due in part to higher construction costs, higher borrowing costs, the rise in cap rates, and the lingering impact of hybrid and working-from-home employment policies on office real estate.

18.4 Purpose Built Student Accommodation

In the last three years, the U.K., Italy, and France has seen significant growth in purpose-built, institutional-grade developments of student accommodation. A PBSA asset ought to be close to both the university campus or campuses and close to the centre of the city in which the university campus or campuses are located. Before considering other factors like the physical location and quality of an actual or proposed PBSA, the [STUDENT]/[BED] ratio ought to be at least 2.0 to ensure sufficient demand for the beds in the PBSA and hence rental income.

⁶³ Lower interest rates make the cost of debt cheaper and have the potential to enhance returns for real estate equity investors.

⁶⁴ Prudent business plans aim for full occupancy and proactive pre-letting of space as leases end as well as initiatives to improve the energy efficiency of asset to support rental growth.

The distribution of rental income from a PBSA over a calendar year is not even. PBSA rental income is stronger in autumn, winter, and spring of each calendar year than in the summer months of a calendar year. While occupancy rates during an academic year are likely to be as high as 95% or more, during the summer months, they are more likely to be of the order of 20% to 50%. During the summer months, a PBSA asset may be used by the operator to offer budget accommodation to tourists visiting the university city. In an attempt to improve calendar year-round occupancy rates, in at least one jurisdiction, some providers of PBSA have begun to insist that students agree to 51-week tenancies rather than leases for the typical 41-week academic year. In response, the authorities have moved to introduce legislation which will require that a condition for the granting of planning permission for PBSA will be that the maximum lease period is confined to the length of the relevant academic year.

18.5 Office Real Estate

The impact of hybrid and working-from-home employment policies on office real estate still lingers particularly in the U.S. and to some extent in the U.K. and Australia. However, as a general rule, as one travels East from the U.S. across Europe and into Asia the impact of these policies on offices lessens. However, the value of office real estate featuring state-of-the-art amenities, prime locations, exceptional build quality, and zero emissions is supported by strong tenant and buyer demand.

In the E.U., several legislative initiatives including, SFDR, RECAST EPBD, CSRD, and ETS2, are bringing into sharp focus the CAPEX needed to bring existing real estate up to the near zero emissions or zero emissions standard. During the discussion of this paper at the Society of Actuaries in Ireland meeting at which it was presented, it was estimated that a buyer of an existing building would require a discount of 20% of the end of Q2 2022 valuation of a real estate asset to cover the cost of retrofitting the asset to bring it up to the required energy performance standard.

18.6 Industrial Buildings - Data Centers

With the growth of AI and GenAI there is likely to be a significant increase in demand for data centers and for that reason the paper focused on this segment of the industrial and logistics real estate market. This growth is likely to lead to a significant increase in demand for more specialised data centres which are located close to both a source of electrical power and a source of water to cool the AI and GenAI server racks. A 15,000 square meter hyperscale data center focused specifically on GenAI would require access to high-voltage electrical power with an additional capacity of between 60 and 120 MW or more depending on the specific models, hardware, and operational intensity. The growth in demand for electricity for data centers requires significant upgrades to electrical grid networks and, if further emissions from fossil fuel use are to be avoided, small modular reactors or increased sources of renewable energy combined with battery storage will be needed.

18.7 Retail Real Estate

In the last decade retail real estate has suffered significant upheaval driven mainly by: (i) a move to online shopping which hit the turnover of physical retailers; (ii) a change in consumption patterns due to a gradual shift in the generations of shoppers has changed where people spend their money and what they spend it on; and (iii) the COVID lockdowns. Many high-profile retailers have filed for bankruptcy or have significantly reduced the number of their outlets to focus on their best performing locations and to occupy smaller spaces. This restructuring led to write-downs in retail real estate prices even before the COVID pandemic and now prices for retail real estate are at more attractive levels and are consistent with the rise in interest rates.

Rents have also fallen significantly allowing retailers to increase their bottom line and investors to potentially grow rental income over time. At the same time, the significant rise in construction costs and the cost of debt capital have curtailed the development of retail real estate narrowing the gap between supply and demand for retail real estate. Retail vacancy rates in the U.S. are at their lowest level in decades⁶⁵.

18.8 Residential Real Estate

Residential real estate is perhaps the biggest asset class in the world. For institutional investors seeking consistent cash flows, rented residential real estate can provide a steady stream of income. From a capital value perspective, residential real estate is generally a good hedge against inflation as both rents and property values tend to increase during periods of rising inflation. Multi-family residential property provides a concentration of housing units in a single location which reduces the operational cost of managing a portfolio of rented residential units for institutional investors.

In the U.S., in the period after the GFC, single-family homes shifted from “*not seen as suitable*” for institutional investors to renting of single-family homes becoming an “asset class” in the same way that multi-family housing rental was an asset class. The shift occurred because large stocks of single-family homes concentrated not only in geographic terms but also in terms of regions with strong growth in employment and household formation became available at deeply discounted prices.

18.9 Life Sciences Real Estate

The demand for life sciences real estate is driven by such factors as rising expenditure on health, rising incidence of chronic disease, and an emphasis on mitigating communicable diseases like COVID-19. The countries with the longest established life sciences industries are the U.S. and the U.K. While life sciences real estate is a niche asset class, it has nonetheless attracted a host of specialist investors who understand the dynamics of the life sciences real estate sector. In view of the specialised nature of life sciences real estate, investing in the

⁶⁵ Source: <https://www.cbre.com/insights/reports/2023-us-real-estate-market-outlook-midyear-review>

development of life sciences real estate carries additional risks compared with investing in office, retail, or logistics properties. These risks include but are not limited to the recruitment and retention of experienced life sciences real estate development and leasing professionals, meeting the exacting demands and often regulatory requirements of life sciences real estate clients, and estimating rental income and exit capitalisation or cap rate to assess the likely return on development expenditure. Life sciences real estate tends to be clustered in areas of a country. Life sciences employees need highly specialised training and education. The specifications for life sciences real estate are very different to those of offices. Therefore, the expertise required in the design, development, and leasing of life sciences real estate is very different to those of offices.

The Indian pharmaceutical industry supplies something of the order of 40 per cent of generic drug demand in the U.S., about 25 per cent of all medicines in the U.K. and fulfils over 50 per cent of the global demand for vaccines. Outside of the U.S., India has the largest number of US-FDA compliant plants⁶⁶. The life sciences real estate sector in India is expected to grow at a compound rate of between 13 per cent per annum over the decade beginning in 2020. The country has earned the title, ‘pharmacy of the world’.

18.10 Environmental, Social, and Governance Issues in Real Estate

ESG issues in real estate are becoming increasingly more salient driven by regulation, climate change risks, increased demand for properties with high ESG ratings, their impact on property values, and the contribution of the built environment to greenhouse gas emissions. The paper discusses the likely implications of the E.U.’s RECAST EPBD, SFDR, CSRD, and ETS2 with particular focus on the capital required for the refurbishment of existing buildings to improve their energy efficiency. Smart buildings in which the technological infrastructure is energy efficient, sustainable, and such that they offer their users an exceptionally high-quality user experience are examined from a demand perspective and from the perspective of the landlord. For the latter, a smart building may bring higher compliance costs and increased capital expenditure to maintain the building. The choice between: (a) repurposing an existing building with its embodied carbon; and (b) demolishing and rebuilding the building has become a focus of legal cases in the U.K.

Physical risks such as flood, wildfire, wind, and temperature risks and the ability to obtain insurance against these risks are explored. The implications of ESG issues for valuation are discussed. The increasing regulatory focus on biodiversity and its implications for landlords in terms of assessing biodiversity impacts and reporting on them are noted.

18.11 Real Estate Investment Trusts

The essential taxation, legal, and regulatory characteristics of real estate investment trusts (“REITs”) are identified and their different correlation to equity market returns in the short-term and in the longer-term is discussed. Metrics for the assessing the investment performance

⁶⁶ Government of India, Department of Pharmaceuticals, 2022. *Government of India, Department of Pharmaceuticals*. [Online] Available at: <https://pharmaceuticals.gov.in/pharma-industry-promotion>

and volatility of REITs are developed. A number of benchmarks for evaluating the performance of REITs in different markets are identified.

18.12 Artificial Intelligence

AI can be deployed in real estate for a number of purposes including the management of building systems, predictive maintenance models, investment decision making, estimation of property values, identification of emerging trends in markets, and risk assessment and mitigation. In jurisdictions where pseudo anonymised personal cell phone data can be accessed, AI can be used to evaluate the potential performance of retail assets deriving insights into where customers come from, visit frequency, time spent in retail outlets, and when combined with other data the demographics and disposable income of the surrounding population.