HSBC Asset Management

Real Assets: the importance of looking under the bonnet

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Key takeaways:

- Various definitions have been used to describe "real assets"
- But wide variations exist within each underlying asset class
- In order to capture the benefits of real asset investments we:
    - Segment asset types based on their inherent characteristics, rather than commonly-used labels;
    - Focus on different components of performance, acknowledging that development/construction projects are likely to deliver most performance through capital appreciation whereas stabilised, completed developments typically generate income, which is often linked to inflation;
    - Assess risks as well as returns, taking into account the different strategies that can be deployed within each asset class;
    - Place more importance on future expectations than on historic returns; and
    - Take account of accessibility, liquidity and control issues, acknowledging the trade-offs that can arise in terms of risk and return

Over the last decade, a number of asset management firms, investment consultants and performance measurement companies have promoted the benefits of re-defining and re-classifying some categories of investments as "real assets". Whilst common themes exist, there are also differences in approach, inconsistencies in definition and wide variations within each asset class. In our view, this can cause confusion and a possibility that the promoted benefits of investing in real assets do not fully materialise through investment outcomes.

This report argues that a closer examination of both the benefits and the challenges from real asset investments is required when assembling real asset portfolios. In our view, this opens the potential to construct bespoke portfolios, combining selected segments from the universe of real assets, that are more closely-aligned to achieving particular objectives, such as superior protection against inflation.

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The risks of labels

Various definitions of what characterises real assets have been adopted by investment managers, advisers and commentators including:

- Assets that are "tangible", often with physical characteristics, such as real estate and infrastructure.
- Assets that represent a "store of wealth".
- Investments that offer some protection against inflation.
- Diversification benefits, through weak correlation with and/or lower volatility than other asset classes.

Some commentators suggest that publicly-listed investments, such as equities, do not fall within the definition of real assets; others have taken a different view and consider that certain types of listed equity and fixed income investments do fall within the scope of real assets.

Our definition of real assets is that they are a claim on the future income of tangible, physical factors of production that are often characterised by high barriers to entry, either directly (through physical ownership) or indirectly (through securitisation). Such investments would include (but are not limited to) different forms of real estate, infrastructure, natural resources and similar investments. A common feature is that the income from real assets can be expected to grow over time, often with a link to inflation. Moreover, because returns are linked to physical factors of production the supply of which is inelastic in the short term, some real asset investments, such as natural capital, are more weakly linked to the economic cycle than traditional investments.

However, whilst it may be expedient to classify broad investment sectors as "real assets", we argue that a more finely-grained approach is needed when constructing real asset portfolios. This opens the potential to construct portfolios based on different parts of the real assets universe with a particular bias, such as a high degree of inflation protection or exposure to thematic trends, such as sustainability.

Real assets: a closer look at the benefits and challenges

Our approach to managing real assets is based on the following steps:

- We segment broad asset types into sub-categories, acknowledging that some offer helpful and potentially attractive characteristics, such as the ability to generate income linked to inflation; by contrast, income from other types of investment do not exhibit any systematic link to inflation.
- We focus on the different components of performance. Development projects can be expected to deliver capital growth whilst completed (standing) investments typically focus on income generation.
- We assess both risk and return attributes. These can be expected to vary, depending on whether investment is made in 'greenfield' developments or in completed, stabilised (standing) real asset investments.
- We lay importance on future expectations, rather than rely too heavily on historic performance.
- We take explicit account of accessibility of investments, the liquidity requirements of investors and the degree of control they wish to exercise over completed investments.

Segmentation of broad asset types

Within investment categories that are typically regarded as real assets, some offer potentially attractive attributes that are consistent with the characteristics mentioned above. However, other investments – even within the same asset class – may not share those attributes to the same extent. This is understandable given the huge variety of characteristics that exist within each asset class. We argue that the construction of portfolios should look beyond the labels often given to real asset investments, as the following example demonstrates.

We believe that a key attribute of real assets is the ability to offer a degree of inflation protection. Often, this seems to be based on whether historic returns have exceeded inflation. We suggest that such an approach is overly-simplistic and that more attention should be given to the inherent characteristics and drivers of the cashflows that are generated by the underlying assets.

Within physical (direct) property markets, lease terms differ widely, as shown by the table below. Typical lengths of leases vary from 3 years in parts of Asia to over 20 years in certain sectors in the UK and US although the length of a standard institutional lease has reduced over time. The basis of rent reviews varies, with a direct linkage to local measures of inflation in parts of Continental Europe and specialist sectors in the UK, such as supermarkets. These provide investors the opportunity to secure income with a strong degree of inflation protection through contractual lease terms. Several pooled direct property funds have been established in the UK and Europe specifically to target such buildings.

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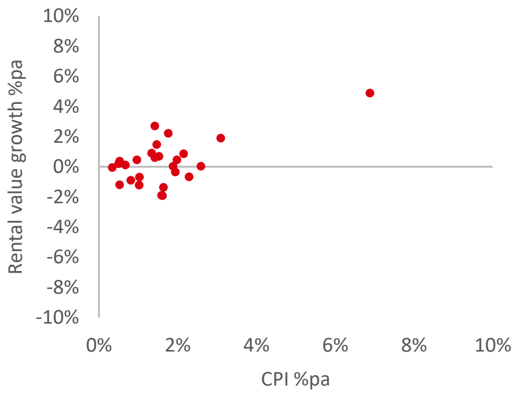
Table of typical office lease terms by country

	Lease Length	Basis of rent review
USA	3-10 years	Annual, typically 2.5%
UK	5-15 years	Typically open market levels*
Spain	3-5 years	Annual (CPI)
France	9 years	Annual based on INSEE Cost of Construction index or the office rental index ILAT)
Germany	5 or 10 years	Annual based on CPI
Netherlands	10 years	Annual based on CPI
Sweden	5 years	Annual or quarterly based on CPI
Italy	6 years	Annual (75% of ISTAT (Italian Consumer Price Index). If a first term of the contract is longer than 6 years, 100% of ISTAT can be applied
Belgium	9 years	Annual (Belgian Health index)
Hong Kong	3-6 years	Open market levels
Singapore	3-5 years	Open market levels
Australia	5-10 years	Yearly, based on fixed percentage uplifts (3-5%)
China	3 years	Open market levels
South Korea	2-3 years	Yearly, based on either CPI or fixed percentage (typically 3-9%)
Japan	2 years	Open market levels

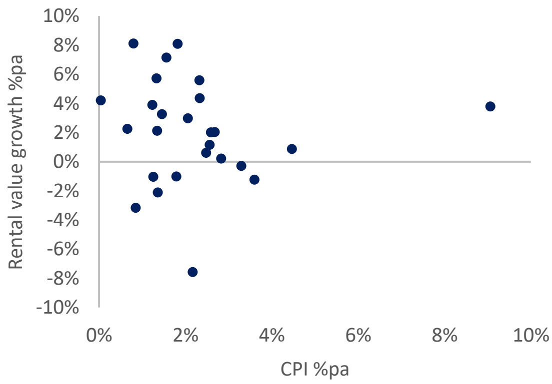
Source: Cushman & Wakefield, Colliers Office Tenant Leasing Guide, HSBC Asset Management, as at March 2019
Note: * rent reviews in some sectors, such as supermarkets, are linked to inflation, usually with a cap and collar

Differences in property leasing practices and 'terms of trade' in different countries – and across different sectors in the same country – mean careful selection is needed when assessing the extent to which direct property investments offer protection against inflation. From the table above, in our view it can be seen that the profile of office rents is likely to be more closely linked to national inflation in, say, Germany than in the UK. Indeed, this seems to be borne out by evidence. The scatter charts below plot market rental growth for All property in both Germany and the UK against inflation in each country, drawn to the same scales for comparison purposes. Each dot shows the rental value growth and inflation for a calendar year.

Annual rental value growth and inflation for direct property in Germany, 1997-2022



Annual rental value growth and inflation for direct property in UK, 1997-2022



Source: MSCI Core Digest, Germany and UK, Refinitiv Datastream, calendar years 1997 to 2022 inclusive

Assessing the extent to which an asset provides protection against inflation is not straightforward. When looking at historic data, a high correlation between the income from a particular asset class and inflation does not, by itself, indicate a high level of inflation protection: it is possible for income to be highly correlated with inflation but fail to offer inflation-protection over time. The sensitivity (that is, degree of responsiveness) to inflation is also important.

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The correlation coefficient between rental value growth and inflation is far stronger in Germany (0.62, which is statistically significant at the 5% confidence level) than in the UK, which exhibited virtually zero historic relationship. The sensitivity of rents to inflation – a measure of the responsiveness – in Germany was also higher at 0.74, suggesting that a 1% rate of CPI was associated with a roughly 0.75% increase in rental values. By contrast, the UK exhibited lower sensitivity to inflation at -0.1, which was not statistically significant.

In our view, this example would suggest that direct property in Germany is generally better able to provide a closer link with inflation than most UK property sectors. It is worth noting, however, that there are exceptions, such as UK supermarkets, where rent reviews are typically linked to inflation usually with a cap and collar.

Within the global real estate equity market, dividends per share that have shown the highest sensitivity to inflation historically[1] include Switzerland, Germany, Japan and Industrials specialists in the US; Singapore, Hong Kong and the US Residential sector have shown the weakest responsiveness to inflation. Overall, dividends per share from global real estate equities in USD terms exhibited a beta coefficient of 0.94 relative to US inflation between Q4 2001 and Q1 2023 suggesting that real estate equity dividends have been reasonably responsive to inflation. A recent paper by Norges Bank Investment Management found that US listed real estate provided a similar level of inflation to inflation-protected US bonds (TIPS)[2], a conclusion that the authors felt was supported by the academic literature.

Certain segments of the global listed infrastructure market also exhibit the ability to generate income linked to inflation. In Europe, transportation assets such as toll roads and airports and some communication assets typically have CPI linkage. In North America, energy infrastructure assets often have inflation incorporated within pricing agreements.

Infrastructure assets and inflation protection

The infrastructure asset class is often presented as a direct inflation hedge, suggesting that the revenues of infrastructure companies (the ultimate owners of specific assets) are indexed to inflation. This is, however, only the case in some sectors. Utilities, for example, typically achieve a degree of inflation pass-through in their tariff negotiations with regulators. They can then benefit from this characteristic for an extended period of time, which is measured in years. Likewise, some toll roads or social infrastructure projects do have CPI-linked revenues. But many other infrastructure companies and assets do not.

Significantly, equity investors discount future dividends, not future revenues. This means that potential changes in CPI and dividends can easily be lost. As a result, many infrastructure investments may only actually deliver a partial hedge to inflation risk. EDHEC research[3] suggests that infrastructure investments also have a term structure of cash flows, which should be discounted using a combination of an equivalent term structure of interest rates, to which a risk premium must be added to reflect the uncertainty of these future payments. This research shows that the fair market value of infrastructure investments is thus highly correlated with interest rates. This sensitivity is an important consideration when addressing inflation risk and infrastructure investment.

Sector	Inflation sensitivity	Comments
Public private partnerships / Availability-based	High	Strong linkage between revenues and inflation. Financing tends to be long-term fixed-rate, offering protection from potential rate rises.
Renewables	High to medium	Most revenue regimes have inflation protection (CfD, ROCs etc). Merchant prices are linked to demand, which can fluctuate in different inflationary environments. Greenfield development hit by higher construction costs.
Digital	Medium	Capex costs can impact new builds - particularly for capital intensive facilities, such as data centres. Less so for tower infrastructure. Economic slowdown could test previously inelastic demand.
Transport	Medium	Revenues can grow if inflation is accompanied by economic growth (demand pull inflation). Could be hit in a stagflationary environment. Some assets previously viewed as low-risk may now be viewed as higher-risk post pandemic (airports and toll roads).

[1] Based on an historic analysis between Q4 2001 and Q1 2023, in which quarterly real dividends per share were regressed against inflation.
[2] Norges Bank Investment Management, 'Drivers of listed and unlisted real estate returns', #3 2023
[3] FT: How exposed are infrastructure investors to inflation risk - EDHEC Infra & Private Assets

Utilities	Low to medium	Revenues generally linked to inflation through regulatory control. Costs also likely to rise with inflation but with a lag between revenue and cost indexation. Length of regulatory periods can add to stability.

Source: HSBC Asset Management as of November 2023.

Within the global listed infrastructure market, different sectors and geographies typically exhibit different sensitivities to inflation. A stylised view is presented in the table below, which illustrates our outlook in an environment of higher inflation and interest rates.

	North America	Europe (inc. UK)	Asia-Pac (DM)	Asia-Pac (EM)	LATAM
Utilities	Higher inflation is recoverable through higher allowed ROE. Although regulators rarely mark-to-market for current market conditions, particularly with regards to the cost of capital.	Higher inflation and real rates are recoverable through higher allowed ROE. Regulators rarely mark-to-market for current market conditions, but this is offset by higher cash flows.	CPI linkage of pricing and limited cost base impact is offset by a higher discount rate for longer duration assets.	Higher for longer inflation and rates would be neutral if offset by GDP growth and policy support.	
Energy Infrastructure	High inflation is related to elevated commodity price, which has a positive impact on volume and pricing. Additionally, the negative impact of higher interest rates on the cost of capital would be offset by lower beta and higher cash flows				
Transportation		**Toll Roads:** CPI linkage of pricing and limited cost base impact **Airports:** Embedded inflation and rates in regulatory structure (although unexpected inflation/rates more challenging)	**Toll Roads:** CPI linkage of pricing and limited cost base but longer duration assets	**Toll Roads:** No pricing power but limited OPEX exposure	**Toll roads:** Full inflation pass through, but structurally higher rates are fundamentally negative to valuation
Communication	Contracts have a fixed 3% escalators for base rents, providing inflation protection. Additionally, the negative impacts of higher discount rate for longer duration assets partially offset by higher cashflow	CPI linkage of pricing and limited cost base impact. Additionally, the negative impact of higher discount rate for longer duration assets is offset by higher cash flows		Any increase in costs from higher inflation can be reimbursed from contract renewal/renegotiation. Additionally, the negative impact of higher discount rate for longer duration assets is offset by higher cash flows	

Source: HSBC Asset Management as of January 2024.

Breaking down the components of performance

Much of the attention on the performance attributes of real assets has been on total returns (that is, income in the form of rents or dividends, combined with price movements, which are a function either of yield shift or changes in rental value). The balance between income and price appreciation varies significantly, depending on whether investments are made in completed investments or at the start of development/construction projects.

The income from some completed real assets is directly linked to measures of inflation. Other things being equal, this should help the inflation matching qualities of the investment, which is one of the characteristic features of real assets. The prospect of achieving a real total return can then be considered by assessing the market's pricing of future income at any point in time, which is a function not just of future income but also the discount rate implied by market pricing and the impact of inflation on discount rates used to capitalise future income streams.

For many investors, the prospect of achieving a positive real income return, after inflation, is important. This is particularly relevant to superannuation schemes that are required to meet long-term liabilities. Certain real assets therefore offer the potential to generate income that grows in real terms, as illustrated by the chart below, which shows the income after inflation for real estate equities, infrastructure equities and direct property in the US relative to US equities. Because higher fees and costs are associated with investing in direct property and, to a lesser extent, real estate equities, the returns have been adjusted in order to make a fairer comparison.

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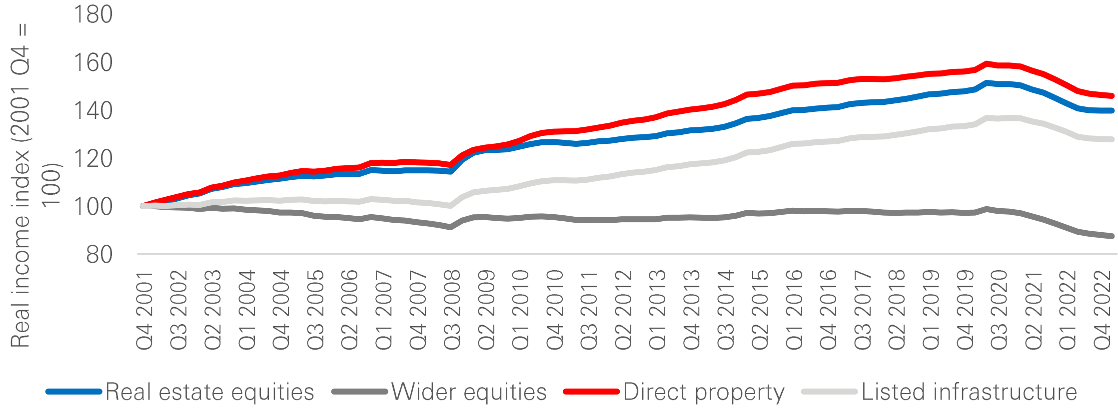
Real income for US assets, 2001 Q4 to 2023 Q1



Source: Based on income returns adjusted for inflation from US direct property as measured by MSCI US Quarterly Property Digest (reduced by 125 bps a year to allow for fees), US real estate equities as measured by FTSE Nareit US All Equity REITs (reduced by 25 bps a year), US infrastructure represented by MSCI US Infrastructure Index (reduced by 25 bps a year) and wider equities as measured by S&P500 (reduced by 10 bps a year).

After reasonable allowance for costs and inflation, the income from US direct property grew over the period by an annualised rate of 1.8%pa, the income from US real estate equities by 1.6%pa and the income from US infrastructure by 1.2%pa, whereas the income from wider equities fell by 0.6%pa. Whilst the total returns from US real assets (represented above by direct property, listed real estate equities and infrastructure) were below that of general US equities, their ability to generate real income over the long term is superior.

The performance of new real estate and infrastructure projects that are undergoing construction can be expected to come more from capital appreciation than income, at least until such time as the investments are stabilised and generating income. This provides the opportunity for investors to satisfy differing return requirements by focusing on either development projects, completed investments or a combination of both in a composite portfolio. This requires considering prospective risks and returns.

Assessing risks as well as returns

Real assets are physical and tangible; their life cycle tends to be long and varied. As a result, their investment characteristics vary over time. The creation of new property, infrastructure or other real assets involves construction and development, which can take several years. Carrying out development can release significant profits upon completion but entails risks, some of which can be mitigated (for example, by negotiating pre-lets to tenants and agreeing fixed-price construction contracts). After development the buildings then generate income and the prospect of capital appreciation, usually associated with a lower risk profile. A building may undergo refurbishment during its life to maintain its appeal to occupiers. As the building ages, however, it may become more profitable to carry out a comprehensive redevelopment plan, possibly incorporating a change of use.

The development of infrastructure assets can follow a similar path. However, due to their often critical nature, governments are often involved early in their development. Should a new road or rail line need building, it is likely that it will require sign-off by one or more local authorities. If the project is viewed as a nationally significant infrastructure project, in the UK, it is signed off by a Minister responsible. Across other jurisdictions, governments can be even more heavily involved, developing and financing projects themselves, on their own balance sheet. This type of development is more common in the Middle East and APAC, where many governments run a fiscal surplus, rather than deficits.

Where private capital is needed to ensure projects are delivered, governments can provide backstops (reducing construction risk and capping potential cost over-runs) or utilise regulatory regimes to ensure projects are delivered. They can also utilise public private partnerships (PPP), with contracts for the delivery and long-term management of an asset. These are key differences with real estate developments, which are generally signed-off locally and do not benefit from explicit government backing.

All of this considered, we believe the actual lifecycle of an infrastructure asset can be very similar to that of a building. It may be subject to a long lease (to either a user or through long-term offtake agreements), it will likely need maintenance throughout its life and it is likely to be cash generative. One major difference between infrastructure and real assets if the often monopoly-like position of an infrastructure asset. This can reduce or remove competition and protect revenues regardless of the broader macroeconomic environment.

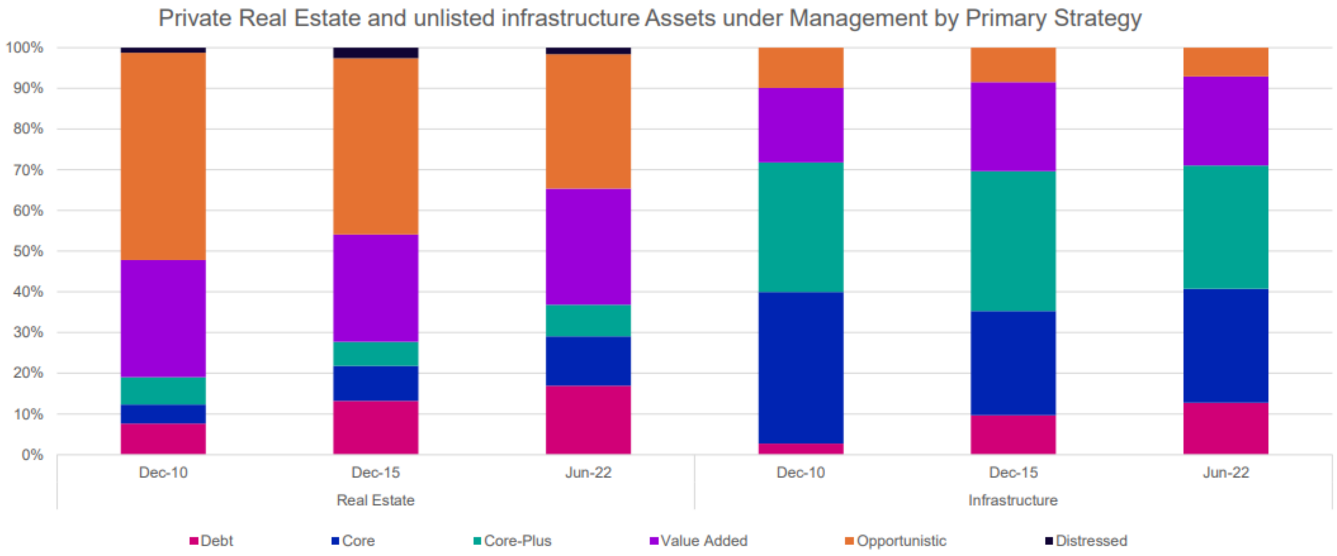
Source: HSBC Asset Management as of January 2024.

The diverse nature of real estate and infrastructure markets, combined with the differing risk/return profiles that exist during a building or project's lifecyle, mean that a range of strategies can be pursued to meet clients' risk/return requirements. Investors with significant capital to deploy can do so through direct ownership of buildings or infrastructure assets. However, due largely to the significant capital that is required to acquire these assets directly and assemble a portfolio with reasonable levels of diversification, many investors choose to invest indirectly, either through unlisted funds that own assets, or through publicly-listed real estate and infrastructure equities.

Including indirect investments as part of whole of the real asset allocation enables investors to target particular strategies and a preferred level of liquidity. Traditionally, unlisted funds have been categorised in one of three ways:

- **Core funds** tend to be conservative, with the majority of total return being driven by income. Gearing is low and there is little or no development. Many core funds are open-ended, usually with quarterly dealing frequency but providing the fund manager the ability to queue incoming and outgoing investors.
- **Value-added funds** typically target a higher risk/return profile, usually with higher leverage and some active management, such as through modest refurbishment, which is designed to deliver higher net income and capital appreciation. Within real estate markets, these funds tend to be semi open-ended or have quarterly dealing, while value-added infrastructure funds are generally closed ended – although this is changing over time.
- **Opportunistic funds** have the highest risk/return profile of unlisted funds. In the case of some regional or global funds, allocation can be made to non-core, less mature markets. Both development exposure and gearing are higher than other strategies and these funds are illiquid typically with a 5-7 year life – often longer. The objective of such funds is to deliver specified target internal rate of return (IRR). The fund manager is incentivised through a performance fee that is usually calibrated as a proportion over a base fee.

Within closed-ended investment vehicles, the real estate and infrastructure asset classes have evolved in very different ways, over time. Many real estate funds at the lower end of the risk curve (primarily core funds) are open-ended. The differences between the two asset classes are quite significant, when a side-by-side comparison of each is made, as measured by asset under management (AUM). Value-added and opportunistic funds dominate the real estate landscape, while core and core-plus funds account for the lion's share of infrastructure AUM. This highlights a potential favouring of lower risk assets among infrastructure investors, potentially driven by an overriding need for income. Meanwhile, real estate investors can benefit from a greater number of opportunities to reposition assets or develop them from scratch. Infrastructure investors do not necessarily have this leeway, given the smaller overall number of existing or potential assets, in terms of the physical number. Given the evolving nature of the infrastructure asset class, with a need to develop new assets to aid the green energy transition, this may not always be the case.



Source: Preqin Pro as of March 2023.

Real estate and infrastructure equities form part of the wider equity market and therefore provide investors with the highest level of liquidity. Unlike unlisted funds and directly-held property or infrastructure assets, the performance of which is based on open market valuations undertaken by valuers, real asset listed equity returns are driven by traded prices. This constant marking-to-market provides liquidity but with higher volatility than is associated with infrequent direct property appraisals that are 'smoothed' due, among other things, to their reliance on historic transactional evidence.

The following diagram illustrates the alternative ways to access the real estate market and their different risk and liquidity characteristics.

Low — Liquidity — High

Means of access	Private equity style opportunity funds	Semi-open- ended and value-added institutional funds	Directly-held income- producing buildings	Institutional 'core' open-ended funds	Retail open-ended funds	Listed property securities
INREV[1] style classifications	Opportunity	Value-added		Core		
% total return through income	Not specified	Not specified		≥ 60% of total		
Gearing (LTV)[2]	≥ 60% LTV	≥ 40% to ≤ 60% LTV		≤ 40% LTV		
Target development	≥25% of GAV	≥5% to ≤ 25% of GAV		≤5% of GAV		
Target non-income property	≥ 40% of GAV	≥ 15% to ≤ 40% of GAV		≤ 15% of GAV		

Means of access influence both liquidity and type of exposure/style

1. INREV is the European Association for Investors in Non-Listed Real Estate Vehicles
2. Loan to Value ratio

Source: HSBC Asset Management, as of October 2023. INREV. For illustrative purposes only.

The wide variety of investments that comprise the "infrastructure" market illustrated by the following chart, further illustrating the need to look closely at different components of a hugely diverse asset class.

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	Digital infrastructure	Transport	Utilities and energy	Power and renewables	Social
Core sector	• Towers	• Network toll roads • Airport hubs	• Regulated utilities • District heating • Solar & wind (on/offshore) • Contracted pipelines	• Conventional generation • Pipelines • Solar • Onshore wind • Offshore wind	• Conventional generation • Pipelines • Solar • Onshore wind • Offshore wind
Core+ sector	• Data centres • Fibre networks • Distributed cells / antennas	• Ports • Rail • Rolling stock • Supply chain infrastructure	• Conventional generation • Distributed infrastructure • Waste to energy	• Storage • LNH infrastructure • Biomass • Energy from waste • Batteries	• Hospitals and healthcare • Community assets • Public safety • Education

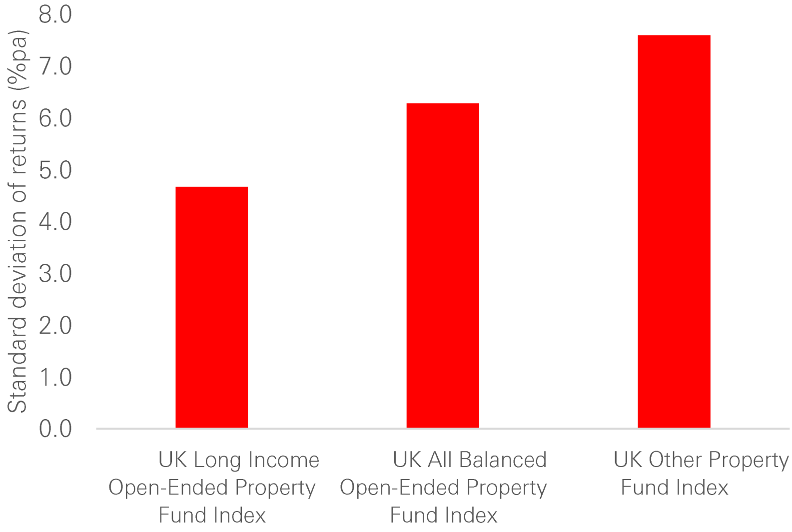
Core infrastructure	Core+ infrastructure	Opportunistic infrastructure
• Provides an essential service to a community • High barriers to entry • Regulated and/or strong contractual revenue streams • Infrastructure that relies on proven technology and/ or established regulatory environments (where relevant)	• Often contain higher degrees of market risk • Has shorter dated contractual agreements in place compared to core infrastructure • Can offer more attractive returns for the additional risk • Includes material amounts of capex in core+ or development in opportunistic	

Source: Macquarie, Cambridge Associates, Macrobond, Bloomberg Finance LP, Infrastructure: Cambridge Associates Private Infrastructure Index; Global Equities: MSCI World Index; Global bonds: Barclays Global-Aggregate Total Return Index. Data from Q4 2003 – Q3 2021

It is generally accepted that investments in real estate, infrastructure, energy transition and other forms of real assets can offer diversification benefits to a multi-asset portfolio, either from low correlation with other assets or from lower volatility. Just as particular segments within real assets offer superior inflation-protection qualities, it is also the case that delving more deeply into the characteristics of real assets can reveal those that offer stronger diversification benefits.

The example below is taken from UK direct property funds that are included in the MSCI/AREF index series. Over the last decade or so, several pooled vehicles have been established to invest in "long income" assets, based on leases to tenants with weighted average unexpired lease lengths of over 15 years and low leverage (a total debt to total asset ratio of no more than 20%). The MSCI/AREF UK Long Income Open-ended Quarterly Property Fund Index has shown lower volatility (as measured by the annualised standard deviation of returns) than the All Balanced Fund Index and the more specialised MSCI/AREF UK Other Quarterly Property Fund Index (that are classified as neither long income nor balanced) as shown below. The lower variance of the Long Income Index relative to the All Balanced Fund Index is statistically significant at the 5% level.

Standard deviation of returns, MSCI/AREF UK Property Fund Indexes, March 2012-March 2023 inclusive

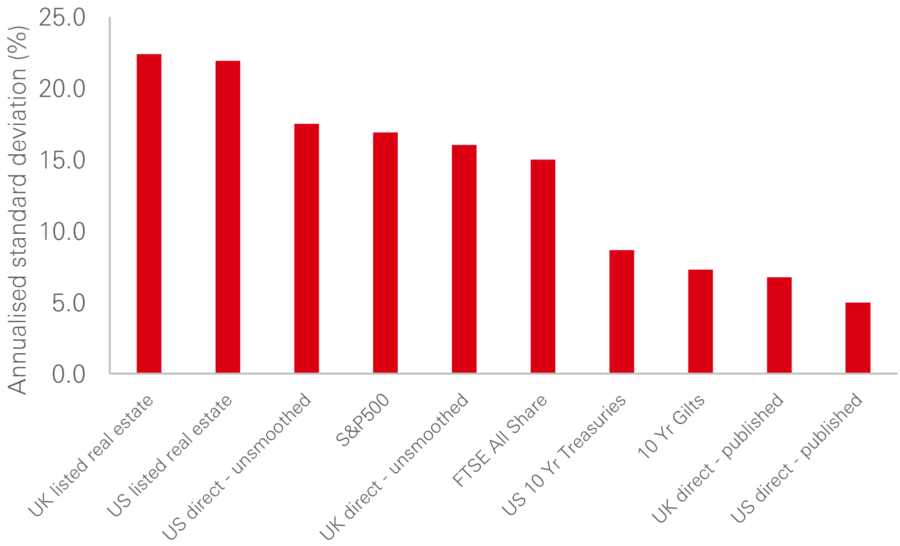


Source: MSCI/AREF UK Quarterly Property Fund Index, March 2012 to March 2023 inclusive, MSCI

The following chart shows the historic volatility of direct property, listed real estate, general equities and government bonds in both the US and UK over the last 22.5 years ended 2023 Q2 (the longest time period of quarterly direct property returns for both markets). Based on published returns using MSCI quarterly data, direct property in the two countries have exhibited the lowest annualised volatility (in the region of 5%-7%pa), whereas listed real estate equities have been the most volatile (at around 22%). As would be expected, general equities have been more volatile than government bonds. Based on published data, this suggests that real assets such as direct property are potentially attractive when included in a multi-asset portfolio because of lower volatility.

Some would argue, however, that the volatility of direct property is unrealistically low due to the valuation smoothing effects referred to above; unlike the public markets, direct property indices are based on appraisers' quarterly valuations rather than traded prices. Using one of the standard techniques that adjusts for the fact that property returns in one quarter are positively correlated with those in the next quarter, we therefore also show the 'unsmoothed' returns. The result is that volatility of direct property increases significantly. The unsmoothed returns remain less volatile than real estate equities, partly because the latter include an element of leverage whereas the direct property indices have no leverage. It is worth noting that, even after adjusting for valuation-based smoothing, the correlation of returns between direct property and other asset classes is low, illustrating the benefit of including such real assets in a multi-asset portfolio.

Volatility of listed and unlisted assets in US and UK, local currencies



Source: Refinitiv Datastream, (for listed assets), MSCI (for UK and US direct property), HSBC Asset Management, quarterly returns from Q1 2001 to Q2 2023

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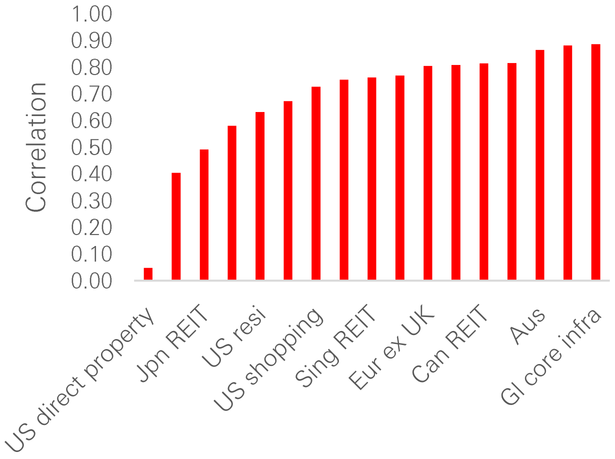
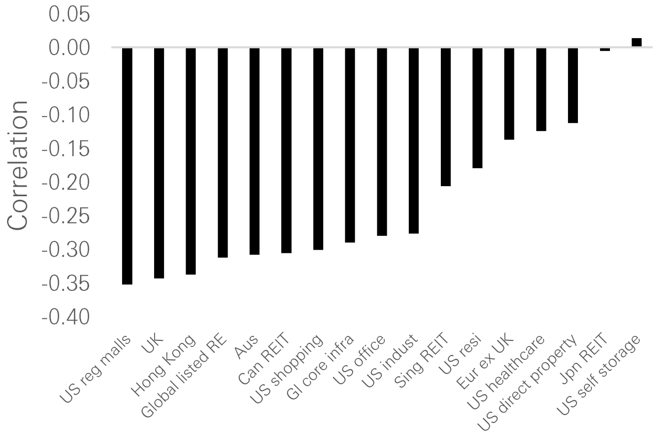
A similar approach can be adopted in relation to the correlations of real asset segments with other asset classes. Certain specialist sectors exhibit correlations that are low relative to wider equities and fixed income investments. The charts below show the correlation of quarterly total returns for selected real asset investments against the MSCI World Index and US Treasuries.

Correlation of real asset segment returns with MSCI World Index, USD



Correlation of real asset segment returns with 10-Year US Treasuries, USD



Source: FTSE EPRA Nareit for listed real estate, NCREIF Property Index for US direct property, Q1 2008 to Q2 2023 inclusive, USD, Refinitiv Datastream.

Focus on reasonable expectations, not over-reliance on history

As noted above, an income linked to inflation does not necessarily mean that the total returns received by an investor similarly matches inflation unless it is an index-linked bond held to maturity. We believe that the market can take an overly-optimistic or pessimistic view about the value of future cashflows, which means that holding period total returns may well far exceed or lag inflation, even if underlying cashflows are linked to inflation.

We therefore place greater emphasis on estimates of prospective performance that are based on realistic expectations of the future rather than simply relying on history. Our evaluation is therefore split into two main parts. The first involves assessing future net cashflows, including any linkage to inflation and future capital expenditure requirements. The second is an assessment of long run prospective returns, based on prevailing market yields. This means we look carefully at market pricing to assess whether or not the predicted cashflows are likely to generate acceptable total returns, given their risk.

To support our real estate investment decisions, we forecast over 60 different property markets around the world on a quarterly basis. Where sufficient data exists, the forecasts extend to city/sector combinations (such as Singapore offices or Tokyo industrials) but for some segments our forecasts are at a national level (such as US Regional Malls), as illustrated in the following chart. Whilst the precise specification of our models varies from market to market, the general principle is that we combine demand variables (such as future economic growth) with supply data (based on the development pipeline) to generate estimates of future rental growth. These form part of cashflow models, which are used to estimate long-run prospective returns taking into account the various rent review and lease provisions relevant to each market.

Scope of real estate market forecasts

Source: HSBC Asset Management, as at September 2023

Accessibility, liquidity and control issues

Just as there is heterogeneity within each asset class, there are wide variations in the types and characteristics of investors. A large sovereign wealth fund could, for example, acquire physical buildings or participate in infrastructure investments directly because of the significant amount of capital that can be deployed and their ability to accept illiquidity. By contrast, most investors have less capital to deploy and, as a result, they would have to access the market indirectly. Moreover, many investors require some level of liquidity, which further constrains their scope to access some real assets.

Such considerations present significant challenges and have an impact on how real asset investments can be accessed by investors. It is important to appreciate that widening the routes to market and increasing liquidity can have trade-offs in terms of the risk/return characteristics of the resulting investments. So, whilst some physical property investments can offer potentially attractive characteristics of income linked to inflation, with lower volatility than and weaker correlation to other asset classes compared with publicly-quoted real estate equities, few investors have sufficient capital or appetite for illiquidity to do this in a meaningful way. Moreover, direct investments are often associated with high levels of asset-specific risk.

This means that alternative means of accessing real assets must be considered, such as through publicly-listed real estate and infrastructure equities. Over the long term, such investments offer many of the long-term characteristics of their private market equivalents, combined with the ability to achieve superior diversification by asset type and geography. We believe that usually, these are associated with higher volatility of returns and stronger correlations with other assets, although this is largely due to infrequent private market valuations (rather than the mark-to-market pricing of the public markets), together with differences in leverage. Nonetheless, publicly-listed forms of real assets, such as real estate and infrastructure equities, offer benefits to long-term investors as a means of securing superior diversification and ease of access to asset classes characterised by high barriers to entry and large lot sizes. The trade-off between liquidity and underlying characteristics is illustrated below.

	Physical assets	Unlisted funds	Blended	Listed Real Estate and Infrastructure Equities
What?	Ownership or development of physical buildings or infrastructure assets	Open-ended or closed-ended funds that own buildings	Combination of real estate and infrastructure equities and unlisted funds	Publicly-listed equities that own portfolios of buildings or infrastructure assets
Key Features	Heterogeneous and indivisible Large lot sizes Difficult to diversify Full control Lower volatility[1] Low correlation with other markets[1] Low liquidity	Efficient way to get diversified exposure Low correlation and volatility Wide range of strategies from lower risk 'Core' funds focused on income to higher risk Opportunistic funds Liquidity profile varies[2]	Liquid and accessible Efficient diversification Mispricing opportunities between public vs private markets	High liquidity but volatile Accessible; focused segments High correlation with physical in long run; low correlation in short run
Liquidity	Lowest liquidity			Highest liquidity

Source: HSBC Asset Management, September 2023.
Note 1: The lower volatility and correlations are due, at least in part, to infrequent private market valuations of physical assets, compared to public market prices.
Note 2: Closed-ended opportunistic direct property funds can be less liquid than direct investment in physical buildings.

Current outlook for real assets

Having experienced a rapid rise in inflation, many economies have seen the fastest rate-hiking cycle since the 1980s. With an outlook of somewhat higher inflation and interest rates for an extended period of time, profit margins are under pressure, and projections for GDP and profits are down. We believe mainstream equity and fixed income markets are likely to remain choppy.

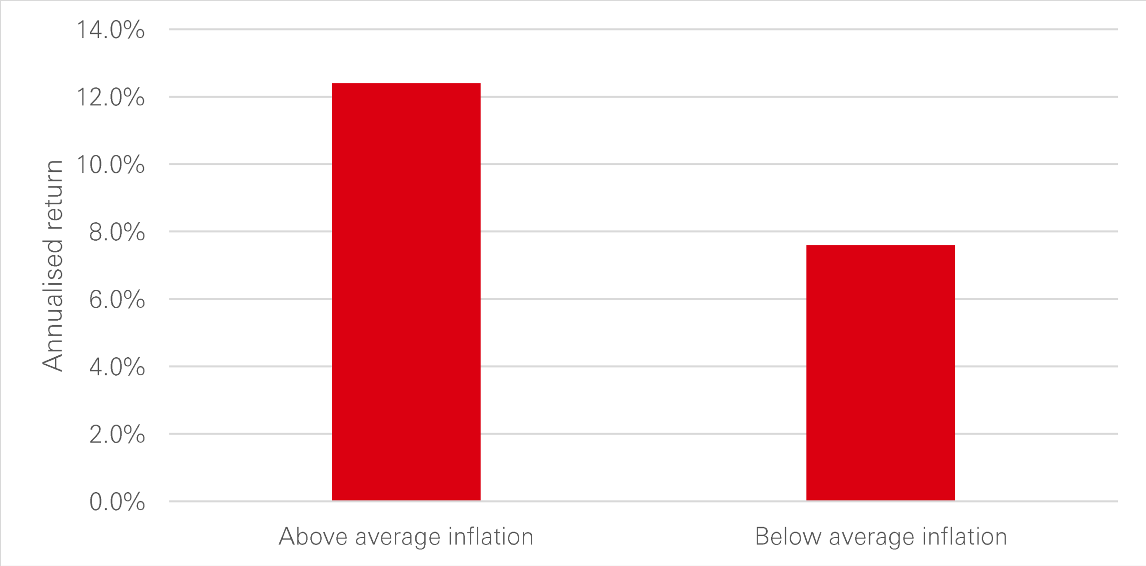
In our view, in this environment, there is a clear argument for seeking new liquid or illiquid diversifiers. As HSBC Asset Management's 2023 Mid-Year Investment Outlook[4] suggested:

> "We are not going back to the ultra low rate environment of the 2010s, but it is also overly pessimistic to worry about a replay of the 1970s…It might be that traditional diversifiers – government bonds – aren't quite as effective as they have been in the past….Alternatives must now be part of the asset mix."

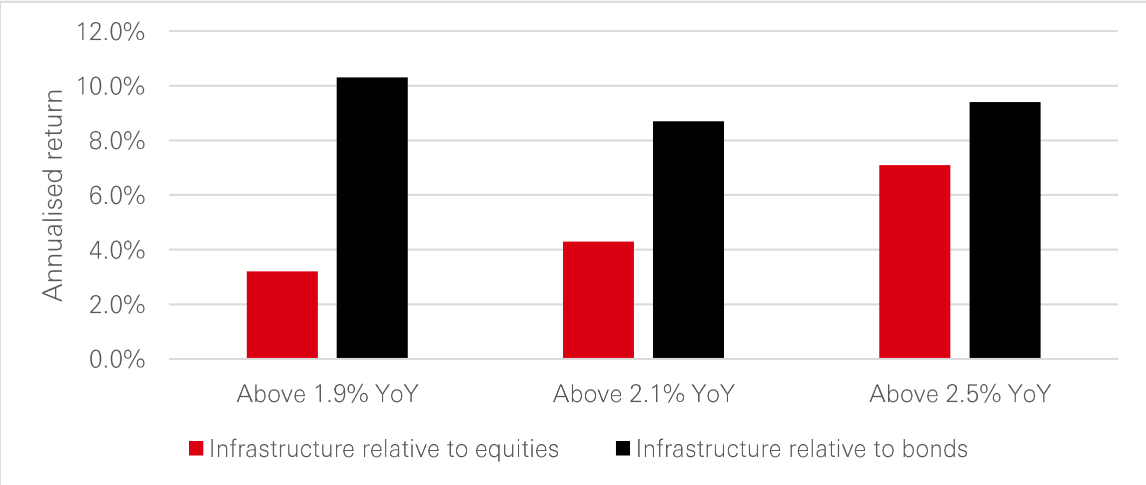
We believe real assets are well-positioned to deliver consistent returns, through different inflationary and interest rate environments, with research suggesting the asset class can outperform equities and bonds during periods of above average inflation.

[4] "Out of Sync: 2023 Mid-Year Investment Outlook", HSBC Asset Management, June 2023

Infrastructure's performance when inflation was above and below average



Infrastructure's relative performance during different inflation thresholds



Source: Macquarie, Cambridge Associates, Macrobond, Bloomberg Finance LP, Infrastructure: Cambridge Associates Private Infrastructure Index; Global Equities: MSCI World Index; Global bonds: Barclays Global-Aggregate Total Return Index. Data from Q4 2003 – Q3 2021

What's more, we believe real assets offer the opportunity to construct more resilient portfolios. In addition to a degree of inflation linkage to future cashflows – a helpful feature in an environment of higher inflation – real assets can provide the opportunity for a more targeted, thematic approach to investment. Many of these secular trends were outlined in HSBC's Global Research Report[5] and include (but are not limited to):

- **Future cities**: public transport; the greening of cities; the evolution of cities; the future of work
- **Future transport**: decarbonisation of road transportation; the development of electric vehicles
- **Demographics**: labour shortages and the acceleration of automation; ageing populations
- **Energy transition**: the acceleration of renewables; energy security

[5] "Gamechangers: How nine key themes are shaping the future of the global economy", James Pomeroy and HSBC Global Research, Q2 2023

HSBC Asset Management's approach: taking advantage of real asset opportunities

This paper has highlighted the diverse nature of real assets. It has shown how components of performance and the risk/return profile of investments vary by type and also the stage of the life cycle, drawing a distinction between projects under construction and completed, stabilised investments generating income. Different investors need to satisfy different requirements in terms of accessibility, liquidity and control: some will be able and willing to take the risks and illiquidity associated with new developments in the expectation of higher returns and the ability to achieving net zero targets, whilst others will seek to benefit from the income stream produced by completed investments, which are often linked to inflation. Many will find that a carefully-constructed portfolio of real assets satisfies their particular risk/return requirements.

Recognising that both investment characteristics of real assets and client requirements vary, HSBC Asset Management offers a range of opportunities to invest in real assets. These are likely to be expanded over time. The current offering includes (but is not limited) to the following:

- Direct Real Estate: acquisition and management of physical buildings.
- Indirect Real Estate: investment through publicly-listed real estate equities and unlisted direct property funds.
- Energy Transition Infrastructure: direct investment in infrastructure that seeks to help achieve net zero carbon targets.
- Indirect infrastructure: investment through publicly-listed infrastructure assets.
- Indirect real assets, combining real estate and infrastructure investments across traditional asset class boundaries.

Summary: the importance of taking a closer look

Whilst it may be convenient to label many investments as "real assets", the wide variation in the characteristics of underlying asset classes mean that such a broad-brush approach is dangerous. By looking more closely at the inherent characteristics within each asset class, focusing on future income and cashflow generation and risks as well as returns, a more nuanced approach can target the benefits of real assets in a superior way.

We believe this opens the opportunity to combine different types of investments, such as real estate and infrastructure, which offer the potential to provide a high degree of responsiveness in income to inflation, for example. Similarly, it is possible to combine different types of real assets in order to benefit from (or provide protection against) long-term secular trends that impact all investments, such as demographic changes and technological advances.

Understanding client characteristics when constructing portfolios is essential. The diversification benefits that arise from low volatility of unlisted investments, due largely to infrequent valuations, might appear attractive on paper but is only possible for the largest investors. For others requiring a higher level of liquidity and with less capital to deploy, public markets can provide a potentially attractive means of entry, acknowledging that this usually entails a higher level of volatility than is observed in private markets. In reality, a combination of these two forms of investment may benefit many investors.

Key Risks

Risk Considerations. There is no assurance that a portfolio will achieve its investment objective or will work under all market conditions. The value of investments may go down as well as up and you may not get back the amount originally invested. Portfolios may be subject to certain additional risks, which should be considered carefully along with their investment objectives and fees.

- **Illiquidity:** An investment in the strategy is a long term illiquid investment. By their nature, the Strategy's investments will not generally be exchange traded. These investments will be illiquid.
- **Long-term Horizon:** Investors should expect to be locked-in for the full term of the investment.
- **Economic Conditions**: The economic cycle and prevailing interest rates will impact the attractiveness of the underlying investments. Economic activity and sentiment also impacts the performance of underlying companies, and will have a direct bearing on the ability of companies to keep up with interest and principal repayments.
- **Valuation:** These investments may have no or a limited liquid market, and other investments including those in respect of loans and securities of private companies, may be based on estimates which cannot be marked to market until sale. The valuation of the underlying investments is therefore inherently opaque.
- **Strategy Risk:** Investments into this Strategy may, among other risks, be negatively affected by adverse regulatory developments or reform, credit risk and counterparty risk. The credit market bears idiosyncratic risks such as borrower fraud, borrower bankruptcy, prepayment risk, security enforceability risk, subordination risk and lender liability risk.
- **Investor's Capital At Risk:** Investors may lose the entirety of invested capital.
- **General Real Estate Risk:** an investment in real estate may be affected by various matters, including, but not limited to, vacancies following expiry or termination of leases or licenses leading to reduced occupancy rates, the property manager's ability to collect rents or license fees, competition for tenants, fluctuating local real estate conditions, changes in government regulations relating to land use and zoning, environmental, occupational and safety matters, existence of uninsured or uninsurable risk, natural disasters, acts of war or terrorism. Property markets can be cyclical.
- **Third-Party Risk:** governance of underlying assets remains the responsibility of third-party managers. Regular assessment is undertaken for third-party manager approval.
- **Exchange Rate Risk:** investing in assets denominated in a currency other than that of the investor's own currency perspective exposes the value of the investment to exchange rate fluctuations.
- **Concentration Risk:** funds with a narrow or concentrated investment strategy may experience higher risk and return fluctuations and lower liquidity than funds with a broader portfolio.
- **Real Estate Risk:** property can be difficult to buy and/or sell quickly and the Fund Manager of underlying investments may apply a deferral on redemption requests. The value of property is generally a matter of the valuer's opinion rather than fact.
- **Derivative Risk:** the value of derivative contracts is dependent upon the performance of an underlying asset. A small movement in the value of the underlying can cause a large movement in the value of the derivative. Unlike exchange traded derivatives, over-the-counter (OTC) derivatives have credit risk associated with the counterparty or institution facilitating the trade.
- **Operational Risk:** the main risks are related to systems and process failures. Investment processes are overseen by independent risk functions which are subject to independent audit and supervised by regulators.
- **Leverage Risk:** Where leverage is used, it will be subject to the risks normally associated with debt financing, including the risk that cash flows will be insufficient to meet required payments of principal and interest and the risk that indebtedness will not be able to be refinanced at all or on favourable terms.
- **Credit Risk of Tenants:** Adverse changes in the operation of a real estate asset, or the financial condition of any tenant, could have an adverse effect on the ability to collect rent payments and, accordingly, on the ability to make distributions to Investors
- **Exit Risks:** Investments are made with the assumption that an exit will be made through a sale. There is no guarantee that favourable market conditions will prevail when a sale is contemplated. The process of exiting from an investment may take longer than anticipated.
- **Tenure Risk:** An investment in real estate has a long investment period and is only suitable for investors who have a long term investment horizon.

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