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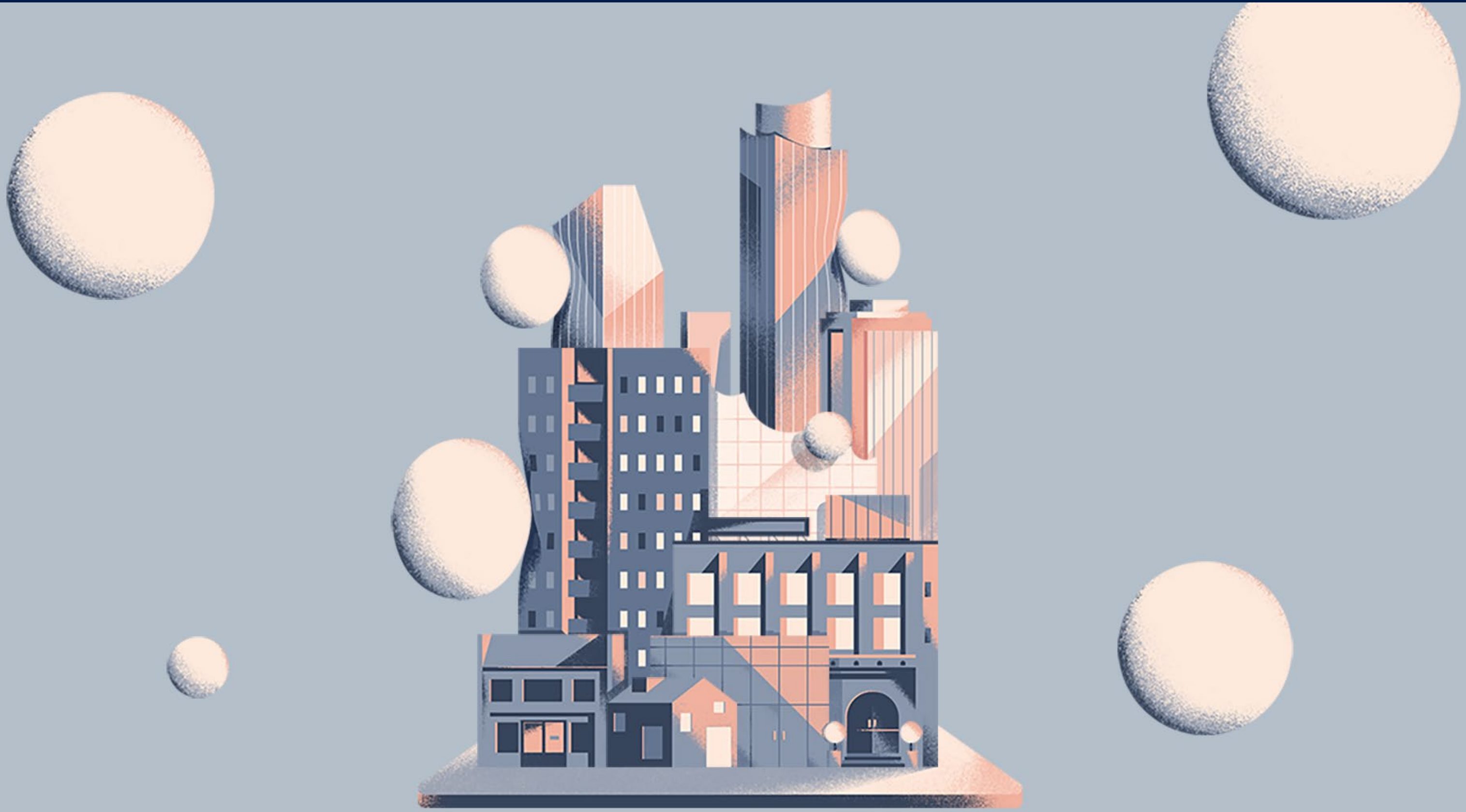

The Role of REITs in Real Estate Allocations

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ABSTRACT

- REITs are fundamentally real estate, exhibiting high correlations and similar returns over long periods. REITs offer investors greater liquidity than direct real estate, although prices may diverge in the short-term.
- REITs offer an expanded opportunity set, providing diversified sector exposures at smaller capital outlays. REITs allow for efficient and timely capital deployment, to both complement and temporarily substitute private real estate.
- Short-term divergences between REITs and private real estate provide tactical opportunities. When trading at a discount to their NAV, REITs have empirically demonstrated strong absolute and relative returns over subsequent 1-, 3-, and 5-year periods.
- By combining REITs and private real estate, investors can improve upon their risk-adjusted returns. Empirical data suggests an optimal portfolio allocation to REITs of at least 10% of real estate investments.

Introduction and summary

Allocations to real estate have long been an important building block for constructing multi-asset portfolios, offering investors meaningful long-term return potential, inflation protection, and diversification benefits. Yet, real estate investment trusts (REITs) are often overlooked by institutional investors. Equity investors will frequently avoid them – even when present in their benchmarks, claiming they are too expensive or lack the growth potential of other equity sectors, while direct real estate or alternatives investors often dismiss REITs as too volatile when compared to direct property or private real estate funds.

Both GIC and DWS believe that REITs merit a place in an investor's allocation to real estate, providing important levers to create complete and efficient real estate allocations in institutional portfolios. To that end, we endeavour to demonstrate how REITs share characteristics of both equities and real estate. REITs have real estate cash flows, but experience listed equity-like discount rate fluctuations. Over shorter time horizons, discount rates dominate, and REITs exhibit public equity-like volatility and drawdowns. Over the long-term, discount rates tend to mean revert and cash flows drive returns, resulting in a convergence to the underlying real estate.

With these characteristics in mind, we explore two important roles REITs can play in an institutional investor's portfolio:

- **Strategic allocation:** REITs can complement private real estate in building diversified portfolios in terms of geography and sector in a cost- and resource-efficient manner. They can be used to temporarily complete real estate allocations while capital is still in the process of being deployed into private properties.
- **Dynamic allocation:** REITs' pricing contains information about real estate markets (leading indicator). Relative value opportunities between REITs and private real estate exist. REITs add flexibility to quickly adjust an overall real estate allocation or the sectorial or risk profile of a real estate portfolio.

Finally, we demonstrate that by combining REITs with direct real estate holdings or private real estate funds, it may be possible to improve the overall risk-adjusted return profile of a multi-asset portfolio. We hope that readers will come away with an improved understanding of REITs, including their “hybrid” investment characteristics, where they fit and what gaps they can fill in an overall portfolio allocation, and the potential benefits they can offer investors in meeting their investment objectives.

1. REITs are real estate

At the most fundamental level, REITs are real estate – they own, acquire, develop, sell, and lease properties while their cash flows come primarily from the rents they receive. Perhaps most importantly, REITs benefit (or suffer) when their properties' values increase (or decrease) in the same way as direct real estate investors or private real estate funds. Thus, one might expect the value of a REIT to mimic the value of its underlying real estate assets. In fact, we have observed that REITs behave very much like real estate over longer-term periods.

However, in the short-term, the returns of REITs and direct real estate can diverge, sometimes materially. While both private and listed real estate have the same types of cash flows from their underlying properties, private real estate is often valued by backwards-looking property appraisals while REITs are subject to changes in public market discount rates (or public market multiples) applied to their cash flows, which can change much more quickly due to market sentiment.

1.1 REITs perform like real estate in the long term

The main difference between REITs and direct real estate is that REITs trade on stock exchanges and are readily available to investors that wouldn't otherwise be able to purchase property. While this 'instant access' – afforded by daily liquidity – is a positive characteristic of REITs, the environment in which they trade can impact their pricing. Stock markets can react sharply in the short-term, sometimes in anticipation of changing market conditions or shifts in investor sentiment. For example, when new economic data becomes available, geopolitical risks arise, or in times of uncertainty, stock prices can be affected – REITs are no exception.

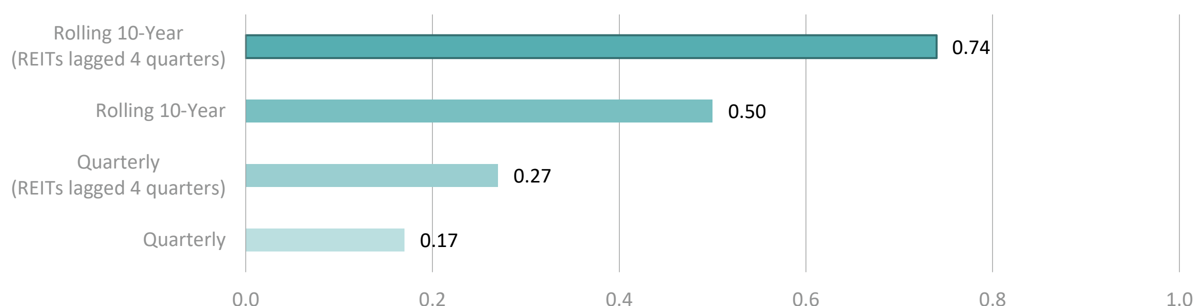
In the short-term, REITs can be similarly volatile and can trade significantly above or below their net asset value (NAV), which is the equity value of their underlying assets after adjusting for outstanding debt and liabilities. In contrast, the value of direct real estate adjusts much more slowly to changing market conditions. Properties take time to sell and appraisals are often retrospective. For these reasons, REITs often lead direct real estate valuations as active participants in the stock market re-evaluate asset values in real-time.

Given these observations, we would expect the correlation of returns between direct real estate and REITs to be low when observed over short time frames but believe these correlations should increase meaningfully over longer time periods and when accounting for the tendency of REITs to lead underlying real estate values (by lagging REIT returns, for example). We demonstrate this using the U.S. property market – a region which has some of the largest and most mature direct real estate and listed REIT markets – as an example.

In the U.S., we found that the correlation of quarterly returns for public and private real estate was quite low but increased when observed over 10-year rolling periods. It improved even further when listed REIT returns were lagged by 12 months. Figure 1 shows the correlation of quarterly returns between the NCREIF Property Index (NPI), a proxy for U.S. direct property returns, and the FTSE NAREIT Equity REITs Index, one of the longest-dated listed REIT indexes in the U.S.

Figure 1: REITs and private real estate show high correlations over longer time frames

U.S. REITs vs. U.S. private real estate
Correlations of quarterly and 10-year rolling returns



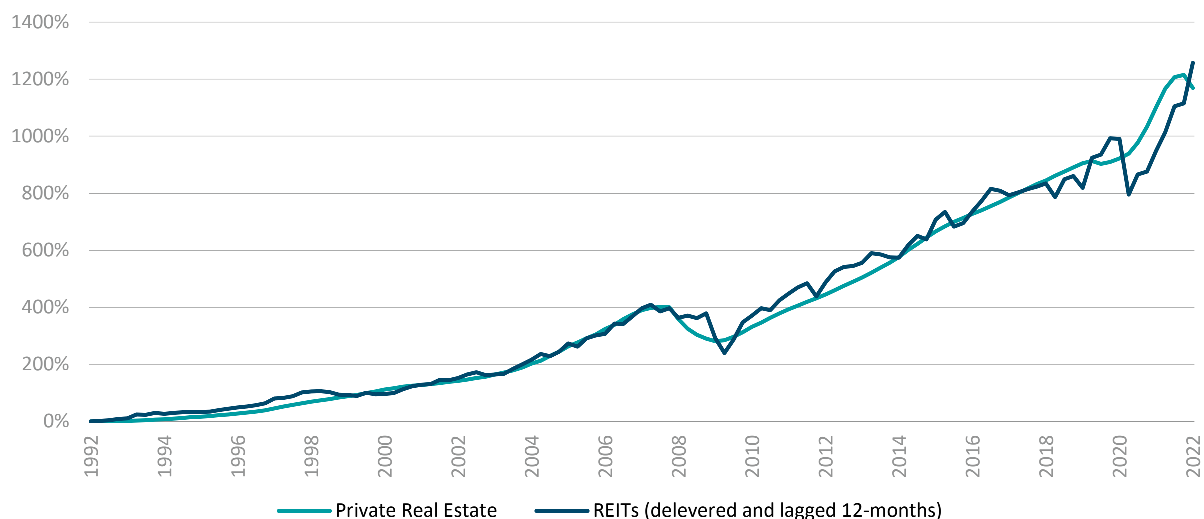
Source: Bloomberg as of December 31, 2022. U.S. REITs = FTSE NAREIT Equity REITs Index. U.S. Private Real Estate = NCREIF Property Index (NPI).

Furthermore, the returns of listed REITs were synthetically de-levered to match the unleveraged reporting basis of the NPI. This exhibit illustrates the improvement in correlation coefficient when extended to a 10-year rolling window and by lagging the REIT returns by four quarters. In fact, when we lag the de-levered REIT returns by 12 months and look at 10-year rolling windows, the correlation between REITs and private real estate returns from December 1992 to December 2022 increases from .17 to .74.

We frame this through another lens in Figure 2, which compares the cumulative returns of the NPI and the FTSE NAREIT Equity REITs Index over a 30-year period. Notably, the returns of the FTSE NAREIT Equity REITs Index are 1) lagged by four quarters to account for the tendency of REIT returns to react sooner to new information and therefore lead direct real estate returns and 2) de-levered as to match the reporting methodology of the NPI, which itself is reported on an unleveraged basis. By charting the data over time, we can see that while both indexes follow a similar trajectory, the additional volatility of REITs is apparent. Additionally, despite comparable cumulative returns over the 30-year period, there are times where the returns have meaningfully deviated. This concept of returns and valuation divergence between direct real estate and REITs is an important one that we will revisit later.

Figure 2: REITs and private real estate have shown similar returns over the long term

U.S. REITs vs. U.S. Private Real Estate
30-Year Total Return



Source: Bloomberg as of December 31, 2022. REITs = FTSE NAREIT Equity REITs Index. Private Real Estate = NCREIF Property Index (NPI).

1.2 Liquidity profile of REITs

As previously mentioned, the intra-day liquidity offered by REITs is one of their greatest benefits when compared to direct real estate. When buying or selling direct real estate, it can take a considerable time to close a deal. A $100M transaction might take months to close from the time a purchase or sale is contemplated until the deal is executed. Direct real estate transactions also carry the additional risk that transactions may not be consummated, even after binding deals have been struck. REITs, on the other hand, can be bought and sold on an exchange at almost any time. The only limiting factor in buying or selling REITs is the daily volume of the particular security being transacted. For larger investments, positions may be bought or sold over multi-day periods since investors do not generally want to impact the price of a stock with the sheer volume of their transactions. Buying too much in a single day may drive the price up and affect marginal purchases while selling too much might drive the price lower. What constitutes 'too much' is determined by trading volume.

We studied trading activity across four major listed REIT indexes (both globally and in the U.S.) to gauge how much REITs trade daily. In 2021, we observed that on average between US$7B and US$10B USD of the underlying securities within these indexes were traded each day that the stock exchanges were open (see Figure 3). In the U.S., daily traded REIT volume in 2021 ranged from US$4.3B to US$22.5B across three representative U.S. REIT indexes. A common global REIT index, the FTSE EPRA NAREIT Developed Index, which has much broader coverage, traded on average about US$9.5B daily. The trading of securities within global indexes can be more nuanced since index constituents trade on different stock exchanges around the world, each with different trading calendars.

These calculations reflect total trading activity in all securities which make up a particular index. However, unless an investor is attempting to replicate a specific index, they are more likely concerned with the liquidity of a specific stock or a limited set of securities in which they wish to transact. Liquidity amongst individual stocks can vary widely within an index. Generally, REITs with a larger equity capitalisation will have greater

liquidity than smaller-cap names and liquidity can also vary from day-to-day. For example, liquidity may increase around earnings announcements, company-specific news, or even macroeconomic events, while it may decline during certain holiday seasons.

Using the FTSE NAREIT Equity REITs Index as a sample population, the REIT with the most liquidity in this index averaged US$402M per trading day in 2021 while the lowest average daily volume in a single index constituent was recorded at US$670k. The actual amount of daily volume of an individual stock that an investor can trade without affecting stock prices would depend on the investor's trading expertise and broker relationships. Institutional investors may be able to capture as much as 10 to 20% of daily volume without affecting prices. Investors are also free to go beyond these limits if they are willing to accept higher purchase prices or lower proceeds on sales, but a proper trading strategy (i.e. one that does not jeopardise the integrity of trading in securities markets) is always warranted when attempting to maximise returns.

Additionally, there are other ways to acquire listed REIT shares besides open market purchases, but these occur less frequently and are less reliable. These methods typically involve primary issuance such as participating in an issuer's initial public offering (IPO), buying shares in a follow-on or overnight offering, or acquiring shares via an issuer's at-the-market offering (ATM). Participation may be limited based on the size of the offering, total demand, or the issuer's needs. This liquidity would not be recorded as trading volume by securities exchanges, but it may increase the exchange-traded volume of a security in the near-term depending on the type of issuing event that occurs.

Figure 3: Liquidity of REITs

U.S. and Global REIT Indexes
2021 Daily Trading Volume (USD $B)

	FTSE Nareit Equity REITs Index	FTSE Nareit All Equity REITs Index	MSCI U.S. REIT Index	FTSE EPRA Nareit Developed Index[1]
Average	$7.3	$8.5	$7.3	$9.5
Maximum	$19.8	$22.5	$19.5	$27.5
Minimum	$4.3	$5.1	$4.3	$5.8

(1) Excludes Sundays and U.S. stock exchange observed holidays. Source: Bloomberg, FactSet as of December 31, 2021.

2. Strategic Benefits of REITs

2.1 REITs expand the real estate opportunity set

REITs can offer a diversification benefit within the context of overall real estate allocation. REITs typically own multiple properties such that owning a single REIT may provide exposure to many individual properties. A single REIT may offer a specific property type or geographic focus, but by combining REITs, an investor can access almost any property type across many geographic locations. This same diversification opportunity may not be available to direct real estate owners without significant pools of capital to allocate.

For example, imagine a pension fund that is looking to add office exposure to their portfolio. Buying a single office building in the direct real estate market could be prohibitively expensive, take months or years to finalise, and would provide exposure to just a single asset in a single location. Accordingly, the resulting risk exposure would be concentrated in that single asset and location. Alternatively, the pension fund could put a specific amount of capital to work immediately by purchasing a single or a combination of office REITs which could provide exposure to dozens of office buildings. The associated risk exposure would be spread over multiple properties, locations, and tenants. Further, since REITs are more accessible than direct real estate, the fund could invest a more modest amount that better-targets their allocation needs. With fractional share ownership widely available, the minimum investable amount for a REIT is almost infinitesimally small.

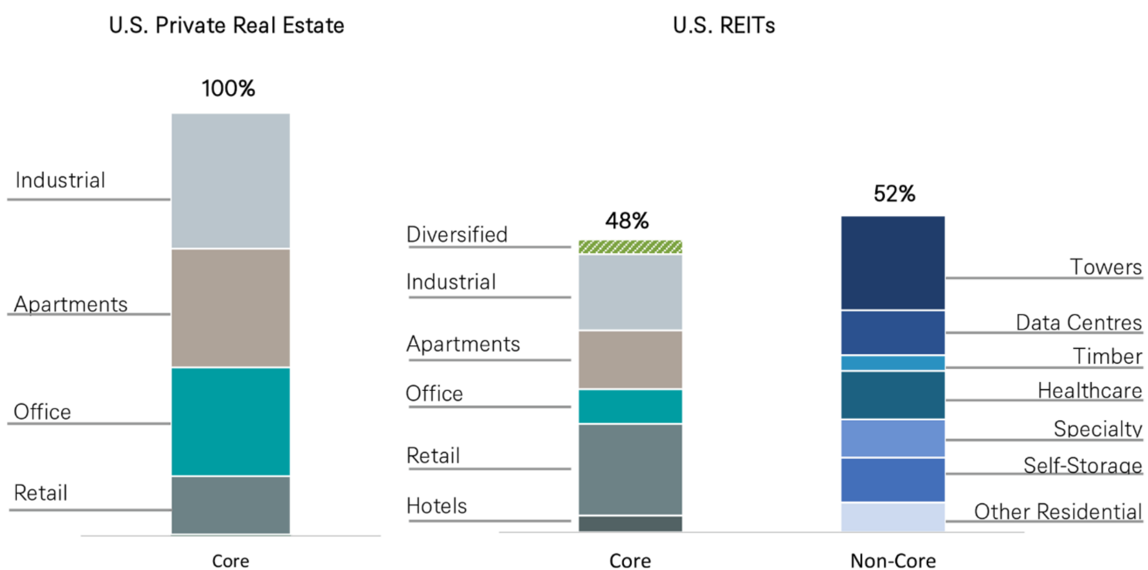
Investing in REITs may also provide access to a wider offering of property types. While a direct real estate investor could theoretically pursue ownership of more niche-like property types, they typically concentrate their focus on a small set of traditional property types (e.g. office, industrial, residential, and retail) whose business models are well-understood. A direct real estate investor that specialises in retail and apartment buildings, for example, may not have the expertise to pursue acquisitions of self-storage facilities or data centres, let alone manage them.

To illustrate the diverse range of property types available via REIT investing, we compared the composition of the NPI (introduced in the correlation section) and the FTSE NAREIT All Equity REITs Index, a well-diversified U.S. REIT Index.

Figure 4 shows the percentage breakdown by property type of the NPI and the FTSE NAREIT All Equity REITs Index. While there are some nuances (for example the NPI is weighted by property values while the FTSE NAREIT All Equity REITs Index is weighted by the market cap), the comparison reveals some interesting differences in composition.

Figure 4: REITs provide access to non-core property types

U.S. private real estate vs. U.S. REITs
Diversification by sector



Source: NAREIT, NCREIF as of December 31, 2022. U.S.REITs = FTSE NAREIT All Equity REITs Index. U.S. Private Real Estate = NCREIF Property Index (NPI).

If we consider the 'core' or 'traditional' property types of apartments, office buildings, industrial buildings, retail properties, and hotels found in the NPI, we see that these property types only comprise 48% of the FTSE NAREIT All Equity REITs Index. Of note, the addition of a sixth property type, diversified, to the core category in the FTSE NAREIT All Equity REITs Index was done to account for REITs that hold more than one core property type, such as a REIT that evenly owns both office and industrial properties. We observed that 52% of the FTSE NAREIT All Equity REITs Index is comprised of property types which are not found in the NPI, representing an expanded opportunity set. We have categorised these as 'non-core' property types, which include self-storage, healthcare facilities, data centres, towers or infrastructure REITs, timber, other residential, and specialty REITs (such as gaming).

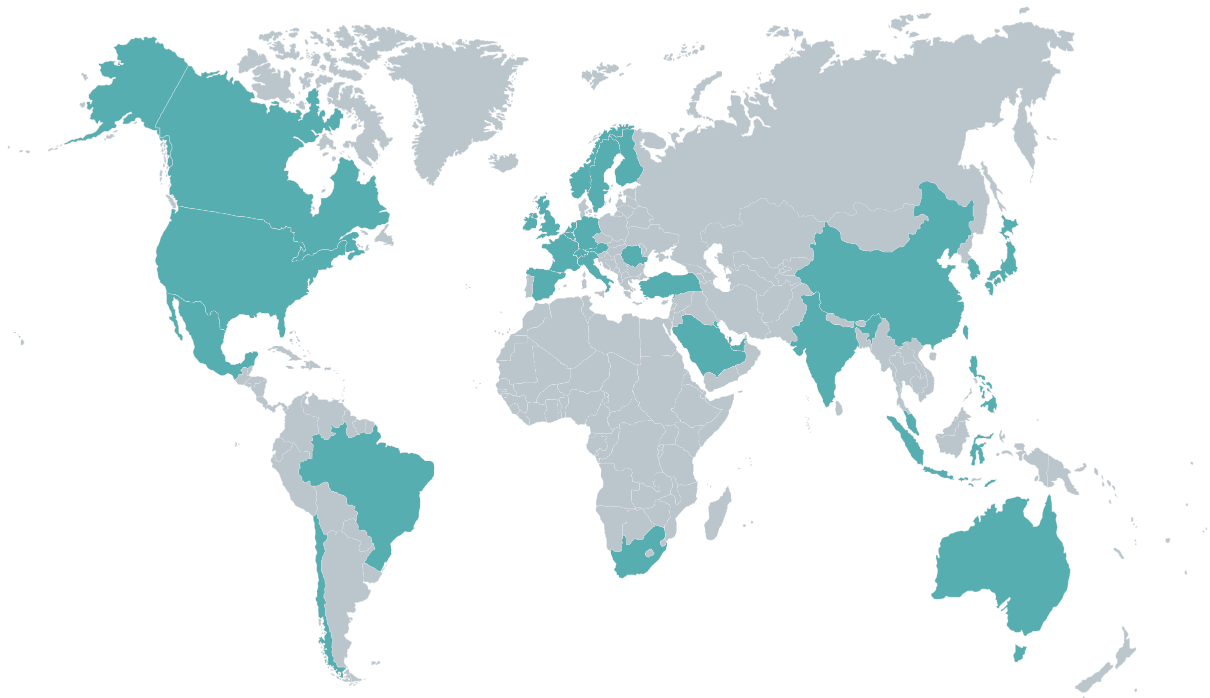
Furthermore, some of these property types could be broken down into even more unique sub-categories. For instance, other residential is comprised of student housing, manufactured homes, and the more nascent single family rentals. While direct real estate owners could pursue investments in these more niche property types, such deals may be harder to find, unavailable in their target markets, or may require specialised knowledge of operations and regulations to adequately value and/or manage the assets. Given these challenges, REITs are uniquely positioned to fill this gap, complementing a direct real estate allocation.

We also considered a global example using the MSCI Global Quarterly Property Fund Index (a newer index launched in December 2007) to represent global direct property and the FTSE EPRA/NAREIT Developed Index to represent listed real estate. Our global analysis comes with some caveats – 2% of the MSCI index is itself unclassified, representing a small amount of exposure to non-core direct property, while real estate developers can be found in the specialty/other bucket, which also contains other property types. While the overlap in core property composition here is more pronounced than in our U.S. example (62% of the listed REIT index is comprised of core property), 38% of the index offers non-core property type exposure. It is also worth noting that there are no timber or tower REITs in the FTSE EPRA/NAREIT Developed Index, categories which offer additional off-benchmark investment opportunities.

Finally, REITs can offer additional diversification benefits by geography. Some REITs may focus their ownership on a specific region, country, or city, while others have more expansive portfolios. When viewed in its entirety, REITs' reach is virtually global. There are REITs domiciled in the U.S. that own assets in South America, Europe, Asia, Australia, and Africa. Figure 5 shows an illustration of countries by domicile of the REITs included in the FTSE EPRA/NAREIT Global Index, one of the broadest REIT indexes available. While REITs do not necessarily own assets in their country of domicile, the list represents countries where REIT or REIT-like legal structures are available and where shares of these REITs trade.

Figure 5: Country breakdown of FTSE EPRA/NAREIT global index

Listed real estate is available in >35 countries worldwide.



Source: For illustrative purposes only. DWS, FactSet, NAREIT. As of December 31, 2022.

2.2 Harnessing REITs' geographic and sectoral breadth to achieve target mix

REITs can also be used in conjunction with direct real estate on a long-term basis to achieve a desired geographic and property type mix. An investor may own or contemplate owning direct real estate assets. They may be concentrated in a specific region or property type as real estate investors often specialise in certain geographies or property types. If the investor is based in the Asia Pacific region and predominantly owns direct assets in, for

example, Hong Kong and Singapore, they may be looking for diversification through investments in other regions. If this investor would prefer to have global real estate exposure but lacks the necessary expertise outside of their home market or the ability to scale, they could use REITs to gain exposure to new regions such as Europe or the Americas. Given the large number of countries where REITs are available (see Figure 5), this strategy can be used not just at the regional level, but at the country, and in some instances, city level. Given the large number of REIT indexes and securities, customisation to meet a specific target mix can be quite granular.

REITs can be used in a similar fashion to meet a target mix of property types. If an investor's direct real estate assets primarily include offices and apartments, but they seek wider diversification by property type, then REITs can be used to gain exposure to industrial, retail, healthcare, or other property types. REITs can be combined with direct real estate, not just for the purpose of diversifying by property type, but also to concentrate exposure to a specific property type for long-term strategic purposes. Figure 6 shows the annualised return by property type of the FTSE NAREIT All Equity REITs Index for periods of 5-, 10-, and 20-years. Over the past decade, investments in infrastructure properties have performed strongly, driven by secular growth in demand for mobile data and other related technology infrastructure needs. As consumer behaviour has shifted away from brick and mortar, regional malls have unsurprisingly struggled. Meanwhile the need for additional ecommerce and distribution facilities has increased, benefitting industrial properties. REITs can help investors gain long-term exposure to property types that may not be within their area of expertise and/or geographic focus.

Figure 6: 5-, 10-, and 20-year annualised returns by property type[1]

5-Year	Office	Hotels	Malls	Diversified	Healthcare	Timber	Shopping Centers	Apartments	Data Centers	SF Homes	Free Standing	Specialty	Infrastructure	Manuf. Homes	Self Storage	Industrial
	-7.0%	-5.1%	-4.7%	-1.5%	1.2%	2.0%	2.2%	4.3%	6.3%	7.1%	7.3%	8.9%	9.3%	10.7%	11.7%	13.5%

10-Year	Malls	Office	Hotels	Healthcare	Diversified	Shopping Centers	Timber	Apartments	Free Standing	Infrastructure	Self Storage	Industrial	Manuf. Homes
	-0.1%	1.0%	2.7%	2.8%	3.0%	3.9%	4.7%	7.2%	7.9%	11.8%	12.9%	14.7%	17.0%

20-Year	Hotels	Office	Shopping Centers	Diversified	Malls	Industrial	Healthcare	Apartments	Free Standing	Manuf. Homes	Self Storage
	4.3%	4.9%	6.3%	6.5%	6.6%	9.1%	9.9%	10.4%	11.6%	12.8%	15.9%

Source: NAREIT, Bloomberg as of December 31, 2022.

(1) Not all property types have been in the FTSE NAREIT All Equity REITs Index for all the time periods shown.

2.3 Efficiently deploy capital with REITs to complete a real estate allocation

REITs can be used to temporarily complete real estate allocations while capital is being deployed into private properties. As mentioned earlier, direct real estate transactions can take considerable time to complete, even when acquisition targets are identified and under contract. Estimating the time it would take to build out a direct real estate portfolio when specific assets have not yet been identified is an even more arduous task, and if target markets and property types have not yet been identified, the task is further complicated. Subsequently, a multitude of issues might arise while acquiring direct assets which may be outside of the investor's control. For example, there may be insufficient supply in a given market or the assets may not match the quality demanded by the investor. Additionally, negotiating a price requires agreement from both the buyer and seller. Due diligence reports may uncover material issues, or the seller may have remorse and look to back out of a deal. Debt financing hiccups or adverse market conditions could also potentially derail a direct real estate transaction. By contrast, REITs can be bought daily to fill the allocation in the short-term and then sold once direct real estate assets are acquired in the future. In this way, target allocations can be reached much more quickly compared to direct real estate acquisition alone.

One note of caution regarding this strategy is that the returns of direct real estate and REITs can diverge over the short-term. We previously showed that REITs behave like real estate over

the long-term but might have substantially more volatility in the short-term. Markets can change quickly, and listed securities are among the first affected. As such, while REITs can be used as a proxy for direct real estate, investors still need to manage near-term liquidity in order to have sufficient cash on hand to meet any funding needs. For example, if US$10M was needed to close a direct real estate deal one month from now, it may be too risky to invest that US$10M in marketable equity securities with such a short timeframe. However, if cash needs are months or years away, it may make sense to use REITs to obtain the proper asset allocation exposure.

Further, REITs can issue debt and preferred securities in addition to common equity. These fixed income-like instruments may even be registered and traded on major exchanges. These too can be used to complete a portfolio and offer different income, volatility, and risk profiles. While still subject to the daily pricing of the markets, these securities may offer a higher level of income with less volatility than common REIT equity, but this comes generally at the expense of potential for capital appreciation. Thus, an investor could combine private real estate with fixed income REITs (with or without common equity of REITs) in the hopes of de-risking their overall real estate portfolio. Customised solutions to target an expected risk profile for an overall real estate allocation may include private equity, private debt, public equity, and public debt. The use of debt (private or public) can also be used to match anticipated future cash flow liabilities, though any debt is only as good as the ability of the borrower to fulfil their payment obligations.

3. Dynamic REIT allocations

While it is clear that REITs can help facilitate long-term real estate investment objectives, they can also provide investors access to tactical opportunities that are absent from the direct real estate market or inaccessible through direct real estate products. In the following section, we explore how the dynamic nature of REITs can help create additional value.

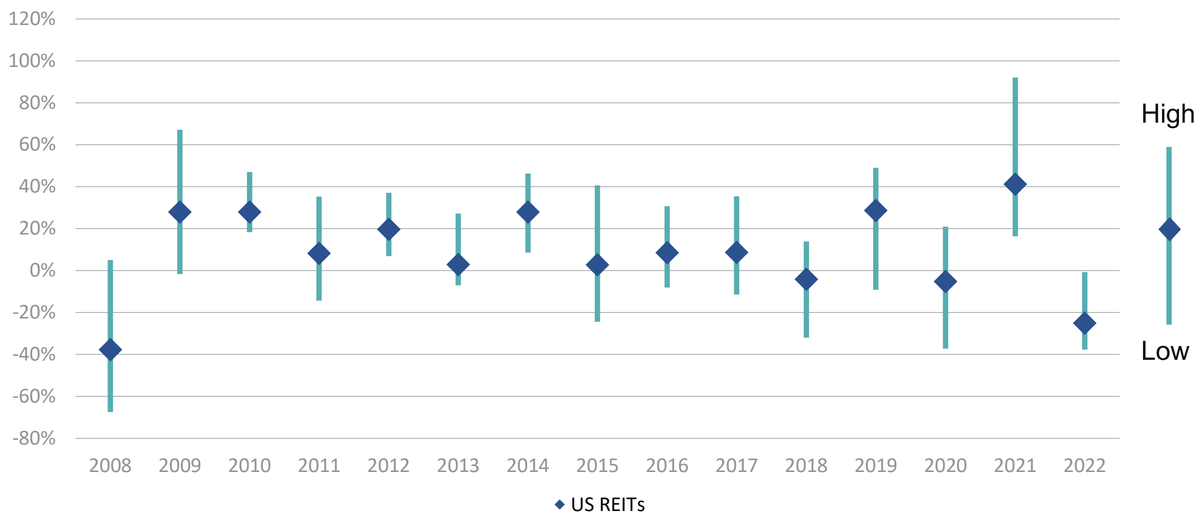
3.1 Capitalising on tactical opportunities with REITs

REITs can also be used to make tactical adjustments to an overall real estate allocation. For example, if an investor

determines that their overall real estate allocation needs to increase (or decrease) by 2% for the next two years, it may not make sense for them to acquire (or dispose of) direct real estate given the long lead time needed to finalise a deal and the related transaction costs, which are often substantial. By contrast, REITs offer daily liquidity with minimal transaction costs. The investor's desired allocation shift could be achieved quickly by purchasing (or selling) REITs while the direct real estate portion of the overall portfolio could be left intact to meet longer-term strategic needs. This ability to dial-up or dial-down real estate exposure in a quick and cost-effective way provides investors with the means to dynamically reallocate capital. REITs can also serve as a liquidity buffer to the otherwise less-liquid assets contained in an overall portfolio. For instance, if liquidity concerns were to suddenly arise due to unforeseen circumstances, REITs could be sold almost immediately to raise cash, affording the investor more time to decide how to optimally allocate their less-liquid assets.

In addition, REITs can be used tactically should an investor wish to increase (or decrease) exposure to a particular property type or geographic region. For example, if an investor has high conviction in the idea that office properties will outperform the overall real estate market over the next 18-24 months, they can utilise listed office REITs to quickly increase exposure to office buildings. Given the limited and dynamic timeframe of this view, it would be risky and expensive to pursue direct office properties given the time it takes to close deals and the transactions costs involved. Property types can come into (or fall out of) favour over very short periods of time, and this often happens faster than it takes to build, acquire, or dispose of direct real estate assets. To demonstrate this, in Figure 7, we show returns dispersion across property types of the FTSE NAREIT All Equity REITs Index as well as the overall index returns for the past fifteen years. We would call attention to the wide range of returns witnessed across property types in any given calendar year.

Figure 7: Return dispersion across property types



Source NAREIT, Bloomberg as of December 31, 2022. Not all property types have been in the FTSE NAREIT All Equity REITs Index for the time period shown.

By taking the difference between the best- and worst-performing property type, we can quantify this range. Over the fifteen-year period shown in Figure 7, this annual property type performance differential has ranged from a low of 29% in 2010 to a high of 76% in 2021. It is also worth noting that each property type return is the market cap weighted average return of all REITs within the representative sub-index. Therefore, within each property type sub-index, there can also be a good deal of dispersion amongst individual property stocks. For instance, if we look within the listed Apartments property type in 2021, which returned 64% as a group, the top-performing property stock delivered a 159% return while the worst performer had a 46% return. This dispersion between both property types and between individual stocks of the same property type offers active managers opportunities to generate returns above that of a broader property index.

3.2 REITs offer real estate relative value opportunities

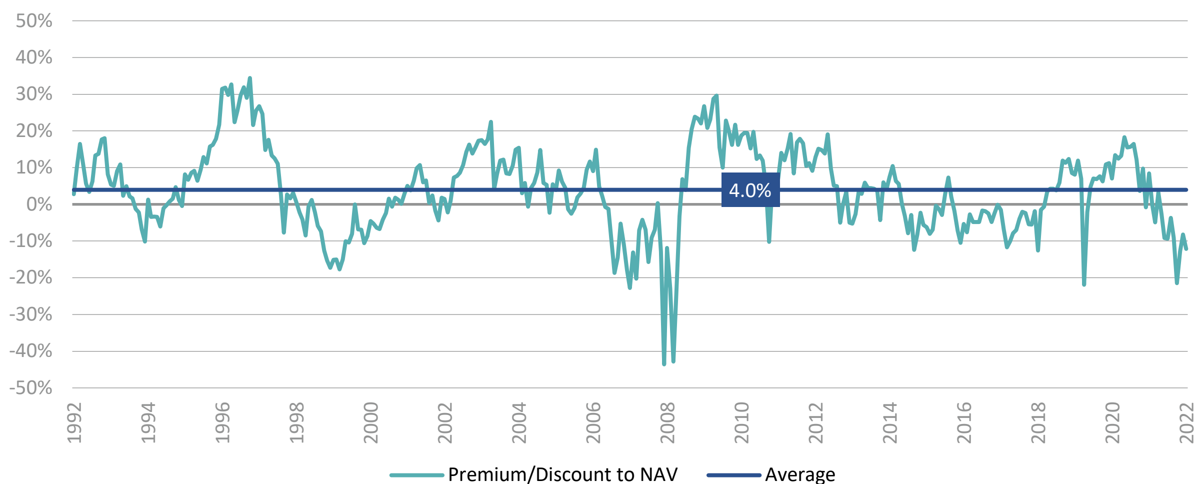
Another interesting characteristic of REITs is that the stock price at any given point is set by the market. This price can be above (premium) or below (discount) the NAV, which is based on the value of the underlying real estate. If an investor can accurately determine the current NAV of a given property stock, this can set up an arbitrage-like opportunity or grant insight into the future value of direct real estate. As we demonstrated earlier, the returns and values of REITs and direct real estate are

expected to converge over the long run, but REIT returns typically lead the direct property market by about a year. This means that when REITs trade at a premium to NAV, direct real estate values might be on the verge of increasing. Conversely, if REITs trade at a discount to NAV, direct real estate values might decline in the future. We also mentioned that stock markets don't always price things correctly – they are prone to overreact (in both directions) when new information becomes available. When REITs trade at a notable premium to NAV, there are two paths back to parity: the value of their underlying real estate could increase, or their stock price can drop (or perhaps both). In either event, we should eventually see the premium to NAV narrow. The reverse is true when REITs trade at a substantial discount to NAV.

In Figure 8, we examine the premium/discount to NAV for U.S. REITs over the past 30 years as calculated by Green Street Advisors. Over this period, REITs have traded at an average premium to NAV of 4.0%. Since direct real estate prices have trended upwards over the past 30 years, and REITs have historically led direct real estate pricing, this long-term premium seems warranted, though one could argue that REIT management teams add value above and beyond the value of existing real estate (e.g. development, value-add properties, capital markets activity) which is also priced into their stocks. However, for the purposes of this illustration, we assume that a 4.0% premium is a reasonable long-term expectation. We can see from Figure 8 that the premium to NAV has been as high as 34.4% while the discount to NAV has been as low as -43.6%.

Figure 8: U.S REITs are currently trading at a discount to NAV

Listed REIT premium/discount to NAV over past 30 years



Source: Green Street Advisors. As of December 31, 2022.

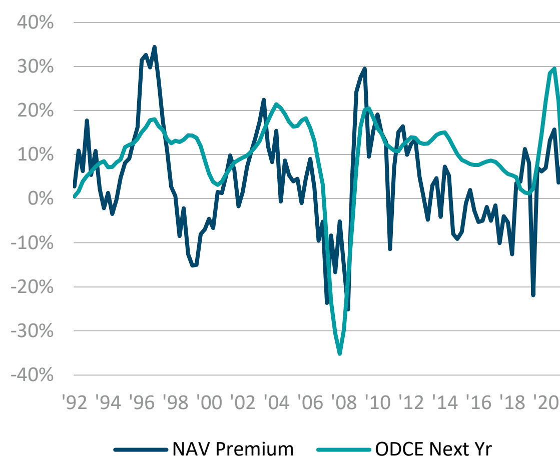
When the premium or discount diverges substantially from the long-term average, this can be an indicator of a potential arbitrage opportunity. All else held constant, when REITs trade at a wide premium to NAV, an investor should sell REITs and buy direct real estate. When REITs trade at a substantial discount, an investor should purchase REIT stocks and sell direct real estate. However, while the buying and selling of listed securities is easy enough to accomplish in a timely manner, this may not be the case for direct real estate as a wide premium or discount for REITs can evaporate before any direct real estate transactions are executed. Nonetheless, REITs will sometimes employ similar strategies themselves to take advantage of a pricing mismatch. When a listed REIT trades at a significant premium, it can issue stock (above NAV) and look to purchase additional underlying real estate at the prevailing market price. This, in theory, should create value for the REIT and raise both its NAV and stock price. If the same REIT is trading at a significant discount, it may look to sell real estate at the prevailing market price and buy back its own stock (below NAV), which should also create value. Importantly, in either situation, there are risks involved if the sale and purchase timing do not match up.

Looking at where REITs trade relative to NAV can also give us useful insight into potential future returns for private real estate markets. Figure 9 shows the listed REIT premium or discount

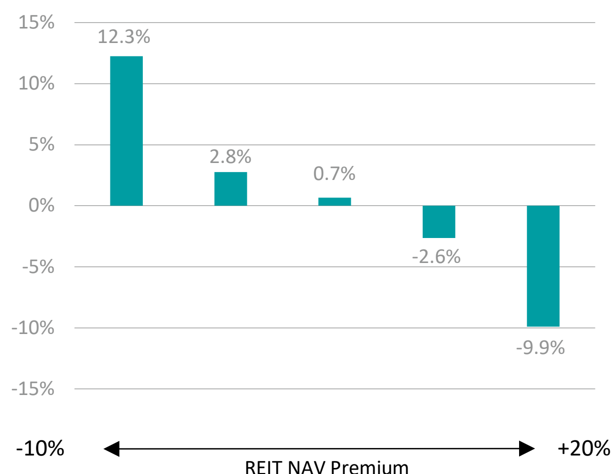
over time and how the NCREIF Open End Diversified Core Equity Index (ODCE)[1] performed for the first year following each given data point. Also shown is the forward 3-year return of the FTSE NAREIT Equity REITs Index less the return of the ODCE. Here, we observe that REITs have tended to outperform the ODCE over the 3-year period following a substantial REIT discount to NAV, while REITs have underperformed the ODCE when starting from a substantial premium to NAV. In this way, the listed REIT premium or discount to NAV has been predicative of future relative returns of listed versus private real estate. An investor who increased their direct real estate exposure (at the expense of REITs) when the REIT premiums to NAV were large (e.g. 20% or greater) and lowered their direct real estate exposure (by buying REITs) when the REIT discount to NAV was large (e.g. -10% discount or greater) would have benefitted.

Figure 9: Signals from the listed market

REIT NAV premiums & ODCE returns
Diversification by sector



REIT returns minus ODCE next 3 years
December 1992 – December 2022 (annualised)



Source: Public real estate = FTSE NAREIT Equity REITs Index, private real estate = NCREIF Open End Diversified Core Equity Index (ODCE)

Source: Green Street Advisors, Bloomberg, DWS as of 12/31/22. Past performance is not indicative of future results. For illustrative purposes only. Index returns do not reflect fees or expenses and it is not possible to invest directly in an index. There is no guarantee the investment objective can be achieved.

[1] The ODCE is a capitalisation-weighted index, gross of fee, time-weighted return index that measures open-end funds which are generally defined as infinite-life vehicles consisting of multiple investors who have the ability to enter or exit the fund on a periodic basis, subject to contribution and/or redemption requests, thereby providing a degree of potential investment liquidity. The term Diversified Core Equity style typically reflects lower risk investment strategies utilising low leverage and generally represented by equity ownership positions in stable U.S. operating properties diversified across regions and property types.

Additionally, there is an interesting dynamic that can occur between private and listed real estate, and which is most likely to happen during periods when REITs trade at extreme discounts or premiums. It is possible for REITs to be taken private as well as for direct real estate to become public. If a listed REIT trades at a discount to the value of its real estate, and a buyer or buyers recognise this and have sufficient capital, they may attempt to take the REIT private to take advantage of the price arbitrage. On the other hand, private real estate may be bought by a listed REIT (which happens frequently), or a sponsor of a private real estate portfolio may place their assets in the public market via an IPO, which is more likely in periods when REITs trade at substantial premiums to NAV.

NAV premiums or discounts can also be used as contrarian market indicators. In Figure 10, we show how U.S. REITs have performed, using the FTSE NAREIT All Equity REITs Index, after trading at a significant premium or discount to NAV along with the average rolling 1-year, 3-year, and 5-year returns over a 30-year period. We first calculated the forward 1-year, 3-year, and 5-year total returns of the REIT index for all periods when REITs traded at a 10% or greater discount at month end and when they traded at a 20% or greater premium. We then compared these to all possible rolling returns of the same duration across this 30-year time span. We found that, on average, if an investor purchased REITs at a month's end when they were trading at a 10% or greater discount to NAV, REITs marginally outperformed for the first year when compared to the average of all rolling 1-year returns but had greater outperformance when compared with 3- and 5-year rolling periods. Almost the opposite was true if REITs were purchased when they traded at a 20% or greater premium: they outperformed all rolling 1-year average returns, but underperformed on a 3- and 5-year rolling basis.

We know that REITs should converge to direct real estate prices over the long-term, or at least towards a slight long-term average premium around 4%, which would explain the 3- and 5-year outperformance, but why was 1-year performance out of line? What we found was that these premiums and discounts can persist for extended periods of time and can even widen once our initial threshold is crossed. For instance, if an investor was inclined to sell REITs at the end of November 1996 when

they first crossed our 20% premium threshold, ending the month at a 21.7% premium to NAV, they may have been better off holding on for a few more months as that premium widened to 31.4% at the end of December 1996 and then to 31.8% at the end of January 1997. In fact, REITs ended 15 months in a row at a premium to NAV greater than 20% starting in November 1996 through January 1998, with a peak month end premium to NAV of 34.4% in September 1997. Some similar patterns can be seen on discounts to NAV, but in either case these large premiums or discounts (using our thresholds) may be present for a single isolated month or can extend over multiple years. Buying REITs at substantial discount to NAV and holding them for a 3- or 5-year period could increase the odds of getting better returns than if bought and held for a similar period when they did not initially trade at such a discount.

Figure 10: REIT returns, 1-year, 3-year, and 5-year rolling windows when trading at discount/premium to NAV

From End of Month When…	Average 1-year Total Return	Average 3-year Total Return (Annualised)	Average 5-year Total Return (Annualised)
Trade at a 10% or greater discount	12.2%	13.4%	14.7%
Trade at a 20% or greater premium	14.5%	8.5%	9.7%
All rolling periods	11.9%	10.7%	10.3%

Source: Bloomberg, NAREIT, DWS. As of December 31, 2022

4. Combining REITs and direct real estate

Thus far, we have explored the merits of combining private and listed real estate in an overall real estate allocation, but what does the addition of listed real estate do to the overall risk/return profile of a combined real estate allocation? In this section, we explore the characteristics of a combined allocation and consider how investors might strike the right balance.

4.1 Examining risk and return profiles of REITs vs direct real estate

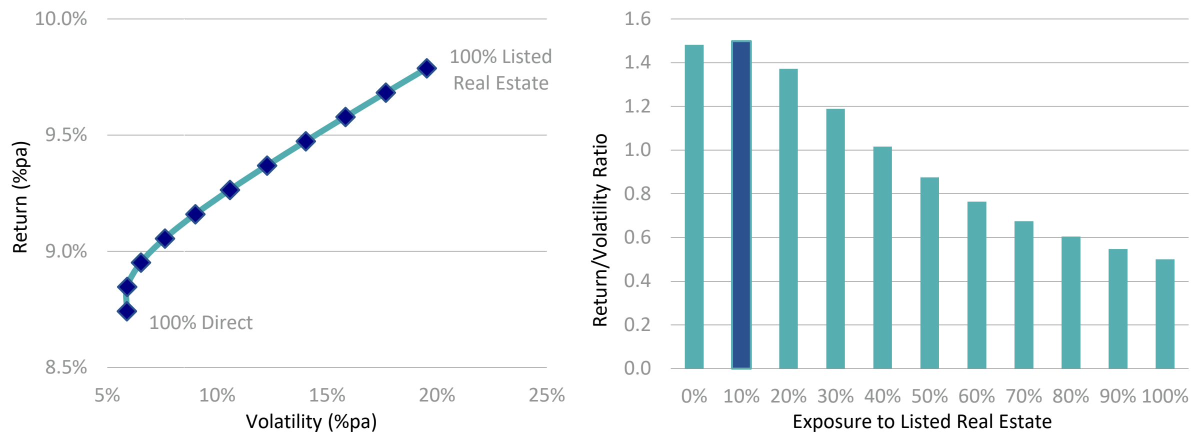
To find out, we first examined the relative risk-adjusted performance of listed and direct real estate over the past 30 years. We looked at the annualised total return and standard deviation for listed real estate (using the FTSE NAREIT All

Equity REITs Index) and direct real estate (using NCREIF ODCE). Listed real estate (at 9.8%) outperformed direct real estate (at 8.7%) by about 1% on an annualised basis but exhibited far higher volatility (19.5% versus 5.9% using standard deviation as our volatility proxy). However, we have reason to suspect that volatility could be understated for direct real estate as private real estate equity markets often will not fully reflect drawdowns particularly in periods of market stress. Direct real estate valuations can, particularly in adverse market conditions, be slower to reflect downward revisions than liquid or 'true' prices. A multitude of factors could be driving these differences in returns, including (but not limited to) property type mix, asset quality, leverage use, and overall cost of capital. We also observed that the correlation of returns between listed and direct real estate remains low (at just 0.16) when measured on a short-term quarterly basis.

4.2 REITs present an opportunity to improve risk-adjusted real estate returns

We also combined listed and direct real estate together in varying ratios in a buy-and-hold strategy to backtest how the theoretical portfolios would have performed historically. Figure 11 shows the efficient frontier for a two-asset portfolio of listed and direct real estate along with the return per unit of risk for the combined portfolios in 10% weighting increments. A portfolio of 100% listed real estate yielded both higher returns and higher volatility relative to the portfolio of 100% private real estate. However, by combining private and listed real estate at a 90%/10% proportion, respectively, the portfolio achieved the highest return per unit of risk. Returns could have increased further with the addition of more listed real estate but such an action would have also resulted in increased volatility. Measuring private real estate volatility through an un-smoothed lens (which is prudent in the portfolio construction process for private assets) would bias the optimal risk/return ratio toward a higher allocation to listed real estate. This leads us to hypothesise that replacing a modest amount of a direct real estate portfolio with listed real estate (e.g. 10%) could have a minimal effect on long-term risk while serving to increase the liquidity and diversification profile of an overall real estate allocation.

Figure 11: Combining listed and direct real estate to create an optimal risk/return profile



Source: Bloomberg, DWS. As of 12/31/22.

Public Real Estate: FTSE NAREIT All Equity REITs Total Return Index (FNERTR); Private Real Estate: NCREIF ODCE Total Returns Index (NPPIODCE).

For illustrative purposes only. There is no guarantee that investment objectives will be achieved. Past performance is not indicative of future results. Volatility is measured as the standard deviation of the returns.

5. Conclusion

Real estate is a unique asset class which can be an important component of an overall asset allocation. While many investors are familiar with private real estate, less attention is generally paid to listed real estate, which is often overlooked by both equity investors as well as real estate investors. We believe that listed real estate securities should be considered as part of broader real estate allocation given that their primary holdings are real estate. We were able to demonstrate that REITs and private real estate returns have been highly correlated over the long term when adjusted for leverage and liquidity factors (the tendency of REITs to lead private market returns).

While listed real estate securities exhibit higher short-term volatility than private alternatives, we consider that this is mainly a function of daily stock market movements and because listed real estate also offers daily liquidity. Thus, they can be easily bought and sold in large quantities in short periods of time. This can represent an advantage over direct real estate, which may take substantial time to transact. Listed real estate can also offer investors an expanded real estate opportunity set in the form of property types or geographies which otherwise might not be readily available to a private real estate investor.

Additionally, there are a multitude of opportunities where listed real estate can enhance an existing private real estate allocation. An investor looking to allocate to direct real estate might consider using listed real estate in the near-term to gain real estate exposure while waiting to acquire direct properties. If an investor is looking to de-risk their overall real estate allocation, they might consider debt securities issued by listed real estate companies, which may also be exchange listed and readily avail-able, but with lower volatility than common equity. In any event, listed real estate can be used in conjunction with direct real estate to achieve an investor's target mix of markets, geographic exposure, and level of risk. Finally, given that listed real estate returns have historically led private market returns and since private and listed real estate valuations can diverge in the short-term, often leading to large premiums or discounts to a listed real estate company's underlying NAV, this can provide investors a tactical arbitrage opportunity between public and private markets.

The combination of private real estate and REITs is a powerful tool for customising real estate allocations. In fact, our analysis suggests it may even be possible to add listed real estate to a private allocation and increase the overall expected return without changing the expected volatility. However, regardless of any changes to volatility or expected returns, combining listed real estate with direct real estate does increase a portfolio's liquidity profile in comparison to holding only direct real estate. This liquidity advantage, along with the potential to expand an investor's real estate universe to meet allocation targets or complete a portfolio, as well as the signals listed real estate securities may present on potential future direct real estate returns, are among the benefits of including listed real estate within their overall real estate allocation.

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