Identifying Real Sources of Risk and Diversification

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Introduction

Investors look to real estate for a number of reasons. Income-seeking investors like the relatively stable cash flows. Another appealing dimension is its generally low correlation with most other asset classes, which helps the diversification of multi-asset portfolios. Real estate also offers the potential for capital growth, and possibly protection against inflation. The fifth factor is the prospect of delivering good risk adjusted returns.

In this paper, the main focus is on the search for risk-adjusted returns in private equity real estate.

More specifically, we look at the question of whether the widely used current decision-making approaches and tools are effective. This applies equally to sell-side managers deciding on whether to purchase (or sell) single assets and buy-side institutional investors weighing up whether to purchase (or sell) units in pooled vehicles.

In the authors' view, the traditional approaches to decision-making in this area could be improved. Two problems in particular are worth noting:

1. There is over-reliance on geographic, sector and style labels; such labels, while useful in many ways, can mislead because they fail to capture the true risk of real estate assets.

2. Too much emphasis is placed on the volatility of total returns; total return data mask the marked difference between the volatility of income returns and capital returns.

In this paper, we argue that better results are obtainable by looking through sector, geographic and style labels at the underlying cash flows, although we recognise this is more challenging. We also argue that the difference in volatility of income returns and capital returns merits far greater attention.

We acknowledge that the changes advocated in this paper are radical and will take time to achieve. We recognise that decisions need to be made using the data and techniques that are currently available, so this paper also includes some practical

(and we hope useful) suggestions relating to the identification of the sources of return, of risk and of diversification.

Current Measures of Risk & Diversification

Currently, real estate assets are largely categorised according to familiar yet subjective style labels (such as 'Core', 'Core +' and 'Opportunistic') and according to sector or geographic descriptions (such as "German retail" or "London office").

The question to ask is: just how effective and useful are these labels with respect to the key objective of generating good risk-adjusted returns?

Risk adjusted returns – two useful measures

A widely used measure of risk adjusted return in the equities world is the Sharpe ratio – this deducts an appropriate risk free rate from the expected return of an asset to get a measure of excess return. This excess return figure is then divided by the standard deviation or volatility of the asset in order to get a risk adjusted return figure. The Sharpe Ratio effectively provides a measure of return per unit of risk – analogous to the miles-per-gallon or kilometres-per-litre measure that will be familiar to any driver. When making choices based on Sharpe ratios, higher is better.

$$S = \frac{E[R_a - R_b]}{\sigma} = \frac{E[R_a - R_b]}{\sqrt{\mathrm{var}[R_a - R_b]}},$$

Another useful measure of risk adjusted return in the world of finance is the 'Coefficient of variation' or 'Unitised risk'. This measure divides the standard deviation or expected volatility of an asset by the expected return to get a measure of risk for a given unit of return. Using the car analogy again, this would be similar to gallons-per-mile or litres-per-kilometre. When making choices based on unitised risk, lower is better.

$$c_v = \frac{\sigma}{\mu}$$

In the following analysis, we show that the long term income return of real estate assets has been higher than the capital component. We also show that the volatility of the income return has been considerably lower than the capital component. We conclude from this that the risk adjusted return of the income component is superior to that of the capital component.

Risk and return in real estate

In order to answer the earlier question, we need to look closely at long term real estate returns and the key sources of volatility.

When we analyse historic data, one consistently clear finding across mature real estate markets is the primacy of income returns in terms of driving overall long term returns. The table below shows the components of total return in US real estate over the decades since 1930, illustrating both the dominance and stability of income returns.

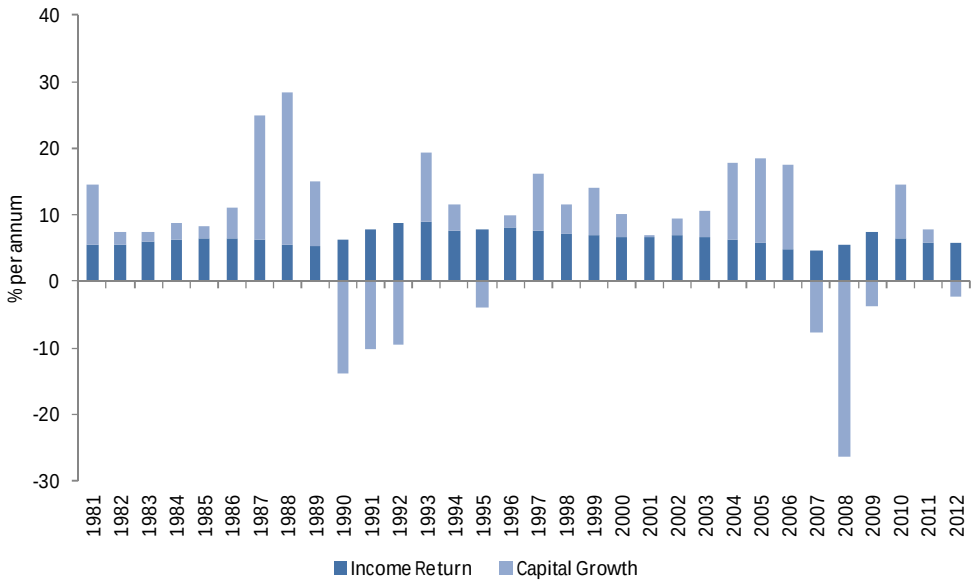
Table 1 - NCREIF US All Property Investment Returns 1930 to 2009
% per annum

	Total Return	Income Return	Capital Return
1930 to 1939	8.1%	8.4%	-0.3%
1940 to 1949	13.7%	6.3%	7.0%
1950 to 1959	6.2%	6.1%	0.2%
1960 to 1960	6.5%	6.2%	0.3%
1970 to 1979	10.1%	6.3%	3.6%
1980 to 1989	11.1%	6.5%	4.3%
1990 to 1999	5.5%	6.6%	-1.1%
2000 to 2009	5.0%	6.8%	-1.7%

Source: NCREIF; Brandes Institute; Mercer

The income returns (seen above) are both higher and less volatile than capital returns. The same points are also evidenced in the following two charts from the UK, covering the period 1981 to 2012:

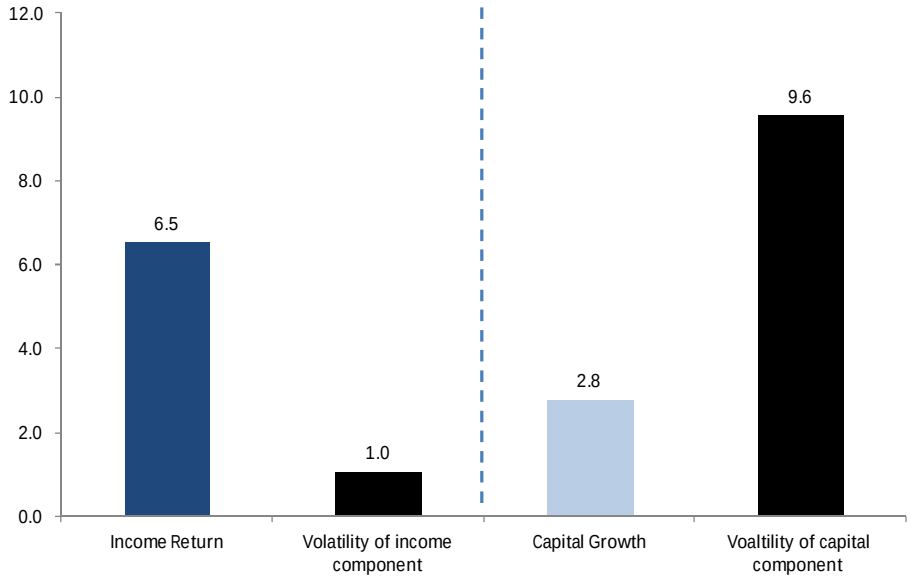
Chart 1 - IPD UK All Property – Long Term Performance
Capital Growth & Income Return - % pa 1981 to 2012



Source: IPD Annual Digest 2013

In the UK, the average income return over the period from 1981 to 2012 came at the expense of a standard deviation of +/- 1%. On the other hand, the capital return over the same period had a far wider associated volatility of approximately +/-10%.

Chart 2 - UK IPD All Property – Components of Long Term Performance
Income Return vs. Capital Growth - % pa 1981 to 2012



Source: IPD Annual Digest 2013

In terms of institutional investors seeking good risk adjusted returns, the message from this analysis should be clear – income returns matter more than capital returns and are vastly more reliable. Other things being equal then, for any given level of expected return, an asset that relies more on capital growth to deliver its target return is likely to be a riskier bet in the real estate context. Another way of saying this is that the cash flows arising from future capital gains are less certain than income, so investors are likely to get better risk adjusted returns whenever there is a greater reliance on income as opposed to capital growth to achieve a target return.

Looking through labels

Geography and sector are crude measures for assessing risk, return and diversification.

Combining different labels is not true diversification

The above insights represent a challenge to the prevalent industry approach of relying on risk labels. More specifically, the traditional approach tends to assume that geographic diversification is the key measure for achieving portfolio diversification. If we accept that income return is actually the prime driver of long term real estate returns, then geography should matter only to the extent that it influences the income and cash flows, which in turn will be influenced by factors such as prevailing lease structures, local taxation and business practices. Of course, this is not the same as saying that geography is inconsequential because we know that local economic factors, political factors and obsolescence patterns can influence cash flows and income.

The other issue with the current widely used labelling nomenclature is its lack of flexibility to reflect the true risk of assets over time. In particular, the risk level of assets changes over time, so class definitions that are based on geography or sectors are unlikely to capture such changes.

A new office building in 2003 does not have the same risk profile as the same but now 10-year old office building in 2013: the asset is physically different, the local occupier market is different and the investor market is different - yet the label is the same. To be useful for decision-makers, real estate labels needs to flexible in a way that reflects such risk profile changes.

Looking through the labels – a German market example

Geography is not always a suitable measure or risk and return, as a simple analysis of the Frankfurt office market illustrates. The chart below shows total returns by asset

in 2011. The dispersion between the best and worst performing asset is 33%, while the average return is 2.4%.

Chart 3 - IPD Germany – Frankfurt Office Market Performance 2011
Total Return by Asset - % Per annum 2011

Source: IPD Germany 2012

Similarly sector is a rather arbitrary means of measuring diversification. Again, sector type does have an impact on asset or fund level risk and returns because different property types are subject to differing lease structures, tenant types and local economic drivers.

Implications for real estate investors

In a world where risk is dynamic, and where generally more risk is associated with the capital rather than income component of real estate returns, we do not think the current labelling approach based on geographic and sector distinctions is ideal. Instead, we argue that investors should first decide on their desired risk/return appetite and then focus on acquiring assets that provide the cash flows that match this. When comparing alternative assets, the primary focus should be on expected cash flows and the risks associated with these cash flows rather than on total expected returns. We would call such an approach a 'structured income approach' to decision making.

In an ideal world, the best structured income approach would be a stochastic cash flow approach where all expected cash flows are assigned probabilities based on a range of different possible scenarios and modelled using Monte Carlo simulations.

Minimising cash flow disruption

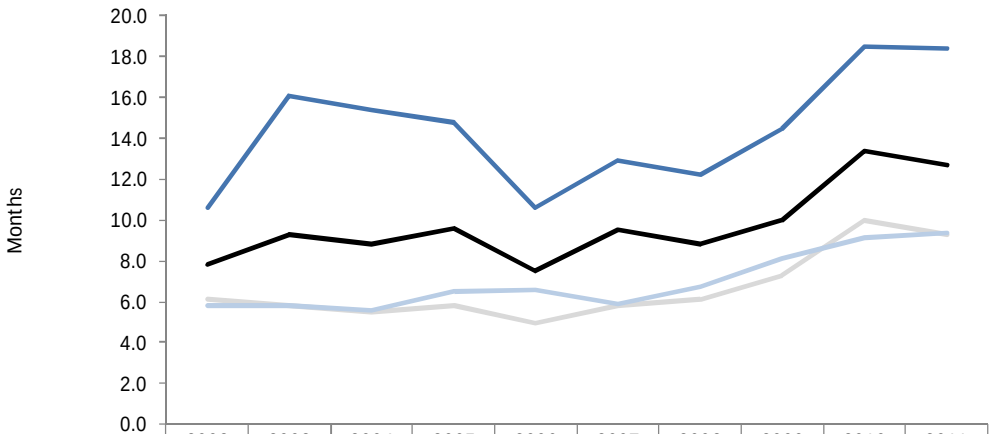
In order to appropriately determine the probabilities which should be attached to future cash flows, real estate practitioners need to understand all the risks that are associated with those cash flows. Two key areas which are often overlooked and under-researched are tenant risks and lease risks:

Tenant risks – while much of the industry's focus is often on inherently difficult-to-know areas such as expected capital growth levels, other areas, where valuable hard data often *is* available, can be neglected. One such area, which can obviously impact future cash flows, is the ability of the tenant to pay the rent. In particular, a better assessment of the likelihood of tenant default can often be made by looking at publicly available credit information on the company.

Lease risks – The other widely overlooked determinant of property performance is the lease structure. The lease is effectively the legal agreement which shapes how cash is released over the life of the investment. For example, the stability of cash flows can be significantly affected by the landlord's ability to review rents at appropriate times, their ability to switch tenants and whether leases contain provisions for upward-only or index-linked rent reviews.

There is considerable variation in the rules and market practices relating to leases. Consider for example the difference between rent free periods in the UK and Germany. In the UK, the average rent free period is 12.7 months whereas in Germany the average rent free period is 4.2 months.

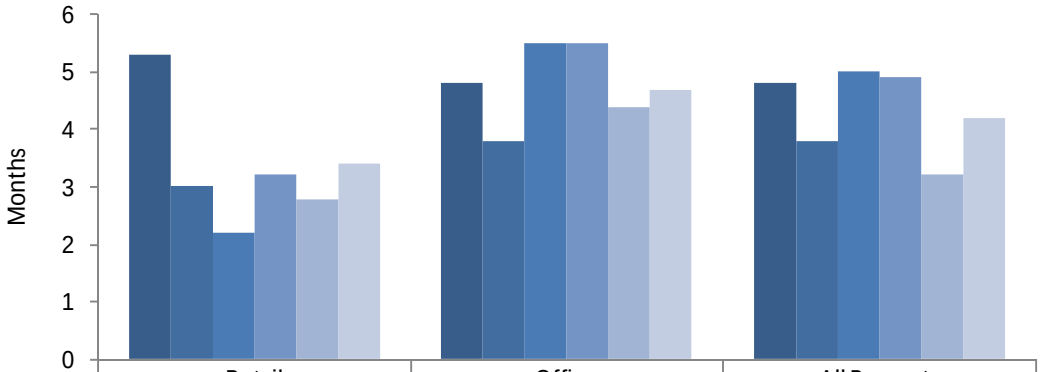
Chart 4 - IPD UK – Average Rent Free Period By Sector
Average Months Rent Free Per Annum – 2002 to 2011



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Retail	6.1	5.8	5.5	5.8	5.0	5.8	6.1	7.3	10.0	9.3
Office	10.6	16.1	15.4	14.8	10.6	12.9	12.2	14.5	18.5	18.4
Industrial	5.8	5.8	5.6	6.5	6.6	5.9	6.7	8.1	9.1	9.4
All Property	7.8	9.3	8.8	9.6	7.5	9.5	8.8	10.0	13.4	12.7

Source: BPF/IPD Annual Lease Review 2012

Chart 5 - IPD Germany – Average Rent Free Period by Sector
Average Months Rent Free Per Annum – 2006 to 2011

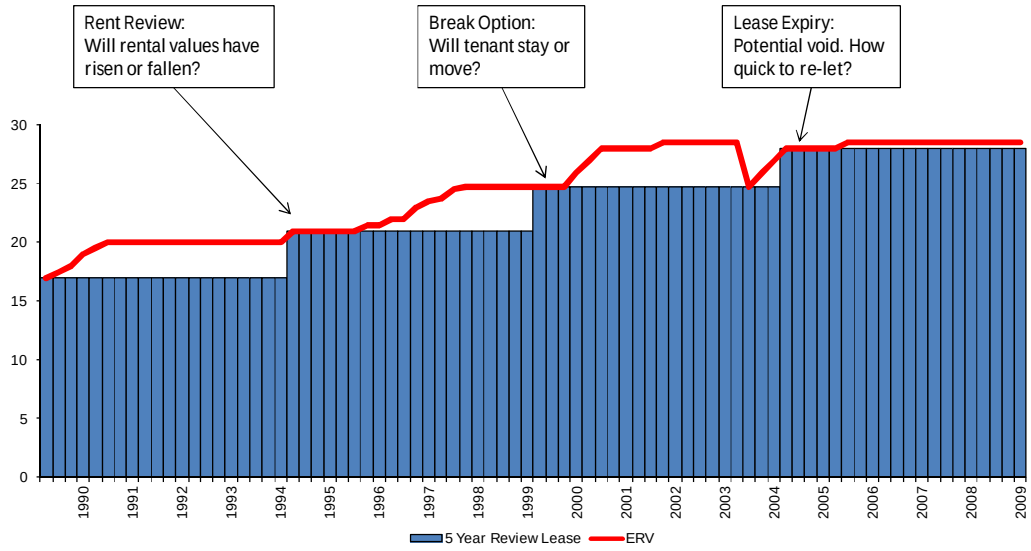


	Retail	Office	All Property
2006	5.3	4.8	4.8
2007	3	3.8	3.8
2008	2.2	5.5	5
2009	3.2	5.5	4.9
2010	2.8	4.4	3.2
2011	3.4	4.7	4.2

Source: IPD German Annual Lease Review 2012

Our assertion is that genuine long term diversification is more likely to be achieved through a combination of complementary income sources and lease structures than through naive geographical or sector diversification.

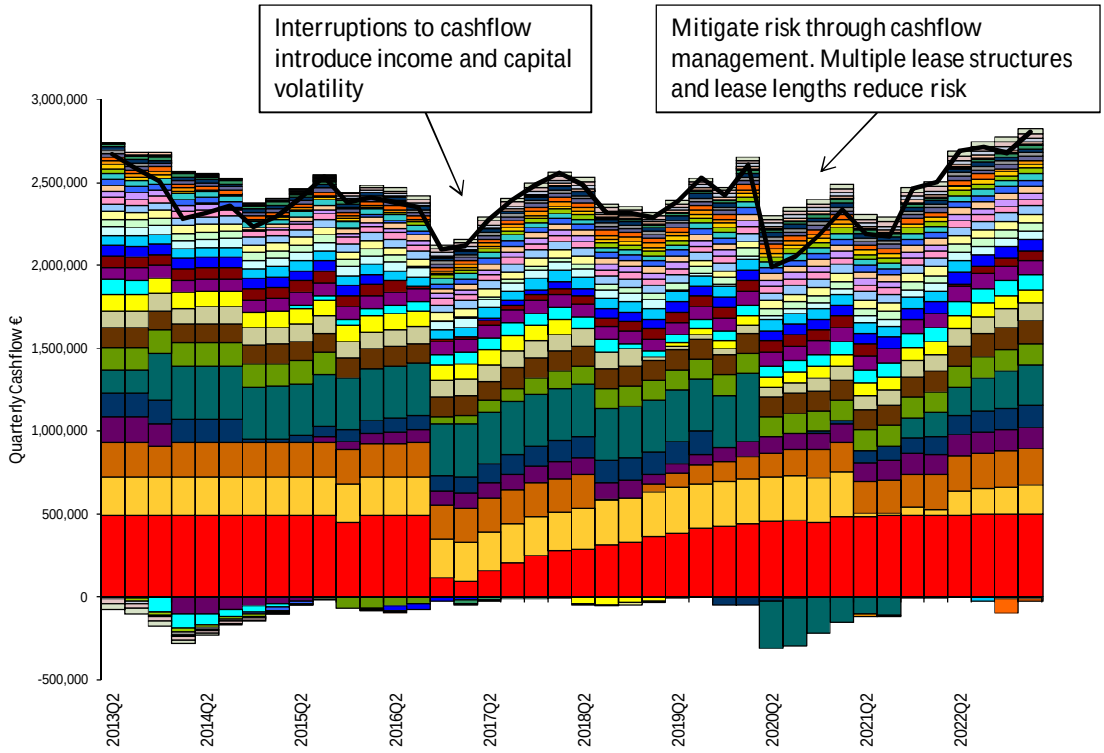
Chart 6 - Identifying Potential Risks to the Future Cashflow



Source: FIL Ltd

By applying probabilities to each of the events shown above, investors could determine risk adjusted cash flows that could be used to identify potential disruptions to future returns. This means that effective fund investment should actually be driven in large part by seeking to mitigate these kinds of risks at the fund and asset level rather than by making “calls” based on location, on sector or on market timing.

Chart 7 - Let Cashflow Structure Determine Fund Level Risk Return Strategy



Source: FIL Ltd April 2013

In the chart above, each colour in the income stack represents the risk-adjusted cash flow for a particular tenancy. The black line on the top is the total income for a particular time period. Having multiple lease structures, varied lease lengths and careful staggering of the key lease events allows cash flow interruptions to be minimised. This structured approach to cashflows smoothes income over time and should also help to lower capital value volatility.

Decision making tips

The authors acknowledge that looking beyond the labels to estimate underlying cash flows takes time and research effort, and decision-makers often operate under time constraints. We recognise that choices need to be made based on the data and techniques that are currently available, therefore we include in the section below some practical suggestions relating to the identification of sources of return, of risk and of diversification.

The range of potential outcomes is important

Capital returns are much more volatile than income returns, so the range of outcomes associated with strategies that rely heavily on capital gains is wider. Investors pursuing strategies that require substantial capital returns should therefore undertake a rigorous due diligence process before making their initial investment and continue to monitor assets closely once a transaction has taken place. By contrast, the range of outcomes associated with strategies that rely mostly on income return is relatively narrow. While all investment choices require extreme vigilance, those with the widest range of outcomes naturally require more.

Authors' tips:

- When pursuing target returns that significantly exceed initial yield, be prepared to spend a lot of time on due diligence.
- Try running mean variance optimisation exercises, treating real estate income returns and capital returns as if they were separate asset classes. This should be helpful in terms of illustrating the difference between income-reliant and capital gain-reliant strategies.

Risk and return analysis should happen in that order

Investors should first decide on their desired risk-return appetite and then focus on acquiring assets that provide the cash flows to support this. Quantifying risk is not easy and it is always tempting to focus mostly on return, potentially leading to suboptimal decision making.

Authors' tips:

When assessing the risk-return ratios of different investment options, it is preferable to use the coefficient of variation (risk per unit of return) rather than the Sharpe ratio (return per unit of risk). Both measures will tend to point in the same direction for static choices (A versus B) but the former is better for comparing the relative riskiness of changes (for example, A moving to B versus C moving to D).

Here is an example: Strategy A will improve the portfolio's Sharpe ratio from 0.2 to 0.3 whereas Strategy B will improve the portfolio's Sharpe ratio from 0.6 to 0.7. Which strategy reduces risk most?

Answer: The intuitive answer is that both strategies have the same effect, given that the change in Sharpe ratio is 0.1 in each case. However, Strategy A is far better at reducing risk because risk reduction is not linear.

Moving from a Sharpe ratio of 0.2 to 0.3 drops the risk level by 33% whereas moving from from 0.6 to 0.7 drops the risk level by only 14%. This is much easier to understand if the CV (unitised risk) measure is used.

Table 2 - Comparing strategies

	Strategy A		Strategy B	
	Before	After	Before	After
Sharpe Ratio	0.20	0.30	0.60	0.70
CV	3.33	2.22	1.11	0.95

Conclusions

For those pursuing good risk-adjusted returns in real estate markets, the traditional approaches to decision-making are open to improvement. We argue that there is too much focus on sector, geographic and style labels and on total return volatility. Labels can be misleading and total return volatility masks the marked difference between the volatility of income returns and capital returns.

From a risk-adjusted perspective, we argue that assets that derive proportionately more of their total return from income as opposed to capital gains are likely to be more reliable. Conversely, strategies that are heavily reliant on capital returns to meet their return target are likely to be more volatile.

Volatile strategies expose investors to a wider range of potential returns and therefore naturally demand a higher governance budget (in terms of both time and money).

The prevalent focus on the locational and sector description of assets (as evidenced in the labelling of many funds) is ineffective at capturing the true risk of real estate assets, which is dynamic rather than static in its nature. Instead of necessarily fixed geographic labels, we argue that the labelling nomenclature should be flexible to reflect the changing risk of different assets.

We acknowledge that the changes we advocate in the real estate industry could be seen as radical and will take time to achieve. In the interim, we offer three practical

decision-making tips that should help to improve the decision-making of real estate investors:

1. *If pursuing target returns that significantly exceed initial yield, expect a wide range of outcomes and set aside lots of time and resources for decision-making.*
2. *When assessing and implementing risk-return ratios, use the coefficient of variation (risk per unit of return) rather than the Sharpe ratio (return per unit of risk).*
3. *Treat real estate income returns and capital returns as if they were separate asset classes for the purposes of mean-variance optimisation.*