momentum
investments

Mindfields

Price and Liquidity Risk Management

Edition 3

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In 2022, the focus of our Mindfields research publications was to give you, our clients, a series of insights into risk management and how we as Momentum Investments apply risk management principles across the entire investment spectrum.

We started with a focus on fiduciary risk and ventured into the importance of compliance and mandate risk governance. We also examined how the pitfalls of blowouts in the hedge fund world and credit risk are managed and controlled. This was followed by an edition that focussed on some of the macro risks, economic and political risks as well as tail risks that we face in the investment world. As our investment portfolios are exposed to these daily, it is important to have a firm handle on these in an ever-evolving world.

I am delighted to bring you our third risk-themed edition of Mindfields, where we share thought-provoking articles on price and liquidity risk management. First and foremost, we want to understand how risk is viewed from a client perspective and then in our investment management process.

We start with a focus on understanding the overall risk profile of clients. The concept of risk is a varied one that can encompass various meanings to different people. Risks must be adequately defined and measured correctly to make appropriate investment decisions aligned with a client's goal. Most important from an outcome-based investment context is that the investment risk must be understood in terms of the client risk budget and their desired outcome or goal.

Alongside this, it is important to understand price or return risks inherent in asset classes. The typical long-term (average) view of asset class returns often hides what can be expected from a risk and therefore downside perspective over the short term. We shed some light on the importance of understanding downside risk fully in various asset classes – both in nominal and real terms.

The final part of this publication focusses on the nuts and bolts of price and liquidity risk. It is often said that risk comes at a premium, but what does that mean? More granularly, how do we define and measure it? What is the trade-off between this type of risk and the expected level of returns in multi-asset solutions? Liquidity risk can also be described as a direct link to the volumes traded in the market, but what happens in crisis periods when perhaps the requirements to sell or buy certain normally liquid assets, influence the price investors are willing to pay or sell a particular instrument at? Some fascinating insights into volumes traded versus bid-offer spreads are unpacked and why it is important to understand the illiquidity dynamic when managing portfolios with daily liquidity obligations.

Looking forward, the theme of risk management is comprehensive and only a couple of aspects have been unpacked in these three editions of Mindfields to date. The fourth and final edition of the risk series will

introduce risk management from the client's perspective and unwrap the challenges informed investors face. This review covers aspects such as the difficulty of making decisions in the context of investment and market noise. An important area of focus for us is our research into the increasing field of knowledge of investor psychology and related behavioural biases that affect their decision-making. We will also conclude with the perspective of practitioners who consult with institutional and retail investors on how they have thought about and navigated the arena.

In summary, the robustness of any investment proposition is a function of, firstly, how well it adjusts to the market opportunity set; secondly, how the portfolio managers gather and analyse information in a logical and succinct format for use in portfolios; and finally, how the portfolio is balanced in terms of opportunities optimally and cost-effectively, while having a firm handle on every aspect of risk the portfolio faces. We hope that this publication gives you some comfort that when it comes to the day-to-day decision making a portfolio manager faces, that decision is aligned with the client's objective while at the same time managing the multi-faceted risks evident in the market.

I trust that you will find this publication to be practical and informative. As much as we endeavour to showcase our knowledge base and research initiatives, we also benefit and learn greatly from contributing to the Mindfields research publication and therefore will continue to showcase the depth of insights that goes into making our clients' investments personal.

Yours sincerely

Investment risk from a client's perspective

02

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Introduction

Risk means different things to different people. It must be defined properly and measured correctly to make investment decisions that are aligned to a client's goal. From an outcome-based investment context, it is important that the investment risk is understood in terms of the client risk budget and their desired outcome or goal.

Investment risk is traditionally defined as volatility, or the average variation of price changes of investments. Intuitively this measures links variability of returns to risk – the more variable a return is expected to be, the less confident we are of what the outcome will be. While volatility is a useful way to describe risk for investment professionals, investors saving for a specific goal or targeting a predetermined objective do not think in these narrowly-defined mathematical terms. Investors tend to think of risk as the prospect of an undesirable outcome, such as a financial loss or not meeting an investment objective. These differences in perceived risk measures, the need for a defined understanding of client risk and integrating this into the managing investment portfolios appropriately are the focus of this article. It starts with a critical evaluation of traditional risk measures used most often in the investment management space and then discusses which are most appropriate in an outcome-based investment environment for a client.

Traditional investment risk measures

Volatility is probably the most well-known and widely used risk measure in the investment world. It measures the fluctuation of a stream of historical returns relative to the historical average. Even though it does give you a lot of information about the behaviour of a specific instrument, it is difficult to relate to and make sense of the number if you have a specific forward-looking goal in mind. What does a volatility number of 10% mean for an investor wanting to save for his child's university fees in 10 years?

Volatility also conflates the outperformance of an expected return with its risk, whereas investors are more concerned with underperformance relative to an expectation. In other words, investors are worried about the downside, not the upside but volatility sees both as equally important sources of risk. Downside deviation, semi-deviation and loss deviation are all derivations of volatility, except that these measures focus on suffering a loss. They thus eliminate some of the pitfalls of volatility as they isolate the 'bad' fluctuations and therefore higher values of downside-, loss- and semi-deviation would typically be bad experiences for investors.

Tracking error as a risk measure

Another commonly used risk measure is 'tracking error'. This measures the deviation away from a predefined benchmark, that is by how much the return stream differs from the target against which it is measured. In some ways this measure is poorly named; it suggests that the bigger the number the more significant the mistake! Often, however, the deviations away from the benchmark are deliberate and therefore not an 'error', but rather a way of adding potential value (in a benchmark-relative way). The biggest shortcoming of tracking error as a risk measure is thus that it does not distinguish between 'bad' tracking error and 'good' tracking error. In other words, if a return stream is constantly ahead of the target against which it is measured, and by a fair margin, tracking error will be high, whereas tracking error will be low if a return stream only marginally underperforms the target constantly. Therefore, it is dangerous to conclude that high tracking error is bad and low tracking error is better. In fact, tracking error is necessary for outperformance and more potential outperformance typically requires more tracking error.

Value-At-Risk as a risk measure

Maximum drawdowns, Value-At-Risk (VAR) and other risk-adjusted measures like Sharpe and Sortino ratios are again mathematical risk measures, which are a step in the right direction to answering the true meaning of risk for an investor with a goals-based mindset. However, they are still imperfect or at least should not be looked at in isolation. These would only be useful if interpreted correctly and measured relative to the goal in mind. Thus, the effect or meaning of a historical drawdown should be interpreted within the context of the targeted goal. VAR is an extremely meaningful measure of a client-orientated risk and perhaps most appropriate in a goals-based investment framework, but only if the potential for capital loss (as measured by VAR) is a concern from a client's perspective over the short term, or, if VAR is assessed relative to the goal over the appropriate time frame. In other words, it is a different and effective way of defining a possibility of shortfall or not delivering on the goal.

In short, all these measures have their specific shortcomings. The output and its understanding is just as important as the inputs that it is based on. The measurement period also plays an important role in interpreting the outcome.

Important investment risks to consider

Other than the typical quantitative risk measures discussed above, there are also many other investment risks that are intangible and not easily measurable and yet could also influence the outcome of an investment portfolio. Investments and investment strategies across asset classes are also exposed to these risks. With careful and expert consideration these should also be taken into account, as they could considerably influence the level of VAR in the client portfolio. These qualitative risks would typically include the following:

Country	The risk that specific country events will weaken a country's financial standing and influence investment markets.
Credit	The risk that a bond issuer will forfeit repayment of interest and capital.
Currency	The risk that fluctuation in currency exchange rates causes the value of an investment to decline.
Liquidity	The possibility that an investment might be difficult to buy or sell.
Management	The possibility that an investment will underperform due to poor investment decisions by theinvestment manager.
Sector	The risk that a particular sector within a market may decline in value.
Instrument	The risk that a specific share invested in performs badly due to unforeseen company specific risks.

Even though it is difficult to predict specific instances of these types of events, it is still important to understand their effects on a portfolio, if they should occur. Sensitivity analysis of reasonable shock assumptions around these risks, possibly combined with some scenarios, gives the investor some idea of a possible worst-case outcome.

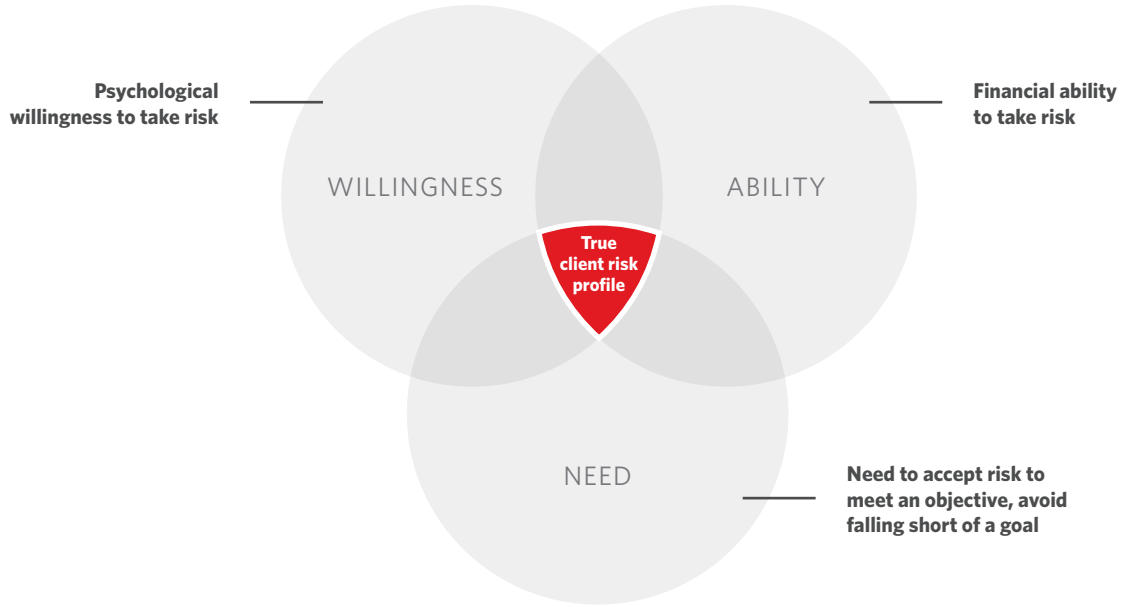
Outcome-based risk framework

In an outcome-based environment, it is essesntial to continually assess and understand these possible effects to ensure the path to the goal is not severely affected due to unforeseen events. Risk management is effectively about ensuring the unforeseen events do not destroy value that has been created or prohibit the client from ultimately achieving the goal.

Clients' goals or investment objectives cannot be formulated if the return requirements and the holistic risk constraints are poorly understood. Most clients do not fully grasp what their own risk profiles are or what amount of risk is required to deliver on an intended goal. They typically understand and know what they would like to achieve, but seldom understand what it means from a risk perspective to deliver on the goal. It is therefore our duty as investment professionals and advisers to assist clients in making the right investment decisions for their specific needs and to ensure they understand what the risk undertaken can mean in practice.

To this end, their risk profile must be established. This is usually defined on a behavioural basis along three dimensions illustrated in figure 1. By understanding the true client risk profile and marrying that to the investment goal, a more informed and aligned investment portfolio can be designed, monitored and steered along the path to the successful delivery on the objective with a high degree of certainty.

Figure 1: True client risk profile



https://www.vanguard.co.uk/documents/portal/literature/investment-risk-guide.pdf

For most investors with a goal in mind, risk can be either the probability of not delivering on the goal, the erosion of the purchasing power of their capital over time, or the loss of capital. It could even be a combination of all three. These measures are tangible, well understood and built into our investment process.

Momentum Outcome-based Solutions strives to deliver on client objectives in several specific ways. Firstly, it attempts to design a solution with the highest probability of achieving the objective. Secondly, it tries to minimise the extent of the underperformance, should it occur. To do this successfully over time, it is important to embed the risk profile and risk requirements of clients as part of the process of portfolio construction, align the investment risk taken to this risk budget as well as understand the implications of getting investment views wrong or a black swan event coming to the fore.

Conclusion

In the traditional sense of the word, risk in investments is measured in a mathematical sense based on a historical return profile. All these quantitative risk measures have a place in the investment process if understood, interpreted and applied correctly. Much of academic theory, practical applications in finance and pricing of insurance-type investment instruments revolve around these mathematical risk measures. This is all good and well but misses a very key insight: Risk is not equal for all investors.

Clients with capital invested in an investment portfolio can and will most likely have a very different definition of risk, especially if capital is invested to achieve a specified goal. The probability of not delivering on the goal, preserving purchasing power of capital and capital losses is much more relevant and tangible in these investors' lives. These risks also alter through time as personal circumstances change and therefore should be adapted accordingly, alongside the choice of investment product.

Momentum Outcome-based Solutions strive to understand the true risk profile of clients, building these risk profiles into the design and construction of the client portfolios, understanding the sensitivities to real-world unforeseen risks and monitoring and managing the risk relative to the desired outcome. By ensuring the probability of shortfall relative to the goal or objective is minimised as the client's investment journey is played out, the company can realistically deliver on its client promise.

Price risk inherent in asset classes

03

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Background

Asset classes go through both long-term and short-term cycles. How these evolve over time and coincide (or not) with other asset classes gives rise to the well-known benefits of diversification from the perspective of a multi-asset portfolio solution. For long-term investors it is, however, extremely important to know when and how these long-term average correlations break down and what the potential drawdown experiences of individual asset classes in the short run could be. The focus is traditionally on the upside that certain asset classes present, but risk of drawdowns and the beauty of diversification through market cycles, is lost as we become too fixated on maximising returns in the shorter term.

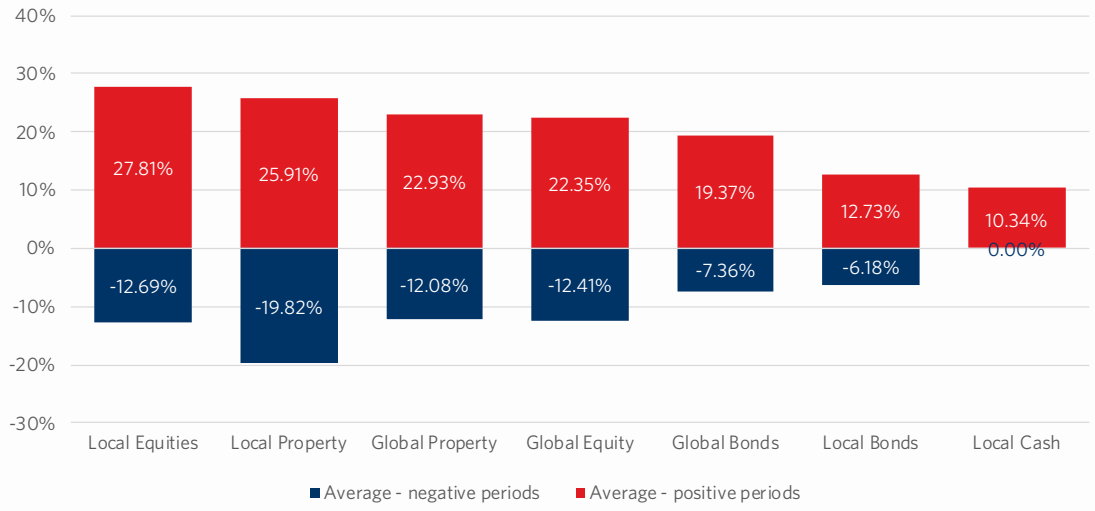
In this article, we will therefore unpack a more nuanced understanding of asset class behaviour over the short and long term. The goal is to understand the risks we are facing and should accept to a large degree to gain from the longer-term payoff. As the saying goes, 'no pain, no gain', but it is important to understand whether this holds in investment markets as much as in the gym.

Asset class return disparity

Let us start with understanding the long-term historical return profiles of asset classes by looking at a long-term data set[1].

The dispersion of returns across the asset class for this period is shown in Figure 1. It shows the average return in periods when the asset class delivers a positive 12-month return versus periods when the asset class delivers a negative 12-month return. It is not surprising to see the asset classes that are commonly viewed as being more 'risky' deliver on that promise, but at the same token they also deliver the goods on average – therefore supporting the 'more risk, more return' premise that investors commonly use.

Figure 1: Average one-year nominal returns in ZAR for positive and negative market periods by asset class

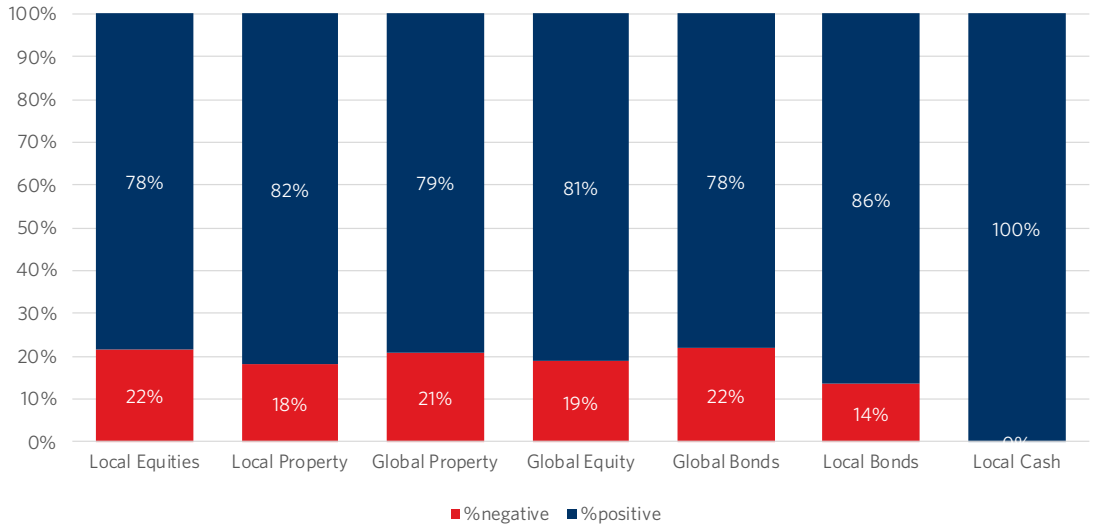


Source: Momentum Investments

[1] This analysis is based on a data set in excess of 60-year from the 1960s to 2022. While there are longer data sets available for individual asset classes, they only apply to a subset of the asset classes that we hold in our solutions. This period represents the longest joint dataset for which we have confidence in the quality of the data, for the broadest range of local and global asset classes.

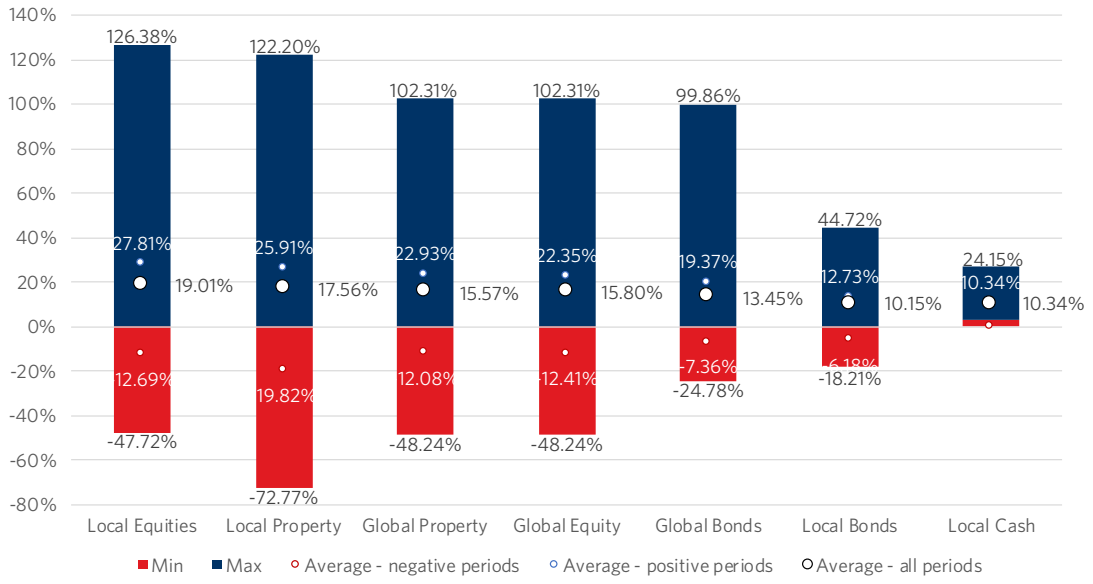
What the summary above does not tell us, however, is how often these negative returns transpire and whether there are any extremes in the data. In other words, what were the worst outcomes we would have experienced over 12-months? Looking at the worst possible outcome experienced back in time, is quite a bit scarier! These results are summarised in Figures 2 and 3.

Figure 2: Probability of positive and negative 12-month nominal returns by asset class



Source: Momentum Investments

Figure 3: 12-month nominal return distributions by asset class

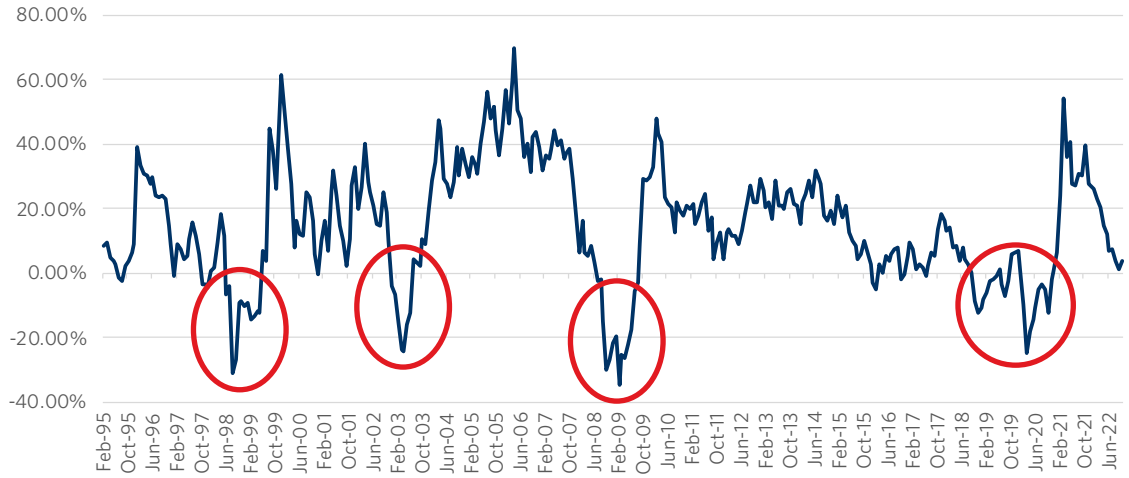


Source: Momentum Investments

It is clear that one in five 12-month periods is expected to deliver a negative nominal return for most asset classes, except for local bonds which is one in every seven to eight 12- months period. Cash is the only exception as it has always generated a positive nominal return.

Often, these negative 12-month periods also come in succession as negative market conditions are prolonged. Looking at an extract of rolling 12-month returns of the South African equity market from 1995, this effect is clearly shown in Figure 4, where the chart dips below zero. It is often for a couple of months in a row where that underperformance occurs.

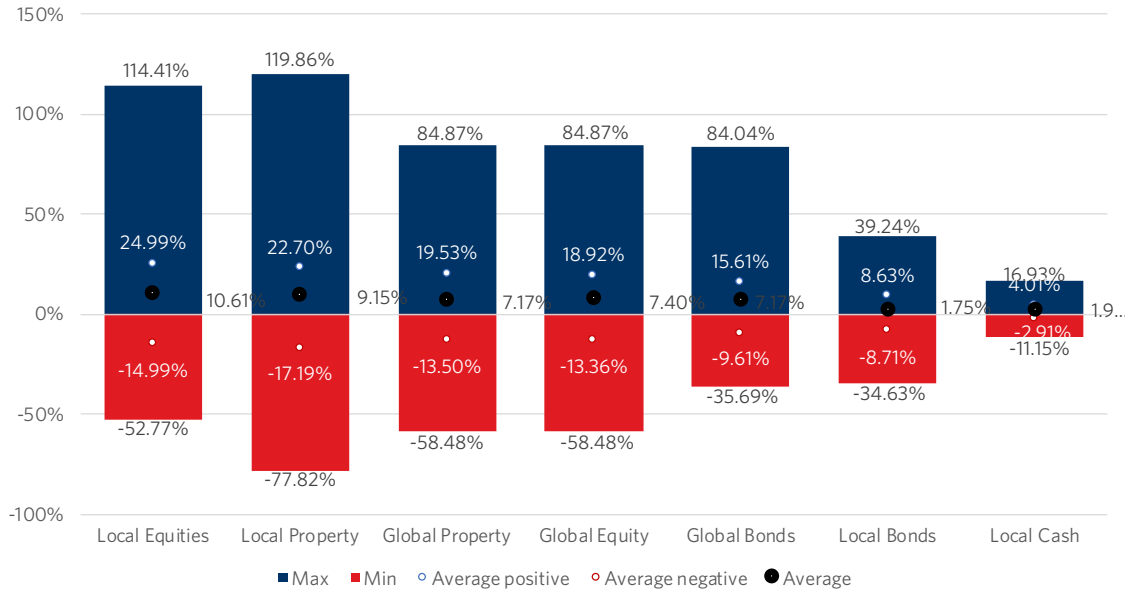
Figure 4: Rolling 12-month nominal returns of the South African equity market



Source: Momentum Investments

The returns in real terms paint a similar picture, as shown in Figure 5. Over the short term, asset classes can significantly underperform inflation This lead to the point that certain asset classes are intended to be used for long-term investment to ensure purchasing power is preserved over the appropriate investment horizon. This experience with cash as an asset class is often misunderstood – while it is 'safe' in nominal terms, there are times (sometimes extended periods of time) when the returns are below inflation. It is thus important to realise that this is a risky asset class for investors looking to grow their capital in real terms.

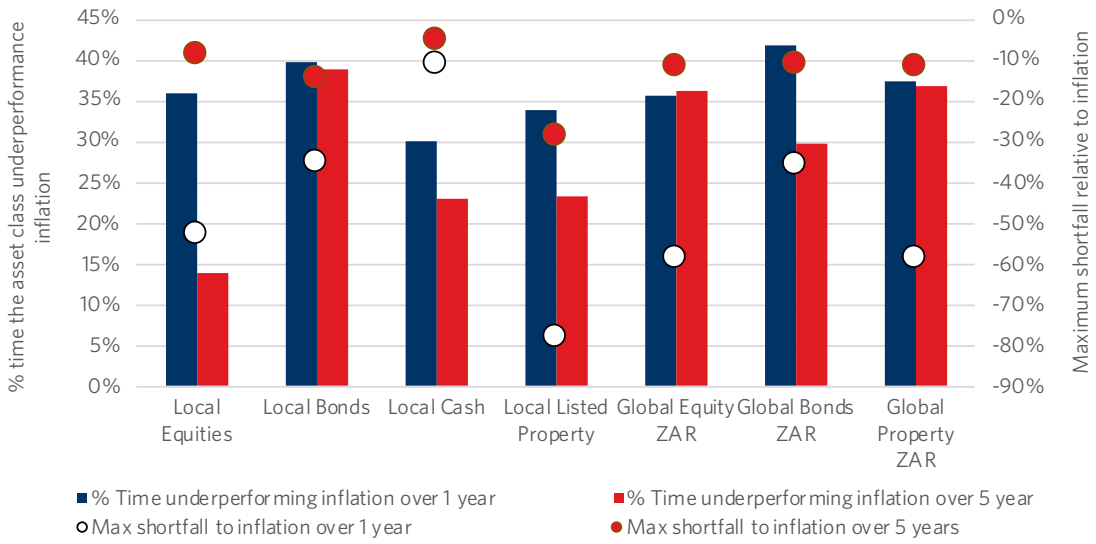
Figure 5: Real returns by asset class



Source: Momentum Investments

It is often said that time heals all wounds There is some truth in this when looking at asset class returns. Looking over the five-year horizon, on average, there is a much greater chance of delivering positive real returns with destroying value less likely. This is illustrated in Figure 6. The bars represent the percentage of time that the asset class generates a negative real return over rolling one-year (blue bars) and five-year (red bars) periods. The red bars are always lower than the blue bars – sometimes quite dramatically so (see Local Equities for an example of where the probability of delivering negative real returns drops from 35% over one-year periods to 14% over five-year periods). The other dimension to consider is the extent to which the asset class can underperform inflation. This is illustrated by the dots in Figure 6 (whichs use the right scale – so a lower dot reflects a bigger maximum underperformance). The maximum underperformance relative to inflation is always worse over shorter periods. Take Local Equities as an example again: The maximum underperformance against inflation over a one-year period is -53% while it is -9% over a five- year period on an annualised basis.

Figure 6: Comparative statistics of returns real terms over one- versus five-year periods



Source: Momentum Investments

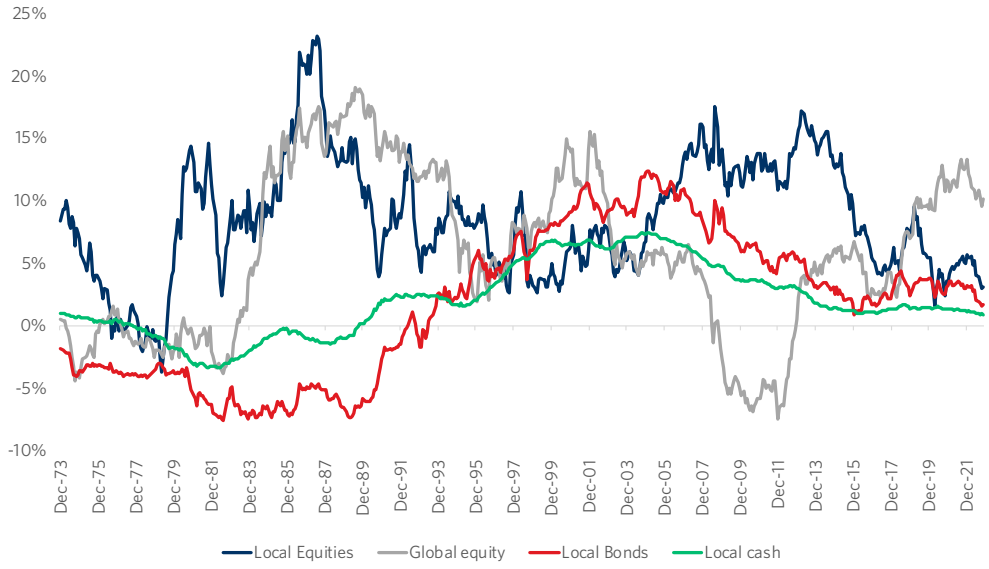
This is an important lesson for investors to learn: – To stomach the short-term downside in asset class returns to deliver the desired long-term positive real outcomes[2].

That said, these average real returns do not come in a straight line. If we look at the rolling 10-year real returns of the South African market[3] illustrated in Figure 7, real returns are cyclical, driven by economic cycles, inflation cycles and other macro variables. It is therefore not at all safe to assume that by investing in risk assets for the long term will ALWAYS deliver positive outcomes. But the odds, going on history alone, are definitely on the investor's side to at the very least deliver a decent positive real return over time. It must always be remembered that these can also be low for extended periods of time. A closer look at cash, which generated negative real returns for the period from 1973 to 1993, is evidence that a perceived 'safe' asset class can destroy value of the purchasing power of money if you look at it in real terms.

[2] Momentum Investments' research into investors' switching behaviour, conducted by Paul Nixon (who is also part of the Research Hive) and published as our annual SciFi Report, clearly shows that a lot of investors do not have this ability and it can significantly reduce the realised returns of their portfolios as a result.

[3] We look at 10-years here to identify the long-term trends in asset class returns. It smooths out some of the volatility of the 5-year experience.

Figure 7: Rolling 10-year real returns by asset class



Source: Momentum Investments

Is diversification a free lunch when it comes to risk management?

The typical departure point that we as investors look at when it comes to the aspect of diversification is purely the correlation effect. Or simply, how similar or not various asset classes behave relative to one another over time.

Table 1 reports the correlations of the various asset classes from 1964 to 2022. We can see that some asset classes are more correlated (more positive) and others are less correlated (closer to zero). The more negative the correlation numbers are, the more opposite their behaviour is and therefore the greater the opportunities for diversification to reduce the risk (volatility) of the combined portfolio.

Table 1: Average correlations of monthly asset class returns

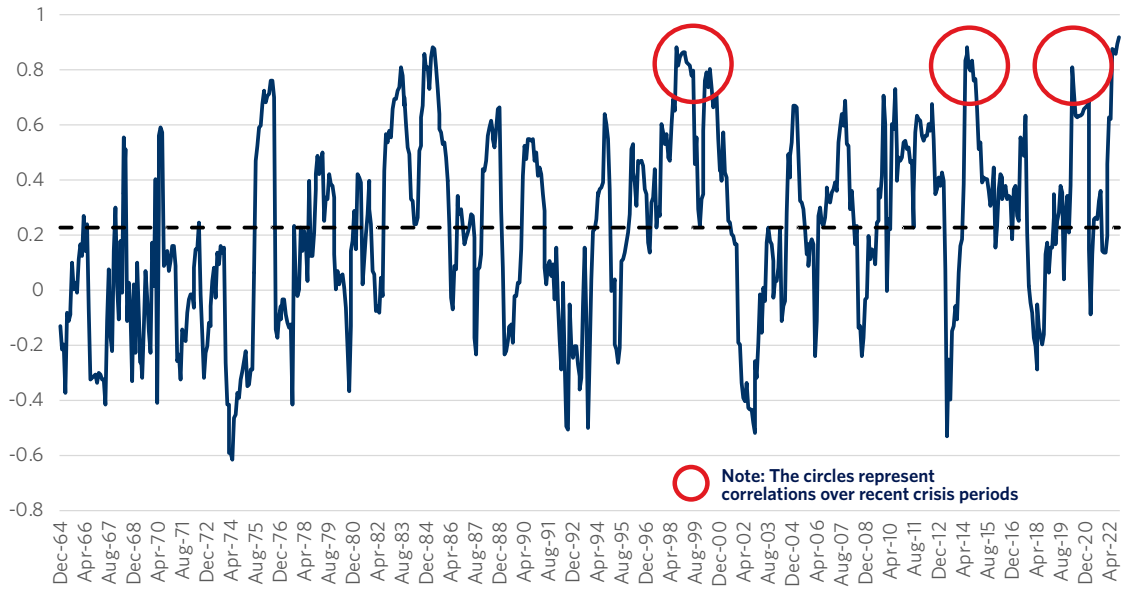
	Local Equities	Local Bonds	Local Cash	Local Listed Property	Global Equity ZAR	Global Bonds ZAR	Global Property ZAR
Local Equities	1.00						
Local Bonds	0.28	1.00					
Local Cash	0.01	0.16	1.00				
Local Listed Property	0.51	0.28	0.01	1.00			
Global Equity ZAR	0.34	-0.07	0.10	0.13	1.00		
Global Bonds ZAR	-0.11	-0.21	0.19	-0.17	0.56	1.00	
Global Property ZAR	0.33	-0.05	0.10	0.16	0.97	0.56	1.00

Source: Momentum Investments

From the information in Table 1, one might be tempted to assume that combining asset classes in any specified way should always result in a well-diversified portfolio. However, as with the average returns discussed above, a lot of period-specific information is hidden in a long-term correlation matrix like the above. For example, as reported in the table, SA equity and bonds have a low correlation at 0.28 on average over the entire period. However, when looking at the correlations between local equities and bonds calculated over rolling 12-month periods presented in Figure 8, it is clear that the average

is not a good representation of any specific short-term experience. The 12-month correlations vary from -0.6 to +0.9! The information hidden by using long-term average correlations only when constructing portfolios is thus essential to understand when constructing and managing portfolios.

Figure 8: Rolling 12-month correlations - SA equity vs SA bonds



Source: Momentum Investments

The most worrying thing about this is that asset classes typically revert to similar behaviour in times of crisis. They therefore have much higher correlations in periods when you need the uncorrelated patterns most. You get minimal diversification benefit from combining asset classes during those periods – something that is completely hidden by using long-term averages. In some of the larger crisis periods of this century, namely the COVID-19 pandemic of 2020, the Global Financial Crisis of 2008 and the Emerging Markets crisis of 1998, correlations between equity and bonds have spiked. This means that the smoother expected journey of combining these asse classes would have been a lot bumpier and returns more negative, during those periods than initially expected. It is therefore a dangerous assumption and a poor approach to portfolio construction to think about diversification as always being a free lunch.

Conclusion

Risk inherent in asset class price risk can be large. A review of the long-term history of asset class returns shows that the dispersion in returns is quite wide, even for the less risky asset classes like bonds (or even cash in real terms). If this is not properly understood, the outcomes and alignment of an investment to a specific outcome can be totally misconstrued. It is therefore imperative that from a risk management perspective, asset class behaviours over the shorter term are understood clearly.

In an uncertain world, it is key that when planning and sculpting the 'optimal' investment portfolio to make sure you achieve your financial goals, you take all the relevant risks into account. These must include asset class downside risks and volatility over the short term. The analytics described above gives some idea of what is important to understand in asset class behaviour but is not the full picture.

The most important aspect in understanding if an investment is aligned with a client's needs and keeping our clients invested, is to ultimately understand the asset classes in which they are invested. To assist with this dynamic, there is certainly a place for diversification, but one must tread carefully. By focussing on the long term, while expecting (and managing) the short- term pain will lead to the desired long-term gain.

Practical liquidity risk management

04

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What is liquidity risk? Why would you want exposure to it? How should you manage it?

Liquidity risk[1] refers to the potential difficulty of buying or selling an asset when there are not a lot of buyers or sellers in the market. This will cause the asset's price to fluctuate significantly on what might be 'normal' trades in a way that depresses returns for investors. Investors would thus rationally demand a higher return, known as the liquidity premium, for investing in these types of (illiquid) assets because they may be less likely to sell them when they want. The liquidity premium and liquidity risk can vary over time and may be higher in times of market stress. All assets are exposed to this source of risk to some degree or other and thus it is part of our normal investment risk management process. If managed correctly, it can be a source of additional returns. But this requires a careful assessment of the risks and returns offered in this space, an appropriate sizing of the exposure to them and an active approach to their management.

Types of assets with a liquidity premium

The liquidity premium is most pronounced in alternative asset classes such as private equity, infrastructure investments, qualified hedge funds, private credit and direct property. However, it is also found in ordinary listed assets. Two examples of listed asset classes that can experience liquidity risks are small-cap stocks and high-yield bonds.

Small-cap stocks, which are stocks of companies with a smaller market capitalisation, can be more difficult to buy and sell because fewer shares are available and there's generally less market interest. Consequently, institutional trades which are typically larger have the potential to move the price of these shares significantly. This is called market impact and negatively affects an investor's expected return. Buying a large portion of the tradeable stock available in a share will push the price up, making it more expensive. Similarly selling a (relatively) large position will make the realised price lower than its current market price. Both these reduce the return that is received from the trade. To avoid this market impact, smaller trade sizes are required which can lead to a decrease in the relative levels of liquidity in the asset. Large cap stocks usually have larger volumes of daily trading and similar trade sizes would thus not have a meaningful impact on the price. Periods of market stress can change this and even large cap stocks can face periods of illiquidity. What are thus normally minor transactions can have a large impact on the market price.

High-yield bonds, also known as junk bonds, are bonds that companies with a lower credit rating issue. These bonds can also be more difficult to buy and sell because there is less demand for them and investors may not hold them as widely. As for the small cap shares, relatively small trades can lead to higher market impact. This will again be exacerbated in times of market stress.

There is a relationship between market volatility and the average volume of daily trades. In times of high volatility, the volume of trades typically increases as investors buy and sell assets in response to changing market conditions. While an increased volume of trades could be interpreted as higher liquidity, higher volatility is typically present during rapid market declines or advances. During such periods the bid-ask spread of assets typically widens as market makers attempt to profit from this environment, leading again to a higher market impact. Assets with a lower market cap naturally have a lower average volume of daily trades and are therefore more susceptible to this higher market impact.

[1] *The term 'liquidity risk' can be more intuitively described as 'illiquidity' risk as it refers to the situation where there is no liquidity i.e. more sellers than buyers or vice versa. However, it is standard practice to call this liquidity risk and we will follow this convention in this article. Please note that we also refer to illiquid assets which are assets which have high levels of liquidity risk as defined here.*

The arguments for and against holding assets with a liquidity premium

Given the risks associated with investing in assets with low(er) liquidity, what are the benefits of holding these assets in the portfolio? The obvious advantage of such investments is the expectation of higher returns, but there is also the potential for improved diversification due to lower correlation with traditional , more liquid asset classes.

Consider the potential to earn higher returns. If there are concerns about liquidity issues, demand for these stocks will be lower, allowing an investor to buy into them more cheaply. This assumes that this investor can hold on to them through market cycles. In other words, they are not required to sell them in a hurry.

There is also the potential for diversification away from more liquid assets. As an example, the correlation of an illiquid asset such as direct property is on average lower than traditional asset classes with one another. This is illustrated in the highlighted section of Table 1 which contains the correlation matrix of the various asset classes usually included in our portfolio.

Correlation Matrix	Local Equities	Local Bonds	Local Cash	Local Listed Property	Direct Property	ILB	Global Equity ZAR	Global Bonds ZAR	Offshore Property	Commodities
Local Equities		0.28	0.00	0.51	0.03	0.06	0.34	(0.11)	0.34	0.18
Local Bonds	0.28		0.16	0.27	0.08	0.26	(0.08)	(0.21)	(0.00)	(0.07)
Local Cash	0.00	0.16		0.00	0.27	0.33	0.09	0.18	0.07	(0.03)
Local Listed Property	0.51	0.27	0.00		0.06	0.13	0.11	(0.18)	0.16	(0.04)
Direct Prop	0.03	0.08	0.27	0.06		0.12	0.02	0.03	0.04	(0.01)
ILB	0.06	0.26	0.33	0.13	0.12		(0.06)	(0.08)	(0.00)	(0.07)
Global Equity ZAR	0.34	(0.08)	0.09	0.11	0.02	(0.06)		0.55	0.88	0.24
Global Bonds ZAR	(0.11)	(0.21)	0.18	(0.18)	0.03	(0.08)	0.55		0.51	0.45
Offshore Property	0.34	(0.00)	0.07	0.16	0.04	(0.00)	0.88	0.51		0.23
Commodities	0.18	(0.07)	(0.03)	(0.04)	(0.01)	(0.07)	0.24	0.45	0.23	
Average	0.18	0.08	0.12	0.12	0.07	0.08	0.23	0.13	0.25	0.10

Source: Momentum Investments

Because of the nature of illiquid investments, they often require larger investment sizes by investors who can accept the illiquidity risk, making them more suitable for institutional investor portfolios. In the case of alternative investments, these can frequently be structured to meet an investor's specific ESG or sustainable investment goals.

Disadvantages of having illiquid assets in a portfolio

There are several critical challenges to owning illiquid assets. The most obvious is that holding illiquid assets in a portfolio includes the difficulty of buying or selling the assets when needed. When holding them as part of what must be a liquid portfolio, you may not in practice be able to offer the necessary liquidity to all your clients as required.

Then there is also the potential for large price swings and revaluations even if you are not trading them. It can sometimes be harder to accurately value illiquid assets due to a lack of trading, or the actual price you might get after your market impact could be quite different from the current market price. This can make it more difficult to determine the current value of these assets and thus the whole portfolio.

Making a case for the inclusion in illiquid assets in a portfolio

Utilising illiquid assets and thus taking on their associated liquidity risk in an institutional client portfolio requires the portfolio manager or team to deal with these subtle nuances. It sometimes also requires a particular set of institutional arrangements to provide liquidity to clients when it is not possible in the markets (without a major market impact).

In practice, the investment case for the specific illiquid asset in the portfolio is the primary consideration before introducing them into a portfolio. By investment case we mean the usual comparison of the benefits and risks of the specific investment. This requires answers to the following questions: how does it fit into the overall risk and return mandate, as well as the

investment horizon of the portfolio? Does it meet the liquidity needs of the typical client in the portfolio, given that most portfolios are managed in perpetuity?

In the case of a multi-asset class portfolio, consideration should be given to where the funds for the illiquid investment will be sourced from, as well as whether there is a sound rationale for the investment to provide an expected benefit, whether in the form of higher expected returns, reduced risk, improved diversification, or specific mandate objectives in comparison to the sourcing asset class.

What other factors do you need to consider when investing in illiquid assets?

Once the investment case for the illiquid asset is approved, the focus will typically shift to the allocaton size. This relates intimately to the liquidity characteristics of the investment. The specific context and characteristics of the assets are also important in assessing its liquidity risk.

Alternative assets, given their unique and often idiosyncratic nature are more onerous to manage and require specialist skills, additional due diligence, legal overheads and regulatory burdens. As such, the cost of these assets is often higher than typical vanilla assets traded on an exchange. This higher cost element can therefore be a deciding factor in terms of the size of the allocation to an opportunity, or even the wholesale foregoing of the same.

A further consideration related to the allocation size is the relative distortion that could materialise in periods of market volatility. Given that many illiquid assets are priced less frequently (for example,direct property, or monthly priced hedge funds), their relative size in a portfolio can potentially increase beyond a desirable level, should the illiquid portion of the portfolio be impacted by a selloff in the liquid part of the portfolio. This could leave the remaining investor with a portfolio concentrated in illiquid asset classes, which alters the risk/return profile of the fund, could breach the fund's mandate and have dire consequences from a Total Expense Ratio (TER) experience for remaining investors.

For example, let's consider a portfolio comprising 10% illiquid alternatives that only price quarterly. The remaining 90% of the portfolio is exposed only to listed equity. Should equity markets experience an extreme selloff of, 60% within a quarter, the liquid listed equity part of the portfolio will reduce to (1-60%) x 90% = 36% while the illiquid asset will remain at 10% given the lag in pricing. This will amplify the alternative exposure of the portfolio to 10%/ (10%+36%) = 21.7%, vastly different from the initial 10% exposure which can impact the overall risk and expected return characteristics of the portfolio.

How do we manage or mitigate the risks in illiquid assets?

Even though illiquid assets often bring the benefit of relative price stability in volatile markets, care should be taken in the absolute size within the greater portfolio, particularly portfolios with proportionally active cash flows. To manage or mitigate the risks in illiquid assets, investors should always diversify their portfolio by investing in a variety of both liquid and illiquid assets and regularly monitoring and adjusting their investments as needed. It is also important to have a clear exit strategy for when it is necessary to sell the assets.

Other mitigating factors may be ensuring a healthy secondary market for a specific illiquid asset or a good understanding and willingness to reduce illiquid exposure at a discounted premium under such conditions. These factors can only be fully understood by resolute and experienced alternative asset teams. At Momentum Investments we therefore employ specialists in this field, who together with an oversight investment committee scrutinise all investments thoroughly prior to them being considered for inclusion in any portfolios.

Related to this is the principle of treating clients fairly, particularly as it relates to the pricing of the portfolio that includes alternative assets. Alternative and illiquid assets can have lumpy payoff profiles and pricing of the portfolio, in the event of a unitised vehicle for example, should be done in a manner that does not allow investors to cherry pick entry and exit points that would allow them to benefit from large payoffs while not participating in the risk over the total investment horizon.

Conclusion

While alternative or illiquid asset exposure can bring many challenges, the complexity should not be a discouraging factor if managed with proper diligence and consideration and in the context of a relatively small holding in a wider portfolio. The benefit of these assets, if sized appropriately and used in the correct context of suitability from a cost and investment horizon perspective can often outweigh the drawbacks associated with them.

Liquidity and returns from listed equities – a bid-ask perspective

05

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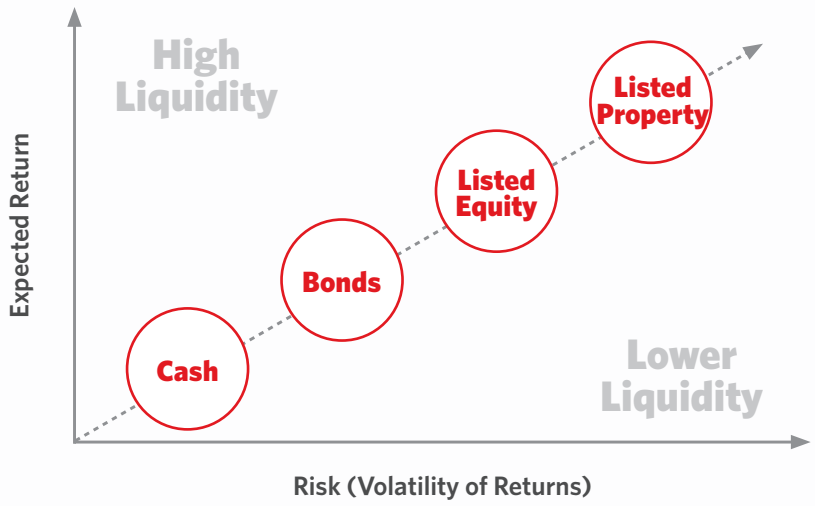
Listed equity is an important asset class that allows an investor to receive dividends and significant levels of real capital growth over time. However, the benefit of this growth does not come without risk and must be understood and managed correctly to ensure that it has minimal impact on a portfolio and its expected return.

This article concentrates on the liquidity risk of this asset class as measured by its bid-ask spread and how this spread varies by both size of the company and the market environment. Using the bid-ask spread as proxy for a share's liquidity is a good way to estimate the impact of this risk on a portfolio's returns. Finally, we discuss how we use these insights to manage our smart beta factor portfolios.

Liquidity and the costs of investing

The cost of purchasing or selling any asset is important for an investor. Liquidity is a key factor that can have a material impact on this cost. So, what is liquidity? Liquidity is not only the ability to enter or exit the market but more importantly the investor can enter or exit the market without affecting the current price. An important point to note is that there is an inverse relationship between liquidity and return. When looking at different asset classes you will find that the higher the liquidity of an asset, the lower the risk and the lower the potential return as indicated in Figure 1.

Figure 1: Stylised relationship between liquidity, risk and expected returns by asset class



Source: Momentum Investments

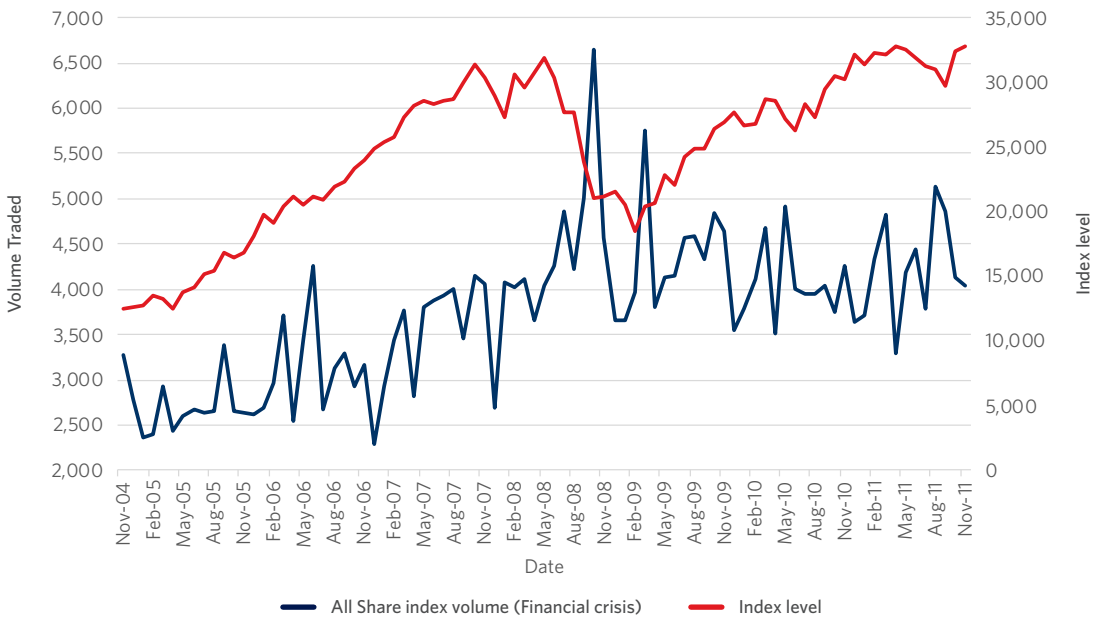
Volumes traded and bid-ask spreads

When it comes to equity, shares with highly traded volumes are considered more liquid than shares where the volumes traded are lower. One of the characteristics of liquid shares is that they have a low bid-ask spread. The bid price is what an investor is willing to pay and indicates the demand for a share while the asking price is the price at which an existing holder is willing to sell. The difference between the bid and ask price is a cost which the purchaser or seller of the asset bornes. The higher the spread between the bid and ask price, the higher the cost to an investor when trading in the shares.

Even though shares with higher volumes traded are more liquid than those with lower volumes, during periods of high market volatility even the spreads of more liquid shares can widen and add materially to an investor's trading cost. During these high market volatility periods, the market is less able to absorb the massive selling pressure and consequently the bid-ask spreads widen materially.

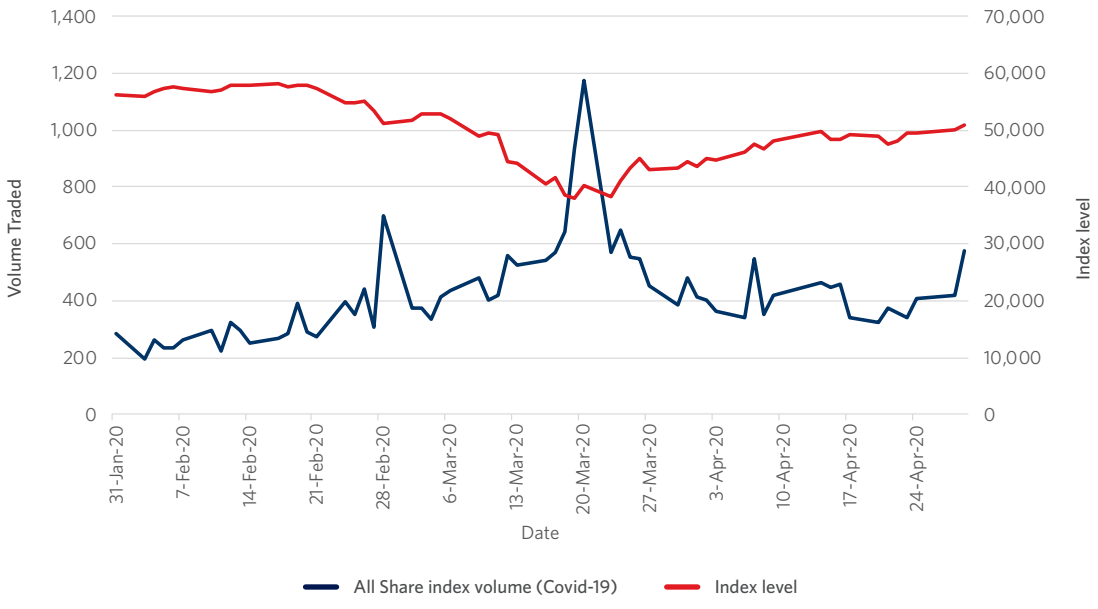
When looking at the JSE All Share Index, the average monthly volume during 2020 was 38% higher when compared to 2019 and 40% higher when compared to 2021. The monthly volume of the JSE All Share Index during two different crisis-related periods is reported in Figures 2 and 3. The first chart includes the period of the 2008 Global Financial Crisis while the second chart shows the period during the 2020 COVID-19 pandemic. In both charts one can see a material increase in volume during uncertain economic times. Even though volumes have increased, the cost to enter or exit the market during these times can negatively affect the trading cost.

Figure 2: Levels of trading: 2008 Global Financial Crisis



Source: IRESS and Momentum Investments

Figure 3: Levels of trading: 2020 COVID-19 pandemic



Source: IRESS and Momentum Investments

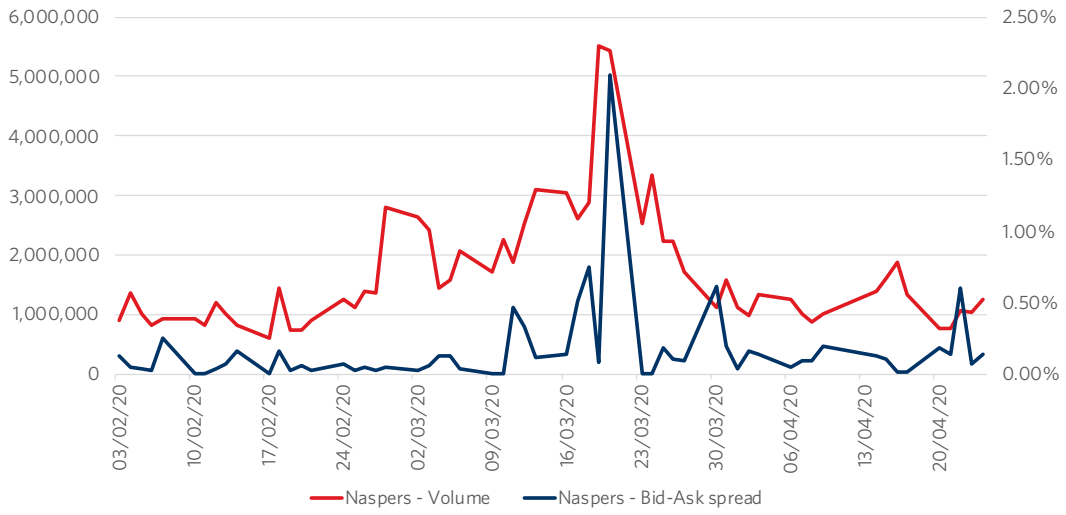
Understanding the risk

At the beginning of March 2020, the first case of COVID-19 was announced in South Africa and investors started to exit the market. The JSE All Share Index fell over 30% before recovering sharply. By the end of the year the market had already recovered to where it was at the start of the year. Besides the difficulty of trying to time the market over this period, there would also be an additional trading cost which would affect an investor due to reduced liquidity during this time.

Estimating the cost impact of liquidity using bid-ask spreads

A good example of how increased volumes during high market volatility can negatively affect liquidity is to look at Figure 4 which traces the relationship between the trading volume levels for Naspers, which spiked during the crisis, and the bid-ask spread for this share over the same period.

Figure 4: Volume traded and bid-ask spread for Naspers in 2020



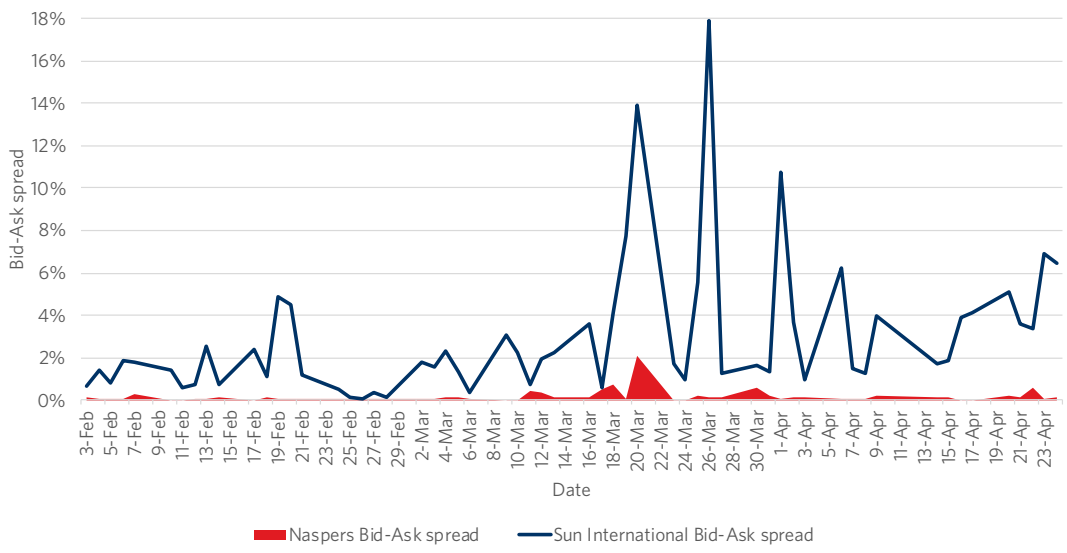
Source: IRESS and Momentum Investments

Naspers is one of the shares with the highest liquidity on the JSE. It had a massive spike in volumes traded during March 2020 as the COVID pandemic hit. The bid-ask ask spread widened materially during this period. The average bid-ask spread for February 2020 for Naspers was 0.09%. This increased fourfold in March 2020 to 0.28%.

The bid-ask spread for shares which are less liquid can have a more material impact on a portfolio. To illustrate this, the bid-ask spread on Sun International averaged 1.40% during February 2020, however during March 2020 it averaged 3.16%. As an investor, if you had to exit and re-enter the market during March 2020, you could potentially have lost over 6% due to reduced liquidity.

The relative bid-ask spreads over the same period for both these shares are presented in Figure 5. This highlights the need for a share-specific focus on measuring and managing this risk.

Figure 5: Bid-ask spread for Naspers and Sun International in 2020

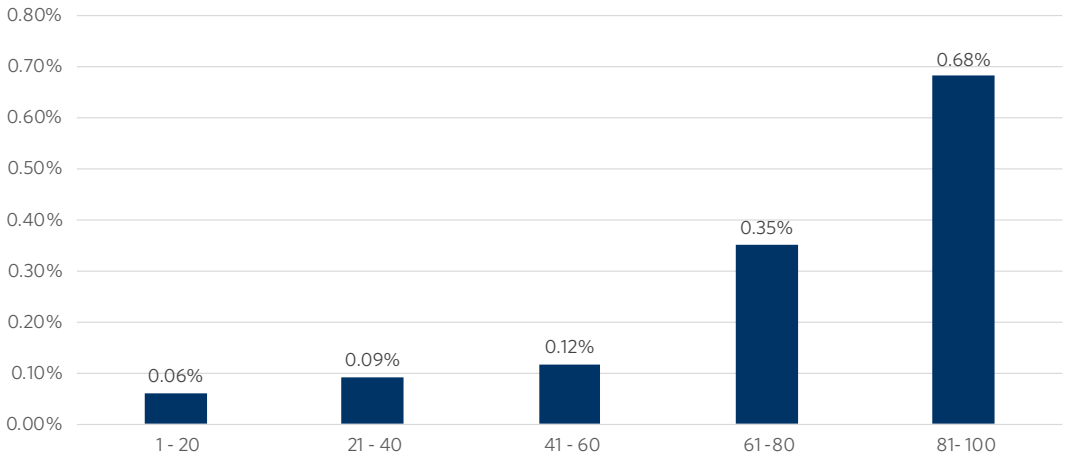


Source: IRESS and Momentum Investments

Costs of trading liquid and illiquid shares

Liquidity is relevant when looking at times of high market volatility and when market volatility is low. Holding shares which are more liquid would reduce the cost of having to cross bid-ask spreads when accommodating cash flows or rebalancing a portfolio. A portfolio of shares can have anything from 20 shares to an index-tracking fund holding over 100 shares. Looking at Figure 6, one can see a material difference in liquidity when looking at the top 100 shares by market capitalisation.

Figure 6: Average bid-ask spreads top 100 shares by Market Capitalisation quintile



Source: Momentum Investments

Between the top 20 shares and the bottom 20 shares, the average spread differential can be as high as 0.60%. If an investor had to switch from a liquid share to an illiquid share, the cost impact can be as big as 0.68% which can affect an investor's portfolio. Furthermore, during times of high volatility the bid-ask spread in these illiquid shares can widen further and it can be difficult to exit these counters.

How we manage liquidity risk in the management of our smart beta factor funds

Liquidity risk in Momentum Investments' smart beta portfolios is important when constructing these portfolios. We integrate it into our portfolio construction in three different ways. Firstly, we constrain our investable universe to only those shares that meet a minimum average level of liquidity. While some shares may score highly on a factor-score basis, we will not even consider holding them if they do not meet our liquidity screen. Secondly, the shares which pass the liquidity constraint, but are on the bottom end of the iquidity list, are limited in terms of the weight held in the portfolios. Finally, portfolio rebalancing is carefully managed by taking trading volume into account and minimising the cost impact on the portfolio. The range of bid-ask spreads in any specific share can vary quite dramatically on a day-by-day basis. The case of Sun International highlighted above makes the case very clearly: It varied from 0.06% to 17.92% over this period – admittedly one that was characterised by a crisis. But even looking at Naspers you can see that the daily liquidity levels are variable, so a mechanical date-specific reweighting process is not recommended in this type of environment. Being more flexible in terms of our rebalancing greatly helps reduce the transaction costs incurred by the fund.

Conclusion

Investors can easily overlook the cost associated with liquidity risk. Depending on the frequency of trading and which shares are held in a portfolio, the liquidity cost can have a material impact on a portfolio, especially when market volatility is high. Thus, it is important that investors are aware of liquidity risk and understand how it can affect the returns to an investment strategy. As explained in this article, we pay a great deal of attention to this in the management of our smart beta equity portfolios as we try to minimise the drag of this liquidity-related cost while trying to maximise the pure factor exposure.

Liquidity risk management for listed property

06

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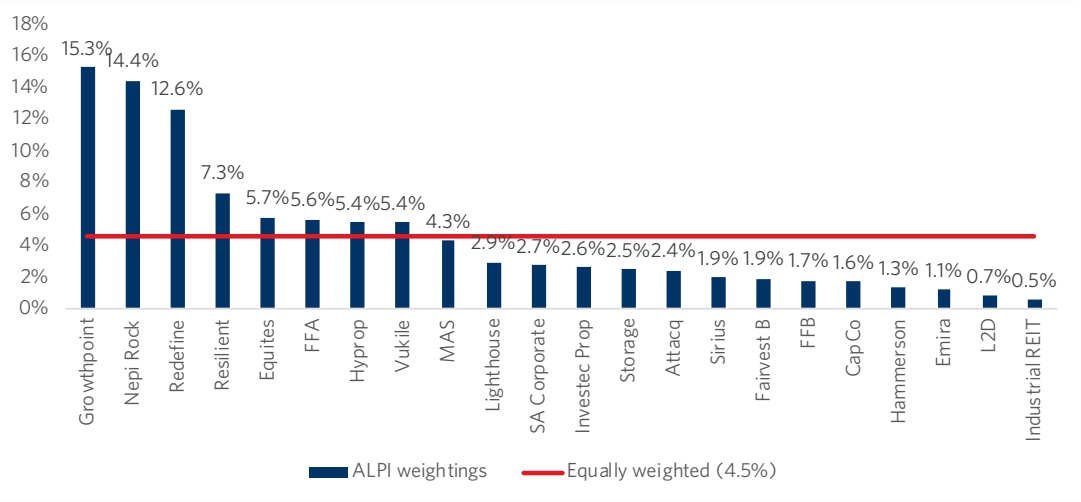
The South African (SA) listed property market is small, illiquid and concentrated. This creates significant liquidity management challenges for any investor, with a relatively large portfolio. The South African Collective Investment Schemes Act (CISCA) governs most of our funds, which means that they are subject to daily liquidity, meaning that cash inflows and outflows occur daily. It is crucial that while we accept funds from clients to invest and create value, we should be ready to honour daily requests for any redemptions.

This article outlines the current state of the market and discusses how these challenges are being met in the context of our property portfolios.

The South African listed property market

Our listed property fund invests on the Johannesburg Stock Exchange (JSE) and is benchmarked against the All Property Index (ALPI). ALPI has 22 constituents of counters with varying market sizes and is rebalanced every quarter with a maximum single counter weighting limit of 15%. The three largest counters are above 10% weighting each and they make up c.42% of the index. The five largest and five smallest counters make up c.56% and c.5%, respectively. Therefore, the tail end of the index consists of 13 counters with a weighting of below 3% each. The rapid drop-off of the heights of the bars in Figure 1 clearly indicates the concentrated nature of the composition of the index, particularly when compared to the equally weighed value of 4.51%.

Figure 1: ALPI weights



The JSE has not formally segmented the ALPI into large, mid and small caps but for portfolio and risk management purposes (including liquidity risk) we have taken the liberty of dividing stocks into segments. We internally identify three main tiers, based primarily on their ALPI weightings. Tier 1 is what we internally deem large capitalisation counters and component assets have index weightings between 5% and 15%. Tier 2 is a mid-capitalisation segment with counter weighting of between 2% and 5%. Finally, Tier 3 is the small capitalisation counters with index weights of below 2%. Our segmentation of the listed market into three tiers, as explained above is illustrated in Table 1. The ALPI weightings together with the full market capitalisation of each company are also reported in this table.

Table 1: Internal Tiers 1 to 3

Tier 1				Tier 2				Tier 3			
Company	**ALPI weight**	**Market cap (Rm)**	**Free float**	**Company**	**ALPI weight**	**Market cap (Rm)**	**Free float**	**Company**	**ALPI weight**	**Market cap (Rm)**	**Free float**
Growthpoint	15.3%	48,443	99%	MAS	4.3%	15,058	64%	Sirius	1.9%	21,177	23%
Nepi Rock	14.4%	65,119	76%	Lighthouse	2.9%	11,539	56%	Fairvest B	1.9%	4,562	89%
Redefine	12.6%	28,139	94%	SA Corporate	2.7%	5,734	98%	FFB	1.7%	5,171	73%
Resilient	7.3%	19,671	81%	Investec Prop	2.6%	7,639	74%	CapCo	1.6%	20,801	19%
Equites	5.7%	12,288	97%	Storage	2.5%	6,407	83%	Hammerson	1.3%	28,813	12%
FFA	5.6%	11,976	99%	Attacq	2.4%	5,434	93%	Emira	1.1%	5,075	46%
Hyprop	5.4%	12,056	99%					L2D	0.7%	4,115	38%
Vukile	5.4%	12,763	92%					Industrial REIT	0.5%	7,974	15%
Total/ Average	**71.70%**	**210,455**	**92%**	**Total/ Average**	**17.40%**	**51,811**	**78%**	**Total/ Average**	**10.70%**	**97,688**	**39%**

Table 2: Average daily liquidity (R'000s)

Tier 1		Tier 2		Tier 3	
Company	**Average daily trade (R 000)**	**Company**	**Average daily trade (R 000)**	**Company**	**Average daily trade (R 000)**
Growthpoint	138 754	MAS	21 889	FTB	9 255
Nepi Rock	129 130	Lighthouse	8 965	Attacq	5 045
Redefine	73 318	Investec Prop	10 576	FFB	11 809
Resilient	43 221	Storage	8 701	Emira	6 064
Equites	31 707	CapCo	14 230	Hammerson	11 192
FFA	24 968	SA Corporate	7 410	Stenprop	5 077
Vukile	25 754	Sirius	15 065	L2D	2 101
Hyprop	35 101	**Total**	**86 836**	**Total**	**50 543**
Total	**466 852**				

Given the disparity in market caps, these numbers are difficult to compare. If they are divided by each counter's market capitalisation (the turnover intensity ratio), their relative liquidity can be identified. These turnover intensity ratios are plotted against their weights in the ALPI in Figure 2. The relatively steep, positively sloped trend line shows that the liquidity is concentrated in the large cap counters. There are some exceptions with FFB and Hyprop being the most prominent. It does show that liquidity management is key in this market, particularly if any counters in Tiers 2 and 3 are to be held in the portfolio.

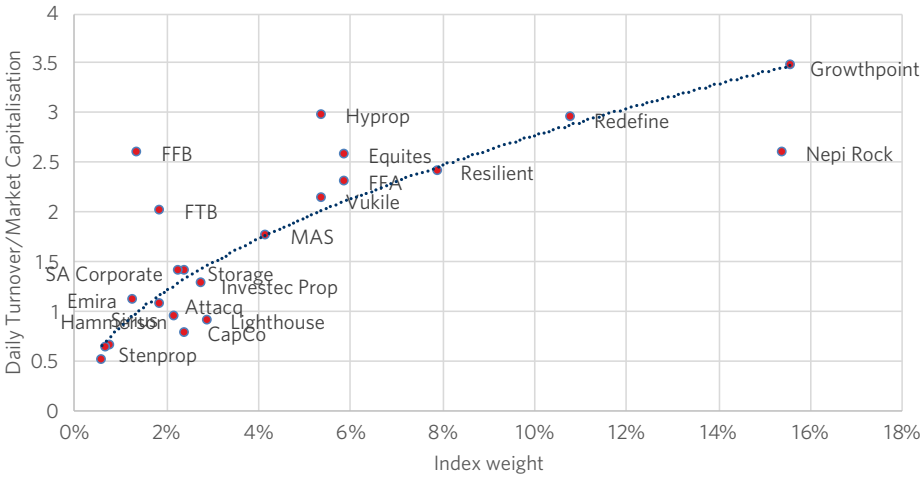
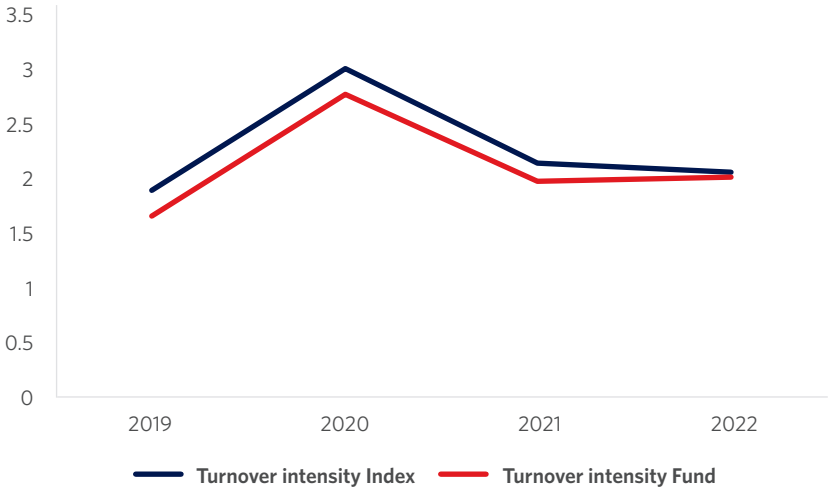


Figure:2: Turnover intensity vs. ALPI weight



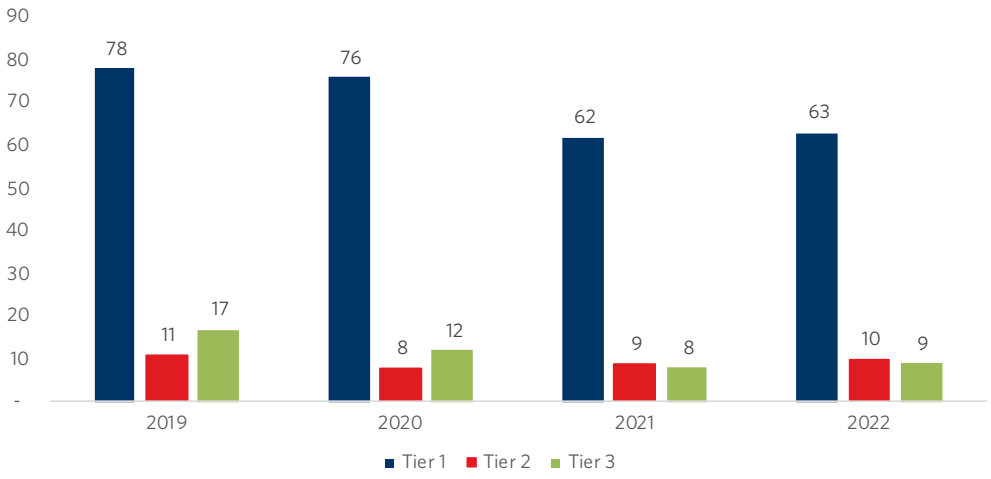
Our fund did not display a significant disparity to the index's turnover since 2019, even though we have maintained a large under-weight position in Growthpoint for the mostof this period. While Growthpoint is the largest and most liquid company in our investable universe, it does notshow better property fundamentals and valuation relative to the index.

The gap between portfolio turnover intensity and the index has been closing since 2021 because our long-held over-weights have become more liquid as they grow. A good example is Equites Property Fund which saw its turnover intensity growth from 1.4 times in 2019 to 2.15 times in 2020.

The average value traded since the COVID-19 pandemic is presented in Figure 3. This clearly shows that there has been a steady decline in average value traded per day since 2019. This could be partly attributable to significant share price decline since the onset of COVID-19.

Liquidity in Tier 1 growth has remained higher than the other tiers even though a declining trend has emerged. Liquidity of both Tier 2 and Tier 3 has seen a significant drop in 2020 but has since stabilised with a notable recovery in Tier 2.

Figure 3. Average liquidity by calendar year by liquidity tier



How do we manage the liquidity risk in our portfolios?

In terms of our investment philosophy, we focus on identifying and holding quality companies. We believe that these companies will compound earnings and value over time. Therefore, the counters that we hold tend to have a growing market capitalisation over time. Some of our top active weights are in Tier 1 due to a long history of compounding value. Our Tier 1 exposure to these long-term compounders makes up 69% of our portfolio (including cash position of 1%). As pointed out above, these are the most liquid. This is the first layer of liquidity risk management – holding a large portion of any fund's assets in the most heavily traded (or liquid) part of the market.

Some of the quality companies we have identified and would like to hold fall in Tier 2 and Tier 3. This means there are liquidity concerns, but offsetting this is that they will have strong property fundamentals and will enable them to grow in value over time. We identify these growth opportunities to complement our core exposure to Tier 1 companies. We deliberately maintain a relatively low proportion of the fund's assets in these, less liquid, counters.

Our current Tier 2 exposure is to six companies, but it is important to note that two Tier 2 holdings have market caps greater than R10 billion (that is they are on the larger and more liquid side of this tier). The combined exposure to Tier 2 is 19% of the fund. Within this category our largest weighting is MAS Real Estate at 7.3% of the portfolio which has the largest market cap in this tier. It also has strong property fundamentals that not only rank the highest in Tier 2 category but also similar or stronger than some of Tier 1 counters. The next biggest exposure in Tier 2 category is SA Corporate and Storage at 4.7% and 3.3% respectively. The rest of the holdings are less than 2% of the fund, which makes their liquidity risk manageable.

Our exposure to Tier 3 currently comprises Sirius, Fairvest B and Industrial REIT. The liquidity growth trend has been strongest in Fairvest B out of all the Tier 3 counters except for counters that fall into Tier 3 that have a market cap of greater than R 10 billion (Sirius, Hammerson and CapCo). We expect Fairvest B to grow in value and its liquidity to improve over time. Our holding is relatively small which means that we can look elsewhere for liquidity to fund daily withdrawals. Sirius ranks as one of the strongest companies in our investable universe in terms of quality and valuation. The fact that it has a market cap greater than R10 billion makes it more liquid than most of the counters in Tier 3. Industrials REIT has market cap of less than R10 billion and it is not as liquid as Sirius and Fairvest B, but our holding in the counter is less than 1%. The property fundamentals of Industrial REIT are also some of the strongest in the sector with reasonable valuation. Therefore, liquidity of Industrial REIT prevents us from holding a large exposure compared to say Sirius and Fairvest, which falls in the same tier. Our combined exposure to Tier 3 is 12% with Sirius and Fairvest B making up 7% and 4% of the 12% total exposure.

The exposure of the portfolio based on tier segments as a result of our investment philosophy and liquidity risk assessment is shown in Table 3. We continuously assess our exposure to different tiers of liquidity to mitigate the liquidity risk of the portfolio.

Table 3: Current portfolio holdings by liquidity tier

Company	Portfolio weighting (%)	Liquidity tier
Nepi Rock	18.25%	Tier 1
Growthpoint	13.36%	Tier 1
Redefine	12.64%	Tier 1
Equites	7.91%	Tier 1
MAS	7.29%	Tier 2
Sirius	6.76%	Tier 3
Fortress A	4.91%	Tier 1
Resilient	4.90%	Tier 1
Vukile	4.73%	Tier 1
SA Corporate	4.66%	Tier 2
Fairvest B	4.21%	Tier 3
Storage	3.28%	Tier 2
Investec Property	1.84%	Tier 2
Hyprop	1.74%	Tier 1
Attacq	1.10%	Tier 2
Industrial REIT	0.96%	Tier 3
Lighthouse	0.45%	Tier 2
Cash	**1.0%**	
Total	**100%**	

The second layer of liquidity management involves tracking most recent levels of trading behaviour in each counter to ensure that the liquidation of our holdings is not likely to affect the price received. Internal research informs us that to trade out of a particular stock without moving or disturbing the market price, an average of 15% participation of daily traded volume is required as a maximum. On this basis we continuously test our portfolio for a scenario of full liquidation or redemption.

As illustrated in Table 4, our flagship fund at R900 million will currently take approximately 10 days to trade out of completely. We estimate that a portfolio of R10 billion with identical stocks to ours could take between three to five months to trade out of. We think this level could be the maximum size of the fund given its current liquidity needs.

This answer would change the bigger a portfolio gets and thus begs the question: How large can a portfolio get before its trading behaviour affects the market price and thus the realised returns for its investors? A portfolio of R30 billion will be approximately 10% of the total market cap of the ALPI and we believe that at that portfolio size the individual share concentrations will be high especially to the Tier 1 stocks. For example, a portfolio of R30 billion with a neutral weighting to Growthpoint would imply a shareholding of approximately 9% of Growthpoint which will impact Growthpoint's free float.

We believe that a portfolio of between R10 billion and R30 billion is manageable, but it could also imply holding larger positions in Tier 2 and Tier 3 stocks which could take a long time to buy or sell. In this range there is also a risk of inadvertently holding larger positions in illiquid stocks than desired, especially when a portfolio is faced with redemption requests that result in liquid stocks selling quicker than illiquid stocks in the portfolio. Given that our total assets under management are R2 billion, there is potential for our funds under management to grow without increasing the liquidity risk in the portfolio.

Table 4: Days required to trade out our existing positions

Company	Portfolio exposure (largest – smallest)	Days to trade out
Nepi Rock	18.25%	4.04
Growthpoint	13.36%	3.27
Redefine	12.64%	9.17
Equites	7.91%	11.7
MAS	7.29%	15.05
Sirius	6.76%	10.22
Resilient	4.90%	4.8
Vukile	4.73%	5.59
SA Corporate	4.66%	31.45
Fairvest B	4.21%	37.62
Storage	3.28%	16.35
Hyprop	1.74%	1.94
Attacq	1.10%	6.53
Industrials REIT	0.96%	25.25
Lighthouse	0.45%	1.18
Fortress B	0%	6.84
Cash	**1.0%**	**1**
Weighted average		**10.07**

Conclusion

The ongoing analysis of the liquidity of our portfolio given the current investment landscape enables us to guard against the risk of over-exposing the portfolio to illiquid stock inadvertently. It also assists to create the right balance between quality, valuation and liquidity for the overall portfolio.

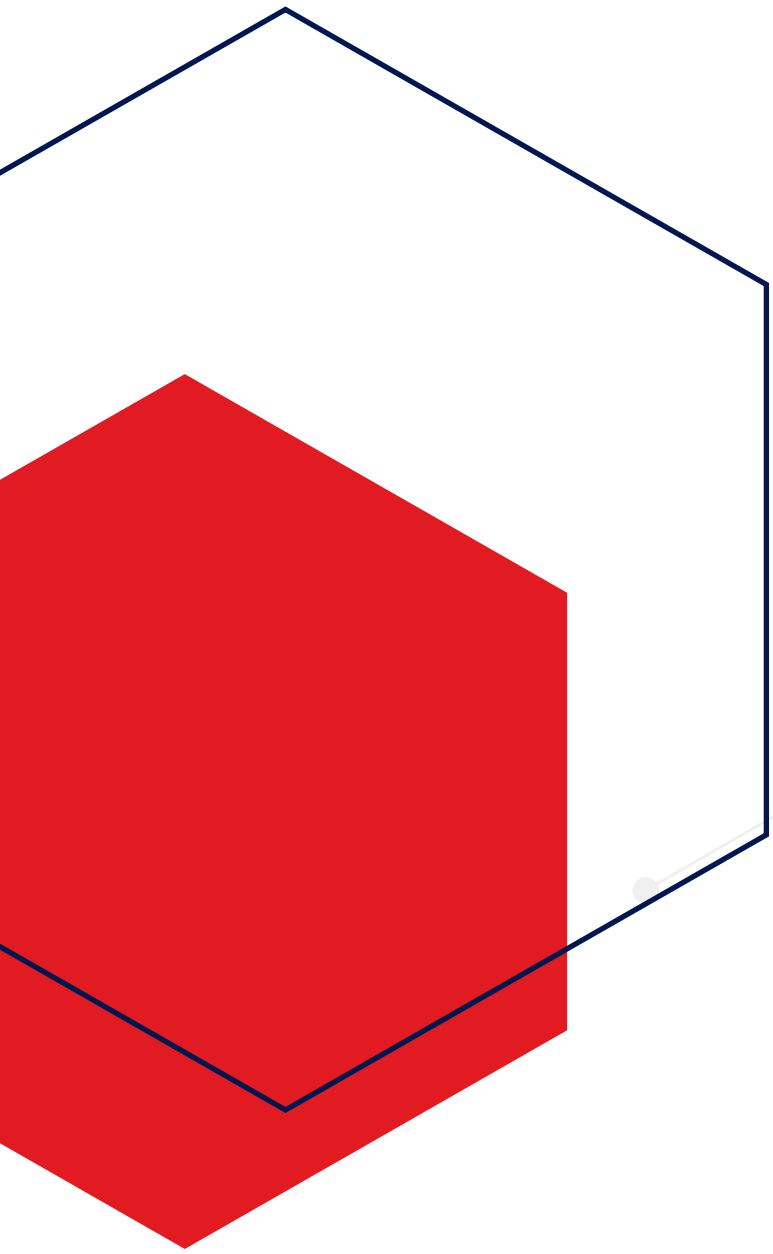
Our investment philosophy is to buy quality companies at attractive valuation and hold them over the long run. We believe this strategy will create client value and ultimately outperform the benchmark. It is important to note that we do not use liquidity as a first requirement to invest but rather we apply our investment philosophy criteria to the entire investable universe. We then analyse liquidity for all the stocks that have been filtered by our investment criteria for capital allocation and fund weighting.

Our investment management process, incorporating liquidity management, can thus be summarised as follows:

1. We define quality as companies that have better property fundamentals than the sector and we have a proprietary model to objectively filter quality companies from the rest of the market. We have a Quality Metric Model which we maintain continuously. We then classify companies into three tiers of core, neutral and non-core.
2. We maintain a valuation ranking table which incorporates various ratios of dividend yields, price to book ratios, dividend yield versus long-bond yield and implied property value. We assign valuation to each stock classified under our three tiers.
3. The liquidity classification into three tiers is then mapped to the quality tiers.

Our high conviction will therefore be a high quality, low valuation stock and falls into Tier 1 liquidity classification. We would generally avoid stocks that are low quality, high valuation with low liquidity (Tier 3 liquidity classification). There are some exceptions in Tier 3 counters as explained above (which may have a large market cap with high trading volume but limited by free float). In that scenario we would emphasise the quality and valuation criteria. But we would limit stocks that fall into Tier 3 liquidity analysis which are small in market capitalisation with low volumes to 1% over-weight or under-weight provided they meet the criteria of good quality and attractive valuation. Finally, we limit the combined exposure of all the stocks that are outside the ALPI to 3% of the fund. Currently our holding in stocks that are outside the benchmark is 0%. This is by design because we prioritise stocks that are high quality, cheap and liquid (Tier1). A stock that is outside the benchmark needs to be more appealing with higher quality and valuation than our current high conviction stocks.

To conclude, given the small and concentrated nature of the SA listed equity market we need to keep liquidity management at the forefront of our investment process. We have outlined here how our portfolios are constructed in a way that expressly incorporates our ongoing assessment of current liquidity conditions and ensures that we are not caught in a position where we either cannot provide liquidity for our clients, or we negatively affect our clients' returns by impacting the market prices negatively through our investment decisions.



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