

An aerial photograph of a winding asphalt road that curves through a dense forest. The forest is composed of various types of trees, including many palm trees, and the foliage shows some autumnal colors in shades of orange and yellow. The road is dark and has white lane markings. The overall scene is captured from a high angle, looking down on the road and the surrounding trees.

Risk Management Framework

STANLIB
MULTI-MANAGER

Risk management

Our investment philosophy, framework and process is embedded at the very core of decision-making, permeating throughout the investment process. Risks and returns are inextricably linked and as such, investment risk management forms an integral part of the investment process. Each individual within the team understands their role in identifying, assessing and mitigating risk, be it within the investment team or the wider business. Their actions are the core of our robust risk culture.

The STANLIB Multi-Manager Investment Risk Management Framework is shown below at a high level. Risk monitoring and control leads to the continuous assessment and review of the risk management process, leading to the further identification of risks and ensuring the robustness of the process.



In order to better manage investment risk, the framework extends to classify the sources of risk. Since sources of risk extend across the investment process and teams, risk measurement tools and techniques are adopted across each investment function. The 'Linking the Framework, Process and Risk Management Tools' section describes how these tools are used for both risk measurement and risk mitigation.

Risk management approach

Our approach to mitigating potential risks from our investment philosophy, investment process, underlying investments and market risks, starts with good business practices relating to staff, knowledge management, review processes, systems and documentation.

We see qualified and experienced staff with continuous professional development as a component of risk management. Investing is very complex and requires large amounts of information to be synthesised, leading to ideas which are then distilled into credible investment decisions. As such, STANLIB Multi-Manager employs highly qualified and experienced people to analyse the wealth of quantitative and qualitative knowledge of investment managers. The senior investment team is supported by a junior team who, although also highly qualified, may have less industry experience. This structure allows for the close supervision and more importantly, the mentoring of the junior members by seasoned investment professionals. In addition, there are many programmes of certification which complement tertiary qualifications, providing further knowledge of the broader investment industry.

Further to this, we invest in investment knowledge growth and continuing professional development. Our investment team is encouraged to pursue ongoing education, both formally – through individual performance reviews and associated development plans – and informally through conferences, courses and internal technical workshops. We also encourage our investment team to participate in industry events organised by the investment industry or by professional organisations.

Formal portfolio reviews are a critical component of risk management and hence is the sixth step of our portfolio review process. The portfolio managers and CIO meet on a monthly basis to complete a detailed portfolio review of a selection of funds or portfolios.

The aim is to review each portfolio at least twice a year against the specific Portfolio Management Guidelines (PMG). The objective of the review is to:

- Identify any concerns
- Summarise key issues
- Generate ideas and receive suggestions on how to improve portfolios
- Direct further work to resolving problematic portfolios

Several of the specific risk management tools, which can be both returns and holdings-based, are used by the relevant portfolio manager in preparing for the meeting. A well-intentioned by-product of the portfolio review process is the intimate knowledge of portfolios it provides portfolio managers, as well as generating ideas for further portfolio enhancements.

While the portfolios are assessed against the PMG during the formal portfolio review process, the PMGs themselves are reviewed on an annual basis to determine whether the set guidelines are still appropriate. As an example, interaction with clients, usually through report-back presentations, may have clarified certain expected outcomes. The PMG review process ensures that changes in client specifications or in expected target bands are effectively tested and adjusted where appropriate. The PMGs are also periodically reviewed to check for relevance and consistency in terms of return objectives, alpha objectives, volatility, tracking error etc across the building blocks and risk-profiled ranges. This ensures that customers are treated fairly.

The investment process requires documentation at various stages and allows for the interrogation of ideas by members of the team, thus ensuring that team members share a mutual understanding. We produce documentation of a high standard, which is suitable for both internal and external consumption. This is vital in ensuring that complex investment ideas are not confined to only one person's thinking. Furthermore, our comprehensive documentation ensures that investment ideas survive beyond just the tenure of the current team.

People make errors and are subject to many cognitive biases. This can be exacerbated in the complex world of investments. While some of our investment risk management tools help minimise these errors and biases, peer reviews help contribute different insights into investment analysis.

Sources of investment risk

Investment risk arises during the course of making investment decisions, implementing these decisions and in monitoring them. Our investments are also subject to market risk which is further sub-classified into different risk components. At the highest level, investment risk with STANLIB Multi-Manager is broadly categorised under investment philosophy and process risk and underlying investment risk.



Investment risks arising from executing our investment philosophy and process may be extensive and diverse but can be broadly sub-categorised based on the functional structure of the investment team and the investment process. These areas are manager research, asset allocation, portfolio construction and portfolio management.

The portfolio specification process is an important component of constructing portfolios and as such, we place great emphasis on thoroughly understanding the objectives and constraints of the portfolios in consultation with our clients. This component is, however, a source of risk and an opportunity for risk management.

Finally, the portfolio review process represents an oversight of the investment process and will therefore be a natural opportunity to manage many investment risks at a high level.

In line with STANLIB's risk framework, we adopted the risk register as a tool. The risk register houses all risks identified from an investment, operational and client management perspective. Risks are identified through the processes performed by each of these functions. These risks are assessed from the likelihood of it happening and the potential impact, as well as an assessment of whether controls in place are adequate to mitigate the risks. The overall risk register is monitored on a quarterly basis by Head of Risk at STANLIB.

Linking risk management to the investment process

The investment risk management process starts by classifying various sources of risk present in executing any of our mandates. In this section, we further describe the sources of risk, how risk arises and the tools and approaches used to mitigate these risks.

Portfolio specification

A critical component of executing client mandates is the specification of the objectives and constraints of the portfolios to be constructed. This is then comprehensively described by the PMG. The source of risk here is incorrect specification, which could arise from poor communication or translating the objectives into specific measurable outcomes incorrectly. The risk management techniques applied here include translating objectives and constraints into PMGs, formal portfolio reviews, formal PMG reviews and peer reviews.

An important principle of the PMG is to analyse and communicate the portfolio performance expectations across many dimensions. For example, portfolios may be measured against:

- Returns in absolute or nominal terms
- Returns in relative terms (to benchmark or peers)
- Risk metrics including volatility, active return, Sharpe ratios, information ratios, beta etc.
- Constraints laid out including offshore, derivatives, passives, number of mandates etc.
- Discretion allowed regarding manager tilting (adjusting weights).

Portfolio management guidelines can be very useful in assisting with the communication of many of these dimensions to clients or other portfolio participants. This communication is an integral part of managing expectations before, during and after the delivery of performance results.

Manager research

The manager research process comprises many inputs, which represent a source of risk, as well as a risk management opportunity. The manager research process has been structured for one primary reason – the production of a high conviction manager buy list. However, many other outputs are produced from the process and to the extent that these can also be used in decision-making, they may also represent sources of risk.

The manager research process involves two distinct but interconnected components – quantitative analysis and qualitative analysis. The quantitative process is susceptible to numerous risks associated to the integrity of the data used in the analysis such as potential errors in the returns or holdings models. We appreciate that incorrect data may lead to incorrect conclusions about whether or not a manager has skill. The way we manage the risk associated with the integrity of data is three-fold:

- We use high quality, trusted data sources. The suppliers of that data should spend a lot of effort ensuring the integrity of the data. STANLIB Multi-Manager has access to reputable sources of data including Bloomberg, Morningstar and I-Net. These providers

take data integrity very seriously and provide extensive support infrastructures to ensure users have access to accurate and relevant data. The data is extracted electronically into our analytical tools through an automated process, as far as possible and practical

- We minimise the chance of introducing errors when bringing the data into the analysis process by avoiding manual intervention as far as possible. We also perform reconciliations. Within STANLIB Multi-Manager, much of the data extraction has been automated via spreadsheets which are imported into our analytical tools. This requires little manual intervention and ensures that the integrity of the data is kept. The processing of data is done via tools using a structured process with standard reporting
- We perform high-level reasonability checks on data at various levels throughout the investment process as the data is consumed, analysed and presented for either peer review or within the various investment committees.

Within manager research, the qualitative process is also susceptible to numerous risks relating to misunderstanding or misinterpreting quantitative results i.e. not understanding the analytics or the implications thereof. There is a risk of a lack of experience or poor judgement – or of many behavioural biases – in the assessment of the managers' investment philosophy and process, leading to poor decision-making. There is also the risk of miscommunication or misunderstanding when manager research outputs are consumed at other stages of the investment process.

While the risk of misunderstanding or misinterpreting quantitative results is partly addressed by employing qualified and experienced people, this is not sufficient as the quantitative process can be very esoteric. The quantitative team therefore spends the necessary time to ensure that consumers of the analytics adequately understand the assumptions, models, limitations and the remaining uncertainty with the results. Quantitative information will also be consumed by various people, who may have an opportunity to clarify their understanding with one another and the quantitative team, thus minimising the risk of misunderstanding or misinterpreting the analysis.

Given the complex nature of investment analysis, it is important for the investment team to be given a feedback loop from other parts of the investment process so as to check the value of the qualitative process. Formal meeting structures such as the Manager Research Committee or Portfolio Construction Committee, allow the experience and judgement of the team members to be assessed, as well as individual biases to be highlighted.

Model risk

Using the incorrect tools or analytical models could lead to erroneous results. These are mitigated by developing a deep understanding of the investment body of knowledge and a broad range of relevant topics that include accounting, economics, management and statistics.

Further to this, we continue to develop an understanding of the industries in which companies operate and the macroeconomic factors impacting them, for example interest rates. We manage this by employing qualified and experienced people, providing them with the resources necessary to remain up to date with the body of knowledge; and requiring them to participate in continuous professional development.

Development of analytical tools to be used for decision-making and testing the validity of these tools. The development and testing is done with an understanding of the relevant literature and the results of robust empirical testing. We have created a research hub that focuses on investment research and developing analytical tools. These tools are peer reviewed and debated by the senior members of the investment team, before being deployed to the wider team.

Ongoing assessment of the validity and effectiveness of the analytical tools being used and the changing environment in which we operate. We use a Bayesian approach to our thoughts and process, which entails updating our prior views and methodology in the presence of new evidence. We manage this through the formal meeting structures of the research hub. As part of our investment process, it is continually assessed.

Asset allocation

The asset allocation process involves the collection of information from a wide variety of sources and the synthesis of that information into views on asset allocation at various levels. This introduces two broad categories of risks:

- The quality of the information received and the extent to which that quality translates into good investment ideas. This is addressed by choosing high quality information providers. In addition to world class sources, we also have access to news, brokers and the benefit of local and global macro and portfolio discussions with underlying managers.
- The quality of the synthesis of all the information obtained and the translation of this into investment views. Again, employing high-calibre investment professionals helps mitigate this risk.

The asset allocation process includes structured meetings and ensures that views are shared and rigorously debated before reaching actionable decisions. It also ensures appropriate documentation for peer review and future reflection and assessment. This provides a feedback loop on how the process is working and highlights any areas of weakness.

Portfolio construction

The portfolio construction process relies on the outputs of the manager research, asset allocation and portfolio specification processes. This introduces the risk that results from these processes may be misunderstood or misinterpreted. This risk is partly addressed by employing qualified and experienced people, as well as through ongoing training and engagement on analytical tools and reports. It is also managed through formal meeting structures where the results are extensively discussed and the level of understanding can be assessed and appropriately managed.

As part of the portfolio construction process, a Portfolio Construction Framework (PCF) is developed, which indicates how the portfolio will meet the objectives and constraints of a client's mandate. Managers are chosen within PCF and are sized based on various

factors including tracking error (which allows captures the degree of benchmark cognisance), size of assets under management and house factors.

The portfolio construction process also has the risk that portfolios do not meet (ex-ante) specified objectives. This may be a result of the future being dramatically different to the assumptions made throughout the investment process. The risk that the future is fundamentally different to the past and that assumptions within the investment process are either invalid or will lead to results different to what was expected, is managed through the portfolio review process.

Portfolio management

The portfolio management process represents the implementation and ongoing management of the portfolios and is subject to many investment operational risks. The risks identified are allocation of assets to managers; transitioning of assets from managers being terminated to managers being hired; rebalancing of portfolios; implementation of asset allocation views; ongoing portfolio monitoring; and cash management of the portfolios. Operational risks are generally managed with control systems and procedures.

The portfolio management process includes daily and monthly performance review of portfolio returns as well as the underlying holdings. The portfolio manager is accountable for the conducting and presenting portfolio reviews.

Underlying manager risk – managing active risk

Active risk refers to the risk of performing differently to a benchmark – both underperformance and outperformance represents the risk – and is regarded as a relative measure. In one sense, this is similar to the volatility of returns in that it is calculated as volatility of the alpha i.e. the standard deviation of alpha. Just as volatility of nominal returns can represent a significant risk on both the upside and the downside – if certainty is sought – so can the volatility of alpha.

Active returns and hence active risks are driven by differences in each holding between portfolio and its benchmark. Within STANLIB Multi-Manager active risk is managed by understanding how a manager's position differs to its benchmark and how those

differences could lead to differences in performance. Part of this analysis is to understand the drivers of the manager's alpha against the appropriate benchmark.

When a manager underperforms, our investment philosophy and process is used to understand the source of underperformance and what it means to the portfolio construction framework of the relevant portfolio. It is important to clarify underperformance is not necessarily a trigger for hiring or firing a manager, but rather a signal to further investigate the drivers behind the performance and whether the manager underperformed purely due their investment style being out of favour.

Market risk

Market risk refers to the risk that the market value, or fair value, of a security or portfolio falls, typically in the investor's base currency. It is an aggregator of many different risks that affects the price or value of a security. This is explored below.

One of the principles of our investment risk framework is that risk should be measured in multiple ways. In order to manage the objectives of clients, we ensure that an appropriate amount of market risk is taken. Our approach is to utilise asset allocation modelling around real returns for asset classes, which incorporates the relevant capital protection required. While we do not guarantee capital protection to the client, this component of the investment process ensures that the appropriate level of risk is either taken or used as a tool to discuss potentially unrealistic client expectations with them.

Market risk encompasses other risk factors such as interest rate or inflation risk, equity and commodity price risk, foreign exchange risk and commodity price risk. We use scenario analysis, using both I-Maps and Bloomberg, to assess the impact of negative scenarios or outlier events on the market values of our portfolios.

Liquidity risk

Liquidity risk refers to the economic loss that arises from the need to sell relatively illiquid assets fairly quickly. Even assets which are typically liquid may become illiquid given a market or company related event. Liquidity risk is usually analysed in three dimensions, namely quantity; time; and price. In other words, being able to sell as much

as you want, as quickly as you want, at the price you want – or more accurately, at the last traded price.

Within multi-manager portfolios, liquidity risk can be further elevated to the portfolio level – the risk that investments made in underlying pooled portfolios cannot be redeemed without an impact on price. This could be a result of the underlying securities or strategies within the portfolios, or a function of the mandates themselves e.g. redemption restrictions. It is important to note that even listed securities can be poorly traded and illiquid.

At a security level, liquidity risk is managed in a number of ways:

- Limiting the amount invested in unlisted securities which are typically illiquid through mandate restrictions. This does not guarantee liquidity, however, as many listed securities may be poorly traded
- Recognising that liquidity can dry up during times of market turmoil represents another dimension of liquidity. We strive to understand the liquidity risk of a portfolio over specific scenarios, which allows for better management of portfolios particularly during tumultuous times
- Termination periods, gates and side pockets can also represent liquidity risk within pooled investment vehicles. This is carefully managed within our portfolio range to ensure that liquidity mismatches are minimised ex-ante and the impact on price is managed ex-post
- Liquidity needs are also managed via the portfolio management function, through either through daily trading to meet liquidity needs or through the portfolio construction process where liquidity can be strategically catered for in the portfolio.

Currency risk

Currency risk arises when the rate of exchange between the currency of an investment and the investor's base currency worsens i.e. the investor's base currency strengthens in relative terms, lowering the return on the foreign investment. It is important to understand that seemingly low risk assets in foreign currencies, may in fact be very risky in the investor's base currency.

There are essentially two aspects to this:

- Exchange rate volatility – an asset with very low volatility of returns in its base currency may be volatile in a foreign currency due to the volatility of the underlying exchange rate
- Mismatch between the currency of the revenues of the entity issuing a security and the currency of the payments that it must make.

In limiting the allocation to foreign investments, we manage currency risk by understanding how the underlying assets, or returns, vary in relation to the exchange rate i.e. there may be off-setting effects which allow for a larger allocation but within regulation limits. Our risk management process also extends to understanding how currency impacts on other market risk components such credit (including geo-political) and liquidity risk.

Volatility risk (equities and commodities)

Volatility risk is an indication of the spread of returns – uncertainty – around the average return. It provides some insight into the risk of underlying securities and the portfolio in aggregate. We use this ex-post to understand how the portfolio performed relative to expectations. It is also used ex-ante to understand how the current portfolio positioning would fare given certain volatility and covariance assumptions, which have been extrapolated from historical relationships.

Interest rate or inflation risk

This type of risk represents a corrosive force on the real returns of many securities i.e. high or low nominal returns are generally reduced through unexpected high inflation. Although many assets may include specific inflation assumptions in their pricing, only inflation-linked bonds provide explicit and immediate (approximately) inflation protection, typically only from published inflation to which the bonds are linked. Inflation risk management therefore depends on the underlying individual securities and aggregate portfolios. Certain securities may provide explicit inflation protection while others may only have a loose relationship to expected and unexpected inflation – equities in general, nominal bonds and property.

We understand and manage inflation hedging through our portfolio specification process and the portfolio construction process. A good understanding of the exact requirements or objectives goes a long way in ensuring that portfolios or solutions are appropriately designed and constructed. It also assists in communicating the behaviour of those portfolios or solutions ex-ante, in terms of their ability to deliver on objectives of inflation-hedging over specific time frames.

Credit risk

Credit risk refers to the risk of a counterparty failing to meet its financial obligations on the payment of coupons (or other interest-related payments) or capital redemption in relation to bonds or other interest related-instruments. It is not only the risk of default but also the risk associated with any credit event such as a change in the credit rating, which could lead to a fall in the price of a security.

Credit risk is partly managed through diversification. We naturally diversify this even further by blending managers with different types of credit within their underlying portfolios. At an underlying manager level credit risk is managed through valuations, pricing appropriately for the risk of a credit event. Where the terms of an issue can be influenced or negotiated, credit risk can be managed ex-ante through covenants and seniority on assets; or ex-post through restrictions on further debt issuance, hair-cuts and conversion into equity. Finally, the same tools for understanding and managing market risk are also available for understanding and managing credit risk i.e. the modelling tools.

In relative terms, credit risk is managed by understanding the level of credit risk in a portfolio, relative to the benchmark of that portfolio. Two important dimensions of credit risk that must be understood and managed are credit quality and term. Credit quality affects the credit spread across the term of the security, whereas term affects the sensitivity to changes in the credit spread. Particular care must also be taken in understanding off-benchmark positions i.e. the extent to which specific credit risk does not exist in the benchmark. At the level of a multi-manager, there may be an additional credit risk introduced by the legal structure within which underlying portfolios are accessed. It is therefore important to understand the credit risk of these underlying structures.

Systems and tools used in risk management

As part of the investment analysis, monitoring and reporting, members of the investment team assess statistical similarities or differences between managers. This analysis extends towards testing the blending of managers and optimization, at both an asset and manager level. This requires intensive data and calculation processes which are prone to many errors and hence, risk management represents a critical tool for such processes. While peer review may assist at a high level – checking whether the results appear reasonable – typically, a detailed review cannot be performed without redoing the bulk of the work or checking large amounts of data.

For this purpose, we have developed proprietary in-house, system-driven tools to assist across processes and calculations quickly and without errors. These systems are tested extensively prior to deployment and the Research and Development Team continuously checks data quality and the results of these systems. The systems continue to be enhanced as new research techniques are found or are driven by the analytical needs of the investment team.

The following tools are either proprietary in-house developed or leading industry systems to measure investment risk from not just a monitoring perspective, but also to gauge risk within each step of the investment process:

- Returns-based Qlikview Model – this is a proprietary tool is used for several investment analysis functions, as well as gauging the level of risk in the portfolios across a variety of metrics
- Holdings-based Qlikview Model – this is a proprietary tool that allows for the assessment of a fund or underlying manager’s exposure to various instruments. The model allows for the assessment of active weights relative to the benchmark at a stock or interest level. The tool also caters for fixed interest analysis such modified duration, credit rating, and allocation to different issuers. Analysis has been extended for multi-asset class funds to include an assessment of asset allocation across different asset classes over time
- I-Maps Holdings-based analysis – this is a third party application that utilises underlying equity security positions to highlight portfolio positioning – either absolute or relative

to the benchmark – over time. This system also extrapolates the ex-ante tracking error and beta contributions of the underlying managers and for the fund overall. I-Maps can also assess the sensitivities of a portfolio to risk factors such as commodities, currencies and global index movements

- Bloomberg Style Analysis – this is another holdings model that compares the securities of a portfolio to an index in terms of style factors such as value vs growth or large cap vs small cap. The system also produces a style profile that enables the investment team to assess attributes relative to the index. Examples of these attributes are earnings yield, volatility, cash flow yield momentum, debt/equity ratio etc.



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