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Table of Contents

1.	Introduction.....	3
2.	Responsibilities of the Board and Senior Management.....	4
3.	The Investment Strategy	5
4.	Investment Objectives.....	7
4.1	Return objective	8
4.2	Risk objective.....	8
4.3	Diversification.....	8
4.4	Use of derivatives	9
4.5	Costs and tax considerations	10
4.6	Environmental, social and governance issues.....	10
5.	Portfolio construction.....	11
5.1	Asset allocation	11
5.2	Modelling the asset allocation	13
5.3	Risk budgeting	14
5.4	Lifecycle investment strategy	14
5.5	Unit-linked and index-linked insurance products	16
6.	Implementing an investment strategy	16
6.1	Due diligence	17
6.2	Due diligence of investments.....	17
6.3	Due diligence of investment managers	17
6.4	Conflicts of interest.....	18
6.5	Performance-based fees	19
7.	Maintaining an investment strategy	20
7.1	Asset allocation rebalancing	20
7.2	Derivatives exposures	21
7.3	Currency exposures.....	22

7.4	Managing transitions of investments	22
7.5	Monitoring investments	23
7.6	Reviewing an investment strategy	26
8.	Investment risk management	27
8.1	Investment risk assessment	28
8.2	Investment risk management approaches	29
8.3	Investment risk reporting	29
8.4	Review of investment risk management arrangements	30
9.	Stress testing	31
9.1	Methodology	32
	Stress scenarios	32
	Risk factors	33
9.2	Assumptions.....	33
9.3	Frequency.....	34
9.4	Reporting.....	34
9.5	Review	34
10.	Liquidity management	35
10.1	Liquidity management plan	36
10.2	Management of liquidity risk.....	37
10.3	Liquidity management reporting.....	39
10.4	Liquidity stress testing	39

1. Introduction

1.0.1 The prudent management of investment and lending practices is fundamental to the operations of Financial Service Providers (FSPs). The Board of an FSP (the Board) is responsible for ensuring that there is a comprehensive investment governance framework in place to enable the selection, management and monitoring of investments and loans in order to avoid undue risk of loss while obtaining a reasonable return.

1.0.2 The Financial Services Regulatory Authority (FSRA) issues this guideline in accordance with Section 33 of the Financial Services Regulatory Authority Act, 2010. The purpose of the guideline is to:

- a) Provide guidance on the sound governance and management of investments;
- b) Outline factors that the Board and senior management of an FSP are expected to consider in developing an investment governance framework that is appropriate to the size, nature and complexity of the FSP;
- c) Set out the expectations of the FSRA with respect to the governance and management of investments by FSPs;
- d) Help ensure that persons responsible for making investment decisions adhere to standards and procedures that a reasonable and prudent person would observe; and
- e) Ensure that the FSRA observes international supervisory standards and practices.

1.0.3 An FSP should have in place a sound investment governance framework for the selection, management and monitoring of investments, including appropriate monitoring and management of investment risk, that is in the best interests of stakeholders. In this guideline:

- a) stakeholder means, in relation to an FSP, a client, customer or prospective client or customer of the FSP, including a policyholder or prospective policyholder under a policy of an insurer and a member or prospective member of a retirement fund; and
- b) for an FSP that engages in lending, the guidance applies not only to its investment activities but also to its lending activities and should be interpreted accordingly.

1.0.4 The Board is ultimately responsible for the prudent management of the investments of each FSP and the FSP's investment governance framework. The FSRA expects a prudent FSP would have in place, or have access to, appropriate skills, expertise and resources, commensurate with the complexity of the investments in which it is invested.

1.0.5 For the purposes of this guideline, an 'investment option' is an investment that an FSP makes available for selection by a stakeholder. An investment option may comprise:

- a) a mix of investments managed by an FSP packaged as an investment option; or

- b) an investment in a collective managed investment (externally managed investment option) that has been selected by an FSP where, for practical reasons, some activities may be delegated to the manager of the externally managed investment option; or
- c) a direct investment in one asset, such as an individual listed security, term deposit or bond (direct investment).

2. Responsibilities of the Board and Senior Management

2.0.1 The Board bears the ultimate responsibility for an FSP's investments. The Board's powers, roles and responsibilities regarding investments include the following:

- a) Develop and maintain the investment governance framework;
- b) Examine and approve the investment strategy, oversee its implementation by senior management, and ensure that it is reviewed regularly and updated to maintain its effectiveness;
- c) Ensure that investment management is handled by persons who are fit and proper to do so;
- d) Ensure that where any aspect of investment management is outsourced, the mandates given to service providers clearly define the Board's expectations, benchmarks, and reporting requirements;
- e) Understand the investments in which the FSP seeks to invest, including their characteristics and related risks;
- f) Ensure that the investments of the FSP are appropriate in relation to the liabilities that they are supporting;
- g) Specify the content and frequency of investment management reports to be submitted to the Board;
- h) Review the investment management reports, assess the quality and performance of the investments, and take timely action regarding information contained in the reports, where necessary;
- i) Follow-up on any activity, transaction or situation that is irregular or problematic; and
- j) Ensure that the FSP complies with the requirements of legislation and acts in a manner consistent with this guideline.

2.0.2 Senior management is responsible for ensuring that there are adequate policies and procedures for the conduct of investment activities and that they are implemented in an effective manner. Senior management's powers, roles and responsibilities regarding investments include the following:

- a) Develop, document, and seek Board approval for the investment strategy;

- b) Set out operational procedures for implementation of the investment strategy;
- c) Ensure that the investment strategy and procedures are communicated to relevant personnel and that they are promptly informed of changes;
- d) Review the investment strategy at least annually to ensure that it remains appropriate and effective in light of changes in the environment, financial markets, and the FSP's business, and recommend updates to the Board, as appropriate;
- e) Ensure that investment management is handled by persons who are fit and proper to do so and, where necessary, are approved by the FSRA;
- f) Establish and implement remuneration policies that avoid potential incentives for unauthorised risk taking;
- g) Maintain internal control mechanisms to ensure that investments are managed in accordance with the investment strategy and regulatory requirements; and
- h) Monitor and assess the quality and performance of the FSPs investments and report to the Board.

3. The Investment Strategy

3.0.1 An FSP should formulate and implement an investment strategy for the whole of the FSP, and for each investment option offered by the FSP.

3.0.2 An investment strategy for the whole of the FSP can be broadly described as the FSP's plan for determining the collection of investment options to offer to stakeholders.

3.0.3 An FSP should take into consideration the whole of the FSP's circumstances when formulating an investment strategy. Factors relevant to an FSP's circumstances include, but are not limited to:

- a) the product portfolio or benefit structure of the FSP;
- b) whether the FSP that is a retirement fund is operating predominantly in the accumulation phase, the withdrawal phase or a combination of the two;
- c) the stakeholder profile (e.g., projected membership growth/decline, policyholders' or members' age, occupational profile and reasonable expectations);
- d) the size, stability and growth rate in terms of assets under management of the FSP, and any other factors affecting its financial position;
- e) the tax position of the FSP;
- f) the broader state of financial markets and economies; and
- g) any relevant findings regarding the circumstances of the FSP in reports obtained from experts or advisers.

3.0.4 In the case of an insurer or a defined benefit retirement fund, the FSRA envisages that an FSP would typically consider, in addition to the circumstances of the FSP, factors including but not limited to:

- a) the capital adequacy, if the FSP is an insurer;
- b) the benefit design, solvency position (including the shortfall limit), relationship with the employer sponsor, the probability of continued employer support via a restoration plan or a pre-arranged funding plan and the general economic climate, if the FSP is a retirement fund;
- c) assumptions about premium or contribution levels, salary growth and investment earnings used in the actuarial projections; and
- d) whether actuarial advice in regard to the suitability of the investment strategy is needed outside the statutory triennial review.

3.0.5 The FSRA expects the investment strategy for the whole of the FSP to include the criteria and selection process that the FSP applies to determine whether an investment option is considered appropriate to be made available to stakeholders.

3.0.6 An FSP would be expected to consider the amount of time, resources and expertise required to make informed investment decisions in the best interests of stakeholders. Where an FSP identifies any weaknesses in its capabilities in this regard, the FSRA expects the FSP would strengthen its investment governance framework appropriately in those areas. This may be achieved in part by the FSP obtaining external advice. An FSP would be expected to articulate the circumstances for seeking external advice when formulating an investment strategy. Although an FSP may seek external advice, the Board is ultimately responsible for having an investment governance framework.

3.0.7 All investment-related roles should have documented responsibilities and reporting structures. This includes clearly identifying those roles involved in formulating investment strategies and those roles with decision-making responsibility in that process. The FSRA considers it important that the reporting structures of these roles are appropriately reflected in the investment governance framework.

3.0.8 The FSRA expects the FSP to document its investment strategy. The investment strategy for the whole of the FSP should deal with all aspects of this guideline relevant to the FSP, for example:

- a) Investment objectives – describe the objectives of the investment strategy, which should be in accordance with the overall risk appetite and tolerance levels of the FSP as outlined in its strategic plan;
- b) Portfolio construction – outline the investment selection criteria, standards and other parameters, including the asset allocation mix across investment categories;

- c) Implementing the investment strategy – describe the procedures for analysing and evaluating investments and carrying out transactions;
- d) Maintaining the investment strategy – describe the procedures for monitoring and maintaining the investments with the target ranges and limits;
- e) Investment risk management – describe the risk management;
- f) Stress testing – outline the stress testing program;
- g) Liquidity management – describe the approach to managing the liquidity of investments; and
- h) Roles and responsibilities – identify those involved in the development, implementation, and control of the investment strategy and their respective roles and responsibilities.

4. Investment Objectives

4.0.1 When formulating an investment strategy, an FSP should determine investment objectives that establish the desired investment outcome for an investment option.

4.0.2 The FSRA expects investment objectives would be measurable, formally documented and clearly communicated. A statement of investment objectives would ordinarily include a clear expression of a measurable target investment return and a measurable target level of risk exposure.

4.0.3 In the FSRA's view, a prudent FSP would ensure that it is able to clearly explain to stakeholders the basis on which it reasonably expects the investment strategy to satisfy the investment objectives.

4.0.4 The FSRA expects that an FSP would sufficiently understand and articulate the level and sources of expected returns that an investment strategy is aiming to achieve, and the level and sources of risk that it intends to accept in order to achieve those returns.

4.0.5 Where an FSP offers an externally managed investment option, the FSP may, following an appropriate due diligence process, adopt the existing investment objectives, where available, for that investment option.

4.0.6 Where it is not practical for an FSP to articulate investment objectives for direct investments, the FSRA expects an FSP would nevertheless describe risk exposures and other characteristics of the investment option.

4.1 Return objective

4.1.1 A return objective assists current and prospective stakeholders of an FSP to understand the expected investment outcomes of an investment option. It also provides a point of reference against which to evaluate investment performance.

4.1.2 An investment return objective should be specific and measurable. The FSRA expects a return objective would be expressed with a defined investment horizon and stated as either a return relative to a quantifiable benchmark return or an absolute percentage return. For example:

- a) a return objective expressed as a rate of return matching, or exceeding by x percentage points, a benchmark index over a period of y years; or
- b) a return objective to provide real long-term growth, where measured, over at least y years.

4.1.3 In determining the investment horizon and benchmark (where relevant) for the return objective, the FSRA expects an FSP would give due consideration to the expected range of investment returns and the risk objective(s) of the investment option.

4.2 Risk objective

4.2.1 An FSP should consider and articulate a measurable investment risk objective when setting an investment strategy for an investment option. A risk objective aims to assist current and prospective stakeholders of an FSP to understand the likelihood that the return objective/s of an investment option may not be achieved.

4.2.2 The FSRA expects the risk objectives would include reference to the variability of returns over the defined investment horizon. For example:

- a) to have no more than x negative investment returns over a period of y years; and/or
- b) to maintain a tracking error below x percentage points over a period of y years relative to the risk objective benchmark.

4.2.3 An FSP may also consider including qualitative statements when developing a risk objective to express the level and sources of risk to which an investment option is likely to be exposed.

4.3 Diversification

4.3.1 An FSP, when formulating an investment strategy, should give regard to the composition of investments within that investment strategy. An FSP should also ensure that the investment options offered to stakeholders allow for adequate diversification.

4.3.2 The FSRA expects that a well-diversified investment strategy would be exposed to multiple sources of risk and return. This is typically achieved by investing across multiple assets and sub-asset classes, counterparties and geographic regions, and taking into account other factors such as liquidity, credit or macroeconomic risks where relevant.

4.3.3 Where an FSP has determined that it is appropriate for an investment option to be invested in a single asset class, such as that of a single sector investment option, the FSRA expects that an FSP would ensure an appropriate level of diversification within that particular asset class.

4.3.4 The FSRA expects that an FSP would consider whether investment options that are inherently undiversified, such as direct investments, could form the entirety of a stakeholder's investment portfolio, and whether implementing portfolio composition parameters to minimise a stakeholder's exposure to such investment options may assist in ensuring that a stakeholder is able to achieve adequate diversification.

4.3.5 Where an FSP offers an individual retirement product, the FSRA expects that explicit consideration would be given to the diversification and liquidity needs of the individual retirement product given the product's membership profile, and also the absolute and relative size of the product to the FSP.

4.4 Use of derivatives

4.4.1 The FSRA expects that an FSP's decision to use derivatives as part of an investment strategy would be consistent with the investment objectives for that strategy. An FSP would be expected to have a formal policy in place to govern the permitted range and uses of derivative instruments. For an FSP that is an insurer, the policy shall be consistent with the requirements of Section 76 and 84 of the Insurance Act, 2005.

4.4.2 An FSP may consider the use of derivatives to hedge investment risk in a number of circumstances in order to protect the value of the portfolio against any adverse changes (e.g., foreign currency exposures risk, counterparty risk, interest rate risk, liquidity risk and equity risk).

4.4.3 When formulating an investment strategy, the FSRA expects an FSP would clearly articulate the purposes for which derivatives will be used. An FSP shall not use derivatives for any purpose other than to reduce investment risk. An FSP would typically demonstrate due consideration of the risks associated with the derivative instruments used, and develop appropriate investment risk management arrangements to respond to these risks.

4.5 *Costs and tax considerations*

4.5.1 When formulating an investment strategy, an FSP should consider the costs and tax consequences that might be incurred by the FSP and the investment option in relation to the proposed investments.

4.5.2 The FSRA expects that an FSP would consider, when the strategy is being formulated:

- a) the general cost effectiveness and cost efficiency of implementing an investment strategy; and
- b) factors related to tax efficiency.

4.5.3 Where an FSP offers an externally managed investment option, the FSRA expects that consideration of costs and tax consequences would form part of the FSP's due diligence process when selecting the underlying collective managed investment.

4.6 *Environmental, social and governance issues*

4.6.1 An FSP, when formulating an investment strategy, should give regard to the risk and the likely return from the investments, diversification, liquidity, valuation and other relevant factors. An FSP may take additional factors into account where there is no conflict with the requirements in the legislation, including the requirement to act in the best interests of the stakeholders. This may result in an FSP offering an 'ethical' investment option to stakeholders to reflect this approach. An 'ethical' investment option is typically characterised by an added focus on environmental, sustainability, social and governance (ESG) considerations, or integrates such considerations into the formulation of the investment strategy and supporting analysis.

4.6.2 The FSRA expects that an FSP would have a reasoned basis for determining that the investment strategy formulated for such an investment option is in the best interests of stakeholders, and that it satisfies the requirements of the legislation for liquidity and diversification. While ESG considerations may not be readily quantifiable in financial

terms, the FSRA expects an FSP would be able to demonstrate appropriate analysis to support the formulation of an investment strategy that has an ESG focus.

4.6.3 In offering such investment options, a prudent FSP would be mindful of exposing the interests of stakeholders to undue risk stemming from matters such as a lack of diversification, where investment in some industries are excluded or a positive weighting is placed on certain nonfinancial factors as a result of ESG considerations.

5. Portfolio construction

5.0.1 Portfolio construction is a crucial step in the process of investment strategy formulation in order to achieve the stated investment objectives. A well-constructed and maintained portfolio allows an FSP to maximise its return objective based on a given level of risk as determined by its risk objective.

5.0.2 Constructing a portfolio generally requires a systematic approach to determine an appropriate asset allocation across various asset classes. An FSP may consider portfolio optimisation methods to establish a portfolio that achieves its investment objectives.

5.1 Asset allocation

5.1.1 Where an FSP formulates an investment strategy for an investment option that involves more than one asset, the investment strategy should determine asset allocation targets and ranges appropriate to achieving the investment objectives for the investment option. The FSRA expects that where an FSP offers an externally managed investment option, the FSP's due diligence process would assess the reasonableness of the asset allocation targets and ranges of the underlying collective managed investment in achieving the stated investment objectives for the option.

5.1.2 There are a number of different asset allocation techniques and approaches that may be adopted by an FSP in formulating an investment strategy and an FSP may use one or a combination of approaches. Asset allocation techniques and approaches include the following:

- a) strategic asset allocation: this is where the long-term asset allocation target and ranges have been determined, within which the FSP operates to achieve its investment objectives. The strategic asset allocation target and ranges remain static; i.e., asset allocations are not expected to change frequently;

- b) dynamic asset allocation: this is an investment approach that permits asset allocation targets to be changed during the investment period. This would typically be in response to changes in specific market factors and/or conditions that change the FSP's investment views in the short and medium term; and
- c) tactical asset allocation: this is where the FSP has decided to deviate from the target asset allocation for short-term tactical opportunities presented in the market.

5.1.3 Irrespective of which asset allocation technique is used, the FSRA expects that an FSP would adopt a formal approach to determining the asset allocation. In doing so, the FSRA expects an FSP would establish:

- a) the investment horizon and investment objectives of an investment option;
- b) the initial target asset allocation for each asset class;
- c) asset allocation ranges for each asset class;
- d) a list of permissible investment types; and
- e) any investment restrictions including counterparty exposure limits and the use of derivatives.

5.1.4 The FSRA considers it prudent for an FSP, in determining a list of permissible investment types, to consider:

- a) the nature and characteristics of the types of asset, including their consistency with the risk and return objectives for the strategy;
- b) whether the range of assets facilitates the construction of an investment strategy to achieve the investment objectives; and
- c) any potential changes in the circumstances of the FSP that may render certain types of assets inappropriate.

5.1.5 Where an FSP adopts a strategic asset allocation approach, the FSRA expects asset allocation ranges would be set at levels that allow for movements of the actual asset allocation due to normal market fluctuations; the ranges would not be set so wide or narrow that they render the strategy unconstrained or ineffective. The FSRA considers that an FSP would monitor the ranges to enable it to identify, and respond in a timely manner, to any significant deviation from the investment strategy.

5.1.6 The FSRA expects that where an FSP adopts a dynamic asset allocation approach, the FSP would establish a formal policy that governs the asset allocation process. The policy would ordinarily include:

- a) the permitted dynamic asset allocation ranges and other investment exposure limits;
- b) the factors and/or conditions that would lead to changes in either the target asset allocation or the asset allocation ranges;

- c) where dynamic asset allocation is used for a defined benefit retirement fund, how this approach meets the goals of that fund;
- d) the approval process for changes to the asset allocation target and ranges; and
- e) the reporting of changes to asset allocation targets and ranges to the Board and relevant sub-committees.

5.1.7 Where an FSP also employs tactical asset allocation, the FSRA expects an FSP would be able to demonstrate clearly the differences between dynamic and short-term tactical asset allocation decisions where both are used.

5.2 *Modelling the asset allocation*

5.2.1 Where an FSP utilises modelling to determine its asset allocation, the FSP would be expected to possess sufficient expertise in evaluating any model-driven recommendations to enable assessment of the need for further analysis prior to investment decisions being made.

5.2.2 Model risk arises from the use of models in the formulation and management of investment strategies. In general, the validity and appropriateness of models used to determine the asset allocation are strongly reliant on the methodology and the underlying assumptions. The FSRA considers it important that an FSP understands the strengths and weaknesses of any modelling approach and the underlying methodology employed.

5.2.3 Accordingly, the FSRA considers a prudent FSP would have a formal policy to determine and review the methodology and assumptions underlying such models, which considers the potential variation in asset class characteristics over time, including expected returns, risk exposures and interactions between asset classes. This approach would also consider the risks of over-reliance on historical data when determining model assumptions.

5.2.4 The FSRA expects that an FSP would be able to demonstrate through appropriate analysis that the underlying methodology and assumptions are, and remain, suitable. The FSRA considers it important that an FSP gives particular consideration to the modelling of unlisted or illiquid investments. An FSP would typically take into consideration the risks of downstream gearing and liquidity, any factor risks (i.e., risks specific to that asset, such as credit risk or industry risks) and the reduced transparency of other underlying risk exposures when assessing a model's recommended allocation to such investments.

5.3 Risk budgeting

5.3.1 An FSP may choose to use a risk budgeting approach to determine the optimal asset allocation of an investment option. Risk budgeting considers how different risks drive the returns of different asset classes, and derives the optimal asset allocation based on the expected return per unit of risk of each of those asset classes.

5.3.2 In formulating an investment strategy, risk budgeting may assist an FSP to better understand and determine:

- a) the nature and quantum of risks underlying the proposed asset class;
- b) the appropriate amount of risk to be taken;
- c) within which part of the investment strategy (e.g., asset class, sub-asset class or sector) risk should be allocated; and
- d) the returns that can be expected for taking a certain amount of risk.

5.3.3 The FSRA expects that an FSP using a risk budgeting approach would regularly review the impact of market movements on its risk allocation and the subsequent implications for the asset allocation of an investment option.

5.4 Lifecycle investment strategy

5.4.1 A lifecycle investment strategy is one that varies the asset allocation for a stakeholder according to factors such as their age and/or the time remaining to retirement. It typically consists of multiple strategic asset allocations, each one assigned to a cohort of members of the same lifecycle group, e.g., age range, retirement time horizon, account balance. The FSRA expects that an FSP would undertake appropriate analysis to demonstrate that adopting a lifecycle strategy is in the best interests of stakeholders.

5.4.2 To offer a lifecycle investment strategy as an investment option, an FSP would ordinarily have requisite expertise in employing such a strategy or have access to relevant expert advice. At the formulation stage of a lifecycle investment strategy an FSP would typically assess its capabilities to implement such a strategy. Where a lifecycle investment strategy is adopted, the FSRA expects an FSP to be able to clearly outline the reasons for adopting such a strategy and how the strategy is in the best interests of stakeholders.

5.4.3 A lifecycle investment strategy is typically characterised by a compilation of separate and distinct stages representative of a stakeholder's own life stage. The FSRA expects that an FSP would articulate and formally document its assumptions and considerations in determining the respective stages within the lifecycle strategy.

5.4.4 When determining the stages of a lifecycle strategy, the FSRA considers it prudent for an FSP to consider, amongst other things, the following matters:

- a) the demographic profile of its stakeholders;
- b) the age or other lifecycle factors that will determine changes to the strategic asset allocation for a stakeholder to achieve retirement income goals. Whilst smaller increments between lifecycle stages may lead to smoother transitions, the benefits will depend on the demographic composition and may be outweighed by the associated complexity and cost of implementation. In addition, the increment may change as stakeholders approach retirement age;
- c) the relevant investment time horizon for the entirety of the lifecycle strategy (i.e., whether the end date for the final stage is assumed to be the member's retirement date or their life expectancy);
- d) the availability of post-retirement products offered by the FSP; and
- e) the structure of the drawdown phase (e.g., a periodic payment or lump sum withdrawals).

5.4.5 An FSP would ordinarily determine the investment risk appetite appropriate at each stage in the lifecycle investment strategy and the investment objectives to be achieved during each of those stages. The investment objectives would be consistent with, and contribute collectively to, achieving the ultimate retirement income goal for stakeholders.

5.4.6 The transition of the strategic asset allocation over the course of the lifecycle investment strategy within each stage is often called the 'glide path'. The FSRA expects an FSP would determine a strategic asset allocation target and an acceptable asset allocation range for each stage. When doing so, an FSP may consider:

- a) the trade-off between risk appetite and the investment horizon, which drives the proportion of growth assets in the final years before retirement. The FSRA considers the timing and market volatility just before and after a stakeholder's retirement to be particularly critical (i.e., sequencing risk);
- b) factors other than the age of stakeholders or number of years to retirement that are critical to formulating the investment strategy to achieve the investment objectives (e.g., account balance);
- c) inclusion and exclusion of particular asset classes;
- d) the expected frequency for rebalancing the asset allocations and the factors that may be taken into account when rebalancing (e.g., the investment performance and economic/market conditions particularly for stakeholders approaching retirement); and
- e) the liquidity of the investment strategy at each stage.

5.4.7 A glide path is typically set to maximise the potential growth of the account balances of stakeholders in the initial years of investing, and to reduce the potential volatility of investment returns as retirement approaches. However, an FSP would typically consider the risk that small balances in the early years can be easily eroded if the upside potential of investments is suppressed by mechanically switching to a conservative asset allocation.

5.4.8 When formulating a lifecycle investment strategy, a prudent FSP would also consider the risks associated with implementation, such as changing the asset allocation with the stakeholders' ages if this change were to coincide with a market downturn.

5.5 *Unit-linked and index-linked insurance products*

5.5.1 The FSRA expects an FSP that offers unit-linked or index-linked insurance products to ensure that the investment options available under such products are appropriate to the needs and risk tolerances of the stakeholders to whom they are marketed.

5.5.2 In the case of index-linked investment options, an FSP should invest the supporting assets either in the index itself or in assets of appropriate security and marketability, which correspond as closely as possible with those on which the index is based.

5.5.3 Where investment performance is guaranteed under a unit-linked or index-linked insurance product, the FSP should ensure that the liability for the guarantee is properly valued and supported by adequate capital.

6. Implementing an investment strategy

6.0.1 An FSP should establish a process and criteria for selecting each investment to give effect to the investment strategy (investment selection process). The criteria must be reflected in the FSP's due diligence process to be undertaken prior to the selection of the investment.

6.0.2 The investment selection process should ensure an FSP has a sufficient understanding and knowledge of each investment selected. In the FSRA's view, a robust due diligence process would assist an FSP in developing this understanding and determining whether each proposed investment is appropriate for the investment option.

6.1 Due diligence

6.1.1 An FSP's due diligence should be effective and commensurate with the nature and characteristics of each proposed investment. The FSRA expects that an effective assessment would sufficiently address the complexity of that investment, with outcomes of the due diligence assessments documented.

6.1.2 Where an FSP has decided to outsource the investment management function to an investment manager, the FSRA expects the FSP would apply an equally robust due diligence process when selecting and appointing the potential manager.

6.1.3 Due diligence of a proposed investment or investment manager may be conducted either in-house or via external consultants. In determining the most appropriate approach, an FSP would be expected to review the resources available within its business operations and consider the available skill, knowledge and understanding required to undertake an effective due diligence assessment.

6.2 Due diligence of investments

6.2.1 The FSRA expects due diligence for a proposed investment would include, but not be limited to, an assessment of:

- a) the industry in which the investment operates and current market environment;
- b) the projected performance of the investment;
- c) the identified risk factors to which the investment is potentially exposed, including, where applicable, derivative risk exposure;
- d) the valuation methodology of the investment; and
- e) where the investment involves unlisted equity:
 - i. the ownership structure, including information regarding Board membership and senior management personnel;
 - ii. the business plan of the organisation;
 - iii. financial analysis of any private market for the investment; and
 - iv. any future commitments required and any lock-up periods, including any restrictions on the ability to exit the investment.

6.3 Due diligence of investment managers

6.3.1 The FSRA expects that an FSP would be able to demonstrate appropriate analysis supporting its due diligence assessment of a prospective investment manager prior to selection of the investment manager. At a minimum, an FSP would ordinarily consider:

- a) the investment strategy and approach to investment portfolio composition;
- b) how investments are managed, including the management of market and investment risk factors;
- c) the approach, quality and extent of research, due diligence and investment processes, including the expertise of key investment staff;
- d) previous performance record and expected future performance as determined by both risk and return measures through various market cycles;
- e) the investment risk management arrangements in place and the quality and timeliness of investment risk reporting;
- f) the approach, quality and timeliness of the investment valuation, monitoring and reporting process, including downstream investments;
- g) the methodology, frequency and approach for reviewing, analysing and reporting stress testing results;
- h) the approach and quality of liquidity management arrangements; and
- i) the systems, policies and processes in place to monitor and manage operational risk exposures.

6.3.2 The FSRA considers the investment management agreement between the FSP and investment manager would ordinarily specify the functions to be delegated to the manager. However, an FSP remains ultimately responsible for the sound and prudent management of the investments of each FSP.

6.3.3 The FSRA envisages that an investment management agreement would set out the required investment parameters or constraints determined by the FSP as well as established performance standards and benchmarks.

6.3.4 The FSRA expects that an FSP would have a documented process for regularly monitoring and reviewing the investment manager's performance in meeting its obligations in written agreements.

6.4 Conflicts of interest

6.4.1 When implementing an investment strategy, an FSP may face potential or actual conflicts of interest. The FSRA expects that an FSP would manage conflicts of interest by having in place adequate arrangements to maintain the integrity of its investment selection process.

6.4.2 The FSRA expects that, in conducting due diligence for each investment and the investment manager, an FSP would also give due consideration to any potential or actual conflicts of interest that may be present or may arise.

6.4.3 Where an FSP utilises the services of an investment advisor, the FSRA considers it prudent practice for the FSP to ensure that engagements with related parties of the investment advisor, which may give rise to a conflict, are appropriately documented.

6.4.4 The FSRA considers that an FSP's duty to act in the best interests of stakeholders may be compromised if the FSP accepts an investment advisor's recommendation for the retention or engagement of an investment manager related to the consultant without appropriate review and assessment of such recommendations by the FSP. The FSRA expects that an FSP would form its own view on whether a particular investment manager would be retained or engaged. In particular, an FSP would be expected to satisfy itself that any conflicts do not unduly influence the proposed recommendation by the investment advisor.

6.4.5 The FSRA expects that an FSP would develop a process to conduct regular assessments and comparisons of the services provided by any associated entities to those of other unrelated parties of suitable quality, and consider the outcome of these assessments when negotiating the terms and reviewing engagements with associated entities. An FSP would be expected to document the reasons for determining to continue, or terminate, the services of the associated entity, demonstrating why that decision would be in the best interests of stakeholders.

6.4.6 Where an FSP conducts investment management or trading functions (including derivatives trading) in-house, the FSRA expects that the FSP would establish appropriate segregation of duties to ensure that trading, risk management and settlement functions are operationally independent.

6.5 Performance-based fees

6.5.1 Performance-based fees can have an impact on the overall return of the investment strategy. The FSRA expects that an FSP would analyse the impact of performance-based fees on the implementation of an investment strategy.

6.5.2 Given performance-based fees can vary depending on the type of investment, when assessing the reasonableness of these fees the FSRA expects an FSP would sufficiently understand:

- a) the fee structure attached to the investment;
- b) how the performance-based fees impact on the return objective of the investment strategy; and
- c) how various market cycles may impact on the performance-based fees.

6.5.3 An FSP should consider a range of factors related to performance-based fees for each authorised individual retirement product.

7. Maintaining an investment strategy

7.1 *Asset allocation rebalancing*

7.1.1 Each investment strategy should include a policy to monitor and maintain the asset allocation within the determined ranges within a reasonable timeframe. This applies equally to FSPs whether they adopt a strategic or dynamic asset allocation approach.

7.1.2 Where an FSP offers an internally developed investment option, for managing the asset allocation using either a strategic or dynamic asset allocation approach, the FSRA considers a sound policy would include documentation of matters including, but not limited to, the:

- a) basis on which changes would be made to the asset allocation;
- b) method of, and triggers for, rebalancing;
- c) permitted use of derivatives in order to rebalance; and
- d) reporting arrangements in place to approve and confirm any changes to asset allocation or rebalancing.

7.1.3 An FSP would be expected to be able to implement any required rebalancing without incurring significant costs to the investment option, both under normal operating circumstances and under a range of stressed scenarios.

7.1.4 Where a strategic asset allocation approach is used and there is a significant divergence from the stated asset allocation, a prudent FSP would consider timely disclosure of the divergence to stakeholders. Such disclosure may include information regarding how the FSP intends to return the portfolio to its strategic asset allocation, including the reasonable timeframe within which it intends to do so.

7.1.5 Where an FSP offers an externally managed investment option, the FSRA expects an FSP would ordinarily review the asset allocation of that option to determine whether it has deviated substantially from the stated asset allocation target. Where a deviation is identified, a prudent FSP would assess whether the deviation may have a significant effect on achieving the investment objectives for that investment option. If the deviation is determined to be significant, the FSRA expects an FSP would consider options to address the deviation, including the appropriateness of continuing to offer the investment option to stakeholders.

7.1.6 In some circumstances, an FSP may utilise an investment option within the FSP as a ‘liquidity provider’ to the other investment options within the FSP. For the purposes of this guideline, a ‘liquidity provider’ is an investment option that conducts internal trades with other investment options in the FSP to rebalance these options back to their strategic asset allocation. The liquidity provider investment option then conducts trades with the external market to rebalance its asset allocation. The FSRA expects that an FSP using a liquidity provider would document this arrangement within its policies.

7.1.7 The FSRA expects that a prudent FSP would be able to demonstrate an understanding of the risk that may arise as a result of implementing liquidity provider arrangements and would establish appropriate controls to manage these potential risks.

7.2 *Derivatives exposures*

7.2.1 A prudent FSP would be expected to have sufficient mechanisms to capture, monitor and manage the potential risks associated with the use of derivatives that are commensurate with the nature and complexity of derivative exposures within the investment strategy. Such risks would ordinarily be included in an FSP’s risk management framework.

7.2.2 In reviewing the potential risk exposures that derivatives may present, the FSRA expects an FSP would consider risks such as liquidity risk, basis risk, rollover risk and counterparty risk, amongst others.

7.2.3 The FSRA further expects that an FSP would have formalised and documented limits to ensure that risks arising from derivative exposures are managed within its established risk tolerances.

7.2.4 The FSRA also expects that an FSP would receive regular and timely reporting on its derivative exposures, together with details regarding any mandate breaches when appropriate.

7.2.5 Where the derivative exposure arises from an externally managed investment option, the FSRA expects that an FSP would, when undertaking due diligence, consider the additional risks introduced by the derivative exposure, and whether the use of derivatives is consistent with the FSP's investment strategy and risk appetite. The FSP's due diligence would also be expected to review the internal control structure of the external investment manager to ensure that all derivative risk exposures are being appropriately monitored, mitigated and managed.

7.3 *Currency exposures*

7.3.1 An FSP would be expected to have mechanisms that adequately address the potential risks arising from foreign currency exposures within its investment strategy and to ensure these are appropriately documented and monitored.

7.3.2 The FSRA expects that an FSP would establish regular reporting on the management of foreign currency exposures. Such reporting would typically include:

- a) the current foreign currency exposures within the investment strategy;
- b) the contribution of foreign currency exposures to investment returns over the investment period;
- c) hedge positions that are currently in place to guard against adverse foreign currency movements and the cost of maintaining those hedges;
- d) the performance of hedging strategies against their objectives, including the effectiveness of hedges; and
- e) the counterparty exposures arising from the hedging strategy.

7.3.3 The FSRA expects that an FSP would also regularly monitor the liquidity impact of maintaining a hedging strategy for each investment option. It would be prudent for an FSP to assess the impact that any sudden movements in the rates of foreign currency may have on the liquidity position of each investment option.

7.4 *Managing transitions of investments*

7.4.1 The need to transition investments may arise where there are changes in the investment strategy and/or the asset allocation of the investment strategy, or where

investment managers are changed or appointed. An FSP may also need to transition investments where an FSP merges with another FSP or when a successor fund transfer takes place. The FSRA expects that an FSP would have robust processes in place for managing the transition of investments in these circumstances and that these processes are clearly documented.

7.4.2 The FSRA expects that an FSP would develop, document and approve a plan for managing the transition of any investments prior to its implementation. An FSP may consider seeking specialist advice and/or appointing a service provider to assist with its implementation where the FSP does not possess sufficient resources, skills or knowledge to undertake the transition.

7.4.3 The FSRA expects that an FSP's transition plan would clearly specify, amongst other things, the objectives of the transition, the timeframes for various stages of the transition, the factors used to measure the success of the transition and the roles and responsibilities of all relevant parties, including service providers.

7.4.4 The FSRA envisages that during a transition process, an FSP would be provided with regular and detailed information on the direct and indirect costs associated with the transition of investments. A prudent FSP would have measures in place to assess the effectiveness of a transition process. For example, where there is divergence from the transition plan, the FSRA expects that an FSP would investigate the root causes for the divergence and, where necessary, arrangements to rectify the divergences.

7.4.5 The FSRA expects that an FSP would conduct a post-transition review against the objectives set for the transition and the transition's measures of success, to determine whether these were satisfactorily achieved.

7.5 *Monitoring investments*

7.5.1 An FSP should monitor the performance of each investment in each investment option on an ongoing basis.

7.5.2 The FSRA expects that an FSP would have in place systems, structures and processes to measure and report the performance of each investment within the investment portfolio of internally developed investment options.

7.5.3 An FSP that offers an externally managed investment option would be expected to implement appropriate arrangements to monitor the performance of that option in line with its investment objectives.

7.5.4 The persons assessing the performance of each investment should be operationally independent from those carrying out investment activities. This may be achieved through a separation of reporting lines. For example, where an FSP undertakes in-house investment activities, performance assessment would be expected to be conducted by a separate business unit or division, such as the finance unit, rather than by persons involved in implementing and managing the investment activities.

7.5.5 The FSRA expects that an FSP's monitoring process would use appropriate pre-determined benchmarks and/or performance measurement criteria to evaluate investments and investment managers.

7.5.6 In the FSRA's view, effective performance monitoring arrangements are to be objective and measurable and exhibit characteristics that are consistent with those of the investment or the style of the investment manager being measured, and would be formally documented.

7.5.7 When assessing the performance of an investment option, the FSRA expects an FSP's reporting to include relevant information of appropriate detail to enable the FSP to sufficiently understand and adequately monitor the sources of risk and return in order to assess the effectiveness of the investment strategy. For example, the use of attribution analysis may assist an FSP to determine sources that contribute to the out-performance or under-performance of investment strategies and specific investments.

7.5.8 The FSRA considers that a prudent FSP would measure the performance attributable to decisions to shift the asset allocation against relevant benchmarks and the investment objectives.

7.5.9 An FSP would also be expected to monitor the performance of a lifecycle strategy on an ongoing basis. In this regard, an FSP would undertake performance analysis by separately monitoring the risk and return measures of each stage of the lifecycle strategy.

7.5.10 Further, an FSP, when undertaking its performance analysis of a lifecycle strategy, would typically be expected to determine:

- a) the timeframe over which performance could be realistically measured given the investment objectives;
- b) whether the benchmark performance may be measured against:

- i. proprietary or custom benchmarks that compare the lifecycle strategy to the performance of underlying indices weighted by allocation (even though such a benchmark may not be investible); and/or
 - ii. products in the market that cater for targeted retirement dates, although an FSP would need to consider how well the peer group fits with its own glide path in terms of philosophy, risk parameters and asset class exposures; and
- c) the measure of performance for the glide path of the lifecycle strategy, including the performance attributed to implementing the strategic asset allocation decisions and the use of underlying investment managers.

7.5.11 Where an FSP offers an externally managed investment option, the FSRA expects a prudent FSP would assess the performance of that option against predetermined measures (e.g., an appropriate benchmark index) to determine the continuing appropriateness of the investment options being offered to stakeholders.

7.5.12 As part of its ongoing monitoring process, a prudent FSP would consider any actual and/or proposed changes within the FSP, the FSP's business operations and in the external environment to determine how such circumstances might impact on the investment options. Examples of such situations may include, but are not limited to:

- a) a sudden unexpected growth or reduction in membership, or changes in membership profile, due to corporate restructures or an unusual movement of members between investment options;
- b) changes to the benefit design;
- c) changes to the liquidity status of underlying investments;
- d) unusual patterns in investment performance given the nature of a particular investment and prevailing market conditions;
- e) changes to the economic climate and the conditions of specific markets;
- f) changes to, or within, relevant service providers, such as ownership, key personnel, systems and legacy system issues; and
- g) legislative amendments that may impact on the investment strategy of a particular investment option, such as changes to retirement income standards or tax arrangements.

7.5.13 The monitoring of investment performance should be reported to the Board and senior management. The FSRA expects the frequency and style of an FSP's performance reporting to be dependent on the type, complexity and amount of investment, and sufficient to satisfy the FSP that it has adequate oversight of the investment.

7.5.14 In order for an FSP to satisfy itself that an investment option continues to be in the best interests of stakeholders, the FSRA expects that a prudent FSP would have in place a

process for managing investment options which have been identified as not performing in line with expected investment objectives.

7.5.15 The FSRA expects that an FSP would determine measures for under-performance and the process to be undertaken if under-performance occurs. This may include steps that will be taken to address under-performance, limit the exposure to these investment options or other actions that are in the best interests of stakeholders.

7.5.16 Where an externally managed investment option has been identified as under-performing, the FSRA expects an FSP would have a process to manage the under-performing option in a timely manner. A prudent FSP would consider whether any actions, including the following, are appropriate:

- a) placing the investment option on a 'watch list';
- b) restricting the flow of funds into the investment option;
- c) prohibiting (or closing) the investment option from receiving new funds; and
- d) where the investment option is considered no longer in the best interests of stakeholders, transitioning the benefits into a new investment option.

7.5.17 Where an FSP has identified that an externally managed investment option is no longer appropriate to meet the investment objectives, the FSRA expects that an FSP would consider whether the option remains appropriate to be made available to stakeholders and take appropriate steps to implement any decisions.

7.6 *Reviewing an investment strategy*

7.6.1 An FSP should formally review each investment strategy on at least an annual basis. The FSRA expects this review to include, but not be limited to, a review of the key drivers of the investment strategy to ensure that the strategy remains consistent with investment objectives. A regular review process assists an FSP to determine whether there are any evident gaps (or overlaps) in the governance and decision-making process, thus allowing any weaknesses within the investment governance framework to be addressed.

7.6.2 Where an FSP has identified that the investment strategy of an internally developed investment option is no longer appropriate to meet the investment objectives, e.g., where the option has been identified as underperforming, the FSRA envisages that an FSP would have a documented process in place to adjust the investment strategy.

7.6.3 In addition, the FSRA expects that an FSP would establish triggers that may lead to interim reviews of the investment strategy. Matters such as a significant event in the

economic environment, a structural change in the membership profile or a material outflow of stakeholder funds, are some examples of circumstances that could render an investment strategy inappropriate and may trigger an interim review.

7.6.4 The results from each review should be reported to the Board and, where an investment strategy has been subsequently amended, that the decision is sufficiently supported by appropriate justification and analysis. The FSRA expects that the reporting to the Board would provide necessary detail in order for the Board to satisfy itself that a comprehensive review has been undertaken and that any amendment to an investment strategy has been thoroughly considered and analysed.

8. Investment risk management

8.0.1 Investment risk is the risk of an FSP failing to meet its investment objectives due to adverse or inadequate investment performance. Investment risk can arise from market-wide risk factors (e.g., equity prices, interest rates, foreign exchange rates, commodity prices and credit spreads) or from idiosyncratic risks (i.e., asset-specific risks). Market-wide risk factors can affect other risks for an FSP, such as liquidity risk, or its underlying investment options.

8.0.2 While investment risk is borne by stakeholders in a defined contribution fund or by employer-sponsor(s) in a defined benefit fund, an FSP is ultimately responsible for measuring and managing investment risk that may arise due to the investment strategy.

8.0.3 In the FSRA's view, an investment governance framework with robust investment risk management arrangements enables an FSP to identify the likely manifestation of investment risk in order to prudently manage risk exposures that arise from the complexities of investment decision-making.

8.0.4 Investment risk management arrangements would typically comprise a range of tools for risk measurement and analysis that are commensurate with the size, business mix and complexity of the investments of the FSP and its investment options.

8.0.5 The FSRA expects appropriate segregation of duties between those persons responsible for implementing investment decisions and those persons responsible for the investment risk management arrangements, to ensure investment risk objectives are monitored and managed objectively.

8.1 Investment risk assessment

8.1.1 The FSRA expects that a prudent FSP, when assessing either an investment or investment manager, would undertake a formal risk assessment that would typically include:

- a) identification of risk factors;
- b) assessment and measurement of the identified risk factors, including the potential impact on the sources of investment return;
- c) the risk mitigation strategies in place; and
- d) how the identified risks would be monitored and reported.

8.1.2 The FSRA expects that an FSP, when actively considering investment risk during the formulation, implementation and performance monitoring of an investment strategy, would ordinarily consider:

- a) which sources of investment risk to accept and the extent of the risk exposure during the formulation of a strategy;
- b) mechanisms for ensuring that the risk accepted is consistent with this decision during implementation; and
- c) the process for identifying, measuring and assessing the actual exposure to investment risk via performance monitoring.

8.1.3 When evaluating potential investment risks in an investment strategy, an FSP would ordinarily consider the risks that may arise from factors such as:

- a) volatility – the level of movement in value of an investment option, noting that negative movements in value are generally of greater concern to stakeholders;
- b) maximum drawdown – a measure of the greatest decline in the value of the investment option;
- c) sequencing risk – the risk that the timing of investment returns of an investment option adversely affect stakeholders during a critical period in their investment horizon;
- d) inflation risk – the risk that investment option returns are not sufficient to maintain purchasing power;
- e) tail risk – the likelihood of a low-probability, high-impact risk event occurring;
- f) correlation risk – the risk of increasingly similar behaviour of investment returns amongst asset classes, reducing the benefit of diversification; and
- g) liquidity risk – the inability to meet obligations as and when they fall due without incurring unacceptable losses.

8.1.4 An FSP would ordinarily have documented criteria for investment risk exposures as part of its investment risk management arrangements. This would typically cover the

extent to which an FSP is prepared to expose an investment strategy to the investment risk factors and whether it would be in the best interests of stakeholders to establish any appropriate investment restrictions.

8.2 *Investment risk management approaches*

8.2.1 There are a number of investment risk management approaches for assessing and measuring the sources of risk that influence the returns attributable to an investment strategy. A prudent FSP may use a combination of the following approaches, including stress tests:

- a) factor risk analysis, which identifies and allows an FSP to measure the underlying risk factors that may influence the investment returns it achieves by implementing its investment strategy;
- b) risk budgeting, which considers how different investment risks drive the expected returns of various asset classes. It may assist an FSP in developing the optimal allocation to an asset class based on an expected return per unit of risk for that asset class; and
- c) risk analysis, which takes into consideration alpha and beta sources to assist the FSP to measure the sources of risk in an investment strategy that are generated by active or passive investment management decisions. This may assist with analysing how risk aligns with the FSP's risk budget, where appropriate.

8.2.2 Where an FSP engages in hedging activity to mitigate identified investment risks, the FSRA considers that a prudent FSP when analysing the effectiveness of the hedging program, would be cognisant that a hedging program itself may expose the FSP to risks such as counterparty risk and liquidity risk. As such, the FSRA expects that an FSP would assess the extent to which a hedging program has created additional risk exposures.

8.3 *Investment risk reporting*

8.3.1 The FSRA expects that an FSP would develop a set of relevant investment risk indicators that enable it to monitor departures from tolerances established for accepted investment risk exposures, along with formal escalation procedures for reporting of identified departures.

8.3.2 The FSRA considers it prudent for an FSP to establish regular investment risk reporting to appropriately inform relevant stakeholders of investment risk exposures. This

puts the Board, senior management, Board committees and other relevant stakeholders in a position to make informed decisions in a timely manner.

8.3.3 Investment risk reporting would typically include an appropriate level of detail and sufficient commentary to enable stakeholders to understand and adequately monitor the sources of investment risk in order to make considered investment decisions.

8.3.4 In times of heightened market volatility or increased idiosyncratic risk (e.g., asset or investment manager-specific shocks), the FSRA expects that a prudent FSP would enhance reporting of its investment exposures with greater frequency and intensity, commensurate with the complexity of the investment and appropriate to the severity of the particular circumstances.

8.3.5 Investment risk management reporting would ordinarily include, but not be limited to, matters such as:

- a) market and economic developments that may result in altered risk exposures;
- b) investment option risk profiles as measured by risk metrics (e.g., tracking error, Sharpe ratio, standard deviation, maximum plausible loss);
- c) asset class risk profiles as measured by key risk indicators (e.g., credit profile, yield curves, credit spreads, in the case of fixed interest portfolios);
- d) investment manager risk indicators (e.g., changes to watch list, key staff changes); and
- e) investment compliance and breach reporting.

8.4 *Review of investment risk management arrangements*

8.4.1 A prudent FSP would ordinarily review the appropriateness, effectiveness and adequacy of its investment risk management arrangements as part of the review of its investment governance framework. The FSRA expects that this review would assist an FSP to determine whether there are any evident gaps, thus allowing any weaknesses to be appropriately rectified and strengthened.

8.4.2 An FSP may choose to engage an external service provider to assist in some of its investment risk management arrangements; however, the FSP remains ultimately responsible for managing the investment risk exposures within the FSP.

8.4.3 The FSRA expects an FSP would also conduct a review of the external service provider's performance against the criteria detailed in the written agreement.

9. Stress testing

9.0.1 An FSP should develop a comprehensive stress testing program. The FSRA expects a prudent FSP would be able to demonstrate how the results from the FSP's stress testing are taken into consideration when formulating and implementing an investment strategy.

9.0.2 The FSRA considers stress testing to be an effective investment risk management tool that may assist an FSP to identify and assess potential risk exposures that may threaten the likelihood of achieving investment objectives. The FSRA is of the view that the objective of a stress testing program is to perform a forward-looking assessment of risk factors.

9.0.3 The FSRA expects that the elements of an FSP's stress testing program would ordinarily include:

- a) the roles and responsibilities of persons involved in stress testing;
- b) the stress testing methodology employed;
- c) the approach to setting and reviewing stress testing assumptions;
- d) the frequency of stress testing;
- e) procedures for reviewing and analysing the results of the stress testing;
- f) procedures for reporting stress testing results to the Board, senior management, a relevant Board committee and, where necessary, to the FSRA;
- g) triggers for the escalation of stress testing outcomes;
- h) processes for the review of the stress testing methodology;
- i) circumstances that might lead to ad hoc stress testing; and
- j) clarity in relation to the involvement and reliance placed on external service providers in assisting with stress testing.

9.0.4 The FSRA expects that an FSP's stress testing program would be appropriate to its investment options and underlying investments. An FSP may determine that it is appropriate for different types of stress testing to be conducted at different levels within an investment option (e.g., individual investments, sector, and/or asset class).

9.0.5 In conducting stress testing for investment options with multiple asset classes, the FSRA expects an FSP's stress testing program would evaluate, amongst other things, how the investment option may:

- a) perform under certain circumstances (e.g., ability to stay true to label, timeliness of rebalancing, changes to liquidity profile);
- b) meet its investment objectives;
- c) be impacted in its ability to redeem assets during extreme market volatility; and

d) be vulnerable to certain risk factors.

9.0.6 Where an FSP offers an externally managed investment option, the FSP may consider it appropriate to use the stress testing undertaken by an external product provider (i.e., an external investment manager) as part of the FSP's overall investment stress testing program. In such circumstances, the FSRA expects that an FSP would satisfy itself as to the extent and quality of the stress testing undertaken by not only assessing the processes and procedures in place, but the stress testing methodology used by the external provider. The FSRA expects that an FSP would be familiar with, and assess the appropriateness of, the assumptions used in stress testing.

9.0.7 Where an FSP offers a lifecycle investment strategy as an investment option, it would ordinarily perform stress testing to determine the impact of various stress scenarios at each stage and on the outcome at retirement, and would consider the results of such stress testing when formulating the lifecycle investment strategy.

9.1 Methodology

Stress scenarios

9.1.1 Depending on the nature of the investment option, an FSP may determine that stress testing in the form of 'sensitivity analysis' is appropriate. Sensitivity analysis measures the impact of a single risk factor, e.g., the impact of a 200 basis point shift in interest rates on a fixed interest investment. The FSRA considers sensitivity analysis to be appropriate where the investment option value depends primarily on a single source (or multiple uncorrelated sources) of market or investment risk.

9.1.2 In other circumstances, an FSP may determine that stress testing by undertaking 'scenario analysis' is more appropriate. Scenario analysis typically involves analysing the impacts of adverse scenarios that are relevant to the investment option and/or the underlying investments. Adverse scenarios would generally simulate the potential impact on an investment option over a defined time horizon, or measure the aggregate impact at a particular point in time.

9.1.3 Adverse scenarios would typically comprise a range of risk factors that are simultaneously varied. This type of analysis reflects the inherent correlation between risk factors given the circumstances of a particular investment option and/or economic or investment market conditions, e.g., the correlated movement of market variables during the global financial crisis.

Risk factors

9.1.4 The risk factors in a stress testing program may be determined by either historical or hypothetical events. Historical stress tests replicate conditions from previous events. An FSP may consider historical events to be useful if some aspects of the event could reasonably be expected to recur and the parameters of the scenario are relevant to the investment or investment option under consideration.

9.1.5 Hypothetical events are typically tailored constructions of low probability plausible future events. An FSP has the flexibility to formulate a potential event that may comprise movements and interactions between various risk factors. An FSP may consider, for example, a hypothetical scenario that involves a shock from a previous historical event combined with other simultaneous developments that are plausible but have not occurred in the past.

9.1.6 Furthermore, an FSP may also undertake ‘reverse stress testing’. Reverse stress testing begins with an adverse outcome, which then requires an FSP to consider which scenarios and risk factors may cause the outcome to occur. Reverse stress testing is used to identify the extent of movement of risk factors that may, for example, lead to losses exceeding a given level and/or an investment option experiencing a liquidity event.

9.2 Assumptions

9.2.1 A prudent FSP would have in place a robust process to determine and document the assumptions used in its stress testing program.

9.2.2 The use of assumptions in stress testing often requires an FSP to establish parameters within which the assumptions will operate. In this regard, a prudent FSP would carefully consider the appropriateness of the parameters established. The FSRA expects a prudent FSP to consider, for example, the movement of a specific risk factor when conducting sensitivity testing, or the movement or co-movement of a combination of risk factors when conducting scenario analysis.

9.2.3 The FSRA considers it prudent for an FSP to review and validate stress testing assumptions on a regular basis to ensure that the assumptions remain relevant and appropriate.

9.3 Frequency

9.3.1 The FSRA expects that the frequency with which regular stress testing is undertaken by an FSP would be commensurate with the nature and risk of the investment option and its underlying investments. In any event, the FSRA considers it prudent practice for stress testing to be conducted on at least an annual basis.

9.3.2 The FSRA expects that an FSP would determine the circumstances where ad hoc stress testing would be conducted outside of the regular timeframe. An FSP may consider developing triggers to indicate when ad hoc stress testing would be undertaken. Such indicators may include factors such as market volatility, proposed changes to an investment strategy and/or asset allocation, changes to the risk profile of underlying investments, member movements and/or changes in the industry in which the underlying investments are allocated.

9.4 Reporting

9.4.1 The FSRA expects that a robust stress testing program would be supported by appropriately detailed reporting to the Board, senior management and relevant Board committees. A prudent FSP's stress test reporting would typically include matters such as:

- a) the various stress scenarios and risk factors tested, including the coverage of the stress testing;
- b) the assumptions used when conducting the stress testing;
- c) the results of the stress testing on the FSP and/or investment options, including whether any tolerance limits were breached;
- d) potential actions to be taken as a result of stress testing results, including possible changes to investment risk management arrangements; and
- e) analysis of stress testing results against historical results or comparison data to identify emerging trends.

9.5 Review

9.5.1 FSP should ensure that the results of the stress test are reviewed periodically by senior management and reflected in the FSP's investment governance framework.

9.5.2 The FSRA expects that an FSP would translate potential material issues identified by stress testing into appropriate actions in a timely manner. Such actions may include, but

are not limited to, a formal review of the investment strategy, an asset class or particular investments, or of the hedging strategies in place.

9.5.3 In addition, the FSRA considers it prudent for an FSP to regularly review the appropriateness of stress tests performed in order to take into account changes in market conditions, investment strategy, the liability profile of investment options, and/ or circumstances that may affect the liquidity requirements of specific investment options or the FSP as a whole.

10. Liquidity management

10.0.1 An FSP should consider the liquidity of investments when formulating and implementing an investment strategy, while also considering the expected cash flow requirements of the FSP.

10.0.2 Liquidity primarily refers to the ability of an FSP to meet benefit payments, rollover or transfer requests and intra-fund investment switching requests from stakeholders in accordance with the requirements of the legislation and the governing rules of the FSP.

10.0.3 The assessment of liquidity risk, in the context of the member demographics of a particular FSP or an investment option, typically involves the consideration of the quantum and nature of illiquid assets within the investment strategy. The FSRA expects that an FSP would seek to understand the sensitivity of the asset allocation of an investment option to any changes in market or member sentiment, which may trigger stakeholders to exercise their right to change investment option or move to another FSP and hence lead to increased need for liquidity.

10.0.4 Liquidity-related factors that an FSP may consider in the formulation of an investment strategy include, but are not limited to:

- a) member demographics and activities, such as:
 - i. the age profile of members;
 - ii. forecast inward contributions from members and/or employer-sponsors;
 - iii. forecast outward benefit payments, taking into account the retention rate and benefit structure (e.g., lump sum or pension payments);
 - iv. forecast member switching activities; and
 - v. events likely to trigger a significant number of members switching to another FSP or switching between investment options;
- b) the nature and characteristics of different investments, such as:
 - i. the relative ease of saleability of assets; and

- ii. possible market events that may result in previously liquid investments becoming illiquid, and/or a proportionate increase in the holding of illiquid assets as the values of liquid assets fall;
- c) contractual obligations related to investments, such as:
 - i. the cash-flow needs for managing a hedging program; and
 - ii. the potential for a cash call by the investment manager of certain investments.

10.0.5 Where an FSP offers an externally managed investment option or direct investment option, the FSP remains responsible for identifying and managing liquidity risk. The FSRA expects that an FSP would formally consider the potential liquidity risks and corresponding mitigation strategies when undertaking investment selection.

10.0.6 An FSP should determine procedures to measure and manage liquidity on an ongoing basis. The FSRA considers that a forward-looking approach to liquidity management may assist an FSP in identifying emerging liquidity pressures, thereby assisting in the preparation for potential liquidity events.

10.0.7 The FSRA expects a prudent FSP to have a substantial understanding of the liquidity of its investment options. In particular, the FSRA considers that a prudent FSP would have an awareness of the potential for an investment option to become illiquid in adverse circumstances, how this might affect the value of the investment option and the FSP's ability to meet portability and benefit payments obligations in such circumstances. This would cover liquidity monitoring arrangements that assess the impact of market conditions or events on relevant liquidity positions.

10.1 Liquidity management plan

10.1.1 An FSP should develop a liquidity management plan (LMP) that covers each investment option within the FSP. The LMP establishes the procedures for monitoring and managing liquidity on an ongoing basis. The FSRA considers the LMP to be a key element in an FSP's investment risk management arrangements.

10.1.2 The FSRA expects that an FSP would articulate the roles and responsibilities of persons involved in the management of liquidity risk under both normal and stressed operating conditions. An FSP may consider it appropriate to include the involvement of relevant Board committees.

10.1.3 In developing an LMP, the FSRA expects an FSP to articulate the liquidity risk tolerances it is willing to accept. An FSP would typically take into consideration the characteristics of the FSP and its investment options when determining an appropriate tolerance level. This might include, amongst other things, the benefit design of the FSP, the demographics of the stakeholders, the range of investment options, or the amount of transactional activity (e.g., the level of investment option switching and number of redemption requests from stakeholders).

10.1.4 An FSP should also identify the circumstances it considers to be a significant adverse liquidity outcome that requires action (liquidity event). In the FSRA's view, the results from an FSP's liquidity stress testing may assist the FSP to identify possible future liquidity events.

10.1.5 Liquidity events may be categorised as:

- a) stakeholder-generated events (e.g., investment option switching or redemption requests);
- b) market-driven events (e.g., significant downturn in equity markets);
- c) investment/asset-specific events (e.g., capital drawdowns arising from specific investments or rollover of currency hedges);
- d) investment manager-driven events (e.g., an investment option is closed to redemptions); and/or
- e) a combination of these events.

10.2 Management of liquidity risk

10.2.1 A prudent FSP would have a sound understanding of the FSP's cash flow profile and undertake cash flow analysis on a regular basis. This analysis would generally be conducted under both normal and stressed operating conditions at the investment option level over various time periods in order to identify any trends or variability in the cash flow arising from assets and liabilities.

10.2.2 The FSRA expects that each investment option would be able to meet its cash flow requirements on a stand-alone basis. That is, the interests of stakeholders invested in an investment option would not be compromised by the need to meet cash flow requirements of another investment option within the same FSP.

10.2.3 The FSRA considers it prudent for an FSP to use cash flow projections in conjunction with the FSP's cash flow profile to identify possible short-term to medium-term liquidity needs for the FSP on a forward-looking basis.

10.2.4 The FSRA expects an FSP to regularly review the outcomes of cash flow projections against actual results and review the appropriateness of the assumptions used.

10.2.5 An FSP may also determine an appropriate buffer of liquid assets within each investment option that could be used to manage liquidity risk. The liquid assets may be drawn upon in times of heightened liquidity requirements, including during the occurrence of a liquidity event.

10.2.6 To further strengthen the liquidity management arrangements, an FSP may consider developing a set of early warning indicators to identify the emergence of increased liquidity risk or the onset of a potential liquidity event. Early warning indicators may, for example, be set with reference to the level of stakeholder transactional activity or the proportion of investments that are considered liquid and can be redeemed on short notice.

10.2.7 Where a forecasting exercise identifies potential liquidity difficulties, an FSP should outline what action will be taken when a liquidity event occurs. The FSRA expects that an FSP would develop and document a range of actions it may implement depending on the scope and severity of the liquidity constraint. The FSRA considers it prudent practice for an FSP to also test the appropriateness of potential actions to ensure that they adequately achieve the intended outcome in managing and/or restoring liquidity within an investment option.

10.2.8 In determining an appropriate plan of action, an FSP may consider, amongst other things:

- a) assigning responsibilities to personnel for the identification and management of liquidity events;
- b) establishing liquidity limits and/or triggers for deteriorating cash flow positions, escalation procedures detailing when and how each of the actions would be taken and nominating timeframes for rectification;
- c) identifying key sources of liquidity, their expected reliability and the priority in which assets may be realised to meet liquidity requirements, including an assessment of the impact that selling down assets may have on the intrinsic value of the FSP and the relevant investment options;
- d) how investment-related flows such as contractual arrangements relating to capital calls for investments and margining requirements for derivative holdings would be met;
- e) developing processes for meeting stakeholder-related flows such as managing large redemptions;

- f) determining responsibilities for communication with relevant stakeholders, including the FSRA; and
- g) where an FSP is part of a corporate group, the appropriateness of group-level policies or procedures, including the priority and hierarchy of actions.

10.3 *Liquidity management reporting*

10.3.1 A prudent FSP would ordinarily document in the LMP the processes for liquidity management reporting including, but not limited to, matters such as:

- a) the different types of liquidity or cash flow monitoring reports to be received by a relevant Board committee and/or the Board;
- b) the frequency with which various liquidity or cash flow reports are produced;
- c) triggers for escalating liquidity matters and breaches to the Board; and
- d) procedures for informing staff, stakeholders, regulators and other stakeholders when a liquidity event occurs.

10.4 *Liquidity stress testing*

10.4.1 An FSP should consider how the liquidity of investment options can be managed in a range of stress scenarios. The FSRA expects that an FSP would develop liquidity stress scenarios as part of a comprehensive stress testing program.

10.4.2 The FSRA expects that liquidity stress test scenarios may be based on the likely behaviour of future cash flows of the FSP's assets and liabilities and other contractual commitments under different operating environments. An FSP may also consider, for example, FSP-specific events such as large-scale redundancies within an employer-sponsor, successor fund transfers or market-driven events such as illiquidity of underlying investments as observed during the global financial crisis.

10.4.3 With respect to the investments of an FSP, the FSRA expects that when developing liquidity stress test scenarios, an FSP would generally consider the marketability of investments within each investment option and the likely value that may be generated from a distressed sale. This consideration would include the potential for an investment manager of an externally managed investment option to suspend withdrawals, and the circumstances under which such a suspension might be activated.

10.4.4 With respect to an FSP's liabilities and contractual commitments, the FSRA expects an FSP's liquidity stress testing scenarios would take into consideration factors

such as the potential transactional behaviour of stakeholders under a volatile market scenario. Examples of this behaviour may be the level of switches to more liquid investment options, or cash flow requirements that may arise from commitments such as capital calls and margining requirements for derivative positions.