

# Investment Risk Allocation Policy

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**Document History:**

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Note this version supersedes all earlier draft versions (#149989)				
1E	6 Dec 2011	Volatility Strategy Introduction	Board	Final
2&2A	Nov 2012	Annual Policy Review	Board & CEO	Final
2B	July 2013	Governance and Operation of LRS	Board	Final
2C	13 Sept 2013	Replace reasonable scenario references	Board	Final
2D	14 Feb 2014	Changes to Responsibilities Schedules	Board	Final
3	May 2014	Risk Budget Introduction and 2 yearly Policy Review	Board	Final
4	10 Aug 2015	Changes to the reference portfolio, proxy system, constraints and reporting framework.	Board & CEO	Final
5	1 Dec 2015	Update to Schedule 6A (Proxy System) to improve clarity.	Board	Final
6	26 Jan 2016	Update to Schedules 6A and 7	Board	Final
7	14 Apr 2016	Two yearly Policy Review	Board	Final
8	27 Jul 2016	Updated to reflect changes in the Responsible Investment Framework, the introduction of the concept of Portfolio Flexibility, and changes due to the Liquidity Replenishment Review.	Board	Final
8A	8 Dec 2016	Update to Schedule 9 (Legislative Compliance)	CEO	Final
8B	24 Jan 2017	Update to Schedule 5 (Value Adding Strategies & Opportunities).	CEO	Final
9	24 Nov 2017	Update Schedule 6A (Proxy System)	Board	Final

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### 1. Background

- 1.1. We have an investment belief that 'asset allocation is the key investment decision'. Undertaking it effectively is a key part of maximising return over the long term, without undue risk.
- 1.2. Asset allocation and investment risk allocation are synonymous terms.
- 1.3. The allocation starts with the establishment of a Reference Portfolio. We then implement agreed value adding strategies that introduce new permitted risk exposures into the portfolio. The final portfolio is called the Actual Portfolio.
- 1.4. In the Actual Portfolio of the Fund we seek to add value to the Reference Portfolio in three ways:
  - by temporarily adjusting (tilting) the Fund's market exposures in response to changes in expected returns (Strategic Tilting).
  - through accessing return premia (whether market or skill based) not available in the Reference Portfolio (Active Returns).
  - by gaining access to the desired risk exposures, rebalancing the Fund, and managing liquidity risk in the most cost effective manner possible (Portfolio Completion).
- 1.5. In building the Actual Portfolio we identify a number of investment opportunities within each of these three value-adding strategies, and employ a Risk Allocation Process to:
  - determine the relative attractiveness of the opportunities and,
  - given that relative attractiveness and the total amount of investment risk we wish to take, how much active risk to allocate to each opportunity.

### 2. Objective

- 2.1 To implement effective controls and frameworks to ensure that how we allocate investment risk is managed effectively and in compliance with our governance and legislative requirements.

### 3. Definitions

- 3.1. To aid with interpretation of this policy we have a Glossary of Terms, which defines all investment and technical terms used in our policy documents. References to other documents are italicised.

### 4. Scope

- 4.1. This policy covers the approved Reference Portfolio, Value Adding Strategies and Proxies. It also covers the Investment Constraints that need to be adhered to when implementing the Actual Portfolio.
- 4.2. This policy should be read in conjunction with five other investment policies. These are:

- *Externally Managed Investment Policy*: covers all aspects of our relationships with external investment managers, including approach to manager and investment approval, implementation, monitoring and termination. Investing in Collective Investment Vehicles is included within this policy.
- *Direct Investment Policy*: covers approach to investment approval, director appointment, implementation, monitoring and exit when we invest directly, except where the investment is via Collective Investment Vehicles (covered by the *Externally Managed Investments Policy*) or Financial Market Transaction (covered by the *Portfolio Completion & Internally Managed Securities Policy*).
- *Strategic Tilting Policy*: covers Strategic Tilting ranges, asset classes, approval and reporting.
- *Portfolio Completion & Internally Managed Securities Policy*: covers all Financial Market Transactions, rebalancing, currency hedging, liquidity management, and counterparty approval and management.
- *Derivatives Policy*: covers controls and frameworks that ensure all aspects of derivative use (both internal and externally managed) are effectively managed and in compliance with our investment, governance and legislative requirements.

## **5. Delegations and Authorities**

- 5.1. The *Delegations Policy* governs the delegations and authorities that apply in all policy documents. In the event of any discrepancy between this policy and the *Delegations Policy* the *Delegations Policy* will prevail.
- 5.2. The Board has reserved certain matters either to itself, a committee of the Board or the Chief Executive. Those matters are outlined in Schedule 1 of the Delegations Policy. All other matters are delegated to the Chief Executive who may sub-delegate them to Guardians' staff. All delegates and sub-delegates must exercise their authorities in compliance with the general conditions of delegation and sub-delegation set out in Schedule 2 of the Delegations Policy.
- 5.3. There are certain responsibilities inherent under this policy. Those responsibilities, and the person responsible for them, are outlined in Schedule 1.

## **6. Asset Classes & Benchmarks**

We believe it is important to increase the Fund's efficiency (either by higher returns for the same risk or the same returns for less risk) by diversifying the Fund across and within various asset classes.

The Fund comprises a broadly diversified portfolio of assets. The differing characteristics of various asset classes provide diversification benefits when they are aggregated into a total portfolio.

Asset class decisions are a key determinant of the Fund's risk and total return. As a result decisions on classes to invest in and allocations require Board oversight.

- 6.1. All asset classes that are eligible for consideration in the Reference Portfolio and their related performance benchmarks must be approved by the Board.

- 6.2. A list of approved Reference Portfolio asset classes and benchmarks must be maintained in Schedule 2.
- 6.3. Benchmarks for investments that seek to add value to the Reference Portfolio must be maintained in Schedule 2.

### 7. Reference Portfolio

The starting point for our risk allocation decisions is the Reference Portfolio. The Reference Portfolio represents a diverse set of asset classes that best meets our statutory obligations on a passive basis given an assumption that asset prices are at equilibrium. These obligations include maximising return without undue risk to the Fund as a whole.

The construction principles of the Reference Portfolio suggest that the Reference Portfolio:

- be a simple and low cost portfolio that could be implemented passively; this will not include private market or illiquid asset classes;
- be diversified: this will include at least equities and fixed interest (and potentially others including listed property, listed infrastructure, commodities and foreign currency exposure);
- reflect an appropriate risk profile for the Fund, given its purpose;
- be relevant to a New Zealand based investor;
- be an equilibrium construct; it is in the Actual Portfolio that we exercise judgements about asset prices (or risk premiums) diverging from equilibrium (i.e. as investment opportunities come and go). The Reference Portfolio holds us to account for these judgements.

In constructing the Reference Portfolio performance benchmark we need to take into account our tax status and any changes in that status needs to be reflected in the benchmark construction.

- 7.1. We will establish a Reference Portfolio that represents the lowest cost implementation of our obligation to maximise returns without undue risk.
- 7.1.1 The reference portfolio will comprise readily obtainable asset exposures.
- 7.2. The performance benchmark of the Reference Portfolio will be the weighted average return of benchmarks for constituent asset classes.
- 7.3. The Reference Portfolio must be approved by the Board.
- 7.4. The approved Reference Portfolio must be maintained in Schedule 3.

### 8. Value Adding Strategies and Opportunities

The actual composition of the Fund at any one time is called the Actual Portfolio. The purpose of the Actual Portfolio is to represent the best portfolio possible at any point in time, reflecting the Fund's purpose and endowments, as well as our investment beliefs and organisational capability.

The Actual Portfolio exposures will deviate from the Reference Portfolio as a result of our value adding activities. This is underpinned by our recognition that investment opportunities come and go and, to benefit from this fluctuation, the Actual Portfolio must be more dynamic. These investment strategies are the key method for us to add value to the Fund and therefore require Board oversight.

We follow a Risk Allocation Process to ensure that the attractiveness of all opportunities is assessed on a consistent basis and that the active risk of the Actual Portfolio will meet approved risk budgets, on average over time. The total active risk budget is set by the Board.

We also have liquidity risk management processes that ensure we maintain sufficient liquidity to withstand a range of stress events: Portfolio Flexibility analysis seeks to ensure that we are not over invested in illiquid assets, and the Liquidity Management Framework seeks to ensure we maintain sufficient liquidity to meet the fund's day to day payment obligations while minimising the direct and indirect costs of holding liquidity. The Liquidity Management Framework is governed by the *Portfolio Completion and Internally Managed Securities Policy*.

- 8.1. For value adding strategies and opportunities we will maintain and adhere to opportunity evaluation, risk allocation and fund-wide liquidity management frameworks.
- 8.2. An outline of the frameworks for opportunity evaluation, risk allocation and fund-wide liquidity management must be maintained in Schedule 4.
- 8.3. A list of approved value adding strategies and approved opportunities must be maintained in Schedule 5.
  - 8.3.1 The authority for approving value adding strategies and opportunities is set out in the Delegations Policy.
- 8.4. The total active risk budget must be maintained in Schedule 10.

## 9. Proxies

The proxy system is normally used when we make investments not represented in the Reference Portfolio. The system ensures that the Fund's risk is maintained at its target level when these investments are introduced to the Fund portfolio.

Such investments, made under one of our Board-approved value adding strategies, generally have embedded market risk exposures. The proxy system tries to offset these embedded risks by selling down a mix of public market growth and fixed interest assets represented in the Reference Portfolio.

- 9.1. Allocations to asset classes not represented in the Reference Portfolio must be in accordance with a Board approved value adding strategy. The Reference Portfolio assets that the new allocation replaces will be determined by the proxy system.
  - 9.3.1 The authority for deciding the proxy system is set out in the Delegations Policy.
- 9.2. For some investments the application of the standard proxy system does not best maintain the overall risk of the Fund. In this case the combination of Reference Portfolio assets that best keeps the overall risk of the Fund constant is applied.
  - 9.2.1 The authority for departing from the standard proxy system is set out in the Delegations Policy.
- 9.3. The proxy system must be maintained in Schedule 6A.

## 10. Investment Constraints

We are not prevented from investing in any particular asset or class of assets. Prohibitions and constraints are therefore imposed by our policy and can be categorised in three general areas:

- a) capital or risk constraints that limit the variance of the Actual Portfolio from the Reference Portfolio;
- b) investments that are prohibited by virtue of our Responsible Investment Framework; and
- c) constraints within individual investment mandates.

## C2 - Internal Use Only

- 10.1. Capital and risk constraints must be maintained to manage investment risk within the Fund.
- 10.2. All capital and risk constraints must be detailed in Schedule 7. These constraints must not be exceeded without Board approval.
- 10.3. We will use best endeavours to ensure that the Fund does not control any other entity or hold a percentage of the voting rights in any other entity that would require it to seek control of the entity (other than an entity that is a Fund investment vehicle, as per Section 59 of the Act).
- 10.3.1 If the Fund does end up controlling an entity, we will take all reasonable steps to remedy the situation as soon as practicable.
- 10.4. No investment will be made in any security issued by a company excluded by the Guardians under the Responsible Investment Framework (which is referred to in the *Statement of Investment Policies, Standards & Procedures*). Securities held at the time of the decision will be divested from the Fund's segregated mandates. We endeavour to apply exclusions to Collective Investment Vehicles (CIVs), to the extent this is feasible and commercially prudent. CIVs are evaluated on a case-by-case basis. The potential for indirect exposure to excluded securities through CIVs is factored into the selection of access points.
- 10.5. Liquidity constraints must be maintained in Schedule 7.

## 11. Review

The Reference Portfolio is an 'equilibrium' concept. This means that it is structured based on our assumptions of what the equilibrium risk and returns of various asset classes should be, regardless of what is actually happening to those values in any given market conditions. Therefore the Reference Portfolio's composition is only likely to change if:

- our risk tolerance changes; or
- our assumptions, about what long-term equilibrium return-for-risk should be, change; or
- aspects of the Fund's purpose or endowments change; or
- market developments mean that a narrower or wider set of representative market exposures can be obtained passively and at low-cost.

The performance differences between the Reference Portfolio and the Actual Portfolio represent the active risk (and return) due to our value-add activities. Risk budgets establish the targeted active risk on-average through time and are formally reviewed on a periodic basis to ensure they remain consistent with the Board's risk appetite.

Opportunities are monitored on an ongoing basis to assess whether objectives are being met in line with expectations and to ensure we continue to have the necessary organisational capability. Formal and periodic reviews are also important to assess whether an investment remains consistent with our mission and continues to be the optimal use of our resources.

- 11.1. We will review the Reference Portfolio asset class composition and benchmarks immediately if the Fund's purpose changes, or otherwise at least every 5 years.
- 11.2. We will review the asset class equilibrium risk and return assumptions used in the Reference Portfolio and risk budgeting processes at least every 5 years.

- 11.3. We will periodically review individual value adding strategies, opportunities or, where appropriate, investments. The Investment Committee will determine the timing of, and terms of reference for, each review based on its evaluation of which aspects of the Fund's investment programme need particular focus.
- 11.4. We will review investment constraints at least every 5 years.
- 11.5. We will review the total active risk budget at least every 5 years.
- 11.6. We will review the static assumptions and design principles of the risk allocation process at least every 5 years.
- 11.7. We will review the Liquidity Replenishment System at least every 5 years.
- 11.8. We will review the Fund's tax profile as it pertains to the performance calculation of the Reference Portfolio at least annually.

## 12. Reporting

- 12.1. We must report to the Board on the following matters:

- Performance of the Reference Portfolio;
- Deviation from the standard proxy system;
- Performance of value adding strategies;
- Performance of the Actual Portfolio;
- Compliance with the capital and risk constraints; and
- Active risk used.

- 12.2. We will report proposed material changes to the following schedules to the Board for their approval:

- Schedule 2: Asset Classes and Benchmarks
- Schedule 3: Reference Portfolio
- Schedule 5: Value Adding Strategies and Opportunities (for changes to strategies)
- Schedule 6A: Proxy System
- Schedule 7: Constraints
- Schedule 8: Reporting Framework
- Schedule 10A: Risk Budget

- 12.3. We must report to the Board, for their information, material changes to the following schedules of this policy.

- Schedule 1: Responsibilities
- Schedule 4: Processes for Opportunity Evaluation, Risk Allocation and Fund-wide Liquidity Management
- Schedule 5: Value Adding Strategies and Opportunities (for changes to opportunities)
- Schedule 6B: Proxy System Description
- Schedule 9: Legislative Compliance Framework
- Schedule 10B: Risk Budget Assignment



12.4. An outline of the current reporting framework, including any reporting to internal management committees, must be maintained in Schedule 8.

### **13. Legislative Compliance**

We have a legislative compliance framework to ensure that we comply with our legislative obligations. In each of our policies we list specific legislation that might impact on the activities covered by that policy.

13.1. We will ensure that all our activities under this policy comply with our legislative obligations and give effect to our legislative compliance framework.

13.2. A list of legislation that potentially impacts on the activities under this policy, together with a brief description of how the legislation relates to the activity, must be maintained in Schedule 9.

### **14. Control Section**

Approved this 24 September 2013 as amended 19 June 2014 and 14 April 2016

Chief Investment Officer \_\_\_\_\_

Chief Executive Officer \_\_\_\_\_

Board Chairperson \_\_\_\_\_

## Schedule 1: Responsibilities

<b>Chief Investment Officer</b> will:	<ul style="list-style-type: none"> <li>• ensure this policy is kept current and relevant to the activities being undertaken (including Schedules 1-10)</li> <li>• review this policy biennially</li> <li>• ensure this policy is reviewed by the Risk Committee and Board at least every two years</li> <li>• report breaches of liquidity constraints contained in Schedule 7 to the Board along with details of planned actions</li> <li>• ensure the Investment Committee each year reviews samples of investment activity and these reviews are provided to the Board</li> </ul>
<b>Head of Asset Allocation</b> will:	<ul style="list-style-type: none"> <li>• review the Reference Portfolio at least every 5 years and report to the IC and Board</li> <li>• review the cost of running the Reference Portfolio at least every five years and report to the IC and Board</li> <li>• review the total active risk budget at least every 5 years and report to the IC and Board</li> <li>• review risk budgets at least every 5 years</li> <li>• review the static assumptions and design principles of the risk allocation process at least every 5 years</li> <li>• review investment constraints at least every 5 years and report to the IC, Risk Committee and Board</li> <li>• report portfolio flexibility to the Investment Committee and Board in accordance with Schedule 8 of this policy</li> <li>• report deviation from standard proxy system to the subsequent regular Board meeting</li> </ul>
<b>Head of Portfolio Risk</b> will:	<ul style="list-style-type: none"> <li>• report performance of the Reference Portfolio, value adding strategies and the actual portfolio monthly to the Investment Committee and Board</li> <li>• report compliance with investment constraints contained in Schedule 7 to each regular Risk Committee, Investment Committee and Board meeting</li> <li>• review the impact of changes to the Fund's tax profile on the calculation of the Reference Portfolio benchmark at least annually</li> </ul>
<b>General Counsel</b> will:	<ul style="list-style-type: none"> <li>• ensure Schedule 9 (legislative compliance) is kept current</li> <li>• report material changes to the schedules of this policy as part of the annual SIPSP review to the Risk Committee and Board meetings (the no surprises protocol also applies)</li> </ul>
<b>Head of Internal Audit</b> will:	<ul style="list-style-type: none"> <li>• report material policy breaches notified through the Learnings and Opportunities reporting process immediately to the Risk Committee and Board</li> <li>• report all policy breaches notified through the Learnings and Opportunities reporting process to the subsequent Risk Committee, Audit Committee and Board meetings</li> </ul>

**Responsibilities approved by Chief Executive on 12 February 2013 as amended 19 June 2014, 14 April 2016, and 27 July 2016**

## Schedule 2: Asset Classes and Benchmarks

**Table 1: Reference Portfolio Asset Classes and Benchmarks**

Reference Portfolio Asset class	Benchmark	Sub-categories	Asset class definition
Global equities	MSCI All Country World Investable Market Index hedged to NZD	Large/mid/small capitalisation and emerging markets equities	Equity securities listed, or shortly to be listed, on any recognised stock exchange.
Developed market equities	MSCI World Investable Market Index hedged to NZD	Large/mid/small capitalisation equities	Equity securities listed, or shortly to be listed, on any recognised stock exchange in developed markets.
Emerging market equities	MSCI EM Investable Market Index hedged to NZD		Equity securities listed, or shortly to be listed, on any recognised stock exchange in emerging markets.
New Zealand equities	NZX 50 Index	Incorporating Australian equities (recognising the close economic relationship with Australia)	Equity securities listed, or shortly to be listed, on the New Zealand or Australian Stock Exchanges, or listed on other recognised exchanges and for which New Zealand is their primary source of business.
Fixed interest	Barclays Capital Global Aggregate Index hedged to NZD	Sovereign, investment grade, high yield, emerging market, mortgages and inflation-linked; and in broad exposure terms, can be sub-categorised into duration and credit spread	Debt instruments including deposits, debentures, debenture stocks, bonds, notes, promissory notes, loans and other non-equity securities that are not convertible into equity at the option of the issuer.

**Table 2: Benchmarks for Value-Adding Activities**

Type of Opportunity	Definition	Benchmark
Proxied opportunities	Opportunities set out in the standard proxy table in Schedule 6A	The proxy as per Schedule 6A and Schedule 6B
Opportunities that are not proxied	Opportunities described in Schedule 6A as excluded from the standard proxy table	Benchmark as set out in the relevant investment management agreement or internal investment mandate
Portfolio Completion	Activities under the Portfolio Completion strategy	Benchmark as set out in the relevant investment management agreement or internal investment mandate

**Approved by the Board on 13 June 2011 as amended 19 June 2014, 21 April 2015 and 14 April 2016**

**Schedule 3: Reference Portfolio**

<b>Asset Class</b>	<b>Weighting</b>
Developed market equities	65%
Emerging market equities	10%
New Zealand equities	5%
<b>Total Growth</b>	<b>80%</b>
<b>Total Fixed Interest</b>	<b>20%</b>
<b>Total Portfolio</b>	<b>100%</b>
<b>Net unhedged Foreign Currency Exposure</b>	<b>0%</b>

**Approved by the Board on 21 April 2015**

## Schedule 4: Processes for Opportunity Evaluation, Risk Allocation and Fund-wide Liquidity Management

### Opportunity Evaluation

For all opportunities we undertake analysis of how much the opportunity could improve the Fund's portfolio. The analysis considers:

- Why we should invest in the opportunity, including:
  - What is the opportunity?
  - What are the relevant beliefs/endowments?
  - What is the economic rationale for this opportunity?
  - How will the opportunity improve the efficiency of the portfolio?
  - Expected risk and return metrics
  - Comparable asset – does it fill a gap?
  - Is it consistent with our *Statement of Investment Policies, Standards and Procedures*?
- Risks, including:
  - Key risks such as investment, RI, operational and reputation
  - Regulatory requirements related to the opportunity
- How we can access the exposure, including:
  - Considering access points (public markets; passive; direct; CIVs; separate accounts) and our Targeting Operating Model (TOM)

Opportunities are approved in accordance with the Delegations Policy.

If the opportunity is approved, the investment professional will further consider our preferred access points or managers. The investment approval governance process outlines the steps to be followed.

The policy that applies will depend on the preferred access point:

- If access is through an external manager or a Collective Investment Vehicle, it will be covered by the *Externally Managed Investments Policy*.
- If internally managed and resulting in a Financial Markets Transaction, it will be covered by either the *Portfolio Completion & Internally Managed Securities Policy* and/or the *Strategic Tilting Policy*.
- If via direct investment and not using Collective Investment Vehicles or resulting in a Financial Market Transaction, it will be covered by the *Direct Investments Policy*.

Access points are approved in accordance with the Delegations policy. The thresholds that require these investments to be considered by the Investment Committee prior to implementation are set out in Schedule 10B.

The Investment Committee will review investment activity by access point team (i.e. Portfolio Completion, Investments, NZ Direct and International Direct) each year. A review will include details of the actual investments managed by the respective access point teams. In addition, the IC may seek 'one-off' reviews of strategies, opportunities or mandates where there has been some material change in internal staff managing the exposure, material differences between expected and actual outcomes are anticipated, material changes in risk budget

allocated to an opportunity or significant observations from a Stage 4 post completion note warrant a review. The main objectives of the periodic reviews are to:

- assess whether realised risks and benefits were consistent with expected risks and benefits of a specific investment;
- provide quality, transparent reporting to the Board;
- where appropriate, build independent (internal and third party) peer review into our investment process;
- systematically capture lessons learned that might add value to future investments; and
- embed a strong risk management culture across the Fund.

In a typical year the Committee will review the investments managed by the four access point teams, scheduled to be one per quarter.

Each completed review will be submitted to the Board following review by the Investment Committee and other management committees (if the review is so directed).

### **Risk Allocation Process**

The Risk Allocation Process (“RAP”) is the process by which we 1) capture key aspects of the Fund’s value-add Opportunities in a database, 2) use this database to budget active risk, and 3) establish allocation approaches for Opportunities that we expect to result in the active risk budget for an Opportunity on average over the long term.

#### ***RAP database***

Within the RAP database all approved and prospective Opportunities are assessed on two key measures:

- They are categorised for their consistency with our investment style, which includes an assessment of their consistency with the Target Operating Model, with our responsible investment guidelines, and with our approved investment themes.
- They are also ranked according to their attractiveness which is a weighted score of any diversification/concentration properties and the expected risk-adjusted return adjusted for confidence.

Opportunities are also allocated to one of three types of risk budget basket according to the predominant driver of attractiveness: (i) structural Opportunities including diversifiers, (ii) market pricing Opportunities, and (iii) asset selection Opportunities.

Changes to the design of the RAP will comprise changes to the components or weighting scheme used to derive overall consistency with style and overall attractiveness, e.g. how the risk and return to illiquidity are accounted for, how diversification is measured and accounted for, how confidence is measured and accounted for. The design principles are formally reviewed by the Investment Committee periodically.

#### ***Risk budgeting***

Each basket is assigned an active risk budget that in aggregate results in the total active risk budget set out in Schedule 10A of this policy. The risk budgets are contained in Schedule 10B of this policy.

For each basket the risk budget is split between the Opportunities in that basket. The relative size of risk budgets are approved in accordance with the Delegations Policy. Except for the Portfolio Completion basket, the relative budget size reflects the relative confidence in the expected risk-adjusted returns for different Opportunities, subject to capacity and any other relevant constraint. Other RAP metrics such as consistency with our investment style will also have a bearing. The Portfolio Completion strategy is assigned an amount of active risk that will allow the rebalancing of the Fund to operate under the constraints set by the Board; this budget is also shown in Schedule 10B.

### ***Allocation Approaches***

Risk budget teams are assigned to each basket who are responsible for designing the allocation approach for the Opportunities within that basket; the allocation approach is expected to result in the active risk budget for an Opportunity on average over the long term. They monitor attractiveness signals for each of the opportunities and recommend the dialling of exposure up and down in accordance with the allocation approach. The attractiveness signals are produced on a regular basis by the Investment Analysis team, in conjunction with the risk budget teams.

The diagram over the page sets out the governance of risk budgeting and the allocation approaches.

### **Fund-wide Liquidity Management**

Fund-wide liquidity risk management is comprised of two functions:

- 1) Portfolio flexibility. Do we have enough liquidity for where we are in the market cycle? How much liquidity risk should we take on average? Are illiquid assets earning sufficient returns?
- 2) Liquidity management. Can we maintain our minimum liquidity requirements if markets fall? How quickly can we raise liquidity? Are we properly accounting for the liquidity of portfolio assets?

We have a separate function and processes for portfolio flexibility because when we seek to add value to the reference portfolio, we need to ensure that we do not over-invest, increasing the risk of being a forced seller to an unacceptable level, i.e. that we do not undermine our endowments.

Our choices in a crisis event where we do not have a sufficiently flexible portfolio are:

- suspend tilting; and/or
- no longer currency hedge foreign assets; and/or
- conduct fire-sales of illiquid assets.

Each of these options:

- will likely involve locking in large losses;
- will likely involve the foregoing of the heightened extra expected returns that those positions would have at the time of sale, given the depressed prices;
- negates our defined-liquidity and long-horizon endowments;
- undercuts the rationale for engaging in these activities in the first place, namely that over time we earn a risk premium because we are not forced to sell.

Ensuring portfolio flexibility is strongly related to the decision making around our risk allocation process, and is governed by the Investment Committee with reporting to the Board.

The table two-pages-over sets out the governance of portfolio flexibility as well as that for liquidity management.



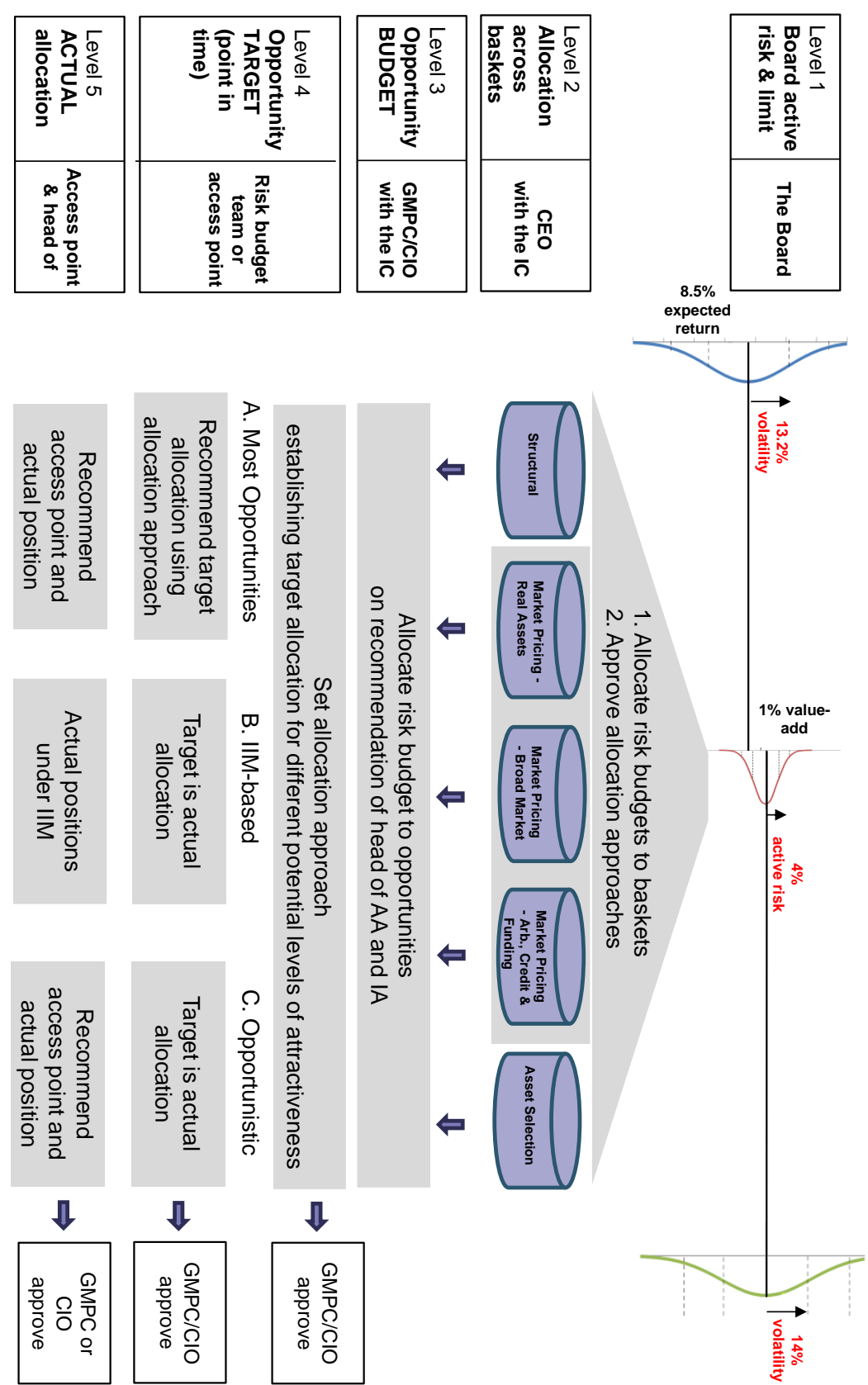


Diagram: Governance of risk budgeting and risk allocation approaches

Table: Governance of portfolio flexibility and liquidity management

	Portfolio flexibility		Liquidity management (0-6 months, whole of fund)
	Normal times	Crisis	
<b>Key questions</b>	<ul style="list-style-type: none"> <li>Do we have enough liquidity for where we are in the market cycle?</li> <li>How much liquidity risk should we take on average?</li> <li>Are illiquid asset earning sufficient returns?</li> </ul>	<ul style="list-style-type: none"> <li>Can we sustain our overlays?</li> <li>What should we sell?</li> </ul>	<ul style="list-style-type: none"> <li>Can we maintain our minimum liquidity levels if markets fall?</li> <li>Can we meet forecast funding demands?</li> <li>Is the liquidity model properly accounting for liquidity of portfolio assets?</li> <li>How quickly could we raise liquidity?</li> </ul>
<b>Tools</b>	<ul style="list-style-type: none"> <li>PRISM (a simulation model)</li> <li>Risk Allocation Process</li> </ul>	<ul style="list-style-type: none"> <li>Liquidity database</li> </ul>	<ul style="list-style-type: none"> <li>Liquidity Model</li> </ul>
<b>Management reporting</b>	<ul style="list-style-type: none"> <li>Portfolio flexibility dashboard</li> <li>Investment environment reports</li> </ul>	<ul style="list-style-type: none"> <li>Crisis Waterfall</li> </ul>	<ul style="list-style-type: none"> <li>Liquidity dashboard</li> <li>Stress-testing/scenario results</li> </ul>
<b>Main tasks</b>	<ul style="list-style-type: none"> <li>Ensure liquidity averages 4.5 EMV over cycle</li> <li>Ensure we have a liquidity crisis plan</li> <li>Embed behaviours</li> </ul>	<ul style="list-style-type: none"> <li>Crisis decision making</li> </ul>	<ul style="list-style-type: none"> <li>Liquidity monitoring</li> <li>Stress-tests</li> <li>Modelling of nearly liquid (6 month) piece of waterfall</li> <li>Liquidity management (profile vs funding demands)</li> </ul>
<b>Governance Responsibility</b>	Investment Committee	Investment Committee	Portfolio Completion team manage nearly liquid assets with oversight by the Funding and Treasury Group and IC.
<b>Model maintained and dashboard prepared by</b>	Asset Allocation	Portfolio Completion and Investment teams	Portfolio Completion and Portfolio Risk teams
<b>Policy</b>	Investment Risk Allocation Policy (this policy)	Investment Risk Allocation Policy	Portfolio Completion & Internally Managed Securities Policy

Approved by the Chief Executive on 12 February 2013 as amended 19 June 2014, 14 April 2016, and 27 July 2016

## Schedule 5: Value Adding Strategies &amp; Opportunities

Value adding strategies	Opportunities	Governing Policies
Strategic tilting		<ul style="list-style-type: none"> <li>• <i>Investment Risk Allocation Policy</i></li> <li>• <i>Strategic Tilting Policy</i></li> <li>• <i>Portfolio Completion &amp; Internally Managed Securities Policy</i></li> <li>• <i>Derivatives Policy</i></li> </ul>
Active returns	<ul style="list-style-type: none"> <li>• Active Collateral</li> <li>• Commodities Long/short</li> <li>• Global Macro</li> <li>• Convertible Arbitrage</li> <li>• Volatility Long/short</li> <li>• Active Equities (NZ)</li> <li>• Active Equities (EM)</li> <li>• Direct Arbitrage</li> <li>• Non-market capitalisation</li> <li>• Opportunistic (NZ and international)</li> <li>• Buyout</li> <li>• Expansion Capital (NZ and international)</li> <li>• Real Estate (Prime)</li> <li>• Real Estate (Development)</li> <li>• Real Estate (Secondary)</li> <li>• Rural Land</li> <li>• Timber</li> <li>• Infrastructure (Core)</li> <li>• Infrastructure (Non-core)</li> <li>• Natural Catastrophe Reinsurance</li> <li>• Life Settlements</li> <li>• Variance Swaps</li> <li>• Distressed Credit</li> <li>• Energy Growth (Shale)</li> <li>• Energy Growth (Alternative)</li> <li>• Regulatory Capital</li> <li>• Cross Currency Basis</li> <li>• Equity Beta (EM)</li> <li>• Equity Beta (Low Vol)</li> <li>• Equity Beta (Value)</li> <li>• Event Driven Opportunity</li> <li>• Merger Arbitrage</li> <li>• Dividend Derivatives</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Investment Risk Allocation Policy</i></li> <li>• <i>Externally Managed Investments Policy</i></li> <li>• <i>Direct Investments Policy</i></li> <li>• <i>Portfolio Completion &amp; Internally Managed Securities Policy</i></li> <li>• <i>Derivatives Policy</i></li> </ul>
Portfolio Completion		<ul style="list-style-type: none"> <li>• <i>Investment Risk Allocation Policy</i></li> <li>• <i>Portfolio Completion &amp; Internally Managed Securities Policy</i></li> <li>• <i>Derivatives Policy</i></li> </ul>

**Strategies approved by the Board on 11 April 2011**

**Opportunities approved by the Chief Executive on 13 June 2011 as amended 14**

**August 2012, 4 March 2013, 23 June 2013, 22 August 2013, 10 August 2015, 14 April**

**2016, and 24 January 2017, with Variance Swaps approved by the Board 6 December 2011**

## Schedule 6A: Proxy System

The proxies are as follows:

Proxy Category	Growth Weight* (at 10% increments only)	Income Weight (at 10% increments only)	Current Opportunities <sup>^T</sup>
High Growth			
Medium Growth			
Low Growth			
Income			
Non-standard			

\* This percentage applies to the total of developed market, emerging market and NZ equities, with the same proportional composition as the Reference Portfolio weights for these asset classes.

\*\* The proxy for each (contract) position under the Volatility Strategy will be set as a customised proxy in accordance with the Delegations Policy.

<sup>^</sup> Excludes:

- active asset class mandates, as these are active management of reference portfolio assets, e.g. Active Equities (NZ) and Active Equities (EM);
- market neutral hedge funds, e.g. Commodities (Long/Short), Convertible Arbitrage, Global Macro, Non-market Cap (Contrarian), Volatility (Long/Short); and
- overlays, e.g. Active Collateral, Cross-Currency Basis, Direct Arbitrage, Strategic Tilting

<sup>T</sup> Opportunities are approved by the Chief Executive

**Approved by the Board on 1 December 2015 as amended 14 April 2016, and 24 November 2017**

## **Schedule 6B: Proxy System Description**

The process for setting a proxy for an investment will depend on whether a standard, customised or non-standard proxy is appropriate:

- 1) A standard proxy is chosen from the range of growth-income combinations set out in Schedule 6A for the opportunity in question. The choice of the growth-income asset mix within the specified range in a proxy category will depend on the risk characteristics of the opportunity under consideration. In addition, the risk characteristics of assets under the same opportunity may also differ due to differences in the level of leverage and idiosyncratic risk. However, the specified range of growth-income asset mix for each proxy category should be sufficient to cover most of the Fund's investments in opportunities belonging to that proxy category.
- 2) A customised proxy uses a combination of growth and income as defined in Schedule 6A, but not from the range determined for the opportunity. This will be appropriate for access points with risk characteristics that fall outside the norm for an opportunity, e.g. China Infrastructure Partners which falls under the infrastructure opportunity but is more akin to a private equity investment.
- 3) A non-standard proxy is one that does not use the standard combination of growth and income as defined in Schedule 6A. This may be because it has time-varying risk characteristics and therefore requires a time-varying proxy (e.g. variance swaps or assets that have option-like payoffs), or because the definition of growth or income is not appropriate (e.g. because the use of country/region specific proxy is more appropriate to alleviate concentration risk).

Approval of proxies, both under the standard proxy system and when the standard proxy system is not used, will be in accordance with the Delegations Policy. In addition, where the standard proxy system is not used:

- Asset Allocation will provide a brief paper to the Investment Committee stating the proposed proxy and summarising the key assumptions used to arrive at that proxy. On occasion, an appendix listing all investments and their proxy may accompany the paper to allow comparison across each.
- The Investment Committee minutes will reflect the language in the Delegations framework, e.g. "the Investment Committee agrees with the proposed proxy and recommends it to the CIO/CEO for approval".

**Approved by Chief Executive on 10 August 2015 as amended 14 April 2016**

## Schedule 7: Constraints

Constraint		Limit	Definition or Clarification
Actual Portfolio Risk			
	Actual portfolio absolute risk	Volatility of actual portfolio between 9.3% and 17.3%	Volatility is the annualised standard deviation of expected return
	Actual portfolio active risk	Volatility of return difference between actual portfolio and reference portfolio ≤ 8%	
Prudential			
	Single manager	≤ 25% of NAV	Applies to the total number of mandates for a manager (active or passive).
	Single private market manager	≤ 5% of NAV	Single manager limit of 25% still applies if the manager is awarded both private and public mandates.
	Single listed manager active risk	≤ 0.5%	
	Single asset	≤ 2% of NAV	Applies to value-add opportunities. A single asset can be either a single sector within a region or a listed security. Does not apply to sovereign debt or derivatives referenced to an index
Strategy-Specific			
Active Returns			
Strategic Tilting			

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Constraint	Limit	Definition or Clarification
<b>Strategy-Specific</b> (continued)		
Portfolio Completion		

**Approved by the Board on 17 June 2015 and 21 June 2016**



## Schedule 8: Reporting Framework

Report	Reporting frequency required and to whom	Minimum information required by the Board
Performance of the Reference Portfolio	Monthly to Investment Committee and Board	<ul style="list-style-type: none"> <li>Performance last month, year to date, since inception.</li> </ul>
Deviation from the standard proxy system	To subsequent Board meeting	<ul style="list-style-type: none"> <li>Proxy used and reason for deviation from default position.</li> </ul>
Performance of value adding strategies	Monthly to Investment Committee and Board	<ul style="list-style-type: none"> <li>Performance last month, year to date, since inception.</li> <li>Explanation required if 'unreconciled noise' is greater than 5bps per month or 20bps in the financial year to date.</li> <li>Active risk against risk budget.</li> </ul>
Performance of the Actual Portfolio	Monthly to Investment Committee and Board	<ul style="list-style-type: none"> <li>Performance last month, year to date, since inception.</li> </ul>
Compliance with investment constraints contained in Schedule 7	Each Risk Committee, Investment Committee and Board meeting	<ul style="list-style-type: none"> <li>Monthly actual absolute risk.</li> <li>Monthly actual relative risk.</li> <li>Monthly active manager risk used.</li> <li>Monthly Strategic Tilting active risk used.</li> <li>Liquidity levels if less than sufficient to meet commitments should the market move 3 EMV.</li> </ul>
Policy breaches	<p>If medium or high under Learnings and Opportunities Process: immediately to Risk Committee and Board</p> <p>Otherwise: to subsequent Risk Committee, Audit Committee and Board meetings</p>	<ul style="list-style-type: none"> <li>Details of breach and remedial action taken.</li> </ul>
Material changes to Schedules of this policy	as part of the annual SIPSP review to the Risk Committee and Board meetings (the no surprises protocol also applies)	<ul style="list-style-type: none"> <li>Details and reason for change.</li> </ul>
Portfolio flexibility	Monthly to Investment Committee and quarterly to Board	<ul style="list-style-type: none"> <li>Liquidity against expected average liquidity and the liquidity levels set out in Schedule 7.</li> </ul>

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Report	Reporting frequency required and to whom	Minimum information required by the Board
Event based reporting When liquidity falls below 3 EMV	Notice to the Board immediately	<ul style="list-style-type: none"> <li>Liquidity against the liquidity levels set out in Schedule 7.</li> <li>Details of planned actions.</li> </ul>
Event based reporting When liquidity falls below 2 EMV	Notice to the Board immediately	<ul style="list-style-type: none"> <li>Liquidity against the liquidity levels set out in Schedule 7.</li> <li>Details of planned actions.</li> </ul>

Review	At least every	To	Reason for review	Minimum information required
Reference Portfolio review	5 years	Investment Committee and Board (for approval)	To ensure the Fund's risk and return is in line with the Fund's objective and the Board's risk appetite, and that the asset class benchmarks remain the best choice for the reference portfolio.	<ul style="list-style-type: none"> <li>Summary of approach.</li> <li>Review of equilibrium risk and return assumptions.</li> <li>Review of asset class benchmarks.</li> <li>Rationale for any recommended changes.</li> <li>Risk-return impact.</li> </ul>
Review of the cost of running Reference Portfolio	5 years	Investment Committee and Board (for approval)	To ensure our benchmark takes into account any changes in fees or transaction costs.	<ul style="list-style-type: none"> <li>New versus old assumptions and rationale</li> </ul>
Review the impact of changes to the Fund's tax profile on the Reference Portfolio benchmark	1 year	GM Finance & Risk, and GM Portfolio Completion	To ensure our benchmark takes into account any changes in the Fund's tax status.	<ul style="list-style-type: none"> <li>Impact of any changes</li> </ul>

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Review	At least every	To	Reason for review	Minimum information required
Review of investment constraints contained in Schedule 7	5 years	Investment Committee, Risk Committee and Board (for approval)	To ensure that the constraints under which we manage the actual portfolio are in line with the Fund's objective and the Board's risk appetite. These include actual portfolio risk, prudential (single asset and single manager limits), opportunity-specific, strategic tilting, rebalancing and liquidity limits.	<ul style="list-style-type: none"> <li>• Rationale for any recommended changes.</li> <li>• Impact of any changes.</li> </ul>
Review of the total active risk budget contained in Schedule 10A	5 years	Investment Committee and Board (for approval)	To ensure that the expected average risk of the actual portfolio relative to the reference portfolio is in line with the Fund's objective and the Board's risk appetite.	<ul style="list-style-type: none"> <li>• Summary of approach.</li> <li>• Rationale for any recommended changes.</li> <li>• Risk-return impact.</li> </ul>
Review of risk basket and Opportunity active risk budgets	5 years	Investment Committee and Board	To ensure the allocation of the active risk budget remains valid.	<ul style="list-style-type: none"> <li>• Summary of approach.</li> <li>• Rationale for any recommended changes.</li> <li>• Risk-return impact.</li> </ul>
Review of the time-varying risk allocation approaches for Opportunities	5 years	Investment Committee and Board	To ensure the allocation approaches, which set the amount of risk capital that will be allocated for given attractiveness readings, are regularly reviewed and are expected to average to the risk budgets for Opportunities over time.	<ul style="list-style-type: none"> <li>• Summary of approach</li> <li>• Rationale for any recommended changes.</li> <li>• Impact of any changes.</li> </ul>
Review of static assumptions and design principles of the risk allocation process	5 years	Investment Committee and Board	To ensure the design principles and static assumptions of risk allocation process are appropriate.	<ul style="list-style-type: none"> <li>• Rationale for any recommended changes.</li> <li>• Impact of any changes.</li> </ul>

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<b>Review</b>	<b>At least every</b>	<b>To</b>	<b>Reason for review</b>	<b>Minimum information required</b>
Investment review timetable	1 year	The Board	Details the strategy, opportunity or investment reviews intended by the Investment Committee in the year ahead.	<ul style="list-style-type: none"><li>• Details of each intended review in calendar year ahead</li></ul>
Investment reviews	As determined by the Investment Committee	The Investment Committee and the Board	Periodic review of investments	<ul style="list-style-type: none"><li>• As per terms of reference specified by the Investment Committee.</li></ul>
Review of the portfolio flexibility framework	5 Years	The Investment Committee and the Board	To ensure that the portfolio flexibility framework operates as expected.	<ul style="list-style-type: none"><li>• Summary of framework</li><li>• Rationale for any recommended changes.</li><li>• Impact of any changes.</li></ul>

**Approved by the Board on 29 July 2013 as amended 19 June 2014, 17 June 2015, 14 April 2016 and 9 August 2016**

## **Schedule 9: Legislative Compliance**

The summary of New Zealand legislation set out below does not purport to be comprehensive or to provide legal advice. If you require any advice on these matters please contact the legal team.

When allocating investment risk we need to consider the legislation below.

### **Our governing legislation**

- Crown Entities Act 2004
- New Zealand Superannuation and Retirement Income Act 2001

### **Other**

- Official Information Act 1982. Our obligations in respect of this Act are covered in the Communications Policy.
- Public Finance Act 1989
- Public Records Act 2005. Our obligations in respect of this Act are covered in the Communications Policy.

### **Further information**

Further information about the relevant sections of the legislation listed above can be obtained from our General Counsel.

**Approved by the Chief Executive on 13 June 2011 and 8 December 2016**

**Schedule 10A: Risk Budget**

The difference between the performance of the Actual Portfolio and the Reference Portfolio will be due to our Value Adding Strategies. The expected value-add will come with some additional volatility or active risk beyond the Reference Portfolio. The Board's expectation as to the level of this active risk is known as the Fund's total active risk budget.

The Guardians expect that the Actual Portfolio will return 1% p.a. more than the return of the Reference Portfolio over the long term, with an active risk of 4%. The Board approves this total active risk budget of 4%.

**Approved by the Board on 8 April 2014 [as amended 14 April 2016]**

**Schedule 10B: Risk Budget Assignment**

The following table sets out the risk budget assignment:

		Active Risk Assignment	% Contribution to Value-Add Variance		
Active Return and Strategic Tilting	Structural				
	Market Pricing – Real Assets				
	Market Pricing – Broad Markets				
	Market Pricing – Arbitrage, Credit & Funding				
	Asset Selection				
Portfolio Completion					
Total					

The following table sets out thresholds that require the investments to be considered by the Investment Committee prior to implementation:

1. Any investment that does not fall within the assignment of active risk to the basket.
2. Investments in NZ that are under the Direct Investments Policy that are more than NZ\$100 million.
3. Any investment greater than 1% of the Fund NAV and is not governed by an internal investment mandate.
4. Any investment where the Chair of the Risk Committee refers the Operational Risk Assessment (ORA) to the Investment Committee for consideration.

**Approved by the Chief Executive on 19 June 2014 as amended 14 April 2016**