

Pre-Funding New Zealand Superannuation

Working Document

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PRE-FUNDING NEW ZEALAND SUPERANNUATION

1. INTRODUCTION

This document brings together the work on design and analysis for the scheme for pre-funding New Zealand Superannuation. It is based on reports prepared for the Minister of Finance by the Treasury between February 2000 and June 2000. The topics covered are:

- Initial discussion of issues;
- Implications and broad parameters of pre-funding;
- Demographics of an ageing population;
- Entitlements payable from the Fund;
- Investment objectives;
- Contribution rate review process;
- Governance arrangements;
- Illustrative fund management structure;
- Taxation;
- Modelling the contribution rate;
- Technical specification of the rate calculation;
- Pre-funding schemes in Canada and Ireland; and
- Reporting.

The text of each chapter is based on material originally prepared as standalone reports so, as would be expected, there is some repetition of contextual material that is covered in more detail in other chapters.

The original reports were prepared over about five months, during which time the thinking underlying the policies developed. As a result, some of the ideas presented as possibilities in the earlier work are taken for granted in later analyses.

The chapters are presented roughly in the chronological order in which they were prepared.

2. ISSUES IN PRE-FUNDING NEW ZEALAND SUPERANNUATION

Executive Summary

This chapter sets out some issues for discussion surrounding objectives, design of a fund, and implementation process. This document was prepared early in the process as a basis for the series of working papers on which the subsequent chapters of this document are based.

Objectives

The primary policy motivation for pre-funding New Zealand Superannuation is to improve its long-term sustainability as a universal entitlement of 65% of the average after-tax wage.

There is a range of broad objectives that a pre-funding scheme could be designed to meet. They include:

- To increase national saving
- To increase future growth
- To redistribute income from present to future taxpayers
- To enhance the Crown's capacity to withstand unexpected future events
- To bolster the credibility and stability of New Zealand Superannuation policy
- To better manage the tension between short- and long-term demands on government finances

Growth in the real economy is the key issue underlying any pension policy. A funding policy needs to increase either the level of New Zealanders' claims on future world output or the share of world output that goes to New Zealand elderly in order to achieve this goal.

There is a range of options that could be applied (either in conjunction with or instead of the establishment of a fund) to seek to meet each of these objectives. This chapter focuses on the issues surrounding the design and implementation of a fund as a means of meeting the Government's objectives. Nonetheless, some wider issues may be worth exploring as part of this project (for example, additional ways of ensuring the stability of long-term retirement income policy).

The next section of this chapter reviews issues for the design of a fund and the following section addresses implementation issues. Some of these will be able to be determined

by confirming Government policy. Others will require research and/or consultation to resolve.

Design of a Fund

The main design issues that will shape the overall policy are set out below under the following headings:

- Coverage
- Transfers into the fund
- Investment management
- Disbursements
- Reporting
- Impact on other public policy

Coverage

Partial Funding and Full Funding

The accumulation of the fund could be designed to:

- finance the entire cost of New Zealand Superannuation (possibly also other costs associated with the demographic bulge);
- finance a specific part of the cost (for example, just the additional cost of superannuation attributable to the predicted demographic bulge); or
- contribute to financing future costs of New Zealand Superannuation partially.

This choice has an effect on the tax rates required to build the fund to the required level and on the parameters that would be put in place for disbursement to ensure that the fund is used for the purpose intended.

Uncertainty

There is considerable and unavoidable uncertainty surrounding the economic and social variables that will affect the cost of New Zealand Superannuation many years out into the future. As a result, there is a wide range around the estimates of its expected future cost. An issue to be addressed is whether the fund should aim for the middle of that range or should be designed to be sufficient for a broader range of outcomes. This could affect both the level of funding and the approach to investment management.

Transfers into the Fund

Process for Determining and Adjusting the Rate of Inflow of Funds on an Ongoing Basis.

Having determined the objective (for example, "sufficient to finance New Zealand Superannuation over 60 years at a constant rate"), maintaining the appropriate rate could be considered primarily a technical issue. However, many uncertainties and judgements about future events are involved so there could exist considerable scope for implicit "raiding" by setting the rate too low or by failing to adjust the rate upward when required.

On the other hand, establishing a process that is too far removed from Executive judgement could unreasonably limit the fiscal flexibility of the Government to respond to unexpected changes in the economy or in society. It simply shifts the fiscal risk away from superannuation policy and on to other Government policies.

To foster stability, consideration could be given to requiring any change in future entitlements to be matched by a corresponding adjustment to the contribution rate.

Scope of Fund Management

Labour Election policy indicates a fund that would build up from the surpluses of the dedicated tax receipts over current superannuation payments. The scope of the operations of the fund could be limited to receiving and investing the net surplus each year until the criteria for withdrawals from the fund are met. Alternatively, the fund could receive the gross amount of the dedicated tax and be responsible for making all superannuation payments (either disbursing funds to the Department of Work and Income each payment period or possibly even taking over the whole delivery function from the Department of Work and Income).

If the latter approach is adopted, a question arises of what role the governing body of the fund ought to have in setting contribution levels and payment rates and other parameters. It will be important to obtain the right match between what the governing body is accountable for and what it controls.

Investment Management

Investment Strategy

There is considerable debate internationally about what is the most appropriate investment strategy for a publicly-provided and government-guaranteed defined-benefit superannuation fund. Some people look to the high returns being earned on investments in world equity markets relative to that implied in a pay-as-you-go scheme (being the long run rate of growth of real wages and salaries) or implied by applying the funds to reduce the Crown's gross debt (being the marginal cost of sovereign borrowing). They argue the extra financial risk attaching to a policy of equity investment would be easily absorbed within the Crown's overall portfolio and across the long time horizon of the policy.

Other people also argue for a measured exposure to risky capital markets to the extent that they help diversify other risks in the Crown's portfolio. They would advocate a low exposure to the domestic economy to which the Crown is already heavily exposed through its tax base and would invest internationally. Others would argue that investment in the domestic economy by the Government is important for the nation's future prosperity. Any such investment that was not on a fully commercial basis could confuse the objectives of the fund.

However, still others argue that there is no "free lunch" in the higher expected returns. The higher returns reflect the market price of risk and, in adopting a relatively risky portfolio, the chances are greater of the fund performing very poorly, especially over the short time horizons over which government performance is invariably judged. They do not see this policy as being consistent with a stable and credible approach to retirement provision. In particular, they predict that if there is poor performance over the first few years, political resolve to stay independent of the fund will evaporate along with public confidence and support, while very good initial performance may engender complacency and a belief the fund can be drawn upon earlier with plenty of time to recover. They suggest that the most appropriate "commercial" strategy in this situation would be to invest in low-risk sovereign (New Zealand or foreign) debt.

Critics of investing in New Zealand Government Stock view this as a form of raiding, resulting in a notional fund holding only IOUs from the Crown. However, others see investing in New Zealand Government Stock as a convenient means of centralising the Crown's treasury management, enabling an efficient and consistent approach to management of the Crown's overall financial portfolio.

Institutional Arrangements

The broad approach taken to investment strategy will affect the choice of institutional arrangements. If active diversification across a range of asset classes is envisaged then specialist professional fund managers are likely to need to be contracted. However, a more limited strategy involving passive investment in a limited range of asset classes may suit management directly through employees of the governing body. Either way, the governing body would be expected to have the fund managed professionally.

The details of the institutional arrangements either could be set by the Government (in legislation or just as a Government directive) or could be left as a responsibility of the governing body. There are two reasons supporting the latter approach. First, a legislated or directed structure is unlikely to keep up with the continuous evolution of best practice in fund management and governance. Second, the governing body can be better held to account if there is not the excuse that their performance was shackled by imposed limitations on their management. On the other hand, the initial acceptance and credibility of the scheme could depend on having a clearly stated approach to its institutional arrangements.

Constitution of the Governing Body

If New Zealand Superannuation payments are to be guaranteed by the Crown regardless of the investment performance of the fund then present and future pension payments will

be insulated from the fund's investment performance and so the Crown as a whole will continue to bear all the financial risk. This suggests that the governing body ought to be primarily (or solely?) concerned with professional management of the fund in the interest of the Crown and hence would be appointed by, and be accountable to, the Government.

On the other hand, explicitly including interested groups in the management process could enhance the acceptability of the policy with those groups. This would be more pertinent should the governing body's mandate also include discretion over contribution or payment parameters, or if the fund represented the aggregate of individually identifiable retirement accounts whose balance depended on the investment performance.

Disbursements

Adjustments to Entitlement Provisions

Obtaining the right balance between policy stability and fiscal sustainability will require being clear about:

- which elements of pension entitlement are to be immutable (for example, the age of eligibility or the relation to the average wage);
- which elements are to be available for adjustment by future Governments as conditions change;
- which elements (if any) would be determined by the governing body of the fund, independently of the Government; and
- which types of expense the fund may be applied to.

Some of the parameters of New Zealand Superannuation have already been adjusted since the Election. Consideration could be given to whether other parameters ought to be reviewed and adjusted before they are "locked in" under a new scheme. This could include decisions about whether provisions should be identical for all future cohorts.

Reporting

On the basis that the Crown is the residual bearer of risk on the fund and retains ultimate control over the investment strategy and governance of the fund, it would be included as an asset in the Crown financial statements and the returns (gains and losses) on the fund would be reflected in the Crown's operating balance. The reporting requirements for the fund itself would need to reflect standard commercial practice for investment funds.

The Government has some latitude in specifying its targets under the Fiscal Responsibility Act, so specific targets such as net debt can be defined arbitrarily either as including or as excluding the fund balance.

Impact on other Public Policy

Saving

It is not clear whether the establishment of the fund will affect household saving (and capital formation) and national saving and, if so, in which direction. There is little evidence that any policy can increase aggregate saving short of better growth rates. A survey of household savings is currently under development. This should provide better information but the results will not be available until 2002.

Fiscal Policy Risk Transferred to Other Expenditure

Some people would argue that ring-fencing part of the Crown's tax base to finance a fixed retirement income policy unfairly shifts the fiscal risks onto other spending policies. They see those policies as suffering both from having to bear a greater proportion of the risk of variability in tax revenue, as well as the residual risk arising from the variability in investment returns on the fund.

Others see this as an essential element of establishing the appropriate priority of retirement income policy relative to other spending policies.

Implementation Process

Political Consensus

As indicated publicly, broad political support is essential to the success of this policy. This would include obtaining consensus on mechanisms for adaptation of the policy over time as existing uncertainties are resolved and new ones arise. Reaching a multi-party agreement may more clearly specify the policy for implementation of the fund.

Decision Making Process

Issues for decision by the Government will arise frequently throughout the design and any implementation process. Consideration could be given to assigning a Cabinet Committee or a smaller ad hoc group of Ministers with authority to develop the Government's approach to this issue.

Timing

The timing envisaged for this policy has been to have legislation introduced by 1 June 2000, enacted by the end of the year and implemented by 1 April 2001. It would be most practical if payments to the Fund were to start from the beginning of the new financial year, that is, 1 July. This timing depends on obtaining majority political support. Apart from that, the April 2001 timing would look achievable from a technical point of view.

Legislation

The legislation could be prescriptive, setting out the detailed structure of the funding arrangements. Alternatively, it could merely set out the broad framework, leaving significant discretion to the governing body in operationalising the policy.

One way to seek stability in the arrangements is to enforce it through entrenchment of the legislation. The possibility has been raised of holding a binding referendum on key features of the scheme. The design of the scheme will need to take into account how difficult it will be to evolve the scheme as conditions change over time.

3. IMPLICATIONS AND BROAD PARAMETERS OF PRE-FUNDING

Executive Summary

This chapter examines some of the underlying economic implications of pre-funding New Zealand Superannuation and its implications for Crown financial management. The chapter is set out in three sections, narrowing down from general economic and social implications, through Crown financial management, to parameters for specific policy development.

Economic and Social Implications

Economic Effects

The form of funding of New Zealand Superannuation could have various effects on the real economy and on the level of future output. These include effects on:

- **Public Saving:** In itself, pre-funding of New Zealand Superannuation, would not be expected to increase public saving. Public savings is increased by maintaining a positive operating balance. If the contributions to the fund would otherwise have been spent (reducing the operating balance) then public saving is increased. However, if they would otherwise have been applied to reducing debt, or to productive investment in another part of the Crown, public saving is unaffected.
- **Private Saving:** The literature on the effects of increased public savings on private saving is extensive but not particularly conclusive. Internationally, there is evidence that more generous Government pension schemes lead to lower levels of household saving. A 1997 OECD study surveyed the international literature on this issue. It finds that the balance of evidence suggests that there is a significant offset, but that the size of the offset depends on the particular demographic composition and economic institutions of individual countries. Accordingly, if prefunding succeeds in increasing the perception that New Zealand Superannuation will be provided, the increased public savings may be partially offset by decreased private savings.
- **Labour Force Participation:** A pre-funding system that created a greater sense of certainty that an individual would receive a specified entitlement may well influence decisions about labour force participation, potentially changing the productive capacity of the economy. Such an effect might not just occur at the eligibility age, but also earlier for younger people who have sufficient savings to tide them over until they are eligible. Alternatively, if pre-funding ensures New Zealand Superannuation can remain a universal flat-rate payment it may encourage greater labour market participation amongst the retired, as superannuitants will not lose their New Zealand Superannuation if they earn other income.

- **Investment and Future Output:** Even if pre-funding increases savings, it does not necessarily imply that the standards of living of the retired will be maintained into the future. Future living standards rely on goods and services being available for the retired to purchase, as well as having the funds to do so. With a smaller working age population, this will require greater output per worker or access to output from overseas. Therefore, investment is important as well as savings. Savings need to be invested in such a way that they increase domestic productivity and/or access to foreign production.
- **Current Account Balance:** The current account balance is the difference between national savings and investment. However, there is no automatic connection between the level of savings and the size of the current account balance because the level of investment can vary independently. As a result, a pre-funding system that increases national savings will not necessarily produce a reduction in the current account deficit.
- **Other Effects:** Various other effects of the choice of funding system on the economy have also been put forward. For example, it could alter choices about household formation, birth rates and investment in human capital.

Distribution and Equity

Any system for financing New Zealand Superannuation implies a distribution of the cost across people and across time. Changing the system changes the distribution of the cost. For example, under a pre-funding system, the cost of a given level of entitlement is borne by people earlier than under a pay-as-you-go system.^{1,2} Which distribution is "right" is a value judgement. On the one hand, a pre-funding system might be seen as fairer because, when there is a varying age profile over time, it better matches the burden of the cost with the benefits received by each generation. On the other hand, a pay-as-you-go system might be seen as simply a codification of a naturally fair historical norm in which able working-age adults were expected to care directly for their ageing parents.

A change from a pay-as-you-go system to an effective pre-funding system will also impose a transitional cost on the current generation, because they must both provide for the current retired and save for the retirement of their own generation. The extent to which this effect occurs in New Zealand will depend on the form of pre-funding that is implemented.

Stability

A major objective in establishing pre-funding of New Zealand Superannuation is to improve the stability of retirement income policy. Unless the fund is clearly immune to short-term expediency, the appropriate "commercial" investment strategy, if stability is to

¹ This is on the assumption that the build up of the fund is not fully offset by increases (or less-than-planned decreases) in net liabilities in other parts of the Crown's portfolio.

² There are some qualifications on what would be the impact of a change in system. For example, some argue that individuals would adjust their level of bequests between generations in order to offset the effect of the change.

be achieved, might involve a lower risk profile than for a fund that is not subject to the political limelight.

As discussed further in the section on "fiscal risk" below, greater stability of retirement income policy could result in some of the uncertainty being merely transferred to other government policies.

A pre-funding system will make the Crown's obligations to pay future New Zealand Superannuation more explicit. This may bring into sharper relief the various roles that New Zealand Superannuation plays. Unless this is clearly recognised, it could lead to continuing dispute and confusion. These roles currently include that it:

- replaces other income-tested benefits for the elderly as a safety-net mechanism, upon reaching the qualifying age (a social protection role);
- permits people with low lifetime incomes to retire from the labour force with dignity and relative comfort;
- tends to redistribute income from men to women;
- insures people against the risk of longevity; and
- provides a platform of basic pension onto which savers can add income without penalty.

At the same time, New Zealand Superannuation is not a system designed to smooth individual lifetime earnings by paying a pension related to individual contributions. Nor is it focused on the most vulnerable people, particularly those with a shorter life expectancy (for example, Maori men).

Crown Financial Management

A pre-funding system will have significant implications for the capital structure and financial performance of the Crown. It will be important to ensure that the design of the fund does not have unintended consequences for the Crown's overall financial management. Two particular areas of consequences relate to fiscal risk and financial risk.

Capital Structure

The portfolio composition of the fund will affect the overall capital structure of the Crown. Extensive work in the past on optimal capital structure for the Crown has concluded that, except at extremes where issues of liquidity or access to credit arise, there is no single "optimum" structure. Rather, the structure at any time is primarily a consequence of the Government's other policy decisions, and the residual fungible financial assets and financial liabilities should be structured at the least cost to the Crown in financing those decisions.

The build-up of a fund of financial assets invested outside the Crown will affect the Crown's overall capital structure. This is relevant to the design of the fund because the

Crown guarantees New Zealand Superannuation payments and hence fully bears the financial risk of the fund. In the case of the Government Superannuation Fund, the proposed move to independent governance of a diversified financial asset portfolio subject to limited central control is expected to lead to a more efficient overall Crown portfolio. However, the fund arising from pre-funding New Zealand Superannuation is likely to be much larger so a careful balance will need to be obtained between independent governance and efficient overall Crown financial management.

Financial Reporting

This section provides a quick analysis of financial reporting implications. There is a later chapter on "Reporting Contributions and Expenses" that goes into greater detail on the accounting treatment of the transactions relating to pre-funding New Zealand Superannuation.

Financial Assets

The financial asset portfolio would be reported on the Crown's balance sheet at market value. As the fund grows larger, returns from those assets would be expected to have a significant effect on both the level and the variability of the operating balance.

Liability

Unavoidability of an obligation is one of the main criteria for reporting a liability in the balance sheet. Currently, the liability reported for New Zealand Superannuation is just the amount due and payable at the year-end. Eventual recognition of a more comprehensive liability on the Crown's balance sheet depends on a judgement as to the unavoidability of the obligation (which may be influenced by whether or not a fund is in place), as well as on future developments in accounting standards.

As we know from similar (but much smaller) existing liabilities on the Crown's balance sheet (GSF and ACC), volatility in the value of such liabilities also can have a substantial effect on the operating balance.

Future expenditure on New Zealand Superannuation is expected to be higher than it is now. However including a liability for New Zealand Superannuation would result in higher expenses being charged against the operating balance in advance of the actual higher cashflows. This means that, in the early years, the reported operating balance would be lower than if no liability was to be included in the financial statements. However, over time, the same total amount would be expensed.

Fiscal Indicators

We expect that the reported operating balance will become more volatile with the build-up of the fund and the possible inclusion of a liability.³ Greater volatility would mask the underlying trends in the operating balance, potentially reducing its informativeness as a predictor of future prospects for the Crown. On the other hand, the greater volatility

³ This is not a foregone conclusion. The broader portfolio of assets and liabilities may well result in the net volatility of the operating balance being diversified away.

would reflect the real effects on the Crown's wealth of being exposed to financial markets and to unavoidable future obligations.

Measurement and reporting of the operating balance and other elements of the Crown financial statements are prescribed by generally accepted accounting practice (GAAP). Pre-funding also has implications for other fiscal indicators that are not prescribed by GAAP. In particular, it has implications for how the assets and liabilities arising from pre-funding should be treated in reporting net debt and gross debt.

These fundamental effects on key fiscal indicators raise questions about how the Crown's fiscal position and performance should be presented and assessed. This might best be reviewed in conjunction with the wider review of fiscal indicators that will be required in anticipation of the move to line-by-line consolidation in the Crown financial statements.

Fiscal Risk

As currently designed, New Zealand Superannuation absorbs some fiscal risks. Because pensions are proportional to wages, and wages make up the bulk of GDP, changes in GDP are reflected in proportional changes in pension payouts. However, creating greater certainty about future expenditure on New Zealand Superannuation, along with dedicating a portion of public savings to finance that expenditure, will reduce the flexibility of the Crown to react to economic shocks or evolving uncertainties (for example, health spending). This fiscal risk is shifted on to other spending and tax policies. The appropriate balance for sharing this risk among government policies is a matter of judgement. However, moving to a pre-funding system will involve a change from the current position.

Financial Risk

Regardless of the separation of the governance of the fund from the Crown, the Crown presumably would still guarantee payment of New Zealand Superannuation. This means that the Crown bears all of the financial risk arising from investment of the fund. In particular, if returns are less than expected, the government will need to set more aside than originally planned in order to meet a certain level of future obligations. If a riskier portfolio is adopted, the magnitude of required changes will be likely to be greater.

Broad Parameters for Policy Development

Approach to Pre-funding

Our understanding of the approach to take on pre-funding is to set a "constant" rate of provision on New Zealand Superannuation that would be sufficient to fund New Zealand Superannuation over the next sixty years. The excess of that rate over current expenditure levels in early years would be put into the fund. The fund, along with investment returns, would be used to partially finance New Zealand Superannuation costs in later years when the expenditure requirement is higher. In the early years of operation, there may be a transition to the full constant rate.

There are some qualifications in referring to the rates as "constant":

Change is the Only Constant

The rate is only constant in the sense that, if current expectations about future expenditure requirements and about investment returns were borne out, the same rate would apply each year into the future. However, as the future unfolds and as expectations change, the appropriate "constant" rate would need to be continually re-assessed. Hence, the rate is not set with any expectation that the rate actually applied out into the future would remain constant. In particular, a riskier investment strategy for the fund would be likely to require larger future adjustments to the rate.

Time Horizon

The level of the constant rate depends on the time horizon over which the expenditure is being smoothed (for example, 60 years). Different time horizons (20 years, 100 years, in perpetuity, etc.) would result in different constant rates because of the way the level of expenditure varies over time.

There are two ways in which the time horizon for the fund could be implemented. They imply different paths for the rates over time because the level of expenditure varies over time:

- A fixed horizon (for example, 2060), after which the fund would be planned to be terminated and, each time the rate is reassessed, it is just for the time remaining to that date; or
- A rolling horizon (for example, 60 years), so that each time the rate is reassessed, the horizon date is pushed out.

A rolling horizon approach is being adopted with a time horizon of forty years.

Denominator

The choice of denominator in the constant rate calculation will affect the level and rate of change of actual dollar contributions to the Fund. Recent discussions have focussed on %GDP. There are other alternatives, such as %Tax Revenue, %Operating Balance, a constant real rate or a constant nominal rate. The choice has implications for practical implementation, fiscal strategy, macroeconomic effects and distribution effects. It may also have implications for the method of indexation of entitlements.

%GDP is being adopted as the basis for the constant rate calculations.

Mandatory versus Discretionary-but-Transparent

The approach taken to imposing a pre-funding discipline on the Crown could be either mandatory or discretionary-but-transparent on the Government. Under a mandatory approach, the mechanism for calculating the amount to be contributed by the Crown to the fund would be prescribed in legislation, requiring the Crown to make contributions as specified. Under a discretionary-but-transparent approach, the legislation could include the mechanism for calculating and reporting the amount that "ought" to be contributed to

(or, if the fund is in its winding-down stage, disbursed from) the fund and the Government would need to explain any deviation, along with implications for future contribution rates (or disbursement rates). This latter approach is similar to the principles of the *Fiscal Responsibility Act 1994*.

This issue is analysed in more detail in the "Contribution Rate Review Process" chapter.

Scope of Governance

There is a choice in the scope of governance of the fund:

- **"Pure Investment Management" Model:** Limited to investment management of the net contributions to the fund, with disbursements from the fund only commencing when required to "top up" current expenditure to meet bulging costs; or
- **"Superannuation Scheme" Model:** Receiving the gross amount of funds being provided for New Zealand Superannuation each year, disbursing out of the fund the current year's expenditure (either to an agency such as the Department of Work and Income each payment period or possibly even taking over the whole function of delivery to final recipients) and investing the balance.

Under the pure investment management model, the governing body of the fund can focus most exclusively on long-term investment management of the fund without having concerns about immediate liquidity (until it comes time to run the fund down), nor about the operation of the payments process. In terms of immediate implementation, it does not require reinvention of existing payments systems, yet it need not preclude extending the governing body's responsibilities at a later date. A superannuation scheme model would require more careful design of the governance arrangements but it would more completely distance the government of the day from the Fund.

A "Superannuation Scheme" model is being adopted in that the Fund will receive the full provision being made for New Zealand Superannuation and provide for the current year's entitlements to be paid out. The flow of funds is discussed further in the "Governance" chapter.

4. DEMOGRAPHICS AND THE AGEING POPULATION

Executive Summary

This chapter discusses the impact of changes in the age structure of New Zealand's population. New Zealand is facing a major change in its demographic structure, which will have societal, fiscal and economic consequences over the next fifty years and beyond. New Zealand's population is ageing. A consequence of this is that a greater proportion of the population will be of retirement age in the future.

Demographic Changes in the Retired, Working Age and Youth Populations

The ageing population is largely the result of lower fertility rates and higher life expectancies. The proportion of the population that is aged 65 or over is forecast to increase from 12% of the population now to 27% by 2060/61. Within this, significant growth is expected come in the older age groups, those aged 75 and over. This group is projected to increase from 5% to 15% of the total New Zealand population by 2060/61.

The working age population is projected to begin shrinking in absolute numbers from 2019/20, falling from 66% of the population now to 58% in 2060/61. The youth population (those under the age of 15) is projected to begin shrinking in absolute numbers in 2001/02, falling from 22% of the population to 16% by 2060/61.

Dependency Ratios

Total dependency ratios (youth and retired as a proportion of working age) are expected to begin rising from 2011, once the baby boomers begin to retire. By 2041, the total dependency ratio is expected to be over 70%, levels last reached in the 1960s. However, unlike the 1960s, they are expected to remain at this level for at least 20 years and possibly permanently.

A different definition of youth could be used to reflect longer involvement in education and training, for example including all those under 25. This would make the dependency ratios more severe, with the total dependency ratio reaching 113% in 2060/61.

Increasing Fiscal Costs

The increase in the retired population will bring with it increases in the costs associated with New Zealand Superannuation. The net cost of New Zealand Superannuation is forecast to increase from 4.0% of GDP now to 9.0% of GDP in 2050/51. It is likely that health costs associated with the retired, and possibly other social security payments, will also increase.

The fiscal costs associated with the retired may be offset for some time by falling costs associated with the shrinking youth population. However, the reduction in the youth population eventually flows through to a smaller working age population, which makes

the impact of the growing retired population more severe. The fiscal costs may more effectively be offset by an increase in labour force participation, from either the working age population or the retired population. If greater participation led to aggregate earnings (and government revenue) being maintained or increased, the government's ability to meet the costs of an ageing population would be improved.

Introduction

It has been known for some time that the ageing of New Zealand's population will have implications for public retirement income provision. Past reviews of the New Zealand's retirement income framework have noted the significance of this trend, including the 1997 Periodic Report Group (PRG). Jeff Todd, in his foreword to the PRG's review of the current framework, noted that "the ageing of the population will begin to affect our economy within the next 20 years, and careful management of retirement income provision is needed"⁴.

This chapter provides information on New Zealand's ageing population. It starts out by setting out the factors that will lead to changes in New Zealand's demographic structure. It then discusses the trends for different age groups and the impacts these trends will have on dependency ratios as well as societal, fiscal and economic effects of the trends. It briefly compares New Zealand's ageing population to those of other countries and it touches on other demographic issues in New Zealand.

The Ageing Population

Three factors lead to changes in the demographic nature of a country:

- Fertility;
- Mortality (or longevity); and
- Migration.

Fertility

The baby boom was the result of fertility rates between 1946 and 1965 that were higher than the fertility rates that came before or after this period. In 1962, the birth rate was 4.19 per woman. This had fallen to 1.96 births per woman in 1996.

Fertility rates over the last 20 years have been below the rate of replacement for the population, which is 2.1 births per woman.

Mortality

People are living longer than in the past. A woman born in 1996 can be expected to live 79.6 years on average and a man 74.3 years. By comparison, a woman born 25 years

⁴ Retirement Income Policies – 1997 Periodic Report Group, "A Review of the Current Framework", 1997, foreword.

earlier, in 1961, can be expected to live 73.8 years (5.8 years less) and a man 68.4 years (5.9 years less). Life expectancy moved upward continuously over the twentieth century.

Migration

New Zealand's migration patterns have tended to be volatile, although overall net migration has been positive. Over the 50 years to 1998, net migration has averaged 6,000 per annum (this has been higher over the last 10 years at 9,000 per annum). In comparison, natural increase (births less deaths) has increased New Zealand's population by an average 33,000 per annum over the same period.

Demographic Drivers

The demographic series used in this paper were prepared by Statistics New Zealand⁵. The main projections are based on 1996 Census data and cover the period 1996 - 2100⁶. The scenario generally used is referred to as the "medium" scenario and it assumes the following trends for the future:

- medium fertility (fertility rates are projected to fall to 1.85 births per woman by 2010 and remain at that level);
- medium mortality (average life expectancy is projected to increase by 2050 to 85.5 years for women and 81.0 for men and remain at those levels); and
- net immigration of 5,000 per annum over the whole period.

Where high and low scenarios are used, these draw from the projections used in the Treasury's Long Term Fiscal Model (LTFM). These assume annual net migration of 10,000 and 0 respectively. Migration is the only factor that is varied in the LTFM, as it is the regarded as the principal factor that the Government can influence by making policy changes.

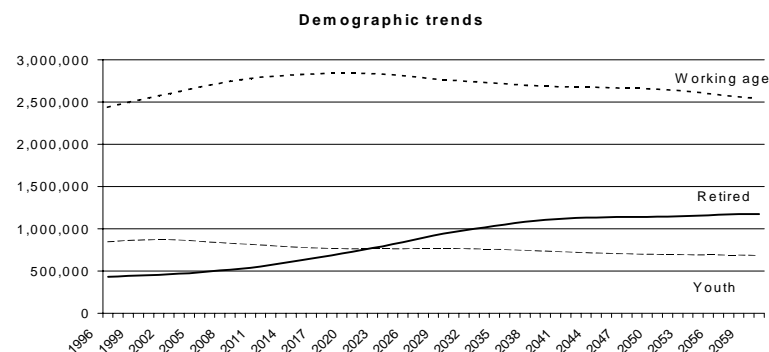
There may be more appropriate high and low scenarios for purposes broader than forecasting long term fiscal costs. Looking at scenarios that combined low assumptions of low fertility and high mortality and vice versa is likely to lead to more extreme high and low scenarios.

Demographic Groups

This chapter groups people into three categories:

- Those under 15 (youth population);

- Those aged 15 to 64 (working age population); and
- Those aged 65 and over.



Source: Statistics New Zealand

The graph above shows the trends for each of these groups based on the medium scenario.

Different trend lines could be constructed using different data. If different scenarios produced by Statistics New Zealand, or scenarios developed in different years, were used then the results would change. However, these should not change the broad shape of the trends we are facing with an ageing population.

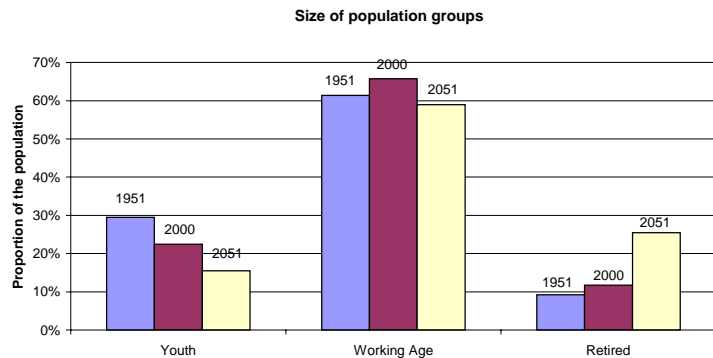
What would affect the trends is use of different classifications for the youth, working age and retired populations, for example, the youth population being defined as those under 25 years. The implications of using this definition (based on the medium scenario) are set out later in the chapter.

Demographic Trends

The proportion of New Zealand's population that each of the groups represent is changing over time, as the graph below sets out.

⁵ An exception to this is international data, which was sourced from the United Nations World Population Prospects 1998 Revision.

⁶ In some cases, data was available only to 2050 or 2051.



Source: Statistics New Zealand

Retired Population

The proportion of the population that is 65 or over is forecast to increase. Currently there are 450,000 people in this age group. This is projected to increase to over a million by 2032/33 and to 1.1 million by 2050/51. Those aged over 65 are expected to increase from 12% to 25% of the population by 2050/51. By 2060/61, this is expected to have increased to 27%.

Of this group, much of the growth comes in the older age categories. By 2050/51, it is projected that there will be 659,000 people over 75. This would represent 15% of the total New Zealand population - roughly the same number of people as those under 15. Currently there are 154,000 people over 75 (5% of the population).

Growth in those aged 85 and over is significant on its own. Currently, there are 47,000 people over 85. This is projected to have increased fivefold to 253,000 by 2050/51.

Working Age Population

By comparison, the working age population is projected to increase by only 93,000 between 1999/2000 and 2050/51. In fact, the working age population is expected to increase by 286,000 to reach 2,810,000 in 2019/20 and then begin shrinking in absolute numbers. This group falls from its current level of 66% of the population to 59% by 2050/51 and to 58% by 2060/61.

Youth Population

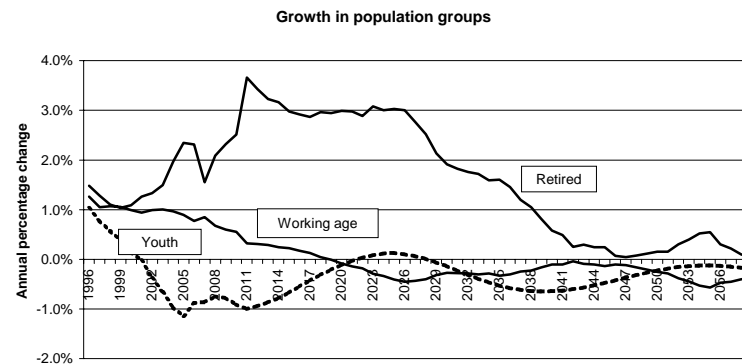
The proportion of the population that is under 15 is forecast to peak next year and then begin shrinking. Currently there are 862,000 people in this group, but this is projected to fall to 688,000 by 2050/51. This group falls from its current 22% of the population to 16% by 2050 and remains at that level until 2060/61.

These trends mean that New Zealand faces an ageing population, the impact of which begins to take effect from around 2011 – the time when the first baby boomers reach the

age of eligibility for New Zealand Superannuation. From that point on, the proportion of the population that is of retirement age is projected to increase continuously through to 2060. As neither the working age or youth populations are increasing at the same pace, and as both eventually decrease in absolute numbers, these groups both fall as proportions of the population.

Annual Change in Population Sizes

The graph below shows how the three groups are growing, or shrinking, over time. The youth population begins to shrink in two years time, and the working age from 2020/21. Beyond 2021, the retired population is the only population experiencing positive growth.



Source: Treasury, based on data from Statistics New Zealand

Impact of Demographic Changes

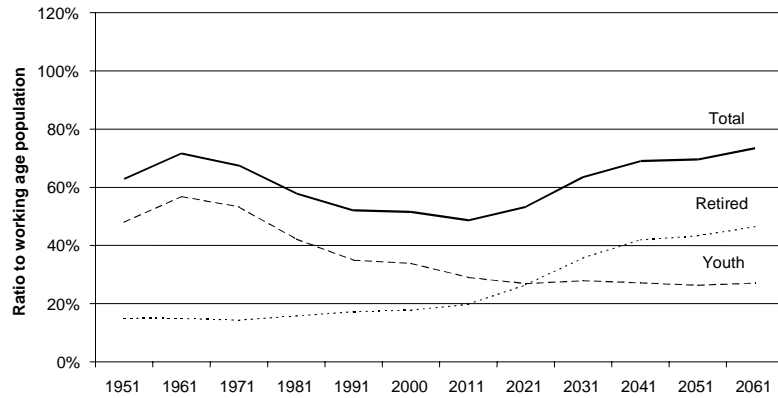
Dependency Ratios

A way of assessing the impact of the changing age structure is to look at dependency ratios. These ratios relate the dependent segments of the population (youth and retired) to the working age population.

Dependency ratios are somewhat crude measures, as they treat everyone in a population group in the same way. They do not take into account that people in the working age population may not be in employment or that people in the 'dependent' groups may be employed. However, dependency ratios are a useful broad-brush tool for examining trends.

The graph below shows the falling youth population would be offset by an increasing retired population. The total dependency ratio has been falling since the 1960s and is expected to continue falling slightly until 2011, when the baby boomers begin retiring. By 2041, they are expected to reach the levels reached in the 1960s (above 70%), but unlike the 1960s they are expected to remain at this level into the 2050s and 2060s.

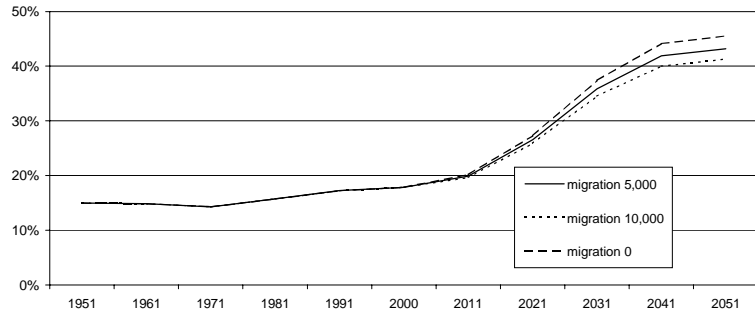
Dependency ratio projections



Source: Statistics New Zealand

Dependency ratios are affected by the migration assumptions that are used. However, as the following graph shows, the impact of migration is only marginal compared to the overall ageing phenomenon. The timing of the impact is also unlikely to change.

Retired dependency ratio scenarios



Source: Statistics New Zealand

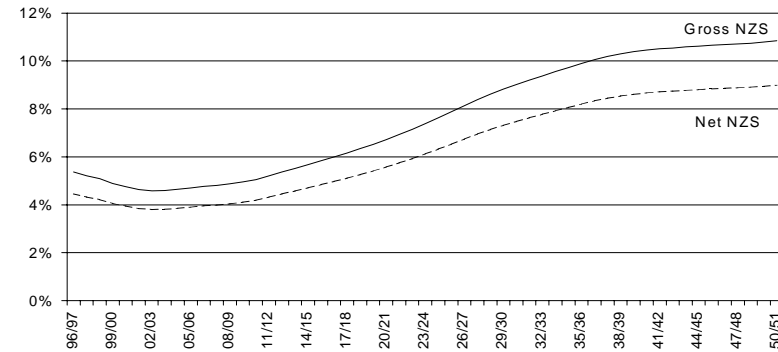
Changing the other factors that affect the demographics (fertility and mortality) may impact on the level of the dependency ratio, but are also unlikely to change the overall ageing phenomenon. This is demonstrated in the graph on international trends later in the chapter. The graph is based on data compiled by the United Nations, which uses different assumptions than Statistics New Zealand (of most importance, higher fertility assumptions).

Societal, Fiscal and Economic Impacts

The change in the character of the New Zealand population is likely to affect the social issues that are seen as most pressing. Ensuring that older people have the social services that they need will come to the fore of issues for policymakers as the population ages.

This will bring with it an increase in fiscal costs, as the size of the group eligible for New Zealand Superannuation increases. The cost of New Zealand Superannuation is forecast to increase from \$4.2 billion net (4.0% of GDP) in 1999/2000 to \$46.4 billion net (9.0% of GDP) in 2050/51.

NZS as a percent of GDP



Source: Treasury Long Term Fiscal Model

There are likely to be increases in health costs associated with the retired and possibly in other social services as well.

At the same time that New Zealand faces this increase in costs, the size of the work force is projected to fall. Without changes, it will become more difficult to meet the increasing costs, as the government's tax revenue is likely to fall alongside the size of the workforce. This may be offset in two ways:

- a falling youth population; and
- greater labour force participation.

A falling youth population

A falling youth population would lower the ratio of dependent groups to the working group. As the total dependency line in the graph on dependency ratios shows, the reduction in the size of the youth population partially offsets the increase in the retired population. However, while the trend line for the youth population flattens over time, the trend line for the retired population continues to increase. Therefore, the impact of the falling youth population lasts only until 2010 – 2020. Further, a falling youth population is also only a short term offset. When a lower youth population flows through to a lower

working age population, this makes the impact of the growing retired population more severe.

The fiscal costs associated with youth are unlikely to be the same as those associated with the retired. Without further evidence, it is not possible to say whether any savings associated with the falling youth population would outweigh the increase in costs associated with the retired population.

Greater labour force participation

An increase in labour force participation would increase the ratio of the working group to the dependent groups (this would not show up in dependency ratios because of assumptions used in constructing the ratios). Greater labour force participation could come from within the working age population or the retired population. In either case, if greater participation led to aggregate earnings (and government revenue) being maintained or increased, the government's ability to meet the costs of an ageing population would be improved.

Further, with a larger labour force, more output could be produced, ensuring the goods and services that the retired want to purchase were available.

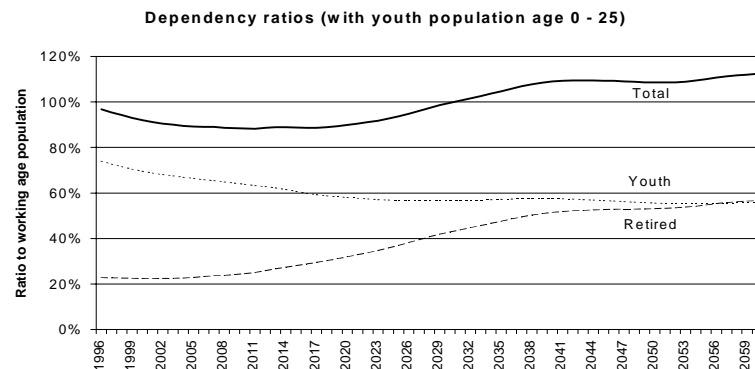
Alternative Views

One factor that would change the nature of the dependency ratios is use of alternative measures of youth and working age populations. For New Zealand it may be more appropriate to consider youth as those under 20 or 25, given that it is now common for people of such ages to be involved in attaining an education or training, and not being fully in the workforce⁷.

This definition of youth has a significant impact on the dependency ratios, increasing both the youth and total ratios. Under this scenario, and based on the medium scenario, the retired ratio does not reach the level of the youth ratio until 2055. However, the combined level of retired and youth dependency ratios drives the total ratio over 100% of the working age population from 2035. The total dependency ratio in 2061 is 113%, significantly higher than the total ratio of 73% under the earlier measure. These effects are set out in the following graph⁸.

⁷ Note that data for this definition of youth prior to 1996 was not available in writing this paper. However, the definition used here may not have been as appropriate in years prior to the 1980s, as people between the ages of 15 and 25 were more likely then to be in the workforce.

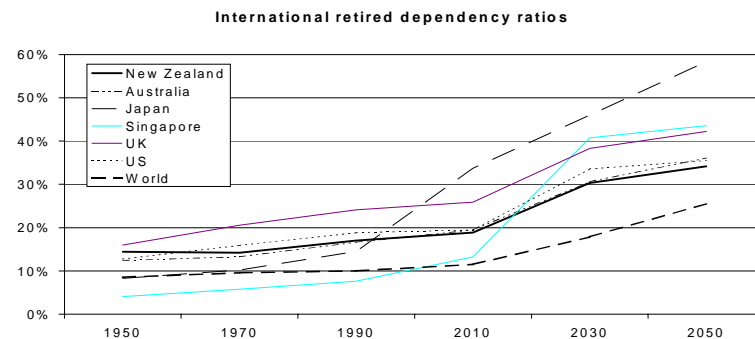
⁸ The data in the graph is similar to that used by the Alliance Party. However, it varies slightly in the years 2031 and beyond. The graph assumes total dependency ratios of 101% in 2031 and 109% in 2041 and 2051. The Alliance Party assumes dependency ratios of 102% in 2031 and 111% in 2041 and 2051.



Source: Treasury, based on data from Statistics New Zealand

International Demographic Trends

The increasing retired dependency ratio in New Zealand is a phenomenon that other countries are also facing. As the graph below shows, New Zealand is projected to be in a slightly better position than many other developed countries by 2050. Japan in particular faces a steep increase in its retired dependency ratio. The dependency ratio for the world as a whole is somewhat lower than that for developed countries, as most population growth (and the higher fertility rates) is occurring in less developed countries.



Source: World Population Prospects: the 1998 revision, Economic and Social Affairs, United Nations

Other Demographic Issues

As well as a changing age structure, New Zealand's population is also changing in its ethnic makeup. The sizes of the populations of Maori and Pacific Islands people are both projected to increase as a proportion of the New Zealand population. Statistics New Zealand's projections take into account the trends for different ethnic groups and other

groups in the population. There are two groups that it is particularly worth noting trends on – Maori and women.

To date, Maori have had shorter life expectancies than non-Maori while non-Maori women have the longest life expectancy. The 1995 – 1997 Life Tables show that the life expectancies for people born at that time are:

At birth	Maori	Non-Maori	Difference
Men	67.2 years	75.3 years	8.1 years
Women	71.6 years	80.6 years	9.0 years
Difference	4.4 years	5.3 years	

These probabilities change by the time people reach age 65. However, while the disparities in life expectancy drops by this stage, they are still marked. The 1995 – 1997 Life Table shows that the life expectancy of people aged 65 at that time are:

At age 65	Maori	Non-Maori	Difference
Men	12.2 years (age 77.2)	15.8 years (age 80.8)	3.6 years
Women	14.5 years (age 79.5)	19.3 years (age 84.3)	4.8 years
Difference	2.3 years	3.5 years	

5. ENTITLEMENTS PAYABLE FROM THE FUND

Executive Summary

This chapter sets out the entitlements that would be paid out of the Fund. Labour Party policy is that the fund will not be available to the government of the day to use for any other purpose than payment of New Zealand Superannuation. In order to ensure that the Fund is only used for what was intended, it is important to clearly specify the range of entitlements the fund will cover.

Entitlements would be paid from the Fund as follows:

	Gross Amount 1998/99 (\$m)	Pay from Fund?
New Zealand Superannuation (NZS) <ul style="list-style-type: none"> Married couple Single living alone Single sharing accommodation Non-qualified spouse 	5,064	Yes Yes Yes Yes
NZS payments under international agreements (a subset of the \$5,064m above) ⁹ <ul style="list-style-type: none"> Social Security Agreements Portability Arrangements 	137 paid out 120 received	Yes Yes
Veterans' Pension	83	No
Transitional Retirement Benefit	117	No
Supplementary Assistance	157 ¹⁰	No

Veterans' Pension, Transitional Retirement Benefit and supplementary assistance would continue to be financed on a pay-as-you-go basis.

Introduction

Labour Party policy is that the Fund will not be available to the government of the day to use for any other purpose than payment of New Zealand Superannuation. In order to ensure that the Fund is only used for what was intended, it is important to clearly specify the range of entitlements the Fund will cover.

Payments to the retired and those close to retirement

Part 1 of the Social Welfare (Transitional Provisions) Act 1990 specifies the payments to be made to the retired, or those close to retirement. These include:

⁹ For the year ended October 1999, New Zealand paid \$137 million under international agreements and received \$120 million from other countries.

¹⁰ This does not include recoverable assistance of \$2,507 million.

- New Zealand Superannuation;
- Veterans' Pension; and
- Transitional Retirement Benefit.

Part 1 of this Act also specifies the arrangements for payments overseas of New Zealand Superannuation and Veterans' Pension.

The Social Security Act 1964 specifies the supplementary provisions that are available to the retired and those close to retirement.

Entitlements Payable from the Fund: New Zealand Superannuation

There are several rates of NZS:

- the married couple rate of NZS;
- the single living alone rate of NZS;
- the single sharing accommodation rate of NZS; and
- the non-qualified spouse married couple rate of NZS.

The married couple, single sharing and single living alone rates are universal entitlements. However, the non-qualified spouse rate has an element of income testing. The non-qualified spouse rate of NZS applies to married couples where one spouse does not meet the NZS qualification criteria. Couples in this situation have a choice about the payment they receive. They can either:

- choose to receive the Non-Qualified Spouse married couple rate of NZS. This rate of payment is lower than that of a married couple receiving NZS but higher than that of a married couple receiving the Community Wage. This payment is income tested and subject to abatement for gross income over \$4160 per annum.
- choose for the retired spouse to receive half the married couple NZS rate and not be income tested.

There are also various proportional rates of NZS that are paid under social security agreements and portability arrangements.

Arrangements with Other Countries

Establishing a fund to pay for NZS implies, to some extent, that the nature of NZS is moving more towards a system of entitlements based on having spent time in New Zealand. While this has been an element of NZS in the past, NZS has also been a social protection system that ensures individuals without other income have an adequate income in retirement. Moving further towards an entitlements based system brings us closer to the systems operated in many other countries. Our system has generally been significantly different from countries with which we have, or could have, agreements.

Social Security Agreements

New Zealand has social security agreements with a number of countries¹¹. These agreements allow retired former New Zealand residents living in other countries to receive a portion of NZS. The amount paid under social security agreements is related to the extent to which people have contributed to the New Zealand economy. The proxy used for this contribution is the number of working life years they spent in New Zealand.

People born in countries covered by social security agreements who retire in New Zealand can bring public pensions from those countries. Where these people are eligible for NZS, a payment from the Fund should top up their entitlement to the level of NZS. The same treatment should apply to New Zealanders that work in other countries, retire in New Zealand and bring in such public pensions.

Definitions of what constitutes a public pension in other countries are changing and the treatment of such pensions by the New Zealand government is currently under review. Social security agreements may therefore be amended in future. Further, new social security agreements may be negotiated with other countries. The Fund should therefore be flexible enough to deal with any changes in the amounts payable under social security agreements.

The agreement New Zealand has with Australia is different from other social security agreements. Former New Zealand residents in Australia receive the Age Pension and the New Zealand government reimburses the Australian government for a portion of their costs. The same arrangement holds for Australians in New Zealand. Reimbursement to Australia for Age Pensions paid to New Zealanders should be paid from the Fund. Reimbursements from Australia for NZS payments to Australians resident in New Zealand should be paid into the Fund.

Portability Arrangements

New Zealand has portability arrangements for retired people who move to countries not covered by social security agreements. Under these arrangements, superannuitants receive all or a portion of NZS while living overseas. The amount they receive depends on whether the country they are living in is covered by the Pacific Island Portability Arrangement or the General Portability Arrangement, and on the number of working age years they spent in New Zealand. People who receive NZS payments under portability arrangements are required to meet the NZS qualification criteria and must have been resident in New Zealand when they applied for NZS.

¹¹ These include Australia, Canada, Denmark, Greece, Ireland, Jersey and Guernsey, the Netherlands, and the United Kingdom. New Zealand has an agreement with Italy, but this is not yet operational.

Entitlements not Payable from the Fund

Veterans' Pension and Other Payments to Veterans

People in receipt of Veterans' Pension receive the same amount of weekly payment as people in receipt of NZS. However, Veterans' Pension is subject to some different eligibility criteria and lump sum payments. People who qualify for Veterans' Pension and NZS currently have a choice about which payment they receive. They can choose to give up their right to NZS in exchange for the greater advantages associated with the Veterans' Pension.

Veterans' Pension and the other payments available to veterans¹² are a means of recognising the special status of veterans with significant disabilities. All payments associated with veterans would remain the responsibility of the Office of Veterans Affairs to reflect the special nature of these benefits and would continue to be paid by the Department of Work and Income.

Transitional Retirement Benefit

The Transitional Retirement Benefit is an income-tested benefit paid to people who were approaching the age of 60 when the age of eligibility for NZS was increased. The people that receive this payment do not meet the eligibility criteria for NZS. This benefit will be phased out when the last of this group of people reach retirement age in 2004.

Supplementary Assistance

Supplementary assistance is part of the income support system and aimed at achieving social goals, such as alleviating poverty, rather than providing a base income to those in retirement. Many forms of supplementary assistance are available to New Zealanders of all ages, not specifically at retired people. The supplementary assistance that retired people may receive includes Disability Allowance, Accommodation Supplement, Special Needs Grants, Special Benefit, and Tenure Protection Allowance (including Special Transfer Allowance). They may receive recoverable assistance, in the form of advances, for certain purposes. They may also receive assistance through the health system and assistance delivered in kind rather than income, such as the Community Services Card.

Treatment of Payments Not Made From the Fund

Deciding not to pay supplementary assistance, Veterans' Pension or the Transitional Retirement Benefit from the Fund will limit the size of the Fund. However, these payments may still indirectly affect the Fund. Changes to the policy parameters for these payments may lead to changes to the parameters for NZS, and vice versa. For example, if Veterans' Pension became less generous relative to NZS, people receiving Veterans' Pension may switch to receiving NZS.

¹² Veterans can be eligible for War Disability Pensions, other war grants and allowances for their children. They are automatically eligible for a Community Services Card, do not have their payments reduced if they need hospital care and, on death, their spouse or any dependent children receive a lump sum payment. A lump sum payment is also be made on the death of a veteran's spouse.

Summary

In summary, the following payments would be made from the Fund:

- the married couple rate of NZS;
- the single living alone rate of NZS;
- the single sharing accommodation rate of NZS;
- the non-qualified spouse married couple rate of NZS;
- retirement income related payments made under social security agreements¹³; and
- NZS payments to people covered by portability arrangements.

The following benefits would not be made from the NZS Fund and would continue to be financed on a pay-as-you-go basis:

- Veterans' Pension and other payments to veterans;
- Transitional Retirement Benefit; and
- supplementary assistance.

¹³ Reimbursement from Australia for retired Australians living in New Zealand should be paid into the Fund.

6. INVESTMENT OBJECTIVES

Executive Summary

This chapter examines the scope of the fund's investment objectives. We recommend that the investment objectives should be to manage the fund on a prudent commercial basis independently of the Government. There could be limited provision for the Government to make directions, supplementing the legislated objectives, to take advantage of financial synergies for the Crown as a whole. We recommend that the scope of directions by the Government should be required to be only in the interests of effective financial management of the Crown as a whole, taking into account the overall objectives of the fund. Any direction should be subject to prior consultation, should explain the reason for it, and should be subject to disallowance by the House.

Introduction

This chapter examines the objectives for the investment of the fund for New Zealand Superannuation. We envisage the overall investment objectives of the fund being established in a way that meets the wider goals in establishing the fund.

The focus of this chapter is the investment *objectives*. That is, the broad parameters surrounding the approach to investment that would be prescribed in legislation, possibly supplemented by ministerial directions. The actual investment *strategy* adopted by the governing body for the fund would be required to be consistent with the investment *objectives* and would depend on the nature of the governance arrangements surrounding the fund. The investment *objectives* would be expected to be enduring. The investment *strategy* would be expected to change over time as the fund matures and as economic conditions evolve. The Government's only control over the investment *strategy* would be through the legislated investment *objectives* and any supplementary directions.

Investment Objectives for the Fund

There are several broad themes to the stated Labour policy underlying the pre-funding of New Zealand Superannuation that shape the investment objectives for the fund. Those broad themes are:

- The fund is not to be available for any other purpose than payment of New Zealand Superannuation;
- The fund is to be managed on a sound commercial basis;
- The establishment of the fund will bring stability to retirement income policy; and
- The fund will be financed at a rate sufficient to fund New Zealand Superannuation over sixty years.

In this section, we draw out the implications of each of these themes for the investment objectives for the fund.

Not for Any Other Purpose

A key element of the policy for the fund is that: "The fund will not be available to the Government of the day to use for any other purpose than payment of New Zealand Superannuation." This requirement places a clear boundary on the scope of investment objectives for the fund. It implies that the investment strategy must be value-maximising for the fund and that this is the primary investment objective. It implicitly excludes the following other potential influences on investment strategy:

- broader social outcomes than payment of New Zealand Superannuation.
- performance of the domestic economy; and
- financial and fiscal management of the Crown as a whole.

Each of these is discussed in turn.

Broader Social Outcomes

There is a range of broader social outcomes the investment objectives could be applied toward achieving. There possibly are three broad categories of investment objectives that could be used to achieve social outcomes:

- Limitations on investment in socially undesirable firms and industries. Possible areas include tobacco, genetic modification, native forest logging, polluters, unsustainable fishing, disfavoured nations, weapons, gambling, and alcohol.
- Requirements to invest commercially in particular areas. Possible areas include regional development, reducing foreign ownership of local firms, hospitals, high technology, and venture capital.
- Requirements to invest "socially" in particular areas. That is, to invest/spend money in areas where there is not a full commercial return to the fund, but some social outcome is achieved. This includes grants, sponsorships, fellowships, soft loans, etc. Topical areas include sport, culture, education, research, ethnic policy, subsidised housing, aid to distressed firms and public infrastructure.

All of these areas of broader social outcomes are clearly excluded by the sole purpose of the fund being to finance New Zealand Superannuation. Of course, it may well be that there are good commercial reasons for the fund, for example, to provide venture capital, or to avoid firms with tobacco interests. However, such decisions would be made in the interests of financing future New Zealand Superannuation, not by compromising the performance of the fund.

Performance of the Domestic Economy

A large government-controlled portfolio of financial assets potentially could be used to contribute to active management of the domestic economy. The investment objectives could possibly be designed to enable a host of economic variables to be affected, including exchange rates, interest rates, levels of investment in the domestic economy generally or in specific sectors, domestic market depth and liquidity.

As for the social outcomes discussed above, achieving outcomes for the domestic economy would be likely to compromise the primary objective of financing New Zealand Superannuation. Further, other more transparent instruments are available to pursue these outcomes.

Financial and Fiscal Management of the Crown as a Whole

The third area of potential influence on the investment strategy is implications for the financial and fiscal management of the Crown as a whole. This area is not as easily excluded as the other areas. Even though the fund can be devoted to payment of New Zealand Superannuation, the Crown (and, through the Crown, taxpayers and beneficiaries) bears the ultimate risk by financing the fund and guaranteeing its payment. As a result, the performance of the fund will affect the financial performance of the Crown as a whole.

The fund will comprise a large proportion of the Crown's financial assets and so there most likely would be significant financial synergies to the benefit of the Crown as a whole if the investment objectives for the fund took into account those Crown-wide interests.

Examples of possible financial synergies across the Crown include:

- **Credit risk management:** coordinating investments across the Crown to avoid excessive overall exposure to default on a particular type of investment.
- **Crown portfolio composition:** directing the composition of the fund's assets to construct a desired overall Crown portfolio. For example, the Crown is already highly exposed to the domestic economy so there are likely to be diversification benefits for the Crown as a whole from weighting the fund's portfolio more heavily in international assets. The fund is likely to be large relative to other financial stocks and flows of the Crown so its portfolio effect would be significant.
- **Natural hedges:** identifying financial risks faced in different parts of the Crown that offset one another and so avoid undertaking extra transactions to manage those risks separately. For example, the exchange rate risk related to foreign-denominated financial assets held in one part of the Crown may be offset by financial liabilities in those currencies in another part of the Crown. The saving is from avoiding the costs of separately hedging each item.
- **Risk pooling:** self-insuring classes of uncorrelated risks across the Crown, rather than each sub-entity of the Crown separately insuring its own risks. This may not be a particular issue in the case of the fund if it is large enough to undertake risk pooling on its own account.

- **Cash management:** pooling overnight surplus cash balances across the Crown to offset against debt.

While it seems sensible to take advantage of financial synergies across the Crown arising from the existence of the fund, there is a fine line between:

- "integrated financial management in the interests of the Crown as a whole;" and
- "raiding the returns on the fund to address short-term priorities other than New Zealand Superannuation."

Given this fine line, and that the long-term financial interests of the Crown are best served by avoiding raiding, the Government should have only limited ability to make directions related to the interest of the Crown as a whole and, even then, this would need to be transparent and carefully prescribed so that it cannot be an effective means of raiding.

Sound Commercial Basis

The Labour Party policy states that: "The fund will be managed on a sound commercial basis to ensure that there are strong long-term returns."

This policy speaks mainly to the governance of the fund, and it does have some implications for the investment strategy. In particular, there is considerable debate internationally about what is the appropriate investment strategy for this type of government-guaranteed fund, and that the appropriate "commercial" strategy will depend on the investment objectives. For example, the commercial investment strategy for an investment fund that is required to limit its exposure to the domestic economy may be different from that for a fund with some other constraint or one without specific constraints. Similarly, the commercial investment strategy for a fund that was required to avoid any significant losses in its early years may be different from that for a fund with an unambiguously long-term focus.

However, although the investment *strategy* followed would be expected to be on a commercial basis, the investment *objectives* sit above how the fund would be managed. As a result, any realistic set of investment objectives could be managed on a commercial basis, provided the governing body is given sufficient powers.

Stability

Establishment of the fund is intended to bring stability to retirement income policy. The investment strategy adopted could affect whether this stability is achieved by affecting the likelihood of policy reversal. This makes stability a potentially relevant investment objective.

There is no "free lunch" in the higher expected returns from investing in risky capital markets. The higher returns reflect the market price of risk. In adopting a relatively risky

portfolio, the chances are greater of the fund performing very poorly, especially over the short time horizons over which government performance is invariably judged. This has the potential to compromise the stability of retirement income policy if it raises doubts about the effectiveness and the longevity of the fund. In particular, if there is poor financial performance over the first few years of the fund, political resolve to stay independent of the fund may evaporate, along with public confidence and support.

A requirement for stability could be reflected in the investment objectives either by a requirement to weight the fund more heavily toward low-risk securities, or by a more general requirement to manage the fund as a whole conservatively.

Low-risk securities: A requirement to invest in low-risk securities could be interpreted as a form of raiding if the result was that the fund was invested in New Zealand Government securities. It may also preclude the governing body from developing an efficient portfolio for the fund (that is, a portfolio composition that maximises overall portfolio return for a given level of portfolio risk). Hence, this approach is likely to be too prescriptive.

Conservative management: A more general prescription on the management of the fund as a whole would allow the fund to be managed more efficiently than would a prescription about the individual types of security. However, an explicit requirement to manage the fund too far on the conservative side would result in lower expected returns and hence in a higher required rate of contribution than would a more neutral commercial management objective. A high level of ongoing required contribution rate could threaten the stability of the policy just as much as a generally-lower-but-more-variable rate.

One way to achieve this balance between the level and volatility of both fund returns and contribution rates (short of leaving wide discretion with the government of the day) would be to require that the fund be managed on a "prudent" basis. This term is clearly subjective but it does give the flavour of the balance of stability that is being sought. If experience indicates that the governing body of the fund is interpreting this inconsistently with the interests of the Crown as a whole, a supplementary direction (as discussed below) could be considered.

Finance New Zealand Superannuation over Sixty Years

Finance New Zealand Superannuation ...

The purpose of the fund is to help finance New Zealand Superannuation into the future. Hence, a necessary investment objective is that the fund be managed so as to most efficiently meet the future costs of New Zealand Superannuation. In particular, the expected level and variability of the future expenditure on New Zealand Superannuation should be required to be taken into account in managing the fund.

... Over Sixty Years

The reference to sixty years in the Labour policy is not taken to mean that the investment objectives should be designed around a fixed expiry date for the fund of 2060. At this stage, it is anticipated that the fund would continue indefinitely beyond 2060 but that funding decisions would reflect a rolling time horizon of up to sixty years.

Summary of Investment Objectives

The broad themes of the policy underlying the pre-funding of New Zealand Superannuation provide a clear structure for the investment objectives of the fund. The requirement to apply the fund solely to the payment of New Zealand Superannuation, combined with the requirement for obtaining stability, suggests that the investment objectives should be couched in terms of managing the fund on a prudent commercial basis independently of the Government. There may need to be limited provision for the Government to make supplementary directions to take advantage of financial synergies for the Crown as a whole.

Supplementary Directions by the Government

We envisage that the investment objectives would be prescribed in legislation, supplemented with a limited capacity for the government to make directions.

A general requirement to manage the fund on a prudent basis to meet the long-term requirements to pay New Zealand Superannuation would be relatively straightforward to include in legislation, along with giving the governing body sufficiently broad powers so that it can operate independently. A limited provision to make supplementary directions is more difficult to implement effectively.

The main elements of a rigorous process for supplementary directions are: clear scope, consultation, transparency, and review.

- Scope: The legislation could limit the scope of supplementary directions to be in the interests of effective financial management of the Crown as a whole. It would also be important to make clear that any direction should take into account the overall objectives of the fund.
- Consultation: The governing body of the fund should at least be consulted. There may also be a role here for the proposed "Guardians" of the fund.
- Transparency: The direction would be public (published in the *Gazette*; laid before the House).
- Review: The direction could be made subject to disallowance by the House (like a regulation). A requirement on the Government to explain its reasons for the direction would facilitate its review.

Consistency with Other Policy

Like the fund for New Zealand Superannuation, the Crown guarantees payments from the Government Superannuation Fund and the Earthquake Commission's Natural Disaster Fund. While these funds are much smaller than the likely size of the fund for New Zealand Superannuation, they nonetheless represent a significant proportion of the Crown's financial assets.

Government Superannuation Fund

The proposals in this paper are similar to those currently being contemplated for the investment policy of the Government Superannuation Fund (GSF). The main difference is that, under the GSF proposals, the government of the day would be required to have much stronger influence over the investment strategy of the GSF through having to communicate its "tolerance for financial risk" to the GSF Board on a regular basis. The most likely way this would be played out is by the Board putting up a range of alternative investment strategies for the government of the day to choose amongst. The approach for the GSF places the interest of the Crown as a whole first through the government of the day specifying its tolerance for financial risk and then the GSF Board implementing the appropriate investment strategy.

For the fund for New Zealand Superannuation, a more distant relationship is envisaged. The prudent commercial management objective set in legislation would be the primary guide to the Board in setting its investment strategy, with the government of the day only having a limited capacity to make supplementary directions. This is a conscious shift of the discretion in investment strategy from the Government to the Board.

Earthquake Commission

Another example that is similar is in section 12 of the *Earthquake Commission Act 1993*. It provides for the Minister to make directions that take into account both the objects and policy of the Act and the implications for the Crown's overall current and future financial position. It also provides a transparent process for directions.

The proposed fund for New Zealand Superannuation is different in several respects from the Earthquake Commission's Natural Disaster Fund. First, the Earthquake Commission has a range of functions in addition to its role in relation to the Natural Disaster Fund. Hence, in directing the scope of the Earthquake Commission's role in investment management, the Government needs to take into account the relative importance of its other functions. The governing body for New Zealand Superannuation will be concerned solely with management of the fund.

Second, the cash flows related to natural disasters are not correlated with financial markets in any meaningful way so the Natural Disaster Fund cannot be used realistically to "hedge" risks of natural disasters. The timing and magnitude of future cash flows for New Zealand Superannuation are more predictable and they are related to financial markets in ways that allow the investment strategy to be chosen to reduce the overall cost of New Zealand Superannuation.

Third, the proposed function of the board for New Zealand Superannuation to manage the fund prudently and commercially is more prescriptive than the Earthquake Commission's functions, and the proposed process for supplementary directions is more rigorous.

Conclusion

We recommend the following requirements for legislation of the investment objectives for the fund for New Zealand Superannuation:

- The governing body should be required to manage the fund on a prudent commercial basis independently of the Government, subject to any valid supplementary directions by the Government.
- The governing body should have sufficient powers to enable it to carry out its functions on a fully commercial basis.

If leaving some capacity for the government of the day to make directions to supplement the legislated investment objectives is considered desirable, then:

- The relevant minister (most likely the Minister of Finance) should have power to make written directions to supplement the legislated investment objectives that the governing body is required to comply with.
- In making any direction, the minister should be required to take into account only the implications for the overall (current and future) financial position of the Crown and the purpose and financial position of the fund.
- Consultation should be required with the governing body of the fund (and possibly more widely) before the direction is made.
- The direction should include a statement of the reasons for it and it should be subject to disallowance by the House before it comes into force.

7. CONTRIBUTION RATE REVIEW PROCESS

Executive Summary

This chapter proposes the process for ongoing review of the rate of contribution to the fund for New Zealand Superannuation. The required rate of contribution would be assessed annually by Treasury during the Budget process, following the principles for calculation set out in legislation. The Government Actuary would be required to prepare an independent report on the reasonableness of that assessment. In the Budget, the amount to be provided to the fund in the coming year is appropriated and, if that amount is different from the amount certified by the Government Actuary, an explanation of its implications for future rates of provision is required.

Each fortnight, the Crown would pay to the Fund one twenty-sixth of the annual appropriation. The Department of Work and Income would continue to manage the payment of New Zealand Superannuation entitlements. The Fund would maintain a bank account from which the Department would be authorised to direct payments to superannuitants.

Proposed Review Process

The policy that the fund will be financed so that, at a constant level, it will be sufficient to fund New Zealand Superannuation over a sixty-year time frame provides the fundamental approach to calculating the rate of funding. The annual cost of New Zealand Superannuation is expected to vary over time according to changes in demography. The notion of setting a constant rate is so that, if current expectations about those future expenditure requirements and about investment returns were borne out, the same rate would apply each year into the future.

Of course, as the future unfolds, as expectations change and as the time horizon within which the rate is set encompasses rolls along, the appropriate "constant" rate would need to be continually re-assessed. Hence, the rate is not set with any expectation that the rate actually applied out into the future would remain constant. This section sets out a proposed review process for the contribution rate.

We propose an annual process with the following features:

- **Treasury** would maintain a capability to forecast and determine required contribution rates to the Fund, following the principles for calculation set out in the legislation. This would provide the data required for the various documents produced during the Budget Cycle, in particular the Budget Policy Statement, the Fiscal Strategy Report, and the Economic and Fiscal Updates.
- The **Budget Policy Statement** would not be required to make specific reference to the pre-funding of New Zealand Superannuation. It would be reasonable, however,

to expect that the Government's statement of its long-term objectives for fiscal policy would be strongly influenced by the existence of the Fund. For example, it is planned that the Fund balance would be excluded when calculating net debt. Particularly in the early years, the commentary and annexes would probably emphasise the performance of, and prospects for, the Fund and its implications for fiscal policy.

- The **Budget Economic and Fiscal Update** prepared by Treasury would be required to include a statement of the required level of contribution to the Fund, based on a forty-year rolling horizon, for the coming year, along with the significant assumptions that underlie that assessment. If the Government decided to contribute at a level different from that required level (as, for example, it will be doing during the first three years of transition to the full rate), the fiscal forecasts would, of course, reflect the Government's decisions.
- A required annex to the Budget Economic and Fiscal Update would be a report by the **Government Actuary** confirming whether, in his or her professional opinion, Treasury's assessment of the required level of contribution for the coming year is reasonable. It is expected that the Government Actuary would be consulted throughout the Budget process and would be provided with timely information to be able to form his or her professional opinion, but it would not be necessary to legislate for this. Such legislation could unduly constrain the whole Budget process. If the Government Actuary was not satisfied that he or she had been provided with all information needed in a timely manner to form the opinion, he or she would be free to comment on that in the report or, in the extreme, to provide only a qualified opinion.
- The **Budget** would include an appropriation of the amount that is to be paid to the Fund for the year. This would be an annual appropriation because the Government will be deciding its level. It would be a capital contribution. Consistent with your earlier decision, for the first twenty years of operation of the Fund, there would be a requirement that the amount paid to the Fund in a year may not be less than that year's payments from the Fund for New Zealand Superannuation entitlements.
- If the level of contribution that the Government intends to make to the Fund for the coming year differed from Treasury's assessment of the required level (contained in the Budget Economic and Fiscal Update), the **Fiscal Strategy Report** would be required to include an explanation for the departure, an assessment of its implications for future required contribution levels, and (if less than the required level) the action that the Government plans to take to return to the path of required rates of contribution expected for the future as a result of this departure.
- During the year, the Crown pays to the fund the amount appropriated. In turn, the fund provides to the Department of Work and Income the amount required (net-of-tax) to pay New Zealand Superannuation each payment period, as discussed in the next section.

Flow of Funds

Assuming that the Department of Work and Income continues to have ongoing responsibility for managing the payment of entitlements, we propose the following process for the flow of funds from the Crown, through the Fund, to superannuitants.

Each fortnight:

- the Crown pays to the Fund one twenty-sixth of the annual appropriation;
- the Department of Work and Income forecasts the cash required to pay entitlements (net of PAYE tax);
- the Fund maintains a bank account with cash at call sufficient to meet immediate payment obligations;
- the Department of Work and Income is authorised to make payments to superannuitants directly from that Fund bank account;
- the Department of Work and Income manages reconciliations for refunds of overpayments and provides details of PAYE tax to the Inland Revenue Department; and
- accounting entries are used to gross up the entitlement expense and record tax revenue, so that no actual cash is transferred for PAYE tax.

There would not be a routine process at the end of the year to adjust for any difference between actual entitlement payments and the assumptions about entitlement payments that underlay the original level of contributions to the Fund that was set for that year.¹⁴

Obligations on the Crown to overseas governments for entitlements covered by the Fund would be made from the fund, and any receipts from overseas governments would be paid into the Fund. The chapter on entitlements covers the scope of these payments in more detail.

In addition to the contribution and entitlement payment flows, the board of the Fund would have the power to implement a system of financial flows as part of the funds management processes that it establishes. This is separate from the Budget process. It would be addressed in the context of the establishment of the board and its underlying structure.

As discussed in the chapter on governance, expenses related to the Fund and the board would be treated separately. The type of expenses that fall into each category will need to be considered in the context of preparing legislative drafting instructions. Operating expenses, including expenses associated with any staff appointed by the board, would be appropriated for the board. Controls over the discretionary spending of the board, if

¹⁴ Consistent with the discussion in the chapter on modelling the contribution rate about not allowing the Fund to subsidise New Zealand Superannuation in the early decades, during the first twenty years (particularly toward the end of that period), a supplementary appropriation may be required to ensure that the total contribution to the Fund is not less than the entitlement payments for that year.

necessary, could be included in the governing legislation. Commissions paid to fund managers relate more specifically to the activities of the Fund than the board. They would be paid from the Fund, which may require a permanent legislative authority.

Calculation Methodology

Policy

Our understanding is that the rate of contribution to the fund should be set so that, at that constant level, it would be sufficient to finance New Zealand Superannuation over sixty years, along with:

- a “rolling horizon” approach, in which each time the rate is reviewed the horizon date is pushed out so that the rate is always set at the constant rate that would be required for the succeeding forty years;
- the “constant level” being interpreted as a constant proportion of forecast GDP; and
- the fund receiving the total amount being provided for New Zealand Superannuation each year, then disbursing for payment by the Department of Work and Income the actual amounts needed to pay the (net-of-tax) current year expenditure on New Zealand Superannuation entitlements.

Specification

The technical specification of the calculation of the contribution rate is set out in the chapter on “Technical Specification for the Calculation of the Rolling-Horizon Constant Contribution Rate”.

The output of the rate review process would be a recommendation of the amount in dollars (the “provision”) that should be provided for New Zealand Superannuation for the coming financial year. This is the amount the Government Actuary would be opining on.

The provision would be defined in the legislation along the lines of:

- The **provision** for the coming financial year is the **constant rate** multiplied by the level of GDP forecast for the coming year.
- The **constant rate** is the rate at which, if that proportion of each year’s GDP was contributed to the fund each year for the next sixty years (or whatever rolling time horizon is decided upon), the fund (including compounded investment returns) would be just sufficient to meet expected payments (net of PAYE tax) for **entitlements** over those sixty years.
- The **entitlements** are those specifically defined in legislation as New Zealand Superannuation (see the chapter on entitlements). Forecasts of expected future payments for entitlements are to assume that the legislation for entitlements in place at the time of the review is unchanged in the future. All other assumptions are to be based on best estimates of expected future conditions.

This proposed approach has no explicit settling up for differences between the assumptions which underlie the certified rate for a year and the actual outturns (rates of return, GDP, actual entitlement payments, etc.) over that year. This is not necessary because the rate is reviewed annually and would take into account both actual experience over the past year and any changes in expectations about the future.

Drawing Down the Fund

In the early years, the excess of the rate of contribution over that year's expenditure on New Zealand Superannuation would be retained in the fund. In later years, when the annual expenditure requirement exceeds the contribution rate, the balance would come from the accumulated assets of the fund. Thus, setting the rate of contribution to the fund determines both the net capital growth of the fund in early years and the extent to which the fund is drawn on in later years to help finance New Zealand Superannuation. No separate rule is required to determine when the fund is to be drawn down.

However, to augment the stability of the Fund, it is proposed that there be an additional requirement that the Fund may not be used to subsidise New Zealand Superannuation entitlement payments for the first twenty or twenty-five years.

Exhausting the Fund

The methodology described above sets a rate for the current year so that if that rate continued and all expectations panned out, the fund would be exactly exhausted at the end of the time horizon used to set the rate. There are two ways in which this could result theoretically in the fund having a negative balance. First, if the average future NZS entitlement payments over the forecast time horizon are lower than the current year entitlement payments (net of return on investment), the fund will be expected to decline over the year. If the fund balance is already low, this could tip it into the negative even though it would be expected to return to zero at the end of the time horizon used to set the rate. Second, if investment returns are sufficiently lower than anticipated for the year and/or if entitlement payments are sufficiently higher than anticipated for the year, the fund could decline over the year. If the fund balance is already low, this also could tip it into the negative.

However, unless future Governments decide to drastically under-fund the scheme, the future pattern of increasing NZS entitlement cost means that it will not be possible in practice for the fund to become negative.

Analysis of Other Issues

Review Frequency

The process described above envisages an annual review as part of the Budget cycle. Alternatively, the rate of contribution could be reviewed less frequently, possibly as part of a wider process of review of retirement income policy. We recommend that an annual process be adopted for the following reasons:

- Annual review of contribution rates is reasonably standard practice for defined-benefit Superannuation schemes. The Government Actuary has recently moved from triennial to annual review of the Government Superannuation Fund. While New Zealand Superannuation is of a larger order of magnitude than superannuation schemes in New Zealand, the valuation issues are no more complex.
- Annual reassessment of the amount required to be appropriated for the coming year would be consistent with the frequency of reassessment of most other types of government expenditure.
- Annual review enhances the credibility of the fund by allowing changes in experience and changes in expectations about future retirement income costs to be promptly reflected in the required rate of contribution to the fund.
- As a routine part of the Budget cycle, an annual review process has less potential to raise political issues that could threaten the stability of the scheme.
- A less frequent review process is likely to result in larger jumps to the rate at each review. This is because the certified rate is expected to ratchet up over time as the rolling horizon spans years with successively higher expenditure. To keep up with the trend, a less frequent review process would require a bigger hike at each review.

Review Author

The process described above envisages that the review would be carried out by the Government Actuary. We recommend this approach for the following reasons:

- Although the Government Actuary is an employee of a department and hence technically not entirely independent of the Executive, the professional independence of the person holding the position traditionally has been respected. Consideration could be given to strengthening the formal independence of this office as a consequence of taking on this role.
- The Government Actuary would be expected to have, or to be able to command, the types of skills in demography and financial economics needed to carry out the review on a regular basis.
- The Government Actuary already carries out a similar role in respect of the Government Superannuation Fund.
- An alternative is for the review to be the responsibility of Treasury without a second-opinion role. The economic and fiscal updates required under the *Fiscal Responsibility Act 1994* are required to be prepared by Treasury. However, a significant difference between economic and fiscal updates and the rate review is that the economic and fiscal updates are only a *positive* (that is, descriptive) statement of expected future results given current policies, whereas the rate review would make a *normative* prescription about the future allocation of Crown resources.

- A further alternative would be for the review to be carried out by, or under the auspices of, the governing body for the fund. However, there is no strong link between the investment management function of that body and the setting of the pattern of required capital contributions to the fund. The governing body is not running a fully-funded superannuation scheme in which it would have a responsibility to ensure that it levied contributions sufficient to finance the scheme's benefits. Rather, its primary function is to manage an investment fund.

Review Timing

The timing of the Government Actuary's review needs to be consistent with the Budget cycle. There are three alternative points in the Budget cycle when the review could take place. These are set out below. In the first two, the Government Actuary takes the primary role for expressing a view about the required provision, with the Government complying with (or explaining its non-compliance with) that view. In the third, the Government determines what rate it ought to provide, with the Government Actuary's certificate being in the nature of a second-opinion. The alternatives are:

- Ahead of the Budget Policy Statement: Since the Budget Policy Statement could be produced as early as 1 December, this would mean requiring the certificate to be produced in November or earlier. This runs the risk of it being outdated by the time of the Budget (with the risk that the claim that the assumptions are outdated could be an easy "excuse" for the Government to use to avoid complying with it in the final Budget). However, it has the advantage of being able to be used as a firm parameter in the Budget Policy Statement.
- In the run up to the Budget: Perhaps in March. This would allow for more recent information to be taken into account (such as the Ministry of Social Policy's 3-4 year forecasts of NZS entitlement expenditure) and closer co-ordination with Treasury on the assumptions that underlie the Budget and its forecasts. However, it would require very careful planning to ensure that it did not unduly hold up the decision-making process for other Budget decisions.
- As a second-opinion of the Government's decision: The Government (presumably on advice from Treasury) would determine its view about what the appropriate "constant rate" is, and also whether the Crown is capable of funding at that rate for the coming year. The Government Actuary would review the Government's view about the required "constant rate", certifying whether, in his or her view, it is appropriate. The Government Actuary also could possibly be required to comment on the veracity of the Government's statements in the Fiscal Strategy Report about expected required future contribution rates.

The "first-opinion" approaches (that is, either ahead of the Budget Policy Statement, or in the run up to the Budget) impose a more compelling incentive on the Government to comply with the Government Actuary's view than the "second-opinion" approach that depends to a large extent on the mana of the Government Actuary. However, neither of these approaches fits well with the Budget cycle. We propose that the second-opinion approach be adopted.

Fiscal Responsibility Discipline

The approach taken to imposing a pre-funding discipline on the Crown could be either entirely mandatory or it could allow for transparent exercise of fiscal responsibility by the Government. Under an entirely mandatory approach, the mechanism for calculating the amount to be contributed by the Crown to the fund would be prescribed in legislation, requiring the Crown to make contributions as specified. Under a fiscal responsibility approach, the legislation could include the mechanism for calculating and reporting the amount that "ought" to be contributed to the fund and could allow the Government to deviate from that only in exceptional circumstances. The Government would need to explain any deviation, along with implications for future contribution rates. This puts the incentive on the Government strongly in favour of complying with the recommended rate, but does leave some flexibility for transparent deviation. This latter approach is similar to the principles of the *Fiscal Responsibility Act 1994*.

We recommend the fiscal responsibility approach for the following reasons:

- It is consistent with the proposal to follow a transitional path of building up the rate of contributions to the fund over the first few years, rather than immediately contributing the full required rate of provision. If a mandatory approach was adopted, having a transitional implementation would have to be legislated as an exception to that policy.
- It provides for flexibility in fiscal decision-making while being clear in reporting any trade-offs that are made. A mandatory approach could severely limit budget flexibility, shifting all of the risk on to other revenue and expenditure policies and other fiscal targets.

8. GOVERNANCE ARRANGEMENTS FOR THE FUND

Executive Summary

This chapter discusses the governance arrangements that would apply to the Fund being established for New Zealand Superannuation (NZS). The chapter sets out what would be involved in the establishment of a Crown Entity to manage the Fund, the detailed provisions that this implies for the Fund's governance structure, and the potential role of the Guardians of the Fund.

Establishing a Crown Entity to Manage the Fund

The Board of the Fund would be a Crown Entity that is responsible for managing the Fund on behalf of the government. Managing the Fund would involve making payments to the Department of Work and Income to fund current NZS expenses, and being responsible for the investment of the funds being set aside for future NZS payments. The Board would not be responsible for determining the contribution rate nor for determining the policy parameters for NZS entitlements.

The Board would manage the assets of the Fund, independent of Government influence. The Board would be a Crown Entity and would be separated from the Fund. This would ensure that the Board did not have free access to the assets of the Fund and could not use the Fund for anything other than its stated purpose.

Detailed Provisions for the Fund's Governance Structure

Board members would be required to be appointed on the basis of their relevant knowledge and experience in managing an investment fund. To enhance the Board's independence, members would be appointed by the Governor-General on the recommendation of the responsible Minister, and only dismissed (again by the Governor-General) on the basis of just cause. The term of appointment would be five years, with the exception of inaugural appointments. These would be for different terms so further appointments were staggered through time. Terms would be renewable. Where Board members had conflicts of interest, these would be required to be disclosed as soon as possible. Once interests were disclosed, affected members should not be involved in decisions related to the area where the interest arose.

The Board would need the appropriate powers to perform its functions. The powers the Board would require include the powers of a body corporate and a limited form of the powers of a natural person. The Board would not be able to borrow, except in the sense of normal business practice, eg hedging.

The Board would be required to prepare a Statement of Intent and report against this in its annual report. The annual report would be delivered to the responsible Minister, who would table it in the House. The Board would be required to provide information required by Treasury for overall Crown financial management (eg the preparation of Crown financial statements).

The Role of the Guardians of the Fund

Grey Power, Age Concern and the RSA are to be invited to nominate people to be Guardians of the Fund. Other appropriate organisations, such as those representing the working age population, could also be invited to do so.

There are three forms the Guardians could take. The members of the Board could be given the title "the Guardians". A group separate from the Board that represented interest organisations could be set up and called the Guardians. The government could consult this group on retirement income issues (such as appointments to the Board). Finally, interested organisations could nominate an individual in their organisation (a Guardian) that the Government would consult directly on retirement income issues, on a one-to-one basis, as necessary. In that case, formal body would not be established.

Introduction

The governance arrangements for the Fund need to be developed in the context of the Labour Party's stated intentions regarding the Fund. The Labour Party's policy on the operation of the Fund is that:

- The Fund will be managed on a sound commercial basis to ensure that there are strong long-term returns.
- The Fund will not be available to the government of the day to use for any other purpose than the payment of NZS.
- The Fund will be overseen by the Guardians – a board selected to represent the interests of senior citizens, those at present in the workforce, and the State.
- Senior Citizens organisations such as Grey Power, Age Concern and the RSA will be invited to nominate people to be Guardians.

The main governance issues to consider in relation to the Fund are:

- the establishment of a Crown Entity to manage the Fund;
- the detailed provisions that this would imply for the Fund's governance structure; and
- the role of the Guardians of the Fund.

Establishment of a Crown Entity to Manage the Fund

The Board of the Fund would be established as a Crown Entity that is responsible for managing the Fund on behalf of the government. Managing the Fund would involve making payments through the Department of Work and Income to fund current NZS expenses, and being responsible for the investment of the funds being set aside for

future NZS payments. The Board would not be responsible for determining the contribution rate nor for determining the policy parameters for NZS entitlements.

The Board would be set up as a Crown Entity, to ensure the management of the assets of the Fund was independent of Government influence. The Government would not be able to direct the activities of the Board, except through the objectives of the Fund set out in legislation and through issuing the Board directions (the scope of these directions would be extremely narrow). Investment objectives and the possibility of supplementary directions are addressed in a previous chapter.

The Fund itself would not be an organisation – it would be a portfolio of assets. It would not be owned by the Board, but would remain in the ownership of the Crown.

In establishing the Board as a Crown Entity, it would be separated from the Fund. This would ensure that the Board did not have free access to the assets of the Fund. The Board would seek Government funding to carry out its activities, rather than being able to dip into the Fund's assets. This would ensure that it was clear which expenses related to the activities of the Fund and which related to the activities of the Board, and would provide a discipline on the spending of the Board.

Detailed Provisions of the Fund's Governance Structure

Establishing the Board as a Crown Entity would mean that it would be subject to a standard set of Crown Entity governance arrangements. These would ensure it retained its independence while remaining accountable for its performance. Detailed governance provisions arise in the following areas:

- Provisions related to Board members;
- Functions and powers of the Board;
- Expenses of the Board and the Fund;
- Accountability and reporting; and
- Treatment of the Board in the Public Finance Act.

Provisions Related to the Board

As the Board would be responsible for the investment and performance of the Fund, the members of the Board should be chosen for their ability to contribute to achieving this goal. Board members would be required to be appointed on the basis of their relevant knowledge and experience in business, finance, economics or law.

Members would be appointed by the Governor-General on the recommendation of the responsible Minister. Dismissal would be by the Governor-General only on the basis of just cause (such as criminal activity or mental illness). Appointment and dismissal by the Governor-General would increase the independence of the Board from the Government, as the Minister would have less ability to influence members in their decision making if s/he were not able to dismiss members at will. The term of appointment would be five

years. One exception would be that inaugural members would be appointed for different terms so that new appointments become staggered through time. This would provide for continuity in Board membership. Terms would be renewable.

Remuneration for Board members would be set in accordance with Cabinet guidelines for Crown Entities. The Board would have 5 – 7 members, one of whom would be a Chair. The Board would be subject to standard meeting procedure requirements.

Conflicts of Interest

As the members of the Board are to be appointed on the basis of their relevant knowledge and skills, it is highly likely that their non-Board work may lead them to have some conflicts of interest. Conflicts of interest may arise through:

- the appointment of fund managers;
- involvement in companies that are being considered for investment;
- involvement in companies that are competitors or being considered as partners in investment opportunities; or
- timing and other aspects of decisions related to making investments.

Where Board members had conflicts of interest, these would be required to be disclosed as soon as possible after the conflict was known. Once interests were disclosed, affected members should not be involved in deliberations or decisions related to the area where the interest arises. This is an important requirement for ensuring financial markets have confidence in the integrity of the Board.

Functions and Powers of the Board

Functions

The Fund would be used only for the payment of NZS, with the exception of the payment of fund management fees. The Fund would provide for current NZS payments and would invest funds being set aside for future NZS payments.

Current NZS payments would be paid out of the Fund through the Department of Work and Income. The flow of funds is outlined in the chapter on the contribution rate review process.

The Board would determine the fund management structure and investment strategy for the Fund. The investment strategy would be subject to legislated investment objectives (such as managing the Fund on a sound commercial basis), which could be supplemented by directions by the government, as noted above. The Board would appoint investment managers to invest the Fund (an illustrative fund management structure is discussed in a later chapter).

Powers

In order to achieve these functions, the Board would need the general powers of a body corporate with perpetual succession and would need to have the power to invest the Fund in accordance with its functions of prudent management. The members of the Board may also need some of the powers of a natural person to guarantee or indemnify in order to enter into some types of contracts. However, the scope of these powers would need to be limited to prevent them from undertaking borrowing.

The Board would not be able to borrow because it would potentially expose the Government to unwarranted financial liability. The Board could get into a leveraged position, which may create a liability that the government would ultimately have to pay. What could be considered borrowing would need to be clearly defined to ensure that the Board does not undertake borrowing in less obvious forms. However, in defining borrowing, it is important that this does not prevent the Fund from undertaking normal commercial practice, for example hedging.

Expenses Related to the Board and the Fund

Expenses related to the Fund and the Board would be treated separately.¹⁵ Operating expenses (including expenses associated with any staff appointed by the Board) should be appropriated for the Board. Controls over the discretionary spending of the Board could be included in the governing legislation, if these were deemed necessary. Commissions paid to fund managers relate more specifically to the activities of the Fund than the Board, so these would be paid from the Fund. This may require a permanent legislative authority.

Accountability and Reporting

The Board would be required to prepare a Statement of Intent and report against this in its annual report. The annual report would be delivered to the Minister responsible for the Fund, who would table it in the House. The Board would be required to provide information required by Treasury for overall Crown financial management (for example, the preparation of Crown financial statements).

The Statement of Intent prepared by the Board each year should set out:

- The key business issues and environment facing the Board;
- The core lines of business;
- The strategies that the Board would implement to meet the key business issues it is facing;
- Key performance indicators that measure the performance of the Board;
- How the Board would protect and develop the Crown's ownership interest in the Fund;

¹⁵ The type of expenses that fall into each category will need to be considered in the context of preparing legislative drafting instructions.

- Financial policies and forecasts for the coming year; and
- Higher-level financial forecasts until the next rate review period and over the horizon of the Fund.

Treatment of the Board in the Public Finance Act

As a Crown Entity, the Board would be listed in the Fourth Schedule of the Public Finance Act 1989. It would be listed in the Fifth Schedule and required to include a statement of service performance in its annual financial statements. It would also be listed in the Sixth Schedule and required to prepare a Statement of Intent. It would not be listed in the Seventh Schedule, which is related to paying profits to the Crown.

The Role of the Guardians

Labour's pre-election manifesto said that Grey Power, Age Concern and the RSA are to be invited to nominate people to be Guardians of the Fund. Other appropriate organisations, such as those representing the working age population, could also be invited to do so. There are three forms the Guardians could take:

- the members of the Board could be called the Guardians;
- a group separate from the Board could be set up and called the Guardians; or
- interested organisations could nominate a representative of their organisation (a Guardian) to be consulted on retirement income issues.

If the Board is responsible only for the investment of the Fund, the members of the Board should be chosen on their ability to contribute to achieving this goal. If the members of the Board were to be known as the Guardians, they would still need to have the appropriate skills to meet the objectives of the Board. Under this approach, interested organisations could be consulted on the list of potential Board members, but the members would not be selected as representatives of the organisations consulted.

The word Guardians could be interpreted as something similar to trustees. The Board members would not be expected to act as trustees. If the Board were to be named the Guardians, it would be important that the Fund's legislation clearly specified the role of the Guardians. This is so that they, and the public, understand that they are not acting in the legal capacity of trustees.

If the second approach were taken, the Guardians would be set up as a group that was separate from the Board and that represented the interests of relevant organisations. This group could be consulted by the government on retirement income issues, such as appointments to the Board. The role of the group would be to ensure the views of its member organisations were known as part of the government's process of making decisions on retirement income policy. However, as different organisations are likely to have different objectives, it may be difficult for this group to come to agreed positions.

The third approach would be for the government to consult directly with individuals that were nominated as representatives of interested organisations. These individuals would

be known as Guardians. Consultation would take place on a one-on-one basis, as necessary, rather than through the establishment of a formal group. While this would not strictly follow the Labour Party policy of establishing a separate organisation called the Guardians, the principles of the Guardians would be met by ensuring adequate consultation was undertaken with these individuals or their organisations.

9. ILLUSTRATIVE FUND MANAGEMENT STRUCTURE

Executive Summary

This chapter sets out an illustration of the likely fund management structure of the Fund for New Zealand Superannuation. This chapter is for your information.

The Fund's Board would be responsible for determining the fund management structure. A fund management structure is a means of ensuring a fund can achieve its objectives and manage its risks. This paper has been prepared to demonstrate the sort of structure that could be envisaged for the proposed Fund. We anticipate a fund management structure that would mirror industry "best practice". The illustrative structure in this paper is consistent with decisions you have made on other provisions for pre-funding New Zealand Superannuation.

Developing Governance and Investment Policies

In a private investment fund, the Board of Directors or Trustees generally establish the broad governance policies, investment objectives and asset class allocations.

In the proposed Fund, the Government would establish the Board as a Crown Entity, set high-level investment objectives in the Fund's governing legislation, delegate authority to the Board to invest the Fund's assets and assess the Board's performance.

The Board would establish ongoing governance policies for the Fund, such as developing decision-making processes and determining responsibilities of the different groups involved in managing the Fund. The Board would determine more detailed investment objectives and guidelines to govern investment and operational considerations. The Board would determine the broad asset classes that the Fund would invest in and in what proportions.

Developing the Investment Strategy

In private investment funds, the Board sets the investment strategy. In the proposed Fund, it is likely that the Board would also be responsible for this function. Developing the investment strategy involves making decisions on asset class strategy and portfolio structure.

The asset class strategy determines the investment approaches to be pursued, such as the extent of active and passive investment and the extent of pooled or direct investment. The approaches undertaken will be driven by the capacity of the Board's staff to monitor fund managers. Passive investment may initially be most appropriate for the proposed Fund.

Setting the portfolio structure involves allocating portfolios to fund managers. For the proposed Fund, independent investment advisers may initially be asked to develop selection criteria and identify appropriate fund managers.

Executing the investment strategy

Fund managers are responsible for executing an investment fund's strategies. They are external organisations or individuals who are delegated responsibility to create portfolios that are consistent with investment guidelines.

Where fund managers decide to buy or sell securities in executing the investment strategy, a nominated custodian actions this decision. In doing so, custodians are able to monitor the activities of the fund managers and inform the Board's staff when managers are deviating from investment guidelines.

The staff of a fund set the investment guidelines for fund managers. They monitor the activities of fund managers in relation to these guidelines on the basis of information from the custodian, any independent investment advisers they commission and reports from the fund managers. This assessment of performance against guidelines becomes an input into changes in investment strategy or fund managers.

Staff also consider any day-to-day deviations from guidelines by fund managers and determine what, if any, actions should be taken as a result of the deviation. Depending on the reason for the deviation, these could include issuing a direction to change in the fund manager's investment, changing the guidelines or changing the fund manager responsible for the portfolio.

Introduction

The Fund's Board would be responsible for determining the fund management structure of the Fund (see the chapter on governance). This paper sets out an illustrative example of how fund management responsibilities could be structured to ensure funds are invested appropriately. It is based on advice from Frank Russell Company (investment advisory consultants) on private sector best practice and current industry practice in New Zealand. The illustrative structure set out in this paper would be consistent with decisions you have made on other provisions for pre-funding New Zealand Superannuation.

A fund management structure is a means of ensuring a fund can achieve its investment objectives and manage its risks. The key elements of fund management include:

- developing governance and investment policies;
- developing the investment strategy; and
- executing the investment strategy.

Developing the Governance and Investment Policies

In a private investment fund, the Board of Directors or Trustees establish the broad governance policies, investment objectives, and asset class allocations for an investment

fund. They provide a top-level review of results and operations. They are ultimately accountable for achieving long-term objectives.

In the proposed Fund for New Zealand Superannuation, the Government would establish the Board as a Crown Entity, set high-level investment objectives in the Fund's governing legislation, delegate authority to the Board to invest the Fund's assets and assess the Board's performance (see the chapters on governance and on investment objectives). The Board would be responsible for establishing ongoing governance and investment policies.

Governance Arrangements

Good governance arrangements enhance an investment fund's ability to meet its objectives and limit its exposure to risk. These risks could be investment risks (such as poor diversification or managers investing in sectors of the market other than those for which they were originally hired) or fund management risks (such as incompetence, negligence and fraud). Governance arrangements set the context within which a fund's investment strategy is developed and executed. A fund's Board establishes decision-making processes, determines the responsibilities of different groups, specifies key policies and procedures to be followed, and monitors compliance with these policies and procedures.

Investment Objectives

Objectives for private superannuation funds can cover assets and liabilities, contributions and payments. The proposed Fund would be an investment fund rather than a superannuation fund and its objectives would relate only to the assets that it is to invest and the return it makes on those assets. It would not be responsible for the contribution rate or entitlement policy. However, the purpose for which the government has established an investment fund would be a key consideration of the Board when it develops its investment objectives and strategy. As set out in the chapter on investment objectives, the Government would state out the Fund's broad investment objective in the legislation. This would be along the lines that:

- The Fund will be managed on a prudent commercial basis independently of the Government to ensure that there are strong long-term returns.

The Board would report to the government of the day on its performance in achieving its objectives following the established processes for accountability of Crown entities.

It would be the responsibility of the Board to develop a formal set of more detailed objectives and guidelines to govern investment and operational considerations and assess compliance with these objectives. Investment considerations would include issues such as risk/return expectations and acceptable outcome ranges.

Asset Allocation

Asset allocation entails determining the broad asset classes an investment fund will invest in to achieve its objectives. This involves:

- determining the broad asset classes to be invested in (eg domestic equities, international equities, fixed interest assets, property, cash) and in what proportions (this requires consideration of issues such as the Fund's risk tolerance and return expectations); and
- determining within asset classes, the major sectors in which to invest and the proportion of funds that will be invested in each selected sector.

In developing an appropriate asset allocation, the Board would consider the ability of various asset mixes to contribute to meeting the investment objectives. Different assets have different risk/return profiles and time horizons. These would be considered when determining the appropriate mix, along with the desired level of asset class exposure. The appropriate mix would define a fund's benchmark portfolio.

The Board would determine the Fund's asset allocation subject to the legislated investment objective of prudent commercial management. As discussed in the chapter on investment objectives, this would be an independent decision of the Board, and would not be subject to any routine control or approval by the government of the day.

Developing the Investment Strategy

In private investment funds, the Board sets the investment strategy.¹⁶ Once the Board has carried out its planning activities and the investment objectives have been determined, it can begin to develop implementation strategies that aim to achieve these objectives. In the proposed Fund, it is likely that the Board would also be responsible for the investment strategy. This involves determining the asset class strategy and the portfolio structure.

Asset Class Strategy

The asset class structure defines the investment approaches that a fund is to pursue. The factors to be determined include:

- whether a single manager or multiple managers should be used;
- the extent of specialist or balanced management;
- the extent of pooled or direct management; and
- the extent of active and passive investment.

The number and types of fund managers employed should be driven by the capacity to monitor the fund managers. Monitoring could be carried out either internally by the Board's staff, or externally through external agents such as custodians or independent investment advisers (these external agents are discussed further in the next section). Where resources are limited and do not allow for extensive monitoring, passive strategies may be most appropriate.

¹⁶ In very large offshore funds, the management team appointed by the Board is often responsible for the investment strategy.

Because of the small size of the proposed Fund in its first few years and the costs involved in active investment, passive investments and pooled management may initially be the most appropriate investment approaches.

Portfolio Structure

Portfolio structure involves allocating portfolios to fund managers, given the asset class strategy. Individual fund managers may determine the effectiveness of an asset class strategy. If appropriate fund managers were not available, the asset class structure would be reconsidered. Therefore, it may be an iterative process to determine the asset class strategy and portfolio structure.

To assist the Board in selecting fund managers, selection criteria (based on the investment objectives and the consequent asset allocation and asset class strategy) would need to be developed. It is likely that the Board of the proposed Fund would rely on external advisers to develop these criteria and to identify available and appropriate fund managers, particularly in the first few years of operations.

Executing the Investment Strategy

A fund's investment strategy is executed by external parties – fund managers and custodians. The execution of the strategy is overseen by the fund's staff, who may be advised by independent investment advisers.

Fund managers

Fund managers are responsible for implementing a fund's investment strategy. They are external organisations or individuals that are delegated responsibility for the creation of portfolios that satisfy specific mandates and comply with policy guidelines.

Custodians

Custodians are primarily responsible for the administration and book keeping of securities. Where fund managers decide to buy or sell securities in executing the investment strategy, the custodian records book entry pledges and undertakes the required deliveries of securities.

Because of the role a custodian plays in implementing a fund manager's investments, they are in a position to monitor the activities of fund managers and provide information on any deviations by managers from the investment guidelines. The functions a custodian can undertake include:

- Physical safekeeping of securities;
- Actioning trade settlements to ensure that assets are controlled at all times;
- Management of cash balances to maximise portfolio return and control;
- Valuations of the portfolios;

- Recording and collecting all income owing to the fund;
- Withholding tax reclaims;
- Liasing with investment managers and solving problems as they arise;
- Monitoring, recording and exercising all corporate actions;
- Performing full general ledger accounting for the portfolios;
- Preparing consolidated reports for each sector and the total fund;
- Providing daily cash transactions to the investor and/or outside investment managers; and
- Monitoring compliance with investment guidelines.

Independent Investment Advisers

An investment advisory company can provide the Board and its staff with information on specific fund managers and undertake some fund management functions on behalf of staff (or in place of staff when a fund is small). Investment managers can assist staff in assessing whether deviations from guidelines by fund managers are problematic. The services they can provide include:

- analysis of investment products and firms;
- assessment of critical changes within fund management organisations (people, processes, portfolio characteristics and performance); and
- evaluation of investment strategies.

Fund Staff

A fund's staff are responsible for managing the ongoing relationship with fund managers and for working with custodians and investment advisers in monitoring the fund managers. The staff would set out the expectations of the fund managers in guidelines, monitor fund managers against these guidelines and determine what actions are appropriate when the guidelines were not met.

Setting guidelines for fund managers

Expectations would be set out in guidelines for fund managers on issues such as:

- minimum risk/return expectations, minimum acceptable returns and returns relative to benchmarks;
- eligible securities and strategies;
- investment constraints and prudent limits;
- delegation authorities;

- taxation considerations, diversification and exposure limits within and across each asset class;
- hedging and collateralisation requirements;
- permissible limits on derivative use;
- reporting standards; and
- compliance statements.

Appendix A sets out an example of a large international fund that uses performance against a benchmark portfolio to assess performance. This approach is generally not used in New Zealand, but may be useful for the proposed Fund when it reaches a large size.

Assessing performance against the guidelines

Staff assess the performance of fund managers on the basis of information provided by the custodian, investment advisers and the fund managers themselves. Performance assessment aids understanding of results and becomes an input into decisions on changes to investment strategy or fund managers. Staff should be able to inform the Board on the following types of issues:

- Where were the funds invested?
- What were the returns, by asset class and by manager?
- What risk was involved?
- How did the fund managers perform relative to benchmarks?
- How did they perform relative to other managers?
- How exactly were the returns achieved?
- What was the net management effect?

Dealing with deviations from guidelines

On a day-to-day basis, the custodian would be able to inform staff if a fund manager appeared to be deviating from the guidelines. Staff would determine whether a deviation had taken place and, if so, would decide what, if any, actions should be taken as a result of this. There is a range of possible reasons for deviations from guidelines.¹⁷

Staff would discuss a deviation with the fund manager and take one of several actions, depending on the reason for the deviation. After consideration, they may require the fund manager to alter the investment. Alternatively, they may decide to change a

¹⁷ For example, the guidelines may specify maximum levels of investment in particular products. If a fund manager believes there are good returns available through that product, they may invest to the maximum level allowable. Any positive returns on the product would result in a level of investment that is outside the allowable range.

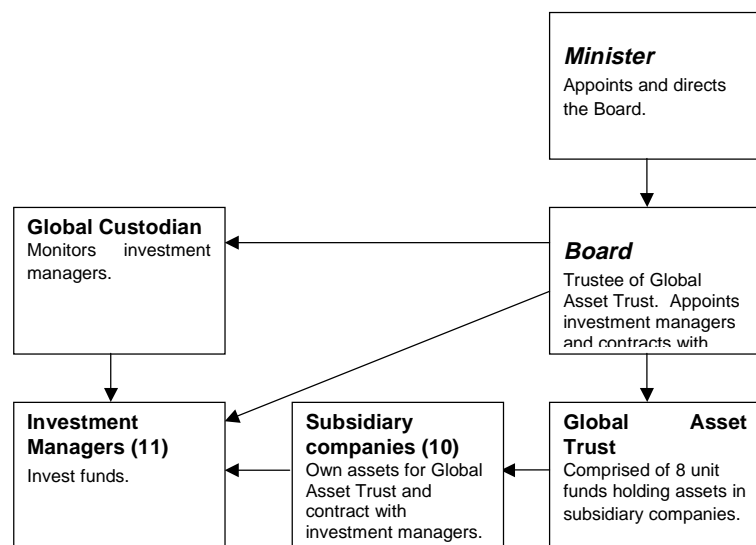
particular guideline if it was clear that it was not contributing to achieving the investment strategy. Otherwise, they may recommend to the Board that the fund manager be replaced. This may happen if the fund manager's investment focus (eg growth versus value) changes from that which they were commissioned to provide, or if their investment policy or processes are not satisfactory. Staff may consult with investment advisers in making these judgements.

Other roles of a fund's staff

Staff would also be required to make decisions on other issues. Fund managers may ask staff if they are able to invest in new products or change products used. Staff would need to make decisions on such requests. Staff would also consider whether there are better ways of arranging the portfolio and advise the Board on such issues.

Example of a Fund Management Structure in Execution

The National Provident Fund provides an example of a fund management structure in execution. The following diagram sets out the asset management components of the National Provident Fund's structure.



Annex A: Norway's Government Petroleum Fund – Assessing Performance against a Benchmark Portfolio

Norway has established a fund, the Government Petroleum Fund (GPF), into which it puts a portion of its revenue from oil production. The fund was set up as a way of addressing long term future pressures on the government's fiscal position stemming from diminishing petroleum reserves and an ageing population.

Benchmark portfolio

The GPF invests 30 – 50% of its assets in equity instruments and 50 – 70% in fixed income instruments. At the beginning of each quarter, the overall portfolio is to consist 40% of equities and 60% of bonds. During the quarter, the distribution between the two asset classes will vary, depending on market developments.

Most investments are in foreign assets. Investments are to be in specified countries and currencies within the following markets in the following proportions:

- Europe 40 – 60%
- The Americas 20 – 40%
- Asia and Oceania 10 – 30%

At the beginning of each quarter the distribution between the regions is to be 50%, 30% and 20% respectively. This is the benchmark portfolio.

Performance assessment

Returns of investments are to be assessed against the returns on the benchmark portfolios for equities and bonds. A maximum limit is set for the expected differences in return between investments and the benchmark.

Equities

Most of the equity portfolio is managed according to index mandates but roughly 10 - 20% is managed actively. There are five active managers investing the international portfolios.

Fixed interest assets

The bond portfolio is predominantly managed by the Norges Bank. However, plans are currently underway to increase external active bond management.

10. TAX STATUS OF THE FUND: TAX AVOIDANCE AND INVESTMENT BEHAVIOUR

Executive Summary

This chapter and the next discuss the issues surrounding the tax status of the proposed Fund for New Zealand Superannuation. This chapter focuses on two issues: tax avoidance and incentives regarding investment behaviour. The next chapter examines the foreign tax treatment of the Fund's investments.

On the face of it, the answer to whether the proposed superannuation fund should be taxable or not appears obvious as it can be argued that the Government would simply be taxing itself. If you consider the wider implications of having a large tax-exempt entity in the midst of an otherwise taxed world, however, it would be best for the fund to be taxable.

The current tax system has been designed on the premise that entities like companies are vehicles through which individuals conduct their business affairs. In this context, the taxation of those entities is akin to a withholding tax against the eventual tax liability of the individuals who invest through the entity.

In the absence of significant changes to the underlying structure of the tax system, a tax-free superannuation fund would:

- give the fund managers a very strong incentive to engage in avoidance behaviour with other, taxed, entities;
- bias the fund towards owning businesses outright rather than being portfolio investors; and
- at the margin, favour fixed interest securities over equity investments.

The incentive to own businesses directly may increase the risk profile of the fund as it would encourage lower levels of diversification. Owning businesses directly will also increase the level of managerial input required from the fund's managers and increase the cost of administering the fund. It would also generate a loss of competitive neutrality in the industry in which the underlying business competes. The government would own tax-exempt businesses competing with ordinary taxable entities. This would clearly be undesirable. The bias towards fixed interest investments could be expected to lead to lower returns.

Governance restrictions which could accurately replicate the effect of making the fund taxable would be very complicated and costly. Rigorous governance structures would impose compliance costs and increase the requirement for monitoring to be undertaken. They could also adversely impact on the fund's risk profile or the returns achieved by

forcing the fund to undertake investment through sub-optimal structures or by forcing the fund to forego undertaking some types of investment.

Taxing the fund does not alter the net contribution rate the government would be required to make. It does mean that the gross amount would need to be appropriated each year, while the government would be receiving increased tax receipts. There may be presentational issues around the "net and gross" contribution rates that need to be addressed in implementing the fund.

The Government Superannuation Fund (GSF) is taxed, despite the fact that it is owned by the Crown. Making the proposed general superannuation fund exempt would be inconsistent with the existing treatment of the GSF.

Introduction

There are two main issues surrounding the tax status of the proposed super fund. The first of these is the tax avoidance opportunities that would be created if the fund was tax-exempt. The second is whether poor incentives would be created regarding investment behaviour. This chapter summarises these issues and discusses whether these problems could be avoided through governance controls.

Tax Avoidance

By making an entity tax-exempt the Government effectively gives it an asset that it can trade with taxable entities. Current tax-exempt organizations such as charities have engaged in complicated schemes to take advantage of this kind of opportunity. Drawing from an actual prospectus we have summarised one of these schemes in appendix one.

The general theme of these schemes is that the tax-exempt entity earns the taxable income component of any joint venture while the taxable partners receive the deductions or the non-taxable component of income (eg capital gains).

We consider that making the fund tax-exempt will create an opportunity for this kind of avoidance activity. Fund managers may not see any inconsistency in engaging in this kind of activity, despite the fact that the fund is owned by the Crown, as they may argue that their responsibility is to maximise returns to the fund. It will be irrelevant to them that they are not maximising returns to New Zealand as a whole. Of course, taxable entities will also face strong incentives to manufacture schemes and encourage the fund to engage in joint ventures with them. This incentive will grow through time as the fund's resources grow.

An attempt could be made to minimise these avoidance concerns by creating appropriate governance structures. We do not consider, however, that it would be possible to implement governance restrictions, which could accurately replicate the effect of making the fund taxable. Governance structures that remained robust over the long life of the fund would be particularly difficult to formulate given the ongoing development of new financial structures and instruments, and the ingenuity of professional tax planners.

There will also be significant costs associated with governance arrangements that restrict the flexibility of the fund to undertake investments. For example, if the fund was restricted from investing in certain types of activities the risk profile of the fund may increase due to the loss of diversification, and potential returns may fall as opportunities cannot be taken up. Similarly, if the fund is restricted from engaging in joint ventures its investment risk profile may increase. While the fund in this situation may still generate higher returns than if it were taxable the losses incurred through strict governance structures would represent a net loss to New Zealand¹⁸.

Administrative costs would also be generated by the necessity for monitoring to be put in place. As soon as investment rules were implemented an agency independent of the fund would be required to periodically monitor that these rules were being complied with. The more rigorous the governance arrangements were the more costly monitoring would become.

As the fund grows the risk it poses to the tax base will also grow. For example, if the fund eventually reaches 30% of GDP, and annual returns equal 10%, the upper bound of the risk to the tax base would be approximately 1% of GDP. This would be considered a serious avoidance issue. Once the tax treatment of the fund is entrenched it is likely to be very difficult to change it from that point on or to fill loopholes as they become evident.

Effects of Tax Exemption on Investment Behaviour

To determine whether investment decisions will be distorted by making the fund tax exempt, we need to determine the incentives that would be provided for investors and fund managers to alter their behaviour from that that they would display in the absence of tax effects.

Investors

Investors would not be able to access the fund and there would not be any individually named accounts. Taxpayers will have an interest in the success of the fund but they cannot shift their investments out of their existing location and into the Government fund. Therefore making the fund tax-exempt should not generate adverse efficiency effects with respect to investors.

The Fund Managers

Direct Ownership versus Portfolio Investments

Whenever an investment is taxed via a final tax regime, there will be an incentive for a tax-exempt entity to own businesses outright rather than investing through an intermediary. Therefore, if imputation credits are not refundable to the fund, and the fund is tax-exempt, the managers of the fund will have an incentive to own businesses

¹⁸ For example, if the fund is taxable and earns \$1, after tax the fund would receive \$0.67 and the Government \$0.33. If, however, the fund was tax-exempt but restricted by governance arrangements due to the avoidance concerns, it may only make \$0.95. No tax revenue is paid to the Government and the net return to New Zealand as a whole has dropped by 5%.

outright rather than be portfolio investors. This would mean that the underlying businesses would be subsumed into the fund and would not be taxable.

Direct ownership would avoid the fund having to stockpile worthless imputation credits but the unfortunate side effect would be that there would be a loss of competitive neutrality in the industry in which the underlying business competes. The government would own tax-exempt businesses competing with ordinary taxable entities. This would clearly be undesirable.

The incentive towards direct ownership would concentrate more of the fund's assets into any one investment leading to a loss of diversification and an increase in the risk profile of the fund's portfolio. This effect would be intensified by the inability of the fund to borrow. For example, if the fund was to purchase a company with a debt to total assets ratio of 50% and a market capitalisation of \$100 million it would cost the fund \$200 million, as immediately following the takeover of the business the fund would have to repay the \$100 million of borrowings.

Administrative costs for the fund could also be expected to increase as actually managing businesses could be expected to be more time consuming than allocating capital across an investment portfolio.

Portfolio Allocation Decisions

The managers of the fund have two main choices: investing in New Zealand or overseas; and investing via equity or debt. The tax treatment of these choices is different, as outlined in the tables below.

Investing via Equity

Table One shows the tax implications of investing via equity in a New Zealand company and an overseas company for a taxed fund and an untaxed fund. The first point to note is, due to the inability of New Zealand investors to access credits for tax paid by a foreign company at the company level, there is an existing bias encouraging investment domestically. For example, if the fund is taxed, a pre-tax \$1 profit is worth \$0.67 to the fund if it is domestically generated and \$0.45 if it is foreign¹⁹. If the fund is not taxed, and the government chose to refund the imputation credits the returns to the fund would be \$1 and \$0.67 respectively.

The second point of note is that, if we assume that the fund manager is attempting to maximise the return to the fund, the fund manager's incentives are consistent with maximising the return to New Zealand irrespective of whether the fund is taxable or not.

Even when the fund is not taxable, New Zealand tax is still imposed at the company level, assuming that the fund owns less than 100% of the company. This reflects the fact that the imputation system does not allow a perfect look-through when the final investor is tax-exempt.

¹⁹ Assuming a 33% foreign tax rate on company earnings and interest.

Table One: Investing by Way of Equity

Fund is Taxable		
<i>Invests in New Zealand</i>		<i>Invests Overseas</i>
\$1.00	Profit	\$1.00
<u>N/A</u>	Foreign Tax at Company Level	<u>(\$0.33)</u>
\$1.00		\$0.67
<u>(\$0.33)</u>	New Zealand Tax	<u>(\$0.22)</u>
\$0.67	Total Return to Fund	\$0.45
\$1.00	Total Return to New Zealand (including Government revenues)	\$0.67
Fund is not Taxable		
<i>Invests in New Zealand</i>		<i>Invests Overseas</i>
\$1.00	Profit	\$1.00
<u>N/A</u>	Foreign Tax at Company Level	<u>(\$0.33)</u>
\$1.00		\$0.67
<u>(\$0.33)</u>	New Zealand Tax (and imputation credits created)	<u>(\$0.22)</u>
\$0.67	Total Return to Fund ²⁰	\$0.45
\$1.00	Total Return to New Zealand (including Government revenues)	\$0.67

Investing via Debt

An example of the tax treatment of debt is contained in Table Two below. This situation differs from equity investments as foreign taxes on interest payments typically will be creditable for the fund in New Zealand. Therefore if the fund is taxable the fund manager is indifferent between a return of \$1 interest from a New Zealand investment or a foreign one. This is despite the fact that the return from a national welfare perspective is greater if the investment is made in New Zealand. If the fund is not taxable the fund manager's incentives are aligned with maximising the return to New Zealand as a whole.

²⁰ If imputation credits were refunded to the fund the total return to the fund would be \$1 and \$0.67 for domestic and foreign investments respectively.

Table Two: Investing by Way of Debt

Fund is Taxable		
<i>Invests in New Zealand</i>		<i>Invests Overseas</i>
\$1.00	Interest	\$1.00
<u>N/A</u>	Foreign Withholding Tax and Credits	<u>(\$0.33)</u>
\$1.00	Taxable Income in NZ	\$1.00
<u>(\$0.33)</u>	New Zealand Tax	<u>(\$0.33)</u>
N/A	Foreign Tax Credits	<u>\$0.33</u>
\$0.67	Total Return to Fund	\$0.67
\$1.00	Total Return to New Zealand (including Government revenues)	\$0.67
Fund is not Taxable		
<i>Invests in New Zealand</i>		<i>Invests Overseas</i>
\$1.00	Interest	\$1.00
<u>N/A</u>	Foreign Withholding Tax and Credits	<u>(\$0.33)</u>
\$1.00	New Zealand Taxable Income	\$1.00
<u>\$0.00</u>	New Zealand Tax	<u>\$0.00</u>
\$1.00	Total Return to Fund	\$0.67
\$1.00	Total Return to New Zealand (including Government revenues)	\$0.67

Choosing Between Debt and Equity

Any ordinary fund will naturally have a mix of fixed interest and equity investments depending on the expectations and aggressiveness of the manager. If the fund is not taxable, however, there could be an incentive for the manager to invest more strongly in fixed interest securities.

Resident withholding tax (RWT) is refundable whereas imputation credits are not. Therefore a non-taxable fund would value RWT credits but would not value imputation credits despite the fact that the government values them equally. The fund manager will have an incentive to invest in a disproportionate level of fixed interest investments.

This incentive could be removed by basing the fund manager's remuneration on the value of the fund including the face value of the imputation credits. This would be consistent with maximising the Government's returns as the Government does value

imputation credits. Alternatively the government could refund the fund's imputation credits. However, this may create an unwanted precedent.

Sovereign Investments

In some cases, where one government invests in the jurisdiction of another government the returns from that investment are not taxable. The likely foreign tax treatment of the fund's investments is examined in the next chapter. The examples in the tables assume that the fund is not tax-exempt in foreign jurisdictions. If the fund was exempt (for example, due to its sovereign status) there would be no distinction between domestic and foreign investments as all investments would only be subject to tax in New Zealand.

Appearances and Precedent

The Government Superannuation Fund (GSF) is taxed, despite the fact that it is owned by the Crown. Making the Government's proposed general superannuation fund exempt would be inconsistent with the existing treatment of the GSF.

Taxing the fund does not alter the net contribution rate the government would be required to make. It does mean that the gross amount would need to be appropriated each year, while the government would be receiving increased tax receipts. There may be presentational issues around the "net and gross" contribution rates that need to be addressed in implementing the fund.

Making the proposed fund tax-exempt will create an opportunity for lobbying by the private sector with regard to their tax status. The government's fund could be expected to appear as if it was a superior performing investment than private superannuation funds as private funds lose a portion of their returns as tax.

It is important to note that the arguments outlined above do not hold for private superannuation funds. For example, making private superannuation funds tax exempt will lead to non-neutralities between competing investment opportunities with the resulting deadweight losses occurring.

Appendix One: Example of Tax Planning Using a Tax Exempt

A tax-exempt entity decides that it would like to invest in forestry. It already owns land suitable for the purpose. The entity has two options. It can pay for the set-up and maintenance costs and receive the revenue from the eventual sale of the forest or it can enter into a joint venture with a taxable entity. The following scheme is hatched.

A joint venture is formed between the tax-exempt entity and a taxable entity. The taxable entity agrees to pay for all of the costs of establishing and maintaining the forest and to pay the tax-exempt entity for the use of the land. The payment for the use of the land is made in the year that the forest is harvested and is set equal to the expected level of revenue from the sale of the forest.

The payment for the use of the land is deductible in equal portions over the lifetime of the agreement. The taxable entity also receives annual tax deductions for the costs of establishing and maintaining the forest, as well as other costs such as management fees and accountancy costs.

Benefits of Joint Venture

If the tax-exempt had undertaken the investment on its own it would have received revenue equal to the final value of the forest and would have incurred expenses equal to the cost of establishing the forest and the annual costs of maintenance and administration. By using a joint venture to trade its tax-exempt status it received the same level of revenue and incurred no expenses whatsoever.

The taxable entity receives substantial tax deductions each year for the notional annual cost of the lease and the actual expenses incurred in the forestry venture. This has the effect of ensuring that the only year in which there is a net outflow of cash from the taxable entity is the final year when the forest is harvested. The taxable entity receives a significant timing advantage as it has the use of the money it receives as tax rebates for many years before it is required to be paid to the tax-exempt. For example, if we assume that the forest takes 50 years to mature and use a 5% discount rate the taxable entity receives an asset worth approximately \$180,000 for each hectare of land that is planted. This asset is acquired despite no net funds ever being invested.

11. FOREIGN TAX TREATMENT OF THE FUND'S INVESTMENTS

Executive Summary

Treasury has obtained a legal opinion regarding the likely tax treatment of the proposed fund's investments in a range of foreign countries. Using this opinion as a basis for illustration, this chapter provides additional information regarding the effect of foreign taxes on the fund managers' investment behaviour.

The opinion implies that an exemption from foreign tax on the fund's investments can be obtained either when the income is specifically exempt from tax under the relevant double tax agreement or when it is exempt under a local law. The concept of sovereign immunity is generally of limited applicability as it is restricted to non-commercial activity. The investment activity to be undertaken by the fund is likely to be considered a commercial activity.

If tax is payable this can generally be limited to withholding taxes by ensuring that the fund does not have a permanent establishment in that jurisdiction involved in the administration of the fund.

The opinion suggests that it should be possible to receive an exemption from tax on income and gains in the USA (except on real property) and the UK. In Germany tax would be payable on dividend income but could be avoided on interest income. In Japan tax would be payable on dividend income and interest income at 15% by virtue of the double tax treaty.

The implication from this is that the fund should not experience much difficulty in ensuring that its foreign investments are not subject to foreign tax, as countries such as the USA and UK, which are unlikely to impose tax, constitute a significant portion of the world's capital markets. To the extent that foreign tax is not payable, the fund's managers will be indifferent, with respect to tax, between investing domestically and investing in tax-friendly jurisdictions abroad. Investments will be chosen on the basis of their individual merits rather than tax considerations. This is the case irrespective of whether the fund is taxable or exempt in New Zealand. In particular, making the fund tax-exempt in New Zealand would not be expected to lead to significantly different levels of domestic investment than if the fund was subject to New Zealand tax.

Introduction

This chapter examines the effect of foreign taxes on fund managers' investment behaviour, and outlines the different results that could occur depending on the tax treatment applied. In addition, Treasury has obtained a legal opinion regarding the likely tax treatment of the proposed superannuation fund's investments in a range of foreign countries. This chapter commences with a summary of the main points of the opinion.

Coverage of the Opinion

The purpose of contracting this piece of work was to identify some of the factors which would affect the tax treatment of the fund in foreign jurisdictions so as to guide decisions regarding the structure of the fund. For example, the extent to which the fund was constituted as an arm of government can affect the tax treatment of its foreign investments. Tax information would also affect the attractiveness of investing in various overseas locations.

The likely treatment of the fund in four financial centres was determined. These locations were the United Kingdom, Germany, Japan and the United States of America. In each country answers were sought regarding the issue of sovereign immunity, the effect of the relevant double tax treaty, any local laws that may affect the taxation of the fund's investments, and what rates would apply if the fund was taxable.

Main Points Raised in the Opinion

The level of tax imposed in a foreign jurisdiction will be at one of three possible levels. These levels are full exemption, withholding taxes only, and full taxation. Which of these three levels applies mainly depends on whether the relevant double tax agreement specifically exempts revenue beneficially owned by the Crown, and whether the fund has a permanent establishment in that country administering the fund's investments. The concept of sovereign immunity is generally of limited applicability as it is restricted to non-commercial activity. The investment activity to be undertaken by the fund is likely to be considered a commercial activity.

Although sovereign immunity is typically of little benefit, the practice in the UK is to exempt from UK tax all income and gains beneficially owned by a sovereign. The opinion states that although this has been the UK's practice there appears to be little legal basis for this and the practice is applied inconsistently. Therefore it could only be relied upon if a ruling was obtained from the UK tax authorities. The opinion does suggest, however, that constituting the fund as an arm of the government may simplify tax matters with respect to the USA and the UK to take advantage of any sovereign exemptions which may be available.

In any case, if the fund is not resident in the UK for tax purposes and invests in the UK using an independent UK investment manager, the fund will be exempt from UK tax on income and capital gains under UK law. Similarly, under USA law, various exemptions are available which would in practice render much of the fund's income and gains exempt from tax. German and Japanese law, on the other hand, do not provide specific exemptions that the fund could utilise.

Interest income beneficially owned by the New Zealand Government is often exempt from foreign withholding taxes under double tax treaties. For example, UK, German and US source interest paid to the New Zealand government would be exempt from UK, German and US withholding taxes under the relevant double tax agreements.

A final factor affecting the tax treatment of the fund's foreign investments is whether the fund is considered to have a permanent establishment in that country involved in the administration of the fund. If it does not most double tax treaties are likely to exempt its income from final tax in that jurisdiction. Appointing an independent investment manager in a foreign country would not be considered to be creating a permanent establishment. Note, however, that this exemption may only mean that the entity will not face a final tax reckoning in that country. A refund of withholding taxes already paid is unlikely to occur.

In summary, the opinion suggests that it should be possible to receive an exemption from tax on income and gains in the USA (except on real property) and the UK. In Germany tax would be payable on dividend income but could be avoided on interest income. In Japan tax would be payable on dividend income and interest income at 15% by virtue of the double tax treaty.

In most cases it would be advisable for the fund to obtain rulings from the relevant local tax authority to create some certainty regarding the likely treatment of the fund's investments.

Effect of Foreign Tax on Investment Incentives

If the fund's foreign investments are exempt from foreign tax then the only layer of tax imposed would be New Zealand tax. Therefore the tax impost on foreign and domestic investments would be identical and the fund's managers would be indifferent, with respect to tax, between investing at home or abroad. Investments would simply be chosen on the basis of their individual merits. This is the case irrespective of whether the fund is taxable or exempt in New Zealand.

On the basis of the legal opinion, this would imply that the fund's managers would be indifferent between investing in New Zealand and investing in the UK and USA. In addition, the fund's managers would be indifferent between making fixed interest investments in New Zealand and countries such as Germany where our double tax agreement makes sovereign interest income tax exempt.

If foreign tax is payable this will have an effect on investment behaviour only to the extent that the foreign tax paid is not creditable in New Zealand²¹. Where foreign taxes are creditable in New Zealand, and the fund is taxable in New Zealand, the net effect is to lower or eliminate the impact of foreign tax from the perspective of the fund. If foreign tax is eliminated the fund's managers will again be indifferent with respect to tax between investing domestically and in that foreign jurisdiction.

²¹ When overseas income is returnable as gross income derived in New Zealand, in some cases a credit for income tax paid overseas is allowed against the New Zealand income tax applicable to that overseas income. The credit is limited to the lesser of the actual overseas tax paid and the New Zealand tax applicable to the overseas income. In other cases such as Australian franking credits, credit is not given in New Zealand for that foreign tax paid and the gross dividend returned for New Zealand tax purposes should be exclusive of the value of those franking credits.

If foreign tax is payable and not creditable, or the fund is exempt from tax in New Zealand rendering credits worthless, there will be an incentive for the fund's managers to avoid investing in that foreign jurisdiction in favour of investing at home or in a more tax-favourable foreign jurisdiction.

Conclusion

The legal opinion implies that the fund should not experience much difficulty in ensuring that its foreign investments are not subject to foreign tax, as countries such as the USA and UK, which are unlikely to impose tax, constitute a significant portion of the world's capital markets. While the foreign tax treatment will provide an incentive to avoid investing in some countries, the availability of zero foreign tax opportunities would seem to be sufficient to ensure that a well diversified portfolio is achieved.

This will imply that the fund's managers will be indifferent, with respect to tax, between investing domestically and investing in tax-friendly jurisdictions abroad. Investments will be chosen on the basis of their individual merits rather than tax considerations. In particular, making the fund tax-exempt in New Zealand would not be expected to lead to significantly different levels of domestic investment than if the fund was subject to New Zealand tax.

12. MODELLING THE CONTRIBUTION RATE

Executive Summary

This chapter and the next both undertake some modelling of likely future contribution rate to the Fund for New Zealand Superannuation. The base case analysis in this chapter was undertaken before the decision was made to proceed with a forty-year rolling time horizon, rather than sixty years. However, this choice does not affect the conclusions that are drawn.

This chapter provides estimates of the contribution rate sufficient to finance New Zealand Superannuation at a constant level over sixty years (or some other funding horizon). This rate depends on expectations about future expenditure, GDP, and investment returns. As the future unfolds, expectations change, and the time horizon within which the rate is set rolls along, the appropriate constant rate would need to be continually re-assessed.

The base case estimate assumes that the Fund is invested in a diversified portfolio, the funding horizon is a rolling sixty years, the transition path is as described in the Budget Policy Statement, and the Fund's returns are taxed. After contributing for the first three years according to the technical assumptions in the Budget Policy Statement, the contribution rate in excess of New Zealand Superannuation expenditure (after PAYE tax) is forecast to be 2.3% of GDP in 2005 and to decline steadily toward zero in about 2027. The size of the Fund will peak around 2060 at between 50% and 105% of GDP.

Other scenarios reflect the change of a single assumption (a different time horizon, a different transition path, and so on). Holding other assumptions constant, the following observations are characteristic of the contribution rate:

- A longer funding horizon leads to an initially higher contribution rate, but as the funding horizon rolls along, the slope of this rate will be less steep.
- A longer transition path implies a lower actual contribution in early years. As a consequence, the contribution rate in later years is higher than it would be otherwise.
- A higher expected return on the Fund's assets should reduce the contribution rate. However, since higher returns are the compensation for taking on higher risk, asset returns will become more variable and, consequently, so will the contribution rate.
- Taxing the Fund's asset returns has the practical effect of reducing the Fund's expected return, thereby raising the contribution rate. However, this would be offset by tax revenue from the Fund's investment earnings.
- Restrictions on when the Fund's assets may be drawn down to contribute toward meeting the current year's New Zealand Superannuation expenditure may

lead to abrupt increases in the contribution rate, which the policy of pre-funding is designed to avoid.

Summary of Findings

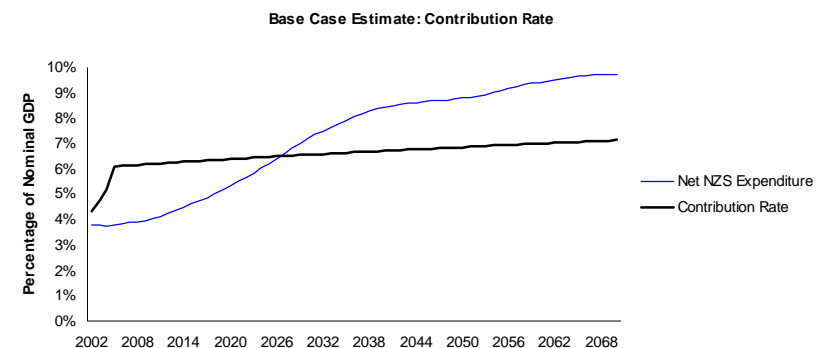
The following sections highlight the results of our modelling exercise. The mathematics of calculating the contribution rate are discussed in Annex A and in more detail in a later chapter. Further information on each scenario is provided in Annex B to this chapter.

Base Case

The base case represents our assessment of the returns that the Fund is likely to observe and incorporates assumptions consistent with our initial modelling and other advice. It is the reference against which other scenarios are compared. It assumes that

- the Fund is invested 50% in risk-free world government securities and 50% in world equity, with an expected portfolio return (after tax) of 6.1% and a standard deviation of 4.5%;²²
- the funding horizon is a rolling 60 years;
- the transition path is as described in the Budget Policy Statement; and
- the Fund's returns are taxed at the rate of 33 cents in the dollar.

The following figure shows the track of expected New Zealand Superannuation (after PAYE tax) and the track of the required contribution rate given the above assumptions.



The table below provides greater detail for the years in the period covered by the Progress Outlooks. The *total contribution* refers to the annual amount paid from the Crown to the fund. *NZS payments* are annual amount paid by the fund to the

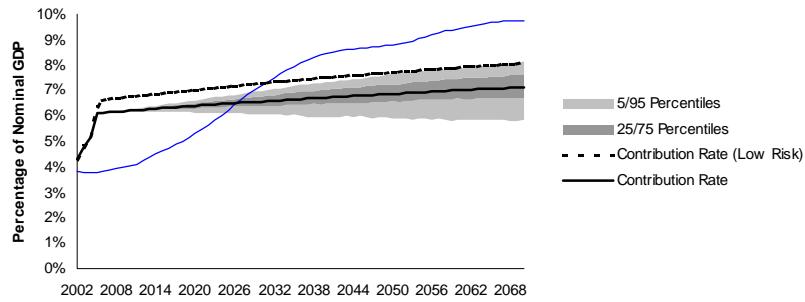
²² Yields on risk-free government securities are based on recent actual yields. Expected returns on equity are derived using the Capital Asset Pricing Model and depend on historical returns for calculating the market risk premium.

Department of Work and Income to meet the after-PAYE cost of entitlements. The difference is the annual amount of the contribution that is *retained in the Fund*.

Base Case Estimate	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10
Percentage of Nominal GDP									
Total contribution	4.32%	4.77%	5.18%	6.11%	6.13%	6.15%	6.17%	6.19%	6.21%
NZS payments (after PAYE)	<u>3.80%</u>	<u>3.77%</u>	<u>3.75%</u>	<u>3.79%</u>	<u>3.84%</u>	<u>3.89%</u>	<u>3.92%</u>	<u>3.97%</u>	<u>4.04%</u>
Retained in NZS Fund	0.52%	1.00%	1.43%	2.32%	2.29%	2.26%	2.25%	2.21%	2.17%
Billions of Nominal Dollars									
Total contribution	4.997	5.747	6.523	7.997	8.350	8.707	9.075	9.441	9.817
NZS payments (after PAYE)	<u>4.397</u>	<u>4.547</u>	<u>4.723</u>	<u>4.961</u>	<u>5.230</u>	<u>5.512</u>	<u>5.766</u>	<u>6.064</u>	<u>6.390</u>
Retained in NZS Fund	0.600	1.200	1.800	3.036	3.120	3.195	3.309	3.377	3.426

The above graph and table show only the *expected* contribution rates over time. However, there is risk surrounding future asset returns, GDP, and entitlement payments. As a result, the contribution rates actually required in the future could be higher or lower than the expected level. The following graph shows confidence intervals surrounding the contribution rate path as a result of variability in asset returns. While the solid line shows the path of expected value of the contribution rate (as in the graph above), there is a 50% probability that the required rate will be outside the dark shaded area and a 10% probability that it will be outside the light shaded area. The distribution widens over time. Indeed, by the time of the height of the fund (around 2060), there is about a 5% probability that the required contribution rate would be worse (that is, higher) than if the fund had been invested in a 100% risk-free portfolio.²³

Base Case Estimate: Dispersion of Contribution Rate

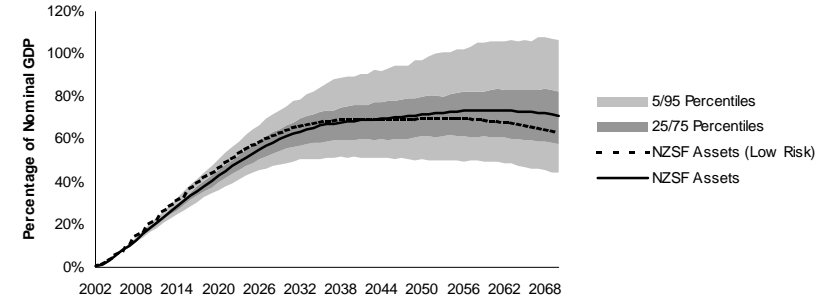


The riskiness of asset returns also affects the timing of when entitlement expenditure will start to exceed the level of total contributions to the Fund. There is a 90% probability that this will occur between 2025 and 2028.

²³ These analyses of the distribution of the contribution rate and of the fund balance reflect only the distributions of asset returns. The required contribution rate will be affected also by changes in expectations about future entitlement costs and about future GDP that cannot be easily or reliably modelled. This additional uncertainty would be expected to make the actual distributions even wider than illustrated here.

The size of the Fund will also depend on future outcomes, as illustrated in the graph below. Like the contribution rate, the distribution around the size of the Fund also expands with time. At its peak, the Fund is projected to have assets worth between 50% and 105% of GDP, with a mean estimate of approximately 70%. Note that the Fund peaks in 2060, or later, long after the time that the Fund starts subsidising entitlements indicated above (about 2026). The Fund is not exhausted until next century.

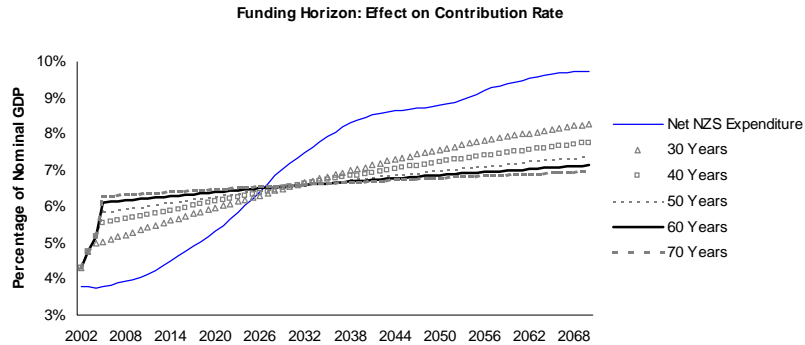
Base Case Estimate: Dispersion of Size of Fund Assets



Funding Horizon

In addition to the base case's assumption of a 60-year funding horizon, we considered the effect on the contribution rate of horizons of 30, 40, 50, and 70 years.

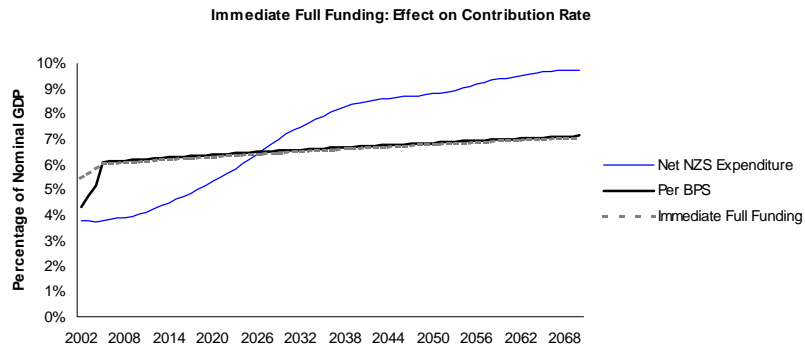
Compared to the baseline 60-year funding horizon, a 70-year horizon requires a higher initial contribution rate, but the slope of this rate as the funding horizon rolls along will be less steep. In contrast, horizons of 30, 40, and 50 years require lower initial contribution rates, but the slopes of those rates are more pronounced. As the funding horizon shortens, the shape of the contribution rate more closely approximates the profile of after-PAYE New Zealand Superannuation. Indeed, a funding horizon of only one year is synonymous with pay-as-you-go.



A funding horizon of 20 years would imply an initial retained contribution of under \$600 million in 2002, meaning that the technical assumption in the Budget Policy Statement would not be a constraint.

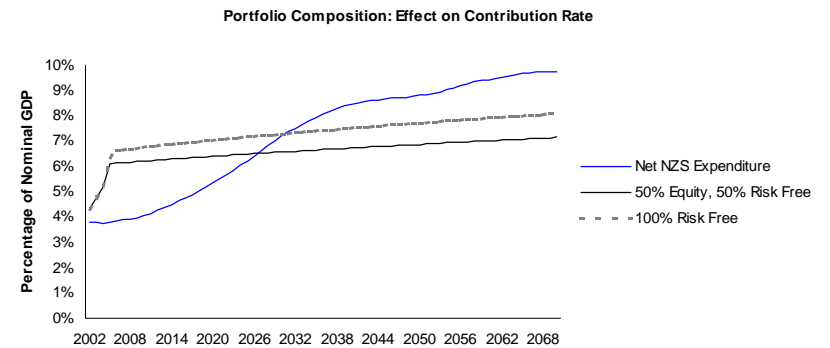
Transition Path

The Budget Policy Statement set out a technical assumption of providing \$600 million, \$1,200 million and \$1,800 million to the fund above the after-PAYE cost of New Zealand Superannuation in 2002, 2003, and 2004, respectively. Relaxing this constraint to permit contributions in excess of after-PAYE expenditure would result in a lower contribution rate through time. The effect, albeit slight, is felt as early as 2005.



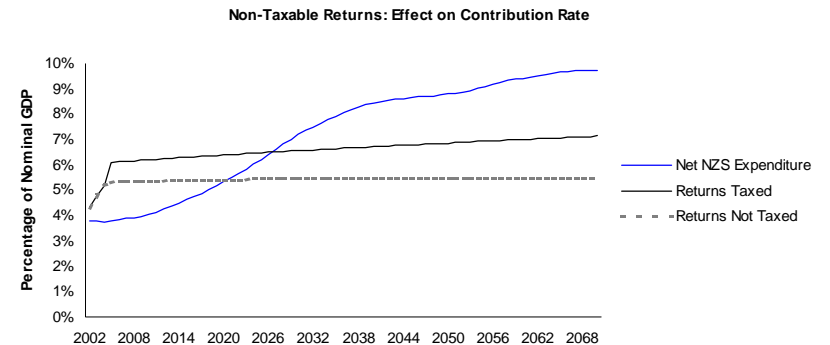
Asset Returns

Were the Fund to pursue a low-risk investment strategy and invest its assets primarily in, for example, risk-free government securities yielding 4.5% annually after tax, the Fund could expect a lower return than with the portfolio in the base case, as well as a lower volatility of returns. This is because higher returns are available only as compensation for taking on higher risk. As a consequence, a higher contribution rate would be required to fund New Zealand Superannuation over a similar time horizon.



Tax Status of Returns

The tax status of the Fund will influence the contribution rate. Taxing the Fund's asset returns reduces the Fund's "in hand" expected return and raises the contribution rate. For the Crown as a whole, this would be offset by tax revenue from the Fund's investment earnings. These earnings will increase over time. Although the total contribution required for a taxed fund would be higher than for a tax-exempt fund, after about 2015 the taxed fund would have a lower net fiscal impact on the Crown than would a tax-exempt fund.²⁴ Taxation of the Fund is a complex issue (see the chapter on taxation). Deciding whether the Fund should be taxed depends on several factors, of which the contribution rate is of secondary importance.

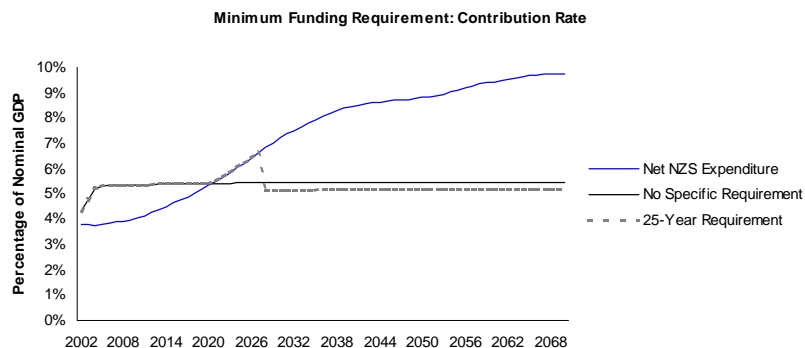


Minimum Funding Requirement

One possibility for augmenting the stability of the Fund is a requirement that contributions to the Fund must be at least equal to the after-PAYE cost of New Zealand Superannuation for the first, say, 25 years. This constraint does not have a noticeable effect on the contribution rate given the expected return and other assumptions in the

²⁴ The relative net fiscal impacts of a taxed versus a tax-exempt fund are examined in the next chapter.

base case. Applying this provision to a different set of assumptions, however, could result in an abrupt increase in the contribution rate, as in the following figure.²⁵ The same policy intent could be achieved with a 20-year constraint, which would be unlikely to produce this undesirable effect.



Basis of Analysis

Our approach to calculating the rate of funding is based on the assumption that the Fund will be financed so that, at a constant level, it will be sufficient to finance New Zealand Superannuation over 60 years. The annual cost of New Zealand Superannuation is expected to vary over time according to changes in demography. The notion of setting a constant rate is so that, if current expectations about those future expenditure requirements and about investment returns were borne out, the same rate would apply each year into the future. The following assumptions about the calculation method were adopted:

- a rolling horizon approach, in which the horizon date is pushed out each time the rate is reviewed so that the rate is always set at the constant rate that would be required for the succeeding 60 years (or similar rolling time period);
- the constant level to be interpreted as a constant proportion of forecast GDP; and
- the fund receiving the total amount being provided for New Zealand Superannuation each year, and then disbursing for payment through the Department of Work and Income the actual amounts needed to pay the current year expenditure on after-PAYE New Zealand Superannuation entitlements.

As the future unfolds, expectations change, and the time horizon within which the rate is set rolls along, the appropriate constant rate would need to be continually re-assessed. Hence, there is no realistic expectation that the rate actually applied out into the future would remain constant.

²⁵ The assumption here is that the Fund's returns are tax-exempt.

The Budget Policy Statement set out a technical assumption of providing \$600 million, \$1,200 million and \$1,800 million to the fund above the net cost of New Zealand Superannuation in 2002, 2003, and 2004, respectively. These amounts remain as a constraint for the first three years in the work reported here. For comparative purposes, we have also examined the implication of having no such transition.

A possible additional constraint on contributions is a provision that contributions to the fund must be at least equal to the after-PAYE cost of New Zealand Superannuation for the first, say, 25 years. We have examined this policy in the analysis of scenarios.

For any year, the above parameters imply that the contribution rate would be set so that, if that rate as a proportion of GDP continued to be contributed for the whole time horizon from that date, the amount contributed, along with the fund balance at the start of that period and investment returns, would be just enough to meet the expected cost of New Zealand Superannuation (net of PAYE tax) over that time horizon.

In other words, the contribution rate equals

- the difference between the expected present value of NZS payments over the time horizon and the Fund balance at the start of the time horizon (with an adjustment for fortnightly payments);
- divided by the expected present value of GDP over the time horizon.

The calculation of the rate is described further in Annex A and a later chapter covers its technical specification in detail.

The data requirements to calculate the contribution rate for a given time horizon are

- projected New Zealand Superannuation entitlement payments over the time horizon;
- projected GDP over the time horizon;
- expected rates of return on the Fund; and
- the balance of the Fund at the start of the time horizon.

Projected New Zealand Superannuation entitlement payments and projected GDP have been taken from the latest version of Treasury's long-term fiscal model that is being used to produce the projections for this year's Budget. This incorporates assumptions about such variables as labour force growth, net migration, fertility, mortality, labour productivity growth, real wage growth, and inflation. We have assumed that the outputs for these two series from the long-term fiscal model reflect their expected values. The long-term fiscal model provides projections out to 2050, which have been extended out to 2070. With a 60-year time horizon, this would allow projections of the contribution rate up to only 2010. To project the contribution rates beyond 2010, we have assumed that GDP continues to grow at a constant rate consistent with its growth rate around 2070, and that New Zealand Superannuation after 2070 is a constant proportion of GDP.

Expected rates of return depend on the portfolio composition of the Fund and on its tax status. The portfolio composition will be a matter for the Board of the Fund to determine, so the modelling approach is to predict the composition that the Board is likely to select. For the purpose of this modelling, we have assumed a portfolio that is 50% risk-free world government securities²⁶ and 50% equities earning the world rate of return.

In our base scenario, we have assumed that the Fund is subject to tax at the rate of 33 cents in the dollar. We also analyse a scenario in which the Fund is not subject to tax.

The balance of the Fund at the beginning of the first year of the time horizon would be known with certainty at the start of the time horizon and could be predicted fairly accurately just prior to that year, when that year's rate is being set. When projecting future required contribution rates, however, the future Fund balances need to be projected. These will depend on the actual contributions, actual New Zealand Superannuation payments, and actual investment returns between the start of the Fund and the balance date. Since these are not known with certainty in advance, the projected future balances of the Fund are not certain. As a result, there is uncertainty surrounding the projections of future required contribution rates.

We have modelled this uncertainty using simulations to assess the potential variability surrounding the projections of variables such as future contribution rates and future Fund balances. In these simulations, we have taken account of the statistical distributions of investment returns. However, we do not have information about the statistical distributions surrounding the projections of GDP and entitlement payments (nor their covariation with each other and with investment returns). Therefore, in our modelling of the variability of contributions and fund balances, we have treated them as deterministic.

The results presented in this chapter were produced using a spreadsheet, augmented with a simulation software package. As described in the summary of findings, above, a base scenario was prepared, and other scenarios reflect the change of a single assumption (a different time horizon, a different transition path, and so on).

²⁶ We assume that the exchange rate risk arising from any investment in foreign assets would be hedged through forward contracts. The interest rate parity theorem implies that, whatever yield is offered on risk-free bonds denominated in a foreign currency, hedging through a forward contract will generate a yield net of the hedging process that is identical to the yield offered on risk-free New Zealand dollar-denominated bonds.

Annex A: Calculation of the Contribution Rate

This Annex provides a quick summary of the rate calculation used in the modelling. The calculation is derived in detail in the chapter on "Technical Specification for the Calculation of the Rolling-Horizon Constant Contribution Rate".

For any year, the contribution rate would be set so that, if that rate as a proportion of GDP continued to be contributed for the whole time horizon from that date, the amount contributed, along with the fund balance at the start of that period and investment returns, would be just enough to meet the expected cost of New Zealand Superannuation (after PAYE tax) over that time horizon.

This can be expressed in mathematical form as

$$B_0(1+r_H)^H + \sum_{t=1}^H (kG_t - P_t)w(1+r_{H-t})^{H-t} = 0$$

where

- B_0 = the fund balance at the start of the year for which the rate is being calculated;
- H = the time horizon;
- k = the constant rate;
- G_t = projected GDP in year t of the time period;
- P_t = projected New Zealand Superannuation payment (net of PAYE tax) in year t ;
- r_i = the geometric mean return expected for a period of i years; and
- w = an adjustment to reflect the extra investment returns from contributions being made to the fund fortnightly, not just at the end of the year.²⁷

Solving for the contribution rate k gives

$$k = \frac{\sum_{t=1}^H P_t(1+r_t)^{-t} - \frac{B_0}{w}}{\sum_{t=1}^H G_t(1+r_t)^{-t}}$$

The contribution rate k will vary through time as forecasts of NZS payments, GDP, and investment returns change and as the time horizon rolls along.

²⁷ Assuming fortnightly contributions in line with New Zealand Superannuation entitlement payments,

$$w = \frac{r_i}{26((1+r_i)^{52} - 1)}$$

Annex B-1: Base Case

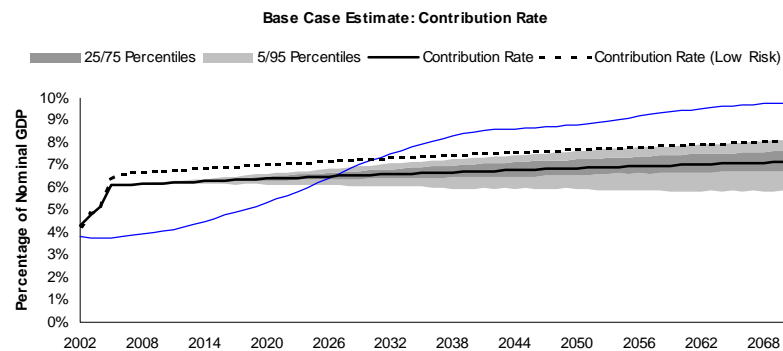
Key Modelling Assumptions

- The Fund is invested 50% in risk-free world government securities and 50% in world equity, with an expected portfolio return (after tax) of 6.1% and a standard deviation of 4.5%.
- The funding horizon is a rolling 60 years.
- Transition path is as described in the Budget Policy Statement.
- The Fund's returns are taxed at the rate of 33 cents in the dollar.

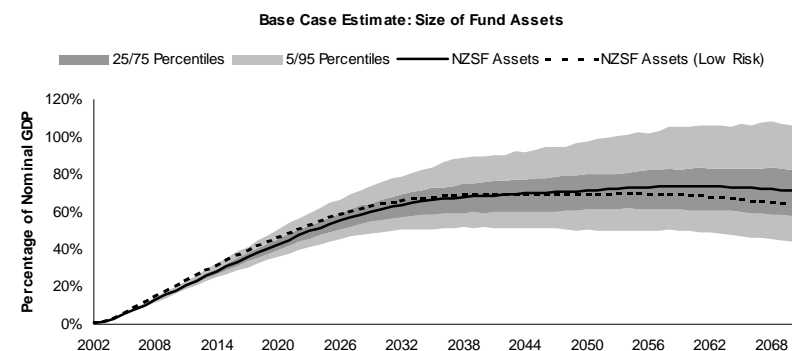
Summary Through Progress Outlooks Period

Base Case Estimate	½	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	
Percentage of Nominal GDP										
Total contribution		4.32%	4.77%	5.18%	6.11%	6.13%	6.15%	6.17%	6.19%	6.21%
NZS payments (after PAYE)		3.80%	3.77%	3.75%	3.79%	3.84%	3.89%	3.92%	3.97%	4.04%
Retained in NZS Fund		0.52%	1.00%	1.43%	2.32%	2.29%	2.26%	2.25%	2.21%	2.17%
Billions of Nominal Dollars										
Total contribution		4.997	5.747	6.523	7.997	8.350	8.707	9.075	9.441	9.817
NZS payments (after PAYE)		4.397	4.547	4.723	4.961	5.230	5.512	5.766	6.064	6.390
Retained in NZS Fund		0.600	1.200	1.800	3.036	3.120	3.195	3.309	3.377	3.426

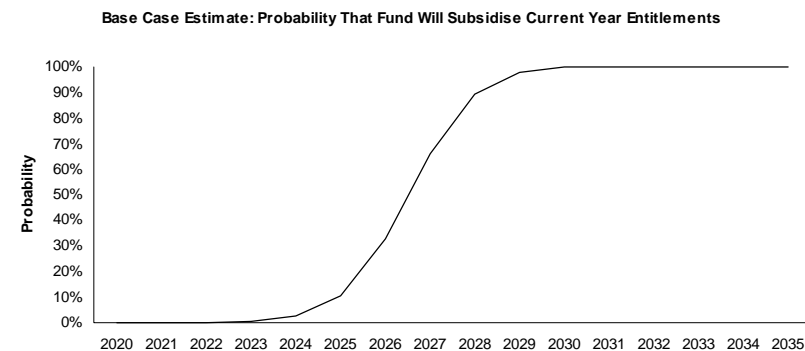
Contribution Rate



Fund Balance



Probability of When Fund Begins Subsidising Current Year Entitlements



Annex B-2: Investment in Only Risk-Free Assets

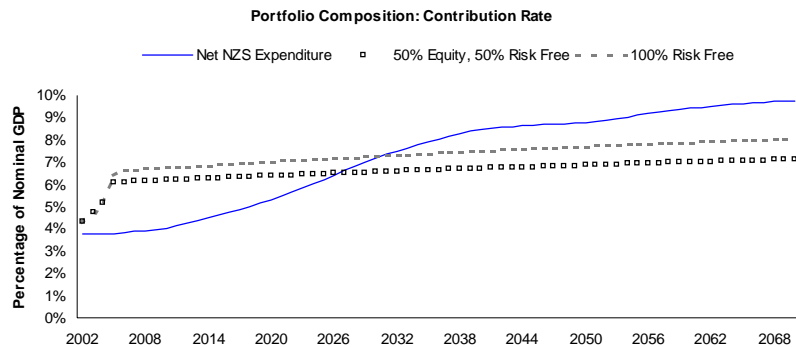
Key Modelling Assumptions

- The Fund is invested 100% in risk-free world government securities with an expected yield (after tax) of 4.5%.
- The funding horizon is a rolling 60 years.
- Transition path is as described in the Budget Policy Statement.
- The Fund's returns are taxed at the rate of 33 cents in the dollar.

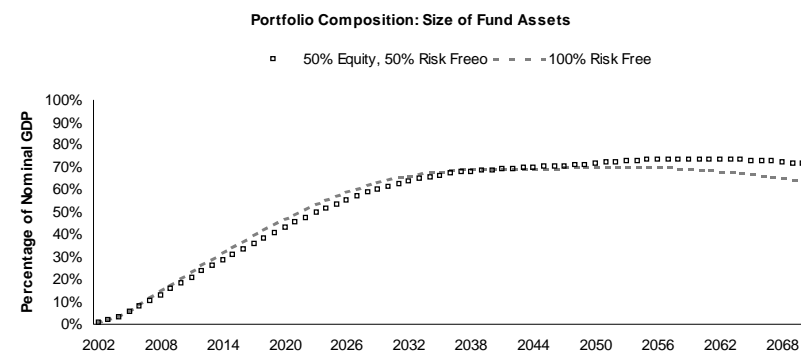
Summary Through Progress Outlooks Period

Risk-Free Portfolio	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10
Percentage of Nominal GDP									
Total contribution	4.32%	4.77%	5.18%	6.38%	6.62%	6.65%	6.68%	6.71%	6.74%
NZS payments (after PAYE)	<u>3.80%</u>	<u>3.77%</u>	<u>3.75%</u>	<u>3.79%</u>	<u>3.84%</u>	<u>3.89%</u>	<u>3.92%</u>	<u>3.97%</u>	<u>4.04%</u>
Retained in NZS Fund	0.52%	1.00%	1.43%	2.59%	2.78%	2.76%	2.76%	2.73%	2.70%
Billions of Nominal Dollars									
Total contribution	4.997	5.747	6.523	8.353	9.021	9.418	9.828	10.236	10.655
NZS payments (after PAYE)	<u>4.397</u>	<u>4.547</u>	<u>4.723</u>	<u>4.961</u>	<u>5.230</u>	<u>5.512</u>	<u>5.766</u>	<u>6.064</u>	<u>6.390</u>
Retained in NZS Fund	0.600	1.200	1.800	3.393	3.791	3.906	4.062	4.172	4.265

Contribution Rate



Fund Balance



Annex B-3: 30-Year Funding Horizon

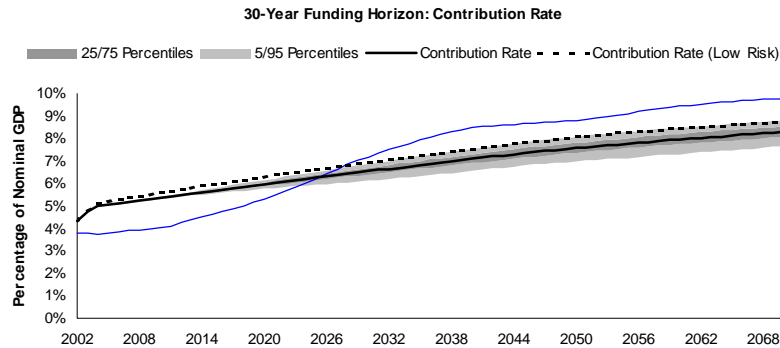
Key Modelling Assumptions

- The Fund is invested 50% in risk-free world government securities and 50% in world equity, with an expected portfolio return (after tax) of 6.1% and a standard deviation of 4.5%.
- The funding horizon is a rolling 30 years.
- Transition path is as described in the Budget Policy Statement.
- The Fund's returns are taxed at the rate of 33 cents in the dollar.

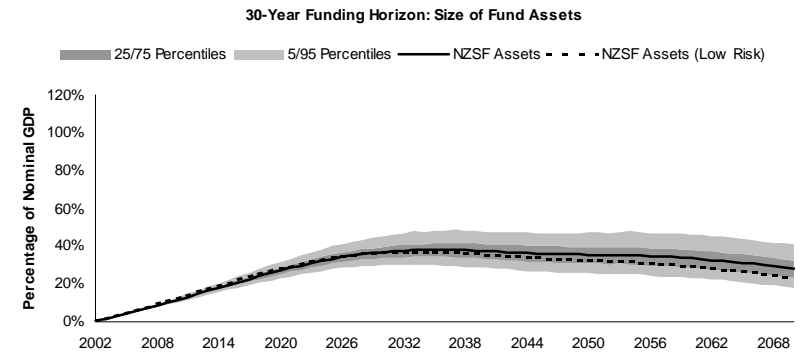
Summary Through Progress Outlooks Period

30-Year Funding Horizon	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10
Percentage of Nominal GDP									
Total contribution	4.32%	4.77%	4.98%	5.04%	5.10%	5.16%	5.22%	5.29%	5.35%
NZS payments (after PAYE)	<u>3.80%</u>	<u>3.77%</u>	<u>3.75%</u>	<u>3.79%</u>	<u>3.84%</u>	<u>3.89%</u>	<u>3.92%</u>	<u>3.97%</u>	<u>4.04%</u>
Retained in NZS Fund	0.52%	1.00%	1.23%	1.25%	1.26%	1.27%	1.31%	1.31%	1.31%
Billions of Nominal Dollars									
Total contribution	4.997	5.747	6.269	6.599	6.949	7.310	7.687	8.068	8.464
NZS payments (after PAYE)	<u>4.397</u>	<u>4.547</u>	<u>4.723</u>	<u>4.961</u>	<u>5.230</u>	<u>5.512</u>	<u>5.766</u>	<u>6.064</u>	<u>6.390</u>
Retained in NZS Fund	0.600	1.200	1.547	1.638	1.719	1.798	1.921	2.005	2.073

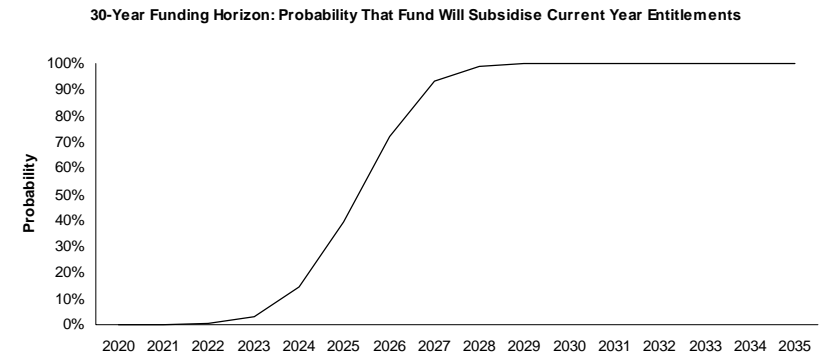
Contribution Rate



Fund Balance



Probability of When Fund Begins Subsidising Current Year Entitlements



Annex B-4: 40-Year Funding Horizon

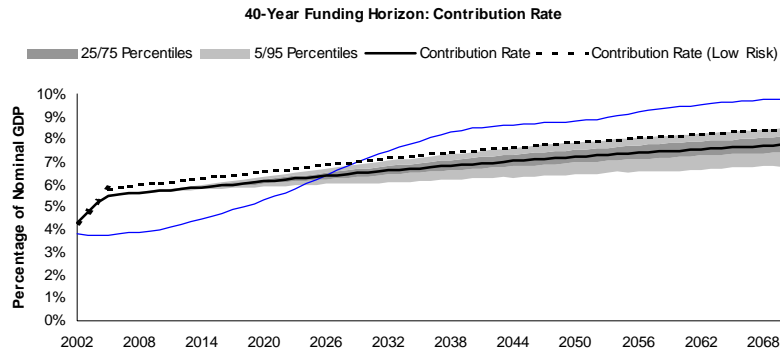
Key Modelling Assumptions

- The Fund is invested 50% in risk-free world government securities and 50% in world equity, with an expected portfolio return (after tax) of 6.1% and a standard deviation of 4.5%.
- The funding horizon is a rolling 40 years.
- Transition path is as described in the Budget Policy Statement.
- The Fund's returns are taxed at the rate of 33 cents in the dollar.

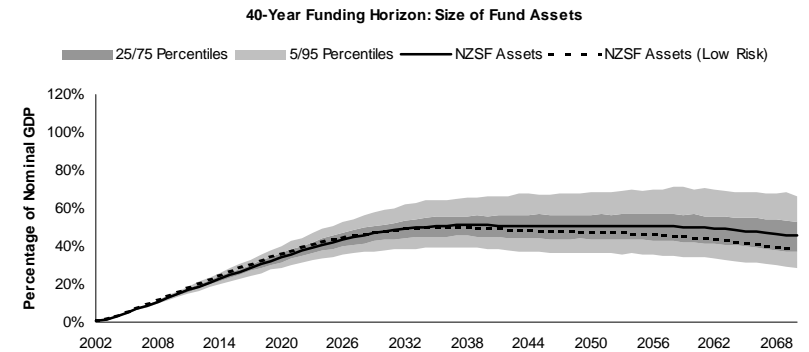
Summary Through Progress Outlooks Period

40-Year Funding Horizon	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10
Percentage of Nominal GDP									
Total contribution	4.32%	4.77%	5.18%	5.54%	5.58%	5.62%	5.66%	5.70%	5.74%
NZS payments (after PAYE)	<u>3.80%</u>	<u>3.77%</u>	<u>3.75%</u>	<u>3.79%</u>	<u>3.84%</u>	<u>3.89%</u>	<u>3.92%</u>	<u>3.97%</u>	<u>4.04%</u>
Retained in NZS Fund	0.52%	1.00%	1.43%	1.75%	1.74%	1.73%	1.74%	1.72%	1.70%
Billions of Nominal Dollars									
Total contribution	4.997	5.747	6.523	7.249	7.600	7.956	8.325	8.693	9.073
NZS payments (after PAYE)	<u>4.397</u>	<u>4.547</u>	<u>4.723</u>	<u>4.961</u>	<u>5.230</u>	<u>5.512</u>	<u>5.766</u>	<u>6.064</u>	<u>6.390</u>
Retained in NZS Fund	0.600	1.200	1.800	2.289	2.370	2.444	2.559	2.630	2.682

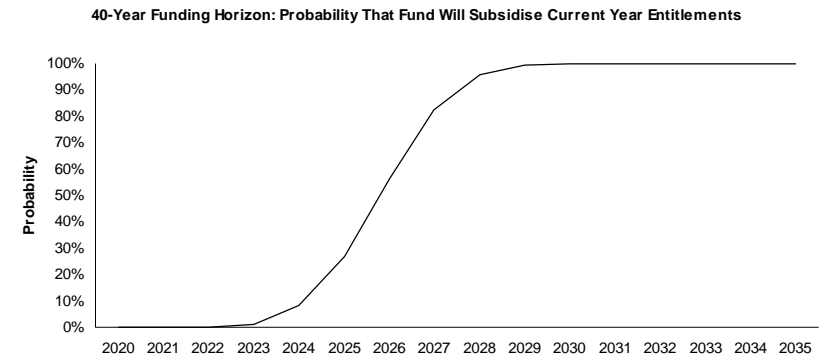
Contribution Rate



Fund Balance



Probability of When Fund Begins Subsidising Current Year Entitlements



Annex B-5: 50-Year Funding Horizon

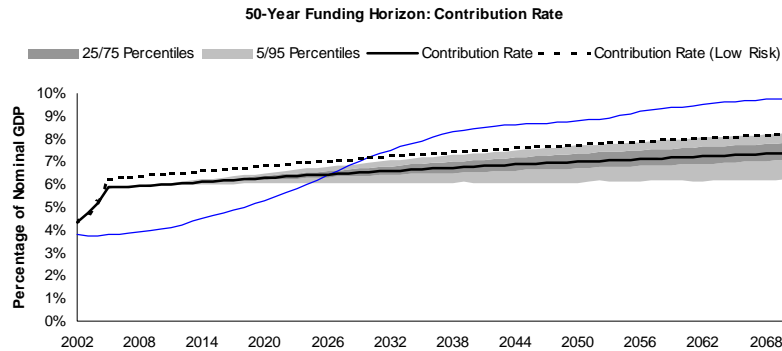
Key Modelling Assumptions

- The Fund is invested 50% in risk-free world government securities and 50% in world equity, with an expected portfolio return (after tax) of 6.1% and a standard deviation of 4.5%.
- The funding horizon is a rolling 50 years.
- Transition path is as described in the Budget Policy Statement.
- The Fund's returns are taxed at the rate of 33 cents in the dollar.

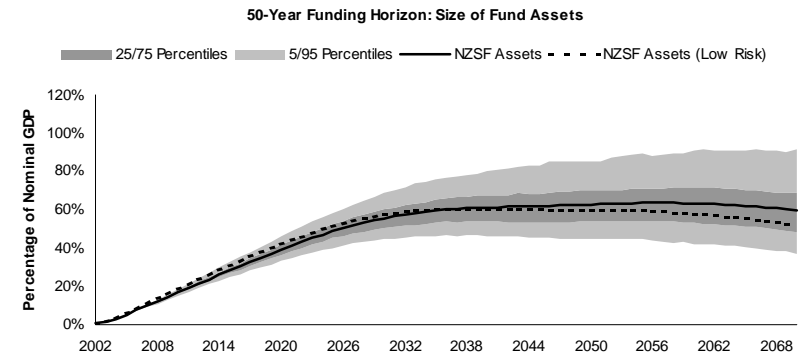
Summary Through Progress Outlooks Period

50-Year Funding Horizon	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10
Percentage of Nominal GDP									
Total contribution	4.32%	4.77%	5.18%	5.87%	5.89%	5.92%	5.95%	5.98%	6.01%
NZS payments (after PAYE)	<u>3.80%</u>	<u>3.77%</u>	<u>3.75%</u>	<u>3.79%</u>	<u>3.84%</u>	<u>3.89%</u>	<u>3.92%</u>	<u>3.97%</u>	<u>4.04%</u>
Retained in NZS Fund	0.52%	1.00%	1.43%	2.08%	2.06%	2.03%	2.03%	2.00%	1.97%
Billions of Nominal Dollars									
Total contribution	4.997	5.747	6.523	7.682	8.032	8.388	8.756	9.123	9.500
NZS payments (after PAYE)	<u>4.397</u>	<u>4.547</u>	<u>4.723</u>	<u>4.961</u>	<u>5.230</u>	<u>5.512</u>	<u>5.766</u>	<u>6.064</u>	<u>6.390</u>
Retained in NZS Fund	0.600	1.200	1.800	2.722	2.802	2.876	2.990	3.059	3.110

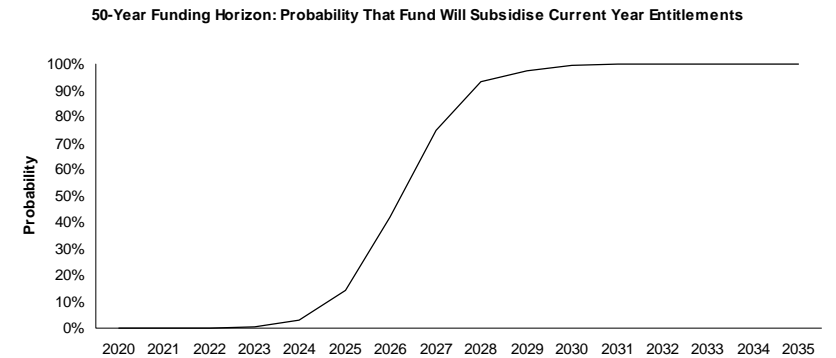
Contribution Rate



Fund Balance



Probability of When Fund Begins Subsiding Current Year Entitlements



Annex B-6: 70-Year Funding Horizon

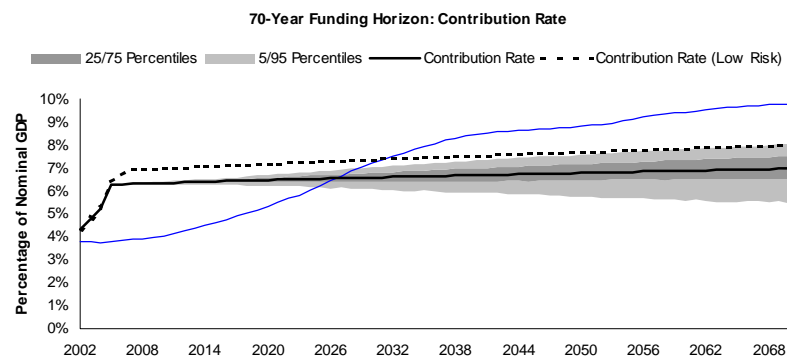
Key Modelling Assumptions

- The Fund is invested 50% in risk-free world government securities and 50% in world equity, with an expected portfolio return (after tax) of 6.1% and a standard deviation of 4.5%.
- The funding horizon is a rolling 70 years.
- Transition path is as described in the Budget Policy Statement.
- The Fund's returns are taxed at the rate of 33 cents in the dollar.

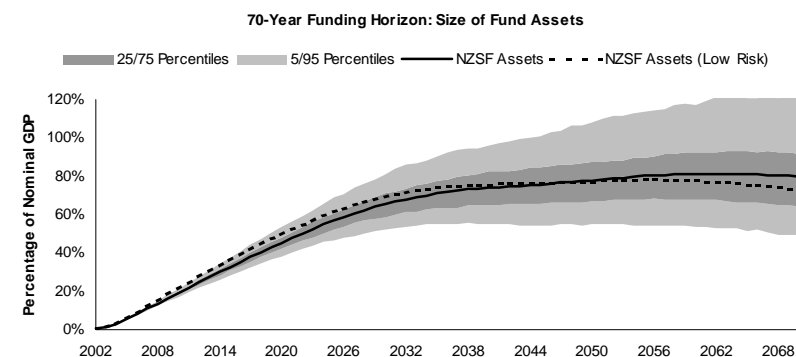
Summary Through Progress Outlooks Period

70-Year Funding Horizon	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10
Percentage of Nominal GDP									
Total contribution	4.32%	4.77%	5.18%	6.28%	6.29%	6.31%	6.32%	6.33%	6.35%
NZS payments (after PAYE)	<u>3.80%</u>	<u>3.77%</u>	<u>3.75%</u>	<u>3.79%</u>	<u>3.84%</u>	<u>3.89%</u>	<u>3.92%</u>	<u>3.97%</u>	<u>4.04%</u>
Retained in NZS Fund	0.52%	1.00%	1.43%	2.49%	2.45%	2.41%	2.40%	2.36%	2.30%
Billions of Nominal Dollars									
Total contribution	4.997	5.747	6.523	8.222	8.574	8.931	9.298	9.661	10.034
NZS payments (after PAYE)	<u>4.397</u>	<u>4.547</u>	<u>4.723</u>	<u>4.961</u>	<u>5.230</u>	<u>5.512</u>	<u>5.766</u>	<u>6.064</u>	<u>6.390</u>
Retained in NZS Fund	0.600	1.200	1.800	3.261	3.344	3.419	3.532	3.598	3.644

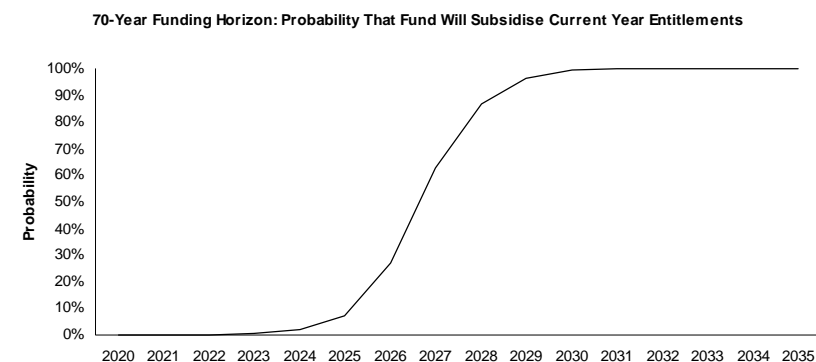
Contribution Rate



Fund Balance



Probability of When Fund Begins Subsidising Current Year Entitlements



Annex B-7: Immediate Full Funding

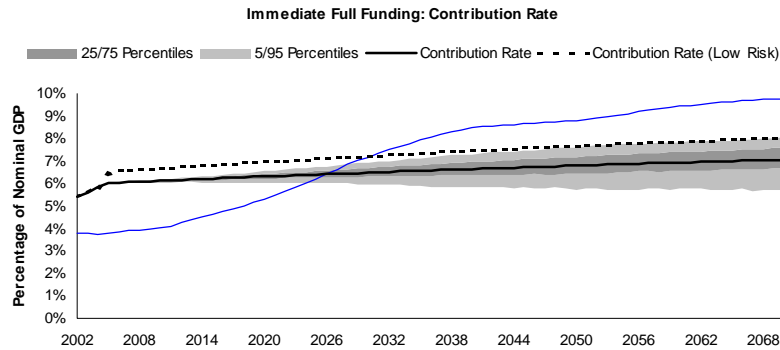
Key Modelling Assumptions

- The Fund is invested 50% in risk-free world government securities and 50% in world equity, with an expected portfolio return (after tax) of 6.1% and a standard deviation of 4.5%.
- The funding horizon is a rolling 60 years.
- The technical assumptions limiting contributions in excess of after-PAYE New Zealand Superannuation through year 03/04 described in the Budget Policy Statement do not apply.
- The Fund's returns are taxed at the rate of 33 cents in the dollar.

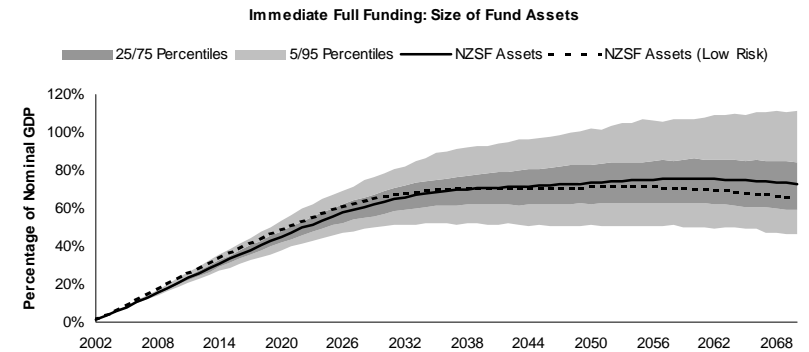
Summary Through Progress Outlooks Period

Immediate Full Funding	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10
Percentage of Nominal GDP									
Total contribution	5.45%	5.60%	5.82%	6.02%	6.04%	6.06%	6.08%	6.10%	6.12%
NZS payments (after PAYE)	<u>3.80%</u>	<u>3.77%</u>	<u>3.75%</u>	<u>3.79%</u>	<u>3.84%</u>	<u>3.89%</u>	<u>3.92%</u>	<u>3.97%</u>	<u>4.04%</u>
Retained in NZS Fund	1.64%	1.82%	2.06%	2.23%	2.20%	2.17%	2.16%	2.13%	2.08%
Billions of Nominal Dollars									
Total contribution	6.297	6.747	7.323	7.880	8.229	8.582	8.945	9.307	9.679
NZS payments (after PAYE)	<u>4.397</u>	<u>4.547</u>	<u>4.723</u>	<u>4.961</u>	<u>5.230</u>	<u>5.512</u>	<u>5.766</u>	<u>6.064</u>	<u>6.390</u>
Retained in NZS Fund	1.900	2.200	2.600	2.919	2.999	3.070	3.180	3.244	3.288

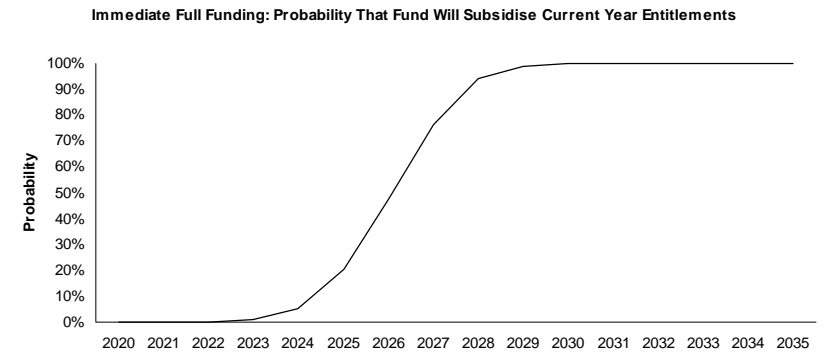
Contribution Rate



Fund Balance



Probability of When Fund Begins Subsidising Current Year Entitlements



Annex B-8: Minimum Funding Requirement

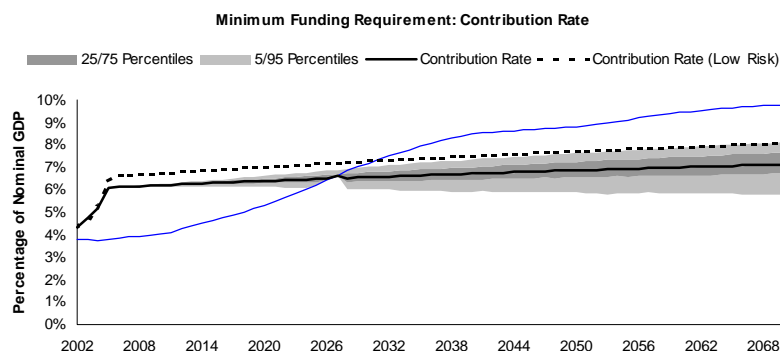
Key Modelling Assumptions

- The Fund is invested 50% in risk-free world government securities and 50% in world equity, with an expected portfolio return (after tax) of 6.1% and a standard deviation of 4.5%.
- The funding horizon is a rolling 60 years.
- Transition path is as described in the Budget Policy Statement.
- The Fund's returns are taxed at the rate of 33 cents in the dollar.
- Contributions to the Fund must be at least equal to the after-PAYE cost of New Zealand Superannuation for the first 25 years.

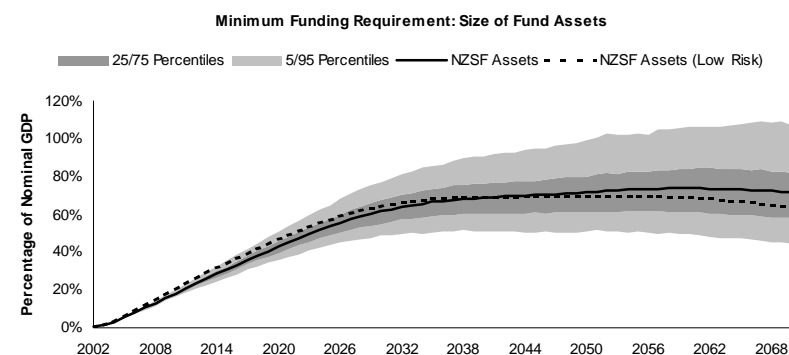
Summary Through Progress Outlooks Period

Minimum Funding Requirement	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10
Percentage of Nominal GDP									
Total contribution	4.32%	4.77%	5.18%	6.11%	6.13%	6.15%	6.17%	6.19%	6.21%
NZS payments (after PAYE)	<u>3.80%</u>	<u>3.77%</u>	<u>3.75%</u>	<u>3.79%</u>	<u>3.84%</u>	<u>3.89%</u>	<u>3.92%</u>	<u>3.97%</u>	<u>4.04%</u>
Retained in NZS Fund	0.52%	1.00%	1.43%	2.32%	2.29%	2.26%	2.25%	2.21%	2.17%
Billions of Nominal Dollars									
Total contribution	4.997	5.747	6.523	7.997	8.350	8.707	9.075	9.441	9.817
NZS payments (after PAYE)	<u>4.397</u>	<u>4.547</u>	<u>4.723</u>	<u>4.961</u>	<u>5.230</u>	<u>5.512</u>	<u>5.766</u>	<u>6.064</u>	<u>6.390</u>
Retained in NZS Fund	0.600	1.200	1.800	3.036	3.120	3.195	3.309	3.377	3.426

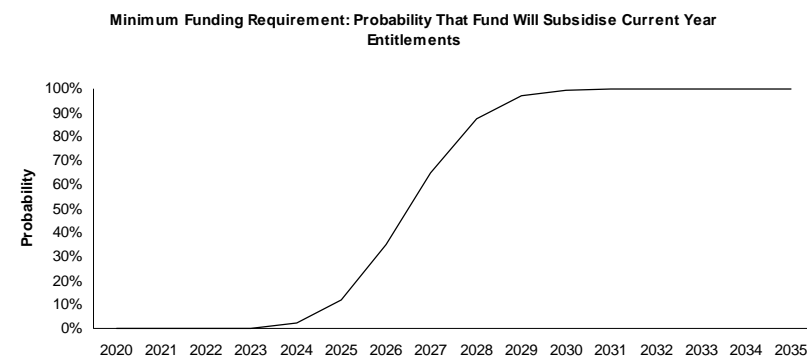
Contribution Rate



Fund Balance



Probability of When Fund Begins Subsidising Current Year Entitlements



Annex B-9: Returns Not Taxed

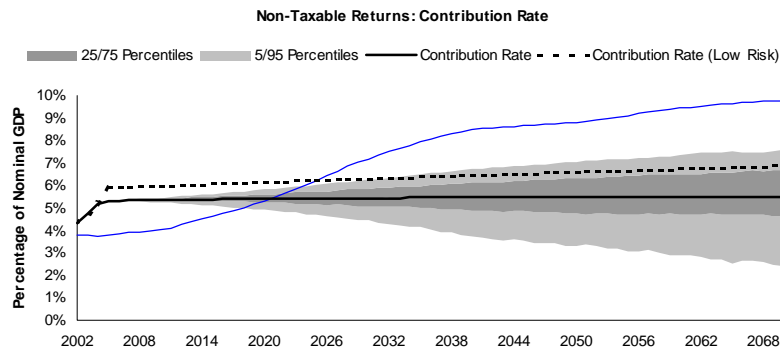
Key Modelling Assumptions

- The Fund is invested 50% in risk-free world government securities and 50% in world equity, with an expected portfolio return of 9.1% and a standard deviation of 6.8%.
- The funding horizon is a rolling 60 years.
- Transition path is as described in the Budget Policy Statement.
- The Fund's returns are not taxed.

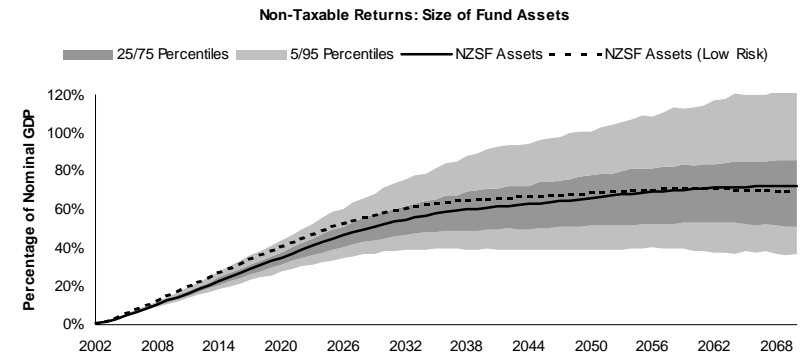
Summary Through Progress Outlooks Period

Returns Not Taxed	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10
Percentage of Nominal GDP									
Total contribution	4.32%	4.77%	5.18%	5.32%	5.33%	5.33%	5.34%	5.35%	5.36%
NZS payments (after PAYE)	3.80%	3.77%	3.75%	3.79%	3.84%	3.89%	3.92%	3.97%	4.04%
Retained in NZS Fund	0.52%	1.00%	1.43%	1.53%	1.49%	1.44%	1.42%	1.37%	1.31%
Billions of Nominal Dollars									
Total contribution	4.997	5.747	6.523	6.966	7.259	7.555	7.860	8.161	8.469
NZS payments (after PAYE)	4.397	4.547	4.723	4.961	5.230	5.512	5.766	6.064	6.390
Retained in NZS Fund	0.600	1.200	1.800	2.005	2.029	2.043	2.094	2.097	2.079

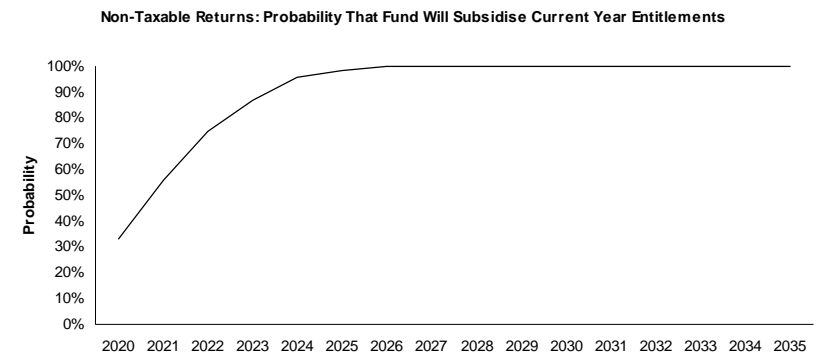
Contribution Rate



Fund Balance



Probability of When Fund Begins Subsidising Current Year Entitlements



13. FURTHER ANALYSIS OF THE CONTRIBUTION RATE

Executive Summary

This chapter provides further analysis of the contribution rate required to pre-fund New Zealand Superannuation. It addresses the effect of a one-off endowment to the fund, the contribution rate's long-term trend, and the net fiscal impact of the fund's returns being taxable.

Every \$1 billion endowment to the fund in financial year 00/01 would result in a reduction in annual contributions of approximately 0.04% of GDP. For 04/05 (the first year of full contributions following the transition), this would amount to about \$50 million. It would reduce the amount of that year's contribution retained in the fund from 1.75% to 1.71% of GDP, with similar reductions each year into the future.

The trend of the contribution rate over time is to converge with the path of New Zealand Superannuation (net of PAYE tax). The contribution rate is initially set above the cost of entitlements, which enables the fund to build up. Later, the fund is drawn down to subsidise the cost of current-year expenditure. The rolling horizon methodology effectively results in a smoothed pay-as-you-go system.

The net fiscal impact on the Crown of pre-funding New Zealand Superannuation goes beyond the direct amount of contributions retained in the fund. In particular, if the fund is taxable, the Crown's tax revenue (and, hence, the level of Crown resources available for other purposes) will be affected. Thus, the net fiscal impact of a taxed fund is less than the contribution rate alone would imply, whereas the net fiscal impact of a tax-exempt fund, exclusive of second-order effects, is the same as the contribution rate. After about 2015, the taxed fund's net fiscal impact is lower than the tax-exempt fund's since its invested fund balance and, thus, its earnings grow faster than the tax-exempt fund's. In later years, as the taxed fund's assets are drawn down and the taxes it pays decrease, its net fiscal impact rises above that of the tax-exempt fund.

One-Off Endowment

In addition to regular annual contributions, the Crown could choose to make one-off endowments to the fund. An endowment has the effect of raising the fund balance, thereby lowering the contributions required in future periods.

Every \$1 billion endowment to the fund in financial year 00/01 will result in an estimated reduction in the contribution in 04/05 of approximately \$50 million. Expressed as a percentage of GDP, the contribution in excess of the net-of-PAYE cost of New Zealand Superannuation will decline from 1.75% to 1.71%, with similar reductions of 0.04% each

year into the future.²⁸ The following table shows the effect of a \$1 billion endowment through the period covered by the Progress Outlooks:

	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10
Billions of nominal dollars										
No endowment	0.000	0.600	1.200	1.800	2.289	2.370	2.444	2.559	2.630	2.682
<u>\$1 billion endowment</u>	<u>1.000</u>	<u>0.600</u>	<u>1.200</u>	<u>1.800</u>	<u>2.240</u>	<u>2.320</u>	<u>2.393</u>	<u>2.506</u>	<u>2.576</u>	<u>2.627</u>
Effect of endowment	1.000	0.000	0.000	0.000	-0.049	-0.050	-0.051	-0.053	-0.054	-0.055
Percentage of nominal GDP										
No endowment	0.00%	0.52%	1.00%	1.43%	1.75%	1.74%	1.73%	1.74%	1.72%	1.70%
<u>\$1 billion endowment</u>	<u>0.91%</u>	<u>0.52%</u>	<u>1.00%</u>	<u>1.43%</u>	<u>1.71%</u>	<u>1.70%</u>	<u>1.69%</u>	<u>1.70%</u>	<u>1.69%</u>	<u>1.66%</u>
Effect of endowment	0.91%	0.00%	0.00%	0.00%	-0.04%	-0.04%	-0.04%	-0.04%	-0.04%	-0.04%

Long-Term Trend

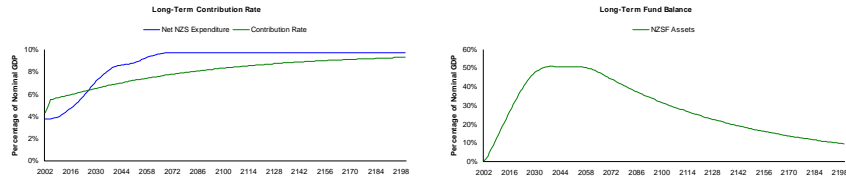
New Zealand's population is ageing, and a greater proportion of the population will be of retirement age in the future. Pre-funding New Zealand Superannuation cannot alter this fact. It can, however, smooth the fiscal adjustments associated with this change in demographic structure.

The contribution rate is indicative of the financing required for New Zealand Superannuation over the funding horizon. It is a sort of rolling average. Current forecasts indicate that expenses for entitlements will begin rising as a percentage of GDP around 2007 and reach a more or less steady state after 2060. Thus, as the funding horizon rolls along, it will encompass years with more onerous entitlement expenditures, and the rolling average will rise. Once entitlement costs level off, the rolling average will move toward a constant value.

The trend of the contribution rate over time, therefore, is to converge with the path of New Zealand Superannuation (net of PAYE tax). The contribution rate is initially set above the cost of entitlements, which enables the fund to build up. Later, the fund is drawn down to subsidise the cost of current-year expenditure. This pre-funding policy could be appropriately referred to as a smoothed pay-as-you-go system.

The following figures illustrate this convergence, assuming that, after 2070, New Zealand Superannuation expenditures (net of PAYE tax) plateau at 9.75% of GDP, GDP grows at a nominal rate of 2.75%, and the rate of return on the fund's investments remains constant. Long-term projections of demographic and economic variables (such as labour force growth, net migration, labour productivity growth, real wage growth, asset returns, and inflation) are highly speculative. These figures should be interpreted as indicative of the long-term behaviour of the contribution rate given certain conditions, as opposed to high-confidence forecasts of it.

²⁸ Another chapter reports on pre-funding schemes in Canada and Ireland. Ireland considered the potential value of one-off contributions to its pre-funding scheme. A £2 billion allocation (roughly 3.4% of annual GNP) made in 1999 would have reduced social welfare pension costs in the future from 3.7% of GNP to under 3.5% of GNP.



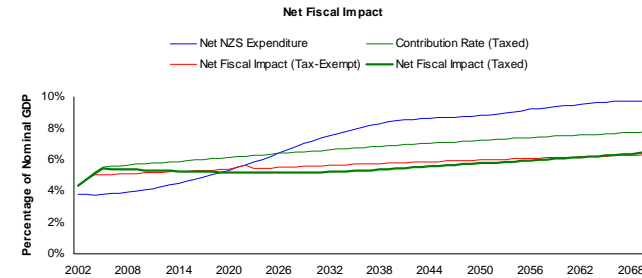
In reality, New Zealand Superannuation expenditure will continue to fluctuate over time. The rolling horizon methodology results in a smoothed pay-as-you-go system. The fund balance absorbs the fluctuations in expenditure. Consequently, the more variable is the path of superannuation expenditure over time, the higher is the average long-term fund balance.

Building up a stock of assets that would continue in perpetuity to provide a partial funding base for New Zealand Superannuation beyond absorbing fluctuations in expenditure would require a different rate calculation mechanism and a significantly higher initial contribution rate than in the analyses completed to date.

Net Fiscal Impact

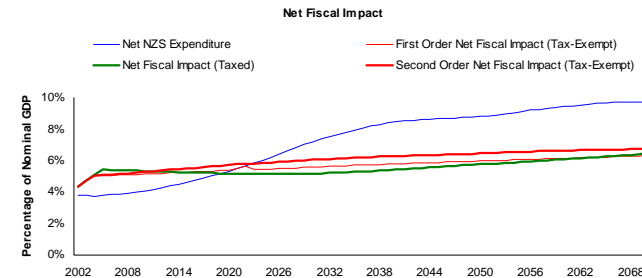
The net fiscal impact on the Crown of pre-funding New Zealand Superannuation goes beyond the direct amount of contributions retained in the fund. In particular, if the fund is taxable, the Crown's tax revenue (and, hence, the level of Crown resources available for other purposes) will be affected. Thus, the net fiscal impact of a taxed fund is less than the contribution rate alone would imply, whereas the net fiscal impact of a tax-exempt fund is the same as the contribution rate.

The following figure illustrates this point. If the fund is taxed, the net fiscal impact (the thick green line) will decline over the first three decades. The fund's earnings (and, consequently, the taxes it pays) are growing faster than the contribution rate (the thin green line) is increasing. A tax-exempt fund starts with a lower contribution rate, because all future returns will compound free of tax, and, hence, a lower net fiscal impact (the red line). After about 2015, the taxed fund's net fiscal impact is lower since the invested fund balance and, thus, its earnings grow faster than the tax-exempt fund's. In later years, as the taxed fund's assets are drawn down and the taxes it pays decrease, its net fiscal impact rises above that of the tax-exempt fund.



Second-order effects, which have not been quantified, would raise the net fiscal impact of a tax-exempt fund (shown notionally by the thick red line in the following figure). In our earlier chapter on the tax status of the fund, we noted that a tax-exempt fund would require complicated governance rules, which could bias the fund toward investments with lower return or higher risk characteristics. Likewise, making the fund tax-exempt would lead to the loss of tax revenue from other sources for several reasons. For example,

- The fund could trade on its tax-exempt status with taxable entities through joint venture schemes, in which the tax-exempt fund earns the taxable component of any income whilst its taxable partners receive deductions or earn the non-taxable component of income.
- If the fund has no effect on economic growth, it would crowd out private investment. Hence, a larger share of the New Zealand tax base would move into the fund, and tax that would otherwise have been paid by taxable entities would be foregone.



Background

For the purpose of further analysis, the following assumptions have been adopted and are reflected in the modelling results in this chapter:

- the funding horizon is a rolling 40 years;
- the fund is invested 50% in government stock and 50% in equities;

- the fund's earnings are taxable at the rate of 33 cents in the dollar;
- the transition path is as described in the Budget Policy Statement²⁹; and
- contributions to the fund must be no less than New Zealand Superannuation expenditure (net of PAYE tax) for the first 20 years.

As explained in the previous chapter, the required contribution rate equals the difference between the expected present value of New Zealand Superannuation payments over the funding horizon and the fund balance at the start of the funding horizon, divided by the expected present value of GDP over the funding horizon.

The total contribution is the annual amount paid from the Crown to the fund. The fund, in turn, pays to the Department of Work and Income the annual amount required to meet the after-PAYE cost of superannuation entitlements. The difference between the two payments is the annual amount of the contribution that is retained in the fund.

14. TECHNICAL SPECIFICATION FOR THE CALCULATION OF THE ROLLING-HORIZON CONSTANT CONTRIBUTION RATE

This chapter sets out the logic behind the calculation of the contribution rate for pre-funding New Zealand Superannuation.

The Problem

Each time the rate is reviewed, the problem is to calculate the contribution level so that if that same rate of contribution as a proportion of forecast GDP was made each year for a specified time horizon, the fund balance plus accumulated returns would be expected to be sufficient to meet entitlement payments over that time horizon.

When the rate is reviewed again, the same policy applies, but the forecasts of entitlements and GDP roll along to reflect the moving time horizon, and the fund balance is updated to reflect actual results since the last review. So, if we seek to estimate what the required contribution rate will be in j years' time, it is necessary to solve the following equation for k_j :

$$E_0 \left[B_{j-1} \prod_{t=1}^H (1 + r_{j+t-1}) + \sum_{t=1}^H (k_j G_{j+t-1} - P_{j+t-1}) (1 + s_{j+t-1}) \prod_{i=t+1}^H (1 + r_{j+i-1}) \right] = 0$$

where

- $E_0[\dots]$ = expected value given information available at the beginning of year 1.
- B_{j-1} = Fund balance at the beginning of year j .
- H = time horizon for the calculation.
- r_t = rate of return on the Fund in year t .
- k_j = contribution rate as a proportion of GDP.
- G_t = GDP for year t .
- P_t = forecast entitlement payments in year t .
- s_t = annualised return in year t when receipts and payments are made in fortnightly instalments. $(1 + s_t) = \frac{1}{26} \sum_{i=0}^{25} (1 + r_t)^{\frac{25-i}{26}} = \frac{r_t}{26} \left((1 + r_t)^{\frac{25}{26}} - 1 \right)$

In words, the expected value of:

- the opening Fund balance, with returns compounded over the time horizon; plus
- the net receipts and payments in each year, received and paid in fortnightly instalments and compounded for the remainder of the time horizon;

equals zero.

The estimated level of the required contribution in year j would be $k_j G_j$.

²⁹ The contribution to the fund in excess of the net-of-PAYE cost of New Zealand Superannuation will be \$600 million in 2002, \$1,200 million in 2003, and \$1,800 million in 2004.

Assumptions

The values of future GDP and future entitlement payments (that is, the series of G_t and P_t) are uncertain. However, although the forecasts that are used are believed to be central estimates of some sort, the actual distributions of these variables are unknown and the relationships (if any) between these variables and returns are unknown. In the absence of this information, it is assumed that the series represents the expected values and that they are uncorrelated with returns (although they are allowed to be correlated with each other).

To calculate the basic results, the distribution of returns to the Fund is assumed to be known and stationary throughout the forecast time horizon. Later in this note, the stationarity assumption is relaxed. It is also assumed that returns are serially uncorrelated (that is, that the rate of return in one year is independent of the rates of return realised in prior years – a basic market efficiency assumption).

Solution with Stationary Returns

Given these assumptions, the above equation can be restated as:

$$\begin{aligned} 0 &= E_0[B_{j-1}]E_0\left[\prod_{t=1}^H(1+r_{j+t-1})\right] + \sum_{t=1}^H(k_j G_{j+t-1} - P_{j+t-1})E_0\left[(1+s_{j+t-1})\prod_{i=t+1}^H(1+r_{j+i-1})\right] \\ &= E_0[B_{j-1}](1+\mu)^H + \sum_{t=1}^H(k_j G_{j+t-1} - P_{j+t-1})(1+v)(1+\mu)^{H-t} \\ &= \frac{E_0[B_{j-1}]}{(1+v)} + k_j \sum_{t=1}^H G_{j+t-1}(1+\mu)^{-t} - \sum_{t=1}^H P_{j+t-1}(1+\mu)^{-t} \end{aligned}$$

where

$\mu = E_0[r_j]$, the expected annual rate of return.

$v = E_0[s_j]$. Assuming that $(1+r_t)$ is distributed lognormally with mean $(1+\mu)$ and variance

$$\sigma^2, \text{ then } (1+v) = \frac{1}{26} \sum_{i=0}^{25} \left[(1+\mu)^{\frac{25i}{26}} \left(1 + \frac{\sigma^2}{(1+\mu)^2} \right)^{\frac{25i(25-i)}{26}} \right]. \text{ (This result is derived from}$$

the properties of the lognormal distribution.)

Solving for k_j gives:

$$k_j = \frac{\sum_{t=1}^H P_{j+t-1}(1+\mu)^{-t} - \frac{E_0[B_{j-1}]}{(1+v)}}{\sum_{t=1}^H G_{j+t-1}(1+\mu)^{-t}}$$

In words, the estimated required constant rate for year j (k_j) equals:

- the present value of forecast entitlement payments discounted at the expected rate of return on the Fund: $\sum_{t=1}^H P_{j+t-1}(1+\mu)^{-t}$;
- *minus* the expected beginning Fund balance ($E_0[B_{j-1}]$), with an adjustment for the fortnightly frequency of receipts and payments ($1/(1+v)$);
- *all divided by* the present value of forecast GDP discounted at the expected rate of return on the Fund: $\sum_{t=1}^H G_{j+t-1}(1+\mu)^{-t}$.

Constraints on Contributions and the Projected Fund Balance

The calculation of $k_j G_j$ provides the estimated required level of contribution that meets the rolling-horizon constant rate objective. The actual level of contribution may be required to depart from this required level. There could be an upper-bound constraint (for example, the level of contribution cannot exceed the available operating balance) and a lower-bound constraint (for example, the level of contribution must be not less than the level of entitlement payments in the first twenty years). Given an upper bound (U_j) and a lower bound (L_j), the actual level of contribution in a year (A_j) would reflect these constraints as follows:

$$A_j = \min[\max[k_j G_j, L_j] U_j]$$

The expected future balance of the Fund ($E_0[B_{j-1}]$) reflects expected returns, entitlement payments and the expected *actual* contributions. In the case of stationary returns:

$$\begin{aligned} E_0[B_{j-1}] &= E_0[B_{j-2}](1+\mu) + (A_{j-1} - P_{j-1})(1+v) \\ &= B_0(1+\mu)^{j-1} + \sum_{t=1}^{j-1} (A_t - P_t)(1+v)(1+\mu)^{j-t-1} \end{aligned}$$

The General Case: Non-Stationary Returns

The above results can be generalized to the case when returns are not necessarily stationary. A yield curve that is not flat and having the expected rate of inflation vary over time are two examples that would result in expected returns varying over time.

The solution then becomes:

$$k_j = \frac{\sum_{t=1}^H P_{j+t-1}(1+v_{j+t-1})\prod_{i=1}^t(1+\mu_{i+j-1})^{-1} - E_0[B_{j-1}]}{\sum_{t=j}^{H+j-1} G_t(1+v_t)\prod_{i=1}^t(1+\mu_{i+j-1})^{-1}}$$

where

$\mu_t = E[r_t]$, the expected annual rate of return.

$v_t = E[s_t]$. Assuming that $(1+r_t)$ is distributed lognormally with mean $(1+\mu_t)$ and variance

$$\sigma_t^2, \text{ then } (1+v_t) = \frac{1}{26} \sum_{i=0}^{25} \left[(1+\mu_t)^{i/26} \left(1 + \frac{\sigma_t^2}{(1+\mu_t)^2} \right)^{i/26} \right]^{26}. \text{ (This result is derived from}$$

the properties of the lognormal distribution.)

and

$$E_0[B_{j-1}] = B_0 \prod_{i=1}^{j-1} (1+\mu_i) + \sum_{i=1}^{j-1} (A_i - P_i)(1+v_i) \prod_{i=1}^{j-1} (1+\mu_i)$$

Implementation

A version of the stationary model has been used in the modelling for pre-funding New Zealand Superannuation produced to date. The non-stationary model would be relatively straightforward to implement in a spreadsheet.

The data requirements for the non-stationary model with constraints are:

- the series of forecasted expected GDP (G_t) and expected entitlement payments (P_t);
- the series of forecasted expected annual returns (μ_t), and their variance (σ_t^2);
- the Fund balance at the start of the first year for which the required contribution rate is being estimated; and
- the series of constraints (U_t and L_t) on the levels of actual contributions.

The length of these series is the time out into the future over which future contributions are to be estimated, plus the time horizon. For example, if we want to estimate the path of contribution rates for the next sixty years and the rolling time horizon is forty years, then one hundred years of G_t , P_t , μ_t , and σ_t^2 , and sixty years of U_t and L_t will be required.

15. PRE-FUNDING SCHEMES IN CANADA AND IRELAND

Executive Summary

Like New Zealand, both Canada and Ireland are considering how to address the costs associated with ageing populations. The means by which they are considering doing this have similarities to New Zealand's proposed pre-funded system.

Canada

Canada has established an investment fund to limit the future tax rate rises required to pay for Canada Pension Plan (CPP) benefits. The CPP differs from the system proposed for New Zealand, in that individuals pay a specific income-related tax to fund CPP benefits. However, there are some decisions that Canada has made in regard to the provisions of its investment fund that are relevant to New Zealand's proposed fund. These include:

- The CPP Fund operates at arm's length from government with an independent Board responsible for managing the Fund.
- The CPP Investment Board has a single mandate to maximise returns, which is set out in enabling legislation.
- The legislation establishing the arm's length structure of the CPP Fund is entrenched (as is all CPP legislation) in the sense that amendments require more than a majority vote by the federal Parliament.
- The CPP Fund has been granted no special tax treatment, but returns are exempt of tax because the superannuation taxation regime is EET.
- Like private sector investment funds, the CPP Fund is required to report quarterly and annually. Annual reports include assessment of performance compared to benchmarks.
- The Fund's investment performance and expected rate of return is built into triennial actuarial reports on the 100-year outlook for the CPP that include an estimate of the "steady state" tax rate required to pay for benefits.
- CPP Fund returns are not part of any government's budgetary accounts and cannot be used to finance spending on other programs or non-CPP tax cuts.

Ireland

Ireland has a contributory pension programme that is paid out on a pay-as-you-go basis. In 1999, Ireland commissioned a Working Group to look at proposals to utilise their current budget surplus and proceeds from assets sales to prepare for the future increase in costs associated with ageing. The Working Group drew the following conclusions:

- A partial pre-funding approach should be undertaken, putting aside 1% of GNP each year until the extra funds were needed, plus one-off contributions should be made from asset sales and windfall income. One percent of GNP will meet roughly half of the increase in pension costs.
- The annual contribution should be a non-discretionary commitment to be met each year regardless of economic, budgetary or other circumstances.
- Two funds should be set up – one to address increases in social welfare pension costs and one to address increases in public service pension costs (public servants are generally not eligible for social welfare pensions).
- Recourse to the two funds should be limited to the specific purposes for which they are established and should occur only in accordance with actuarial assessments of when this would be appropriate.
- There should be a requirement for periodic reviews of the actuarial position of both Funds and an associated automatic requirement to make necessary adjustments in light of the findings of these reviews.

The Irish government is developing legislation for introduction mid-2000 to implement partial pre-funding. In the interim, it is making payments into a Temporary Holding Fund. These payments will be contributed to the pension funds once they are established. Contributions in 1999 and 2000 include 1% of GNP (£582 million and £635 million respectively) and proceeds from the sale of Telecom Eireann (£3.567 billion over two years).

Introduction

Like New Zealand, Canada and Ireland face an increase in the size of their retired populations over time. They have both been considering how to address the costs associated with this trend. The means by which they are considering doing this have similarities to New Zealand's proposed pre-funding approach. Canada has established an independent investment board to manage its pension funds. Ireland is considering establishing a government-run pre-funded system.

The issues covered here are those that are relevant to the provisions being considered in New Zealand. This is not a full country study of the countries of interest.

Canada³⁰

Canada has a three-tiered system with a non-contributory universal pension (Old Age Security), a contributory pension (Canada Pension Plan) and tax incentives for private retirement savings. The Canada Pension Plan (CPP) Investment Fund was introduced in 1997 as part of a package to limit future tax rate rises required to pay for CPP

³⁰ Information on Canada is drawn heavily from a report prepared for Treasury by Adil Sayeed, "Designing a New Zealand Superannuation Fund: Lessons from the Canada Pension Plan Investment Fund", 2000.

benefits.³¹ Without the investment fund and associated changes in contributions, the federal government's Chief Actuary projected that the CPP tax rate would have to rise from 5.85% of earnings to 14.2% by 2030. With the changes to the system in place, the latest projections show that the rate can be held at a constant level of 9.9%³² from 2003 on.³³

The CPP is not directly comparable to New Zealand's proposed system because individuals pay a specific income-related tax to fund CPP benefits. However, in establishing a single government-administered fund to invest CPP contributions, Canada made decisions that are relevant to the establishment of New Zealand's proposed Fund. These decisions are discussed in the following sections.

Independence of the Board

The CPP Investment Fund has been set up at arm's length from government. There is no mechanism by which the Prime Minister, the Minister of Finance, a provincial Premier or any other elected official can issue a direct order that the Fund should invest in a specific asset or adopt a particular strategy.

The CPP Investment Board controls the Fund. Appointments to the Board are based on a list of nominations drawn up by a nominating committee. The nominating committee is made up of private sector experts and senior public servants representing the federal government and each of the ten provinces. The federal Minister of Finance consults with the provincial Ministers of Finance on the list of nominations drawn up by the committee and then formally appoints the twelve members of the Board.

The Minister of Finance's appointments are guided by the governing legislation, which states that the "desirability of having ... a sufficient number of directors with proven financial ability or relevant work experience such that the Board will be able to effectively achieve its objects."

Investment Strategy

The Board receives funds not needed to pay current pensions and invests them in capital markets.³⁴ The Board began making investments early in 1999.

The Board is responsible for setting the investment strategy for the Fund³⁵ – i.e., allocating investments between broad asset classes such as shares, bonds and property

³¹ The CPP is a defined benefit system with benefits paid based on a proportion of lifetime earnings.

³² This equates to just over 3% of Canadian GDP. This does not take into account the cost of Old Age Security or the cost of tax incentives.

³³ Prior to the establishment of the Investment Fund, the CPP had a reserve of two years of benefits. Increasing the contribution rate to 9.9% will allow the total reserve to build up to about five years of benefit payout.

³⁴ The existing reserve is administered by the Federal Government and largely held in provincial and federal government bonds, with the remainder in a short-term operating reserve. The Investment Board will manage all new contributions.

³⁵ An exception to this is that legislation initially required 100% of domestic investment to be held in passive market indices that were representative of the Canadian share market. This requirement provided assurance that the federal and provisional governments had no intention

or between domestic and foreign assets as well as deciding issues such as whether to hedge against foreign currency risks on foreign investments.

The Board is legally responsible for “invest(ing) its assets with a view to achieving a maximum rate of return, without undue risk of loss”. There is no reference in the legislation to other objectives such as encouraging national or regional economic development, employment growth or applying ethical prohibitions against investments in particular industries.

Day-to-day investment operations are undertaken by two private sector firms – one undertaking domestic investments and the other undertaking foreign investments. The Board has devolved to the fund managers the responsibility for exercising voting rights attached to share ownership.

Entrenchment

Canada has entrenched the arm’s length structure of the CPP Fund. Amendments to the CPP Investment Board Act require approval by at least seven of Canada’s ten provinces representing at least two-thirds of the national population.

Tax Treatment

In Canada, private superannuation funds are subject to an EET³⁶ tax regime. The CPP receives the same treatment, which means that its returns are not taxed.

Reporting

The CPP reporting requirements are consistent with those of private investment funds. It will be required to publish quarterly financial statements and an annual report³⁷. One of the requirements for their annual report will be a comparison of the CPP’s domestic and foreign portfolios with performance benchmarks. This practice should serve as a check against Fund mismanagement as low returns relative to the market would be noted. However, benchmarking could also lead the Board to adopt an overly conservative investment strategy that minimises the risk of occasional low returns in preference to maximising returns in the long run.

Contribution Rate and Rate Review

The contribution rate is to remain fixed from 2003 onwards at 9.9% of earnings – as long as the CPP actuarial projection indicates that the CPP Fund will remain relatively constant at about four times annual CPP expenditures. By law, the federal government’s Chief Actuary must update the 100-year CPP actuarial projection every three years.

of using the Fund to foster development in particular sectors. The indexing requirement was recently amended so that up to half of the domestic portfolio can be actively managed.

³⁶ Exempt contributions, Exempt earnings and Taxable benefits.

³⁷ The first annual report on the Fund’s performance was not available at the time of writing.

Treatment in Government Accounts

The CPP is accounted for as a separate entity that affects no government’s accounts. This is partly because joint federal and provincial responsibility for the Fund makes it difficult to allocate the CPP to individual governments and partly because government accounting in Canada is not advanced enough to include this information. This separation means that improvements in government revenue arising from the Fund will not induce any government to raise spending (or cut taxes) on programmes other than CPP.

Quebec Pension Plan

Quebec administers its own pension arrangements separately from the general Canadian arrangements, through the Quebec Pension Plan (QPP). The contribution and benefit structures of the QPP and the CPP are almost identical. However, QPP has had an investment fund since its inception in 1966. It has always owned a broad mix of assets – shares, bonds and real estate including foreign securities.

The QPP Investment Fund is pooled with other government controlled funds in “la Caisse de depot et placements du Quebec” (the Caisse). The Caisse has a dual mandate. It is “to achieve optimal financial returns...while safeguarding the capital under management”. It is also required to assist in economic development, “to contribute through its activities to the vitality of the economy.” The Caisse acts as an arm of the Government, rather than independent of it. During the vote for Quebec independence in 1995, the Caisse was directed to organise a rescue package for the Canadian dollar and Government of Quebec bonds, in case these were needed.

The Caisse has earned returns in line with returns earned by private sector employer sponsored superannuation funds in Canada³⁸. Recently, QPP expenditure has exceeded revenues but the QPP tax rate is rising to 9.9% along with the CPP, so this will no longer be the case.

Ireland³⁹

Ireland’s retirement income system combines contributory social insurance (paid for through the Pay Related Social Insurance tax, or PRSI) and means-tested supplementary pensions. The government pays for the supplementary pension and any deficit between PRSI pension contributions and expenditure⁴⁰ (contributions are used to fund pay-as-you-go expenditure). A pre-funded approach is about to be implemented to deal with any such deficits. If future increases in expenditure were to be funded through

³⁸ In the Canadian Institute of Actuaries (1998) *Report on Canadian Economic Statistics 1924 – 1997*, compound annual real returns over the 1972 – 97 period were in the 5% range for a sample of large Canadian private sector superannuation funds. Over the 34 years to the end of 1999, the QPP’s compound annual real return was 4.7%.

³⁹ Information on Ireland is based on documents from the Irish Department of Finance website (covering pre-funding and the National Development Plan); a report prepared for the Super 2000 Taskforce by David A. Preston, “International Retirement Income Systems”, 1999; and an OECD report, “Private Pensions in OECD Countries: Ireland”, 1994.

⁴⁰ Pensions are defined benefit and paid at a flat rate. The rate of the pension is in the process of being raised from £78 per week in 1997 to £100 per week in 2002.

increased PRSI contributions, the pension related component of PRSI would need to be more than doubled.

In 1999, the Irish government established a Working Group on Budget Strategy for Ageing.⁴¹ The aim of the Working Group on Budget Strategy for Ageing was to put forward proposals that could utilise the current budget surplus and the prospect in 1999 of major privatisation receipts.

Required Level of Contribution

The Working Group projected that the cost of broadly maintaining the current level of pension and health service provision will rise by about 7% of GNP by 2056. It estimated that, to smooth this cost over the period to 2056, 3.5% of GNP would need to be put aside each year from 1999 to 2056. This included 1.4% of GNP to meet extra Social Welfare pension outlays, 0.7% of GNP to meet extra Public Service pension outlays and 1.4% of GDP to meet extra Health Service costs.

If 3.5% were put aside each year, this would meet costs until 2056, but would not assist in meeting increased costs in the years beyond that. In those years, the full increase would be paid from current taxes.

The Working Group did not see it as practicable for Ireland to put aside 3.5% of GNP per annum to address ageing issues. Ireland faces other priorities that will also require resources, such as a substantial programme of investment in economic and social infrastructure over 2000 – 2006.

The Working Group suggested that at least 1% of GNP be put aside annually towards ageing. They recommended that this be a non-discretionary commitment, to be met each year regardless of economic, budgetary or other circumstances. They also suggested that proceeds from asset sales and other windfall income be added to this when possible.

The Working Group recommended that the focus of the funding be limited to the future pension outlays. Future health costs would not be covered by the pre-funding. This would reduce the annual funding requirement to 2.1% of GNP. However, the gap between the 1% and the 2.1% would mean that Ireland still faced higher tax rates in the future. It is unlikely that contributions from asset sales and other windfall income could completely fill this gap.

Constant Contribution Rate

Under the proposed approach, Ireland's annual contribution rate would be constant (subject to any changes recommended in future reviews). The rate would relate to additional future costs only, not existing pension costs. Further, the Irish would fund only until 2056 and ignore costs beyond that date. In comparison, New Zealand's contribution to pre-funding would vary annually.

⁴¹ Two other groups are undertaking work with implications for pensions – the "Working Group on Pre-Funding of Social Welfare Pensions" and the "Commission on Public Service Pensions".

The Social Welfare Pensions Reserve Fund and the Public Service Pension Fund

The Working Group recommended that two pension funds be established – the Social Welfare Pensions Reserve Fund and the Public Service Pension Fund. Like New Zealand's proposed Fund, the aim of the Social Welfare Pensions Reserve Fund would be to maintain the current pension relativities with average earnings. The Working Group suggested that 2/3rds of the 1% of GNP put aside for funding future superannuation liabilities be contributed to this fund.

Public servants are generally not eligible to receive social welfare pensions (although this is changing).⁴² The Working Group recommended that 1/3 of the 1% of GNP being put aside is to be contributed to a Public Service Pension Fund. This fund would be assigned to increases in the costs associated with post-retirement increases in pensions for public service pensioners.

The Working Group made recommendations about drawdowns from the two funds and reviews of the funding arrangements. These are set out below.

Drawdowns from the Funds

Recourse to the funds should be limited to the specific purposes for which they are established and should occur only in accordance with "trigger mechanisms". An actuarial assessment should be commissioned to establish a "trigger" that would determine when payments might be made from the funds. For example, with the Social Welfare Pension Reserve Fund, an appropriate trigger for payment may be when the government is paying 3.7% of GNP on social welfare pension costs.

Reviews of funding arrangements

There should be a requirement for periodic reviews of the actuarial position of both funds and an associated automatic requirement to make necessary adjustments in light of the findings of these reviews. This adjustment could be to the trigger or the annual allocations. The Irish government has already decided that actuarial reviews of social welfare pensions should take place at five-yearly intervals. The trigger reviews could be undertaken as part of this process.

Legislation and Transitional Arrangements

Legislation is being developed to establish a permanent appropriation to pre-fund future superannuation costs (Superannuation Liability Bill). It is proposed that this legislation be introduced in mid-2000. In the meanwhile, legislation has been passed that allows funds to be set aside for pre-funding (Temporary Holding Fund for Superannuation Liabilities Bill 1999). It also enables the government to make additional one-off contributions to pre-funding. For example, a significant proportion of the proceeds of the Telecom Eireann sale are to be contributed.

⁴² As their employment-related provisions are deemed adequate, they contribute less PRSI and are not eligible for these pensions.

In 1999, £3 billion was set aside in a Temporary Holding Fund⁴³. This initial contribution represents 1% of GNP (£582 million) and a large proportion of the proceeds from the Telecom sale (£2.417 billion). It is anticipated that in 2000, £1.8 billion will be set aside. Of this, £1.15 billion will come from the Telecom sale and £635 million will come from 1% of GNP. Interest will also be contributed to the Temporary Holding Fund.

16. REPORTING CONTRIBUTIONS AND EXPENSES

Executive Summary

This chapter provides clarification on two accounting treatment issues that have been raised in connection to the New Zealand Superannuation Fund contributions and liability. In particular:

- whether contributions by the Government to the Fund should be recognised as an expense; and
- the merits of presenting future New Zealand Superannuation (NZS) costs as a liability on the Crown's balance sheet with an associated expense that records the annual present value movement of the net liability.

We have reviewed both these issues further and conclude:

- Contributions to the Fund cannot be recognised as an expense of the Crown because the Crown ultimately controls the Fund. However, we are able to demonstrate the Government's commitment to funding NZS by separate disclosure of the contributions to the Fund and its balance.
- Recognition of a liability (derived from the present value of future NZS costs) on the Crown's balance sheet is unlikely to be acceptable under generally accepted accounting practice. Our view is that such a liability should not be recognised.

Contribution to Fund – No Expense Reported

When the Government pays money into the Fund the money builds up the capital to meet *future* rather than current NZS expenses. Reporting an expense in the year that money is set aside, rather than the year in which the money is spent, misrepresents the Crown's annual expenses.

Under the Crown's current accounting policies the contribution to the Fund is represented as a shift from one group of assets to another group within the Crown's balance sheet. This reflects the economic substance of the transaction. This approach has been confirmed in a proposed new accounting standard, which requires that, for an expense to be incurred and reported, the Government would need to give the money to an organisation over which it has no "control". The relevant definition of "control" is broad and covers situations where an "irreversible mechanism" has been established (as is the case with some trusts) but there is no further involvement by the controlling entity. So long as the Fund's purpose is to meet the Government's aim of providing for NZS, the Government controls the Fund.

⁴³ The Temporary Holding Fund is managed by the National Treasury Management Agency – the equivalent of New Zealand's Debt Management Office. Funds are to be placed in deposit accounts or invested in other short-term financial products.

This particular issue arises from a broader concern that readers of the Crown's financial statements be able to see how the Government is meeting its commitment to fund NZS on a sustainable basis. Even though an expense cannot be reported, we can demonstrate the Government's commitment to contributions by separately disclosing this in the cash flows statements. An example of what this could look like (numbers based on the BPS position) is provided below under "Disclosure Options".

NZS Liability Recognition

The following points should be taken into account regarding the merits of recognition of the present value of future NZS costs as a liability (as signalled in the BPS):

- Reporting this expense would not show the Government's contribution to the Fund and will not address the question of whether or not the Government is fulfilling its NZS promises.
- The proposed change is of doubtful validity under present GAAP; and is unlikely to be acceptable under future GAAP, as far as this can be foreseen.
- The expense, however calculated, is not by itself a good indicator of funding needs.
- The accounting argument in favour of this would, by the same logic, require that the present values of many other Government obligations (for example the Government's obligation to provide health and education services) be reported.
- Recognising the present value of the NZS obligation will reduce the comparability of the Crown's financial statements.

Our view is that the Crown's present policy for NZS recognition should not change.

The appropriate accounting treatment for contributions to the Fund and recognition of the NZS liability has been discussed on a preliminary basis with the Office of the Auditor-General (OAG). The OAG supports additional Note disclosures, conditional on the information being reliable, fairly presented and the basis for calculation clearly disclosed. The OAG has significant reservations about any change to the present recognition policy at this time.

Disclosure Options in the Crown's Budget and Financial Statements

As noted earlier, the forecast and actual contributions can be separately disclosed in the statement of cash flows. An example of the type of disclosure proposed for the Budget Economic and Fiscal Update is provided below:

Forecast Statement of Cash Flows (continued)					
for the years ending 30 June					
(\$ million)	2000 BPS	2001 BPS	2002 BPS	2003 BPS	2004 BPS
Cash flows from operating activities	(103)	917	1,905	2,145	2,447
Cash Flows from Investing Activities					
Cash was Disbursed To					
Net purchase of physical assets	1,236	924	748	707	708
Net increase in advances	351	620	564	703	709
Net sale of marketable securities	(3,329)	(502)	(292)	20	20
Net sale of investments	170	(122)	(144)	(122)	(122)
Contribution to NZSF	600	1,200	1,800
Contingency capital provision	..	400	400	400	400
Total Cash Disbursed for investing activities	(1,572)	1,320	1,876	2,908	3,515
Net Cash Flows from Operating and Investing Activities	1,469	(403)	29	(763)	(1,068)

Depending on future decisions about the composition of the Fund, this disclosure may need to be moved into the Notes to the financial statements within the next few years.

In addition to this disclosure on the face of the statement of cash flows, the Government's contributions to the Fund can be shown in the Notes to the Crown's financial statements. The Fund balance at the beginning and end of the financial year could be separately disclosed as a subset of total assets. The Government's contributions to the Fund, any other changes, and a brief narrative can be shown in the notes. This level of detail is best included in the notes to the financial statements.

This type of disclosure has been used before in the Crown's financial statements. An example showing disclosures for the Land Transport Fund is set out at the end of this chapter.

We consider that the combination of note disclosure and statement of cash flows disclosure is an effective way for the Government to report reliable, relevant and timely information about its contribution to the Fund and the Fund's balance. We are investigating different options that note disclosures could take. An issue that we are addressing in the context of this is the impact that full line-by-line consolidation would have on the cash flow presentation.

Other Disclosures of Contributions to the Fund

It is expected that the Fund itself will prepare detailed reports, which will provide information on contributions to the Fund from the Government. The proposed annual review process for the contribution rate (refer earlier chapter) would require that the contribution amount and any difference between that and the amount certified by the Government Actuary be shown in the Government's Budget.

Annex: Example of Disclosure: Land Transport Fund

NOTE 25: LAND TRANSPORT FUND

	ACTUAL for year ended 30 June 1992 (\$million)	ACTUAL for year ended 30 June 1991 (\$million)
OPENING BALANCE	96	53
Revenue		
Road user charges	304	301
Excise duty	220	310
Motor Vehicle fees	142	154
Disposal of roading property	6	-
Payments from Transit New Zealand	5	-
Total Revenue	677	765
Plus Government Contribution		
GST compensation	92	91
Contribution in lieu of interest	4	5
Total Government Contribution	96	96
Less Refunds and Collection Expenses		
Road user charges refunds and expenses	16	16
Petroleum excise duty refunds and expenses	6	8
Total Refunds and Collection Expenses	22	24
Less Disbursements		
Transit New Zealand	668	660
Ministry of Transport	136	134
Total Disbursements	804	794
CLOSING BALANCE	43	96