

Updating the NZSF investment performance numbers to 30 June 2011

RPRC *PensionBriefing* 2011-2

8 November 2011

In 2010, an RPRC *PensionBriefing* (2010-6) updated estimates of the amount the New Zealand Superannuation Fund had cost taxpayers since it started. That cost was about \$1.9 billion as at 30 June 2010. This *PensionBriefing* analyses the NZSF's investment performance to 30 June 2011. At that date, the NZSF had passed the 'hurdle rate' for the first time since 2008. However, losses in the three months to 30 September 2011 have still left taxpayers out of pocket over the NZSF's lifetime to that date.

In summary

In *Pre-funding a government's future financial obligations - the New Zealand Superannuation case study* Littlewood (2010) suggested that the New Zealand Superannuation Fund (NZSF) was effectively 100% leveraged when looking at the government's accounts as a whole (the 'total accounting context'). The NZSF must therefore earn at least as much as the cost of the highest yielding government stock to make New Zealand as a whole better off financially¹. It needed to achieve at least a 'hurdle rate', proposed as the yield on the 10 year government stock at the start of each financial year. That modest objective makes no allowance for risk, given the effective 100% leverage.

By 30 June 2009, using that criterion, it was estimated that the Guardians had missed the target by an accumulated \$2.6 billion. *PensionBriefing 2010-6* updated that analysis to 30 June 2010. The deficit (to the hurdle rate) of \$2.6 billion in 2009 had reduced to \$1.87 billion by 30 June 2010.

This *PensionBriefing* provides an update to 30 June 2011, based on the NZSF's audited accounts for the 2010/11 financial year (New Zealand Superannuation Fund 2011). For 2010/11, the yield on 10 year government stock at 30 June 2010 was 5.35%. The Guardians' published return for the year was 25.05% and that 'excess' performance over the hurdle rate eliminated the 2010 accumulated deficit. So, by 30 June 2011, the Guardians had returned the government roughly to its financial starting point in 2003 with about \$1.02 billion to spare.

However, this is simply a snap shot position at a point of time. In the three months (July to September) since the date of the 2011 accounts, the markets have suffered significantly. Audited accounts for the period are not available but the NZSF has announced that the \$18.65 billion of assets at 30 June 2011 has fallen to \$16.63 billion at 30 September 2011. This suggests there is now about \$1 billion to recover before the Guardians will have returned the government to its financial starting point in 2003.

¹ The NZSF itself uses the lowest cost government debt (Treasury Bills) as the investment reference point. If the alternative use of the funds were to repay debt as the 'total accounting context' implies, the highest cost government debt is the more appropriate measure.

New Zealand Superannuation in brief

New Zealand Superannuation (NZS) is a universal, taxable pension, funded largely on a 'pay-as-you-go' (PAYG) basis from general taxation.

The NZSF was established in 2001 to partially pre-fund future payments of NZS and received its first contributions in the 2003/04 financial year. The government has temporarily suspended contributions and said it intends to resume those from 2019.

Contributions begin again in 2018/19, and are consistent with the New Zealand Superannuation and Retirement Income Act 2001. (The New Zealand Treasury 2010)

The presence of the NZSF does not change the cost of NZS which is determined by the amounts of the benefits paid. However, the NZSF will modestly affect the incidence of that cost. Up to the point that the government suspended contributions, this generation of taxpayers had effectively been paying higher taxes and setting aside financial assets to help meet the future NZS outgo.

The role of the NZSF in the government's accounts

If the government's accounts were examined in a 'total accounting context', every dollar in the NZSF is effectively borrowed.

The government is borrowing money and investing the proceeds in financial markets. With each contribution the government has made (even when that was out of fiscal surpluses) it had a choice: reduce debt or ask the Guardians to invest that money. The choice is the same for every dollar already in the NZSF. The government can leave it in the NZSF for the Guardians to invest or withdraw it to reduce debt.

In a 'total accounting context', the government is in a similar position to households. It is not sensible for a household to raise a mortgage on the family home and invest the proceeds in shares and other investments unless the before-tax² returns exceed the cost of debt. Similarly, if the family has a mortgage as well as financial investments, the returns on the investments (after tax³ and costs) must be higher than the cost of the mortgage. If, in either case, the investment returns miss that threshold, the family's financial position will deteriorate.

Tax is not an issue for the government's NZSF but the analogy with households is otherwise appropriate.

Actual returns vs. the yield on the 10 year government bond, the 'hurdle rate'

Table 1 updates the equivalent table in the 2010 paper. It shows an approximate calculation of the accumulated notional surplus/(deficit) in the government's overall balance sheet that the NZSF has produced in relation to the hurdle rate from October 2003 to 30 June 2011.

² In this situation, the interest on the mortgage would be a deductible expense so gross investment returns must be greater than the gross cost of the mortgage interest.

³ Where the mortgage was not taken out for investment purposes (but rather to buy the house) then the mortgage interest would not be deductible against the investment income.

Table 1

New Zealand Superannuation Fund's accumulations - actual returns vs. hurdle rates 2004-2011			
Year ended 30 June	At NZS Fund's return	At hurdle rate	Accumulated difference
2004	\$3,956 m	\$3,861 m	\$94 m
2005	\$6,555 m	\$6,067 m	\$488 m
2006	\$9,864 m	\$8,515 m	\$1,350 m
2007	\$12,992 m	\$10,507 m	\$2,485 m
2008	\$14,212 m	\$12,963 m	\$1,249 m
2009	\$13,688 m	\$16,267 m	(\$2,579 m)
2010	\$15,656 m	\$17,521 m	(\$1,865 m)
2011	\$18,651 m	\$17,630 m	\$1,021 m

Sources: The NZSF's actual accumulation is from the NZSF's annual reports; the accumulations at the hurdle rate⁴ assume any Crown contributions are received evenly through each year; also that all amounts shown in the financial statements as 'tax paid' (including GST) were in fact paid to the New Zealand government evenly through the year in question.

Table 1 compares two positions:

- the NZSF as currently constituted (the column headed 'At NZS Fund's return');
- what the difference would have been in government's financial position had it repaid debt rather than made contributions to the NZSF (the column headed 'At hurdle rate').

If the result under the column 'Accumulated difference' is positive, the government's balance sheet has been improved by the presence of the NZSF. If it is negative, taxpayers have lost that amount by comparison with the position had the government paid off debt.

Because the government established the NZSF, rather than reducing debt (that would otherwise have cost it the hurdle rate of interest over each of the eight years measured), the overall balance sheet for the government was better off at 30 June 2011, after eight years, by about \$1.021 billion.

The NZSF passed 'zero' in 2011

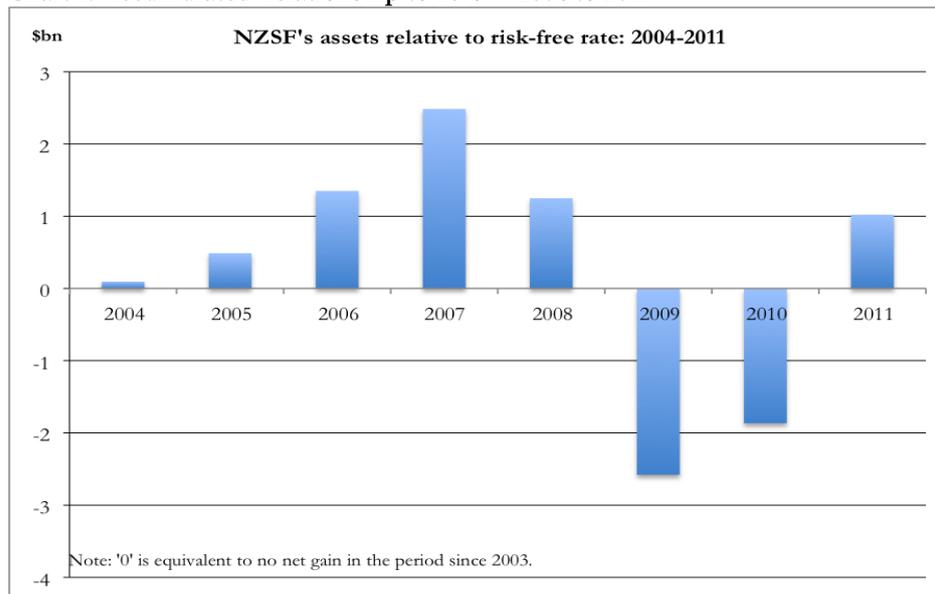
Table 1 shows that there was a deficit to the 'hurdle rate' in the period to 30 June 2010 of \$1.865 billion. That means the government would have been better off by about that amount had it reduced debt rather than invested the NZSF's assets in financial markets.

However, as of 30 June 2011, the Guardians had returned the government's balance sheet, in a total accounting context, to a positive \$1.021 billion; meaning the NZSF had made a contribution to the net worth of the government's assets over eight years. This means that the NZSF passed 'zero' during the last financial year. Monthly accounts are not published but it seems that the 'zero' milestone was met in the December 2010 quarter.

Chart 1 illustrates the 'relationship to zero' since 2004.

⁴ Hurdle rate calculations are by Michael Chamberlain, MCA NZ Limited, actuaries.

Chart 1: Accumulated 'relationship to zero' – 2004 to 2011



It is important to emphasise the significance of 'zero' on the Y axis in Chart 1. An accumulated amount of zero in any year on the chart means that the NZSF has made no net contribution to the government's balance sheet for the period since the NZSF started in 2003. Any investment returns recorded by the NZSF itself are offset (or more than offset in 2009 and 2010) by 'costs' of the interest paid on government stock. At 'zero', the same cumulative result would have been achieved by repaying 10 year government stock rather than starting the NZSF and investing that money in financial markets. It ignores the risks of leverage implicit in this structure.

Allowing for risk

From this analysis, it is clear the Guardians must at least exceed the cost of the government's own debt if they are to make any improvement to the overall financial position. In a 'total accounting context', anything less than the 'hurdle rate' actually worsens the government's financial position, by comparison with reducing debt.

Table 1's analysis makes no allowance for risk. The comparison shows that the NZSF's accumulated returns were slightly better over the full eight years than the cost of the government's long-term debt so that as at 30 June 2011, the government's balance sheet was better off on a cash basis in the presence of the NZSF.

Given the risks involved by investing in the types of assets chosen by the Guardians for the NZSF, returns higher than 10 year government bonds should be expected. A conservative margin would be +2.5% a year⁵.

Despite the good 2011 performance, the NZSF has missed that expected return by a significant margin as Table 2 (next) shows for the full period.

⁵ Over the very long-term, after inflation, the average *real* return from global share markets has been 5.5% p.a. for the 111 years from 1909 to 2010. By contrast, the *real* returns from global bonds and cash averaged 1.8% and 1.0% p.a. respectively over the same 111 year period Dimson, E., D. Holland, et al. (2011). Credit Suisse Global Investment Returns Yearbook 2011, Credit Suisse Research Institute.

On that basis, the margin for risk should be more like 3.5% a year.

Table 2

New Zealand Superannuation Fund's accumulations - actual returns vs. <i>risk-adjusted</i> hurdle rates 2004-2011			
Year ended 30 June	At NZS Fund's return	At risk-adjusted hurdle rate	Accumulated difference
2004	\$3,956 m	\$3,908 m	\$48 m
2005	\$6,555 m	\$6,239 m	\$316 m
2006	\$9,864 m	\$8,877 m	\$987 m
2007	\$12,992 m	\$11,131 m	\$1,861 m
2008	\$14,212 m	\$13,929 m	\$283 m
2009	\$13,688 m	\$17,672 m	(\$3,984 m)
2010	\$15,656 m	\$19,455 m	(\$3,799 m)
2011	\$18,651 m	\$20,144 m	(\$1,492 m)

Table 2 shows that the NZSF was \$1.49 billion behind the accumulated, risk-adjusted hurdle rate at 30 June 2011. In other words, despite being ahead on a 'cash' basis at 30 June 2011 (Table 1 and Chart 1), taxpayers have not been appropriately rewarded for effectively borrowing all of the money required to allow the NZSF to maintain its investments in financial markets.

Chart 2 illustrates this.

Chart 2: Accumulated *risk-adjusted* 'relationship to zero' – 2004-2011

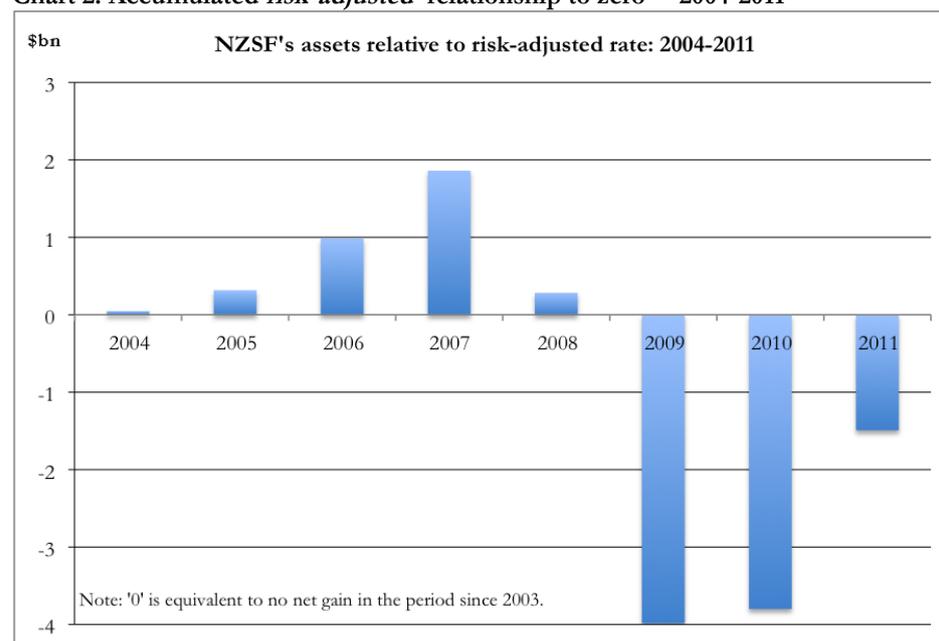


Chart 2 measures the risks assumed by the government in the presence of the NZSF. If the accumulated result had been zero by 2011, it would mean only that the government had received an appropriate level of return, recognising the risks of borrowing and then investing the proceeds in financial markets.

The position since 30 June 2011

Investment markets have been very unkind to the Guardians in the first three months of the current 2011/2012 financial year.

In the three months 1 July to 30 September 2011⁶, unaudited results show that the NZSF's assets fell \$2.02 billion to \$16.63 billion. Allowing for three months' interest at the hurdle rate of 5.04% for the 2011/12 year, the investment surplus of \$1.02 billion shown in Table 1 and Chart 1 has been turned, provisionally, into a deficit of about \$1.22 billion by 30 September 2011 when compared with the 'risk-free hurdle rate'. The position would be even worse for the risk-adjusted comparison.

"Challenges and Choices"

The last government intended that the New Zealand Superannuation Act 2001 and the NZSF would add stability to public policy. Viewed through the microscope of the 'total accounting context' and the logic of the 'hurdle rate', the NZSF seems little more than fiscal and political window-dressing.

Littlewood (2010) suggested that the NZSF should be carefully dismantled, and NZS returned to the original PAYG model. The NZSF's 2011 numbers, including unaudited calculations in respect of the first three months of the 2012 year, appear to add nothing to the case in favour of the NZSF's continued existence.

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⁶ Newsletters are accessible on the NZSF's web site [here](#).