

Updating the NZSF investment performance numbers to 2012

RPRC *PensionBriefing* 2013-1

4 February 2013

***PensionBriefing* 2010-6** updated estimates of the amount the New Zealand Superannuation Fund had cost taxpayers since it started. The accumulated cost was about \$2.6 billion at 30 June 2009. *PensionBriefing* 2011-2 suggested that, by 30 June 2011, the NZSF had passed the 'hurdle rate' for the first time since 2008 (with an accumulated gain of \$1.0 billion). This *PensionBriefing* suggests that, over now nine years (2003-12), the accumulated gain over the hurdle rate was only \$346 million at 30 June 2012.

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 taxpayers 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.

Using that criterion, the Guardians had missed the target by an accumulated \$2.6 billion at 30 June 2009. Subsequent *PensionBriefings* updated that analysis:

- at 30 June 2010, the deficit (to the hurdle rate) of \$2.6 billion in 2009 had reduced to \$1.87 billion (*PensionBriefing* 2010-6);
- at 30 June 2011, the NZSF had passed the accumulated hurdle rate for the first time since 2008: the surplus was \$1.02 billion, or just 5.5% of accumulated assets at the year's end (*PensionBriefing* 2011-2).

This *PensionBriefing* updates the calculations to 30 June 2012, based on the NZSF's audited accounts for the 2011/12 financial year (New Zealand Superannuation Fund, 2012). The key metrics for this latest analysis were:

- Yield on 10 year government stock at 30 June 2011 was 5.04%;
- The Guardians' published return for the year was 1.1%;
- The 'loss to hurdle rate' for 2011/12 was \$645 million.

Measured against the hurdle rate means that, in the nine years to 30 June 2012, the Guardians had made a very modest accumulated contribution to the government's balance sheet over the whole period. However, for the reasons described below, the Guardians have not come close to compensating taxpayers on a risk-adjusted basis for the 100% leveraged strategy.

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 temporarily suspended contributions in 2009 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 – that 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 (or forgoing the benefits of other government expenditure) while 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, it had a choice: reduce debt or ask the Guardians to invest that money. That choice also applied when the government ran fiscal surpluses. The choice is currently the same for every dollar already in the NZSF. The government can leave it in the NZSF for the Guardians to invest or sell its assets to repay debt².

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-tax³ returns exceed the cost of debt. Similarly, if the family has a mortgage as well as financial investments, the returns on the investments (after tax⁴ and costs) must be higher than the cost of the mortgage. If, in either case, the investment returns miss the threshold, the family's financial position will deteriorate.

Tax on investment income (or the deductibility of the cost of debt) 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 2011 *Pension Briefing*. It shows an approximate calculation of the accumulated notional surplus/(deficit) in the government's overall balance sheet that the NZSF has added/deducted in relation to the hurdle rate from October 2003 to 30 June 2012.

² This puts the test simply as it ignores the impact of the government's saving initiative on private balance sheets; or the effect of deferring other needed investment by the government on, say, infrastructure.

³ 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.

⁴ 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 2004-2012			
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 ⁵	\$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
2012	\$18,703 m	\$18,357 m	\$346 m

Sources: The NZSF's actual accumulation is from the NZSF's annual reports; the accumulations at the hurdle rate⁶ 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 question⁷.

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 nine years measured), the overall balance sheet for the government was slightly better off at 30 June 2012, after nine years, by just \$346 million or just 2% of the closing assets of \$18.7 billion.

The NZSF passed 'zero' in 2011

Table 1 shows that there was an accumulated 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.

The 'life-to-date', accumulated position passed 'zero' in 2011 and held just positive in the 2011/12 year. By 30 June 2012, the Guardians had maintained a positive accumulation of just \$346 million; however, that was \$675 million less than at the start of the year.

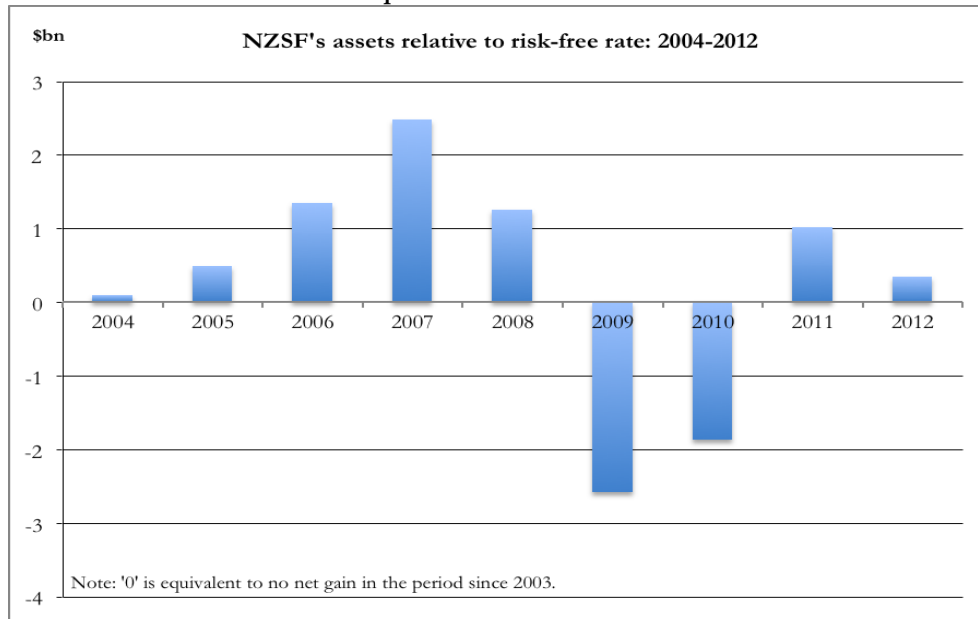
Chart 1 illustrates the 'relationship to zero' since 2004.

⁵ In 2009, the government's contributions to the Fund ceased.

⁶ Hurdle rate calculations are by Michael Chamberlain, MCA NZ Limited, actuaries.

⁷ Some of the tax may, in fact, have been paid to other governments. There is no analysis of this in the NZSF's financial statements.

Chart 1: Accumulated 'relationship to zero' – 2004 to 2012



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 deemed to be 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 *nominal* improvement to the government's 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.

As explained in the earlier papers, Table 1's analysis makes no allowance for risk. The comparison shows that the NZSF's accumulated returns were slightly better over the full nine years than the cost of the government's long-term debt so that as at 30 June 2012, the government's balance sheet was just 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 year⁸.

The NZSF has missed that expected, risk-adjusted, return by a significant margin as Table 2 (next) shows for the full period.

⁸ 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 2004-2012			
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)
2012	\$18,703 m	\$21,499 m	(\$2,796 m)

Table 2 shows that the NZSF was \$2.8 billion behind the accumulated, risk-adjusted hurdle rate at 30 June 2012. In other words, despite being just ahead on a 'cash' basis at 30 June 2012 (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' – 2004-2012

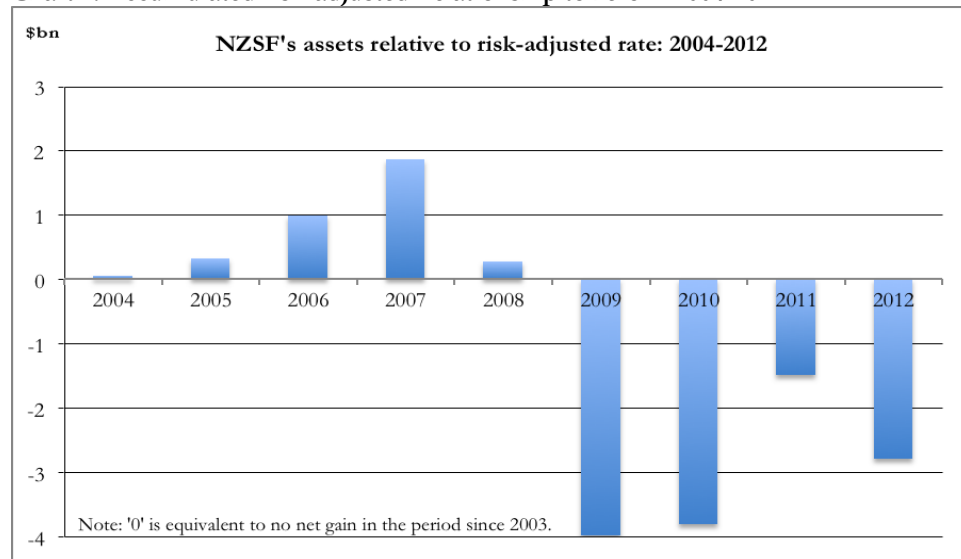


Chart 2 measures the risks assumed by the government in the presence of the NZSF. If the accumulated result had been zero by 2012, it would mean only that the government had received an appropriate level of return, recognising the risks of borrowing and then investing the proceeds in financial markets. In fact, as Chart 2 shows, the risk-adjusted measure worsened in 2012.

The position since 30 June 2012

Investment markets have been kinder to the Guardians in the first four months of the current 2012/2013 financial year than in the similar period in 2011. The first three months of the 2011/12 year saw a significant worsening of the accumulated losses, falling \$2.02 billion in value and eliminating the Table 1 positive balance of \$1.02 billion. The position was reversed in the first four months of the current 2012/13 year.

In the four months 1 July to 30 October 2012⁹, unaudited results show that the NZSF's assets rose \$1.47 billion to \$20.2 billion. While that will have improved the accumulated position against the hurdle rate (Table 1 and Chart 1), it will still not have passed 'zero' at 31 October 2012 after adjusting the hurdle rate for risk (Table 2 and Chart 2). On that measure, the NZSF will still be \$1.3 billion behind.

"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 2012 numbers add nothing to the case in favour of the NZSF's continued existence.

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⁹ Newsletters are accessible on the NZSF's web site [here](#).