



# **Are Capital Guarantees a Better Way to Protect KiwiSavers First Home Deposit Withdrawals?**

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**for Financial Services Council**

**June 2014**

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# 1. The Issue

If you join KiwiSaver and do not pick a provider and an investment style you are allocated to a default provider and you default into having your KiwiSaver funds invested into a conservative low risk, lower return fund. While default KiwiSavers have the option of changing their provider and investment style many stay where they are initially allocated.

Directing KiwiSaver savings into a Balanced or Growth portfolio delivers a much higher total return after 40 years of saving than investment in a Conservative portfolio, which is the current default KiwiSaver option.

It was shown in *Can We Fund a Comfortable Retirement for Most New Zealand Employees with a 7% Contribution Rate?*<sup>1</sup> that given current tax rates on KiwiSaver and investment in a default Conservative portfolio, for someone who spends their working life in income decile 2 (roughly equivalent to the minimum wage in 2013, \$28,200) a contribution rate of 13.1% on before-tax income could enable them to secure an additional pension in retirement equivalent to NZS.

The same report showed that under the KiwiSaver tax rates proposed by the FSC and with KiwiSaver investment in a Balanced portfolio, the required contribution rate could be much lower at 7.6%. Investment in a Growth portfolio could see the contribution rate fall to 6.1%. Looked at differently, more could be accumulated for any given contribution rate.

Given current KiwiSaver tax rates and a 12% contribution rate for example, the projected balances at 65 for someone on mean income (being about \$54,600 in 2013 and assuming no change in tax rates) who has saved for 40 years, for each of the three portfolio types are shown in Table 1. The largest gain occurs in moving from a Conservative to a Balanced portfolio.

**Table 1: Projected KiwiSaver Balances at Age 65  
after 40 years saving 12% of the average wage  
on current KiwiSaver fund tax rates**

Portfolio	Expected Return*	Balance at 65	Difference from Conservative
Conservative	4.0%	\$630,000	
Balanced	6.0%	\$984,000	\$354,000
Growth	6.6%	\$1,141,000	\$511,000

\*estimated net annual average return after tax and fees  
(Source Morningstar 2013)

<sup>1</sup> Infometrics report to FSC, September 2013.

Nevertheless the Minister of Finance confirmed on 17 October 2013 that the default option would continue to be a Conservative portfolio, citing the aim of providing stable returns.<sup>2</sup>

One reason for the desire for stability might be that for those who intend using KiwiSaver savings to contribute to a deposit for a first home the short term risk of investing in a Balanced or Growth portfolio may be too high.<sup>3</sup> That is, they could find themselves with a negative return just when the funds are needed.

We look here at two possible ways of addressing this problem:

1. Might the risk of a negative return on KiwiSaver portfolio be correlated with (or offset by) a downward movement in house prices? In other words is there a natural hedge which eliminates or mitigates the problem?
2. What might it cost to insure against the short term risk of a negative return under a Balanced or Growth portfolio at the time you want to use your KiwiSaver savings to pay for your first home deposit?

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<sup>2</sup> <http://www.billenglish.co.nz/archives/944-KiwiSaver-default-provider-review-completed.html>

<sup>3</sup> Government contributions to KiwiSaver may not be withdrawn to buy a first home. In addition no withdrawals are allowed until after three years of membership.

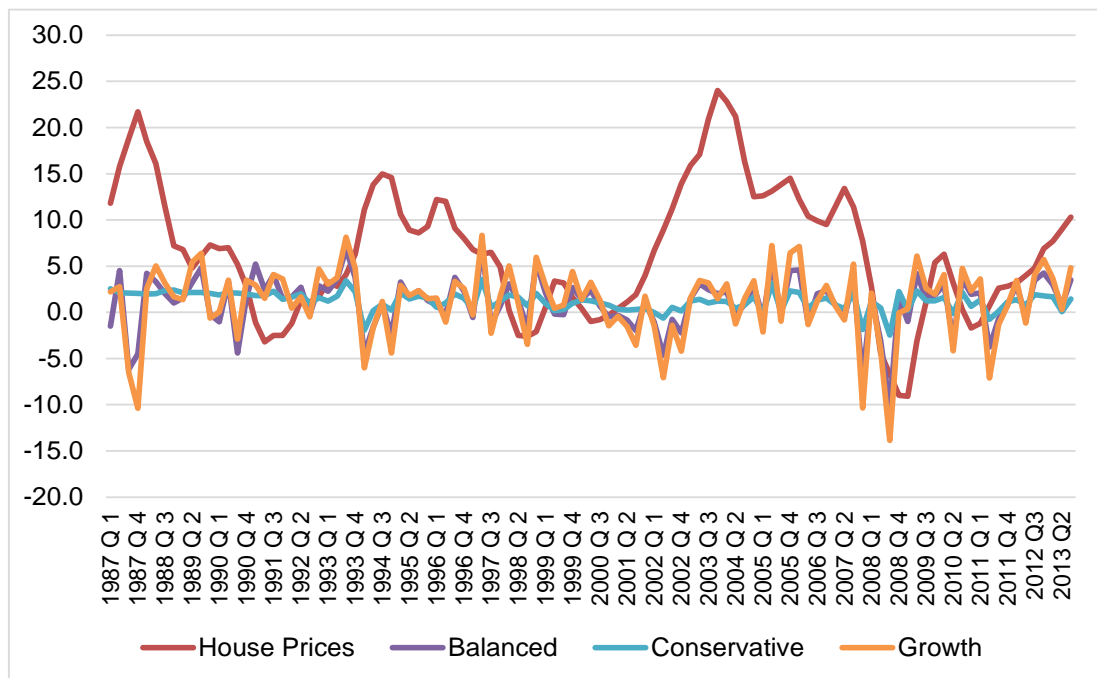
## 2. Do Equity Return Trends Offset House Price Trends over a 1-3 Year Period?

Is there even a problem?

It is possible that a fall in portfolio returns which leaves a potential house buyer exposed to the risk of a reduced deposit funded from their KiwiSaver savings, would be partly or fully offset by the simultaneous event of a fall in house prices.

Figure 1 compares quarterly changes in house prices with the quarterly returns to three New Zealand portfolios: Conservative, Balanced and Growth. The data covers the period 1987:Q1 - 2013:Q3. There is little evidence of coincidence, which is confirmed by the correlation coefficients in Table 2. House prices are considerably more volatile than any of the investment portfolios.

**Figure 1: House Prices and Portfolio Returns**



**Table 2: Correlations between Portfolio Returns and House Prices**

	Conservative	Balanced	Growth
Lag 4 portfolio	0.0050	0.0347	0.0044
Lag 3 portfolio	0.0492	0.0571	0.0342
Lag 2 portfolio	0.1069	0.0944	0.0684
Lag 1 portfolio	0.0622	0.0275	0.0098
Contemporaneous	0.0583	0.0027	-0.0221
Lag 1 house prices	0.0902	0.0222	-0.0061
Lag 2 house prices	0.1030	0.0255	-0.0015
Lag 3 house prices	0.1345	0.0507	0.0194
Lag 4 house prices	0.1499	0.0640	0.0501

Contemporaneous correlation is negligible and even slightly negative between house prices and the returns to a Growth portfolio. The highest correlation coefficient is only 15% between the returns to a Conservative portfolio and house prices one year earlier, but it is unlikely to be robust and has no apparent theoretical basis.

As there is no evidence of a natural hedge between house prices and financial portfolio price trends there is a likelihood that KiwiSavers may want protection against that downside risk.

### 3. What is the Risk of Negative Returns over 1-3 Years?

A saver is exposed to the risk of a negative return in any year over the entire period of their saving. Usually the negative years will be offset by the positive years over a sufficiently long period such as 40 years. However, it is possible that an investor could be faced with negative returns just when they intend to use some of their KiwiSaver savings to fund a deposit to purchase a first house.

The option to defer purchase would usually exist. However, while a purchase could conceivably be delayed for many years, for illustrative purposes we consider only periods up to a maximum of three years.<sup>4</sup> Specifically we investigate two questions:

1. What is the probability of a net loss occurring in any one year, two year or three year period for investments in KiwiSaver?
2. What is the expected value of the loss?

Table 3 is based on data provided by Morningstar. It shows that over 120 quarters of historical data from 1983 (which includes two period of significantly negative returns), in 78.3% of cases the cumulative return after four successive quarters was zero or better. In 21.7% of cases (1-0.783, shaded yellow in Table 3) the return after four successive quarters was negative. The statistically expected loss is -1.17% (shaded turquoise). For a New Zealand Conservative portfolio the historical period had only 1.8% of four consecutive quarters yielding a negative return. (Autocorrelation between successive four quarter spans has not been examined at this stage).

**Table 3: Incidence of Negative Returns after 4 Quarters**

	Mean return in 5% bands if <0								Expected	No. Obs
	-0.3	-0.275	-0.225	-0.175	-0.125	-0.075	-0.025	>=0	if <0	
NZB*	0.000	0.000	0.000	0.008	0.017	0.067	0.125	0.783	-0.0117	120
NZC	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.982	-0.0005	111
NZG	0.000	0.000	0.010	0.019	0.058	0.058	0.115	0.740	-0.0200	104
USC	0.000	0.006	0.025	0.037	0.067	0.074	0.086	0.706	-0.0298	163
USM	0.000	0.019	0.000	0.019	0.038	0.038	0.088	0.800	-0.0181	163

\* The last letters B, C, G, M denote Balanced, Conservative, Growth, and Moderate portfolios respectively.

Table 4 shows that in 86.2% of cases the cumulative return after eight successive quarters was zero or better. In 13.8% of cases (1-0.862, shaded yellow in Table 4) the return after eight successive quarters was negative. The statistically expected

<sup>4</sup> KiwiSavers have to be contributing for 3 years before they are eligible to use their own contributions to fund a deposit on their first home. We have therefore modelled the risk exposure for KiwiSavers saving for 1 to 3 years.

loss is -1.03% (shaded turquoise). For a New Zealand Conservative portfolio the historical period had no instances of a negative return after eight successive quarters.

**Table 4: Incidence of Negative Returns after 8 Quarters**

	Mean return in 5% bands if <0								Expected if <0	No. Obs
	-0.3	-0.275	-0.225	-0.175	-0.125	-0.075	-0.025	>=0		
NZB	0.000	0.000	0.000	0.000	0.052	0.034	0.052	0.862	-0.0103	116
NZC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.0000	107
NZG	0.000	0.000	0.020	0.050	0.030	0.010	0.120	0.770	-0.0208	100
USC	0.013	0.038	0.019	0.019	0.038	0.050	0.069	0.755	-0.0319	159
USM	0.033	0.007	0.007	0.013	0.033	0.040	0.086	0.781	-0.0248	156

Table 5 presents a similar picture for periods of 12 consecutive quarters.

**Table 5: Incidence of Negative Returns after 12 Quarters**

	Mean return in 5% bands if <0								Expected if <0	No. Obs
	-0.3	-0.275	-0.225	-0.175	-0.125	-0.075	-0.025	>=0		
NZB	0.000	0.000	0.000	0.000	0.009	0.089	0.045	0.857	-0.0089	112
NZC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.0000	103
NZG	0.000	0.000	0.000	0.010	0.104	0.063	0.021	0.802	-0.0201	96
USC	0.032	0.013	0.006	0.026	0.013	0.026	0.077	0.806	-0.0247	155
USM	0.048	0.007	0.007	0.007	0.027	0.041	0.020	0.844	-0.0259	152

Overall there is little difference in the statistically expected loss between the three time spans. A slight tendency for the frequency of adverse outcomes to fall with the length of the period (as expected) is roughly offset by the increase in severity, given a loss.

Overall we could say that irrespective of whether the risk is evaluated for one year, two year or three years, the statistically expected losses are:

NZ Conservative:	0.0%
NZ Balanced:	1.0%
NZ Growth:	2.0%

The data for the USA covers a longer period and shows somewhat higher expected losses. One could argue that the longer time period would be a better basis for the above risk calculations. However, the ease with which USA investors can move between housing and equities (due partly to the prevalence of non-recourse mortgages) means that volatility in American houses and equities may be inherently higher than that in New Zealand houses and equities. In addition, a typical conservative portfolio in the USA has a higher weighting in equities than a conservative KiwiSaver portfolio, and thus has more volatility. Finally, if KiwiSaver schemes become the dominant investors in New Zealand equities volatility in the



domestic market may well decline. Hence the above calculations for New Zealand should not be biased by understated volatility.

## 4. How Should We Best Deal with Negative Returns when Using Your KiwiSaver Fund to Save for a First Home Deposit?

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The above results show that in the case of a Balanced portfolio a premium of 1% of the portfolio value could provide insurance against the possibility of a negative return occurring at around the intended time of withdrawal for a deposit on a first home.

We do not know the timing profile of withdrawals from KiwiSaver for the purchase of a house. However, a recent survey undertaken by Horizon Research Ltd commissioned by the FSC, asked people who had not already purchased their first home, at what age they expected to do so. Of those who expressed a desire to purchase a home, the mean age at intended purchase was 35, with 64% clustered between ages 25 and 44. While expectations may not match reality, assuming that most new enrolments to KiwiSaver occur when people gain their first job, say age 22, the typical member would be in the Scheme for about 12 years before buying the first home.

So for example, if one knew in advance that a house would be bought in the 12<sup>th</sup> year of savings, a single premium could be paid in the 11<sup>th</sup> year to insure against a negative return in the 12<sup>th</sup> year. That premium would be 1% of the balance in year 11. For someone on the mean wage the corresponding dollar amount fee would be about \$700 (ignoring any growth in real income or in real house prices). Expressed in relation to the contribution rate the proportionate increase would be about 15%, raising the contribution rate from 7.60% to 8.74% in the case of a Balanced portfolio for that one year.<sup>5</sup>

Clearly the longer the time that one waits to pay a one-off premium, the higher the premium will be.

For someone in a Growth portfolio the statistically expected loss is 2%, raising the one-off fee to about \$1070. This is less than double the Balanced portfolio premium because although a Growth portfolio generates the same account balance at age 65 with a lower contribution rate, by the 11<sup>th</sup> year of saving an individual in a Growth portfolio still has a lower balance than an individual in a Balanced portfolio.

Another option would be to spread the premium over say 20 years, which covers the period over which most KiwiSavers would purchase a house. For someone in a Balanced portfolio who purchases a house in year 12, their contribution rate would need to rise from 7.60% to 7.65%, an additional 0.05% contribution each year for 20 years, to protect themselves against the possibility of 1-3 years of negative returns

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<sup>5</sup> It was shown in *Can We Fund a Comfortable Retirement for Most New Zealand Employees with a 7% Contribution Rate?* that given the tax rates on KiwiSaver proposed by the FSC and investment in a Balanced portfolio, a contribution rate of 7.6% would enable someone who spends their working life in income decile 2 to secure an additional pension in retirement equivalent to NZS. For a growth portfolio the contribution rate drops to 6.1%.

prior to house purchase. For someone in a Growth portfolio the contribution rate would need to rise from 6.10% to 6.18%, an additional 0.08% each year contribution for 20 years.<sup>6</sup>

## Conclusion

The risk of a few years of negative KiwiSaver returns just when an investor plans to withdraw their savings to buy a first home may be unpalatable for KiwiSaver investors who are yet to purchase their first home. Investing in a Conservative fund largely eliminates this risk.

The cost of this strategy, however, is high. With a 7.6% contribution rate the difference in the KiwiSaver balance at age 65 for someone on the average wage (\$54,600 in 2013) between a Conservative fund and a Balanced fund is over \$170,000. See Table 6.

The difference between a Conservative and Growth fund (with a 6.1% contribution rate) is more than \$222,000.

**Table 6: Project KiwiSaver Balances for Mean Income (cohort turning 65 in 2061)<sup>7</sup>**

Contribution rate	7.6%	6.1%
<u>Balance at 65</u>		
Conservative	491,300	395,500
Balanced	661,400	
Growth		618,000
Difference	170,100	222,500

These differences demonstrate that a better way of dealing with the risk of a negative is to pay a marginally higher contribution rate that enables the purchase of an insurance policy which tops up any loss to the balance in the KiwiSaver account that occurs in the 1-3 year saving period just prior to the date of withdrawal to purchase a first home.

For a Balanced KiwiSaver account, paying no more than an additional 0.05 percentage points on top of a contribution rate of 7.60% each year prior to withdrawal of funds for first home purchase would be sufficient. For a Growth KiwiSaver account the annual contribution rate would need to rise by no more than 0.08 percentage points on a base contribution rate of 6.10%.

<sup>6</sup> The calculations assume that in year 13 the balance in the insurance funds starts again at zero after the pay-out in year 12. Contributions cease after year 20.

<sup>7</sup> See more details in *Can We Fund a Comfortable Retirement for Most New Zealand Employees with a 7% Contribution Rate?*