Investment strategies: How sensitive are our preferences?

MAStech Investment Strategy Model

MAStech
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Intro

One consequence of the **global financial crisis** is greater risk awareness in the financial advice industry. One means of assessing risk is to test choices of preferred investment strategies for **sensitivity to the various (and numerous) assumptions** made in determining the preference in the first place. The 2007 reform to the Australian superannuation taxation environment resulted in a simpler basis for comparison of super with alternative investment options. That is, the removal of the reasonable benefit limits system and the introduction of largely tax free end benefits removes a lot of the complexity of previous years.

With the above in mind MAStech has developed an innovative modelling tool, the **MAStech Investment Strategy Model (MAStech ISM)**. Modelling tools which quantitatively compare investment options are nothing new. However, the MAStech ISM offers more than a static comparison of investment options at a stated return rate over some specified investment period. The model provides a graphical map of the best performing investment strategy over a wide range of investment return and borrowing rate assumptions. The simplicity of the graphical output may be a very helpful tool for financial advisers when explaining risk issues face-to-face with clients.

Case study – Jerome age 45

Jerome has $20,000 of pre-tax earnings available to invest each year. These funds will otherwise be taxed at an assumed marginal tax rate of 38.5% if received by Jerome as salary (note that this tax rate is effective from 1 July 2010 for taxable income in the range $80,001 - $180,000). His employer allows salary sacrifice (plus superannuation guarantee payments) to the relevant concessional contributions cap ($25,000 per annum).

Assuming Jerome will retire at age 60 and wishes to access his funds at that time, how can we compare the various investment strategies open to Jerome?

The **MAStech ISM** currently provides the capacity to compare and contrast up to eight investment strategies:

01 Non-deductible home loan repayments (*Home loan*)	05 100% geared non-super (*Geared non-super*)
02 Super concessional contributions (*Super CC*)	06 100% geared super funded by CCs (*Geared super – CC funded*)
03 Super non-concessional contributions (*Super NCC*)	07 100% geared super funded by NCCs (*Geared super – NCC funded*)
04 Ungeared non-super (*Non-super*)	08 Family trust investment – MTR 16.5% (*Family trust*)

A more detailed explanation of how these options are structured is provided in the Appendix, along with MAStech's current return and interest rate assumptions.

In Jerome's case the MAStech ISM demonstrates the accumulated benefits after 15 years for each of the seven strategies – see Chart 1.

MAStech Investment Strategy Model

Chart 1: After tax accrual at age 60 (NPV)

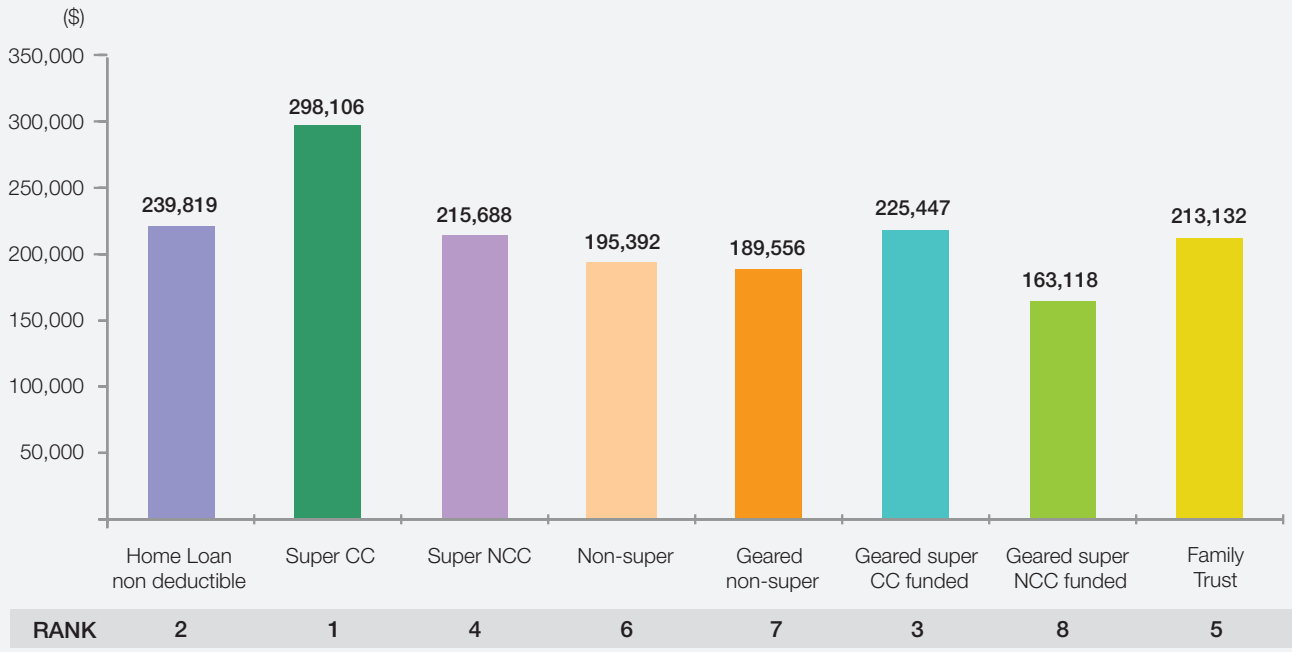
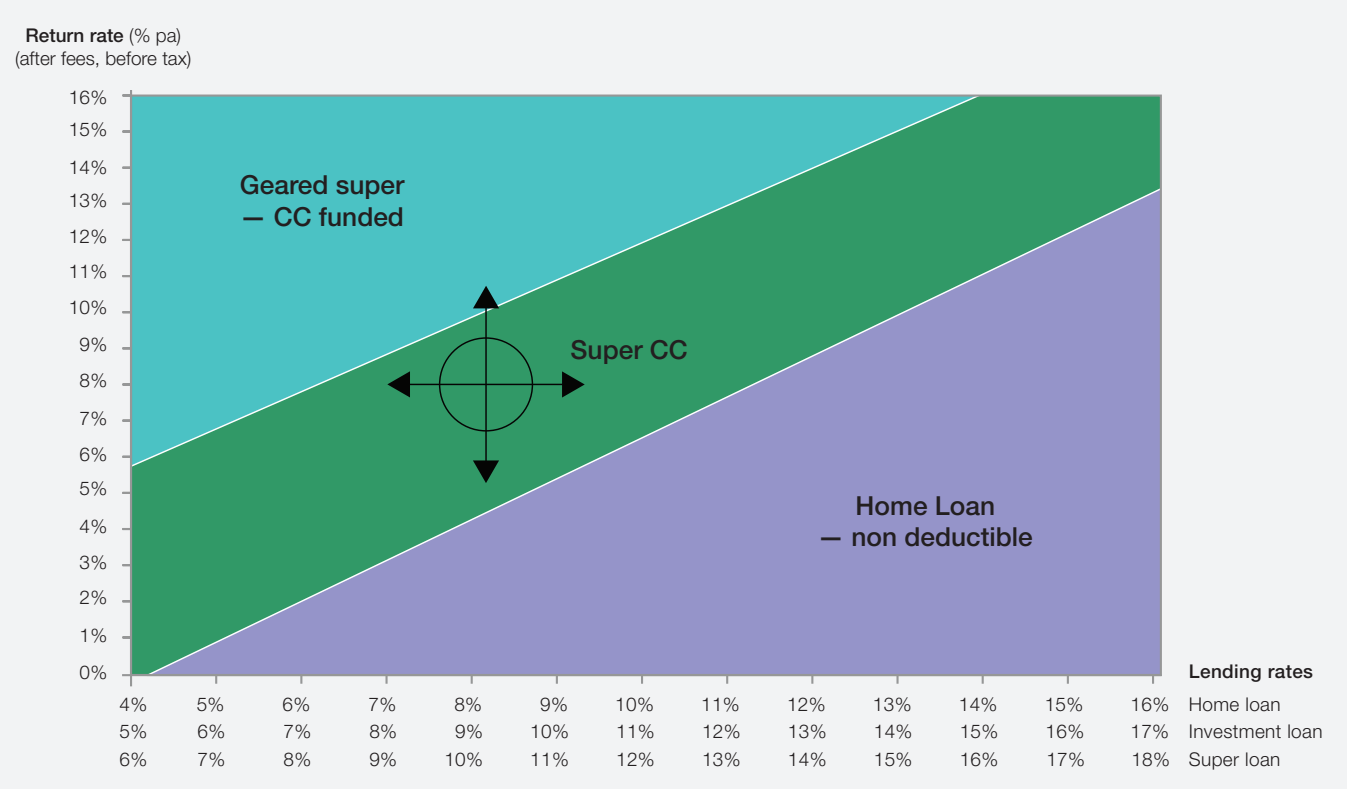


Chart 1 indicates *Super CC* is the quantitatively preferred strategy. Most financial advisers would intuitively arrive at this result. A more interesting issue is how sensitive this result is to changing investment return and lending rates? Chart 2 indicates the quantitatively preferred strategy at each combination of investment return rate and lending rate from 0%-16% pa and 4%-16% respectively.

Chart 2: Sensitivity – preferred strategy at various lending & return rates



Note that the triple value x-axis scale represents an assumed interest rate premium (relative to home loan rates) paid on capital borrowed for investment purposes through a facility such as a margin loan account (1.0% pa greater than the home loan rate) and a further premium on limited recourse borrowing structured through a superannuation instalment warrant type loan arrangement (2.0% pa greater than the home loan rate).

The 'cross hairs' in Chart 2 illustrate MAStech's current projection rates (see Appendix) ±1.0% pa. As the cross hairs lie in the *Super CC* region, Chart 2 confirms what we concluded from Chart 1 i.e. *Super CC* is the quantitatively preferred strategy at our return and interest rate assumptions. However Chart 2 shows that an increase in the return rate or a decrease in the lending rate will cause, at some point, the *Geared Super – CC funded* strategy to be preferred.

Conversely a large increase in lending rates (of approximately 3.0% pa) or decrease in return rates (of more than 4.0% pa) may cause the *Home Loan* strategy to become the preference. Note that only three strategies appear in Chart 2 - the other four strategies *(i.e. Super NCC, Non-super, Geared non-super and Geared Super – NCC funded)* are not the quantitatively preferred strategy at any combination of return rate and lending rate within the illustrated ranges.

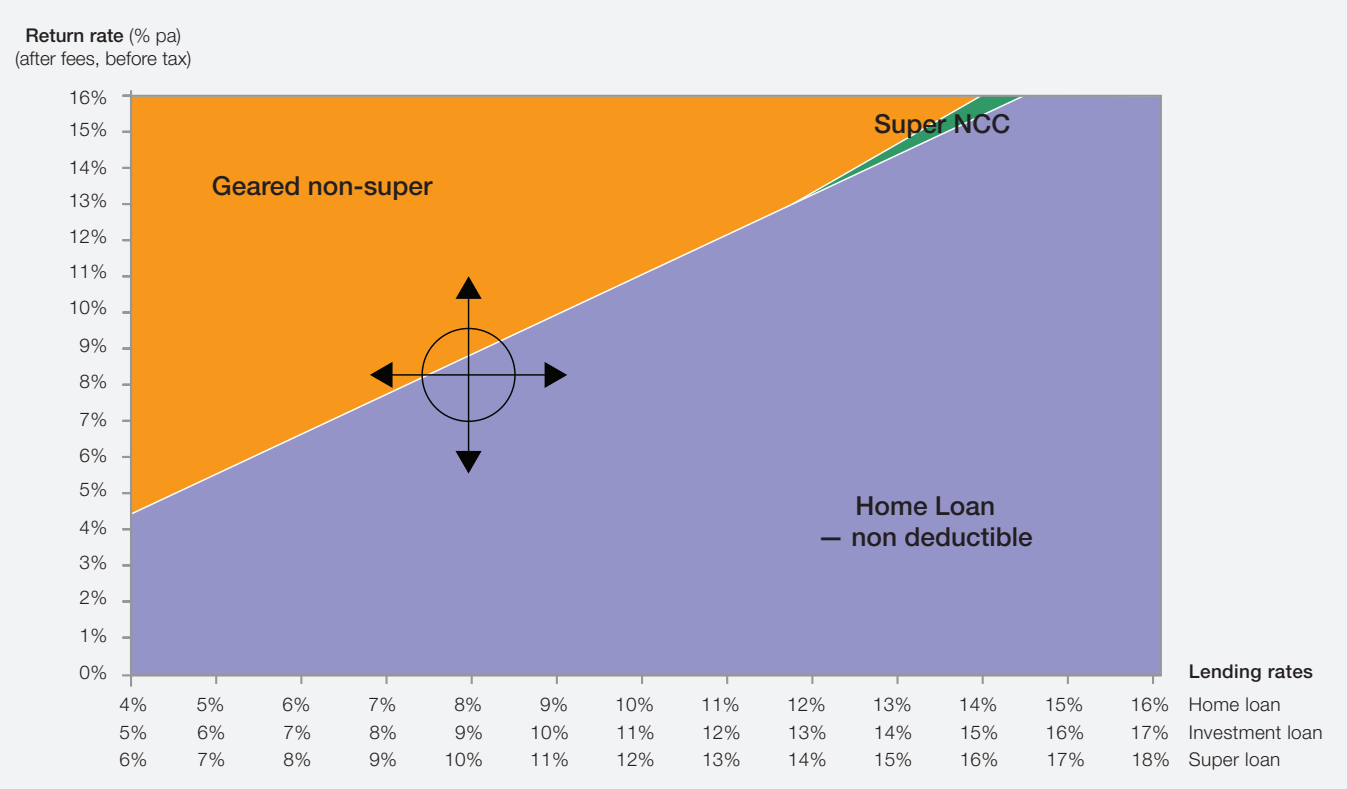
These sensitivities were not evident from Chart 1. Although financial advisers may instinctively perceive these interactions from their own detailed knowledge and experiences, the visual nature of the relationships in Chart 2 may be helpful in explaining to clients the risks and interactions between the different strategy options.

The combination of Charts 1 and 2 can be used to help illustrate the risk/reward trade off. For example, if our return assumptions result in the cross hairs falling close to the boundary between *Geared Super – CC funded and Super CC*, we would conclude (and could verify in Chart 1) that the two options produce very similar quantitative results at the end of the projection term. The additional risk in 'gearing up' would be difficult to justify unless it is considered there is a high likelihood of a significant increases in return rates (i.e. a northward movement of the cross hairs) or a decline in interest rates (i.e. a westward movement of the cross hairs) from the standard projection rates.

Conversely if the risks to the return and interest rate assumptions are in the opposite directions (i.e. south or east), the *Home loan* strategy could be preferred.

Narrowing our world of investment options – assume CC cap utilised

Chart 3: Sensitivity – no super CC capacity



Charts 1 and 2 confirm that the *Super CC* strategy is preferred. In many cases clients may be already funding to their CC cap and are interested in alternative investment strategies for further excess income. How do the options look if we assume Jerome is already utilising his CC cap?

Ignoring the super CC based strategies in Chart 1, it is evident that the *Home loan* strategy is the most preferred of the remaining five strategies. But the *Super NCC* and *Geared non-super* strategies are only marginally less preferred, so the question as to the sensitivity of these results inevitably arises. Chart 3 illustrates this sensitivity.

The cross hairs lie near the boundary between *Geared non-super* and *Home loan*. Depending on the perceived risks to the current return and interest rate assumptions, an investor will choose either of these two strategies, as the remaining three strategies (*Super NCC, Non-super* and *Geared Super – NCC funded*) never, or rarely in the case of the *Super NCC* strategy, give rise to a better result than the former two strategies. A key issue in deciding between the two preferred strategies is the risk associated with gearing, versus the perceived comparative comfort of paying down non-deductible home loan debt.

A risk adverse client might consider the comfort and greater access to capital associated with the *Home loan* strategy more attractive even if a slightly higher return assumption resulted in the *Geared non-super* strategy being the quantitatively preferred result.

The MAStech ISM allows this analysis simply by excluding the super CC related strategies from the calculations. Similarly gearing options (outside or inside super) can be selectively excluded, as can the option to reduce non-deductible home loan debt, if for example no home loan exists.

We have considered issues relating to changes of return and interest rates, the ability to make concessional superannuation contributions, appetite for risk and access to capital. What impact do changing marginal tax rates and investment time horizons have on the preferred investment strategy?

Marginal tax rates and investment time horizons

Chart 4: Sensitivity – MTR of 31.5%

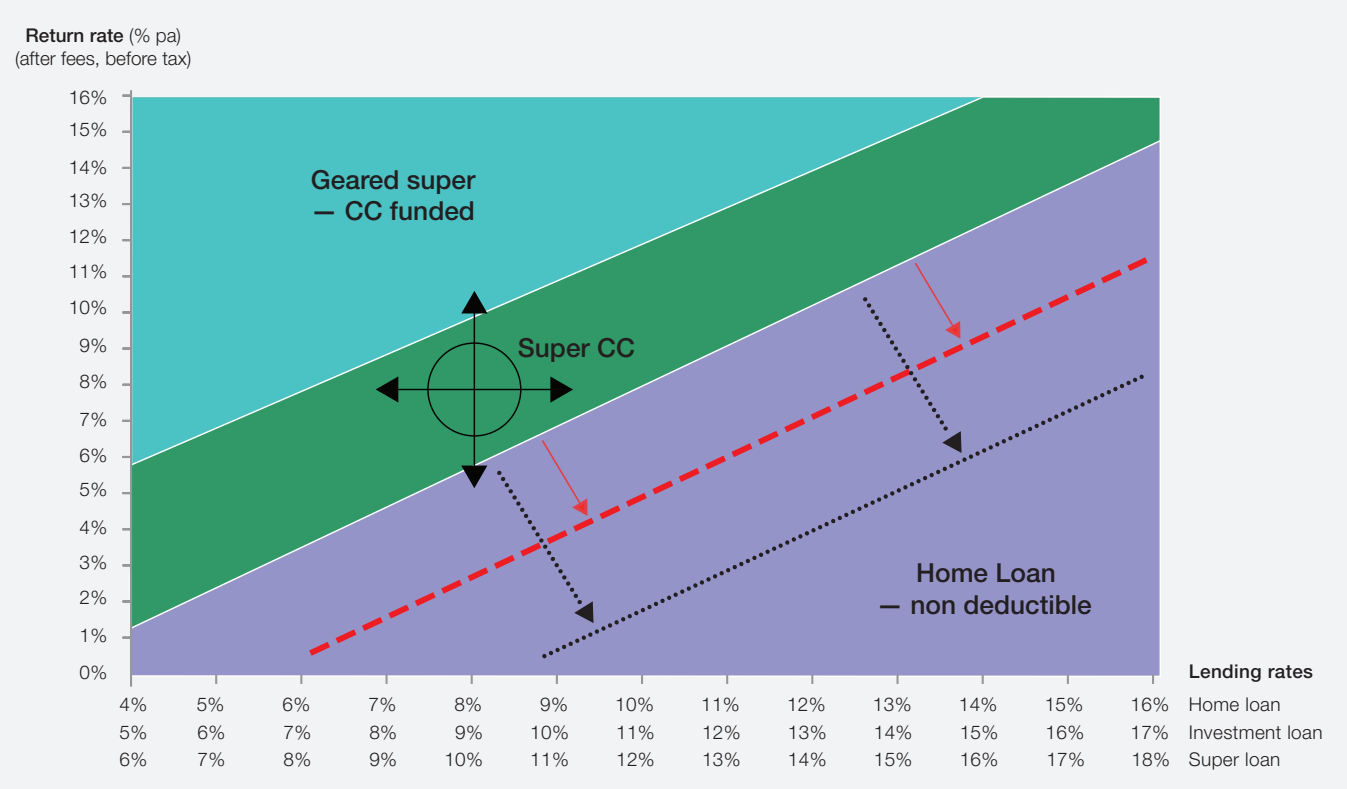


Chart 4 shows the sensitivity if Jerome had a marginal tax rate of 31.5%. The dashed red line shows where the *Super CC–Home loan* boundary would lie if Jerome was a top marginal tax rate payer (46.5%). At higher marginal tax rates, the *Super CC* strategy represents a broader band across the chart, indicating it is more robust to changes in interest rates.

The black dotted line represents the shift in the same boundary for the 31.5% marginal tax rate payer if the investment term is reduced from 15 years to 5 years. At our current interest rate assumption of 8.0% pa for home loans, the non-deductible nature of the interest payment results equates to an effective return rate of 8.0% pa after tax, higher than the effective after tax rate of 6.53% pa applicable to super. The differential is magnified over the longer term, causing the *Home loan* strategy to be attractive in more cases over 15 years than over 5 years (see black arrow boundary shift in Chart 4).

Summary

Choosing the most appropriate investment strategy for clients became a simpler process after the 2007 super reform measures. This has led to more sophisticated modelling which can further simplify issues surrounding a complex array of possible parameters. The MAStech Investment Strategy Model may help financial advisers understand the sensitivity relationships between various investment strategy options, and aid in their discussions with clients about the most appropriate strategy in each client's individual situation.

Appendix

Explanation of the seven investment strategies considered:

All contributions/payments are assumed to be made half way through the year and returns are capitalised at the end of each year. All capital gains are assumed to be discount capital gains eligible for either the 33⅓% or 50% discount.

1. Non-deductible home loan repayments (*Home loan*)

Gross salary attracts tax at the stated marginal tax rate (including Medicare levy), with the net remaining used to pay down non-deductible debt. Returns effectively accrue tax free at the stated home loan rate.

2. Super concessional contributions (*Super CC*)

Gross salary is contributed directly to a superannuation fund and attracts tax at 15%. Earnings accrue in the accumulation phase - tax is applied on income at 15% and 10% on capital gains. No benefits tax is assumed. Unrealised gains are assumed to be realised tax free (i.e. in pension phase).

3. Super non-concessional contributions (*Super NCC*)

Gross salary attracts tax at the stated marginal tax rate (including Medicare levy), with the net remaining contributed directly to a superannuation fund as a tax free non-concessional contribution. Earnings accrue in the accumulation phase - tax is applied on income at 15% and 10% on capital gains. No benefits tax is assumed. Unrealised gains are assumed to be realised tax free (i.e. in pension phase).

4. Ungeared non-super (*Non-super*)

Gross salary attracts tax at the stated marginal tax rate (including Medicare levy), with the net remaining used to purchase a non-super investment portfolio. Returns on the portfolio are taxable at the individual's marginal tax rate (assumed constant through the investment term), with capital gains attracting the 50% CGT discount for individuals. Unrealised capital gains are assumed taxable (including 50% CGT discount) in the final year of projection.

5. 100% Super (*Geared non-super*)

Gross salary is used to fund interest payments on a 100% geared investment portfolio. The amount of gross salary is assumed to pay 100% deductible interest payments. The amount borrowed is therefore the amount of gross salary divided by the investment loan interest rate (home loan rate + 1.0% pa). Returns on the portfolio are taxable at the individual's marginal tax rate (assumed constant through the investment term), with capital gains attracting the 50% CGT discount for individuals. Unrealised capital gains are assumed taxable (including 50% CGT discount) in the final year of projection, when borrowed capital is repaid in full.

6. 100% geared super funded by concessional contributions (*Geared super – CC funded*)

Gross salary is contributed directly to a superannuation fund and prima facie attracts tax at 15%. However, the gross amount is used to pay deductible interest on a 100% geared investment loan via an instalment warrant super borrowing arrangement. The amount borrowed is therefore the amount of gross salary divided by the super loan interest rate (home loan rate + 2.0% pa). Earnings accrue in the accumulation phase - tax is applied on income at 15% and 10% on capital gains. No benefits tax is assumed. Borrowed capital is repaid in full in the final year of projection. Unrealised gains are assumed to be realised tax free (i.e. in pension phase).

7. 100% geared super funded by non-concessional contributions (*Geared super – NCC funded*)

Gross salary attracts tax at the stated marginal tax rate (including Medicare levy), with the net remaining contributed directly to a superannuation fund as a tax free non-concessional contribution. The amount of contribution, grossed up by 15%, is assumed to pay 100% deductible interest payments. The amount borrowed is therefore the amount of non-concessional contribution divided by 1–15% divided by the super loan interest rate (home loan rate + 2.0% pa). Earnings accrue in the accumulation phase - tax is applied on income at 15% and 10% on capital gains. No benefits tax is assumed. Borrowed capital is repaid in full in the final year of projection. Unrealised gains are assumed to be realised tax free (i.e. in pension phase).

8. Family trust investment – MTR 16.5% (*Family trust*)

Gross salary attracts tax at the stated marginal tax rate (including Medicare levy), with the net remaining invested in an portfolio within a family trust. Returns on the portfolio are taxable at the family trust's marginal tax rate (16.5%, assumed constant through the investment term), with capital gains attracting the 50% CGT discount. Unrealised capital gains are assumed taxable (including 50% CGT discount) in the final year of projection.

MAStech return and interest rate assumptions:

Investment return assumptions:						
	Asset Allocation	Income	Capital Growth	Franking Percentage	Tax free proportion	Tax deferred proportion
Australian Equities	45%	3.50%	5.00%	60.00%		
Overseas Equities	30%	2.50%	7.00%			
Property	10%	7.00%	2.00%		0.00%	20.00%
Australian Fixed Interest	10%	6.50%				
Overseas Fixed Interest	0%	6.00%				
Cash	5%	4.50%				

Other assumptions:	
Fees - reduce income	1.50%
Turnover	20%

	Return Rate (after fees, before tax)
Net Gain	4.55%
Net Income	2.81%
Total Return	7.36%

Notes:

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