Submission to

Inquiry into the Superannuation Industry (Supervision)
Amendment Regulations 2004 (No. 2)
as contained in Statutory Rules 2004 No. 84

by

deLancey Worthington BA FIAA
Actuarial Solutions Pty Ltd
13 July 2004

Office:
37 Vannam Drive
Ashwood VIC 3147

Postal:
PO Box 469
Ashburton VIC 3147

Phone:
03 9888 1853

Fax:
03 9888 1482

Email:
actuary@bigpond.net.au

Summary

Actuarial Solutions is an actuarial consultancy that concentrates on providing actuarial advice and certificates for pensions offered from self managed funds.

I have analysed the pensions that have commenced under my advice to examine how they may have been used for the purposes of
1. tax minimisation
2. estate planning
3. reasonable benefit limit avoidance, and

I have also examined the extent of losses to revenue from using these pensions as compared to allocated pensions and the new growth pensions in the absence of these regulations.

The examination shows that only the relatively few pensions (5% of those in the portfolio) with a purchase price in excess of $1m, appear as potentially being used for the purposes listed above. The remainder of the pensions have been used to solve an RBL situation or to allow receipt of Centrelink benefits. The proposed changes will block access to all retirees when the target group, which is only 5% of pensioners, can be managed through other less draconian measures.

I offer several alternatives to the measures that effectively outlaw new defined benefit pensions from Self Managed Funds. The RBL formula could be altered to a purchase price basis, the undeducted contributions allowed for on a pro-rata basis, or the pension valuation factors should be revised to reflect modern probabilities of death and lower expected investment returns.

To avoid abuse of the RBL and tax system through a low pension rate, the SIS Regulations could be altered to include a similar requirement to the Social Security Act that the purchase price must be returned over the term of the pension.

1. Introduction

Actuarial Solutions is an actuarial consultancy that concentrates on providing actuarial advice and certificates for pensions offered from self managed funds. I have been responsible for signing-off 908 new defined benefit pensions with a total purchase price of $471m over the last 7 years. I provide ongoing annual certification for these pensions. I also prepare actuarial certificates for 1,002 allocated pensions each year with assets of $572m under management. The changes to the definition of defined benefits therefore have a massive and immediate impact on the business of Actuarial Solutions.

I have analysed the pensions that have commenced under my advice to examine how they may have been used for the purposes of
1. tax minimisation
2. estate planning
3. reasonable benefit limit avoidance, and

I have also examined the extent of losses to revenue from using these pensions as compared to allocated pensions and the new growth pensions in the absence of these regulations.

The examination shows that only the relatively few pensions (5% of those in the portfolio) with a purchase price in excess of $1m, appear as potentially being used for the purposes listed above. The remainder of the pensions have been used to solve an RBL situation or to allow receipt of Centrelink benefits.

Defined benefit pensions hold taxable solvency reserves. The investment tax on these reserves generates tax income that is not available from allocated pensions and growth pensions. For purchase prices up to $500,000 the tax on the annual pension is negligible. In fact in many cases the tax rebate exceeds the tax payable on the pension.

I offer several alternatives to the measures that effectively outlaw new defined benefit pensions from Self Managed Funds. The RBL formula could be altered to a purchase price basis, or the pension valuation factors should be revised to reflect modern probabilities of death and lower expected investment returns.

2. Client Data

To enable me to comment on the impact of the changes to the SIS Regulations I have taken a profile of the pensions for which I provide actuarial certificates. This profile is listed in Appendix 1 and is referred to in various parts of this submission.

The information provided is broken down by range of purchase price and type of pension. The purchase price ranges are:

Lower	Upper
0	99,999
100,000	149,999
150,000	249,999
250,000	499,999
500,000	749,999
750,000	999,999
1,000,000	1,999,999
2,000,000	

The types of pension are

- lifetime complying pension
- term complying pension
- lifetime non-complying pension
- term non-complying pension
- allocated pension

The information provided is

Table 1 & Table 1a	Number of pensions
Table 2 & Table 2a	Total purchase price
Table 3	Cumulative distribution of pensions by number
Table 3a	Cumulative distribution of pensions by purchase price
Table 4 & Table 4a	Average purchase price
Table 5 & graph	Average RBL value as a percentage of purchase price
Table 6 & graph	Average pension rate
Table 7 & graph	Average taxable reserve
Table 8 & graph	Average asset allocation
Table 9	Annual expenses per Fund 1st year

There are 908 defined benefit pensions with a total purchase price of $471m that commenced over the last 7 years. I provide ongoing annual certification for most of these pensions. I also prepare actuarial certificates for 1,002 allocated pensions each year with assets of $572m under management.

3. Tax Minimisation

3.1 Pension Level

Pension design is a trade-off between a high but brief income and a lower but longer lasting income. Any initial planning decision to set the pension at a certain initial level to ensure its longevity should not be considered as tax minimisation unless it is overdone.

Lifetime pensions are designed to last the uncertain lifetime of the pensioner(s). This may potentially be a long period.

The SIS regulations and the Social Security Act require an annual actuarial certification of a high degree of probability that assets continue to be sufficient to meet the pension obligations. This requirement forces the actuary to insist on a level of pension from the outset that may be considered low. In all the pensions for which I have been responsible I have used an asset-liability model based on historic investment returns to ensure the pension is set at a level which has at least a small (0.5%) probability of running out of assets before the last pensioner dies.

Balancing this conservative outlook from the actuary is the requirement for income in retirement. For those with a smaller purchase price the requirement is to obtain as high an income as possible from the assets. For a lifetime pension this is done by setting a lower indexation rate and not making the pension 100% reversionary. The pension payments do not keep pace with inflation and cease on the first death.

Retirees with more assets available can
- retire earlier, with a longer expected payment period
- take a higher indexation rate that keeps pace with inflation
- have the pension revert in full to a dependant, usually their spouse
- ensure greater certainty that pension payments will continue
- use segregation of assets to manage tax on assets more efficiently

All but the last of these measures reduces the level of pension that can be afforded. The impact of these influences is shown in the summary below.

Average Pension Rate

Purchase Price Range		
Lower	**Upper**	
0	99,999	6.6%
100,000	149,999	5.9%
150,000	249,999	6.1%
250,000	499,999	6.9%
500,000	749,999	5.5%
750,000	999,999	4.7%
1,000,000	1,999,999	4.2%
2,000,000		4.7%
Overall		5.2%

3.2 Actuarial Reserves

The amount of assets backing a complying pension must satisfy the minimum solvency requirements of the SIS Regulations, at a high degree of probability. The tax legislation limits the portion of the assets that are exempt to an amount calculated at average probability level. The difference between these 2 asset levels are solvency reserves that are taxable on their investment earnings. The more secure the assets the higher the tax payable on those assets. The table below demonstrates the average level of taxable assets in the various ranges of purchase price.

Average Taxable Reserves

| Purchase Price Range		
Lower	Upper	
0	99,999	17.1%
100,000	149,999	16.6%
150,000	249,999	16.4%
250,000	499,999	13.2%
500,000	749,999	19.5%
750,000	999,999	21.8%
1,000,000	1,999,999	19.8%
2,000,000		23.7%
Overall		20.0%

4. Estate Planning

4.1 Australian Psyche

The average Australian believes in a fair deal / a fair go / value for money. Other than their residence the accumulated superannuation entitlements are usually the largest investment held by an Australian. This amount has been won by years of saving and management. They want to receive fair value in retirement for this amount.

They do not see the value of purchasing a lifetime life office annuity when the life office keeps the remaining assets. They would prefer an arrangement that keeps the remaining assets in their own hands. A complying pension fro a self-managed fund, an allocated pension and a growth pension all achieve this result. The complying pension does a much better job of providing a stable long-term income and is therefore selected by many retirees.

4.2 Relativity to Life Office Annuities

Under current investment market conditions it is possible for pensions to be arranged at a level that is competitive with life office annuities and provide an expected payment period of over 30 years. The reversionary life office annuity is only expected to pay for an average of 22 years. This can be seen in the graph below as about the 20% and 50% probabilities of survival respectively for a married couple retiring at age 65.
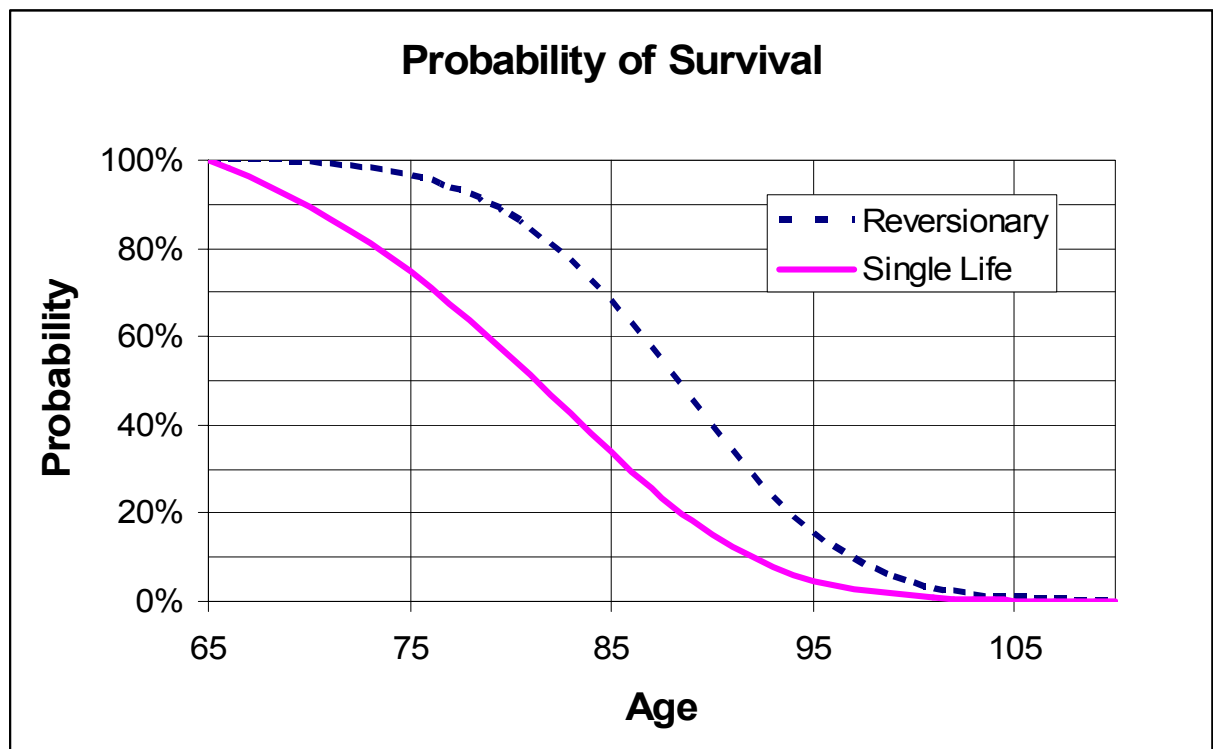
The longer payment period is possible with the higher expected rate of investment return from a growth oriented asset allocation. The life office uses the reduction in variability from a group of annuities established at the same time to reduce the potential average term of annuity payments. The life office also utilises less risky assets to back the annuity stream. The life office can afford to take less risk and achieve lower expected rates of return because its average period of payment is shorter. The life office would have less solvency reserves because of the better matching and security of payments.

4.3 Impact of Asset Allocation

Using experience in investment markets since 1928 the asset outcomes from operating a complying pension have a wide range of outcomes. The variability is a function of the asset allocation. The selected pension level is competitive with a life office annuity with the same terms.

Using an asset allocation similar to the average of those used for the pensions in the portfolio has the following result.

Volatility of Outcomes: 3.0% indexed pension $24000, cash 15% / fixed 10% / growth 75%
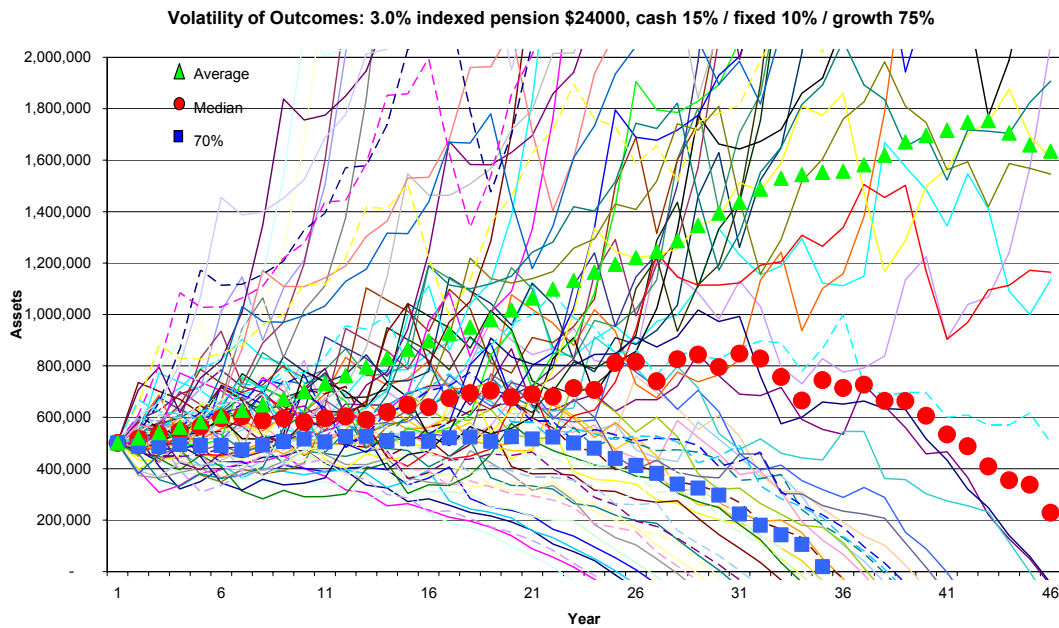
Adopting a more conservative asset allocation, similar to that used by the life office has the much less dramatic result below.

6

Volatility of Outcomes: 3.0% indexed pension $24000, cash 30% / fixed 70% / growth 0%
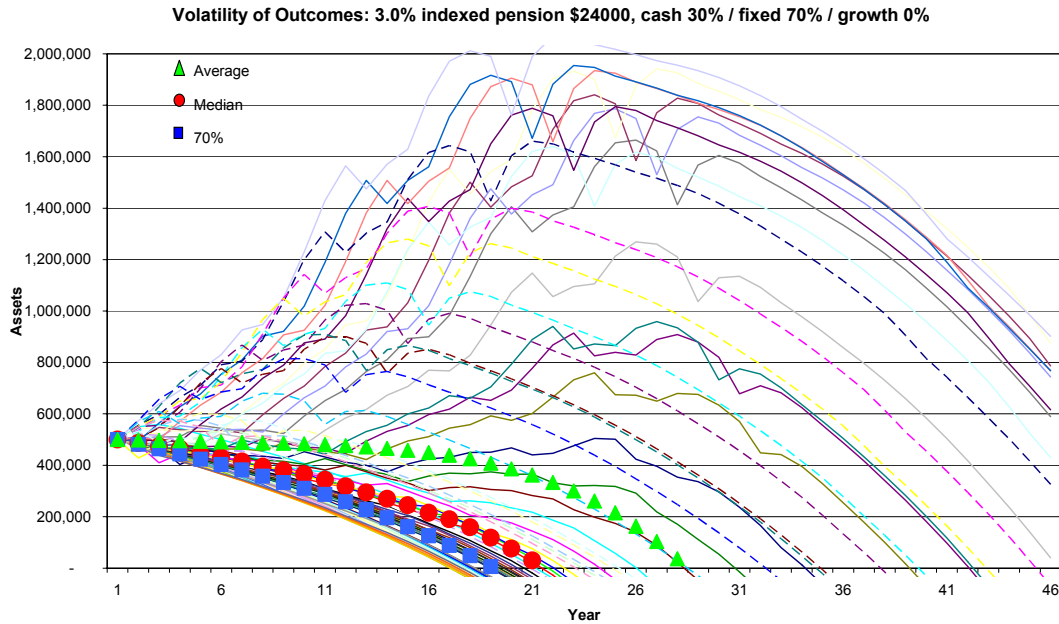
It is the Trustees' obligation to invest the assets of the Fund to maximise the value to members at the level of risk they are wiling to accept.

By adopting a realistic, growth-oriented asset allocation, the Trustee is increasing the likelihood of a large amount of assets remaining at the end of the pension. This is not a deliberate design feature but a consequence of having to restrict the pension amount to satisfy solvency requirements.

The growth-oriented asset allocation continues the asset allocation used prior to retirement. It keeps assets invested in a manner that supports the economy. Interest rates would need to increase considerably for life offices to be able to provide an income that retirees consider more worthwhile than taking their own pension.

4.4 Assets Remaining at Death

With a lifetime pension there is almost a certainty there will be assets remaining at the date of death of the last pensioner. Under current arrangements a complying lifetime pension may make a death benefit of at most the remaining pension payments out to the end of 10 years from the commencement of the pension. If the last death occurs after 10 years then no death benefit can be paid from the complying lifetime pension.

The minimum solvency requirement and the requirement that the pension maintain a satisfactory financial position at all times means there will be assets remaining at the death of the last pensioner. There are several options open to the Trustees of the fund for the use of these assets

- Retain them as reserves to support other pensions being paid by the fund. This is what a life office does with an annuity pool. It is what large employer-sponsored defined benefit funds paying pensions would do. They both count on the "profits" from those dying early to support

7

those living longer. The investment earnings on the reserves would now be taxable at 15%.

- Release the reserves to the general reserves of the fund. Use those reserves to increase the account balances of other members. These distributions are surchargeable and would count against the RBL of the recipient. Whilst the accounts to which they are credited remain in accumulation mode the investment earnings would be taxable at 15%. All these would lead to further tax revenue. They would also lock the assets into the superannuation system and eventually lead to retirement income.

- Use the reserves to pay a death benefit to the dependants of the deceased. This would be a new benefit. The benefit would be RBL assessable against the deceased RBL and taxable accordingly. If the deceased had already fully utilised their pension RBL the death benefit would be taxable at 38% + Medicare levy. The benefit would be payable from a taxable reserve. Any realisation of capital gains to make the payment from the fund would taxable.

- Use the reserves to support a new defined benefit pension. This would not be surchargeable as the amount has not been credited to a member's account. It would count against the RBL of the recipient. The tax status of the assets before and after the new pension would be similar. It would allow the assets to be continue to be used to provide a retirement income. It would be similar to making the pension reversionary except there does not need to be a dependency relationship between the pensioner who has died and the new pensioner and the new pension counts for RBL purposes.

All these measures result in a windfall to the government that does not arise from an allocated pension. All the measures, other than paying a death benefit, keep the assets in the superannuation environment. The immediate or eventual retirement income generated reduces the support required from the government through old age pensions.

Contributions tax was paid when the contributions made for the original pensioner entered the fund. Contributions tax should not be levied again.

Each of these measures causes any pre83 period of service of the original pensioner to be lost. This increases the likely tax on any eventual lump sum benefits taken from the assets remaining at the death of the pensioner.

5.. Reasonable Benefit Limit Avoidance

5.1 RBL Value of Benefits

Ignoring any undeducted purchase price, the RBL value of complying pensions is much the same at all levels of purchase price. This is shown below.

Average RBL Value as Percentage of Purchase Price		
Purchase Price Range		
Lower	**Upper**	
0	99,999	61%
100,000	149,999	55%
150,000	249,999	57%
250,000	499,999	64%
500,000	749,999	61%
750,000	999,999	55%
1,000,000	1,999,999	56%
2,000,000		55%
Overall		57%

As the values are similar at each level, it suggests the level of pension is realistic at each level of purchase price. The amount is less than 100% because
1. The RBL formula ignores expenses
2. The Pension Valuation Factors used in the RBL formula are low
3. The SIS Regulations require taxable solvency reserves to be held against poor experience. If experience is in line with assumptions these reserves are not required, are not paid out as benefits, and therefore should not be counted toward the RBL.

5.2 RBL Formula

The formula used to value lifetime pensions is set out in section 140ZO of the Income Tax Assessment Act as

```
    Annual          Pension   |    Undeducted     Residual
    value    x    valuation   |  -  purchase    +  capital
                     factor   |       price         value
```

where:

``**Annual value**" means the annual value of the pension;
``**Pension valuation factor**" means the pension valuation factor applicable to the pension;
Undeducted purchase price means the undeducted purchase price of the pension, reduced by so much of the purchase price of the pension as is taken, because of section 27D, to consist of an amount to which sub-subparagraph 27D(1)(b)(iii)(DA) applies;
``**Residual capital value**" means the present value of the residual capital value, if any, of the pension.

This formula is applied for all lifetime pensions whether purchased with a lump sum or as a resulting defined benefit. The equivalent benefit when provided through a life office annuity is RBL assessed on its purchase price. This could be used for purchased lifetime pensions.

5.3 Undeducted Contributions

When Undeducted Contributions are part of the purchase price of a lifetime pension they reduce the RBL value of the pension. For each $1 of purchase price which is undeducted the RBL value of the pensions in the portfolio were reduced on average by $0.43. Future pensioners with more financial resources could add undeducted contributions to reduce the net RBL assessed benefits.

Where the purchase price is known the formula could be adjusted to

```
/                        \ /                              \
||Annual    Pension  |  Residual  | |     Undeducted  / Purchase |
||value x valuation  | + capital  |x| 1 -  purchase   / Price    |
||         factor    |   value    | |      price      /          |
\                        / \                              /
```

This pro-rates the impact of the undeducted contributions.

5.4 Pension Valuation Factor (PVF)

The PVF were set in a period when market interest rates and inflation were higher than at present. They also used life expectancies that now considerably understate population rates. Using the recently released ALT2000-02 life tables the rates of return required to arrive at the current PVFs is about 13.4%.

If the PVFs were recalculated using a more realistic rate of return of say 9.0% the resulting PVFs would be on average 37% higher than the current. This would adjust the average RBL value of pensions from 57% to 78%. This would mesh well with the average level of taxable reserves in the first year of of 20%. This shows the average RBL value of 57% is not abusing the RBL system to avoid the RBLs.

This change would also reduce the effectiveness of adding undeducted contributions. Over twice the amount of undeducted contributions would be required to achieve the same reduction in RBL.

The PVFs assume the age of the reversionary beneficiary is close to that of the pensioner. Where the reversionary pensioner is much younger than the pensioner the RBL value placed on the pension is below a realistic level. This feature of the system can be used to advantage by retirees using their children as reversionary beneficiaries. Changing to a purchase price based assessment would remove this anomaly

5.5 Level and Duration of Pension

The RBL formula could be manipulated by setting a low pension amount. This would have consequences of increased taxable reserves and an increased likelihood of large assets remaining at death. In all my calculations of the amount of pension that could be afforded I have always required at least a small probability of failure to ensure the sole purpose test is satisfied.

Perhaps the SIS regulation should be modified to match the Social Security Act, which requires a pension level that ensures that the original capital is returned over the term of the pension. For a lifetime pension the term is taken to be the longest life expectancy of the lives involved in the pension.

The graph below compares the real pension income provided by each type of pension and the probability that at least one of a couple is still alive to receive the pension.
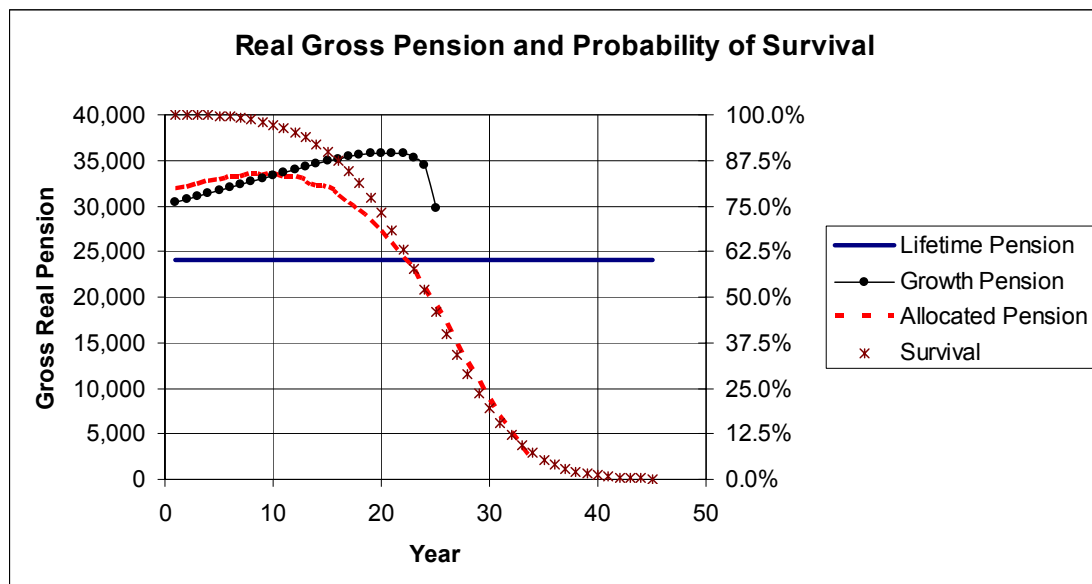
The lifetime pension is suitable for providing a long-term stable real income. The level of pension is not adjusted to reflect changes in asset value.

The allocated pension does a poor job of maintaining the real level of income for more than 15 years.

The average growth pension provides a real level of income but only during its term. When it expires there is still a 40% probability the couple is still alive and requiring a retirement income.

When a growth pension is examined allowing for fluctuations in investment return from year to year it produces a pension that can vary considerably from the average. The results are shown graphically on the next page.

The distribution is very skew. The median is much lower than the average. Most growth pensioners can therefore expect to achieve below the average. The average total real payments are $938,452. The median total real payments are only $788,024. The total real payments at the 70% level, where at least 70% of payments exceed this level, is $675,710.

For a lifetime pension over the same period all 3 amounts would be the same at $600,000. The lifetime pension provides much greater certainty of pension amount from year to year and greater duration of the pension payments.

Real Pension Payments from a Growth Pension invested in 75% Growth Assets
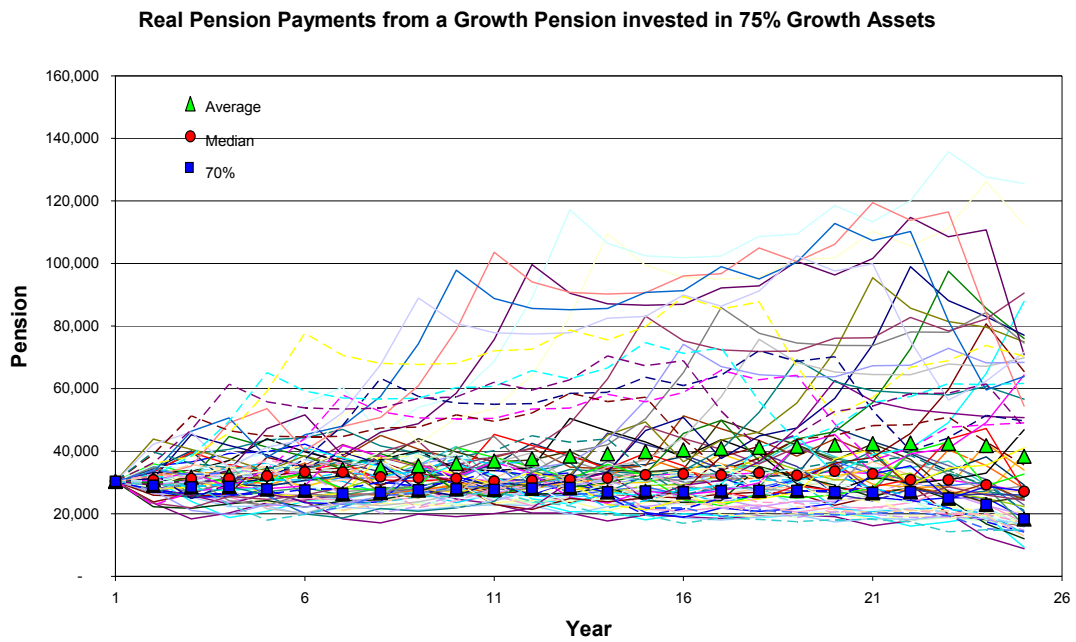
6. Impact on Tax Revenue

The analysis below shows that lifetime pensions provide a higher taxation revenue than allocated pensions and growth pensions.

I have calculated the tax revenue derived from 3 alternative pensions
1. A 100% reversionary complying lifetime pension taken at a rate competitive with a life office annuity and using a growth-oriented asset allocation.
2. A growth pension taken for a term equal to the life expectancy of a 60 year old female. This is the longest term available for a couple both aged 65 at retirement.
3. An allocated pension taken at minimum.

In each case identical investment returns and fund expenses of $2,000 per annum indexed at CPI plus 1.5% of assets were incurred.

The tax calculation was done assuming other income exists against which any under utilised pension rebates could be offset. The tax on the Fund was done assuming 15% tax on the net investment earnings on the solvency reserves.

The allocated pension and growth pension have no taxable solvency reserves. Standard lump sum and pension RBLs apply. Benefits in excess of the RBL have a reduced rebate rate.

I have looked at 6 different purchase prices
1. $250,000 all undeducted
2. $250,000 no undeducted
3. $500,000 all undeducted
4. $500,000 no undeducted
5. $1,000,000 all undeducted
6. $1,000,000 no undeducted

Any imputation credits apply to all pensions regardless of the tax position of the assets. They have therefore been ignored in these calculations.

6.1 Low Purchase Price

The graphs on the next page show the net tax income each year from a $250,000 purchase price.

Both graphs show lifetime pensions produce considerably more tax income. The growth and allocated pensions have a negative tax effect as the rebate exceeds the tax payable on the pension.

**Tax Generated From Fund & Pensioner
($250,000 purchase price all undeducted)**
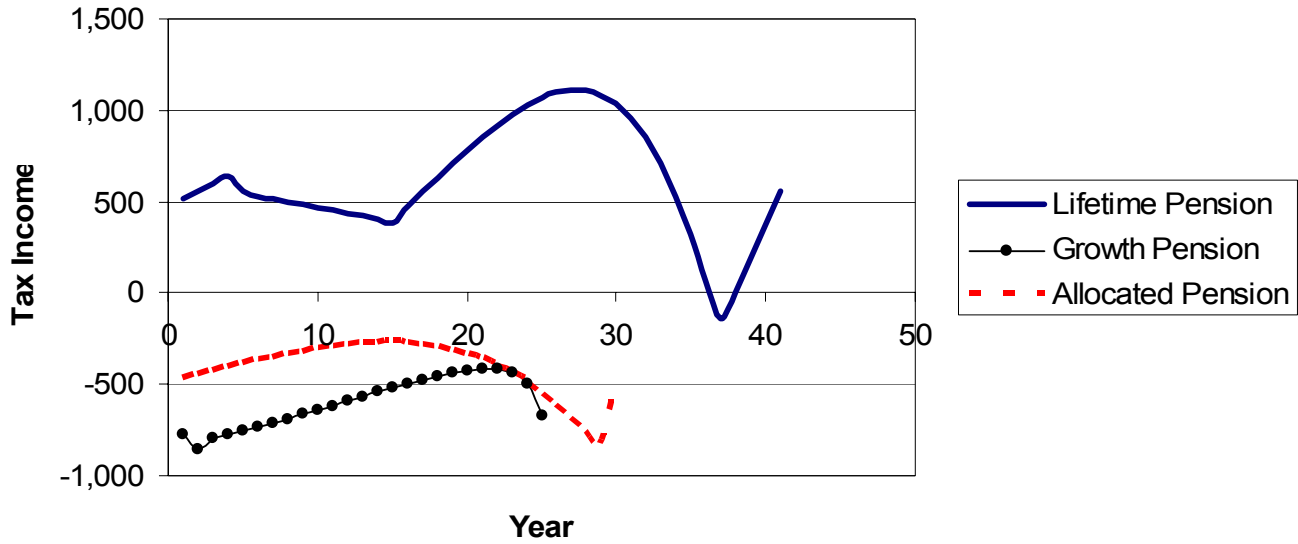
**Tax Generated From Fund & Pensioner
($250,000 purchase price no undeducted)**
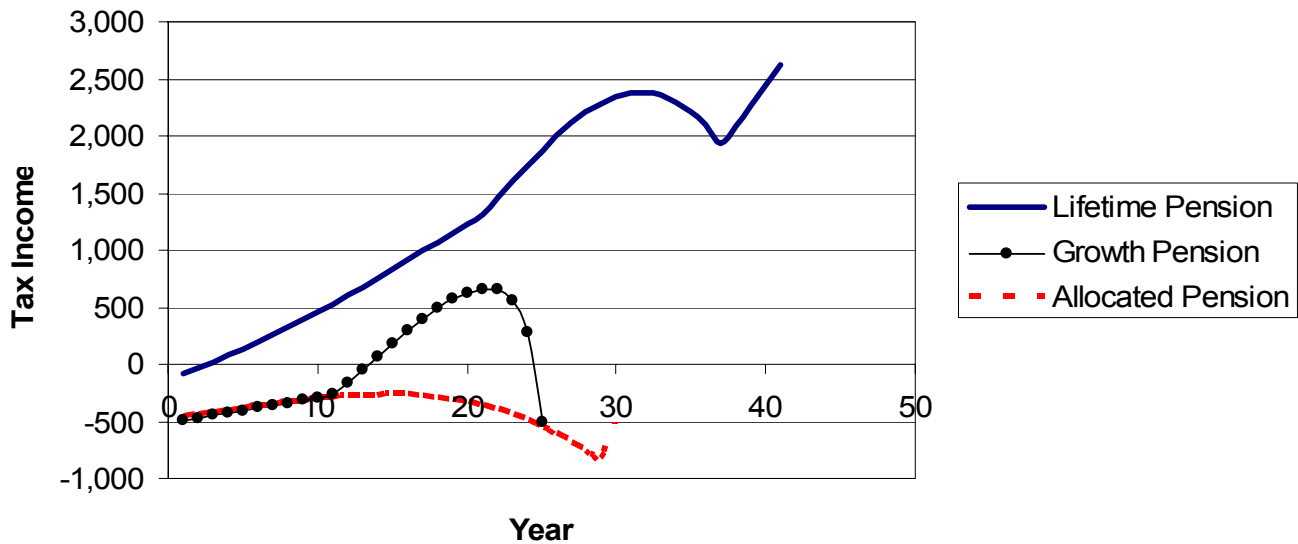
6.2 Medium Purchase Price

Both graphs demonstrate the lifetime pension produces more taxable income.

Tax Generated From Fund & Pensioner
($500,000 purchase price all undeducted)

Legend:
- Lifetime Pension
- Growth Pension
- Allocated Pension

Tax Generated From Fund & Pensioner
($500,000 purchase price no undeducted)

Legend:
- Lifetime Pension
- Growth Pension
- Allocated Pension
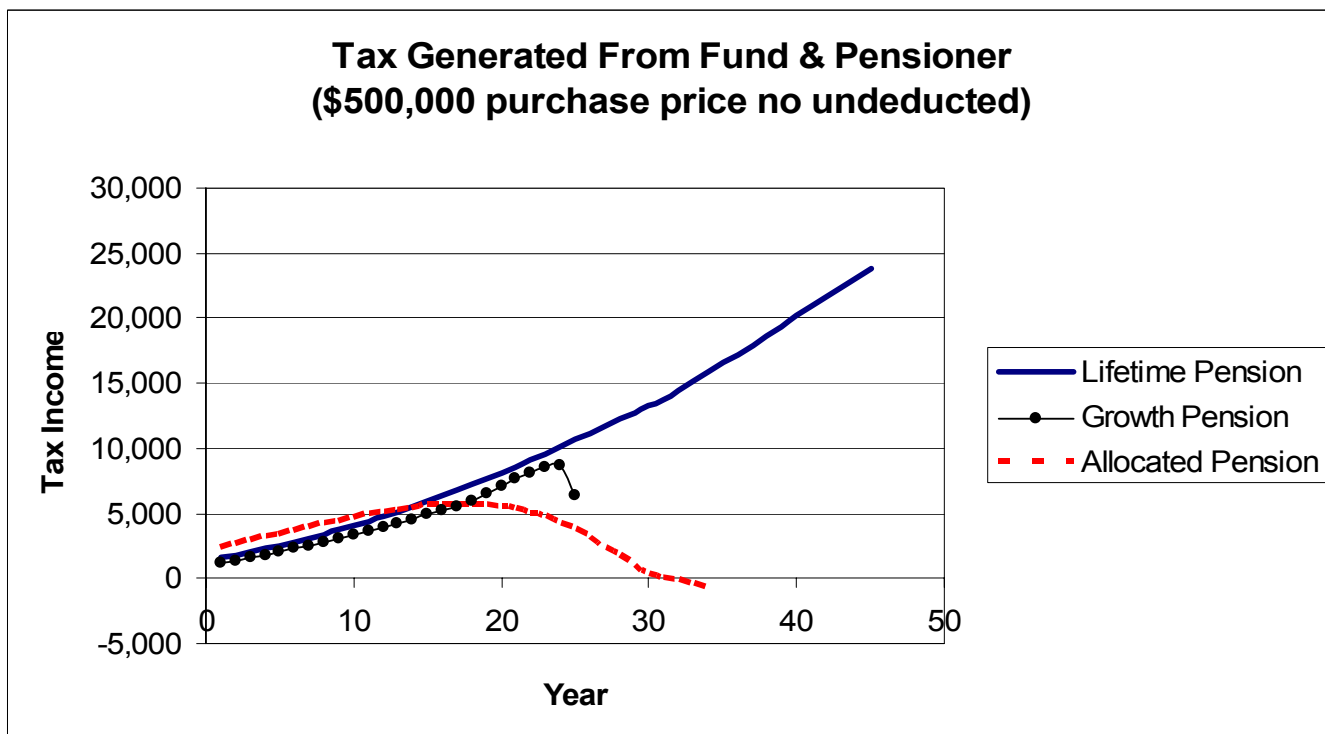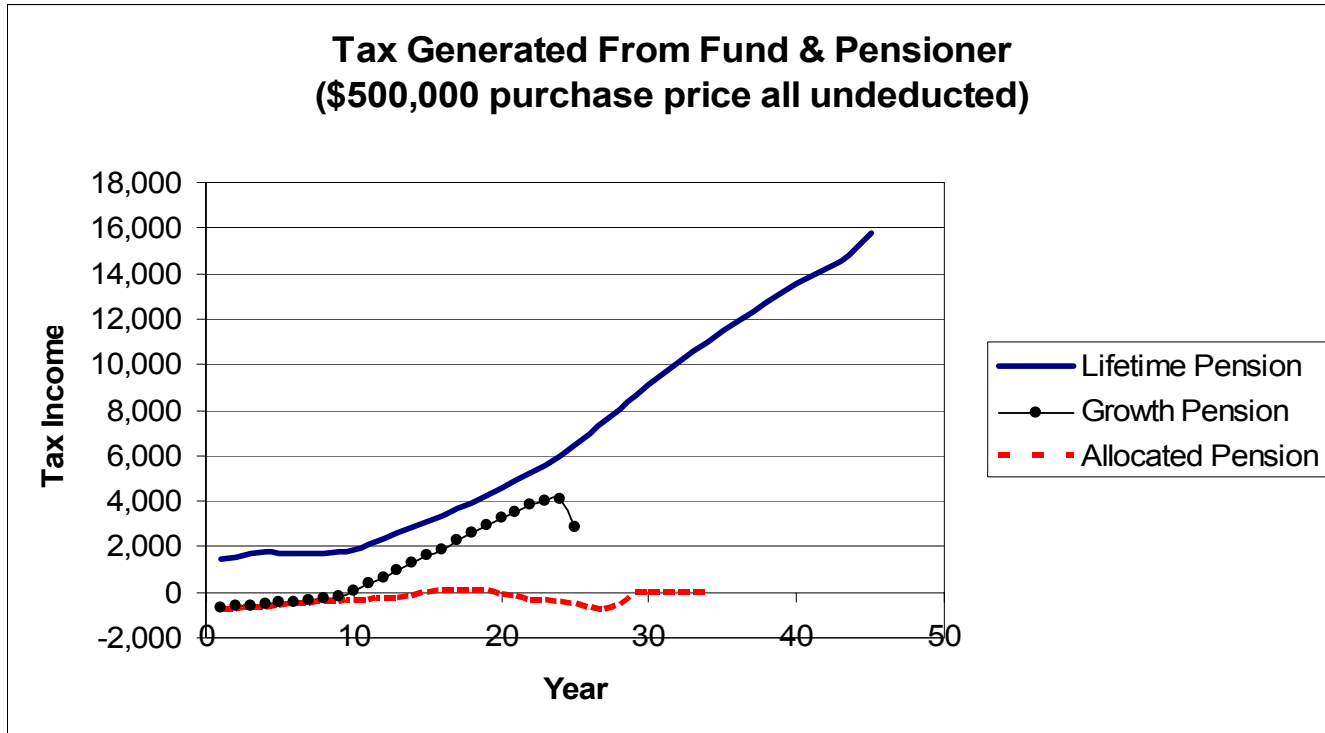
6.3 High Purchase Price

It is only when a high purchase price is used that the tax on the higher pension payments for the growth and allocated pensions outweighs the tax on the investment earnings on the solvency reserves of the lifetime pension. Over the longer term the balance is restored from the longer duration of the lifetime pension.

**Tax Generated From Fund & Pensioner
($1,000,000 purchase price all undeducted)**

**Tax Generated From Fund & Pensioner
($1,000,000 purchase price no undeducted)**
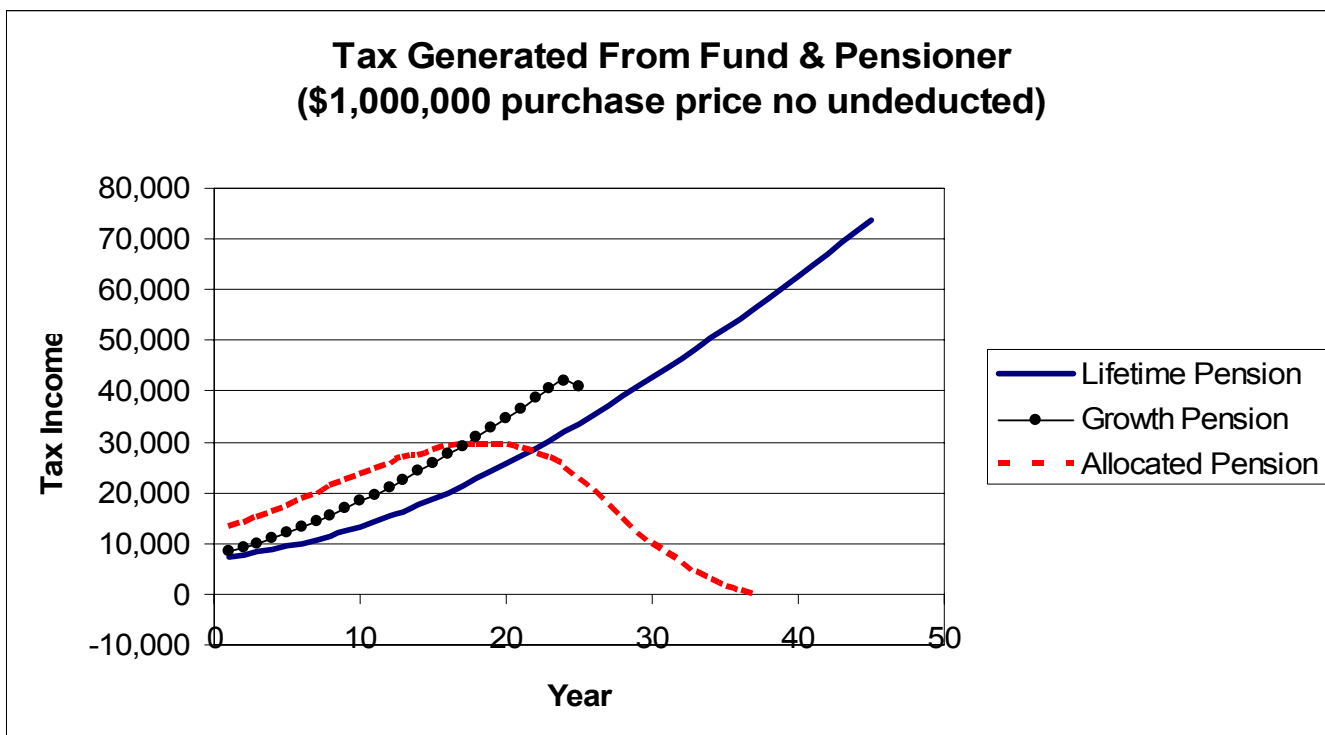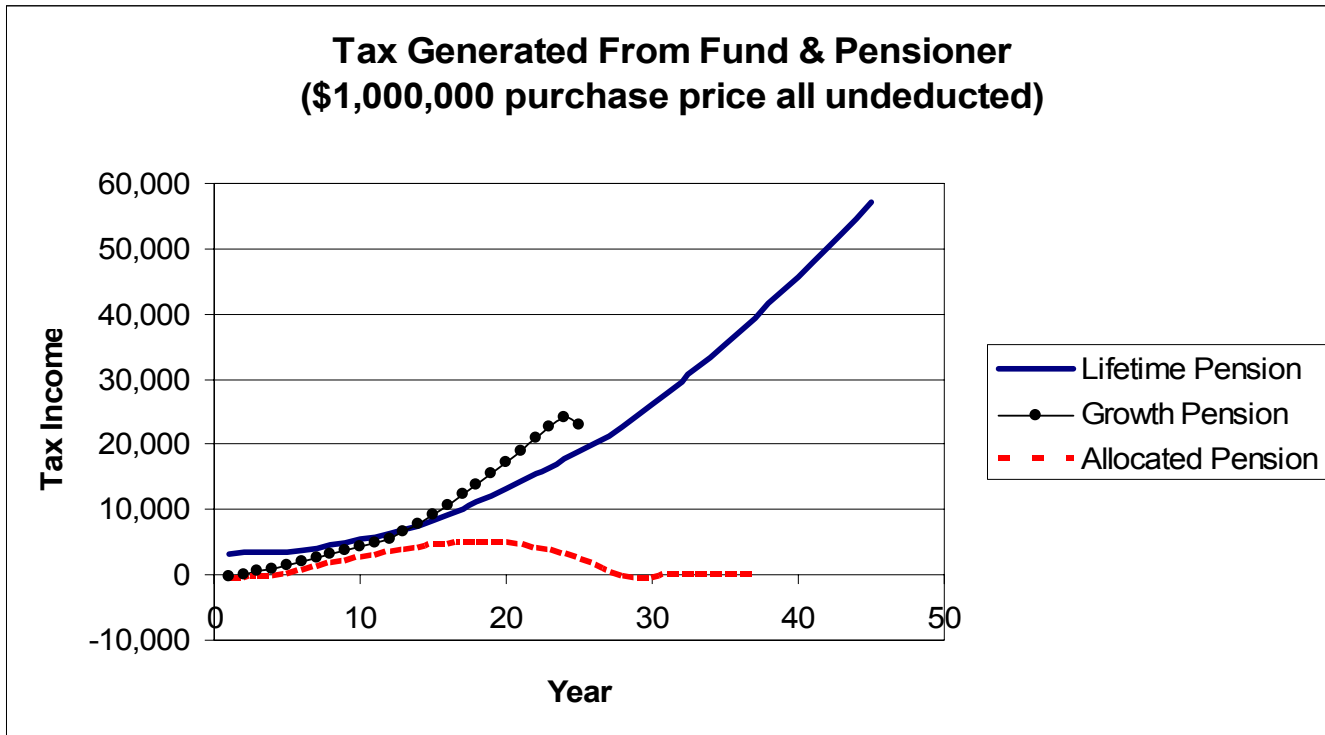
7. Future Losses Likely in the Absence of These Regulations

7.1 Group Causing Losses

The analysis above shows the losses in the absence of these regulations are for the relatively few pensions (5% of total pensions) with a purchase price in excess of $1m. They do represent almost 40% of the purchase price of all defined benefit pensions. These are the pensions where the pensioner has sufficient resources to add undeducted contributions to reduce an RBL problem.
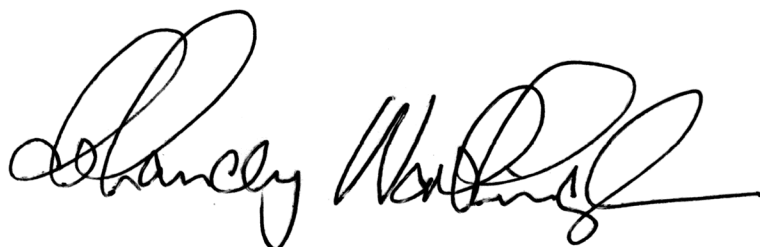
7.2 Alternative Measures in the Absence of These Regulations

This loss could be reduced by altering the RBL treatment of pensions to place a higher value on the pensions and make undeducted contributions ineffective. These measures have been discussed earlier in Sections 5.2, 5.3 and 5.4. If these changes are made then the Regulations become unnecessary. If these changes are not made then the system is still open to manipulation, even with a 50 member fund minimum size.

8. Conclusion

The current arrangements do allow manipulation of the pension arrangement to reduce the RBL assessment of benefits. This is more likely to be done by those with external resources. This group is only a small fraction of retirees (from my statistics about 5% by number). The assets involved for this group is relatively large, about 40% of total assets. The measures should be targeted at this group rather than all pensioners.

If the changes are made there will actually be a reduction in taxation income rather than an increase in respect of 95% of potential pensioners - if growth pensions are used rather than lifetime pensions.

deLancey Worthington BA FIAA
Fellow of the Institute of Actuaries of Australia
12 July 2004

Appendix 1

Summary of Actuarial Solutions Client Data

TABLE 1 — Number of Pensions

Purchase Price Range		Complying			Non-Complying			Overall		
Lower	Upper	Life	Term	Total	Life	Term	Total	Life	Term	Total
0	99,999	115	44	159	13	2	15	128	46	174
100,000	149,999	100	27	127	32	2	34	132	29	161
150,000	249,999	119	39	158	23	1	24	142	40	182
250,000	499,999	125	26	151	17	4	21	142	30	172
500,000	749,999	57	11	68	10	1	11	67	12	79
750,000	999,999	30	0	30	14	0	14	44	0	44
1,000,000	1,999,999	37	1	38	13	7	20	50	8	58
2,000,000		29	3	32	6	0	6	35	3	38
Overall		612	151	763	128	17	145	740	168	908

TABLE 1a — Number of Pensions

Purchase Price Range		Defined Benefit			Other	Overall
Lower	Upper	Lifetime	Term	Total	Allocated	
0	99,999	128	46	174	146	320
100,000	149,999	132	29	161	113	274
150,000	249,999	142	40	182	158	340
250,000	499,999	142	30	172	287	459
500,000	749,999	67	12	79	131	210
750,000	999,999	44	0	44	59	103
1,000,000	1,999,999	50	8	58	69	127
2,000,000		35	3	38	39	77
Overall		740	168	908	1,002	1,910

Appendix 1

Summary of Actuarial Solutions Client Data

TABLE 2 Total Purchase Price ($m)

Purchase Price Range		Complying			Non-Complying			Overall		
Lower	Upper	Life	Term	Total	Life	Term	Total	Life	Term	Total
0	99,999	7.97	3.42	11.38	0.93	0.19	1.12	8.91	3.61	12.51
100,000	149,999	13.02	3.53	16.55	4.13	0.29	4.42	17.16	3.81	20.96
150,000	249,999	23.67	7.62	31.28	4.36	0.16	4.52	28.03	7.77	35.80
250,000	499,999	45.11	9.61	54.74	6.31	1.58	7.90	51.43	11.20	62.63
500,000	749,999	35.17	6.26	41.44	6.43	0.63	7.06	41.61	6.89	48.49
750,000	999,999	26.15	0.00	26.15	11.96	0.00	11.96	38.11	0.00	38.11
1,000,000	1,999,999	51.32	1.65	52.98	16.95	11.00	27.95	68.28	12.65	80.93
2,000,000		124.78	19.01	143.79	27.96	0.00	27.96	152.73	19.01	171.74
Overall		327.18	51.10	378.30	79.04	13.84	92.87	406.26	64.93	471.16

TABLE 2a Total Purchase Price ($m)

Purchase Price Range		Defined Benefit			Other	Overall
Lower	Upper	Lifetime	Term	Total	Allocated	
0	99,999	8.91	3.61	12.51	9.15	21.66
100,000	149,999	17.16	3.81	20.96	14.22	35.18
150,000	249,999	28.03	7.77	35.80	30.82	66.62
250,000	499,999	51.43	11.20	62.63	103.28	165.90
500,000	749,999	41.61	6.89	48.49	79.99	128.48
750,000	999,999	38.11	0.00	38.11	50.79	88.90
1,000,000	1,999,999	68.28	12.65	80.93	99.20	180.13
2,000,000		152.73	19.01	171.74	184.49	356.23
Overall		406.26	64.93	471.16	571.93	1,043.09

Summary of Actuarial Solutions Client Data

TABLE 3 — Cumulative Distribution of Pensions by Number

Purchase Price Range		Complying			Non-Complying			Overall		
Lower	Upper	Life	Term	Total	Life	Term	Total	Life	Term	Total
0	99,999	100%	100%	100%	100%	100%	100%	100%	100%	100%
100,000	149,999	81%	71%	79%	90%	88%	90%	83%	73%	81%
150,000	249,999	65%	53%	63%	65%	76%	66%	65%	55%	63%
250,000	499,999	45%	27%	42%	47%	71%	50%	46%	32%	43%
500,000	749,999	25%	10%	22%	34%	47%	35%	26%	14%	24%
750,000	999,999	16%	3%	13%	26%	41%	28%	17%	7%	15%
1,000,000	1,999,999	11%	3%	9%	15%	41%	18%	11%	7%	11%
2,000,000		5%	2%	4%	5%	0%	4%	5%	2%	4%

TABLE 3a — Cumulative Distribution of Pensions by Purchase Price

Purchase Price Range		Complying			Non-Complying			Overall		
Lower	Upper	Life	Term	Total	Life	Term	Total	Life	Term	Total
0	99,999	100%	100%	100%	100%	100%	100%	100%	100%	100%
100,000	149,999	98%	93%	97%	99%	99%	99%	98%	94%	97%
150,000	249,999	94%	86%	93%	94%	97%	94%	94%	89%	93%
250,000	499,999	86%	72%	84%	88%	95%	89%	87%	77%	85%
500,000	749,999	73%	53%	70%	80%	84%	81%	74%	59%	72%
750,000	999,999	62%	40%	59%	72%	79%	73%	64%	49%	62%
1,000,000	1,999,999	54%	40%	52%	57%	79%	60%	54%	49%	54%
2,000,000		38%	37%	38%	35%	0%	30%	38%	29%	36%

Appendix 1

Summary of Actuarial Solutions Client Data

TABLE 4 — Average Purchase Price

Purchase Price Range		Complying			Non-Complying			Overall		
Lower	Upper	Life	Term	Total	Life	Term	Total	Life	Term	Total
0	99,999	69,300	77,700	71,600	71,700	95,000	74,800	69,600	78,400	71,900
100,000	149,999	130,200	130,600	130,300	129,100	142,700	129,900	130,000	131,400	130,200
150,000	249,999	198,900	195,300	198,000	189,600	156,600	188,200	197,400	194,300	196,700
250,000	499,999	360,900	369,800	362,500	371,400	395,700	376,000	362,200	373,200	364,100
500,000	749,999	617,100	569,500	609,400	643,000	625,000	641,400	621,000	574,100	613,800
750,000	999,999	871,700		871,700	854,100		854,100	866,100		866,100
1,000,000	1,999,999	1,387,100	1,653,200	1,394,100	1,304,100	1,571,500	1,397,700	1,365,500	1,581,700	1,395,400
2,000,000		4,302,600	6,336,000	4,493,300	4,659,700		4,659,700	4,363,800	6,336,000	4,519,500
Overall		534,600	338,400	495,800	617,500	814,100	640,500	549,000	386,500	518,900

TABLE 4a — Average Purchase Price

Purchase Price Range		Defined Benefit			Other	Overall
Lower	Upper	Lifetime	Term	Total	Allocated	
0	99,999	69,600	78,400	71,900	62,686	66,991
100,000	149,999	130,000	131,400	130,200	125,836	128,187
150,000	249,999	197,400	194,300	196,700	195,050	195,831
250,000	499,999	362,200	373,200	364,100	359,858	361,262
500,000	749,999	621,000	574,100	613,800	610,595	611,680
750,000	999,999	866,100	0	866,100	860,822	863,077
1,000,000	1,999,999	1,365,500	1,581,700	1,395,400	1,437,634	1,419,888
2,000,000		4,363,800	6,336,000	4,519,500	4,730,443	4,630,673
Overall		549,000	386,500	518,900	570,788	548,746

Appendix 1

Summary of Actuarial Solutions Client Data

TABLE 5 Average RBL Value as Percentage of Purchase Price

Purchase Price Range		Complying			Non-Complying			Overall		
Lower	Upper	Life	Term	Total	Life	Term	Total	Life	Term	Total
0	99,999	53%	83%	62%	44%	95%	53%	52%	83%	61%
100,000	149,999	49%	85%	57%	45%	92%	48%	48%	85%	55%
150,000	249,999	50%	85%	58%	43%	100%	45%	49%	85%	57%
250,000	499,999	60%	89%	65%	49%	90%	57%	58%	89%	64%
500,000	749,999	59%	87%	63%	45%	59%	46%	57%	85%	61%
750,000	999,999	61%		61%	42%		42%	55%		55%
1,000,000	1,999,999	54%	79%	55%	50%	69%	57%	53%	71%	56%
2,000,000		52%	71%	54%	60%		60%	53%	71%	55%
Overall		54%	80%	58%	51%	72%	54%	54%	79%	57%

RBL as Proportion of Purchase Price

Legend: Lifetime Pensions, Term Pensions, Overall

Purchase Price Group

Appendix 1

Summary of Actuarial Solutions Client Data

TABLE 6   Average Pension Rate

| Purchase Price Range | | Complying | | | Non-Complying | | | Overall | | |
Lower	Upper	Life	Term	Total	Life	Term	Total	Life	Term	Total
0	99,999	6.0%	7.4%	6.4%	5.5%	26.0%	8.9%	5.9%	8.4%	6.6%
100,000	149,999	5.5%	7.6%	6.0%	5.4%	7.8%	5.6%	5.5%	7.6%	5.9%
150,000	249,999	5.7%	7.7%	6.2%	5.5%	14.6%	5.8%	5.7%	7.9%	6.1%
250,000	499,999	6.0%	8.1%	6.3%	5.0%	34.4%	10.9%	5.9%	11.8%	6.9%
500,000	749,999	5.4%	7.5%	5.7%	4.3%	3.8%	4.3%	5.2%	7.1%	5.5%
750,000	999,999	5.1%		5.1%	3.9%		3.9%	4.7%		4.7%
1,000,000	1,999,999	4.2%	8.0%	4.3%	4.2%	4.0%	4.1%	4.2%	4.5%	4.2%
2,000,000		4.4%	5.4%	4.6%	5.2%		5.2%	4.6%	5.4%	4.7%
Overall		4.9%	6.9%	5.2%	4.7%	7.9%	5.2%	4.9%	7.1%	5.2%

Annual Pension as Proportion of Purchase Price

Legend: Lifetime Pensions, Term Pensions, Overall

X-axis: Purchase Price Group (1–8)

Appendix 1

Summary of Actuarial Solutions Client Data

TABLE 7   Average Taxable Reserves

Purchase Price Range		Complying			Non-Complying			Overall		
Lower	**Upper**	**Life**	**Term**	**Total**	**Life**	**Term**	**Total**	**Life**	**Term**	**Total**
0	99,999	16.9%	17.3%	17.0%	20.1%	5.1%	17.5%	17.3%	16.7%	17.1%
100,000	149,999	14.4%	15.1%	14.6%	25.4%	8.0%	24.3%	17.1%	14.6%	16.6%
150,000	249,999	13.9%	15.4%	14.3%	32.0%	0.0%	30.9%	16.7%	15.1%	16.4%
250,000	499,999	12.7%	11.2%	12.5%	20.0%	10.0%	18.0%	13.6%	11.1%	13.2%
500,000	749,999	18.2%	12.7%	17.4%	31.2%	41.3%	32.1%	20.2%	15.3%	19.5%
750,000	999,999	15.6%		15.6%	35.5%		35.5%	21.8%		21.8%
1,000,000	1,999,999	15.8%	21.0%	15.9%	24.8%	30.6%	27.1%	18.0%	29.3%	19.8%
2,000,000		26.7%	28.9%	27.0%	7.0%		7.0%	23.1%	28.9%	23.7%
Overall		19.6%	19.6%	19.6%	20.6%	27.5%	21.6%	19.8%	21.3%	20.0%

Taxable Solvency Reserves as % of Purchase Price

Legend: Lifetime Pensions, Term Pensions, Overall

X-axis: **Purchase Price Group** (1–8); Y-axis: 0% to 35%

Appendix 1

Summary of Actuarial Solutions Client Data
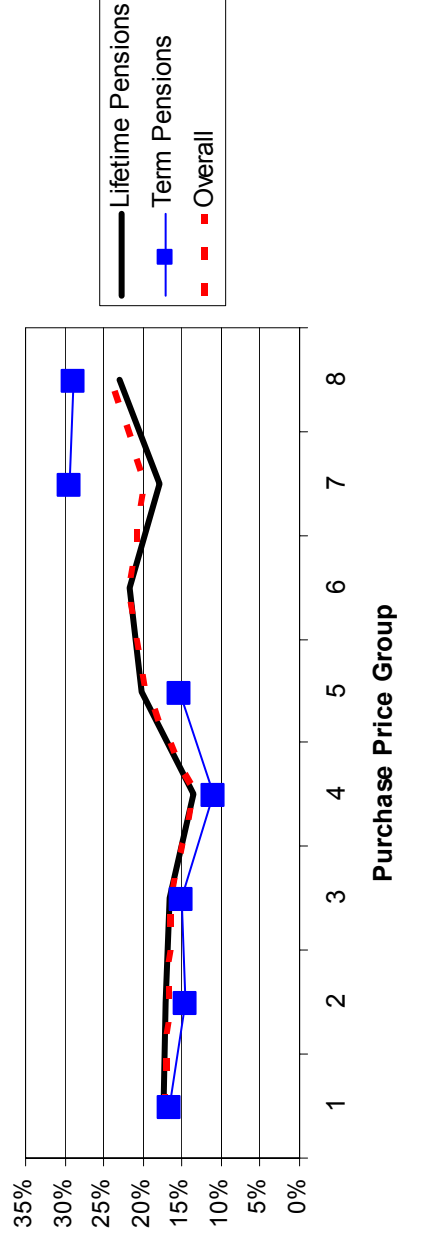
TABLE 8 Average Asset Allocation

Purchase Price Range

Lower	Upper	Cash	Fixed Interest	Mortgage	Listed Property Trusts	Unlisted Property Trusts	Direct Property	Shares	Overseas	Other
0	99,999	11.2%	15.8%	1.1%	7.0%	1.7%	3.5%	46.4%	12.3%	0.9%
100,000	149,999	10.4%	8.6%	0.2%	6.8%	3.3%	21.4%	44.0%	5.0%	0.2%
150,000	249,999	8.1%	18.7%	1.1%	8.6%	2.0%	2.7%	46.9%	12.0%	0.0%
250,000	499,999	10.7%	16.9%	0.3%	7.5%	1.7%	6.1%	45.5%	11.3%	0.0%
500,000	749,999	8.0%	14.5%	1.7%	6.8%	0.8%	9.4%	46.7%	11.6%	0.7%
750,000	999,999	11.5%	15.7%	0.0%	6.7%	0.9%	8.7%	46.1%	10.5%	0.0%
1,000,000	1,999,999	7.8%	11.9%	0.9%	6.9%	0.0%	14.9%	50.3%	7.2%	0.1%
2,000,000		10.4%	8.5%	0.2%	6.8%	3.3%	21.9%	43.9%	4.8%	0.2%
Simple average		9.4%	16.3%	0.9%	7.6%	1.6%	6.6%	46.5%	10.8%	0.2%
Asset weighted average		9.7%	11.3%	0.5%	6.8%	2.6%	21.4%	40.3%	7.3%	0.1%

Asset Allocation

Legend: Other, Overseas, Shares, Direct Property, Unlisted Property Trusts, Listed Property Trusts, Mortgage, Fixed Interest, Cash

Group

Appendix 1

Summary of Actuarial Solutions Client Data

TABLE 9 Annual Expenses per Fund 1ˢᵗ Year
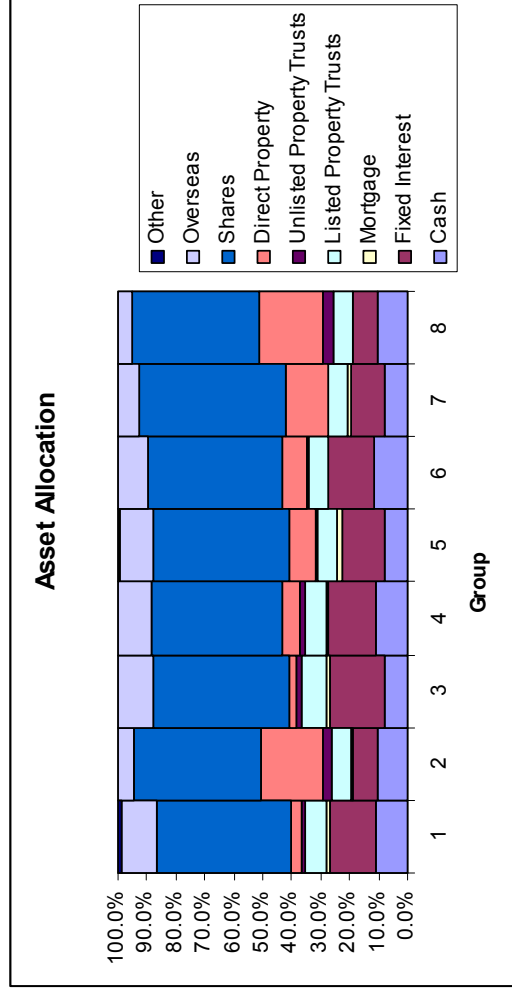
Purchase Price Range

Lower	Upper	Components		Total	
		$	+ % of assets	$	or % of assets
0	99,999	482	1.57%	1,609	2.24%
100,000	149,999	617	1.87%	3,058	2.35%
150,000	249,999	751	1.73%	4,147	2.11%
250,000	499,999	1,277	1.59%	7,050	1.94%
500,000	749,999	2,605	0.93%	8,341	1.36%
750,000	999,999	2,470	1.13%	12,255	1.41%
1,000,000	1,999,999	4,886	0.50%	11,893	0.85%
2,000,000		8,377	0.58%	34,797	0.77%
Simple Average		1,808	1.44%	9,267	1.79%
Asset Weighted Average		5,500	0.83%	9,784	1.89%

27