

Assessing the present value of an interest in a trust

This report addresses two questions posed by Peter Moore & Company in relation to their Mortality Assessment & Calculation Services. Namely:

1. What are the actuarial aspects involved in valuing the present value of an interest in a trust; and
2. What are the issues in using a whole of life assurance quote within such a calculation?

This report considers the questions in the abstract and should not be used as the basis of any specific calculations. It is produced for the benefit of Peter Moore & Company on the understanding that it may be shared with clients and potential clients of their Mortality Assessment & Calculation Services. It may not be shared with anyone else.

1. What are the actuarial aspects involved in valuing the present value of an interest in a trust?

The first requirement is to specify the interest in the trust in a way that can be valued, identifying all the known elements, such as current asset valuations.

Normally this should be a straight-forward interpretation of the trust document. I believe that good practice should be to state the benefits of all parties and by addition show that all scenarios have been covered.

It is also necessary at this stage to identify the variable elements of the valuation. These might include:

- Expected mortality rates of a life or lives
- Future asset income and capital growth
- Future taxation rates
- Trust expenses

In addition it may be necessary to set a discount rate to convert a stream of future cash flows into a present value.

The second requirement is to specify an actuarial formula to calculate the present value of the interest in the trust that is required, using the known and variable elements identified. This should be a straight-forward application of actuarial techniques.

The third requirement is to place a value on the elements in the calculation. The known values should be checked for consistency before use and may need adjustment. For example an asset valuation might be historic and need adjusting for subsequent investment movements.

Other elements of the basis should use "best-estimate" assumptions, not conservative. Otherwise the valuation will be biased in favour of the interests of other parties.

I make here some further comments on the variable elements of the basis.

Mortality: expected future mortality rates can only be estimated for a group of people, rather than being specific to one person. Different sets of rates are available for different groups of people, for example the general population, or the group of people seeking insurance and obtaining it on standard rates, etc.. The use of the appropriate set of rates can help produce a value more appropriate to an individual.

This can be further refined through consideration of the health of the individual and other influences on their future life expectancy. This is the role Peter Moore & Company performs when making their mortality assessment.

As you are aware the differences in future mortality rates can be significant.

- Different mortality tables can show 100% or greater differences in expected mortality rates.
- Different individual mortality assessments of the type you perform can show significantly greater variations in expected mortality rates, up to 1000% or more.

In order to obtain an accurate evaluation for an individual therefore an accurate evaluation of mortality is essential. However this needs to be tempered against the cost of undertaking the evaluation and obtaining evidence, the practicalities of obtaining evidence on all lives involved, the significance of variation in mortality rates on the calculation of the interest and the necessary accuracy of valuation required by the interested parties. These can only be judged on a case-by-case basis.

Income and capital growth rates: projected values should be in line with current market expectations to be consistent with any current valuation of the asset values. Allowance should be made for any possible changes in the asset holdings in the future, and care should be taken with large individual assets, such as residential or commercial properties.

Taxation: this is often assumed to continue at current rates, though this assumption should be stated and verified explicitly if used.

Expenses: will need to include an allowance for inflation at a rate consistent with asset return projection.

The final element requiring assumption is the **discount rate**. The discount rate should allow for the purpose of the valuation and the situation of the parties requiring the valuation. In essence it enables a lump sum to be calculated equivalent to some future cash flows.

Normally a single rate is acceptable, though in particular circumstances a range of discount rates might be appropriate. Parties can then select the discount rate to allow for the degree of risk the parties requiring the valuation are willing to accept to make those cash flows, and their tax situation.

The final requirement is to value the interest using the formula and values obtained. All assumptions should be stated.

2. What are the issues in using a whole of life assurance quote within such a calculation?

A whole of life quotation from an insurance company is a potential alternative to using explicit mortality assumptions. How the quotation would be used would depend on the circumstances of the interest being valued.

It should however be noted that whole life quotations are not readily available on most contingent or multiple lives bases. The only bases usually available allow for payment on the death of one life, payment of the first of two lives to die, or payment on the second of two lives to die.

Assuming the right quotation can be obtained for the purpose needed then it is necessary to consider the appropriateness of the quote for valuing the value of an interest in a trust. I shall concentrate upon the appropriateness of the mortality assumption within the whole of life assurance quotation, and the implications of the other elements in the pricing of the insurance product.

The mortality used in pricing whole of life assurance is based upon the mortality for the group of persons who take whole of life assurance and who are accepted at standard rates. A quotation makes no allowance for an individual mortality assessment (or underwriting in insurance parlance). This is a specific group of people, policies are normally to cover IHT liabilities and therefore purchasers are generally higher socio-economic classes. This group is further selected by the self-selection out of the group by some super-fit lives and by insurer selection out of the group of lives with significantly lower life expectancy. The degree of selection by the insurer varies by insurer depending upon their underwriting policy.

There are two issues: firstly the mortality rates used may not be appropriate for the life being assessed, and secondly in a quotation no allowance is made for an individual assessment of the life or lives being considered. As already discussed the former could affect the mortality assumption by 100% or greater, the latter by 1000% or greater.

Mortality is only one element within the pricing of a whole of life assurance, normally representing only between about 50% and 60% of the total premium.

The other elements are expenses, commission, tax, investment returns, the cost of holding reserves, a discount rate and profit. These are set by the insurer to reflect their own circumstances and need not reflect those used in the valuing of an interest in a trust. For example the investment return is likely to be a conservative assumption of returns on fixed interest investments.

In general I would consider the use of a whole of life quotation to be a poor alternative to using explicit mortality assumptions in the valuation of an interest in a trust.

There may be certain specific circumstances where the use of a whole of life quotation is appropriate. This might be where one of the parties wishes to obtain a payment contingent upon the death of one or more of the lives involved. In this case the market value of the contingent payment is determined by a whole of life assurance policy. However in this case the exact value of the whole of life policy can be determined through purchase. Though allowance for any potential premium changes allowed under the life assurance policy rules might need to be considered.

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Nigel Bradshaw
Fellow of the Institute of Actuaries
Managing Director
Redmayne Consulting Limited

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