

## Alphalife-EV Tax Technical Commentary

- The Model does not contain logic to split individual source revenue accounts into different categories of business. A BLAGAB revenue account with some PHI riders, for example would have to be treated as entirely BLAGAB or PHI. Alternatively, a split could be made outside the Model.
- Short accounting periods are not accommodated and when modelling transactions the Model will not impose an accounting period end. This is also relevant when using the Model to determine the EV at a half year and the discounting assumptions in the model will assume all periods are of equal length.
- Overseas tax and double tax relief are not directly accommodated (see **Error! Reference source not found.**).
- Small companies' relief is not accommodated.
- Section 343 loss streaming upon transfer of a trade is not reflected (though its effect can be approximated).
- Exempt business transferred from a Friendly Society is not accommodated.
- Restrictions under s444AF TA 1988 in respect of undistributed mutual surplus are not supported



# Alphalife-EV Tax Technical Commentary Autumn 2009

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## 15 Technical limitations

### 15.1 General remarks

The Model is less detailed than software designed for tax compliance for life assurance companies. The Model is a simplification of a tax computation and has been developed to reflect the input data typically available from actuarial systems.

Included below is discussion of some of the technical limitations of the Model which have not been covered elsewhere in the text. At present, it is believed that in many cases these limitations will not result in a material misstatement of the overall output; however they may have to be considered in some cases.

The Model's primary purpose is to project forward on a static basis or to establish the likely enduring effect of reorganisations. The immediate tax effects of capital transactions such as FAFTS or injections of capital into the with-profit fund are not necessarily within the Model's capability. It is beyond the scope of the Model to anticipate the tax effect of innovative transactions. In many cases it will be possible to accommodate at least an approximation of the effects in the Model (see 9.5 including the footnote at that section).

### 15.2 Other

There are a number of other technical limitations.

- The rules for calculating deemed annual return arising from certain forms of outward reinsurance of BLAGAB (under s442A) are not accommodated in the Model. It is necessary to perform any such calculations outside the Model. The projected deemed return can then be loaded into the Model
- There is no carry back of any kind of tax losses to earlier years (carry forward of losses is accommodated).
- Spreading of gains under s212 on unit trusts and OEICs is not accommodated.

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## 14.7 Relief for cash outflows

- A cash outflow in the projections can represent different things
- If it is a **refund of a charge** (e.g. in increase to mathematical reserves) then it is effectively a transaction with the policyholder and as noted above should be treated as a **Premium or Claim**.
- If it is an **expense paid** to a third party (or effectively paid to a third party via a recharge from another fund) then it should be treated as an expense.
- If it is a **charge levied on the fund and paid to another fund** then the key point is to capture both sides and give both sides the same treatment. **Premium or Claim** is probably the best treatment.
- If it is a **transfer of profit to shareholders** then it can be mapped into the transfer to shareholders field if necessary. Should shareholders receive a charge in addition to 1/9 of bonuses then the ratio 90:10 will not be maintain if the charge is mapped into the Model in this way.
- It is practice in some companies not to giving relief for recharged expenses in the I – E tax computation of the notional mutual while such expenses are claimed in full in the company level calculation.
- This can be achieved within the fiscal adjustments functionality outlined at 13. Specifically all expenses would be mapped into the “disallowed / non-taxable” field in the with-profit sub-fund and a two line dummy revenue account would be set up in the non-profit fund containing the expense and an equal and opposite amount in the “disallowed / non-taxable” line. That way no surplus will arise in the non-profit fund on an FSA basis but there will be a LAB loss for that fund. At the company level, the consolidated revenue account will show only the external expense and that will be reflected in the LAB trade profits computation. An additional tax deduction will be available in the I-E for the non-profit fund and also at company level.

The final mathematical reserve is then £992,000. This tax adjustment is necessary if the product pricing is to charge the policyholders on their economic return. The remainder of the analysis is the same as above with the charge being able to be considered as a net £8,000 or a gross £10,000.

	<b>Full revenue account</b>	<b>Gross charge</b>	<b>Net charge</b>
Premiums	1,000.0		8
Income (gross)		10	
Expenses			
Tax			
Reserve movement	-992.0		
Surplus	8.0	10.0	8.0
	-	-	-
Income	0.0	10.0	0.0
Expenses	0.0	0.0	0.0
I-E	0.0	10.0	0.0
	-	-	-
Surplus	8.0	10.0	8.0
Add back tax per input	0.0	0.0	0.0
Pre tax surplus	8.0	10.0	8.0
Policyholder tax	<b>2.0</b>	<b>0.0</b>	<b>2.0</b>
NCI	10.0	10.0	10.0
SH tax @ 28%	<b>2.8</b>	<b>2.8</b>	<b>2.8</b>
Balance of I-E	-10.0	0.0	-10.0
PH Tax @ 20%	-2.0	0.0	-2.0

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	Full revenue account	Gross charge (rare)	Net charge
Premiums			8
Income (gross)	60.0	10	
Expenses			
Tax			
Reserve movement	-40.0		
Surplus	20.0	10.0	8.0
	-	-	-
Income	60.0	10.0	0.0
Expenses	0.0	0.0	0.0
I-E	60.0	10.0	0.0
	-	-	-
Surplus	20.0	10.0	8.0
Add back tax per input	0.0	0.0	0.0
Pre tax surplus	20.0	10.0	8.0
Policyholder tax	<b>-10.0</b>	<b>0.0</b>	<b>2.0</b>
NCI	10.0	10.0	10.0
SH tax @ 28%	<b>2.8</b>	<b>2.8</b>	<b>2.8</b>
Balance of I-E	50.0	0.0	-10.0
PH Tax @ 20%	10.0	0.0	-2.0
Total tax	12.8	2.8	0.8
Net surplus	7.2	7.2	7.2

The above analysis continues to hold when the charge is not a deduction from investment income.

For example a premium of £1,000,000 is received. The company takes a 1% initial charge of £10,000 and sets up a mathematical reserve of £990,000 before considering tax. The I-E is nil but there is a Case I profit of £10,000. This implies a policyholder loss of £10,000 and the actuarial valuation of liabilities should take into account tax relief on that loss. In this case the policyholders are due tax relief of £2,000.

## 14.6 Explanation

The question at the core of the analysis is what tax does the shareholder have to meet from the non-tax cashflows presented? This is equivalent to asking whether the charge is set at a pre or post tax level but asking the question in terms of what tax the shareholder needs to meet is a more practical way of asking it.

Say there are assets backing policyholder liabilities of £1,000,000 and income of £60,000. Before allowance for tax the company decided to pass £50,000 to policyholder (and increase mathematical reserves by that amount) and retain a 1% AMC of £10,000. After allowance for tax in the valuation of liabilities the movement in reserves is £40,000. The company has resources of £20,000 to meet the policyholder tax of £10,000, shareholder tax of £2,800 and retain net profit of £7,200.

There are two options for the revenue account. Either a gross charge or net charge may be presented. Either way it is possible to arrive at the correct total shareholder profit of £10,000 and tax of £2,800 by changing what line the charge is mapped into. Furthermore the correct amount of incremental tax required to arrive at the correct fully net cashflow of £7,200 is calculated in each case (this is important if using the model for EEV reporting).

# 1 Introduction

## 1.1 Purpose

This document provides a commentary on the tax and other logic in Alphalife-EV, the long-term business model (the “Model”) developed by Tax Computer Systems. The document aims to:

- Remove ambiguity from the interpretation of the output from the Model.
- Provide the explanations required to manually verify the figures displayed in the tax computations produced by the Model.
- Highlight the tax and non-tax assumptions that have been taken as defaults in the Model to allow the necessary review of these before the Model is used to see whether these are reasonable, if not, what action is required in terms of selecting alternative approaches where these are available in the Model or appropriate adjustments to base data.
- Identify and explain those circumstances which are beyond the current scope of the Model.

This document is not intended as a standalone document and should be used in conjunction with:

- Using Alphalife-EV
- Alphalife-EV Installation Guide
- Alphalife-EV online Help

The Model has been designed to cater for a wide range of possible circumstances. Accordingly, this document is generic in nature. Not all aspects will be relevant for every company or every proposed transaction.

A statement of the Model’s scope and uses is set out in Section 2 on page 7.

This technical commentary is intended to be a statement of the functionality of the Model as at Autumn 2009.

## 1.2 Non tax assumptions

There are some significant non-tax assumptions within the Model. These assumptions should be reviewed by actuaries familiar with the projections used to populate the Model. This should be done before relying on the tax output of the Model to establish whether any action is needed to adjust base data or select from alternative approaches.

For convenience, a list of these assumptions, referenced to the main text, is set out below.

- The Model is designed to complement liability models and assumes that the investment return in the source data projections represents the return on assets backing policyholder liabilities only (measured as mathematical reserves) and not the assets representing any investment reserve or unappropriated surplus (9.1).
- The Model assumes that the source data will typically take the form of projected cash flows and accordingly will reflect the investment return arising but not transfers to or from the investment reserve (9.1).
- It is assumed that the part of investment return identified as being realised gains each year will include the unrealised gains of earlier years to the extent they become realised (4.3).
- The Model assumes that the source data projections are compiled from modelling individual products in isolation and hence include investment return effectively on a commercial or hypothecated basis rather than reflecting investment return derived from the tax apportionment rules.
- The Model assumes that UK dividends will be reflected net of the notional 10% tax credit and that overseas dividends will be reflected net of withholding tax in the projections (5.10).
- For the purpose of preparing the reconciliation between the tax calculated and that included in the source data, the Model assumes that the only tax reflected in the source data is at policyholder rates on BLAGAB I-E (6).
- It is assumed that reserve movements are post bonus payments made in anticipation of surplus (such as terminal bonuses) and the aggregate of all other types of bonus (such as reversionary bonuses) are separately identifiable from the projections rather than being included within claims or reserve movements (the relevance of bonuses is explained at 5.4).
- Where the projection for a particular part of the business covers a limited period, the Model assumes a claim equal to the brought forward reserves in the first year for which there is no data (13.4).

However an alternative argument could apply to projections on a charges less expenses basis. It will not be possible for the model to measure the policyholder profit or policyholder tax from such projections given the absence of the investment return. As the cash flows giving rise to the policyholders profit are excluded from the projections it is necessary to prevent any taxable policyholder profit from being erroneously identified by the model. In other words the charges less expenses revenue account must be mapped into the model in a way which secures a LAB profit equal to the I-E profit (the difference between those two profit measures being the policyholder profit).

This implies the opposite, namely that the charge should be considered an I-E item. However this is rarely likely to be the correct treatment (see below).

## 14.5 Reconciliation of arguments

It is possible to reconcile between these two arguments. It depends on what tax the charges less expenses “pre tax profit” – that is the sum of all the non-tax items mapped to the Revenue Account - is net of.

Treating a charges less expenses profit as an I-E item would be appropriate if that profit is net of tax which is allocated to policyholders (in other words it represented gross shareholder profit). In this situation the profit will need to attract a 28% tax charge and this will be secured by the I-E treatment. This will rarely be the correct treatment as actuaries and life companies tend to consider a charge as being paid from income which is net of tax (at policyholder rate) leaving only the incremental 8% shareholder tax to be met from that profit). A particular reason why this treatment is likely to be adopted in actuarial modelling is that computationally it is far easier to apply 20% tax to the entire income rather than only that part of the income which is effectively passed to policyholders.

Treating a charge as an underwriting item but an expense as an expense is appropriate if the pre-tax profit (i.e. the charges less expenses profit) is in fact net of policyholder rate tax on all investment return (but with no credit for expenses). This is probably the most appropriate treatment.

Treating a charges less expenses profit as an underwriting item is appropriate if that profit is net of policyholder rate tax (on all investment return and expenses). In this situation the profit will need to attract only an incremental 8% tax charge and this will be secured by the underwriting treatment.

Tax legislation, and the model, assume that mathematical reserves are a given. Neither the legislation nor the model disturb whatever internal policy is employed to allocate tax to policyholders (via unit pricing, bonus rates or product design). This is entirely appropriate and consequentially the principle is that a tax deduction is available for the external liability to the policyholder (irrespective of how it may have been arrived at).

## 14.2 A note on the context

In the arguments and examples it is assumed that the company as a whole has an I-E result which is larger than the LAB trade profit so that there will be both policyholder and shareholder tax. Accordingly the figures presented and effects discussed can be considered as the incremental effects.

## 14.3 Equivalence of profit

From the shareholder perspective a profit calculated as charges less expenses may be equivalent to a profit calculated as premiums less claims plus income less expenses less increase in reserves.

$Ch - E = P - Cl + I - E - \text{movement in MR}$

In some contexts, perhaps unit linked business, it is appropriate to think of the shareholder profit as the sum of a charges less expenses (C-E) profit and a sterling profit (being the movement in the sterling reserves established to cover the death benefit). If charges less expenses projections are used, it will be necessary to confirm that the sterling part of the profit is included in the data. In some cases the sterling reserves movements, claims and income from the assets backing those reserves is explicitly included in the projections. These items should be mapped in the normal way and require no special consideration. This would also apply to the expenses side of the C-E profit (assuming that the expense is the amount of the external payment and not net of tax relief).

As a charges less expenses profit projection is sufficient for projecting shareholder profit this format is sometimes used for EEV modelling. In such cases it will not be possible to identify the policyholder profit or tax so there will be some distortion in the tax modelling. In such cases it is possible to capture and model the shareholder tax.

## 14.4 Tax consequences – two apparently opposing arguments

For BLAGAB a charge will increase the LAB trade profits computation (via lower mathematical reserves) but does not affect income or gains earned by the company nor the (external) expenses which are deductible for tax purposes. Put another way a charge is effectively a transaction between the company and the policyholder. Therefore the I-E result is not affected. Total taxable profit is not changed but the shareholder share increases leading to a tax effect at 8%. This effect may be considered as the net of a 28% shareholder tax charge and a 20% policyholder tax credit (ignoring second order iterative effects).

This implies that the charge should be considered an underwriting item (that is equivalent to a premium, claim or movement in reserves). External expenses would be mapped as expenses.

- In calculating the present value of in-force business (“PVIF”), it is understood to be standard practice to incorporate the future effects of unappropriated surpluses of with-profit funds only. Income arising from unappropriated surpluses of non-profit funds should be excluded from PVIF as the assets giving rise to that income are recognised within the net assets part of embedded value (9.5).
- The Model has options to vary both a) treatments of tax refinement (fund level) and b) treatment of tax efficiency (company level). Dependent on these assumptions the Model assumes that the tax efficiency/inefficiency will go to either Form 40 or to the investment reserve.
- The logic in the sub-fund investment reserve and surplus sections of the computation are uniform for all types of sub-funds. The logic varies with reference to whether or not an investment reserve is maintained (9.6).
- The Model does not automatically accrue any investment return on the assets which have been deposited back nor is any interest expense calculated (5.2).
- The Model assumes the TIR (as defined at 5.3) is the sum of the Form 58 unappropriated surplus and Form 14 investment reserve in the Model.
- The Model makes the assumption that the GRB results on a notional mutual basis are nil (5.8, 5.13).
- In a proprietary company, it is assumed that no tax in respect of GRB profits is allocated to a fund which is treated as notional mutual. For other with-profit funds, it is assumed that tax at the shareholder tax rate (currently 28%) on the GRB profits is allocated (5.6).
- It is assumed that any PHI is not written on a with-profit basis and that there are no PHI bonuses (5.5).
- If there is a non-profit fund which maintains an investment reserve, the Model will treat this in the same way as an investment reserve in a with-profit fund (9.3).
- The Model assumes that the investment reserve transfer will always be varied in order to secure a nil life assurance trade profit wherever there is sufficient unappropriated surplus brought forward in the same fund (9.3). A manual adjustment allows the user to vary the assumption (12.2).
- The Model does not permit a negative investment reserve (9.3). The manual adjustment to the investment reserve transfer may be used to bypass this control however.

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- It is assumed that the tax result produced by the Model does not need to have adjustments applied to it to reflect the tax notionally charged to the policyholders via unit pricing or other mechanisms. It is assumed that such charges are implicit in the projections (through lower claims or mathematical reserves).

The FSA forms presented as a supplement to each tax calculation are presented as a control over the internal consistency of the Model and certain lines reflect revisions to source data assumed by the Model (12).

### 1.3 Tax assumptions

Most of the non-tax assumptions at 1.2 contain a tax aspect and should be reviewed by tax departments. In addition the following tax assumptions and the technical limitations set out at Section 2 should be reviewed for appropriateness before reliance is placed on the results of the Model.

- Indexation allowance on chargeable gains is not calculated by the Model but can be accommodated if calculated outside the Model (4.2).
- The Model does not separately identify loan relationship capital movements and it is necessary to map these into either unfranked income or realised gains. It is recommended that these are mapped to unfranked income. It is assumed that the quantum of loan relationship investment return implicit in the input data will be suitable for inclusion in the I-E, the life assurance trade profits computation (LAB computation) and the Form 40. There is no functionality to switch from mark to market to amortisation bases for different purposes (4.3).
- The PHI surplus to be excluded from the LAB computation is determined using apportionment under s432C even when there is some with-profit business in the company or fund in question as it has been assumed that with-profit PHI business is likely to be very rare(5.9). Accordingly, the investment return for PHI business will not necessarily be consistent with that used in determining the PHI surplus to be excluded from the LAB computation as the investment return is apportioned to PHI using PHI 432A% (5.15).
- The figure for B used to determine the fraction of BLAGAB non-taxable dividends deducted from the LAB trade profit excludes PHI business. For simplicity, the exclusion is done on the basis of the figures in the Summary Revenue Account and the s432C apportionment rules are not applied (5.10).
- The PHI computation taxes the entire investment return for that business with no adjustment to reflect the transitional regime for gains (5.15).
- Where the profits of the life assurance business are used to absorb PHI losses there is no reduction in the amount of policyholder tax (5.9).

## 14 Charges and expenses

This chapter is an aside to the main purpose of the document which is to give an account of the tax logic in the Model. This chapter does not introduce any new logic rather it is a discussion of how to understand how charges are reflected in source data and how to accommodate them within the logic of Alphalife-EV.

### 14.1 Introduction

A charge is a transaction internal to the company. Economically it is a transfer from the policyholders to the shareholders. It may take several forms. It may take the form of a deduction of an amount from a premium which would otherwise be used to establish a reserve for the benefit of the policyholder or as a periodic charge, deductible from the policyholder reserves, calculated as a percentage of assets under management.

In many cases it is not necessary to explicitly deal with charges as they do not appear explicitly in projected cashflows as both the payment and receipts of the charge are in the same fund. This is because, when these deductions are retained in the same fund as the underlying policies to which the charge relates, the charge is implicitly reflected in the data via lower claims or closing mathematical reserves. In other words the element of the underwriting profit which arises from the charge to holders of the relevant policies will automatically be treated as profits in the base data and hence in the model.

There are, however, some situations where charges will appear explicitly in the raw data; some examples are:-

- When the charge is not retained in the fund but is paid to another fund (in this case it would appear as a **cash outflow**). See 14.7
- Where a full projected cash flow is not provided and instead the projection consists of charges less expenses only (in this case the charge would be a **cash inflow**). It is possible that unit linked business could be presented on this basis.

Most of this chapter considers the latter position.

- The Model does not make the statutory restriction with reference to BLAGAB loan relationship deficits when calculating the loss available for group relief (5.17).
- The deduction for policyholder tax in the LAB computation is derived iteratively as the LAB result determines the split of taxable profit between the part which is taxed at shareholder rates and the part which is taxed at policyholder rates (10.2).
- The tax efficiency/inefficiency in the company level Form 40 is the difference between the tax for the company as a whole and the sum of the tax for each fund on a standalone basis (12).
- The Model, by default, assumes that any injection of capital into the with-profit fund is not taxable (9.5).
- A default percentage of 100% BLAGAB and 0% GRB is set to apply where the legislative formulae fail due to the denominator being nil. The legislative provision is for a just & reasonable basis to apply in such circumstances and the above default is a pragmatic way to deal with what is expected to be a very rare issue.

#### 1.4 Control and review

There are controls in the Model which allow the user to assess the integrity of the Model's output. These include the following.

- The balancing item in the tax reconciliation should be nil (6.12).
- The magnitude and nature of items in the tax reconciliation should be capable of explanation.
- The Forms 40 and 58 generated by the Model should be consistent and can be reviewed for reasonableness. The Forms at the fund level are prepared on a notional standalone basis and may require manual adjustments if it is desired to reconcile them to the company level forms (12).
- The reconciliation between the opening and closing investment reserve can be reviewed for reasonableness as can the pattern of accumulation or decay (9.3) The ratio of investment reserve to mathematical reserves is presented in the outputs to facilitate such review.
- The tax computations produced by the Model follow a standard format and are capable of review by tax specialists who are unfamiliar with the Model.

In addition the error report identifies errors or inconsistencies in the source data and configuration. These are subdivided by severity into Fatal (most severe), Errors, Warnings and Informational (least severe). Fatal errors will prevent users from running the calculations.

- s83(2A) clarifies that the amounts taken into account in s83(2) (the numerator in the floor percentage) do not include notional income, inter-fund transfers and certain other items. Therefore should such items of income be present in the data they should be mapped to the “disallowed/non-taxable” field and this will not cause distortion to the floor return.
- The forms 40 and forms 58 appearing in the model will not be distorted by the presence of fiscal adjustments as these forms are linked to the surplus emerging and / or the transfers to shareholders and these items will remain consistent with the FSA forms in the target revenue accounts.

### 13.3 Sundry income

- Sundry income under Section 85 is subject to apportionment under Section 432A and therefore mapping such income into non-linked UFII would give the appropriate result. Should there be any sundry income which is directly referable then it could be mapped into linked UFII. Section 85 excludes refunds of expenses from the apportionment rule and therefore such refunds can be dealt with in the model either by mapping them to one of the expense fields (as a negative item) or to linked UFII.

### 13.4 Variations to accommodate truncated projections

There is some logic embedded into the Model’s mapping routine to deal with the situation of having projections of differing lengths for different parts of the business. For example there may be one part of the business where only a 10 year projection is available while the rest of the business is projected for 30 years.

One option would have been for the Model to assume that the reserves remain constant for the remainder of the term. This is not the best solution as those reserves will increase the floor return which is calculated for that category of business. This would potentially lead to an increase in taxable income which would be a distortion as no income will be included in the projection or the embedded value itself. Maintaining the reserves may also increasingly distort apportionment fractions if the rest of the business runs off to a low level within the period of the projections.

The approach in the Model is to assume a claim equal to the closing reserves of the prior year in the first year for which there is no revenue account data or mathematical reserves in the source file. An equal and opposite movement in reserves is also assumed. The result of this is that there will be no profit recognised and no net effect on the LAB or GRB profits or on the needs basis return. Additionally, there will be no effect on the I-E as the investment return and expense lines are not used.

## Alphalife-EV Tax Technical Commentary

The convention that should be followed is as follows:

- the profit which is being defined in Target Revenue Accounts is the FSA surplus rather than the taxable profit,
- All fields in the target revenue account other than “disallowed / non-taxable.” represent the amounts appropriate for tax computations (so expenses will include PHI expenses on an accounts basis and capital allowances).
- The “disallowed / non-taxable” field is a reconciling item from taxable profit to FSA surplus (so will include depreciation less capital allowances and other disallowable adjustments).
- Therefore, for example, if there are expenses of 100, of which 20 are disallowed for tax purposes, the target revenue account will include a negative 80 representing the allowable expenses and a negative 20 representing the disallowed expenses. The I-E and / or GRB computations would then pick up the 80 of allowable expenses and the 20 would not be directly linked to the tax computation.
- In general the disallowed / non-taxable field does not feed through to the tax computation, for example the expenses of the PHI, GRB and I-E computations pick up only the allowable expenses. There is however a link to the LAB trade profits computation as the starting point for that computation is the surplus (rather than the individual line items).
- The needs basis calculation also picks up the disallowed / non taxable item. The model calculates the needs return as the balance between (a proportion of) the FSA surplus and the non-investment return items in the GRB computation. The needs basis calculation should use the full amount of expenses per form 40 (disallowed or not) and so the model’s calculation picks up disallowed expenses so as not to understate the needs investment return.
- The floor percentage is the ratio of investment return<sup>14</sup> to reserves. The floor calculation in the model draws on the investment return fields from the Target Revenue Accounts but not the disallowed/non-taxable item. Thus, should there be a fiscal adjustment relating to income, it will be automatically processed through the Model’s GRB computation in the form of a reduction in the floor return. This assumption is probably reasonable as:-
- The revision to s83 in FA2003 effectively abolishes several types of fiscal adjustments which might have affected income (for example, capital contributions)

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<sup>14</sup> Technically, the numerator in the floor percentage is the non-linked part of the s83(2) net amount. That amount is the sum of all of the income rows of the FSA return including “other income”. The “net” indicates that the amount is net of investment losses (rather than expenses).

## 2 Functional specification

### 2.1 Purpose and uses

The purpose of the Model is to enable users to produce a materially accurate approximation of the net present value of future UK corporation tax arising from the long-term fund of a life assurance company.

The Model is designed to calculate current tax for each year included in an actuarial projection. As a discounted cash flow basis is used, there is no calculation of deferred tax.

Projecting the tax arising from the shareholder fund of such a company is outside of the Model’s scope and any interactions between the tax position of the shareholder fund and the long-term fund are not addressed.

The range of uses envisaged for the Model are:

- EEV or Achieved Profits tax provisioning for financial statements;
- Open fund actuarial forecasting;
- Valuing excess expenses or other tax losses;
- Measuring the projected value of intra-group reinsurance treaties;
- Tax effects of changes in business profile;
- Measuring the enduring effects of internal reorganisations; and
- Measuring the enduring effects of other transaction.
- Impact of group relief between both life and non-life companies

The Model will not necessarily fulfil all of these purposes simultaneously. Different input data, reflecting different inclusions and exclusions for particular items will be required for different purposes and some parameters may need to be varied.

## Alphalife-EV Tax Technical Commentary

For example there would be a number of changes required if the Model is to be used as a forecasting tool rather than to support the determination of embedded value. For example, the decision on whether to include brought forward deferred expenses in the Model would depend on whether an appropriate deferred tax asset is assumed to be included in embedded value as part of the current net assets.

The Model is less detailed than software designed for tax compliance for life assurance companies and is not suitable for supporting tax returns submitted to HMRC.

Review of the components of the overall tax synergy or tax inefficiency presented in the reconciliation resulting from proper use of the Model should yield insights into the various tax interactions within the company. In particular the Model has been designed to help identify favourable and adverse effects which can be considered when contemplating any restructuring. The Model is not a substitute for taking detailed tax advice on the implementation and effects of a major transaction.

There are a number of key assumptions which underpin the results in the Model. Other sets of assumptions are possible. These include, for example, assumptions over the interpretation of realised and unrealised components of investment return and around the accumulation of the additional assets which represent the investment reserve and unappropriated surplus. It is for the user to satisfy themselves that the assumptions documented here to support the Model are suitable for the user's business and consistent with the user's data.

### 2.2 Technical data description and interfaces

The main data input for the Model will be projected revenue accounts and mathematical liabilities for UK long term insurance business. These revenue accounts and mathematical liabilities will be provided separately for each product or group of products of a similar type and will typically be presented for each of the next 30 years. The source of this data will be the Company's actuarial projection systems, output to Excel.

Other data, mainly brought forward items, will be keyed directly into the Model and will be sourced from the FSA returns or submitted UK tax computations (or drafts of those documents).

The Model manipulates this data with reference to the tax logic coded into it and various parameters (such as tax rates) and produces a tax computation for each company and fund for each year. These computations are the basis for the various outputs of the Model. Those outputs include various analyses and reconciliations.

## 13 Treatment of items in revenue accounts

### 13.1 Introduction to Revenue Accounts

The purpose of this section is to explain the rules & conventions of the Model's revenue accounts in practical terms relevant to making adjustments of the actuarial data in the model.

The conventions assumed in the Model's revenue accounts are as follows

- The revenue accounts are true to sign.
- As a rule the entries in the revenue account should, in aggregate, be consistent with the FSA return basis of accounting. Any differences between that and the tax basis should generally be entered into the "Disallowed expenses / Non-taxable income" field.
- All surplus arising must be distributed to policyholders as bonus or to shareholders – there is no mechanism to create unappropriated surplus to be carried forward using revenue accounts.
- If something is not to be distributed then it is possible for it to accrue to the estate or (form 14 line 51 investment reserve) in such cases there should be an entry in the transfer to or from investment reserve field.

### 13.2 Fiscal adjustments

There is a field in the target revenue account named "disallowed / non-taxable." Its purpose is to capture items such as capital allowances, depreciation and other disallowable expenses. This allows items which are included in the FSA surplus but which do not feed through to the tax computations to be recorded. The model assumes that the same items are disallowed in both the LAB trade computation and the individual computations for different categories of business.

## 3 Model calculation parameters

### 3.1 Tax rates

At present the model uses the tax rates below, although these can be changed manually (refer to 'Parameters section')

- Mainstream rate - 28%
- Policyholder rate - 20%

### 3.2 Discounting

The Model's primary purpose is to calculate the present value of projected tax liabilities using a discounted cash flow methodology. It does not therefore take account of deferred tax, as determining the tax which might be accounted for in any individual year in the period of the projections is not among the purposes of the Model.

Under corporation tax self assessment, quarterly payments of tax are made just after the end of each quarter and start half way through the accounting period. Therefore, on average, tax for a period is paid at approximately the end of the period. For this reason, applying one year of discounting to 2010 data when determining the December 2009 embedded value, for example, is approximately consistent with the external tax payment position.

It is possible to apply non-integer values for the number of years of discount to apply to each period. The Model allows the number of years of discount to be applied to the first year to be specified in the Calculation parameters. The Model will increase the value by 1 for each subsequent year.

Accordingly it may not be possible to align discounting assumptions exactly with those used for the non-tax items in all cases. For example, if all cashflows are assumed to arise at the mid point of a period, then for half year reporting the first period of six months is to be discounted by 0.25 years and the second by one year (however this particular problem can be avoided if tax cash flows are assumed to be at the end of the period as outlined above).

The discounting assumption is material and the rate should be consistent with that used in the actuaries' embedded value projections.

### 3.3 Deductible proportion of annuity claims

For tax purposes BLAGAB annuity claims are split into income and capital elements. (It is rare for such annuities to represent a significant part of the modelled business as the vast majority of annuities are pension annuities.) The income element is deductible as an expense in the I-E. The appropriate split is not typically available from the actuarial data available to the Model so, as an approximation, an estimate of the income proportion may be entered on the Calculation parameters screen.

### 3.4 Group relief assumption

On the Model Calculation Parameters screen there are four assumptions which can be set in respect of LAB losses. These are:

1. Always assume that group relief is available in full;
2. Always assume carry forward;
3. Give relief from profits in the same Group
4. Assume losses are restricted in full (i.e. not available for either set off or carry forward)

The first three options are also available in respect of PHI losses.

For groups with other substantial businesses in the UK, assumption 1 may be an appropriate default. Assumption 2 is a more conservative assumption and will be appropriate if there are no other profitable UK businesses in the group or if it is desired to assess the position of long-term business in isolation from the rest of the group.

The manual adjustments are taken into account in identifying the surplus used in the LAB trade profits computation and also the GRB needs basis calculations. However, the needs basis calculations will assume that the tax charged to the with-profit fund in respect of Gross roll-up business equals 28% of the shareholder's share of pre bonus surplus. Effectively the manual adjustments to the tax charge are assumed not to relate to Gross roll-up business.

A consistency check between the forms 40 and 58 represents a control over the integrity of the model. This consistency check does not however indicate whether or not the investment reserve remains positive after any manual adjustment.

### 12.3 Form 14

A summarised form 14 is presented showing mathematical reserves and investment reserve. This does not represent a control as the tax Model does not contain an independent source of asset values.

The Forms 14 displayed at the foot of the sub-fund sheets reflect the split between investment reserve and unappropriated surplus which the Model assumes would arise if the fund in question was taxed and run independently. These do not represent the projected actual forms 14 for the funds in question as the final Form 14 position for the residual fund (which is not presented separately in the Model) will reflect the investment reserve before any transfer to cover the tax efficiency/inefficiency. Consequently the fund level Forms 14 may not sum on a line by line basis to the corresponding Form 14 displayed at the company level. To assist review of this aspect of the Model, there is displayed, at the foot of the company level computation, two versions of Form 14. One is the summation of the sub-fund forms and the other is the form for the total company.

It is possible to make these adjustments separately but it may be more useful to combine them. For example, if it is desired not to alter the surplus distributed to shareholders and instead to fund an additional tax liability by an increased investment reserve transfer then this will be possible by making two manual adjustments. As the contra to both adjustments will be taken to distributed surplus, the net effect on that amount will be nil.

In some situations there will be alternative ways to make adjustments to the investment reserve which are more practical than the manual adjustment fields described here. For example the option to take the tax efficiency or inefficiency to the residual fund investment reserve or the use of a dummy revenue account.

Some examples are given in the table below.

<b>Adjustment description</b>	Increase PH Tax deduction while keeping total tax constant	Introduce additional PH tax which is to be covered by transfer from Inv Res	Charge more SH tax to fund and cover with Inv Res transfer
<b>Adjustments</b> 1. Inv Res transfer 2. PH Tax 3. SH Tax	(100) 100	100 (100)	100 (100)
<b>Effect on surplus transferred to SH per pro forma Form 40</b>	Nil	Nil	Nil
<b>Effect on pre tax surplus</b>	Nil	100	100
<b>Effect on PH Tax deduction</b>	(100)	(100)	Nil
<b>Effect on LAB trade profits computation</b>	(100)	Nil	100
<b>Effect on Inv Res</b>	Nil	(100)	(100)

There is no automatic linking between sub-funds in respect of these manual adjustments so if it is intended to increase the tax charge in one fund it may be necessary to make the same adjustments at the company level. Similarly if there is to be a reallocation between categories, equal but opposite entries will be required in the two funds in question.

### 3.5 Brought forward losses

Carried forward tax losses from before the base year are input on the Funds screen.

For embedded value reporting, losses brought forward should not be entered if they are recognised as deferred tax assets in net assets as that would amount to double counting<sup>1</sup>. It may be the case that some losses are included in net assets and some are not (depending on the relative likelihood of their recoverability).

For forecasting purposes, however, it may be necessary to include all tax brought forwards to correctly reflect various tax interactions.

When modelling reorganisations, it will be for the user to input where various brought forward tax losses should appear. This is a manual exercise. One of the reasons it has not been automated is that, in practice, a loss may or may not follow the category of business which gave rise to that loss through a reorganisation. In some cases it may be necessary to apportion a loss. One of the factors to consider will be whether the reorganisation takes the form of reinsurance or of a Part VII transfer.

At present it is not possible to enter brought forward losses at the company level. In practice it may be the case that the aggregate of the losses at fund level do not equal the loss at company level. This could be a case if a loss in one fund is set against a profit in another for the purposes of filing with HMRC but carried forward in its notional standalone computation. It is suggested that this should be accommodated in the Model by setting the loss brought forward in the non-profit fund as the balancing number required to give the correct brought forward position at company level.

<sup>1</sup> There is an apparent tension between FRS 19 or IAS 12 valuation of net assets and embedded value reporting as FRS 19 or IAS 12 would not require or permit discount to be applied to a deferred tax asset but such an asset would be discounted if it was included in the Model.

## 12.2 Manual adjustments

The pro forma Forms 40 include three input fields for each year to allow a manual override of the default treatments in the Model. Such adjustments are optional and are expected to be most relevant where an investment reserve is maintained in a non-profit fund or it is desired to vary the method used to calculate the policyholder tax deduction in the LAB trade profits computation. The adjustments are listed below.

Manual adjustment	Balancing entry
1. Additional transfer from (or to) investment reserve	Increase (decrease) in surplus arising and transferred to shareholders.
2. Additional policyholder tax charge (credit)	Decrease (increase) in surplus arising and transferred to shareholders.
3. Additional shareholder tax charge (credit)	Decrease (increase) in surplus arising and transferred to shareholders.

As it is the surplus transferred to shareholders which is affected in each case, the adjustments do not have any first order effect on unappropriated surplus brought forward or carried forward. In particular these adjustments are not directly linked to the unappropriated surplus section of the computations.

The effects of each of these manual adjustments are summarised in the table. The manual adjustment to the investment reserve transfer bypasses the control in the Model which prevents negative investment reserves. The reason for this is to prevent the effects of manual adjustments from automatically being reversed by the Model.

	1. Inv Res transfer	2. Policyholder tax	3. Shareholder tax
Keyed adjustment	100	(100)	(100)
Adjustment description	Increase in transfer from Inv Res	Increase in tax charge treated as PH	Increase in tax charge treated as SH
Effect on surplus transferred to SH per pro forma Form 40	100	(100)	(100)
Effect on LAB trade profits computation	100	(100)	Nil
Effect on Inv Res carried forward	(100)	Nil	Nil

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- A separate line, **Investment reserve** transfer is used to display the transfer from investment reserve before any manual adjustment. This reflects refinements to take account of (i) revisions to the Form 40 tax charge, (ii) the need for the investment reserve to be non-negative and (iii) any contribution shelter effect.
- A **manual adjustment to the transfer from investment reserve** can be entered by mapping to the relevant field in the Target Revenue Account.
- **Claims** include payments made in anticipation of surplus.
- Movement in mathematical reserves include reversionary bonuses.
- **Tax** as that calculated by the Model. This is on a standalone sub-fund basis and, in the company level computation is the total tax for the company.
- Two **manual adjustments to the tax charge** may be made to vary the shareholder or policyholder tax charged to Form 40.
- The **surplus distributed to shareholders** is based on that per the Summary Revenue Account but is refined to reflect the three manual adjustments mentioned above, and, in cases where there is no investment reserve, the tax refinement calculated by the Model on a stand alone sub-fund basis. It is the only item in the Form 40 which is calculated on one of two different bases depending on the circumstances.
- There is a final tax item, **tax efficiency/inefficiency**. This line is not used in the Form 40s which are presented on the sub-fund tax sheets.
- The above items sum to the **increase or decrease in fund**.
- The **fund brought forward** is from the prior year and in the first year it is derived as the sum of mathematical reserves and unappropriated surplus.
- The following additional points are relevant in considering the Company Form 40
- The same three **manual adjustments** are reflected as described above.
- The **tax efficiency/inefficiency** in the company level Form 40 is the difference between the tax for the company as a whole and the sum of that for each fund on a standalone basis. This item only appears explicitly when it is set against the shareholder transfer (rather than taken to investment reserve).
- The **surplus transferred to shareholders** is a summation from the sub-fund Form 40s. Accordingly it reflects the tax refinement calculated by the Model only for those funds which do not have an investment reserve.

## 4 Investment return and investment yields

### 4.1 Use of investment yields

Investment yields may be entered into the Model for two purposes:

- To be used in calculating the amount of return from the assets which are held as part of the investment reserve or unallocated surplus.
- To provide a means of reanalysing the total investment return from assets backing policyholder liabilities. This need only be done where the analysis reflected in the input data is insufficient or inaccurate.

For both purposes the total yield is split into four elements, each of which is expressed as a percentage. These correspond to the four fields used in the Model for investment return and are;

- Non-taxable dividends (the yield should be entered net of tax credits and withholding taxes),
- Unfranked Investment Income, (probably including loan relationship capital movements section 4.4)
- Realised Gains, and
- Unrealised Gains (excluding loan relationships).

The source revenue accounts may include different elements of investment return together on the same line. There is functionality in the Model to split the total investment return per the source revenue accounts on a pro rata basis with reference to the investment yields specified. This can be done independently for different blocks of business. This process reallocates the aggregate investment return into the four categories above. The preferred option when data is available is to map the individual elements of investment return per the actuarial system directly into the relevant lines in the Target Revenue Account.

The functionality described here does not permit the total amount of investment return received each year to be varied (other than from the assets representing the investment reserve or held as unappropriated surplus). Such changes in total yields could affect other items such as bonuses or claims and dealing with such consequential changes is outside the scope of the Model.<sup>2</sup>

### 4.2 Indexation allowance

Indexation allowance on chargeable gains is not calculated in the Model on the grounds of simplicity. If annual figures for the amount of gain covered by indexation allowance are available from the source projections then those gains should be mapped into the unrealised gains field. Alternatively if yields are used to allocate total investment return, some allowance for indexation can be made by increasing the unrealised gains yield and reducing the realised gains yield.

### 4.3 Unrealised gains on equities and property

No tax is provided on unrealised gains so the figure entered for this item effectively represents investment return never subject to tax in the I-E. The base assumption is that the part of investment return identified as being realised gains each year will include the unrealised gains of earlier years to the extent they become realised. Put another way, it is assumed that, if projections extended far enough into the future, the total of all projected unrealised gains/losses plus the unrealised gain/loss brought forward at the start of the projections would be nil (or equal to the amount of economic gain sheltered by indexation allowance). The table below illustrates what is described here.

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<sup>2</sup> If nonetheless the user wishes to model the effects of varying the total investment yield disregarding any consequential effects on other items in the Target Revenue Accounts, there are two ways this can be done. Adjustment factors could be applied as part of the mapping routine (on the Source file screen). This will affect all years in the same way. Alternatively, a revenue account containing only the incremental adjustment to each element of income could be constructed in Excel and loaded into the Model in the usual way.

## 12 Pro forma FSA forms and manual adjustments

### 12.1 Forms 40 and 58

Pro forma FSA forms are presented as a supplement to each of the tax calculations. These differ from the Summary Revenue Accounts as certain lines reflect the revisions assumed by the Model. These should be reviewed by the user for reasonableness.

These forms are presented mainly as a control. They are however effectively the source of the final figures for surplus and investment return used in the needs and floor basis calculations respectively (see 5.6). The three fields which are provided for optional manual input are separately displayed in this section.

The forms are prepared on a standalone sub-fund basis. Therefore, for with-profit funds whose tax charges are determined on a standalone basis, they may be regarded as being final. For non-profit funds they are final save for the fact that any tax efficiency or inefficiency arising from combining the funds together will not have been allocated to any of the sub-fund Forms 40. Such tax efficiency or inefficiency is however reflected in the company level Forms 40 as part of the tax charge. There will also be a consequential effect either on the transfer from investment reserve or as an adjustment to the transfer to shareholders.

The following points should assist in interpreting the pro forma forms 40 or in reconciling them to the Summary Revenue Accounts.

- The three **investment income and gains** lines follow the Summary Revenue Accounts and do not include income and gains arising on the assets representing unappropriated surplus and investment reserve. Nor is the transfer to or from investment reserve reflected in these lines.

Level	Permitted values	Permitted content from lower level	Where set	Implications
Field	Mathematical reserves should be mapped to <ul style="list-style-type: none"> <li>• Unit reserves</li> <li>• With-profit reserves</li> <li>• NPPL reserves and income and gains should be mapped to linked or non-linked as appropriate by reference to the underlying contracts.</li> </ul>	n/a	Mapping rules	It is necessary to correctly classify the reserves for the apportionment fractions in the tax calculations.  It is necessary to identify income and gains as linked or non-linked to determine whether it needs to be apportioned or not. If separately identifiable, income from assets backing non-unit reserves of unit linked business should be mapped as non-linked.

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<ul style="list-style-type: none"> <li>▪ Example: Basis on which realised and unrealised gains are assumed to be supplied</li> <li>▪ Economic gain of £100 p.a., brought forward unrealised gains of £100, no indexation, all assets disposed of by end of year 3.</li> </ul>					
<hr/>					
▪ Year	▪ b/f	▪ 1	▪ 2	▪ 3	
▪ Realised		▪ 50	▪ 175	▪ 175	
▪ Unrealised	▪ 100	▪ 50	▪ (75)	▪ (75)	
<hr/>					
▪ Total		▪ 100	▪ 100	▪ 100	

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Some departure from this base assumption is possible.

It is also possible to rationalise that certain departures from this assumption are reasonable. For example, where the gain identified as realised each year is in fact a net present value of the taxable part of the gain, this should mean that, overall, the correct net present value of tax is calculated by the Model in most cases. A possible exception might be where the company is borderline XSE / XSI where any distortion to the actual taxable gain each year could affect the expense restriction.

- Where the actuarial projections calculate future gains with reference to opening market values then it will be necessary to supplement the actuarial projections with figures for the unrealised position as at the start date of the projections. Such figures are probably best sourced from tax departments and can be spread in Excel and uploaded as an additional data file. An equal and opposite adjustment to unrealised gains will be required so as not to distort the GRB and LAB computations.

The Model includes a check box to specify whether or not unrealised gains should be included in taxable gains. Checking the box allows a prudent tax charge to be calculated in cases where the quality of the gains data is in doubt.

## 4.4 Loan relationship revaluations

The Model does not separately identify investment return in respect of mark to market revaluations of loan relationships. Broadly, the capital element of the redemption price of a bond will equal its issue price giving a projected annual capital yield of nil. Where this option is not deemed appropriate, the best approach is to map the loan relationship capital movements into the Unfranked investment income (UFII) line of the Target Revenue Accounts (or obtain an equivalent result by altering the yield factors). An alternative treatment would be to map to Realised gains, but please note that where loan relationship capital movements include capital losses, mapping to realised gains will not give the correct results.

- If the unfranked income field is used, then the loan relationship capital movements in non-profit funds will be apportioned using s432C.
- If the realised gains field is used then any capital losses brought forward or arising will be offset against the loan relationship capital movement which is not appropriate.
- It is assumed that the quantum of loan relationship investment return implicit in the input data will be suitable for inclusion in the I-E, the LAB trade profits computation and the Form 40. There is no functionality to switch from mark to market to amortisation bases for different purposes.

# 11 Establishing company and fund structure

## 11.1 Defining business types in the model

The table is a summary of the attributes of companies, funds, and blocks of business which can be selected by the user and indicates what are permitted combinations.

Level	Permitted values	Permitted content from lower level	Where set	Implications
Fund	Non-profit	NP	Funds screen under company/fund structure	Affects tax logic for example s432C vs s432E return and whether there is a LAB trade profits computation
	With-profit (notional mutual)	Any		
	With-profit (propriety)	Any		
Block of Business	Non profit	NP	Block of business screen under company/fund structure	Used for verification of Bonus calculation
	100:0 with-profit	WP		
	Other with-profit	WP		

## 10.5 Group relief

In some circumstances claiming group relief for a LAB trade loss will lead to a restriction of BLAGAB expenses. Such a restriction will increase the I-E result and hence the deduction for policyholder tax. This will increase the LAB loss and the loss available to be group relieved.

## 10.6 Free assets amount

The free assets amount involves an iterative loop as, in cases where there are with-profit and non-profit reserves in the same fund; it will have an effect on the s432A fractions. Those fractions feed into the tax charge of the company which will ultimately affect the level of the investment reserve.

# 5 Technical commentary on tax computations

This section provides a commentary on the tax logic reflected in the fund and company level outputs. It is set out in the same order as those outputs.

## 5.1 Mathematical reserves

The Model requires that mathematical reserves are analysed into three types.

- Non-profit non-linked reserves
- With-profit reserves
- Linked unit reserves

The phrase “linked unit reserves” is used to indicate that it is only the reserves representing unit liabilities which should be included under this caption.

Where linked assets are not available, the user should ensure that ‘unit reserves’ are the only reserves mapped to unit reserves. Any separately identifiable sterling reserves should be entered as non-profit non-linked reserves.

The Model includes some flexibility re linked or Foreign business assets. Where these are not mapped into the Model, it is assumed that these assets equal either unit liabilities (if the backed by foreign business assets flag is left unchecked) or total liabilities (otherwise).

The reserves are presented at the top of the tax computation sheet. The figures are consistent with those at the foot of the Summary Revenue Accounts and include reversionary bonuses. These reserves are used to calculate the various apportionment fractions.

In offices which are predominantly linked, the Model has the functionality to map the linked assets to the Target Revenue Account.

## 5.2 Deposit back liabilities

Deposit back liabilities are grouped with non-profit non-linked reserves to keep them apart from with-profit reserves. This is necessary as with-profit reserves are used in calculating the proportion used to split the Free Assets Amount. Therefore even when a fund has only with-profit business, any deposit-back liability will appear in the non-profit non-linked reserves section.

The Model does not accrue any investment return on the assets which have been deposited back nor is any interest expense calculated. In some cases these two items will net off and there will be no impact on the tax position of the company. In other cases it is possible to map an additional revenue account containing projections for only these two items into the Model (assuming that these items are not otherwise included in the input data). This approach should be taken when there is a material difference between the income received and the interest paid to avoid misstatement.

The amounts mapped in as deposit backed liabilities are used in the calculation of apportionment fractions only.

## 5.3 Excess of assets over statutory liabilities

Since FA 2007 the free asset amount is used in apportionment fractions.

In legislation the free asset amount is defined as the excess of the value of the assets of the company's long term business (other than structural assets), over the aggregate of actuarial long term liabilities (including deposit-back liabilities but net of reinsurance) plus money debts of that business.

The free asset amount is assumed to equal the Tax Investment Reserve (TIR), less structural assets as input via the Target Revenue Account. The TIR equals the sum of the unappropriated surplus plus the investment reserve and the workings for these two items are presented towards the foot of the tax calculation (see 9.3 and 9.5).

If the Model is being used to calculate the tax on present value of in-force business for the purposes of determining an embedded value then it will not be appropriate to calculate the tax which will arise on the projected income from the assets representing accumulated surpluses in the non-profit fund. This is because such surpluses are fully recognised in the net asset component of embedded value. Accordingly it will often not be necessary to enter an initial value for the additional assets of the non-profit fund.

Such an omission should only have a second order effect on the calculations as the general effect of the TIR is to vary the s432A apportionment fraction only at the margins.

# 10 Iterative circularities

## 10.1 General remarks

- The tax computations include several iterative circularities. Some of these are discussed below.

## 10.2 Deduction for policyholder tax

The deduction for policyholder tax is derived iteratively as the LAB trade profits result determines the split of the taxable I-E profit between:

- that part which is taxed at shareholder rates; and
- that part which is taxed at policyholder rates.

It is the later part which is taken as tax expended on behalf of policyholders and this feeds back into the calculation of the LAB trade profits result. This deduction is discussed at 5.9.

## 10.3 Tax refinement and tax efficiency/inefficiency

The tax refinement calculated by the Model (and, if selected, the tax efficiency or inefficiency) will affect the amount transferred to or from the investment reserve. This transfer affects pre tax surplus which feeds into the LAB trade profits computation which is one of the results which determine the tax calculated by the Model and hence the tax refinement..

## 10.4 Gross roll-up business

The GRB results for a with-profit sub-fund for which tax is calculated on a notional proprietary basis create circularity. In such cases the needs basis return is used in the GRB results. That needs basis return is determined by the post tax surplus for the fund.

## 9.8 Notional aggregation of form 40 funds for tax purposes

In some cases either taxpayers or HMRC may argue that fewer Form 40 funds than appear in the FSA return should be recognised for tax purposes.

One potential use of the Model is to measure the effects of varying the number of Forms 40 recognised for tax purposes.

- When the funds to be aggregated do not have investment reserves then this presents no particular problem. For modelling purposes this is no different from a fund merger. All that is required is to change the target funds for the affected blocks of business and revise the tax brought forwards appropriately.
- However, if one or more of the funds to be aggregated has an investment reserve, the problem is subtly different from a modelling perspective. This is because the number of forms actually recognised in the FSA return will remain unchanged and the Model will have no way of determining how much of the total investment reserve belongs to each fund if all Blocks of Business are mapped into a single fund.
- As a consequence, if the Model is used to contrast the effects of recognising different numbers of Forms 40 it will not be a like for like comparison. While the tax logic itself is appropriate, there could be some inconsistency in how tax is assumed to be accounted for at the fund level between the two versions of the Model's results which could have knock on tax effects.

If, exceptionally, it is suspected that this omission will materially distort the s432A apportionment fractions (e.g. where the accumulated surplus in the non-profit fund is significant proportion of the total assets of the company), it is suggested that an initial value for the non-profit fund additional assets be entered but with the yield assumption applied to those assets set to nil. This will confine the effect of the surplus assets to the s432A apportionment fractions (assuming that there is no investment reserve, see 9.1).

## 5.4 Bonuses

The bonus figures are used for the following purposes in the Model.

- As a means of apportioning the post bonus surplus for the purposes of determining the needs basis return for Gross roll-up business.
- As the source for the deduction for bonuses in the LAB computation.

## 5.5 s432A and s432C Apportionment fractions

The “appropriate part” of the Free Assets Amount is added to the liabilities of each category in determining the s432A BLAGAB and PHI percentages. The percentages labelled ‘BLAGAB – Free Assets’, ‘GRB – Free Assets’ and ‘PHI – Free Assets’ represent the appropriate parts of the Free Assets for those categories of business. Where with-profit liabilities are more than 5% of total liabilities, these shares are calculated as the ratio of with-profit liabilities only. Otherwise total liabilities are used.

The percentages labeled BLAGAB and PHI are the s432A fractions for those categories of business. They incorporate the effects of the appropriate parts of the Free Assets Amount.

Default percentages of 100% BLAGAB and 0% GRB are set to apply as a pragmatic approach to achieving a just and reasonable approach where the denominator in any of the legislative fractions is nil.

The s432A BLAGAB percentage is used to determine the BLAGAB share of non-linked investment return for the I-E computation.

For PHI business an apportionment fraction is calculated under s432A to determine the investment return which features in the PHI computation. In addition, a PHI apportionment of investment return under s432C is also calculated in order to determine the PHI surplus which is to be excluded from the Life assurance trade profits computation. Default percentages of 100% LAB and 0% PHI are set to apply where the denominator in the s432C(5) fraction is nil. Apportionment under s432C is followed even when there is some with-profit business in the company or fund in question. This is assumed to represent a reasonable approach.

It is rare for PHI to be written on a with-profits basis so the only PHI bonus figure available to be used in a needs basis apportionment would be a nil resulting in a PHI surplus of nil.

s432C apportionment fractions are calculated to allocate a proportion of non-linked income and gains respectively to GRB.

## 5.6 Needs return

The needs basis return is required for funds which include with-profit liabilities. The amount presented is the investment return required to secure a GRB profit equal to a proportion (determined with reference to bonus) of

- post tax surplus per the final Form 40 revenue account; less
- bonuses; plus
- tax.

If there are no bonuses for a particular category then the needs return will be the return required to secure a GRB profit of nil. If there are no bonuses for any category then the proportion fails and the needs returns calculated will secure a nil GRB result.

The tax item above should represent the Form 40 tax charge allocated to the category in question. For a fund on a notional mutual basis this is assumed to be nil. In other cases a gross up factor equal to the shareholder tax rate (currently 28%) has been applied to the net of post tax surplus and bonuses.

In a 90:10 fund being treated as a notional mutual, at the fund level there is assumed to be nil GRB tax as noted above, but there is a surplus that is distributed to shareholders, which the needs calculation takes into account. The needs calculation is done on a fund-by-fund basis and then aggregated at the company level (rather than re-calculated at the company level as with a s432A allocation). There is a tax charge included at the company level in respect of this notional mutual sub fund, despite there being none at the fund level- see 5.8 below. This will affect the tax inefficiency as it contributes to the company level tax charge being greater than the aggregate of the fund level tax charges.

## 5.7 Floor return and excess needs

The calculation of the floor return is required for funds which include with-profit liabilities. As is required by legislation, the rate of return used to determine the floor return is calculated separately for each fund.

The excess needs figures are calculated as the brought forward figure plus the needs return for the year less the floor return for the year. Only positive values are displayed as there can be no carry forward of negative amounts.

- The **appropriated/accumulated** line displays a different result depending on whether or not an investment reserve is maintained. *If there is an investment reserve*, the amount shown is the amount required to reduce the LAB trade profits result (before manual adjustments) to nil provided there is sufficient brought forward plus injected surplus. This is the “*Contra*” referred to at 9.3 and in the diagram at 9.1. *Where there is no investment reserve* then this item will be equal and opposite to the *Reversal* (9.3) of the provisional transfers to or from investment reserve in the Model’s Target Revenue Accounts. In such cases this item will represent the brought forward surplus being eroded by the deficit arising in the year or being increased by the undistributed surplus arising in the year.
- The unappropriated surplus, by definition, excludes any surplus which is assumed to be transferred to the shareholders per the proforma Form 40 revenue account displayed in the FSA section of the output.

## 9.6 Uniformity of logic at sub-fund level

The logic in the sub-fund investment reserve and surplus sections of the computation are uniform for all types of sub-funds. The logic varies with reference to whether or not an investment reserve is maintained and the type of fund does not have a bearing.

## 9.7 Impact of FA 2006 rules

A consequence of the changes re FA2006 is that the contribution sheltering effect is slightly contained in that only the investment reserve of the residual fund (should there be such a reserve) is available to shelter the LAB trade profit arising from other funds. Previously the unappropriated surplus brought forward from any fund with an investment reserve was available for this purpose. It remains the case that any unappropriated surplus brought forward is available to reduce the LAB profits of the same fund.

The model works satisfactorily for with profit funds with investment reserves but no unappropriated surpluses and for non-profit funds with either investment reserves or unappropriated surplus but not both.

Where an investment reserve is maintained for a particular sub-fund the Model will use any unappropriated surplus brought forward in that fund to shelter, from shareholder rate tax, what would otherwise be the LAB trade profit. This is done by reducing the transfer from investment reserve.

Such unappropriated surpluses often arose at the time of demutualisation. The ability of companies to shelter profits using such surpluses was significantly reduced by FA 2006.

## 9.5 Unappropriated Surplus

- The opening unappropriated surplus can be entered on the Additional assets statement of the Funds section for each sub-fund. This amount can be obtained from line 49 of Form 58 of the FSA return.
- In calculating the present value of in-force business (“PVIF”), it is understood to be standard practice to incorporate the future effects of unappropriated surpluses of with-profit funds only. Income arising from unappropriated surpluses of non-profit funds should be excluded from PVIF as the assets giving rise to that income are recognised within the net assets part of embedded value.
- The following items are in the reconciliation between a brought forward and carried forward unappropriated surplus. The reconciliation between opening and closing surplus is presented in separate sections depending on whether or not the fund has an investment reserve. The reason for this presentational separation is historic and is no longer relevant. For fund level computations, only one of these two reconciliations will be populated.
- The **brought forward** figure is obtained from the prior year.
- The **injection** line is to accommodate injections of capital into the fund. These can be entered on the Additional assets screen of the Funds section. The Model assumes that any such injection bypasses Form 40 and goes straight to unappropriated surplus and, accordingly, that the receipt is not taxable<sup>13</sup>

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<sup>13</sup> An injection of capital, the receipt of which is taxable, may be uploaded into one of the Target Revenue Accounts and will be assumed to pass through Form 40 and give rise to taxable surplus (subject to the Model making a transfer to any investment reserve as a consequence).

## 5.8 Proprietary Gross roll-up business results

In calculating the GRB profit for the Company, it is necessary to perform the calculations on a fund by fund basis<sup>3</sup> and then aggregate the result. This is reflected in the Model and the primary purpose of the GRB computation displayed on the tax calculation reports for the sub-funds is to provide the figures for the company level computation. Most entries in the GRB computations displayed at the company level are simple aggregations of the equivalent entries in the sub-fund computations. The exceptions are:-

- s432C investment return from the residual fund which is recalculated on the company level sheet.
- The taxable movement in any investment reserve held in the residual fund which is similarly recalculated.
- Utilisation of brought forward losses.

Where a notional mutual basis applies, the GRB results calculated for the corporate computation may not be appropriate for inclusion in the sub-fund’s notional I-E calculation. For example, in a 90:10 fund the GRB result on a notional mutual basis may be (approximately) nil while on a filing basis the GRB result from that fund would represent a proportion of the transfer to shareholders. The present version of the Model disregards any GRB result for the purposes of the notional mutual I-E and makes the assumption that the GRB results on a notional mutual basis are nil. This assumption is only valid where

- the with-profit fund in question does not, on a notional mutual basis, have any unappropriated surplus
- the floor does not bite and
- there are no disallowed expenses or other fiscal adjustments.

Most line items in the GRB results correspond to those in the Summary Revenue Accounts. The claims (or benefits) included in the GRB computation comprise the claims and the payments made in anticipation of surplus per the revenue accounts.

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<sup>3</sup> For tax purposes, funds are separately identified when a separate revenue account is “required” by Prudential Sourcebook (Insurers). In some cases there is uncertainty over when a revenue account is required. For the purpose of GRB computations, the Model recognises the number of funds input by the user.

## 5.9 Life assurance trade profits computation

The starting point for the LAB trade profit computation is the life assurance element of the post tax surplus displayed on the Summary Revenue Account. The figure is derived as being the total surplus less the surplus attributed to the PHI business. A number of adjustments to this figure are presented in the Model. These are summarised as follows:

- The PHI apportionment adjustment revises the PHI surplus shown in the Summary Revenue Account and which was excluded from the starting point. The reason this adjustment is required is that apportionment rules apply to income and gains and the PHI surplus for tax purposes is not necessarily the same as that shown on the Summary Revenue Account. This item is the difference between the non-linked items of investment return per the PHI revenue account (PHI s432A%) and the PHI s432C proportions of the total non-linked investment return for the company (see 5.5).
- Bonuses representing both reversionary bonuses and payments made in anticipation of surplus.
- Tax included in the input data is added back in order to arrive at a pre-tax surplus. The tax figure added back excludes any tax in the PHI section of the Summary Revenue Account.
- The subtotal gives the pre tax life assurance business surplus implied by the Summary Revenue Account. This figure is then supplemented by some further adjustments.
- Where there are funds where no investment reserve is maintained, the non PHI apportionment of income and gains accruing on the assets representing unappropriated surplus of those funds is added (where such assets have been entered in the Model and a non-nil yield has been set).
- A refinement is made to the investment reserve transfer assumed in the Summary Revenue Account. If no investment reserve is maintained this item will be a simple reversal of the balancing figure included in the Target Revenue Account. Otherwise this item anticipates the transfer from investment reserve being varied in order to secure just enough surplus to meet the revised tax liability arising from the model. There is also a rule in the Model that the investment reserve cannot be negative which may result in an adjustment coming through this line.
- Disallowed expenses are added and any non taxable income is deducted.
- The s83YA taxable movement in non-profit investment reserves (of non-profit companies) is added see 9.4.

## 9.4 Section 83YA and non-profit fund investment reserves

### 9.4.1 Overview

Broadly the effect of s83YA, introduced by FA2006 is to prevent a non-profit fund investment reserve from being recognised for tax purposes. However it only applies to companies with no or an insignificant amount of with-profit business (HMRC life assurance manual suggests 5% or less as a guide). Mechanically any movements in the value of that reserve will be brought into the charge to tax. However the movements are adjusted to remove the effect of certain changes in that reserve which do not relate to gains and losses on investment assets (broadly contingent loans receipts and repayments which are not accounted for through form 40).

Furthermore, movements in that reserve since 31 December 2003 (for most companies) will be taxed in the straddling period (subject to spreading until 2008 in respect of that part of investment reserve which is identified as resilience capital).

Although the final rules apply only to non-profit funds in non-profit companies, the Model will permit the user to apply s83YA to any non-profit fund. There has in the past been some speculation that the rules could be extended to non-profit funds of all companies and this is something that some companies may wish to model. The Model cannot accommodate s83YA applying to a fund for only part of the projection period if its proportion of with-profits business crosses the 5% threshold.

The model presents the amount taxable under s83YA as the movement in the investment reserve less the restriction under s83YB(5)(b) which prevents a deduction to the extent that the movements causes the investment reserve to fall below its December 2003 value.

The output also shows the remaining amount of pre-2004 investment reserve. The amount of that reserve can only diminish and is not reinstated if there is a subsequent increase in investment reserve.

### 9.4.2 Transitional Period

The purpose of the model is to calculate medium to long-term tax effects. It is not necessarily intended to calculate the immediate tax consequences of significant transactions or events. Therefore logic to specifically deal with the straddling period of account is not included in the Model. It should, however, be possible to design a strategy using a dummy revenue account in order to capture the effect of any one off charge and the spreading adjustments until 2008.

- The **tax efficiency / inefficiency** item is only populated in the company level output (on the company level output the investment reserve section refers to the residual fund only) and if the user has directed for this item to be taken to investment reserve.
- There is an **adjustment to prevent a negative** investment reserve from arising. This item ensures that any negative arising from the summation of all the previous items and the immediately following one is reversed.
- The **unappropriated surplus utilised** represents the reduction in the transfer from investment reserve where there is a **brought forward** unappropriated surplus available. In certain limited circumstances it may be possible to use such surplus to fund appropriations of surplus in favour of the shareholder. This will allow the transfer for investment reserve to be reduced and consequently lead to a lower LAB trade profit. The Model only allows such sheltering within a fund and not between funds and does not shelter a LAB loss. This item will appear in funds which have an investment reserve whether or not they are with-profit or non-profit (this is the “*Contra*” per 9.5 below and the diagram at 9).
- The **manual adjustment** which the user can make to the transfer from investment reserve in the pro forma form 40 is the final item. This allows the users to vary the assumption that the investment reserve transfer will always be varied in order to secure a nil LAB trade profit wherever there is sufficient unappropriated surplus.
- If the investment reserve decays to nil over a significantly shorter time period than the business takes to run off then it should be confirmed that this represents a realistic projection. Similarly if the investment reserve accumulates to a very large total by the end of the projections the actuarial assumptions implicit in the Summary Revenue Accounts in the Model used should be reviewed. It is important that any very large accumulations of investment reserve are understood because large balances will have an increasingly large effect on the output of the Model as the income generated from the assets representing investment reserve will contribute to the I-E taxable profit (as indicated at 9).

- A deduction is made for policyholder tax<sup>4</sup>. This is determined as that part of the current year tax liability which is calculated at policyholder tax rates. The Model will not, by default, calculate a negative amount of policyholder tax credit. Other approaches to the determination of policyholder tax are possible.
- Any surplus brought forward which is utilised. This is a recognition of any prior year unappropriated surplus brought forward which is available to reduce the transfer from investment reserve (in the same fund as the unappropriated surplus is held). This latter effect is sometimes referred to as a contribution shelter effect.
- This section sums to the LAB result before brought forward losses. LAB b/fwd losses utilised are offset where appropriate, LAB profit and LAB losses carried forward are displayed.

## 5.10 Profits taxable at the main rate

In an excess-I life office the quantum of the profit taxed at the shareholders rate of corporation tax is equal to the LAB trade profit less the fraction  $\frac{A}{B}$  of the BLAGAB non-taxable dividends where:-

- A is the LAB profit for the year (before any losses brought forward) and
- B is the income less expenses of the life assurance business as presented in the Form 40 revenue account.

This is subject to the fraction A/B being in the range 0 to 1. In other cases, the Model will follow the legislation and default to 0 or 1 as appropriate.

- The figure for B is derived mainly from the Summary Revenue Account and excludes PHI business. This is refined by including the same adjustments as is referred to at 4.9 to reflect the effect of s432C apportionment. The figure also reflects any restatement to reflect the refinements to the investment reserve transfer.

The figure which is presented as being taxable at the mainstream rate is

- Nil where a notional mutual basis is applied;
- Nil if  $\frac{A}{B} \times \text{BLAGAB non-taxable dividends}$  is greater than the LAB profit;
- Nil if there is a LAB trade loss; and
- Equal to the LAB profit less  $\frac{A}{B} \times \text{BLAGAB non-taxable dividends}$  otherwise.

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*There is an iterative circularity to accommodate this deduction*

As stated above, the amount calculated here is the amount of profit taxable at 28% in an excess-I office (i.e. where no adjustment is due under s85A in respect of excess adjusted life assurance trade profits.) The Model treats excess-E<sup>5</sup> offices appropriately as the adjustment required by s85A will secure profits chargeable to corporation tax for life assurance business equal to the LAB trade profit less BLAGAB non-taxable dividends without any application of the  $\frac{A}{B}$  fraction.

BLAGAB non-taxable dividends are identified in the Model as the BLAGAB linked non-taxable dividends plus the s432A proportion of the total non-linked non-taxable dividends for the company. Please note that the Model requires that BLAGAB dividends are positive and that a negative amount is treated as NIL. BLAGAB non-taxable dividends comprise UK dividends received (which are assumed to be reflected in source data net of the notional 10% tax credit) and foreign dividends received on or after 1 July 2009 which fall into the relevant categories as defined in Part 9A CTA 2009 (which are assumed to be reflected in source data net of withholding tax).

### 5.11 BLAGAB expenses

Four items are displayed under the heading Analysis of E which determine the deduction for BLAGAB expenses of management. These are:

- BLAGAB acquisition expenses per the Summary Revenue Account.
- BLAGAB other expenses per the Summary Revenue Account.
- BLAGAB annuity claims per the Summary Revenue Account multiplied by the parameter (input on the Model Calculation Parameters screen) which determines what proportion of those claims is assumed to be deductible as expenses (see 3.3).
- Any restriction to current year expenses arising as a consequence of group relief.

The restriction of expenses on account of group relief is limited to the total expenses incurred in the year. The restriction is applied to acquisition expenses, other expenses and the general annuities incurred in the current year on a pro-rata basis.

The expenses figure presented as being “spreadable” represents the acquisition expenses displayed above less any restriction on account of group relief. The figure appearing immediately below which is labelled “spread & falling due for deduction” represents  $\frac{1}{7}$  of the spreadable figure for that year and the previous six. For the first six years in the projection, the Model will pull forward any unrelieved deferred expenses from prior accounting periods which are entered on the Fund Deferred expenditure screens. The aggregate of such expenses brought forward is shown in the brought forward column on the spreadable row.

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*As defined at 5.13.*

Below the tax reconciliation for each computation there is a reconciliation of movements in the investment reserve. The items in that reconciliation are as follows:

- The **brought forward** figure from the previous year.
- The **income and gains from investment reserve** represent pre-tax investment return. This is calculated by applying investment yields to the brought forward figure<sup>12</sup>. This item includes all items of income and gains whether taxable in the I-E or not and an analysis is presented.
- The **income and gains from the unappropriated surplus** follows the same principle but is calculated from the brought forward Form 58 surplus. A nil amount will be returned here if no investment reserve is maintained.
- The **transfer to/from revenue account** (from/to the investment reserve) is the provisional figure obtained from the Summary Revenue Accounts. This is derived as a balancing figure dictated by the actuarial output and ‘balances’ the investment return per the actuarial output in the sense of making it consistent with what would notionally appear on form 40. This item is before any revisions to that transfer in respect of tax refinements and the other items listed here.
- The next item is a **reversal** of the revenue account transfer (the “*Reversal*”). This item only appears where no investment reserve is maintained and, in such cases, reverses the previous item.
- **Tax on income and gains from additional assets** is taken to investment reserve where one is maintained and is part of the sub-fund tax refinement calculated by the model.
- The balance of the **sub-fund tax refinement** is the difference between the tax included in the Summary Revenue Account, if any, for the fund in question and the tax calculated on a standalone sub-fund basis by the Model. The Model assumes that any refinement to the tax charge required as a result of using the Model will be taken to the Form 40 revenue account and that the transfer to/from investment reserve will be modified in order not to change the net surplus arising. It is relatively unusual for a non-profit fund to maintain an investment reserve. Where a non-profit fund does maintain an investment reserve the Model will treat the non-profit fund in the same way as a with-profit fund specifically, the shareholder transfer per the source data is taken as given.

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<sup>12</sup> *It is assumed that such income and gains are not included in the source data and the Model does not reflect them in the Target or Summary Revenue Accounts.*

## 9.2 Investment reserve transfers per Summary Revenue Accounts

The starting point for the LAB trade profits result is the surplus arising for the year as displayed on the Target and Summary Revenue Accounts. As a consequence of the data mapping procedure, these revenue accounts will include transfers to or from the investment reserve in order to balance the revenue accounts at a level which respects the relationship between the policyholder and shareholder shares of surplus.

These transfers to or from investment reserve per the Revenue Accounts are provisional in several respects. The transfer from investment reserve is only just sufficient to meet claims, fund bonuses and pay tax and, therefore, in recalculating the tax liability using the Model (for example) a refinement to that transfer can be made. A full list of the refinements to the investment reserve transfer is included in the next section.

The LAB trade profits computation includes the refinement to the provisional transfer from investment reserve per the revenue accounts. The refinement is presented over two lines, “Refinement to investment reserve transfer” and “Shelter”. That part of the refinement arising from the interaction with the unappropriated surplus is separately identified on the “Shelter” line.

## 9.3 Investment reserve

The Model can accommodate investment reserves in both with-profit and non-profit funds. The Additional assets screen in the Funds section allows the user to indicate whether each sub fund in each company has an investment reserve or not. The opening figure for the investment reserve should also be entered here. The suggested source for this figure is line 51 of form 14 of the FSA return.

If, in practice, there is no investment reserve because it has been fully utilised then the option on the Additional Assets statement should still be ticked if, in principle, an investment reserve is maintained for that fund. This will then permit the Model to accumulate an investment reserve in the future if that is what emerges from the cash flows in the revenue accounts.

Therefore, if the Model extends sufficiently far into the future so that no new acquisition expenses are projected, the totals of the spreadable and spread rows should agree.

## 5.12 Capital losses

The capital losses figures presented represents only the BLAGAB proportion of losses. The final figure in this section represents the amount available for carry forward to the following year after the offset of brought forward losses against current year gains.

## 5.13 Unrestricted I-E and LAB trade profits test

The section titled “Unrestricted I-E plus non-taxable dividends” is the computation of the relevant amount to be compared with the adjusted LAB trade profits to determine if an adjustment is required as specified in s85A FA 1989. Accordingly this calculation includes BLAGAB non-taxable dividends and the full amount of expenses available for deduction including excess-E brought forward.

The Model assumes GRB profits are nil if a notional mutual basis of calculation is applied (see 5.8). Otherwise they are only included if they are positive.

The line “Excess adjusted trade profits test” displays one of two captions. These are

- XS trade profits; or
- XSI (i.e. excess income, where no adjustment is required under s85A FA 1989)

Throughout this document the convention is adopted that “excess-E” refers to a life office (or fund) which has excess expenses available to carry forward into the following year<sup>6</sup>. The phrase is not intended to be limited to cases where the unrestricted I-E is negative.

Should an Actual trade profits basis be selected to apply (e.g. when it is deemed that BLAGAB is an insignificant proportion of the business), the Model will continue to calculate an I-E result to highlight if the company would be in an XS trade profit or XS income position, if it were to be taxed on an I-E basis. Please note that the Model will not allow changing between an Actual trade profits basis and I-E basis part way through a projection.

The expense restriction is calculated under s76(2). The restrictions are to the expenses remaining after any restriction on account of group relief.

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<sup>6</sup> Either by reason of the excess adjusted life assurance trade profits adjustments or to BLAGAB income and gains.

### 5.14 Taxable I-E result

The taxable I-E represents the profits chargeable to corporation tax from the life assurance business. It differs from the unrestricted I-E above as the BLAGAB non-taxable dividends are omitted and the expense restrictions are applied.

### 5.15 PHI business

PHI business is not life assurance business for tax purposes and is not part of the I-E. The trade profits computation presented follows the Summary Revenue account for PHI business other than in respect of investment return.

The investment return for PHI business will include any amount appearing as linked to PHI in the Summary Revenue Account and the PHI s432A proportion of the total non-linked investment return for the company (including the PHI s432A% of income and gains accruing on additional assets). This investment return figure will not necessarily be consistent with that used in determining the PHI surplus to be excluded from the LAB computation.

The PHI trade profits computation excludes non-taxable dividend income but otherwise makes no distinction between various kinds of investment return and the taxable amount will include unrealised gains.

The Model accommodates carry forward, group relief and current period offset (against shareholder LAB profits) of PHI losses. Where group relief is being claimed for PHI losses options are available in the Company screen to either relieve losses intra-company first (i.e. against current period shareholder LAB profits before group relieving the balance) or not claiming loss against shareholder LAB profits before surrendering the PHI loss as group relief.

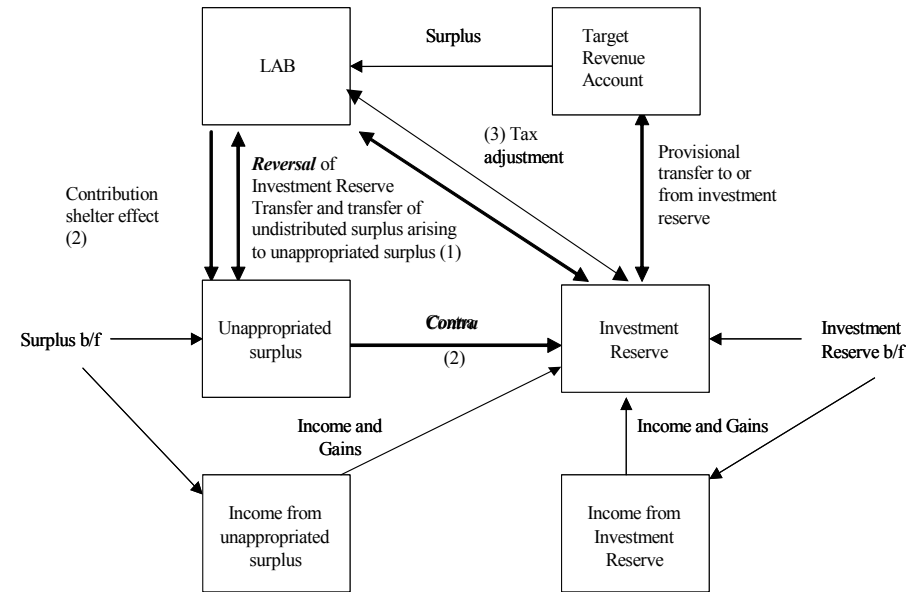
For discussion of the basis on which PHI is excluded from the life assurance business for the purposes of LAB trade profits see 5.5 and 5.9.

### 5.16 Taxable profits and tax liability or credit

The total taxable profits calculated by the Model will normally comprise the taxable I-E and the PHI trade profit. The taxable I-E profits are analysed into the shareholder and policyholder components. The shareholder component is the minimum of the profits taxable at the mainstream rate (see 5.10) and the total taxable I-E (see 5.14). The policyholder share is the balance.

If, *alternatively*, an actual trade profits basis is selected (where it has been deemed that BLAGAB is an insignificant proportion of the business) then the life assurance business shareholder profits will equal the LAB trade profit and the policyholder profits will be nil.

### Transaction Flow



- (1) If no Investment Reserve is maintained.
- (2) If there is an Investment Reserve and brought forward surplus is available to fund shareholder profits.
- (3) If there is an investment reserve the transfer will be revised to compensate for the calculated tax refinement.

4. Any unappropriated surplus brought forward is used to reduce the transfer which would otherwise have been made from investment reserve of the same fund and, therefore, reduce the LAB trade profits computation.

In populating the Model it is vital to understand whether or not items 2, 3 and 4 are reflected implicitly or explicitly in the source revenue accounts. This is necessary to avoid double counting or other distortions which could be material to both the LAB trade profits computation and I-E results. Specifically, in designing the Model it has been assumed that the source data will typically take the form of projected cash flows and accordingly will reflect the investment return arising but not transfers to or from investment reserve. It is also assumed that the investment return provided represents the return on assets backing policyholder liabilities only and not the assets representing any investment reserve or unappropriated surplus.

Where this is not the basis on which the source data is prepared then it may remain possible to use the Model by applying one of the strategies listed below.

- Setting the yields to nil will eliminate effect 2 without removing effect 1. This would be appropriate when the income and gains arising on the assets representing investment reserve are included in the projections.
- Amendments could be made to data before loading into the Model.
- The mapping procedure can be used to adjust the data by being selective in which items are mapped to the Target Revenue Accounts.
- Indicating that an investment reserve is not maintained will remove effects 3 and 4.

The diagram below shows the transaction flows corresponding to items 2, 3 and 4 above.

The tax liability presented may include a tax credit in respect of group relief claimed or losses offset under s393A in respect of any life assurance business trade loss or PHI trade loss. The Model Calculation Parameters screen allows the user to select different assumptions in this area (3.4).

Where profits of the life assurance business are used to absorb PHI losses the Model assumes no effect on the amount of policyholder profit (or policyholder tax) on the basis that such utilisation of losses is a shareholder rather than a policyholder matter.

Group relief (or s393A relief) credits are calculated at the main rate of corporation tax, currently 28%. For presentation purposes, such credits are separately displayed. For example:

- If a PHI loss is fully utilised against a life assurance business trade profit then a credit will appear on the PHI line of the analysis and the figure presented as the tax liability on life assurance business profit at mainstream rate is not affected.
- If credit is obtained for a life assurance business trade loss to the extent that there are PHI profits, then there will be equal and opposite amounts appearing in the tax liability summary for life assurance business group relief credit and tax charge on PHI profits.

## 5.17 Tax losses

The Losses section of the computation is concerned with identifying the amount of group relief available in respect of life assurance business trade losses and the consequential effects on other losses.

The trade loss presented as available for group relief is indeed that which is available for group relief. It does not therefore take account of losses brought forward. The Model does not make the statutory restriction with reference to BLAGAB loan relationship deficits. The group relief assumption can be set on the Model Calculation Parameters screen (see 3.4).

The GRB losses are consistent with those presented as arising in the GRB computation above. They do not include the effect of any prior year GRB losses brought forward.

The section with the title “losses to give up” lists the losses and other amounts which are restricted as a consequence of the group relief. In the first instance the LAB trade loss is applied to reduce GRB results. Any excess restricts the BLAGAB expenses. These adjustments are applied to the GRB loss which is calculated in the Gross Roll-Up Business profits computation and so there may be a discrepancy between the loss shown at the foot of one of the GRB computation and that which appears as brought forward in the computation for the following year.

## 9 Investment reserve and unappropriated surplus

### 9.1 Overview of effects on computations

The Model as been designed to accommodate inputs derived from actuarial liability models (rather than from asset models). On this basis, the effects of the assets backing policyholder liabilities (i.e. mathematical reserves) are implicit in the Target and Summary Revenue Accounts. However, a life assurance company will, in general, also have some additional assets which may represent either investment reserve or unappropriated surpluses. The Model permits the initial values for investment reserve and brought forward surpluses to be entered. The Model does not permit a negative investment reserve.

The investment reserve and the brought forward surplus affect the Model's tax calculations in four ways.

1. The Free Assets Amount which is used in determining s432A apportionment fractions is calculated as the investment reserve plus any unallocated surplus less any structural assets (see section 5.3).
2. The BLAGAB share of the investment return accruing on the assets representing the investment reserve and unappropriated surplus is calculated by the Model and included in the I-E<sup>11</sup>. The default assumption in the Model is that such investment return is not included in the source data.
3. Transfers from or to the investment reserve contribute to the Target Revenue Accounts for with-profit business. Such transfers from investment reserve contribute to surplus arising and increases the LAB and GRB profits. These transfers are calculated by the Model and are assumed not to be reflected in the investment appreciation included in the source data.

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<sup>11</sup> Assuming a nil yield is not applied as may be the case for surplus in the non-profit fund (see 9.5).

## 6 Reconciliation to tax per source data

### 6.1 Introductory remarks

The Model's tax reconciliation is both a key control over the integrity of the output and the means for understanding the drivers of the tax charge. This section explains the workings behind each item in that reconciliation.

The Model presents a reconciliation between the tax calculated by Alphalife-EV and that included in the source data (from the actuarial system). This is produced as part of the fund and company level tax computations. The reconciliation has been set up to analyse the overall difference into a number of components to facilitate interpretation.

The reconciliation has been set up assuming that the only tax reflected in the source data is at policyholder rates on BLAGAB I-E. Importantly, this assumption does not affect the tax charge calculated by the Model. In fact, the only effect of this assumption being in error is to erode the meaningfulness of this reconciliation. That said, review and interpretation of this reconciliation is an important control over the integrity of the modelled results.

The reconciliation presents the tax charge as a series of components.

### 6.2 Differences in BLAGAB I-E at policyholder rate and removal of input shareholder tax

The calculation of this item is the sum of UFII, Realised Gains and expenses per the BLAGAB Target Revenue Accounts, multiplied by the policyholder tax rate, minus the tax per source data included in the BLAGAB Target Revenue Accounts.

The result of this formula should identify any irregularities in the actuarial system tax calculations. For example, this item could represent the effect of re-categorising the investment return between taxable and non-taxable types in the actuarial system calculations. Otherwise this item will include the complete removal of all of the tax per the source data in excess of the policyholder rate on what is identified (in the source data) as BLAGAB income less expenses.

This item will also include any difference in the tax rates used in the actuarial system and those used in the Model.

### 6.3 Apportionment not hypothecation

This item is the difference between the total BLAGAB share of taxable income and gains per the I-E computation and those per the actuarial system. In each case the policyholder tax rate is applied in arriving at the difference. The formula for this item is:

The sum of UFII + Realised Gains per the I-E computation

minus the BLAGAB % of the UFII and Realised Gains from the assets in the investment reserve

plus the brought forward capital loss used in the year

minus the UFII + Realised Gains from the source data

multiplied by the policyholder rate.

A deduction is made here for the BLAGAB percentage of the gains from the assets of the investment reserve as these assets are not generally in the source data (from the actuarial system) and, therefore, this amount has to be deducted in order to arrive at a fair comparison. Similarly the effect of capital losses brought forward from earlier years is removed as such losses are assumed not to be carried forward in the actuarial projections.

### 6.4 Investment return from additional assets

This represents the amount of tax at policyholder rates on the investment return from the additional assets held as investment reserve or unappropriated surplus. The formula is:

(UFII + Realised Gains from Investment Reserve and Unappropriated Surplus) x BLAGAB % x policyholder tax rate.

### 6.5 Difference in relief for expenses

This item compares the amount of tax relief obtained at the average policyholder rate for expenses in the final I-E computation to that implied by the total current expenses in the BLAGAB Target Revenue Accounts. The formula for this item is:

(UFII, Realised Gains and expenses per the BLAGAB Target Revenue Accounts) x the policyholder tax rate

minus the tax per actuarial data included in the BLAGAB Target Revenue Accounts

✓ A calculation is performed which is uniform for each of the Fund Types and Tax Calculation Levels showing a tick for that item.

Tax Calculation Level and Fund Type	Ref	1: Company	2: Sub-fund		
			1: Non-profit (memorandum)	2: With-profit (proprietary)	3: With-profit (notional mutual)
Apportionments Surplus for needs basis return	5.6	Tax Gross up	Tax Gross up	Tax Gross up	Assume nil tax <sup>7</sup>
GRB computation	5.8 <sup>8</sup>	Σ	✓	Nil	Nil
§432C §432E		Σ	Nil	✓	✓
LAB trade profits	5.9	Σ	✓	✓	✓
I + G from additional assets if no Inv Res		Σ	✓	✓	✓
Refinement to Inv Res transfer		✓	✓	✓	Nil <sup>9</sup>
Taxable at main rate		✓	Nil	Nil	Nil
Loss available for group relief					
I-E	5.8	✓	✓	✓	Nil
GRB profits	5.13	✓	✓	✓	Nil <sup>10</sup>
LAB expense restriction					

<sup>7</sup> It is assumed that there is no tax in respect of Gross roll-up business charged to a fund which has tax allocated to it on a notional mutual basis.

<sup>8</sup> GRB results are determined at the fund level and aggregated for the company level computation.

<sup>9</sup> No profits are taxed at the main rate of corporation tax in a mutual.

<sup>10</sup> The restriction of expenses by reference to the LAB trade profits computation is not relevant for a mutual.

- It is not appropriate to vary all of these parameters independently as many of them are not permitted or would be inappropriate in most if not all cases. The table below shows permitted combinations. There are 36 potential cases. Most cases relate to non profit funds with investment reserves.

Matrix of permitted combinations of parameters					
1	Fund Type	WP mutual	WP prop	Non Profit	
2	Investment reserve maintained?	Y	Y	Y	N
3	Fund for residual tax (note 1)?	N (else warning)	N (else warning)	Y/N	Y/N
4	Subfund tax refinement to inv reserve (note 2)?	Y (else warning)	Y (else warning)	Y/N	n/a
5	Tax efficiency / inefficiency to investment reserve (note 3)?	Usually n/a	Usually n/a	Y/N	n/a
6	S83YA applied?	n/a	n/a	Y/N	n/a
7	S432B(8) disapplied?	n/a	n/a	Y/N	n/a
	Number of combinations	1	1	2 <sup>5</sup> = 32	2

Note 1: A with-profit fund should not normally be selected to receive the residual tax charge. In other words a stand alone tax allocation is usually appropriate. If a company has only one fund and that fund is a with-profit fund the issue does not arise as there needs to be at least two funds for there to be a residual amount.

Note 2: This is often necessary to preserve the 90:10 relationship between policyholders and shareholders interests in post tax surplus.

Note 3: The question at 5 is only relevant if there is an investment reserve (item 2 is yes) and the fund in question is the residual fund (item 3 is yes).

### 8.3 Table of variations

The following table sets out how the Tax Calculation Level and the Fund Type affects the Model's logic for selected lines in the computation.

The following key is used:

Σ Summation of corresponding fields in sub-fund calculations,

Nil Value of nil returned

Movements in any excess or deferred expenses affect the relief obtained in any given year as these are assumed not to be modelled in the actuarial source data.

### 6.6 Capital losses

This shows the relief obtained for capital losses brought forward from earlier years. The formula is:

(loss brought forward - loss carried forward) x the policyholder tax rate

### 6.7 GRB (at policyholder tax rate)

This item presents the tax payable on the GRB profits per the I-E computation at the policyholder tax rate.

### 6.8 Mainstream rate and LAB losses

This item represents the additional tax over and above the policyholder rate which is payable on certain components of a life company's profits. The formula in this cell is:

Shareholder profit x (SH tax rate – PH tax rate) + credit obtained for LAB losses at SH tax rate

### 6.9 PHI profits

The PHI item represents the difference between the tax per the PHI inputs, if any, and that calculated by the model.

### 6.10 Removal of I-E tax from GRB inputs

This item is equal to any tax included in the actuarial output for GRB. It is understood that actuarial systems are often not used to calculate such tax and it is assumed that any tax included in the Target Revenue Accounts for Gross roll-up business represents an error.

Where there is GRB tax included in the input data this item will contra with that at 6.7. The items will not be approximately equal and opposite if the tax included in the source data reflects the shareholder rate of corporation tax.

## 6.11 Effect of actual trade profits basis

This item is the sum of the following two items:

The difference between the LAB profits which would have been taxable as shareholder profits on an I-E basis and what would have been the total taxable I-E, multiplied by the policyholder rate of tax.

The difference between the LAB profits which would have been taxable as shareholder profits on an I-E basis and LAB profit, multiplied by the mainstream rate of tax.

## 6.12 Balancing item

The balancing item should be nil. This is one of the controls in the Model and any imbalance should be investigated.

# 8 Parameters that vary tax logic

## 8.1 Introductory remarks

The purpose of this section is to allow users to identify which lines in the tax computations may be calculated in different ways depending on the context.

The Model presents all tax computations in the same format. A consequence of this uniformity is that there are certain parts of the computation produced which are irrelevant and are disregarded by calculations elsewhere. Examples include the s432C apportionments in a with-profit fund computations and the Life assurance trade profits computation in a sub-fund computation on a notional mutual basis.

## 8.2 Treatment of investment reserve and tax adjustments

The tax logic in the company and sub-fund tax computations varies with reference to a number of parameters. These are.

- The **Tax Calculation Level** - whether the computation is for a company or a sub-fund.
- In the case of a subfund, whether it is the residual fund
- In the case of a sub-fund, the **Fund Type** - whether non-profit, with-profit (notional proprietary) or with-profit (notional mutual).
- Whether an investment reserve is maintained.
- Whether s83YA (which taxes movements in non-profit investment reserves) is applied.
- Whether subfund tax requirements are taken to investment reserve.
- Whether the tax efficiency or inefficiency for the company is taken to the investment reserve.

The first item above is embedded in the Model's logic. The others are parameters which can be varied by the user.

## 7 Interaction of fund and company level tax charges with the investment reserve

### 7.1 Introductory remarks

The Model allows users to select which of the two options below they want to use as regards to the treatment of tax efficiency or inefficiency.

- Tax efficiency/inefficiency reduces the shareholders transfer (therefore effectively borne by the shareholders)
- Tax efficiency/inefficiency taken to the investment reserve

### 7.2 The residual fund

There can be only one residual fund, which is usually a non-profit fund (assuming there is such a fund in the company).

A number of the items displayed as part of the company level output are aggregates of amounts calculated at the fund level for all funds other than the residual fund plus an amount (calculated as part of the company level output) for the residual fund.

Other items which appear as part of the company level output relate solely to the residual fund (and may or may not equal the corresponding amounts calculated for that fund on a standalone basis).

### 7.3 Tax investment reserve

The formula at the company level is changed so that the tax investment reserve is the sum of the amounts for the non residual funds plus the amounts displayed on the company level computation in respect of investment reserve and unappropriated surplus (which are in respect of the residual fund).

### 7.4 Needs and floor

The needs and floor figures for the residual fund are recalculated at the company level.

## 7.5 GRB computations

The fields are summations of the sub-fund tax computations.

The section s432C and section 83YA amounts are recalculated to be the sum of the equivalent amounts from the fund level computations for the non residual funds plus an amount for the residual fund calculated as part of the company level output.

Should the tax efficiency/inefficiency be taken to the residual fund investment reserve, an implication will be that there will not be a separate GRB computation displayed for the residual fund which is consistent with the final tax calculated for the company.

Where there is only one non-profit fund the investment return figures calculated under section 432C, section displayed at the company level will correspond to the residual fund only. Other items such as premiums and claims will be uniform with those displayed on the sub-fund computation.

Multiple non-profit funds are not fully supported by Alphalife-EV as the s432C is calculated separately for each non-profit fund rather than being recalculated on a company level basis for all non-profit funds.

## 7.6 Investment reserve movements

The adjustment to the investment reserve transfer by reason of tax charges is analysed over three lines in the model. These are;

- tax on income and gains from additional assets
- sub fund tax refinement
- tax efficiency / inefficiency

The first item is always populated where an investment reserve is maintained in the residual fund. The amount will be calculated using the section 432A percentages at a company level rather than fund level and so will differ from the equivalent amount for the residual fund on a standalone basis. The second item, sub-fund tax refinement, is lifted directly from the equivalent cell on the sub-fund calculation.

Where the user has selected for all tax adjustments to go to investment reserve the exact definitions of these three items is a matter of convention only. All that matters is that their sum will be equal to the difference between the tax charge for the fund per the input data and the residual tax charge for the fund per the model.

Taking the tax efficiency or inefficiency to the investment reserve will cause the amount of that reserve to diverge between the standalone tax computation for the residual fund and the computation for that fund presented at company level. This should not be an issue if it is recognised that the standalone computation is memorandum only. An alternative convention would be to force the opening investment reserve in year two of

the stand alone computation to equal the closing reserve of year one from the computation presented at company level. This would make the stand alone tax computation internally inconsistent but may provide better year by year calculation of the tax efficiency or inefficiency. Under the current arrangement, that part of the tax efficiency or inefficiency relating to additional assets may be distorted by reason of the divergence of the investment reserves between the two computations. However other aspects of the efficiency or inefficiency should still be meaningful. It should be noted that this diversion only happens if all the tax adjustments are taken to investment reserve and (that being the case) the divergence of the tax adjustments between the sub-fund tax refinement and the efficiency or inefficiency is a matter of presentational convention only and has no bearing on the final answer.