

November 2022

Subject F202 — Life Insurance

Specialist Applications

EXAMINER'S REPORT

QUESTION 1

A South African life insurance company has a large, closed book of universal life policies and currently sells risk-only whole of life assurance products. The company is considering launching a term life assurance product.

- i. Outline the factors a life insurance company should consider in deciding whether to launch the new product.**

Candidates handled this question well. Those that worked through the detail of the breadth of high-level factors to consider scored well.

The Market

Does the new product meet specific customer needs?

The target market for the product.

The marketability of the product.

Whether competitors sell the same or similar products.

Will the new product compete with some of the insurer's other products? e.g., would they just sell term assurance instead of WOL to some customers instead of the term assurance being purely additional sales.

Distribution

The distribution methods planned for the product.

The approach to remuneration, especially relative to the WOL product.

Financial

The expected level of profitability from the product, and is this in line with the Company's profit requirements.

The capital requirements of the product and how these would be financed.

Will the product (and expected volumes) be able to carry the expenses of implementing and running it?

Operational

Do current administration systems cater for the new product?

Can current service teams service the new product and expected volumes?

Does the Company have the relevant expertise to operate / underwrite the product?

Risk Management

The onerousness of any options or guarantees on the new product. e.g. future insurability options.

The level of risk associated with the new product and the sensitivity of profit to risks and other factors.

How the new product fits into the company's risk appetite and if risk needs to be laid off, the level of reinsurance required and available.

The approach to underwriting.

Does the Company have relevant and credible data for use in pricing and reserving?

Regulatory

Any legal or regulatory restraints relating to the product?

Any areas of concern relating to TCF and PPR?

The impact on the company's tax position of writing the product.

Any reputational issues in launching the product?

ii. Outline the differences between universal life products and risk-only whole of life assurance products.

Most candidates handled this question reasonably well. A number of candidates did not pick up on the premium and surrender / maturity values differences and scored poorly.

Risk-only (RO) products provide risk cover only while universal life (UL) products combine risk cover with an investment component.

UL products are exposed to all risks associated with risk-only products as well as market risk.

RO products charge an explicit premium for the cover. UL products include a risk charge in the costs associated with monthly premium charged, with the balance going to the investment fund. (Risk charge is not transparent)

RO products do not generally offer surrender or maturity benefits or include any savings element. The UL product would return an investment value (less any potential penalties) on surrender or maturity and typically have a minimum sum insured for the life assurance component.

RO products could have a premium guarantee. UL products do not normally guarantee the risk charge contained in the premium.

Increases in the risk charge could increase the possibility of the policy moving into a negative monthly investment situation.

The sum at risk for the RO product is the sum assured less any reserve built up. For the UL product the sum at risk is the sum assured less the investment value. Sum at risk for the UL product should decrease quicker than the RO product all else being equal.

Both are underwritten but the underwriting / mortality risks are reduced for the UL product as it is not guaranteed.

iii. Discuss the factors that could lead to divergences between the observed mortality and lapse rates over time between the universal life products and risk-only whole of life assurance products.

Candidates did not handle this question well in general. Too many candidates focused on the fact that the policyholders for the UL product would be older on average and therefore be experiencing higher mortality at a point in time compared to the RO product. But, would old-age mortality rates between the two products be different? The question asked about rates rather than general mortality experience over the same year, as an example. Better candidates picked out the difference in the products that contributed to difference in observed mortality and lapses rates rather than pointing out that older policyholders will have higher mortality than younger policyholders.

The better candidates also picked up on the fact that the products were sold in two different periods of time and the environment in each of these periods would have impacted mortality and lapse rates. e.g. HIV and economic conditions.

For any meaningful comparison you would need to compare by homogenous groups which would include rating factors and duration, e.g. male non-smokers aged 40 at a certain policy duration (or age and duration banding if data sparse at some points).

Significant differences in the lives (from a risk perspective) taking up the two types of products could lead to different mortality levels. (Unlikely to be the case.)

UL policies were sold in the 1980s and 1990s and RO policies from then onwards. This would mean that mortality rates observed would differ due to:

- Anything impacting mortality rates over the two different periods. Development of HIV / AIDS rates and deaths and rollout of ART would have impacted the two periods differently to the extent that the risk wasn't completely underwritten out.
- Differences in underwriting approaches over time.
- Differences in any mortality improvements over the two periods.

Differences in how the two products were underwritten. UL is an investment product with life cover attached and as such may have been underwritten more leniently.

RO product could arguably be subject to more selection risk as its single purpose is risk cover. This could result in higher mortality if not underwritten out.

The lapse rates over time could differ due to:

- RO product being single purpose, meaning that lapse rates would be driven by ongoing need and affordability.
- UL product is an investment product and as such factors impacting the investment return could also impact the lapse rates of the product as a whole.

Economic factors are often correlated with lapse rates and as such the economic conditions (e.g., inflation and interest rates) over the two periods would also impact the lapse rates.

iv. Describe how the mortality and lapse rates for the new risk-only term life assurance product may differ from those observed on the current whole of life assurance product.

Candidates did not handle this question well in general. Many candidates focussed on the possibility of the target market being different and this being the sole reason for any differences observed.

Term cover would be bought for a specific purpose like covering debt (mortgage etc.) or an anticipated limited term need. As such lapses are likely to be lower within this term.

However, term cover lapse rates may increase towards the end of the policy term if healthy lives feel a claim won't be triggered and when no obligation exists anymore to have cover (e.g. paying off debt). This would be exacerbated if the term cover is also decreasing.

Affordability will still have an impact as changes in circumstances occur.

Affordability is also impacted by cost relative to WOL product:

- Likely to be similar if both term and WOL on risk / increasing premium bases.
- On level premium basis term will be cheaper for same cover amount.
- Will also depend on the initial expenses and commission loaded onto the term product. If this is the same as the WOL product then there is a shorter period to recover them and the premium could be more expensive.

Mortality likely to be similar if sold to similar target markets. If the product is cheaper it may be sold into the lower socio-economic market which may have higher mortality rates.

Anti-selection on term policies is likely to be higher if the product is cheaper or easier to obtain. This would result in higher mortality rates.

If someone fails underwriting (UW) for a WOL product, offering a term product can be a solution in some cases. As such could see a larger proportion of unhealthy lives on book of term policies.

QUESTION 2

A South African life insurance company has two smoothed bonus investment products that it sells to individual clients as an investment option for endowment and retirement annuity policies.

Product A is closed to new business. Bonuses are declared annually in arrears, with an interim bonus declared for periods after the last bonus declaration date. Bonuses are split 80/20 into a vesting and non-vesting part. Each year 25% of the non-vested fund is transferred to the vested fund.

Product M, which is open to new business, has bonuses that are declared monthly and vest fully on declaration.

- i. Describe how the company can manage these products in accordance with Treating Customers Fairly (TCF) outcomes.**

Candidates did not handle this question well in general. This was a broad question and candidates that scored well took a planned and structured approach to it. Even within each of the outcomes in the TCF structure some planning was required in order to ensure that the full breadth of points were covered. Many candidates missed easy marks like ensuring visible / public and clear language communication.

Outcome 1

TCF Outcome 1 is that customers are confident that they are dealing with firms where the fair treatment of customers is central to the firm's culture.

TCF Outcome 1 needs consideration of how all products of the company are managed, not just the smoothed bonus products.

The company should be able to demonstrate that TCF outcomes are an integral part of its decision-making process.

This would include showing that the fair treatment of customers is considered at meetings of senior management and the Board.

An example of a commitment to TCF would be to have the consideration of TCF principles form part of employees' performance contracts.

The company could have an explanation of TCF principles and a commitment to them in the public space – e.g., in client documentation or on its website.

The company would need to take steps to avoid situations that call into question its commitment to the fair treatment of customers.

Pre-emptive measures are required, such as looking at adverse findings affecting other companies, investigating whether a similar situation could arise in this company, and taking measures to counteract that.

A controversy on social media could also undermine the company's position, so it should be ready to respond to such an event.

Outcome 2

TCF Outcome 2 is that Products and services marketed and sold in the retail market are designed to meet the needs of identified customer groups and are targeted accordingly.

The company will need to have a record of how it identified the needs of the target market.

The company needs to show how it determines that the product is appropriate for the needs of the target market.

This will include the value for money proposition for the clients. With a savings product the level of fees is an important determinant of the overall value for money. Should consider whether there is a minimum level of investment where fees are not excessive compared to benefits – especially where there are fixed fees.

The income level of the target market should be considered.

In identifying the target market for a smoothed bonus investment, need to consider the age of the policyholder and the term of the policy too. Is it appropriate to sell this type of investment for a retirement annuity product that has 30 years to run, given that the guaranteed fees make it more expensive than a comparative market-linked policy?

It is also important to consider the financial understanding/comprehension of the policyholders that are being targeted. The company will want to be confident that it can explain the advantages and disadvantages of the smooth bonus product, and that requires some financial know-how on the part of the policyholders.

The company should be prepared to provide evidence of its research into customers' needs for these products, and the segmentation of the customers.

Outcome 3

Outcome 3 is that Customers are given clear information and are kept appropriately informed before, during and after the time of contracting.

Client-facing documentation plays a crucial role in Outcome 3.

The Principles and Practices of Financial Management (PPFM) documents are an important part of explaining how the products work, and in particular how discretionary participation funds are managed by the company.

However, the PPFM documents are neither a comprehensive explanation of the management of the discretionary participation business nor of every matter that may affect a particular policy contract, and should be supplemented by additional information to the customers.

The information that customers are given includes marketing material, descriptions on the company's website, the policy contract and communication from the sales force.

Documentation, and the policy contract, should be in clear, easy to understand language.

Such documentation should explain clearly how bonuses are determined.

Sales staff need to be carefully trained to be able to explain the product to customers.

For smoothed bonus products it is also important that termination conditions are clearly explained. The circumstances under which a 'market value adjustment' is applied to a surrender/early termination value should be clearly set out.

Even though Product A is no longer sold, clear information about how the product works should still be available.

For Product A the circumstances under which the non-vested bonus account might be reduced or removed should be documented clearly.

Customers should receive regular statements about the status of their product, including the bonuses that have been added.

Changes to the products, for instance, in how bonuses are calculated should be communicated clearly and timeously.

Outcome 4

Outcome 4 is that where customers receive advice, the advice is suitable and takes account of their circumstances.

The advice that customers receive has two elements:

- the choice of a savings product.
- the choice to use a smooth bonus investment portfolio in that product.

Both elements require that the needs and circumstances of the customer are considered.

To show its compliance with this outcome, the company (or its representatives) should keep a record of the advice given to customers, as well as the information that was collected about the customer to determine that the advice was appropriate.

The choice of distribution channel becomes important here. Smooth bonus products are more complex investment products and therefore require sales agents who are well trained to sell them.

Outcome 5

Outcome 5 is that customers are provided with products that perform as firms have led them to expect, and the associated service is both of an acceptable standard and what they have been led to expect.

For smooth bonus investment products, the main risk that products do not perform as expected is that the investment returns on the underlying portfolios are lower than expected.

There is a risk that investment return is not as expected if the underlying asset composition differs to what was illustrated in the product literature.

The company should try to manage expectations on an ongoing basis.

For instance, if the economy moves to a lower inflationary environment, then nominal returns (and therefore bonus rates) can be expected to reduce. Customers may, however, expect the higher bonus rates to continue unless the product literature and regular communication has explained the relationship between actual returns and bonuses.

The management of smooth bonus investment products faces its biggest challenges during times of market stress. In such circumstances, the level of customer complaints and queries about the application of market value adjusters (or in the case of Product A, the removal of non-vested bonuses) would be a good indication of how effective the ongoing management of expectations has been.

A high number of complaints would indicate that the company needs to review its communication to customers.

Outcome 6

Outcome 6 is that customers do not face unreasonable post-sale barriers to change products, switch provider, submit a claim, or make a complaint.

The company should make it clear to where complaints can be directed, e.g., with contact information in the policy contract and the website.

The smoothed bonus products have been positioned as an investment option for policies. Customers should therefore be able to switch between different investment options without incurring large expenses.

The application of a market value adjuster when an investment is switched out of a smoothed bonus product is not an example of an expense, however.

The challenge to the company is to be able to show that its communication with clients and explanation of the workings of the product mean that the application of a market value adjuster is not an unreasonable barrier to a post-sale change.

General

The company should perform regular reviews of its TCF activities.

It should have a feedback loop that considers:

- target customer segmentation vs actual. If this differs then there is a risk that the product is being sold to the wrong market, which may not be appropriate.
- An assessment of complaints / queries received about the product which may indicate issues such as product literature, promotional material, the level of training of advisers/intermediaries, etc.

The administration fees are the same for both products. However, Product A has a capital charge of 0.6% p.a., whereas Product M has a capital charge of 0.9% p.a. (both a percent of market value).

Product A is the only company product still administered on an old administration system. The company is considering moving the Product A policies to the newer admin system and combining them with Product M to save costs. The proposal is that Product A policies will be transferred to Product M.

- **The transfer amount (at book value) will be seen as a single premium in Product M.**
- **Product A and Product M's assets will be combined.**
- **Bonus rules will be the same for as for Product M.**
- **Fees and charges will be the same as for Product M.**

ii. Discuss the factors that should be considered in such a conversion and suggest alternatives that could address some of the main issues that emerge.

Candidates handled this question reasonably well. Candidates that scored better were able to cover more factors as well as alternatives.

The company should refer to Product A's PPFM to ensure that any changes do not contravene them.

The company should also check the changes against the TCF outcomes.

Communication with clients is critical.

Clients will need to be informed that the bonuses will change to monthly, which is more frequent than the interim bonus changes of Product A. Some clients may be concerned about a perceived volatility.

The company should consider whether there are significant differences in the investment strategy and asset composition of the 2 products.

The degree of smoothing applied may also differ, which may lead to bonuses that are out of line with patterns that have been set in the past.

The fundamental change in the products is that Product M has a stronger guarantee and a higher guarantee charge than Product A.

The higher guarantee charge will mean that policyholders get a lower return all other things being equal, but in return they are guaranteed that the book value will not be decreased.

It is crucial that advisers are trained to explain the consequences of this change to client, or where the company communicates directly with clients, that documents sent to clients make the effects very clear.

Some clients may prefer the stronger guarantee to kick in, particularly if their policies are nearing the end of the term, where the extra guarantee charge will only apply for a short while.

However, some clients may object to an extra guarantee charge.

That could make it difficult for the conversion to be said to comply with TCF principles.

The company should consider the implications on its capital requirements. After the conversion, the unvested portion of Product A will become fully vested. Offsetting this is a higher capital charge, but there may be an overall increase in SCR.

Similarly, the increased guaranteed amount might lead to an increase in the Investment Guarantee Reserve (IGR), which can have profit implications.

The company will need to consider the equity between the 2 sets of policyholders, and to avoid cross subsidies between the 2 groups.

The main factor to consider is the relative funding levels of the 2 products at the time of conversion.

If the funding levels are very close, then there will be no cross-subsidies between the groups.

If one product's funding level is significantly higher than the other, then combining the products will result in the higher funding level policyholders subsidising the other group.

If Product A has the higher funding level, then a 'conversion bonus' could be applied to equalise the funding levels.

This could, however, further increase capital requirements and IGR as it will increase the guaranteed values.

If Product A has a significantly lower funding level than Product M, then it may be difficult to justify the merger/conversion.

It may still be possible to convert Product A to the new admin system, but to keep a separate pool for these policyholders, if the administration system can handle that.

An alternative that would address the funding level equity and guarantee charge issues would be to convert the policies to the new admin system but to maintain the vested/non-vested bonuses along with the lower guarantee charge.

This would depend on the capabilities of the new admin system.

There will be extra expenses to this solution, but it may still be cheaper than the costs of maintaining a completely separate admin system.

This would alleviate the potential increase in capital requirements and IGR.

QUESTION 3

A South African life insurance company sells annually renewable Group Life Assurance business. In previous years it had set up discretionary reserves. Interest on these reserves was released to profit each year. Over last year the company experienced a very high level of claims due to the COVID-19 pandemic. It released the discretionary reserves at the end of the year.

Discuss the effect the high claims and reserve release will have on profits, the Solvency Capital Requirement (SCR) cover and Embedded Value at the end of the year.

This question was well handled by most candidates. Too many candidates misread the question and discussed the SCR instead of SCR cover. SCR plays a part but candidates then missed the marks for commenting on how the cover ratio would be impacted.

The release of reserves (decrease in policyholder liabilities) increases profits for the year, whereas the high claims reduce the profit.

Since the reserves were released at the end of the year, the interest on the reserves will still be included in that year's profits.

However, future years' profits will be comparatively lower without this interest component.

$$\text{SCR cover} = \text{Own Funds} / \text{SCR}$$

The Own Funds on the regulatory basis are equal to the Excess of assets over liabilities less regulatory adjustments.

On the regulatory basis, the policyholder liabilities do not include the discretionary reserves.

Therefore, on the regulatory basis the Own Funds will reduce because the assets decrease following the release of the discretionary reserves but the regulatory policyholder liabilities do not.

If the high claims were to the extent that claims and expenses exceeded premiums received then Own Funds would have reduced further.

Higher IBNRs may be held due to concerns about unreported COVID-19 claims, which would further reduce the Own Funds.

The effect on SCR would depend on the SCR calculation methodology. With one-year contracts a simplified approach may have been adopted in which no Life Risk is calculated, so there may be no change in SCR.

But if liabilities were projected and the higher claims had resulted in a higher long-term mortality assumption being used, then all else being equal, the Life SCR (and total SCR) would increase.

However, the decrease in Own Funds would be enough to lead to a decrease in SCR cover.

Embedded value = Value of In-Force business (VIF) minus Cost of Required Capital (CoRC) plus Adjusted Net Worth (ANW).

The VIF will be calculated using best estimate assumptions. If assumptions about future mortality are increased due to the higher claims experienced, then the VIF will decrease.

However, it may be decided to exclude the COVID-19 experience years from the assumption setting process and keep the assumptions unchanged, in which case there will be no VIF effect.

A second order effect is that the high claims may mean that the number of lives covered by the business has decreased. This will depend on to what extent companies have replaced employees who passed away. Cover amounts may be lower because replacements have come in at a lower salary level. Generally lower payrolls mean lower contributions (cover and premiums are usually a % of salary), which would mean a lower VIF.

The VIF will decrease because it no longer includes the interest element from the discretionary reserves.

The reduction in discretionary reserves may lead to an increase in the Required Capital the company calculates it needs to meet certain objectives (e.g., maintaining an SCR cover above a certain level). This would lead to an increase in the CoRC, and a decrease in EV.

Adjusted net worth would have been decreased by the claims and increased by the reduction in liabilities due to the discretionary reserve releases.

Net effect depends on the relative size of these two items, but given that the company released all the discretionary reserves, it is likely that the claims were even higher than that, and so the ANW would be reduced.

QUESTION 4

A South African life insurance company has been selling unit-linked business and without profits annuities for a number of years.

The capital requirements from the solvency capital requirement stresses are shown below as well as the combined scenario results after allowing for the correlation between risks.

Table A:

	Capital required (R'm)
<u>Individual stresses</u>	
Equity	100
Property	25
Spread and default	20
Longevity	35
Mortality	30
Lapse risk	20
Expenses	10
Sum of individual stresses	240
Market risk	110
Insurance risk	80
BSCR	151

The correlation matrix used for the market risk components is set out below.

Table B:

<u>Market risk correlation</u>	Equity risk	Property risk	Spread and default risk
Equity risk	100%	75%	75%
Property risk	75%	100%	50%
Spread and default risk	75%	50%	100%

The correlation matrix used for life underwriting risk components is set out below.

Table C:

<u>Life risk correlation</u>	Longevity risk	Mortality risk	Lapse risk	Expense risk
Longevity risk	100%	?	25%	25%
Mortality risk	?	100%	0%	25%
Lapse risk	25%	0%	100%	?
Expense risk	25%	25%	?	100%

The correlation matrix between market risk and life underwriting risk is set out below.
Table D:

	Market risk	Life underwriting risk
Market risk	100%	25%
Life underwriting risk	25%	100%

A new Board member has commented that “surely combining all the stresses together will result in more, not less, capital required than the sum of the individual stresses, as we are at greater risk from everything bad happening at once”.

i. Set out the points that you would raise in response to this comment.

There was a broad range of marks for this question. Candidates either understood the principle fully or only had a vague understanding. Question 4 in general was testing candidates’ understanding of risks that impact life insurance and how they interact, i.e. are the correlated or not, and if so is it a positive or negative correlation.

We are required by the Prudential Authority to determine the capital required to meet the 99.5% one-year survival probability from all the stresses combined.

The overall BSCR is not the sum of all the individual 99.5% risks as this would result in an event with a different probability than 99.5%.

This is mainly because it is very unlikely that every individual “1-in-200 year” adverse event will happen at the same time.

The overall probability of all these events happening simultaneously would be much lower than 0.5%, and so would give a much higher survival confidence level than 99.5%, and thus would require the company to hold what would be considered an unnecessarily high amount of capital.

However, acting against this, we do know that when some stresses occur they are highly likely to lead to other stresses, which is known as the stresses being correlated.

Some stresses will be highly correlated, for example the equity shock with other market stresses, whilst other stresses will have minimal, or zero, or negative correlations, such as longevity and mortality. Such stresses are well diversified.

We consider the correlations between all the stresses when we determine the combined scenario which will result in a 99.5% one-year survival probability overall.

Adding up all the individual stresses assumes that they are fully correlated. But this is not the case in reality, so the use of the correlation matrix allows for there being only partial (or no) correlation between some risks, and hence allows for diversification.

However, it is correct that when certain stresses are combined, they may result in more capital being required. This is due to non-linearity, and non-separability of some events, i.e., interaction between the risks.

However, it is also the case that the interaction may result in lower capital being required.

For example, a persistency stress (higher lapses) combined with an expenses stress may result in a lower combined capital requirement than the sum of the two, since the persistency stress could dampen the impact of the expenses stress.

Overall, it is unlikely that any non-linearity increase in capital will outweigh the diversification benefit. Therefore, combining the stresses will result in less capital required.

ii. Explain the rationale for the following correlation assumptions from Table B and Table C:

- **Equity and property risk**
- **Lapse and non-annuitant mortality risk**

Candidates handled this question well.

Equity and property risk

The positive correlation means that there is assumed to be a connection between equity risk (the risk of equity market falls) and property risk (the risk of property market falls).

The fact that the correlation is as high as 75% indicates that there is a high correlation between the equity and property because when equity stresses occur, they are highly likely to lead to other market stresses occurring as can be observed from historical trends.

Lapse and non-annuitant mortality risk

The company is assuming that the stresses are completely independent, which is reasonable as an increase in lapses does not have a direct impact on future mortality assumptions for most types of business.

There can be a selective withdrawal effect on mortality for some protection products, but this is unlikely for unit-linked business which the business sells.

iii. Suggest, with reasons, appropriate correlations between the main risks listed below from Table C. You only need to indicate the direction of each correlation and a qualitative description of the magnitude.

- **Lapse and expense risk**
- **Longevity and non-annuitant mortality risk**

Candidates didn't handle this part as well as part ii. Many candidates only commented on a change in expenses not necessarily impacting lapses and also missed the point around longevity and mortality risk at an insurer not necessarily being linked (same pool of lives).

Lapse and expense risk

One potential view is that an increase in the number of transfers or higher lapses reduces the number of policies in-force which increases the per policy expenses to the extent that the modelled per policy expenses reflect fixed costs.

Also, at the extreme, increased transfers may require additional processing resource and so increase expenses. Therefore, a small positive correlation between expenses and lapses would not be unreasonable.

However, the SAM prescribed correlations are 0% which is equally justifiable since an increase in expenses does not necessarily have a direct impact on future lapses, or even if they did it not a strong enough impact to justify a 25% correlation.

Longevity and non-annuitant mortality risk

Since longevity is expected to worsen (annuitants are less likely to live longer) at the same time as there is an increase in mortality rates, the correlation between longevity and mortality should be a negative correlation.

This makes sense if there is a cross-over between the population of lives, i.e. the same lives who are exposed to the mortality stress shock are also exposed to the longevity shock. Or, if the reason for the mortality shock will impact all lives, for example due to an epidemic.

However, the two sets of lives are generally not linked and so a mortality shock is unlikely to fully impact longevity assumptions, since the non-annuitant lives are likely to be mainly younger policyholders who are saving prior to retirement.

Therefore, a slightly negative correlation is not unreasonable.

The new Board member has also questioned the rationale behind the market and life underwriting correlation assumption in Table D. At his previous company (which only sells unitised with profits business with the predominant life underwriting risk being lapse risk), a justification was made that lapse rates reduced when equity markets fell.

iv. Explain why

- (a) The standard formula uses Table D to quantify this correlation.**
- (b) The new director's previous company may have been able to justify lapse rates reducing when equity markets fall.**
- (c) They may have been able to depart from the standard formula.**

There was a broad range of marks for this question. Candidates that scored well understood the dynamics of the products when markets fall and when this would lead to higher / lower lapses.

(a) The correlation in Table D indicates that when markets fall, policyholders are more likely to lapse business. Falling markets usually signal or are a consequence of economic downturn. In such circumstances individuals are more likely to need to draw on their savings and surrender policies.

(b) When equity markets fall a Market Value Reduction/Adjustors is often applied to unitised with profits business to reduce the value of the policy close to its asset share in order to protect the remaining policyholders.

Policyholders view this as a reduction in the value of their policy and therefore often choose not to surrender when MVR/MVAs are applying, thus reducing lapse rates.

They instead may be more inclined to continue their policies until the date, at which point a guarantee will apply and no MVA can be used, e.g. MVA free date or maturity.

Since they only sell unitised with profits business, the market risk and life underwriting risk (which is mainly driven by lapse risk) are negatively correlated as described above.

(c) The Board members previous company might have been allowed to use a negative correlation because it uses an internal model or partial internal model and has therefore been through detailed approval of the assumptions with the Regulator.

END OF EXAMINERS REPORT