RESERVE BANK

OF NEW ZEALAND

TE PŪTEA MATUA

Solvency Standard for Variable Annuity Business 2015

Prudential Supervision Department

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1. Introduction

1.1. Authority

1. This **solvency standard** is made under section 55 of the Insurance (Prudential Supervision) Act 2010 (the Act).

1.2. Previous Versions

2. There are no previous versions of this **solvency standard**. This **solvency standard** was last consulted on in 2015.

1.3. Commencement

3. This **solvency standard** comes into force on 10 April 2015.

1.4. Application

4. This **solvency standard** applies to any **life insurer** that is required by a **condition** of **licence** to maintain a Solvency Margin in respect of its Variable Annuity business in accordance with this **solvency standard.**[1]

5. Subject to paragraph 6, to the extent that a **licensed insurer** subject to this **solvency standard** carries on Variable Annuity business, all of the provisions of this **solvency standard** will apply to that **licensed insurer** in respect of its Variable Annuity business, consistent with the **licensed insurer's conditions** of **licence**.

6. To the extent that a **licensed insurer** subject to this **solvency standard** carries on business that is not Variable Annuity business, that business will not be subject to the requirements of this **solvency standard**.

7. Where a **licensed insurer** is required to maintain a Solvency Margin under its **conditions** of **licence** in respect of more than one **solvency standard**, and**/**or is required to calculate and report solvency under more than one **solvency standard**, the calculations and reporting must be done separately in respect of the business subject to each **solvency standard**.

1.5. Definitions

8. The following definitions apply within this **solvency standard**:

   Capital Charge for Variable Annuities: is the amount determined under paragraph 13.

[1] Appendix A of this **solvency standard** contains background information on the Reserve Bank's approach to **conditions** of **licence** for **licensed insurers** that carry on or intend to carry on Variable Annuity business.

Variable Annuity: is a **life policy** with unit linked or managed fund investment characteristics and optional benefits for the policyholder. The benefits are calculated by reference to the value of the units allocated to the policy, but the benefits may exceed the value of those units in specified circumstances.

VA Strategy: is the Variable Annuity Risk Management Strategy required to be established and maintained in accordance with the **licensed insurer's conditions** of **licence**.

2. Requirements

9. This **solvency standard** incorporates the Solvency Standard for Life Insurance Business 2014 and all subsequent amendments to that **solvency standard** except that:

    (a) paragraphs 4 to 8 of the Solvency Standard for Life Insurance Business 2014 are replaced by paragraphs 4 to 7 of this **solvency standard**; and

    (b) the Solvency Standard for Life Insurance Business 2014 is modified in respect of the Variable Annuity business to the extent provided in this **solvency standard**.

Solvency Requirements for Variable Annuities

10. For the Variable Annuity business, the methodology set out in this **solvency standard** replaces the methodology set out in the Solvency Standard for Life Insurance Business 2014 in respect of the Insurance Risk Capital Charge and the Asset Risk Capital Charge. The results of the methodology in this **solvency standard** replace the Insurance Risk Capital Charge and the Asset Risk Capital Charge with the Capital Charge for Variable Annuities.

11. In respect of the Variable Annuity business, the Total Solvency Requirement set out in paragraph 35 of the Solvency Standard for Life Insurance Business 2014 is replaced as follows.

12. The Total Solvency Requirement for a **statutory fund** containing Variable Annuity business is the sum of the following:

    (a) Capital Charge for Variable Annuities;

    (b) Other Liabilities of the **statutory fund**;

    (c) Catastrophe Risk Capital Charge;

    (d) Reinsurance Recovery Risk Capital Charge; and

    (e) Repayable Amount Adjustment.

13. The Capital Charge for Variable Annuities must be calculated, subject to the requirements set out below (paragraphs 14 to 23), as follows:

Capital Charge for Variable Annuities= w*KDH + (1-w)* K

where

(a) KDH is the capital requirement for Variable Annuity insurance and asset risks with the effects of dynamic hedging included;

(b) K is the capital requirement for Variable Annuity insurance and asset risks without the effects of dynamic hedging included. Hedge positions in place at the valuation date may be reflected as per the Solvency Standard for Life Insurance Business 2014; and

(c) w is the factor weight. It is determined by the Reserve Bank and set within the **licensed insurer's conditions** of **licence**. The factor weight w:

i. will not exceed 0.7 or be less than 0;

ii. for a **licensed insurer** that has not been issuing Variable Annuity policies in the New Zealand market for at least two years, will not exceed 0.3; and

iii. where no dynamic hedging is undertaken will be 0.

Capital Charge for Variable Annuities

14. When calculating the Capital Charge for Variable Annuities the **licensed insurer** must consider the assets and liabilities simultaneously.

15. Variable Annuities require sophisticated modelling of the assets and liabilities and special risk management techniques. The modelling:

(a) may be done using stochastic methods, scenario based analysis or a combination of the two;

(b) must produce a more conservative capital outcome than that based on Best Estimate Assumptions;

(c) must be based on sufficiently prudent assumptions. Additional prudence must be used for any model deficiencies or residual risks not fully mitigated as part of the **licensed insurer's** VA Strategy; and

(d) must be appropriately documented and validated on a regular basis.

16. In calculating the Capital Charge for Variable Annuities, the **licensed insurer** may replace the Prescribed Solvency Assumptions with its own assumptions. Where the **licensed insurer** opts to do this, any assumptions made must be sufficiently prudent. The level of prudence chosen by the **licensed insurer** must be fully explained within the VA Strategy. The Prescribed Solvency Assumptions and the capital charges in respect of asset risks in section 3.3 of the Solvency Standard for Life Insurance

Business 2014 and in relevant international standards may serve as useful reference points for the degree of prudence required. The level of prudence to be adopted, relates to the adequacy of Minimum Solvency Capital and must be at least commensurate with a value at risk (VaR) level of 99.5 percent probability of sufficiency over a 1 year time horizon. Where necessary, a more conservative calibration should be adopted e.g. where there is a lack of data or a high degree of uncertainty.

17. The economic scenarios underpinning the modelling must reflect adverse market outcomes. This may be achieved by considering appropriate and relevant real market data from periods that have experienced unusual significant market stress or by adding stress factors to real market data. The modelling of economic outcomes must be documented in a clear and transparent way.

18. The Minimum Solvency Capital calculation based on the modelling of the assets and liabilities must produce a sufficiently conservative outcome. While risk mitigation methods such as **reinsurance** may be taken into account, any risks these methods introduce must be reflected in the Total Solvency Requirement.

19. In assessing the Capital Charge for Variable Annuities the risks identified within the Insurance Risk Capital Charge and the Asset Risk Capital Charge within the Solvency Standard for Life Insurance Business 2014 should be considered and relevant principles applied. For example, and without limitation, the following principles and requirements of the Solvency Standard for Life Insurance Business 2014 apply:

    (a) the asset and liability management principles set out in paragraph 58;

    (b) the requirements of paragraph 3 of Appendix C in respect to the recognition of guarantees. Where a guarantee is recognised, the guarantor may be considered the counterparty to the asset and the provisions of paragraphs 2 – 9 of Appendix C apply to the extent applicable; and

    (c) relevant provisions of section 4, Discretions and Taxation.

20. The Capital Charge for Variable Annuities must not be less than the Current Termination Value.

Reinsurance

21. The benefits of a **reinsurance** agreement may not be used to reduce the Capital Charge for Variable Annuities or be used to reduce any Current Termination Value if any of 41(b) i to iv of the Solvency Standard for Life Insurance Business 2014 apply.

22. Paragraph 40 and 42 of the Solvency Standard for Life Insurance Business 2014 apply.

23. In determining the Repayable Amount Adjustment of paragraph 12(e) of this **solvency standard**, paragraph 44 of the Solvency Standard for Life Insurance Business 2014 must be applied.

<u>Standard Ends</u>

Appendix A: Prerequisites to the application of this standard and related conditions of licence

A1. This Appendix provides additional information on the Reserve Bank's approach to the application of its policies in respect of Variable Annuity (VA) business. The information in this Appendix is provided for information only and is intended to assist with placing the Solvency Standard for Variable Annuity Business 2015 in context.

A2. This Appendix does not form part of the Solvency Standard for Variable Annuity Business 2015.

Carrying on Variable Annuity business

A3. All **licensed life insurers** will have a **condition** imposed on them requiring the **licensed insurer** to notify the Reserve Bank if it intends to carry on VA business and to obtain the Reserve Bank's approval to commence VA business (the notification condition).

Applicants for a licence or a licensed insurer proposing to commence new VA business after notification condition is imposed

A4. An applicant for a **licence** or a **licensed insurer** that intends to carry on VA business must notify the Reserve Bank and obtain the Reserve Bank's approval before commencing to carry on such business.

A5. The Reserve Bank will allow the **licensed insurer** to commence carrying on VA business, if it is satisfied the following criteria are met:

(a) the VA policies must be referable to a **statutory fund** that is separate from a **licensed insurer's** other **life insurance** business;

(b) the **licensed insurer** or applicant must have established and be able to maintain a Variable Annuity Risk Management Strategy (VA Strategy) approved by its **governing body** that complies with the requirements set out in paragraphs A9 to A17 below;

(c) the **licensed insurer** or applicant must have engaged an independent actuary to prepare a report in accordance with paragraphs A18 to A26 below; and

(d) the Reserve Bank must be satisfied with the **licensed insurer's** or applicant's ability to comply with the Solvency Standard for Variable Annuity Business 2015 having had regard to the VA Strategy, the report of the independent actuary and any other matters the Reserve Bank considers relevant.

A6. A **licensed insurer** that is approved to commence carrying on Variable Annuity business will be subject to **conditions** of **licence** that require the **licensed insurer** to:

(a) maintain a separate **statutory fund** to which only the VA business is referable;

(b) maintain a Solvency Margin in respect of the **statutory fund** to which the VA business is referable in accordance with the Solvency Standard for Variable Annuity Business 2015;

(c) apply a specified value of the factor weight w (as referred to in paragraph 13 of the Solvency Standard for Variable Annuity Business 2015); and

(d) comply with ongoing requirements in respect of the VA Strategy (see A9 to A17 below) and independent actuary's reports (see A18 to A26 below).

Licensed insurer currently carrying on VA business at the time the notification condition is imposed

A7. Where a **licensed insurer** considers it may already be carrying on VA business, the **licensed insurer** must notify the Reserve Bank as required under the notification condition.

A8. The **licensed insurer** does not require the Reserve Bank's approval to carry on such business. The Reserve Bank will consider, after having regard to:

(a) the nature of the notified business;

(b) the materiality of the notified business to the **licensed insurer**; and

(c) the appropriateness and suitability of the **licensed insurer's** approach to the determination of capital requirements in respect of the notified business

whether **conditions** of **licence** requiring the **licensed insurer** to fulfil the matters outlined in paragraphs A5 and applying the Solvency Standard for VA Business 2015, will be imposed.

Variable Annuity Risk Management Strategy

A9. The following paragraphs set out the requirements in respect of a VA Strategy.

A10. The VA Strategy must be approved by the **licensed insurer's** or applicant's **governing body**.

A11. The VA Strategy must:

(a) identify the main risks associated with the VA business, both at present and in a forward-looking manner, including those resulting from adverse market conditions, insurance and policyholder behavioural developments;

(b) provide a detailed analysis of the main market, insurance and behavioural risks, and the risk management solutions adopted for dealing with those risks; and

(c) provide a detailed analysis of any residual risks and explain the appropriate level of conservatism adopted to manage those risks. Wherever there is uncertainty, a more prudent approach to the management of the risks and associated capital requirements must be taken.

A12. At a minimum the VA Strategy must include:

(a) an overview of the VA business;

(b) a risk target / risk appetite statement;

(c) operational delegations;

(d) a description of the identified risks;

(e) a description of the risk management method or tools used, including the quality and extent of any **reinsurance** arrangements;

(f) an in-depth analysis of the current risk position and forward-looking analysis of potential developments covering insurance, market and behavioural risks;

(g) a description of the methodology used for modelling the assets and liabilities;

(h) a description of any models used including each model's supplier, version, development background and support and back up arrangements;

(i) an analysis of model parameter estimation;

(j) an analysis of behavioural risks including lapse rates, basis risk, liquidity risk, any non-hedged risks, operational risk, legal risk, credit risk, longevity risk including mortality improvement rates, and any hedging imperfections;

(k) an assessment of the impact on income from fees and charges from adverse economic conditions;

(l) an explanation of any additional prudential measures taken to compensate for remaining risks, non-hedged risks, periods of unusual market stress or any other reasons;

(m) an analysis of any other relevant risks and issues; and

(n) an explanation of risk monitoring arrangements and their effectiveness.

Hedging Programme

A13. If dynamic hedging or any other form of forward-looking hedging is used for risk management, the VA Strategy must include a detailed written hedging programme.

A14. The hedging programme must set out but is not limited to:

(a) a description of the dynamic hedging arrangements, including operational aspects, responsibilities and governance structures in respect of the hedging programme and its effectiveness;

(b) the frequency of rebalancing and trigger thresholds;

(c) the market risks to be hedged, including hedging parameters;[2]

(d) an explanation of the financial instruments to be used in the hedging;

(e) a description of the models used including supplier, version, development background and support and back up arrangements;

(f) an analysis of model parameter estimation;

(g) an analysis of behavioural risks including lapse rates, basis risk, liquidity risk; any non-hedged risks; operational risk; legal risk; credit risk; longevity risk and any hedging imperfections;

(h) an analysis and explanation of the ability to hedge positions in the future and how to cope with periods of illiquidity in markets;

(i) an analysis and description of the effectiveness of the hedging and monitoring arrangements;

(j) an extensive discussion and analysis of economic scenarios used for the forward-projections;

(k) where appropriate, a detailed explanation of the choice of distributions and value at risk (VaR) or conditional tail expectation;

(l) an assessment of the impact on income from fees and charges from adverse economic conditions;

(m) an explanation of any additional prudential measures taken to compensate for remaining risks, non-hedged risks, periods of unusual market stress or any other reasons; and

(n) an analysis of any other relevant risks and issues.

[2] e.g description of the first, second or higher level “Greeks” that are considered within the hedging programme.

A15. The VA Strategy must be updated as required to ensure it accurately reflects the **licensed insurer's** risk management practices in respect of the VA portfolio and as needed to ensure the independent actuary's report can be appropriately updated.

A16. A copy of any updated VA Strategy must be provided to the Reserve Bank prior to the implementation of its revised provisions.

A17. The VA Strategy forms part of the Risk Management Programme required under section 73 of the Act. The VA Strategy must be separately documented from the remainder of the Risk Management Programme.

Insurer to engage an independent actuary

A18. The following paragraphs set out the requirements in respect of engaging an independent actuary and of the independent actuary's reports.

A19. Before engaging an independent actuary (or changing the independent actuary), the **licensed insurer** or applicant must obtain a notice of 'no objection' from the Reserve Bank in respect of the proposed engagement.

A20. For the purpose of this requirement, an independent actuary is an actuary who is not the **licensed insurer's appointed actuary** (or applicant's proposed **appointed actuary**). The independent actuary must not be involved in any activities related to the **licensed insurer's** or applicant's existing or proposed business, nor any risk management or hedging activities, including any operational aspects. An actuary employed by the **licensed insurer's** or applicant's audit firm may be acceptable provided he or she is not directly involved in the firm's role as auditor of the **licensed insurer** or applicant. The independent actuary must satisfy the Reserve Bank that they have relevant expertise. Suitable familiarity with VA business or similar products and their management including the required capital modelling would be expected.

Independent actuary's reports

A21. The independent actuary is to provide a report that:

(a) contains a detailed analysis of the modelling of the Capital Charge for Variable Annuities;

(b) contains a detailed analysis of the VA Strategy, including any hedging programme;

(c) proposes a factor weight w required in the calculation of the Capital Charge for Variable Annuities (paragraph 13 of the Solvency Standard for Variable Annuities);

(d) assesses and comments on the economic scenarios and their assumptions and the degree of conservatism assumed in those scenarios and elsewhere in the VA Strategy;

(e) assesses the appropriateness of any chosen distributions and prudential calibrations;

(f) considers whether the capital outcome is sufficiently prudent;

(g) considers the quality of any **reinsurance** programme in place in respect of the VA portfolio, including the impact on the assessed level of capital required; and

(h) considers any other matters the independent actuary deems relevant to the financial management and capital requirements for the VA portfolio.

A22. The independent actuary must take into account any relevant risks, including any business or financial risks associated with the VA business, regardless of whether the **licensed insurer** or applicant has included them in the VA Strategy or not.

A23. In arriving at a proposed factor weight (see paragraph A 21(c)), the independent actuary must consider and explain the level of prudence reflected in the modelling and the hedging programme. Any unhedged risks must be analysed and the potential impact on the **licensed insurer's**, or applicant's projected, Solvency Margin must be quantified. In general, the less prudent the modelling and the hedging, the lower the value w should take.

A24. The factor weight to be applied when calculating the Capital Charge for Variable Annuities will be set by the Reserve Bank by **condition** of **licence**.

A25. The independent actuary's report must be prepared:

(a) prior to the launch of a VA product;

(b) at least every three years; and

(c) on the occurrence of any material changes to:

i. the **licensed insurer's** VA Strategy;
ii. the modelling of the VA business or capital requirements including the models used or any providers involved in the modelling of the assets or liabilities;
iii. the risk profile of the portfolio of VA business; and
iv. any other relevant factors in respect of the management and capital requirements of the VA portfolio; or

(d) at the request of the Reserve Bank.

A26. The independent actuary's report and any update to the report must be submitted to the **licensed insurer** or applicant and the Reserve Bank.

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