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Monitoring Insurer Solvency.

Adrian Allott

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Reserve Bank of New Zealand
PO Box 2498
Wellington
NEW ZEALAND

www.rbnz.govt.nz

Contents

Glossary

Companies Act	Companies Act 1993
IFRS	International Financial Reporting Standards
ISS	Interim Solvency Standard 2023
LAGIC	Life and General Insurance Capital (Australia's solvency framework)
MCR	Minimum Capital Requirement
NZ GAAP	New Zealand Generally Accepted Accounting Principles
NZ IFRS 4	The outgoing accounting standard for insurance contracts
NZ IFRS 9	The accounting standard for financial instruments
NZ IFRS 17	The incoming accounting standard for insurance contracts
PCR	Prescribed Capital Requirement
Reserve Bank	Reserve Bank of New Zealand
Solvency II	The European Union's regulatory framework governing insurance capital

Note to readers

This article has been written to inform people working in and around the New Zealand insurance industry – boards, management, consultants, rating agencies etc. - about the movements they can expect to see in insurer solvency measures as a result of changes to accounting and solvency standards. While non-technical in nature, the article does presuppose a general understanding of the insurance sector and insurer balance sheets.

This article has no legal force. Should an inconsistency arise between this article and the ISS, the provisions of the ISS prevail as it is a legislative instrument.

We recognise the contribution of a former employee of the Reserve Bank, Amar Patel, to this article.

Summary

This paper explains why we need solvency measures for insurers, what those measures are, how the new ISS is changing them and how the new measures should be interpreted.

Insurers are required to have capital in excess of their liabilities so they will be able to pay claims to customers - even in adverse circumstances. Regulators such as the Reserve Bank establish this capital requirement in proportion to the risks the insurer faces.

Stakeholders have an interest in monitoring the financial strength of their insurer to, among other things, assess the likelihood that it will meet its obligations to customers.

The ISS values solvency capital on an economic basis, as opposed to the more conservative hybrid basis used by our current solvency standards. The PCR is determined by modelling a set of stresses on the insurer, and subtracting the economic value of assets and liabilities from their stressed value. The solvency margin is the amount of solvency capital that would remain after the stress, and the solvency ratio is the solvency capital divided by the PCR.

Due to the introduction of the ISS, solvency margins are expected to generally decrease as the operational risk charge is phased in. Solvency ratios are also expected to drop due to the move to economic value basis. There will also be idiosyncratic effects dependent on insurers' business and risk profiles. Solvency margins and ratios under the ISS are not directly comparable to those under pre-existing solvency standards.

While margins and ratios will change, there is no change in the financial strength of insurers, just in the way the ISS expresses that financial strength.

At a high-level, solvency ratios can be interpreted as follows:

Solvency ratio	< 0%	0% < ratio < 100%	100% < ratio < target	Ratio > target
Insurer status	In wind-up	In distress; possibly in wind-up	Needing capital	Dividend-paying or re-investing

Care needs to be taken in considering solvency ratios, however, as companies with similar ratios can have quite different outlooks due (non-exclusively) to their capital model, balance sheet structure, profitability, business model and stage of maturity.

Readers should also note that the ISS is interim in nature. The Reserve Bank is about to commence stage 2 of its review of the solvency standards. This is a deep-dive into the methods and parameters used in the standard and will result in a 'final' standard, to be issued in a few years from now. At this time, further change in solvency measures can be expected.

Introduction

Insurers have obligations to policyholders to pay claims and benefits on the occurrence of insured events. Insurance can play a critical role in both financial stability (for example, allowing businesses to get back on their feet after a natural catastrophe) and in personal well-being (for example, providing for a family in the event of the death of their main income-earner). For these reasons, most jurisdictions around the world take the view that insurers should be able to meet their obligations to customers in all but the most extreme circumstances.

One of the key ways jurisdictions meet this objective is to require insurers to maintain a certain minimum level of capital, so that they are able to absorb most risk events without jeopardising pay-outs to customers. These minimum levels of capital are set out in the recently issued ISS, and can also be found in overseas solvency regimes such as LAGIC and Solvency II.

The ISS was introduced to give New Zealand a clearer and more consistent solvency regime, and to address the introduction of NZ IFRS 17. It is an interim standard as it does not address all of the shortcomings of the current regime. A final standard is expected to be issued following further consultation.

Relative to pre-existing solvency standards, measures used in the ISS can be quite different, so it is the purpose of this article to explain:

- Why we need solvency measures;
- What those measures are;
- How they are changing; and
- How they can be interpreted.

The need for solvency information

What is solvency?

Under section 4(1) of the Companies Act, a company is solvent if

- the company is able to pay its debts as they become due; and
- the value of the company's assets is greater than the value of its liabilities.

While a company may be solvent under this definition today, there is no guarantee that it will be solvent tomorrow. For example, a slump in the market value of assets held could see the value of the company's assets falling below that of its liabilities, in turn meaning that it doesn't have sufficient funds to pay its obligations.

For this reason, most jurisdictions require the value of an insurer's assets to not just be greater than that of its liabilities, but to significantly exceed it.[1] As capital (or equity, net assets) is the excess of the value of assets over the value of liabilities, this requirement is normally expressed as a minimum amount of capital that must be held.

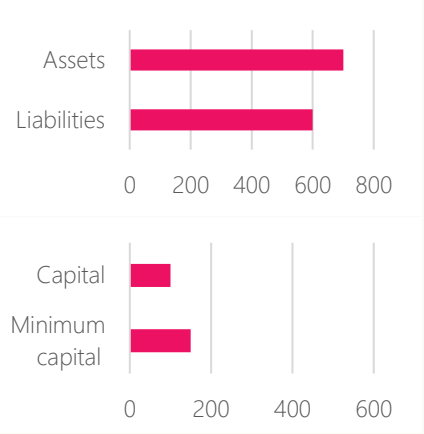
[1] The ISS requires assets to be sufficient to cover most risks in 199 out of 200 years.

Insurers are deemed to be solvent on this regulatory basis if their capital exceeds this minimum.

Example 1 – Companies Act solvency vs regulatory solvency

Insurer A holds assets of $700m and liabilities of $600m. As the assets are low risk and liquid, the insurer does not anticipate any immediate problems paying its debts as they fall due. As the value of its assets exceeds those of its liabilities, it is clear that Insurer A is solvent on the Companies Act basis.

However, Insurer A's regulator foresees a number of risk events that could befall the company over the coming year - potentially reducing the value of its assets or increasing its liabilities – and for this reason requires Insurer A to maintain a minimum capital amount of $150m. As Insurer A's capital is only $100m ($700m of assets less $600m of liabilities), it fails to meet regulatory solvency requirements.



Stakeholder information

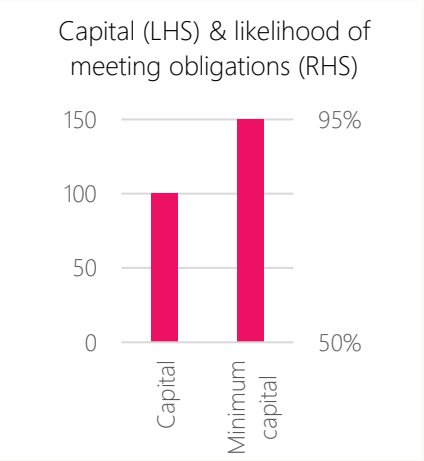
The stakeholders of an insurance company include its owners, its customers[2] and their beneficiaries, its management and staff, its suppliers and its supervisors. All of these groups have a vested interest in understanding the solvency of the company.

Reading an insurer's balance sheet will usually be sufficient to allow stakeholders to form a view on whether the company is solvent on the Companies Act basis. If the stakeholder also knows the minimum amount of capital that the regulator requires the insurer to hold, they can also form a view about whether the company is solvent on the regulatory basis. Furthermore, if the regulator – under a value-at-risk method - has stated the risk appetite used to determine the minimum capital[3], the stakeholder can make some limited deductions about the insurer's chances of becoming insolvent on the Companies Act basis in the near term.

Example 2 – Probability of failure

The regulator states that it has determined Insurer A's minimum capital as the amount required to ensure that the value of the insurer's assets after one year will be greater than the value of its liabilities with a likelihood of 95%.

Given that Insurer A's capital of $100m is less than the $150m (that equates to the 95% risk appetite), we can infer that the insurer's probability of being able to meet its obligations is somewhat less than 95%. However, because the insurer's assets are $100m greater in value than its liabilities, we can also infer that the likelihood of the insurer meeting its liabilities is greater than 50% (assuming that IFRS 'fair value' is a central estimate, that is, neither understated nor overstated[4]).



[2] Typically, holders of insurance policies.
[3] The regulator bases its minimum capital measure on a model of risks that may eventuate. Such models involve many limitations and may not present an accurate view of the future.
[4] IFRS liability values may in fact imply a higher probability of meeting obligations due to the presence of risk adjustments.

As well as being interested in the likelihood of an insurer failing to meet obligations to policyholders, stakeholders will also be interested in the *degree* of failure, for example, will the insurer be able to pay out 90% of obligations, or only 60%? In relation to banking we traditionally separate these two questions into a 'probability of default' and a deterministic 'loss given default'. Alternatively, we could think of solvency outcomes as forming a probability distribution, with some outcomes representing solvency breaches of varying degree.

Example 3 – IFRS capital outcome distributions

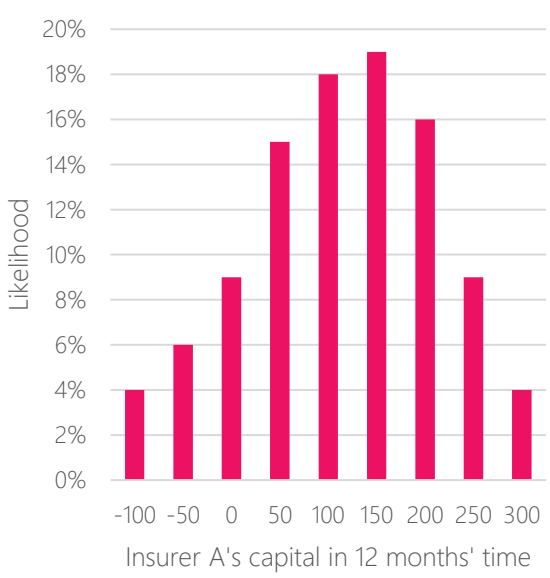
One year from now, Insurer A's business will have progressed and it may have become subject to certain risk events. Insurer A's model of potential futures reveals that there is a 4% chance of policyholders being out of pocket by $100m and a 6% chance of a $50m deficiency.

The probability of default (PD) is therefore 10%, while the expected loss given default (LGD) is

$$\frac{4\% \times 100 + 6\% \times 50}{4\% + 6\%} = \$70m$$

The expected loss to policyholders is then the PD multiplied by the LGD, or $7m.

Note that, as policyholders rank ahead of shareholders in a default, we assume that shareholders lose all their investment whenever policyholder obligations aren't fully met.



Solvency measures

Capital Measures

As noted above, capital is the excess of the value of assets over the value of liabilities. While that sounds straightforward, assets and liabilities can be valued on various bases[5], with resulting variability in the capital measure. Valuation bases relevant to solvency measurement include:

NZ GAAP – New Zealand Generally Accepted Accounting Practice: The primary source for NZ GAAP are the accounting standards issued by the External Reporting Board. As these standards generally follow IFRS (International Financial Reporting Standards), NZ GAAP is broadly equivalent to IFRS and incorporates some of the latter's key principles, such as only recognising profit when the underlying service has been performed. It is designed for 'general purpose reporting'[6].

[5] A valuation basis is a collection of assumptions about future economic and demographic conditions.
[6] https://xrb.govt.nz/standards/accounting-standards/for-profit-standards/standards-list/nz-ias-1/

Economic – A basis that measures assets and liabilities at fair value. An economic valuation includes some items not recognised under IFRS, such as the value of future profits under insurance contracts. Capital on an economic basis[7] is considered to be an undistorted view of the value embedded in the insurer.

Stressed – This basis is also economic, however considers the balance sheet after certain theoretical risk events have crystallised, for example adverse market movements, natural catastrophes etc. The purpose of this basis is to show how much capital an insurer would need to have to meet its obligations to policyholders even after these adverse events have taken place.

Derived Measures

Capital valued on an economic basis is termed 'solvency capital' by the Interim Solvency Standard 2023 (ISS). It is derived from NZ GAAP capital by applying adjustments described in the ISS. Some of the key adjustments include:

- the removal of the 'Contractual Service Margin' liability set up under NZ IFRS 17 for the purposes of recognising profit over time;
- the offsetting of reinsurance against primary insurance cash-flows, to recognise the economic relationship between the two; and
- the removal of certain contract boundaries to allow for the inclusion of more cash-flows in insurance valuations.

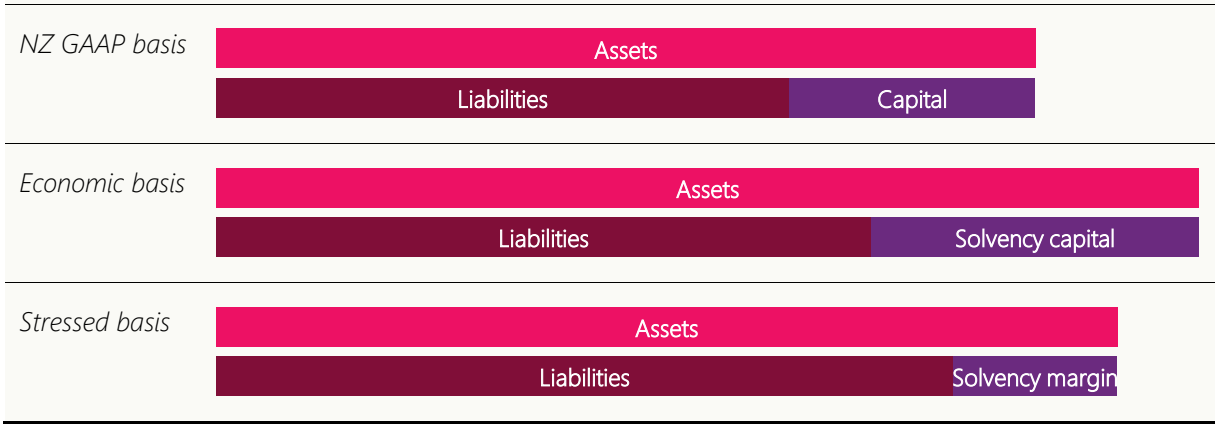
The 'solvency margin' is the capital amount read off the stressed balance sheet. It is the amount of capital the insurer would have after the occurrence of prescribed risk events. The PCR is the amount of capital that the ISS says the insurer needs to weather the prescribed risk events (impacting the value of both assets and liabilities) and still be able to meet obligations to policyholders. Accordingly:

$$\text{solvency margin} = \text{solvency capital} - \text{PCR}$$

[7] This should not be confused with 'economic capital', which generally means the insurer's own assessment of the capital it needs given its risk profile.

Example 4 – Triple balance sheet

Insurer B values its assets and liabilities under NZ GAAP for financial reporting purposes. To determine solvency capital, however, the insurer needs to revalue some of its assets and liabilities, for example to remove profit-smoothing mechanisms or to incorporate market information. To determine its solvency margin, the insurer needs to consider what would happen to the economic balance sheet under stress, both decreasing the value of assets and increasing that of liabilities.



A solvency ratio of 100% implies that the insurer has just enough solvency capital to cover its PCR. In turn, this implies that the insurer has a very high likelihood (e.g. 99.5%) of meeting its obligations to policyholders over the coming year, as that is how the PCR has been calibrated.[8] An insurer with a ratio greater than 100% has an even greater likelihood of meeting obligations, while an insurer with a ratio less than 100% may be more likely to fail.

solvency ratio = solvency capital / PCR.

The ISS also defines a minimum capital requirement. This is defined in a similar way to the PCR but under less severe risk events. An insurer that has solvency capital less than its minimum capital requirement is likely to be in some form of restructuring or wind-up, as it is unable to meet policyholder obligations in a wider range of possible futures. Currently the MCR has no legal status but may be used by the Reserve Bank to assess the appropriate intensity of supervision.

What's changing?

Changes in capital measures

A new accounting standard for insurance contracts (NZ IFRS 17) is being introduced, alongside a (relatively) new accounting standard for financial instruments (NZ IFRS 9). NZ IFRS 17 is likely to generate significant change to the valuation of life insurance contracts and moderate change to the value of general insurance contracts. NZ IFRS 9, on the other hand, brings a largely market-value approach to asset valuation. As a result, capital measured on an NZ GAAP basis may change (as NZ GAAP incorporates NZ IFRS).

[8] Assuming that the model underpinning the PCR calculation is correct.

Solvency capital[9] is also changing; while the incoming ISS seeks to value this on an economic basis, our pre-existing standards employ a hybrid basis, with a mix of economic and conservative valuations. For example, life insurance liabilities are augmented by a profit-smoothing element while certain intangible assets are deducted. We expect solvency capital to increase as a result.

The PCR will also increase for most insurers. To some extent this reflects the inclusion in the PCR of elements that were formerly part of the solvency capital calculation, such as the deduction of intangibles. There is a new charge to cover operational risk events that aren't hypothesised in the pre-existing solvency standards. Finally, there are some elements that will affect individual insurers in different ways due to their idiosyncratic practices, business models and risk profiles.

Changes in derived measures

We expect solvency margins under the ISS to change as follows:

- To increase or decrease based on changes in NZ GAAP capital due to the transition from NZ IFRS 4 to NZ IFRS 17;
- To decrease for life insurers as insurance liabilities are now required to include a risk adjustment (under both NZ IFRS 17 and the ISS);
- To gradually decrease for all insurers as the operational risk charge[10] increases the PCR; and
- To increase or decrease based on insurer-specific effects.

We expect solvency ratios to generally decrease. This is because of

- The solvency margin effects noted above; and
- The expected increase in the denominator (PCR) of the solvency ratio. This will only be partially offset by increases in the numerator (solvency capital).

[9] Referred to in our pre-existing solvency standards as 'Actual Solvency Capital'.
[10] This charge is being phased in over 3 years.

Example 5 – Impact of the ISS

Insurer C is a general insurer whose insurance liability valuation is largely unaffected by the introduction of NZ IFRS 17 and the ISS. Insurer D is a life insurer whose insurance liabilities will need to increase to include a risk adjustment. Both insurers are impacted by changes in the treatment of intangibles. They have the following solvency measures:

	Current standards		Interim Solvency Standard 2023	
	Insurer C	Insurer D	Insurer C	Insurer D
Solvency capital	$200m	$45m	$250m (+25%)	$60m (+33%)
PCR	$100m	$25m	$150m (+50%)	$50m (+100%)
Solvency margin	$100m	$20m	$100m	$10m
Solvency ratio	200%	180%	167%	120%

Insurer C's solvency margin does not change, as the change in treatment of intangibles increases both solvency capital and the PCR. Insurer D's solvency margin does change, however, as solvency capital is decreased by the amount of the risk adjustments. Both insurers experience declines in solvency ratios as the proportionate increase in the PCR has been greater than the proportionate increase in solvency capital.

What do the changes mean?

It's important to note that the ISS' changes to solvency margins and ratios have no bearing on the financial position of insurers. An insurer is as likely to fail (in the sense of not meeting its obligations) under the ISS as it was under pre-existing standards.

What is changing is the way we view an insurer's solvency. We are assessing risk in a more systematic way, and this is resulting in some different outcomes. In some cases our expectations of insurers are increasing (for example the requirement to hold capital against operational risk). In almost all cases, balance sheets (both assets and liabilities) are growing in size as we move to an economic value basis.

A reduction in a solvency margin as a result of the introduction of the ISS should be viewed as the Reserve Bank increasing its expectations of the insurer. A reduction in a solvency ratio may signal both a change in expectations and/or a larger balance sheet.

Solvency ratios under the ISS have a different basis to solvency ratios under the pre-existing standards and direct comparison may be misleading.

Interpreting solvency

The solvency ladder

As noted earlier in this paper, various types of stakeholder in an insurer – owners, policyholders, regulators, suppliers etc. all have a keen interest in the solvency of the company, and in particular the likelihood of the insurer failing to meet its obligations to policyholders. Measures such as the solvency ratio can help stakeholders understand the likelihood and impact of failure, as shown in the table below.

Solvency ratio	Insurer status
> insurer target	• The insurer has more capital than required by the ISS. • It should be able to weather adverse circumstances over the coming year and still meet its obligations to policyholders. • The insurer also has more capital than its board requires it to hold according to the board's own risk preferences. • Capital in excess of the insurer target can be returned to shareholders as dividends or invested in new business opportunities.
100% < ratio < insurer target	• The insurer has more capital than required by the ISS. • It should be able to weather adverse circumstances over the coming year and still meet its obligations to policyholders. • However, the insurer has less capital than its board would like to hold according to the board's own risk preferences. • Funds will need to be raised - for example, through de-risking or a capital injection - to increase capital up to the insurer's target.
0% < ratio < 100%	• The insurer has less capital than required by the ISS. • It may not be able to weather adverse circumstances over the coming year and still meet its obligations to policyholders. • The insurer is considered to be in distress and the RBNZ will require remedial action to restore the solvency of the company. • If the solvency ratio is in the lower part of the range[11] or deteriorating, the Reserve Bank may seek to wind-up the insurer to protect policyholders and the financial system.
ratio < 0%	• The insurer has negative capital, meaning that the value of its liabilities exceeds that of its assets and shareholders have no equity. • It is likely to be insolvent on a Companies Act basis and is unlikely to be able to fully meet its obligations. • The Reserve Bank will seek to promptly wind-up the insurer.

[11] The ISS establishes a 'Minimum Capital Requirement', which may be used to establish a boundary for establishing different supervisory approaches to insurers in distress.

In the table above, 'adverse circumstances' means risk events so severe they are only expected to occur once every two hundred years. 'Insurer target' means a level of capital established by the insurer based on their own risk preferences, for example "We only want to have a 1-in-20 chance of breaching regulatory solvency requirements over the coming year".

There are also some assumptions underpinning the statements, for example:

- The ISS identifies and models the insurer's risks perfectly; and
- The insurer's business and risk profiles will not change over the coming year.

Possible actions

The ranges on the solvency ladder can be quite broad. Users of solvency information may want to take various actions depending on the insurer's position on the ladder. For example:

- The Board of an insurer in the 'green zone' may want to set some solvency levels at which they start to take action to apply discretions, de-risk their balance sheet or seek a capital injection. This is their capital management process.
- A Reserve Bank supervisor of an insurer in the yellow zone will look to keep their supervised entity out of the amber zone and hence avoid distress management. They would also consider at what level of solvency they should require the insurer to work on a plan to bolster their position.
- An administrator of an insurer in the amber zone (that is, in distress) needs to decide when an insurer is capable of being restored to health and when it must be wound up. The solvency ratio is a major input to this decision.

Example 6 – Interpreting solvency ratios[12]

Insurer E and Insurer F have the following characteristics:

	Insurer E	Insurer F
Ownership	Large international insurance group	Mutual
Projected return on capital	10% per annum	2% per annum
Business growth phase	Mature & stable	Growing strongly
Investment policy	Aggressive	Conservative
Main business line	Yearly renewable term life	Level term life

[12] This example assumes that pricing and investment discretions are not already utilised in determining the PCR.

Example 6 – Interpreting solvency ratios

Both insurers have a solvency ratio of 120%. This may represent a healthy level of capital for Insurer E, as:

- A large international parent may be able to make significant and timely capital injections if needed;
- Strong profitability with a stable business implies that the solvency ratio is likely to increase;
- An aggressive investment policy means there may be capacity to increase the solvency ratio by decreasing investment in risky assets (thereby lowering capital charges & the PCR); and
- Yearly renewable term life can be re-priced frequently (at least for new business), giving the insurer the flexibility to respond quickly to changes in risk intensity.

For insurer F, however, a 120% ratio may not be sufficient:

- A mutual can generally only obtain fresh capital from its customers, which is difficult;
- Profitability is anaemic while the scale of the business is increasing, meaning that existing capital will be spread more thinly and the solvency ratio is likely to decline;
- A conservative investment policy means that the balance sheet is already invested in low-risk assets - captal charges & the PCR can't be decreased by a change in investment policy; and
- Premium rates for level term life are fixed for terms of ten years and longer, so cannot be changed easily if there is a change in mortality experience.

Example 6 illustrates the danger of using a rule of thumb based on solvency ratios, for example requiring a capital raising plan to be formulated when the solvency ratio falls to 120%. For Insurer F such a move may be appropriate, while for Insurer E it may be unnecessary.

A better approach may be to project the solvency ratio at various points over the coming year, allowing for expected profitability and growth, as well as application of all available discretions. This projected measure could then be compared with various benchmarks established by the stakeholder for their purposes.

Concluding remarks

IFRS 17 and the ISS are new standards, not yet fully tested in operation in the New Zealand environment. The Reserve Bank collects solvency information from the sector on a regular basis and may update the views expressed in this article.