



# The Dynamics of New Zealand's Solvency Reforms

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## Introduction and Background

### *The Genesis of this Paper*

On 7 September this year the Insurance (Prudential Supervision) Act passed giving regulatory authority over the New Zealand insurance industry to the Reserve Bank of New Zealand (RBNZ). The Act covers a wide range of reforms to the industry that will be implemented over the coming years. Much of this is beyond the scope of this paper, which will focus on the draft non-life insurance solvency standard consultation paper published by the RBNZ on 20 October 2010.

The current standard represents the fourth iteration of the non-life solvency standard published by the RBNZ, the previous three were dated 6 July 2009, 26 February 2010 and 28 July 2010. Each standard has been progressively improved taking into account industry feedback including Quantitative Impact Studies (QIS) assessing the impact of changes on individual insurers. The current draft appears to be close to the final standard to be adopted by the RBNZ.

Without having access to the QIS returns completed by insurers it is not easy to anticipate the impact of the proposed solvency standard. Nonetheless we believe there is sufficient publicly available information for us to make an informed estimate of this impact.

In this paper we will:

- Summarise the RBNZ's non-life solvency standard
- Compare the standard to the current regulatory requirements in Australia under the Australian Prudential Regulatory Authority (APRA)
- Collate a New Zealand non-life insurance balance sheet at a level of detail sufficient to calculate a solvency position
- Assess the New Zealand industry's solvency position on both the RBNZ and APRA bases
- Stress test this solvency position to a range of hypothetical scenarios including –
  - ▶ Variations in business mix
  - ▶ Alternative investment mixes
  - ▶ Mis-matching of fixed interest assets and discounted liabilities.

Preparing this paper has involved collecting and interpreting information on individual insurers and the industry as a whole from a wide range of sources. These sources were not necessarily designed for the task at hand and hence data limitations necessitated a number of approximations to "fill in the gaps". We are nonetheless satisfied that our results are a reasonable indication of the impact of the proposed solvency standards. As the authors of this paper we take responsibility for its contents which represent our own personal views and are not necessarily the views of our employer.

### *New Zealand Insurance Industry*

The non-life insurance market in New Zealand has an annual premium income of around \$4.0 billion. Australian-owned insurance companies tend to dominate the market, led by IAG (State and NZI), Suncorp (Vero NZ), Lumley, and QBE which make up around 2/3 of the total market.

AMI, AA Insurance (a joint venture between Suncorp and the Automobile Association of NZ), FMG and Tower represent the next largest group of insurers holding market shares of around 3% - 8% each. Below this level there are a significant number of small insurers generally offering niche products to service the New Zealand market.

The health insurance market within New Zealand is dominated by Southern Cross Healthcare Group. In preparing this paper we have excluded health insurers, the government insurers (the Earthquake Commission and the Accident Compensation Corporation) as well as reinsurance companies and restricted our analysis to direct insurers writing general insurance products only.

This mix of general insurance business is dominated by short-tail classes, primarily Property (both Commercial and Domestic) and Motor. The following table shows the breakdown of business written by class for the year to September 2009 from the Insurance Council of NZ website.

	Gross	
	Premium	% split
	\$m	
Motor	1,210	35%
Property		
Domestic	840	25%
Commercial (incl EQ)	677	20%
Marine	126	4%
Liability	280	8%
Other	283	8%
<b>Total</b>	<b>3,417</b>	<b>100%</b>

We estimate that the insurance council statistics represent around 90% of the total industry. QBE is the largest insurer who is not a member of the ICNZ and hence not included in these statistics.

### ***Differentiating Features of the New Zealand Industry***

In considering the distinctive features of the New Zealand industry the natural comparison is to the Australian industry. Not only is there a preponderance of insurers with an Australian connection, the proposed New Zealand solvency standards have been strongly influenced by the current Australian (APRA) standards. Whilst there are a number of New Zealand insurers with other overseas regulators (such as Japan, UK, US) we have not considered these requirements.

Key differentiating features of the New Zealand general insurance market that may influence solvency levels include:

- A total industry size of around one tenth of Australia
- Historically low barriers to entry and limited regulation within the New Zealand market
- Substantial exposure to certain natural perils including seismic and volcanic risk
  - ▶ Earthquake Commission covering the first portion of costs for property damage
- All bodily injury claims covered by the Accident Compensation Corporation (ACC), hence restricting the long-tail market for private insurers
- A requirement for all insurers to hold a credit rating.

### **Insurer Credit Ratings**

All New Zealand non-life insurers are required to hold a credit rating as part of the Insurance Companies (Ratings and Inspections) Act 1994. This information is required to be registered with the Registrar of Companies. In effect this requirement has been a de-facto regulatory capital regime with insurers generally aiming to maintain at least a minimum credit rating.

Credit Ratings have been grouped by the RBNZ into 5 counterparty grades for the purpose of determining reinsurance recovery risk charges. We have utilised this mapping to group New Zealand insurer information into counterparty grades in the table shown below.

**Table 2 – Insurer Credit Ratings**

Counterparty Grade	S&P/Fitch	AM Best	Moody's	Insurer Count	
				Collected <sup>1</sup>	All <sup>2</sup>
1	AAA	A++	Aaa	0	0
2	AA- to AA+	A+	Aa3 to Aa1	3	5
3	A- to A+	A- A	A3 to A1	17	22
4	BBB- to BBB+	B+ B++	Bbb3 to Bbb1	1	4
5	Below or unrated			2	10
<b>Total</b>				<b>23</b>	<b>41</b>

<sup>1</sup> Credit ratings of collected insurer information

<sup>2</sup> All licensed GI companies in New Zealand

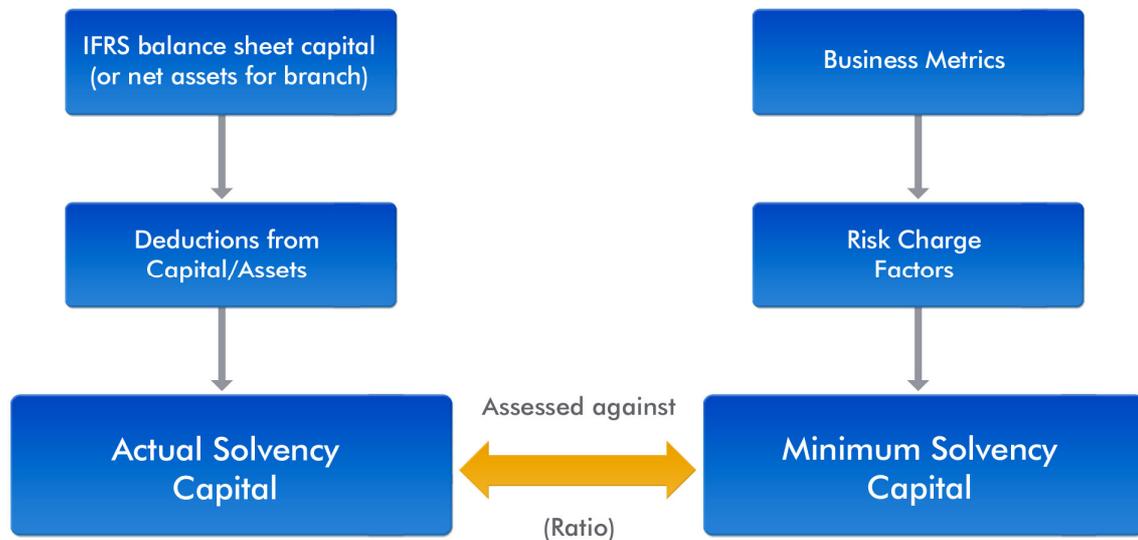
As can be seen in the table above, the majority of non-life insurance companies that we were able to collect detailed information on have a counterparty rating of 3 with only a handful falling outside this grade. There is a greater portion of lower rated or unrated insurers that have been excluded from our analysis.

## New Zealand Solvency Standard – An Overview

Section 21(2)(b) of the Insurance (Prudential Supervision) Act requires licensed insurers to maintain a solvency margin as defined in the RBNZ solvency standard. The solvency margin is defined in the RBNZ's published solvency standard and is a comparison of a company's Actual Solvency Capital (ASC) against its Minimum Solvency Capital (MSC).

Section 21(2)(b) of the Act requires that compliance with the solvency standard is a continuous obligation and at a minimum a licensed insurer must undertake calculations twice yearly (annual and half year) and report these results to the RBNZ. Section 24 of the Act requires that a licensed insurer notify the RBNZ if it has reasonable grounds to believe that it is unlikely to be able to maintain a solvency margin at any point in the next 3 years.

Figure 1 – NZ Solvency Margin



### **Actual Solvency Capital**

Actual Solvency Capital is defined as the total of Capital less Deductions from Capital, determined in accordance with Section 2 of the Solvency Standard.

“The Capital of the licensed insurer is intended to represent capital instruments that are of a permanent nature and freely available to meet losses” (paragraph 33). It includes the following items which broadly equate to the insurer’s equity:

- Issued and fully or partially paid up ordinary share capital
- Fully paid-up perpetual non-preference shares (subject to conditions in solvency standard)
- Revenue and other reserves
- Retained earnings
- Non-controlling interests.

Items that are deductions from Capital include:

- Goodwill and intangibles

- Future tax benefits or deferred tax assets
- Equity investments in, or subordinated loans to, related parties
- Any surplus in a defined benefit superannuation scheme sponsored by the licensed insurer
- Deferred acquisitions costs in excess of that supported by the Liability Adequacy Test.

### ***Minimum Solvency Capital***

An insurer's MSC is the sum of all of the following components:

- **Insurance Risk Capital charge**

The total of the Underwriting Risk Capital charge and the Run-off Risk Capital charge.

The Underwriting Risk Capital charge is intended to reflect the risk of writing unprofitable business.

The Run-off Risk Capital charge is intended to reflect the risk of inadequate provision being made for outstanding claim liabilities (risk margins at a 75% probability of sufficiency).

- **Asset Risk Capital charge**

Intended to reflect the exposure the insurer has to losses on investment assets, credit risk, asset concentration and liquidity risks.

- **Reinsurance Recovery Risk Capital charge**

Intended to reflect the exposure the insurer has to losses arising from failure to fully recover on reinsurance contracts, including losses due to reinsurer failure and contract dispute.

- **Catastrophe Risk Capital charge**

Intended to reflect the insurer's exposure to very large loss events.

- **Interest rate Risk Capital charge**

Intended to reflect the degree to which the insurer is exposed to mismatching between assets and liabilities in terms of interest rate risks.

- **Foreign currency Risk Capital charge**

Intended to reflect the degree to which the insurer's assets and liabilities are expressed in different currencies.

The Minimum Solvency Capital is subject to a minimum of \$3 million (\$1 million for captives).

Further detail on the solvency standard and a comparison to the APRA basis are included in the Appendix.

## New Zealand General Insurance Industry Balance Sheet

In determining a solvency position the starting point is a company's IFRS balance sheet at a given point in time. We have gathered together annual accounts for around 90% - 95% of the New Zealand general insurance industry through information available on company websites as well as accounts submitted to the NZ Companies Office. It represents 23 insurers that currently have 27 deposits lodged with the Public Trust. We based our collection on the 2008 year as being the most recently available on a consistent basis across all the companies. Whilst this was the year most heavily impacted by the GFC, from our observation of the financial information before and after the GFC did not appear to affect insurers to such an extent that would materially distort our analysis.

The level of detail available in the accounts of each insurer varied, however nearly all provided sufficient detail for us to extract the details we needed. The following table shows our collation of the individual insurer balance sheet information.

**Table 3 – 2008 NZ General Insurance Industry Balance Sheet (\$m)**

<b>Assets</b>	
Cash and Cash Equivalents	372
Financial Assets at Fair Value	2,750
Receivables	1,059
Tax Assets	53
Reinsurance & Other Recoveries	327
Reinsurance Unearned Premium	257
Deferred Acquisition Costs	281
Property, Plant & Equipment	85
Intangibles (& Goodwill)	372
Other Assets	27
<b>Total Assets</b>	<b>5,584</b>
<b>Liabilities</b>	
Outstanding Claims Provision	1,288
Unearned Premium	1,662
Trade & Other Payables	397
Deferred Tax Liability	101
Other Liabilities	362
<b>Total Liabilities</b>	<b>3,812</b>
<b>Total Net Assets</b>	<b>1,773</b>

In total we estimate that the total assets of New Zealand general insurer information gathered for 2008 were around \$5.6 billion with a net asset position of \$1.8 billion.

We have further broken down the outstanding claims and unearned premium components of the balance sheet into classes of business based on ICNZ industry-level information and disclosures made by individual insurers in their public reports and accounts. For simplicity we have grouped the classes based on the risk charge groupings (but separating Domestic Property from the other short tail classes).

**Table 4 – Outstanding Claims and Unearned Premium by Class (\$m)**

<b>Class of Business</b>	<b>Outstanding Claims</b>	<b>Unearned Premium</b>
Domestic Property	292	395
Motor & Travel <sup>1</sup>	283	583
Commercial Property & Other <sup>2</sup>	446	537
Liability	268	148
<b>Total</b>	<b>1,288</b>	<b>1,662</b>

<sup>1</sup> Commercial & Domestic

<sup>2</sup> Includes Marine

Investment mix has been based on the breakdown of investments available in the 2008 accounts and annual reports.

**Table 5 – Investment Mix Breakdown (\$m)**

<b>Investment Class</b>	<b>Invested Assets</b>	<b>Investment Mix</b>
Government Securities	453	35%
Local Authority & Corporate Debt	741	57%
Equities	89	7%
Other Investments	5	0%
<b>Total</b>	<b>2,750</b>	<b>100%</b>

Insurers have the ability to change their investment mix from time to time depending on market conditions and their risk tolerance. In examining the industry solvency position we later test a range of investment mix scenarios to assess its impact on solvency.

### ***Comparison to Australian Industry Balance Sheet***

In Australia APRA publish quarterly insurance statistics that include industry aggregated information from statistical returns provided by insurers. To aid comparability to the New Zealand industry, we have made a number of adjustments to the Australian statistics. Most significantly, we removed all lenders' mortgage insurers (LMI) from the summary due to their significantly different balance sheet and solvency profiles. LMI minimum capital requirements are dominated by a concentration risk charge which is specifically designed for LMI insurers and which is significantly higher than for other general insurers.

**Table 6 – Australian Industry Balance Sheet for December 2008 (A\$m)**

<b>Assets</b>	
Cash and Cash Equivalents	1,708
Financial Assets at Fair Value	53,968
RI & Non-RI recoverables	17,821
Premium receivables	7,858
Intangible assets	1,020
Other assets	4,069
<b>Total Assets</b>	<b>86,444</b>
<b>Liabilities</b>	
Outstanding claims provision	39,386
Premium liabilities	15,773
Payables on RI contracts	1,765
Tax provisions	1,010
Borrowings & Other liabilities	6,681
<b>Total Liabilities</b>	<b>64,615</b>
<b>Total Net Assets</b>	<b>21,829</b>

Overall, the Australian net assets were A\$21.8 billion at 31 December 2008, which after adjustment for deductions equated to \$18.8 billion of eligible capital. With a total minimum solvency requirement (MCR) of \$9.6 billion the industry solvency ratio was 195%.

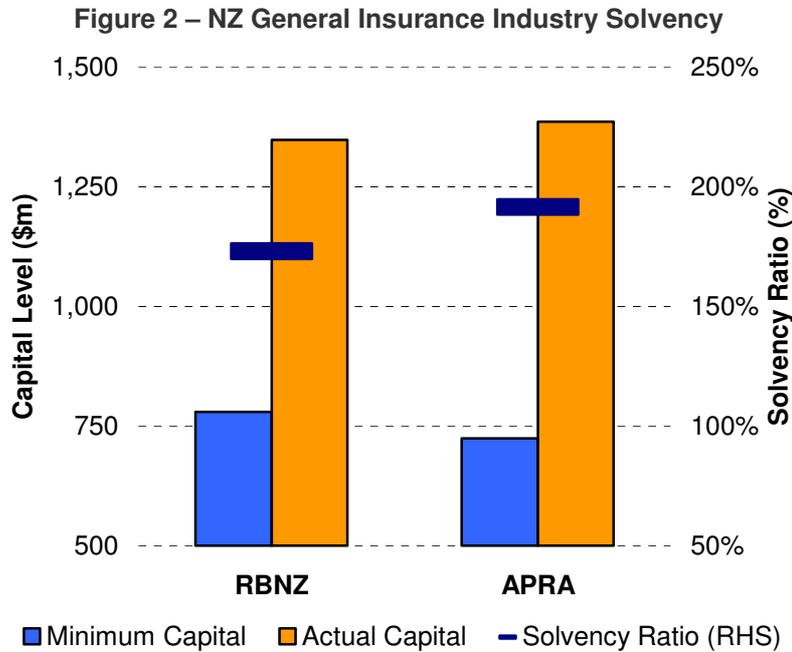
Outstanding claims liabilities are a much more substantial component of the balance sheet at around 60% of total liabilities in Australia compared to just 35% in New Zealand. This emphasises the impact of the ACC taking on the vast majority of long-tail liabilities in New Zealand.

Invested assets make up 62% of the total assets compared to 49% in New Zealand, again a reflection of the larger pool of outstanding claims liabilities in Australia. The investment mix is comprised mainly of government fixed interest securities (75%), 6% equity, 1% property and the remaining 19% relating to loans and indirect investments through managed funds, most relating to corporate debt. This is a higher proportion of Government securities than appears typical in New Zealand.

Premium receivables represent a smaller proportionate amount of the Australian balance sheet.

## New Zealand General Insurance Industry Solvency

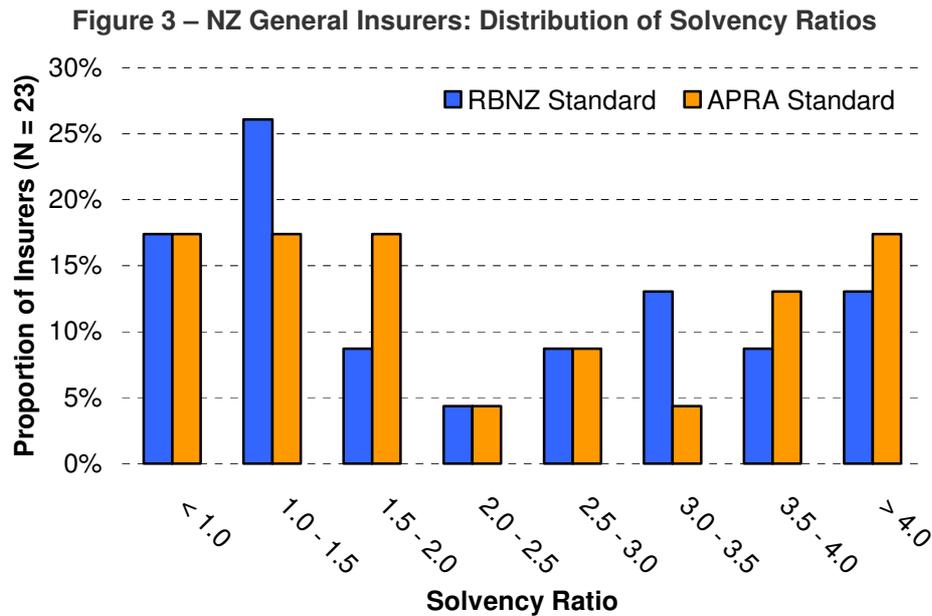
The following figure summarises our estimate of the solvency position for the New Zealand industry based on two different solvency standards 1) the current proposal for New Zealand (RBNZ), and 2) the current APRA standards in Australia. These figures have been prepared by aggregating the results of both sets of solvency calculations carried out at an individual insurer level.



The good news is that the industry in total appears to have no problem meeting the proposed minimum capital requirements in New Zealand. Perhaps unsurprisingly given the similarity in their design the two solvency regimes tested produce reasonably similar industry average solvency levels. It does appear, however, that minimum solvency requirements are higher under the RBNZ standard, with the industry achieving an RBNZ solvency ratio of 175%, 15 percentage points below the APRA solvency ratio. Whilst the RBNZ’s intention was not necessarily to create a standard that replicates the APRA result, we understand that both standards are intended to provide sufficient capital to cover a 99.5% probability of sufficiency over a 12 month timeframe.

### Range of Outcomes

Using the solvency results at an individual insurer level we have been able to estimate the industry distribution of solvency ratios under both the RBNZ and APRA standards. We note that this information is based on the balance sheets of insurers at the end of 2008 and that capital levels may well have changed since that point in time.



A relatively high proportion of insurers assessed fall below the minimum solvency ratio (<1.0). These insurers are by and large made up of:

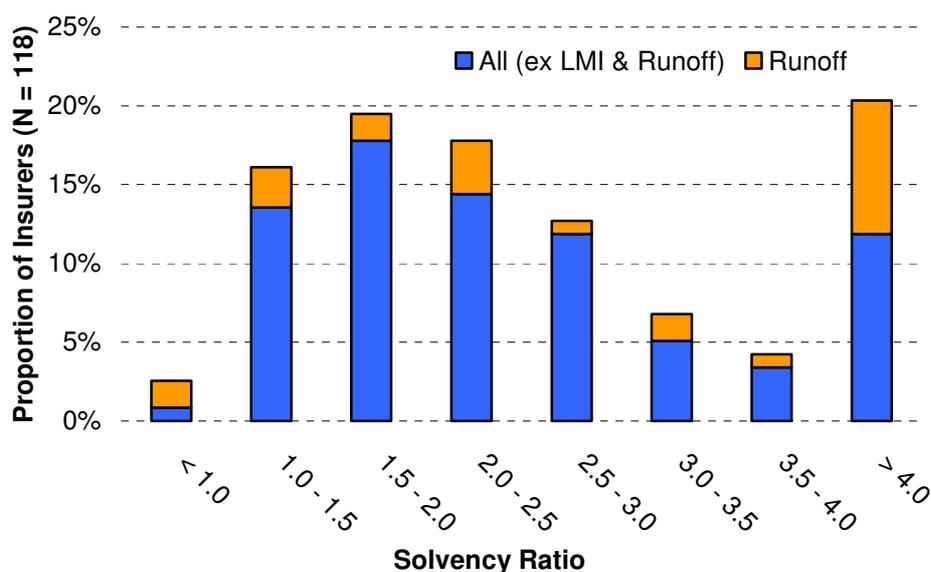
- branch insurers with minimal local capital held on the local balance sheet, the parent company in all cases has significant net assets at its disposal, and
- a small number of local insurers currently not meeting the proposed higher minimum capital threshold of \$3 million.

As the industry is still a couple of years away from the need for solvency compliance, we would expect these insurers to be actively preparing for this change. The range of solvency results is quite wide with the range 1.0 to 1.5 being the only range with a particular concentration of insurers. This is perhaps to be expected given that insurers have been holding capital based on a completely different set of objectives to the proposed solvency standard. Over time we would expect a gradual move by insurers to a more clustered distribution as the minimum solvency position takes on greater importance as a component of each insurers view of its risk tolerance.

### ***Comparison to APRA***

Insurers in Australia have had about 8 years under the APRA solvency regime and hence represent a reasonably mature market distribution of solvency ratios. The following figure shows the distribution of solvency ratios for the Australian general insurance industry (on an APRA solvency basis, excluding LMI) using the December 2008 published APRA statistics.

**Figure 4 – Australian General Insurance Solvency Range  
(APRA Basis, Excl Mortgage Insurers)**



The majority of insurers in Australia currently hold capital between 1 and 3 times solvency. There is a reasonably large portion with solvency ratios exceeding 4 times, however almost half of these are insurance companies in run-off with more stringent capital requirements and limited access to further capital. The majority of Australian insurers are clustered in the range of solvency ratios of 1.5 to 2.5. By contrast the New Zealand industry more widely spread with a greater concentration in the solvency range 1.0 to 1.5.

### **Minimum Capital Breakdown**

The breakdown of minimum capital highlights the differences between the Australian and New Zealand Solvency standards and industry mix. The following table compares the New Zealand industry breakdown of risk charges under the RBNZ and APRA bases and the Australian industry risk charge breakdown under APRA.

**Table 7 – RBNZ MSC & APRA MCR Breakdowns**

Risk Charge	New Zealand		Australia
	RBNZ	APRA	APRA
Asset Risk	23%	18%	22%
Interest Rate Risk	1%	0%	0%
Reinsurance Recovery Risk	3%	3%	5%
Underwriting Risk	25%	27%	18%
Run-off Risk	13%	14%	39%
Catastrophe Risk	35%	38%	15%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
Minimum Solvency Value (\$m)	779	724	9,645

Relative to the Australian general insurance industry, New Zealand shows a much higher proportion of catastrophe risk in its minimum solvency capital. This is due to a combination of factors:

- the larger New Zealand insurers participate in Group reinsurance programs (such as IAG and Suncorp) that increase their net retentions relative to premium volume.
- Run-off risk charges tend to dominate the MCR for Australian insurers, hence diluting the impact of all other charges including the catastrophe risk.

In the latest draft RBNZ solvency standard, insurers exposed to earthquake risk are required to have reinsurance cover to protect against a 1 in 1000 year event. This increase from 1 in 250 year protection may require further reinsurance at the top end of the reinsurance program than is currently held. However the RBNZ has indicated that most insurers exposed to this risk are already reinsuring to this level.

The asset risk charge is higher under the RBNZ standard by 5% due mainly to the higher risk charge percentages in equity and other assets.

## Dynamics of New Zealand Solvency Formula

### *Insurance Risk*

The insurance risk charge for an insurer will be driven by the mix and volume of business written and consequent levels of reserves held in respect of outstanding claims liabilities and premium liabilities. The New Zealand industry is largely short-tail in nature leading to lower levels of outstanding claims provisions relative to Australia.

The risk margin adopted for outstanding claims provisions is intended to reflect the degree of uncertainty associated with those provisions and is an important guide in understanding the outstanding claims risk component. From the insurer accounts collected we have been able to identify the risk margins adopted by each company in aggregate. These were benchmarked against APRA statistics on Australian risk margins published in November 2008. We have re-stated the New Zealand risk margins to a 75% Probability of Sufficiency in the cases where higher sufficiency levels were being adopted in their accounts. A similar comparison with premium liabilities was not possible.

**Table 8 – Outstanding Claims Risk Margin Comparison**

	Average Risk Margin (75% PoS)	
	Weighted	Straight
NZ Industry	11.2%	13.9%
Australian Industry		
All classes	10.1%	13.7%
Short-tail	6.9%	12.9%

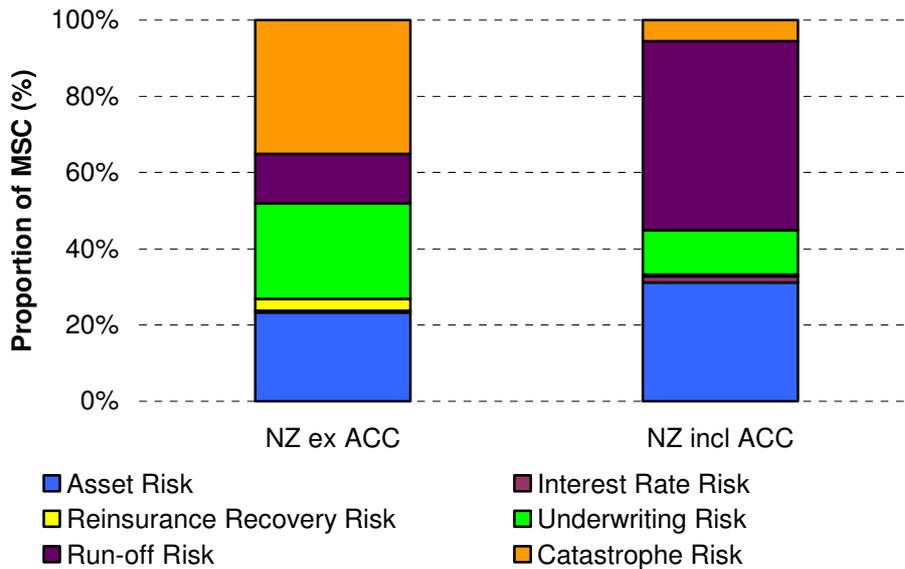
On a weighted basis the sample collected shows the New Zealand industry risk margin position to be marginally higher than the Australian industry result, and significantly higher than the Australian industry result for short-tail classes only. On the face of it one might think that New Zealand insurers take a more conservative approach to the estimation of risk margin requirements, however, it is also likely to be true that the liabilities are on average smaller and therefore subject to a higher degree of uncertainty due to independent risk. It is also possible that New Zealand insurers have less ability to make allowance for diversification benefits in their risk margins due to the more concentrated product mix. We also noted that many insurers were holding risk margins at or above 85% PoS.

### **A 'what if' Scenario for ACC**

Given the very short-tail nature of the private sector in New Zealand it is an interesting 'hypothetical' to consider the impact of adding the ACC back into the industry to understand the impact on capital levels. Clearly this can be no more than a high level consideration of the impact on relative make-up of the industry risk profile and hence minimum solvency requirement. With the ACC remaining in an unfunded position, the addition of the ACC and industry balance sheets for solvency assessment would result in a negative solvency ratio result overall.

We have therefore put together a scenario that is based on a long-term position where all ACC long-tail business is included in the private sector for the MSC only. This would require an additional \$3.5 billion of minimum capital.

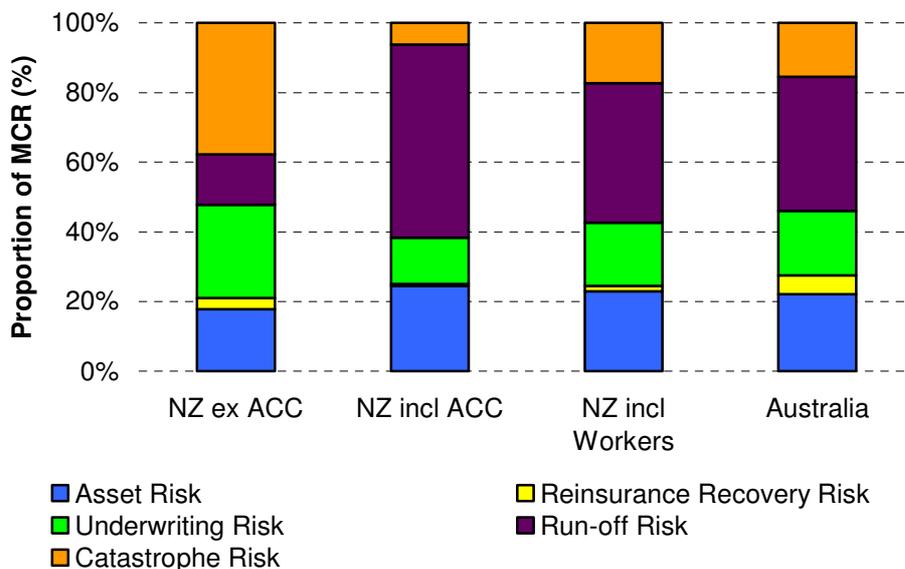
**Figure 5 – Minimum Solvency Capital Comparison - RBNZ Basis  
NZ Industry excluding vs. including ACC**



By adding in the long tail claims experience of the ACC the weighting of risks shifts significantly to the run-off risk capital charge. The catastrophe risk has been left unadjusted assuming that all significant events relate to property exposures (although this would not be entirely true in practice).

In the figure below we have prepared the same comparison except under the APRA basis. After adding in just the Workers Account business of the ACC the profile of risk charges (on an APRA basis) aligns quite closely to the Australian industry. This is possibly the most realistic outcome of any partial ACC privatisation and results in an industry mix and minimum solvency breakdown comparable to Australia.

**Figure 6 – Minimum Solvency Capital Comparison - APRA Basis  
NZ Industry including ACC vs. Australian Industry**

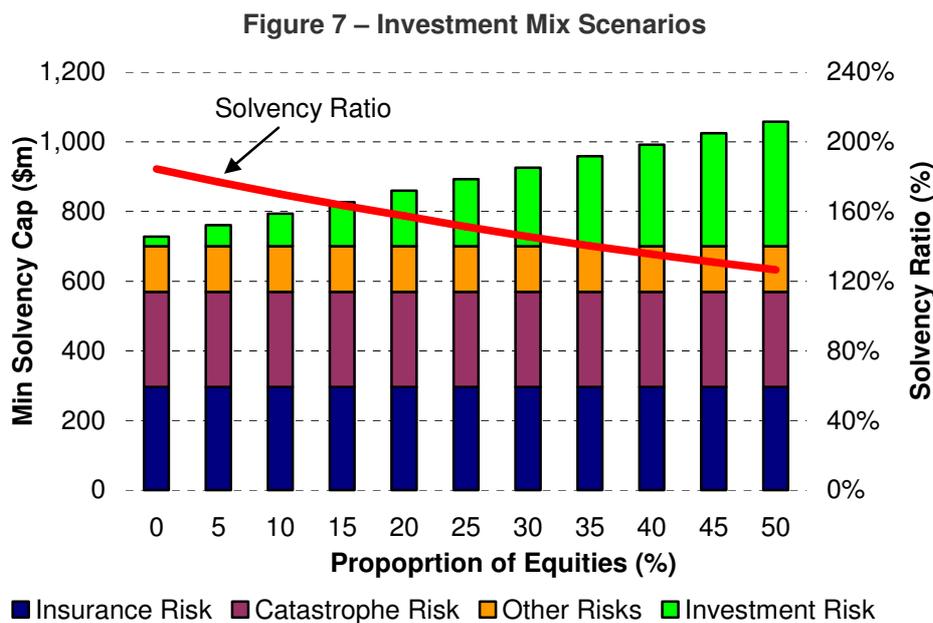


**Asset Risk**

The Asset Risk charge can be neatly split into charges relating to invested assets (Government securities, corporate debt, equities, etc), non-invested assets (such as plant and equipment, premium receivables, DAC), and asset concentration charges. We have not addressed the latter on the basis that we were unable to obtain information allowing us to measure this for individual insurers and because it is not a material component of minimum capital charges in Australia where the basis is similar. We expect that a number of insurers may have concentration risk charges problems prior to the new standards being introduced, however, as the experience has shown in Australia, insurers are able to reorganise (diversify) their investments in such a way as to avoid the impact of this risk charge.

Risk charges on invested assets can have a large impact on an insurer’s minimum solvency requirement. The flexibility possible in buying and selling such assets, however, provides a means for insurance companies to manage their exposure to solvency variability. In our industry analysis so far the base asset mix used assumes 7% of equities and other growth investments. Whilst the 2008 balance sheets for some insurers show equity investments in excess of this level, we know that following the GFC the level of equities held by most insurers decreased substantially.

We have tested the impact of investment mix on the industry solvency position by varying the level of equity from nil to 50%, with the remainder evenly split between government and corporate debt. The figure below illustrates the results of this sensitivity test.



For the New Zealand industry the investment risk charge varies from around \$25 million to almost \$350 million as the asset mix increases from 0% to 50% equities. As a proportion of total MSC, this represents a contribution of between 4% and 33%. For insurers considering their investment strategy this provides some insight to the trade-offs which need to be made, with the greater volatility introduced by growth assets having a direct link to higher capital requirements through the operation of the solvency formula. Higher investment returns would need to be sufficient to offset the cost of additional capital.

The asset concentration risk charge can also have a material impact on an insurer’s minimum solvency capital. For every percent an asset falls above the asset concentration limit (expressed as a proportion of total assets), an insurer attracts an additional risk charge equal to one or two times the underlying asset risk

charge on the excess. The following table shows the impact of holding a sample of assets that exceed the concentration threshold by 2%.

**Table 9 – Asset Concentration Risk Scenarios**

	Additional Risk Charge	Impact of charge on	
		MSC	Solvency
Grade 3 New Zealand Bank bill	4%	0.6%	-1.0 points
Unrated NZ Local authority debt	8%	1.1%	-2.0 points
Non-rated "Other Asset" <sup>1</sup>	80%	11.5%	-17.8 points

<sup>1</sup> Other assets attract a double risk weight (2\* 40%)

For an average insurer this is a particularly strong disincentive to holding excess other assets.

For licensed insurers with less than \$10 million of net assets the standard has been relaxed such that there is no Asset Concentration Risk Charge for obligations secured by bank bills or deposits with a registered New Zealand bank. Further details of the asset concentration rules are included in the appendix.

### **Catastrophe Risk**

Catastrophe risk for most general insurers will be driven by their exposure to earthquake risk which in the latest draft of the non-life solvency standard requires insurers to hold reinsurance protection to cover a 1 in 1000 year event and a 1 in 250 event for other risks. The Christchurch event has been a timely reminder of the impact that such events can have and will have flow-on effects through the industry.

It is likely that catastrophe reinsurance prices will increase in the wake of this event and may also lead to a shrinking of available cover. These combined impacts may well lead insurers to reconsider their reinsurance needs which will directly flow through to the catastrophe risk charge. Alternatively the cost of maintaining a program will lead to higher costs and hence lower expected profits moving forward.

### **Interest Rate Risk**

Our underlying assumption relating to interest rate risk is that the industry as a whole holds duration-matched assets and liabilities. The risk charge we have so far included in the industry MSC relates only to the extent to which the total value of fixed interest assets exceeds the value of liabilities, with this excess therefore completely unmatched. We have further tested the impact of adding in a durational mismatch between the assets and liabilities of 0.5 and 1.0 year as shown below. Negative 1 year corresponds to holding assets with a mean-term to settlement of 1 year less than the discounted liabilities.

**Table 10 – Interest Rate Risk Scenarios**

Duration Mismatch	\$ MSC Impact	% of MSC
	\$m	
- 1.0 years	37.2	4.6%
- 0.5 years	16.5	2.1%
Matched	4.3	0.6%
+ 0.5 years	24.3	3.1%
+ 1.0 years	44.1	5.5%

As shown in the table above, the impact of a durational mismatch between assets and liabilities has a material impact on the MSC requirement. As New Zealand insurers currently have liabilities of a relatively short duration, this should not be a material issue, however, should the ACC be opened up to competition

and insurers start to hold greater volumes of longer term liabilities, the interest rate risk charge will become a more significant factor.

## Summary & Conclusions

Capital levels in the New Zealand industry imply a solvency ratio of 1.75 times minimum solvency capital based on the current RBNZ draft standard. On the current APRA basis, this equates to 1.9 times. This appears consistent with the Australian insurance industry at an equivalent point in time, which is not unexpected given the close ties between the industries, and the similarities of the solvency standards. With two thirds of the New Zealand general insurance industry made up of Australian owned insurers, the majority of companies are already producing solvency returns on an APRA basis as a matter of course.

Lower New Zealand capital levels are partially driven by the minimal levels of capital held in some branch insurers. This, combined with the increased minimum capital requirement of \$3 million for the smallest insurers, means that we estimate around 15% of insurers currently do not meet the minimum threshold.

The RBNZ risk charges are generally higher than APRA leading to solvency ratios around 10% lower. Particular drivers of this difference are the asset risk charges (on equity, property and other assets) and the interest rate risk charge.

Earthquake and volcanic risk is a significant feature of the New Zealand insurance market and a stronger catastrophe risk charge is in place to reflect this. Issues around reinsurance programs, maximum event retention, pricing and interaction with the EQC will all impact on insurer solvency margins. Solvency reforms and the recent Christchurch earthquake will put greater focus on catastrophe reinsurance programs.

The ACC is the other most significant difference for the New Zealand general insurance industry and the absence of long-tail business gives the New Zealand industry a distinctive risk profile. Much of the difference between the profile of Australian and New Zealand industry solvency measures comes down to the absence of long-tail business. However, as we have demonstrated, the capital required to fund the ACC liabilities under the RBNZ solvency standards would dwarf the amount of capital currently within the industry.

It would be a reasonable expectation that insurers will aim to maximise their solvency position for the lowest possible cost. This will require weighing up each component in their MSC and assessing the cost to the business of adjusting each. Easy gains can be made in duration matching, asset diversification and possibly counter-party management, and are likely to be achieved in a relatively short period. For other components of the formula there is less an insurer can do since growth by product line is generally a relatively incremental process.

Overall, the introduction of the new solvency standard is going to have a material impact on insurer behaviour. The flow-on effects of the standard will be felt in pricing decisions, investment strategies and in reinsurance purchasing. The long transition time should however enable insurers to plan for and adjust their business should there be the need.

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## **APPENDIX – Comparison of New Zealand Solvency Standard to APRA Basis**

The structure of the draft New Zealand solvency standard is similar in nature to the Australian (APRA) basis. There are however some differences to both the types of risks attracting a charge, and the risk charge percentages themselves.

The primary differences relating to the types of risks attracting a charge include the interest rate and foreign currency capital risk charges, both having no direct equivalent under APRA. At present APRA have a number of amendments under discussion which are expected to be introduced in 2012. As these remain in discussion phase, we have ignored them for the purpose of this paper although it is worth noting that the changes proposed by APRA will have a significant (upwards) impact if adopted.

In relation to the risk charge percentages, the RBNZ have adopted only slightly different charges on both the liability and asset side. Table 11 and Table 12 summarise these differences.

**Table 11 – Insurance Risk Charges**

Class of Business	Underwriting			Run-off		
	RBNZ	APRA	Difference	RBNZ	APRA	Difference
Domestic property	14.0%	13.5%	0.5%	9.0%	9.0%	0.0%
Commercial motor						
Private motor						
Travel						
Commercial property	16.0%	16.5%	-0.5%	11.0%	11.0%	0.0%
Marine						
Health and personal acc't						
Other						
Liability classes	22.0%	22.5%	-0.5%	15.0%	15.0%	0.0%

The run-off risk charges are the same for all classes, whilst the underwriting risk charges differ by 0.5% (higher for domestic property, motor and travel classes and lower for other classes).

Calculations of the risk charge are based on the same underlying definition of liabilities (75% PoS outstanding claims and 75% PoS premium liability), however, any excess or deficiency between the accounting and regulatory measures of insurance liabilities is adjusted within the MSC (under RBNZ) rather than added to capital after allowing for tax (under APRA).

**Table 12 – Asset Risk Charges**

Category	Counterparty Rating	Asset Risk Charges		
		RBNZ	APRA	Difference
Cash & Sovereign Debt		0.5%	0.5%	0.0%
AA fixed interest < 1 year & Cash Mgmt Trusts	Grade 1 or 2	1.0%	1.0%	0.0%
AA fixed interest > 1 year	Grade 1 or 2	2.0%	2.0%	0.0%
A fixed interest & Cash Mgmt Trusts Unpaid premiums < 6 months	Grade 3	4.0%	4.0%	0.0%
Deferred acquisition costs supported by LAT test		5.0%	0.0%	5.0%
BBB fixed interest & Cash Mgmt Trusts	Grade 4	6.0%	6.0%	0.0%
Unrated local authority debt, 3rd Party recoveries		8.0%	6.0%	2.0%
Any other debt obligation & Cash Mgmt Trusts Subordinated debt Unpaid premiums 6 to 12 months	Grade 5 or unrated Grade 1, 2 or 3	15.0%	8.0%	7.0%
Off b/sheet exposures and contingent liabilities		20.0%	20.0%	0.0%
Listed equity, Listed Trusts, Listed Property Trusts		25.0%	16.0%	9.0%
Direct property holdings, plant & equipment		25.0%	20.0%	5.0%
Unlisted equity, unlisted trusts		35.0%	20.0%	15.0%
Other assets		40.0%	20.0%	20.0%
Loans to directors, Loans to employees > \$1,000 Assets under fixed or floating charge		100.0%	100.0%	0.0%
<u>Unpaid premiums &gt; 12 months</u>		<u>100.0%</u>	<u>8.0%</u>	<u>92.0%</u>

In all circumstances, the RBNZ have adopted risk charges that are either equal to, or higher than, the APRA risk charges. Worthy of particular note are:

- **Deferred Acquisition Costs** which attract a 5% risk charge under the RBNZ standard. DAC is excluded under the APRA formula as the underlying balance sheet is built up from an APRA basis (including premium liabilities in place of net unearned premium less DAC) as opposed to an IFRS basis underlying the RBNZ standard
- **Subordinated Debt** attracts a 15% charge, 7% higher than under APRA.
- **Growth Assets.** Whilst generally these represent only small proportions of an insurer's investment mix, the higher risk charges may lead insurers to hold even lower portions, thus reducing their ability to diversify investments. The particular differences are –
  - ▶ Listed equity, trusts and property 35% charge as opposed to 20% under APRA
  - ▶ Unlisted equity and trusts 35% charge as opposed to 20% under APRA

- **Property, plant and equipment** charge is 5% higher under RBNZ
- **Other Assets** attracts a 40% risk charge compared to APRA's 20%
- **Unpaid premium greater than 12 months** is effectively written off under RBNZ, APRA only specify changes for premium receivables greater than 6 months. We would expect that for most insurers with good debt collection processes that this would be a negligible amount
- **Reinsurance recoveries** attract risk charges depending on the counterparty grade (based on credit rating) of the reinsurer. RBNZ and APRA have used identical counterparty grades however the risk charge percentages are different as shown in the table below.

**Table 13 – Reinsurance Risk Charges**

Counterparty Grade	Reinsurance Risk Charge		
	RBNZ	APRA <sup>1</sup>	Difference
1	2%	2%	0%
2	2%	2%	0%
3	4%	4%	0%
4 <sup>2</sup>	10%	6%	4%
5 <sup>2</sup>	20%	8%	12%

<sup>1</sup> APRA Charges apply to APRA regulated reinsurers

<sup>2</sup> Limits apply

For the higher quality reinsurance RBNZ and APRA are aligned, with only the poorer quality reinsurers attracting higher risk charge percentages. Both APRA and RBNZ have restrictions on the levels of lower quality reinsurance that may be held. APRA adopt higher charges for non-APRA regulated reinsurers (excluding Lloyds), a complication that has not been adopted in the RBNZ formula.

The higher risk charges in this category may make it more expensive for many of the smaller insurers purchasing reinsurance.

### ***Asset Concentration Risk***

The asset concentration risk charge can have a material impact on an insurer's solvency requirement. Currently APRA's concentration limits are fairly lenient and based on counterparty ratings that restrict the level of grade 4 and 5 counterparty assets (including reinsurance recoveries) to 50% and 25% of the Capital Base respectively. APRA are currently looking into changes that may significantly strengthen this requirement.

In New Zealand, the Asset Concentration Risk charge is based on the nature of the obligation and expressed as a percentage of the total assets held.

**Table 14 – Asset Concentration Risk Limits**

Nature of Obligation	Limit (% of total assets of the licensed insurer)
Guaranteed by the New Zealand government or by a national government or supra-national agency of rating grade 1	100%
Guaranteed by a New Zealand local authority or State-Owned Enterprise	50% (or \$5m if greater) and an additional risk weight as per Table 2 for anything in excess
Secured by bank bills or deposits with a New Zealand Bank	25% (or \$5m if greater) and an additional risk weight as per Table 2 for anything in excess
Any other asset or counterparty exposure (except for reinsurance recoverable assets )	10% (or \$2m if greater) and an additional double risk weight for anything in excess

The Asset Concentration Risk charge appears to be a more stringent test than APRA, particularly the limit on bank bills or deposits with a New Zealand Bank. Insurers will no doubt understand their exposure to this with most having completed one or more QIS for the RBNZ already.

### ***Catastrophe Risk***

The Catastrophe Risk Capital Charge is intended to reflect the exposure of a licensed insurer to very large losses, such as earthquake or storm, that result in claims on more than one insurance contract. Generally catastrophe reinsurance will have been purchased to cover such events and hence the retained net loss (plus the cost of one reinstatement) becomes the calculated charge. The risk charge, however, depends on the nature of the insurer's risk exposure.

**Table 15 – Catastrophe Risk Charges**

Insurer	Catastrophe Risk Capital Charge
No Property Exposure OR no risk greater than RI Cat retention	2 times largest risk retention, plus cost of one reinstatement
With Property Exposure AND NO Earthquake risk	Net cost of cat incl any gap relative to 1 in 250 year event, plus cost of one reinstatement
With Property Exposure AND Earthquake risk	Net cost of cat incl any gap relative to 1 in 1000 year event, plus cost of one reinstatement

The recent Christchurch earthquake has resulted in a number of New Zealand insurers reporting on their net retention from the event which we have used in our estimate of the industry catastrophe event risk charge.

### ***Interest Rate and Foreign Currency Risk***

All licensed insurers must also consider the degree of mismatching between assets and liabilities in terms of foreign currency and interest rate risks when determining their solvency position.

The calculation of the interest rate risk is probably the most technical part of the solvency standard requiring insurers to revalue all fixed interest assets and liabilities relative to a 1.75% increase or decrease in interest rates and calculate the net revaluation impact. The greatest loss scenario becomes the insurer's interest rate risk charge. APRA are in the process of moving towards a similar approach but do not currently have any allowance for interest rate risk in their solvency standard.

The foreign currency risk charge is calculated as 22% of the net open foreign exchange position, regardless of whether it is long or short.