Institute of Actuaries of Australia

Home Warranty Insurance – Taming the Ups and Downs of the Building Cycle

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Presented to the Institute of Actuaries of Australia
17th General Insurance Seminar
7 – 10 November 2010
Gold Coast

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Abstract

The recent Global Financial Crisis (GFC) contributed to a deterioration in the building cycle. This has led to an increase in the number of builder insolvencies in Australia. Further, this has had a significant impact on the willingness of insurers to participate in the Australian home warranty insurance market. As a result, there have been a number of structural changes to home warranty insurance scheme design to help return stability to the market. Some Australian states have opted to publicly underwrite the insurance (NSW and Victoria), while other states have removed the compulsory nature of the insurance (Tasmania). It is unclear what responses, if any, will arise from other states.

This paper summarises the main characteristics of the home warranty insurance market today, discussing some of the significant changes over recent years. We explore some of the challenges associated with managing home warranty insurance, particularly emphasizing implications of the building cycle. We investigate aspects of the actuarial control cycle, providing some suggestions on the best ways to monitor experience, perform actuarial valuations, price the business and fund a scheme. We also briefly discuss the merits, or otherwise, of privately underwritten versus publicly underwritten schemes.

Finally we draw some conclusions in regard to home warranty insurance:

- The importance of taking a longer term view when managing the business.
- Public scheme structures are, in our view, better equipped to deal with a compulsory scheme.
- Communication of building cycle uncertainties is important when presenting results.
- The establishment of a national claims database would enable better management of home warranty insurance.
- Funding approaches need to accept a certain level of volatility in results.

Keywords: home warranty insurance, pricing, building cycle, incentive mechanisms, Global Financial Crisis, Australia

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1. Introduction and Background

1.1. Characteristics of Home Warranty Insurance (HWI)

Home Warranty Insurance (HWI)[1] provides cover for consumers if the builder they contracted produces defective work or fails to complete the work under certain circumstances. The cover provided varies from scheme to scheme. Under a pure "first resort" scheme consumers are able to claim on the insurance policy as soon as an issue is identified, with the insurer left to pursue the builder if appropriate. Under a "last resort" scheme the onus is on the consumer to attempt to resolve the problems through whatever means possible with the builder, with the insurance triggered only in certain events such as builder death, disappearance or insolvency.

HWI is intended to be consumer protection insurance for newly built or renovated homes, one of a consumer's largest individual assets. The cover is compulsory in most states of Australia and will generally be obtained by the builder on the consumer's behalf.

The main risk in HWI for the insurer is a downturn in the building cycle. This can trigger a large number of builder insolvencies, and could have a significant impact on an insurer, particularly if one or more of these is a major building company. Australia tends to have a few major builders in each state, each of which hold significant market share, and hence can give rise to large number of claims should they go insolvent.

1.1.1. Types of claims

Home warranty claims emerge from two major sources in Australia:

1. The non-completion of building works as a result of the death, disappearance or insolvency of the builder which we refer to as *non-completion* claims.

2. The rectification of defective building works where the builder is unable or unwilling to rectify the works themselves which we refer to as *defect* claims.

Non-completion claims generally emerge within a couple of years after the project insurance certificate has been underwritten. These types of claims may be split further between loss of deposit, where building works have not yet commenced, and circumstances where the works have begun but have not been completed.

Defect claims can be lodged a certain number of years after completion of the works, typically up to 6 years. This means that defect claims can be reported many years after the policy has been underwritten. Australian schemes often have different benefit entitlement periods for structural and non structural defects, generally with shorter periods for non structural defects.

Non-completion claims may contribute 20% to 80% of an underwriting year's ultimate claims cost outcome. The contribution will depend on the scheme benefit structure and the strength of the building cycle from the time of underwriting, among other things.

[1] HWI is also known by other names in Australia and overseas. Other commonly used names in Australia include "builders warranty insurance" and "domestic building insurance".

1.1.2. Size of HWI market

The market for HWI in Australia is not large compared to many other types of insurance. We have estimated total premium income for the Australian market to be about $200M. The small size of the market and the differing scheme characteristics by state has contributed to the unstable history of HWI arrangements in Australia. The small market means it can be difficult to entice insurers to risk their capital and reputations when the potential for significant profit is low. Additionally, exiting the market will not cause issues for the insurer in the same way as exiting a major line of business. Getting the right number of competitors to make it worthwhile for each insurer to remain in the market is important for stability in a privately underwritten environment.

1.1.3. Underwriting

Underwriting HWI can be an intensive process. Builders are first assessed for 'eligibility', which generally involves an assessment of the financial strength of the builder. The eligibility will typically entitle the builder to HWI for building works that meet specific criteria without the need for further underwriting. This eligibility may be limited by the type of building works undertaken by the builder or by caps on the number and/or value of projects underwritten.

A builder will be able to apply for individual insurance policies covering specific building works undertaken during the year, within the limits of the approved eligibility. Much of the assessment is often prepared by the builder's insurance broker and we note that underwriting expenses (including broker commissions) make up a significant proportion of HWI premium.

1.1.4. Owner builder insurance

An owner builder is not required to be a licensed builder, although they must obtain a relevant permit from the relevant state authority. The NSW Fair Trading website[2] defines owner builder work and the circumstances where owner builders are required to obtain HWI in NSW.

We note the following:

> "Each licensed contractor (builder, tradesperson or project manager) who contracts directly with an owner-builder to undertake residential building work must provide HWI from one of the approved insurance providers when the total contract sum exceeds $12,000 (including material supplied by the contractor)."

Additionally, if there is a sale of an owner builder built home then:

> "Should an owner-builder decide to sell their home within 6 years after completion of the work, the owner-builder will need to take out HWI where the market value of the whole project (including labour and materials) was valued at over $12,000."

[2] http://www.fairtrading.nsw.gov.au/Tenants_and_home_owners/Home_building_and_renovating/Becoming_an_owner_builder.html

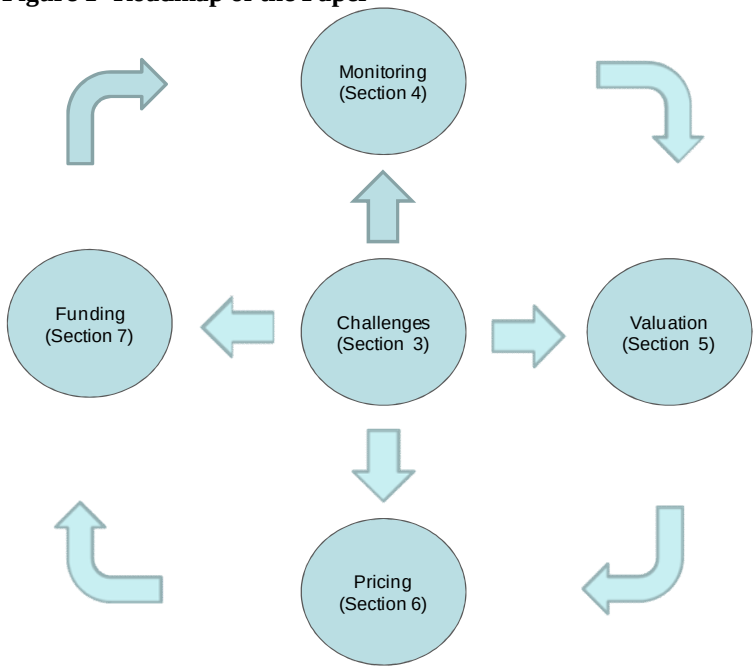
We do not consider the issue of owner builder insurance separately in this paper, although we note that owner builder claim experience can be very different from that of licensed builders. Some of the key differences are:

- Most of the claims are not related to an insolvency trigger, unlike licensed builder claims.
- The insurance can take effect after the completion of the home, meaning that non completion risk is not applicable.
- The size of the premium is generally related to the period remaining until the expiry of benefits[3].
- The building works may be inspected before the insurance is purchased and this may lead to the introduction of building-specific exclusions on the policy of insurance.

1.2. Roadmap of the paper

In the rest of this paper we discuss some issues that actuaries and management need to address in order to effectively manage HWI business. Section 2 describes recent events in HWI and provides further background and comparisons with comparable overseas schemes. Section 3 discusses some of the challenges in managing HWI. Sections 4 to 7 discuss some considerations at each point of an actuarial control cycle, as mapped out in Figure 1 below.

Figure 1- Roadmap of the Paper



[3] The period remaining until the expiry of benefits is calculated as the time between the date of sale of the property and the maximum coverage period. The maximum coverage period is specified in legislation, generally a specific number of years after the date of completion of the building works, say six years in NSW.

2. History

2.1. The Australian home warranty insurance market

The Australian HWI market has undergone some significant changes over the last decade. After the introduction of GST in 2000 and the subsequent collapse of HIH Insurance Limited[4] (HIH) in 2001, a number of reforms were enacted in the privately underwritten states (as detailed below) to encourage insurers back into the market. The result was that, within a short time, all states except Queensland and Northern Territory had privately underwritten, last resort schemes.

Since that time, there have been considerable changes to the schemes in some states. For example, Tasmania has moved to a voluntary system in 2008 and NSW and Victoria have switched to government underwritten schemes in 2010.

Detailed and informative histories of HWI in Australia have been provided in a number of previous publications, including Smith (2005), and the Senate Report - *Australia's mandatory Last Resort Home Warranty Insurance scheme (*2008). Our intention is not to repeat this work, rather we provide a summary timeline of the history in each state, borrowing from these, and other, sources, and incorporating recent developments in HWI in Australia.

Nationwide / Multi-State Events

- 2001: Collapse of HIH.
- c. 2008: Building cycle slows following many years of strong growth.
- 2009: CGU and Lumley announce withdrawal from HWI in Australia.
- 2010: Vero announces withdrawal from HWI in Australia.

New South Wales

- 1972: Government run scheme established (administered initially by the Builders Licensing Board, and subsequently by the Building Services Corporation, and then through the Department of Fair Trading).
- 1997: Privately underwritten Home Warranty Insurance Scheme (“HWI Scheme”) commences, following the recommendation of the Dodd and Crawford enquiries.
- 2002: Cover under the HWI Scheme changed from first to last resort in response to problems in the market following the collapse of HIH.
- 2003: NSW Home Warranty Insurance Inquiry recommends removal of mandatory cover for high rise buildings.
- 2009: Failure of a builder to comply with a tribunal ruling is added as a fourth trigger to the scheme.
- 2010: Govt underwritten scheme “NSW Home Warranty Insurance Fund” (NSW HWIF”) established and operated by the NSW Self Insurance Corporation. QBE and Calliden appointed as agents for NSW HWIF.

Victoria

- Early 1970’s: Private cover offered by two providers.
- 1983: publicly underwritten “Housing Guarantee Fund” (“HGF”) established.
- 1996: HGF put into runoff and private scheme (“Domestic Building Insurance Scheme” (“DBIS”)) established.

[4] HIH underwrote over half of the HWI market in NSW, Victoria, South Australia, Western Australia and the Australian Capital Territory prior to its collapse in 2001.

- 2002: DBIS cover changed from first to last resort.
- 2010: Govt underwritten scheme ("Domestic Building Insurance Model") established and operated by the Victorian Managed Insurance Authority (VMIA). QBE acts as agent for VMIA.

Queensland

- 1977: Builders Registration Board introduces HWI cover, underwritten by the Qld government as a last resort scheme.
- 1991: Responsibility is transferred to the Building Services Authority ("BSA"), a government administered scheme which remains in place today.

Tasmania

- 1992: Housing Indemnity Act 1992 established a compulsory, last resort scheme, with cover provided by private insurers.
- 2008: The legal requirement for HWI is removed, replaced by a dispute resolution process and rectification orders for defective building works.

Western Australia

- Pre-1997: Voluntary, privately underwritten scheme.
- 1997: Cover is made compulsory following the incorporation of Home indemnity Insurance provisions into the Home Building Contracts Act 1991.
- 2010: QBE and Calliden commit to providing private cover for at least 3 more years.

South Australia

- Pre-1986: Industry based voluntary scheme.
- 1986: Builders Licensing Act 1986 establishes a privately underwritten, compulsory scheme.
- 1995: Building Work Contractors Act 1995 confirms the provisions of the existing scheme.

Australian Capital Territory

- 2004: Building Act 2004 establishes a privately underwritten, last resort HWI scheme.

Northern Territory

- 1993: Building Act 1993 establishes compulsory cover for non-compliance with regulations, underwritten by the Territory Insurance Office.
- 2004: Amendment to the Building Act 1993 establishes provisions for privately underwritten, compulsory HWI cover, but is not activated, presumably due to lack of interest from private insurers.
- 2010: NT government announces a last resort, publicly underwritten HWI scheme will be introduced by the end of the year.

Summary of Current Arrangements

The table below provides a summary of the current arrangements in each state (as at August 2010). There have been recent changes in a number of states, and further changes are certainly possible in the near future, so check the current legislation in your state if you are about to get some building work done!

Table 1- Summary of Current HWI Arrangements in Australia

State	Underwriter	First / Last Resort	Compulsion	Mandatory Level[1]	Minimum Coverage / Maximum Payout	Coverage Period (from completion date)
NSW	Government	Last Resort	Compulsory	$12,000	$300,000	Structural: 6 years Non-structural: 2 years
Victoria	Government	Last Resort	Compulsory	$12,000	$200,000	Structural: 6 years Non-structural: 2 years
Queensland	Government	First Resort	Compulsory	$3,300	$200,000	6.5 years
Western Australia	Private	Last Resort	Compulsory	$12,000	$100,000	6 years
South Australia	Private	Last Resort	Compulsory	$12,000	$80,000	5 years
Tasmania	Private	N/A	Voluntary	N/A	N/A	N/A
ACT	Private	Last Resort	Compulsory	$12,000	$85,000	5 years
Northern Territory	Government	First resort[2]	Compulsory	$12,000	No ceiling	Non-compliance with building code: 10 years

1. The value of the contract works, including supplies, at which point the cover becomes mandatory.
2. The NT scheme currently in place only covers non-compliance with the building code. It does not cover non-completion due to death, disability or insolvency. The new scheme to be introduced in 2010 will provide similar last resort coverage to that currently in place in NSW and Victoria.

2.2. Overseas schemes

We have reviewed a number of overseas arrangements which have similar products available, including those in the US, UK, Canada and France. Each country appears to have developed their own unique product(s) with varied terms, conditions and coverage levels.

Some of the main points arising from our review include:

- Countries have a mix of voluntary and compulsory arrangements. In cases where there is compulsory cover, it may not be rigorously enforced. In some cases the insurance is only required under specified circumstances, such as on the sale of the home or on application for a mortgage.
- Some countries have a number of different products that cover different risk aspects. For example, some have separate insurance products for non completion, deposit and defect risk. There may also be optional extras for some of the covers, such as coverage for consequential loss.
- The term of the cover varies significantly between five and twelve years for structural defects.
- Some cover provides for insolvency only, while others extend to further situations, perhaps akin to first / last resort style cover.
- Each product has its own list of exclusions which may include pools, exclusions for the first couple of years, rising damp and so forth.
- The minimum and maximum limits on the cover vary significantly between jurisdictions.
- Requirements may vary between commercial, residential and multi-unit developments.

- The name of the insurance cover varies from country to country and between jurisdictions. Some terms used overseas are 'builder performance protection', 'building defects insurance' and 'completion insurance'

For the interested reader, we provide references to some overseas websites at the end of this paper.

2.3. Senate Enquiry into Home Warranty Insurance in 2008

There have been various enquiries into the arrangements of HWI in Australia over the last ten years. Smith (2005) provides a summary of the main government reviews up until 2005 and here we provide a brief summary of the latest enquiry into HWI in Australia.

On 19 March 2008 the Senate referred to the Standing Committee on Economics for inquiry and report into HWI in Australia. The committee initially invited submissions on the issue of HWI in Australia and received some 125 submissions. The committee issued a report titled "*Australia's mandatory Last Resort Home Warranty Insurance scheme*" in November 2008. This report is well worth the read[5] and it shows the very emotional nature of the insurance, as demonstrated in the links to individual submissions to the enquiry. It provides perspectives of views of HWI from the consumer, builder, insurers, and regulators. It gives a detailed history of the schemes in Australia and discusses consumer protection issues.

The main recommendations arising from the report include:

- Increased disclosure to consumers about the product and a name change of the insurance, as the current name implies a misleading level of coverage for consumers.
- A nationally harmonised "best practice" scheme should be pursued. This includes harmonisation of items such as "loss of licence" trigger and clearer definitions of defective works.
- Nationally harmonised scheme of detailed reporting of HWI.
- HWI included in the National Claims and Policies Database.

[5] The full report can be found on the website www.aph.gov.au/senate/committee/economics_ctte/home_warranty_08/report/report.pdf

3. Challenges in Managing Home Warranty Insurance

In this section we discuss challenges that must be navigated in order to successfully manage HWI. We have identified several key areas that we believe are essential to consider:

1. Managing across the building cycle
2. Extended emergence of defect claims
3. Accessing useful and relevant data
4. Assessing financial strength of builders
5. Impact of Australian system instability
6. Managing expenses
7. Accounting challenges - determining an appropriate earning pattern
8. Adequate reinsurance arrangements.

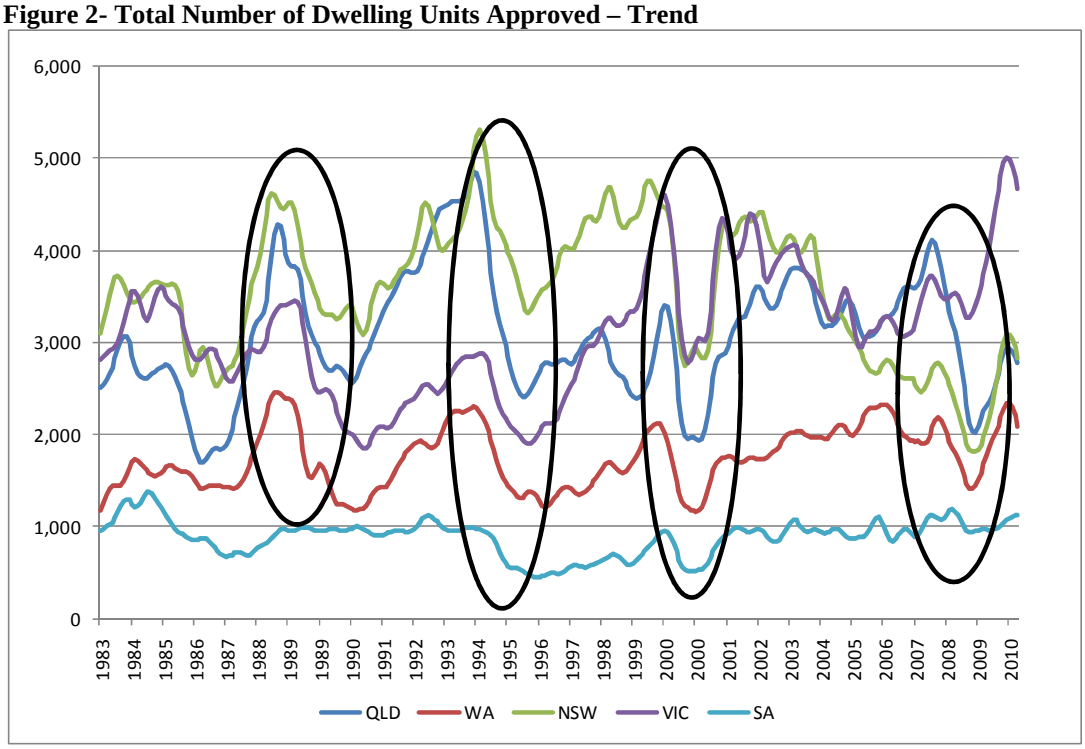
There are many other challenging aspects of HWI that we have not considered either because we have had less experience in dealing with these matters or it is beyond the scope of this paper. For example, the more detailed aspects of builder underwriting, claims management and ongoing builder management.

3.1. Managing across the building cycle

A large proportion of HWI claims cost arises from circumstances where builders become insolvent. This is especially relevant for last resort schemes and non completion claims, where the benefits are closely linked to an insolvency trigger. Builder insolvency rates are highly correlated to underlying building and economic cycles.

One way of graphically representing the building cycle is to plot the number of dwelling units approved over time. The following chart has the trend numbers of the total dwelling units approved by state for the last 27 years, up until 30 June 2010.

Figure 2- Total Number of Dwelling Units Approved – Trend



Source: ABS publication 8731.0 - Building Approvals, Australia as at 30 June 2010

This chart shows the large rises and falls in total dwelling units approved over time, with large downturns occurring in 1985, 1989, 1994, 2000 and 2008. This suggests that an average building cycle may take anywhere between four and eight years.

Here we provide some background to the two most recent downturns:

- The introduction of GST in 2000 saw a large drop in dwelling units approved across Australia, as people tried to complete their building works before GST was introduced. This led to a number of builder insolvencies and the impact was reasonably systemic across Australia. Average dwelling units approved decreased by 30% to 40% over the period.
- Over the last four years there have been different trends by state, for example:
  - NSW had a steady drop of about 40% in approvals from 2002 to 2007 and then a more sudden drop of 35% over the 16 months to April 2009. Overall, this was a drop from peak to trough of about 60%, with the more sudden drop resulting in a number of high profile builder insolvencies that included Beechwood Homes[6].
  - There have been similar large falls in other states, with the notable exception of Victoria that has experienced record numbers of approvals over the last two years.
  - There has been a general recovery in the building industry over the last 18 months, with approvals up by over 30% in many states. This trend has been stalling over the last few months.

The recent experience in Victoria may indicate that a geographically diverse insurer portfolio can lead to lower troughs and peaks in the building cycle, and hence claims cost. However, the experience in 2000 and prior, where all states fell at the same time, suggests that this diversification impact may be minimal.

In our experience we have observed that large reductions in dwelling units approved over short periods of time are associated with steep increases in the number of builder insolvencies. In turn, the level of builder insolvencies will impact HWI claims costs. Where the economy is strong and the building cycle is also strong, you are more likely to have better claims cost outcomes in this class of insurance.

3.1.1. The importance of taking a longer term view

There are a number of challenges arising from the existence of the building cycle and we refer to these throughout the paper. It is therefore useful to consider both claims costs and premiums during a typical building cycle.

Claim rates may vary significantly across building cycles, as illustrated in Figure 3. During peaks of the building cycle premium income is generally high (because the number of dwellings constructed is high) and claims are low (because builder insolvencies are low). For troughs in the building cycle the premiums are low (because the number of dwellings

[6] Beechwood Homes was one of NSW's largest project home builders when it went into voluntary administration on 13 May 2008. Subsequent to this, Beechwood Homes was sold to Resibuildco Pty Ltd, and has again been trading as Beechwood Homes.

constructed is low) and claims are high (because builder insolvencies are high). This means that profitability can be highly cyclical.

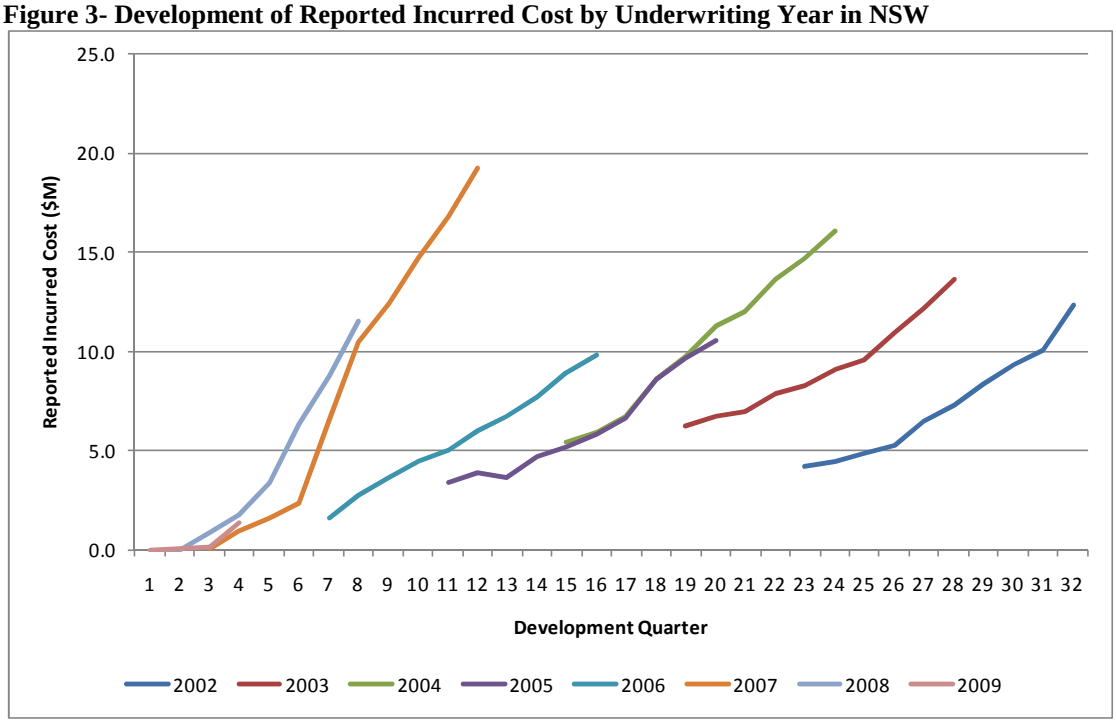
The existence of the building cycle means that a longer term financial view on the assessment of profitability of this product is required. Before drawing conclusions it should be noted that underwriting year claim outcomes, and the associated loss ratios, are also cyclical. In times of poor economic conditions or at low points of the building cycle, the loss ratio can be more than double that in periods of better economic conditions. It would be imprudent to draw conclusions without considering experience over a typical building cycle or perhaps over a number of different building cycles. This can be difficult given the instability in many jurisdictions scheme design.

3.2. Extended emergence of defect claims

The long tail nature of defect claims mean that a significant history of data is required to estimate tail development[7]. There are instances where there has been an inflow of defect claims at the end of policy reporting time limits, for example six or seven years after completion of works. This is exacerbated for larger policies and for high rise developments, where there have been instances of claim spruiking[8].

The following incurred cost development chart has been created using NSW Fair Trading data from its quarterly Scheme Information reports prepared by Finity Consulting Pty Ltd. We note that this data contains quarterly snapshots from the September 2007 quarter to the December 2009 quarter.

Figure 3- Development of Reported Incurred Cost by Underwriting Year in NSW



Source: NSW Fair Trading Quarterly Reports

[7] Claims emerging many years after the policy has been written.
[8] Claim spruiking in this instance refers to when a strata manager, body corporate or legal group actively looks for defects so that they can make a HWI claim prior to the end of the warranty period.

The chart illustrates a number of key points:

- There has been significant incurred cost development over the last two years, a result of the recent downturn in the building cycle from the GFC.
- Significant incurred cost development can occur many years after the date of underwriting. For example, the largest quarter of incurred cost development for the 2002 underwriting year has been the most recent one, over seven years after the average date of underwriting.

  It is unclear what proportion of this poor experience is due to the recent downturn in the building cycle and what proportion represents a "sting in the tail" at the maximum benefit period limit. Put in other words, there may be an increased propensity to claim during periods just before expiry of benefit period limits. The development of the 2004-09 underwriting years in the later development quarters is likely to be different to the experience in the 2002-03 underwriting years.
- The cyclical nature of the business to move in sympathy with the building cycle is demonstrated by the very different development patterns that have occurred for this business across underwriting years.
- Claims development can be heavily influenced by single insolvencies, and we understand that the Beechwood Homes insolvency makes up a significant proportion of the 2007 and 2008 underwriting year result.
- It is clear that a valuation of outstanding claims using an incurred cost chain ladder valuation methodology would provide a very poor fit to the data and this is discussed further in Section 5.2.

It can take a long time to settle HWI claims. One of the more interesting statistics from the 31 December 2009 NSW Fair Trading data is that open claims in the scheme as at 31 December 2009 make up a larger proportion of reported incurred cost than finalised claims. This means that there may be further significant development of incurred cost on open defect claims.

In summary, it is difficult to draw too many concrete conclusions from this incurred cost development analysis, as the results have clearly been impacted by the poor experience of recent years. To perform an assessment of profitability for this portfolio it is necessary to make a subjective assessment of the length and severity of building cycles, the likely development of open defect claims and the likely emergence of Incurred But Not Reported (IBNR) defect claims. We conclude that a relatively long history of defect claims data is required to manage the portfolio effectively.

3.3. Accessing useful and relevant data

One of the challenges in successfully managing HWI is obtaining useful data. A number of things that compounds this are:

- There is little *publicly available information*. Unlike APRA's National Claims and Policies Database (NCPD) [9] where public and product liability and professional indemnity insurance data is being collected Australia-wide, there is no definitive source for HWI. We note that NSW Fair Trading has been publishing some summarised data which can provide insights into the claims experience, but this is a relatively recent development for NSW only[10].

  The implication of this is that it makes it difficult for new entrants to adequately price the business, and it provides a barrier to entry in a privately underwritten market. The risks of entry into the market are high, because it may be years before an insurer finds out the true sufficiency of their pricing basis, and in practice this sufficiency may only be tested during the next downturn in the economic cycle.
- The *size of the schemes* in Australia is relatively small and hence sparsity of data is a real concern, especially for smaller jurisdictions. This also means that a single large insolvency can have a large influence on scheme results for a year, or indeed, over a number of years. To some degree this last impact can be managed by reinsurance arrangements.
- Many private insurers have separate *underwriting* and *pricing* systems. This can often make it difficult to combine this information together and hence maximise the data benefits from the two systems.
- The *long tail nature of the defect claims,* as described already in section 3.2, requires a long history of experience to assist in estimation of claim patterns, and this is often not available.
- The *stability of schemes* in Australia can limit the effectiveness of any information available, and this is discussed further in Section 3.5. The scheme instability makes it difficult to analyse longer term trends under current scheme arrangements and benefit levels, because many schemes in Australia have generally not been stable for long enough to give a credible data history.
- Claims outcomes are highly correlated to the *building cycle,* as described in Section 3.1. This means that meaningful data is ideally required over a variety of different building cycles, which in practice may mean having well over ten years of experience.

[9] The NCPD was established by APRA in 2003 at the request of the Federal Government in consultation with the insurance industry and other stakeholders to provide insurers, the community and State and Federal Governments with a better understanding of Public and products liability insurance and Professional indemnity insurance and the ability to monitor trends in premiums and claim costs.

[10] In our view the quarterly NSW Fair Trading reports could be enhanced by extending the analysis of results by underwriting year. This may include the statement of underwriting year results by type of cover and by type of claim. This could assist users in drawing conclusions about the different emergence patterns of non completion and defect claims and the different emergence patterns by type of cover.

These issues make it difficult for actuaries and management alike to form a view on longer term claim levels and/or trends, especially as they relate to defect claims. Section 4.1 of this paper discusses some splits of data that may be useful in aiding the analysis of these trends.

3.4. Assessing financial strength of builders

One of the key determinants of claims cost is the risk of builder insolvency. Thus, underwriters generally use an assessment process to determine the financial strength of an individual builder.

There are a number of difficulties associated with undertaking a financial assessment of a builder including:

i. Financial structures of builders can often be difficult to understand and assess, with larger builders often having complex company structures.
ii. For smaller builders, much of the wealth of the business may be contained within the builder's personal assets, rather than within the business.
iii. The financial accounts of builders often have a subjective element incorporated into them in regard to the value of works in progress, making profitability difficult to assess.

A number of different aspects of a builder's "character" are often assessed to assist in forming a view on the financial strength of a builder. This may include:

- an assessment of a builder's financials, using indicators such as net profit over time, net tangible assets, current assets, profit margin etc
- the structure of the builder's business
- writs / notice of complaint against the builder
- security[11] attached to the builder
- the personal assets of the builder for sole traders or partnership arrangements
- the credit worthiness of a builder
- the quality of a builders work
- works in progress
- the annual turnover of the builder
- growth of business
- years the builder has been in business.
- average size of contracts
- location of building work.

This assessment may be used to accept or decline an individual builder. It may also be used as a pricing differentiator, depending on the rating structure of the insurer or scheme. A privately underwritten scheme may try and select better risks by underwriting builders and then charging an appropriate premium based on the risk assessments. A publicly underwritten scheme, on the other hand, may use the financial assessment mainly to identify problem builders with the intention of providing closer monitoring and support, assuming that the scheme uses a community rating[12] type approach.

[11] An insurer may request a form of security in exchange for providing HWI to a builder. This approach may be used to deal with builders who do not pass the required eligibility assessment criteria. Types of security required may include indemnities or bank guarantees.

[12] Community rating in this context refers to a pricing approach where the insurer may not calculate the premium based on risk factors of a particular builder, but rather on risk factors applying to all builders within the market as a whole.

3.5. Impact of Australian system instability

History has shown that HWI scheme design changes in Australia have often followed crisis events, often triggered by a downturn in the building cycle. For example:

i. NSW and Victoria changed their scheme design in 2002 from a *first resort* to a *last resort* scheme and this closely followed the downturn in the building cycle in 2000 as a result of the introduction of GST and also the collapse of HIH in 2001.

ii. More recently, the downturn in the building cycle and subsequent exit of insurers (CGU, Lumleys and Vero) from the privately underwritten market has caused both NSW and Victoria to change scheme design from a privately underwritten scheme to a publicly underwritten scheme.

Maximum benefit claim periods have changed over time and indeed are not entirely consistent across Australian jurisdictions. Given the size of the HWI market in Australia, it is the authors view that there are significant benefits in standardising the terms and conditions across Australia.

At this point we note that the Queensland scheme is an example where a stable scheme design has been in place for many years and perhaps lessons in scheme design may be taken from this jurisdiction.

The ever changing arrangements of many Australian home warranty schemes presents challenges that must be navigated to successfully manage this business over extended periods of time. These changes make it difficult to rely on historic data and there is a frequent need to supplement empirical analysis with a subjective overlay, or to use benchmarks from other schemes.

3.6. Managing expenses

A number of factors contribute to HWI being a labour intensive and expensive insurance product to maintain, relative to its premium income size. The impact of these factors means that the insurance has very high expense ratios, typically upwards of 50%, without accounting for profit margins. This may also be a barrier to entry for a number of private insurers. Here we discuss some of the characteristics contributing to these high expense ratios.

3.6.1. Underwriting and eligibility assessment

Before underwriting project certificates, an insurer will undertake an eligibility assessment of an individual builders financial position. This can be expensive, given:

1. The number of builders in Australia[13]; and
2. The difficulties in assessing the financial strength (as discussed in Section 3.4).

Further expenses are incurred when additional project certificates are issued for individual building projects. For larger builders there may also be a deal of rigour around monitoring the number and size of building works in progress in order to manage concentration risk. This is to help mitigate the size of a potential large loss in situations when a builder may be

[13] In NSW alone there were over 16,000 builders given eligibility according to the report "*NSW Home Warranty Insurance Scheme Information on the Scheme as at 31 December 2009*", issued by NSW Fair Trading.

experiencing financial difficulties and is commencing multiple new jobs to assist in meeting cash flows.

In cases where a builder may be experiencing financial difficulties, there may be additional "builder management" costs associated with maintaining the viability of the builder or building company. There becomes a vested interest that builders do not fail in these circumstances, both from the insurer and builder perspective.

3.6.2. Size of the market in Australia

The size of the HWI market is relatively small when compared to other classes of compulsory insurance such as workers compensation or CTP insurance. We estimate the annual Australian premium income to be about $200M although this may fluctuate depending on the point in the building cycle. Fixed expenses therefore contribute a high component of cost. This point is exacerbated due to the number of different regimes operating in Australia's states and territories.

3.6.3. Intermediary costs

Under privately underwritten insurance arrangements a builder will generally apply for HWI through a broker rather than directly through an insurer. The broker therefore acts for the insurer by completing much of the labour intensive administrative work and is paid a commission for this work. The broker may also charge additional fees to the builder which would be explicitly identified.

A significant cost of the insurance premium is therefore related to the intermediation and distribution of the business. Our understanding is that these costs may make up some 10% to 20% of the total premium.

3.6.4. Claims handling expenses

Claims related expense can also be a significant cost, as the assessment process needs to ascertain answers to the following questions:

1. Has a claim trigger occurred, for example a builder insolvency or can the builder be located?
2. Is the claim valid? For example is the defect identified covered under the policy terms and conditions?
3. Has the claim occurred within the correct timeframe?

Answers to these questions may not be straightforward and may require investigation.

3.7. Accounting challenges - determining an appropriate earning pattern

Accounting standards and other regulations require premium to be split between earned and unearned components. They also require the splitting of an insurance liability valuation result at any point in time between outstanding claims and premium liabilities, consistent with this earning pattern. The decision as to which methodology is used to recognise earnings in respect of this business is not straightforward.

The adopted premium earning pattern will influence the emergence of profit over the lifetime of a policy. While this may not seem important, there are times when it may be. Consider the example of a private insurer where a short earning pattern is adopted and substantial profit is rapidly released on the basis of a strong building cycle. Subsequent to this, let's assume that there is a quick downturn in the building cycle leading to a rapid deterioration of HWI profitability due to increased builder insolvencies. In this case, significant additional capital reserves may be required to shore up the balance sheet, if the profits of previous years have already been distributed. This in turn may put pressure on an individual insurer's financial position.

The accounting standards provide some guidance as to the determination of an appropriate earning pattern. Sections 4.4.1 and 4.4.2 of AASB 1023 state:

> "4.4.1 *Premium revenue is recognised in the statement of comprehensive income when it has been earned. An insurance contract involves the transfer of significant insurance risk. The insurer estimates the pattern of the incidence of risk over the period of the contract for direct business, or over the period of indemnity for reinsurance business, and the premium revenue is recognised in accordance with this pattern. This results in the allocation of the premium revenue and the claims incurred expense and hence the gross underwriting result over the period of the contract for direct business, or over the period of indemnity for reinsurance business, in accordance with the pattern of the incidence of risk.*
>
> *4.4.2 Measuring premium revenue involves the following steps:*
> *(a) estimating the total amount of premium revenue expected under the contract;*
> *(b) estimating the total amount of claims expenses expected under the contract and estimating when the claims are expected to arise;*
> *(c) estimating the pattern of the incidence of risk from the result of (b); and*
> *(d) recognising the premium revenue under the contract identified in (a) when it will be earned, that is, in accordance with the pattern of the incidence of risk determined in (c).*"

For most general insurance business the *incidence of risk* can be defined by reference to the date that an event occurs that gives rise to a pecuniary loss under the policy. For example, this may be the date of a car accident or the date of a weather event. However, it is less clear under a HWI policy, where you require a trigger event to occur and a defect or non completion to also occur. For example the attachment date could be defined as:

1. The earlier of the non-completion event (e.g. death, disappearance, license suspension or insolvency) or the date of completion in the case of defective works (because at this date the work is complete and the defects will either emerge or they won't).
2. The date of the "trigger" event which may be anywhere up to seven years after completion of the works.
3. The date that the claim is actually reported.

Each of these definitions would result in different earning patterns. The situation is further confused because once the definition of incidence of risk is accepted, then the emergence pattern will depend on the future building cycle, which is inherently uncertain.

We propose that the earning pattern is averaged over a typical building or economic cycle and that the adopted approach is reasonably simple, given the uncertainties and subjectivity surrounding the definition and measurement of earning patterns. Further, we believe that the pattern should be derived on the event that triggers a potential claim for a last resort scheme, i.e. when a builder dies, disappears or becomes insolvent. In respect to non completion

claims, the trigger event may occur at a delay close to the date of claim report. In respect to defect claims, the trigger event may be significantly before the date of the claim report.

Our experience has shown that the emergence of incurred claims cost is volatile over the life of a policy for any given underwriting year. There are different emergence patterns for non-completion and defect claims, with non-completion claims emerging prior to defect claims. The emergence pattern may also depend heavily on the point in the building cycle when the cover is underwritten. Taken over the longer term, the emergence of incurred claims cost may be assumed to be relatively evenly spread over the life of the policy, although as previously mentioned, there can be significant variations by underwriting year, depending on the ebbs and flows of the building cycle.

The above observations lead us to conclude that a uniform earning pattern over a period related to the claim time limit would be appropriate, and this could therefore vary by jurisdiction. For NSW and Victoria this may equate to a period of five to seven years. The earning pattern decision primarily impacts on the emergence of profit, with a slower emergence of profit for longer deemed earning patterns.

On 30 July 2010 the International Accounting Standards Board published for public comment an exposure draft of improvements to the accounting for insurance contracts. The exposure draft proposes a single International Financial Reporting Standard that all insurers, in all jurisdictions, could apply to all contract types on a consistent basis. We note that this may change the requirements for the earning pattern.

3.8. Adequate reinsurance arrangements

The unique risks associated with HWI means that it is important to set appropriate reinsurance arrangements to protect against large losses. The aversion to risk will be insurer specific and in the past it has not been uncommon to see coinsurance or quota share arrangements to limit risk accumulations.

It is important to consider exposure to large losses from individual builder insolvencies. This can impact many underwriting years and hence excess of loss reinsurance arrangements tend to operate over both the current and historic underwriting years. Therefore, it works differently to excess of loss insurances for other classes of business which generally operate over a specific accident period. We note that catastrophe cover for individual builder losses in excess of $10M have been placed with the NSW, VIC, SA and WA governments since mid 2002. This has arisen because of the refusal of reinsurers to accept the risk, perhaps a failure of the private sector.

It may also be prudent to reinsure the risk of many losses in a particular underwriting year as a result of a downturn in the building cycle, perhaps through the use of a stop loss arrangement.

There is a clear need to be able to articulate an individual insurer’s risk tolerance to ensure that appropriate reinsurance arrangements are arranged.

4. Monitoring Claim and Policy Experience

4.1. Data management

There is little publicly available HWI data and in the authors' opinion, the establishment of an Australia wide central database would be a significant positive step forward, especially for states other than NSW. However, its usefulness is partly diminished because of the different legislative environments.

The main sources of data that we have been able to analyse are:

i. NSW Fair Trading data quarterly HWI statistics. These appear to be the most comprehensive publicly available statistics and we have used some extracts of this information throughout this paper.
ii. The Australian Bureau of Statistics (ABS) publishes information that can be used to opine on the building cycle (as previously mentioned) and importantly has statistics by state, which enables differences to be highlighted.

In the remainder of this section we present our thoughts on ways to segregate HWI data that may be helpful in explaining some of the main drivers of claims cost trends. While not an exhaustive list, it does highlight some of the more interesting trends that we have observed in our work. We believe that the establishment of a database with relevant and useful information is central to the prudent management of HWI.

4.1.1. Location of building works

Each jurisdiction in Australia has its own distinct benefit structure, and it makes sense to monitor experience separately. We have found that finer subdivisions of location may provide further insights. However, there is a limit to subdivision by location as:

1. There is limited claims experience.
2. Individual builder insolvencies can dominate results within smaller subdivisions.

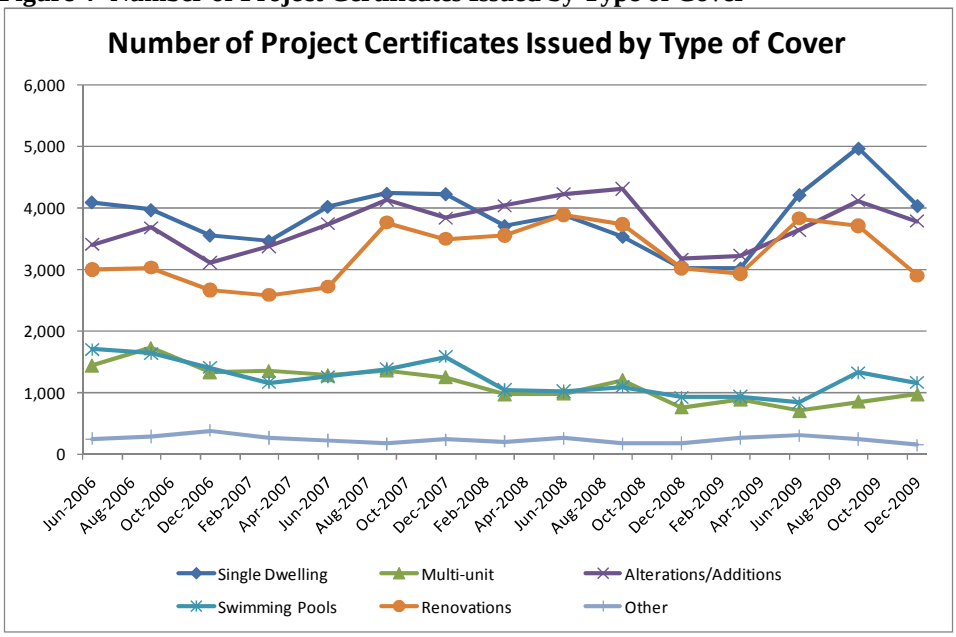
We have found that a city versus country split may provide useful insights because the building cycle may impact these regions differently. In some analyses we have undertaken we have seen the building cycles impacting cities or more densely populated areas to a larger extent than country areas. City areas also appear to have a greater propensity to make a claim. Perhaps part of this reflects the greater *sense of community* within country areas and this may influence claiming behaviour patterns.

4.1.2. Type of cover

We define the *type of cover* to be the type of building works undertaken. Builders often specialise in specific types of work. For example: swimming pools, new single dwelling homes, renovations or multi-unit developments. The claim profile can differ by type of cover. Hence, if you do not allow for the changing profile of the types of cover within your portfolio then false conclusions may be drawn.

The following chart uses NSW Fair Trading data to show the trends in project certificates issued in NSW by type of cover since June 2006.

Figure 4- Number of Project Certificates Issued by Type of Cover

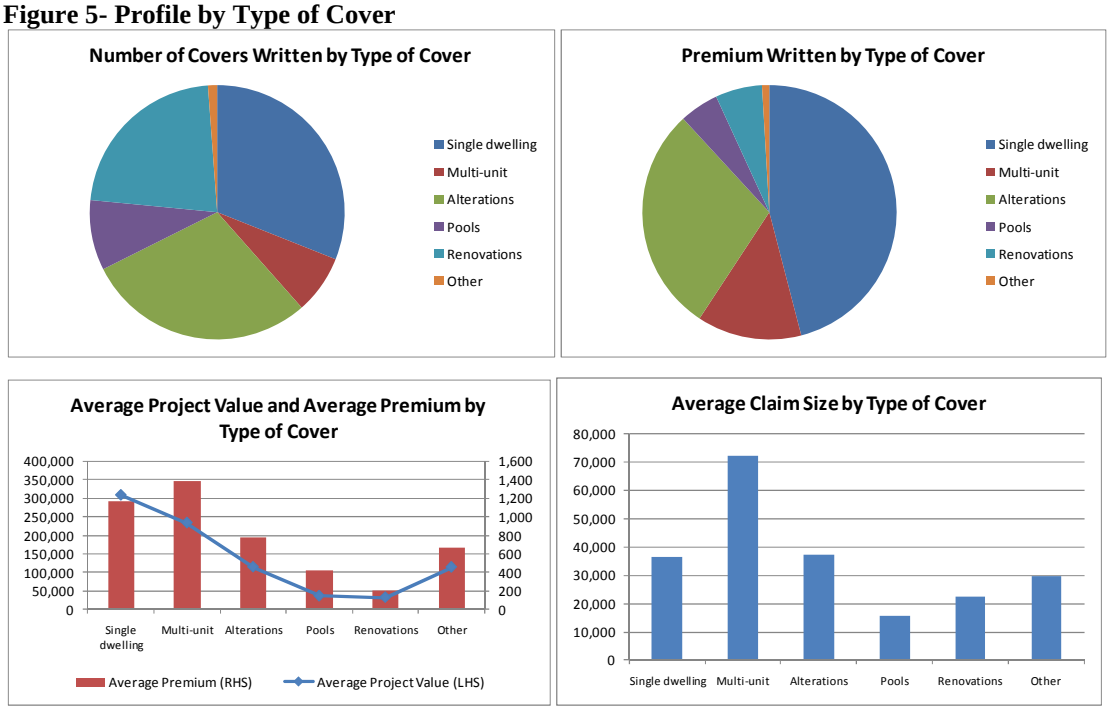


Source: NSW Fair Trading Quarterly Reports

Swimming pools and multi-units appear to have been relatively unaffected by the downturn in the building cycle while single dwellings, alterations / additions and renovations appear to be the most impacted. Thus, different types of cover may be impacted differently by the building cycle.

The following charts show a summary of the characteristics of different types of cover in NSW using data for the December 2009 quarter.

Figure 5- Profile by Type of Cover



Source: NSW Fair Trading Quarterly Report as at 31 December 2009

As can be seen, each type of cover has different average project values, premium and claim size. We also note that they can have very different claim frequencies, although the NSW Fair

Trading data is not extensive enough to perform meaningful analysis by type of cover, given the different development patterns of the different types of cover.

We believe that the distribution of building works by type of cover is an important risk identifier to consider when pricing, valuing and/or monitoring. We draw out some of the main points from these graphs in the following commentary on different types of cover.

Single dwellings

For the December 2009 quarter, single dwellings accounted for about a third of the new project certificates issued and about 45% of the premium written in NSW. The construction of single dwellings is often dominated by a number of larger specialist builders, especially in city areas. As such, the builders can be heavily influenced by the building cycle as it is during poor economic times that people are less willing to move and/or build a new dwelling. Financial results for an insurer can therefore be dominated by the inclusion or exclusion of a single large builder failure. This needs to be taken into account when assessing financial performance over a period of time.

Non structural improvements

Non structural improvements are typically lower value building works and may include things such as kitchens, bathrooms and more minor renovations. These building works are typically subject to different claim benefit entitlements. For example, non structural claims have a lower maximum claim period in many Australian jurisdictions. Additionally, there may be different awareness on the ability to claim. These smaller building works may mean that the cost of fixing a defect may be negligible, or the operation of excesses may mean a lower propensity to claim. These types of contracts typically have lower claim frequencies, lower average claim sizes and faster claim development patterns. Claim patterns are therefore more predictable and portfolio trends in this type of cover can be closely monitored.

Multi-units

There are a number of different types of multi-unit splits, including duplexes, villas, low rise unit developments and high rise unit developments. These different segregations may also give rise to very different claim profiles. Developments with a higher number of storeys are more specialised and more things can potentially go wrong. More specialised underwriting may be required and there have been reforms over the last few years that have tried to address some of these problems. In general, higher and larger building works will be more complex and hence the more complex the claims are likely to be.

For example, the larger the number of units in a development, the more likely it is that a specific defect will be identified. This may mean that similar defective works within other units in the development may also be identified. Additionally, for high rise developments there have been instances of claim spruiking, where defects identified on one development are then tested in other developments from the same builder. This can lead to both a higher claim frequency for multi units and can also lead to significant development on existing claims, especially older claims where more than a single unit is affected.

Other structural improvements

This would include pools and include other larger alterations and additions that contain a structural component. It is our experience that these types of cover are less impacted by the building cycle compared to single dwellings. However, some of these types of cover may have specific claim characteristics to monitor. For example, pools may be separately identified and monitored, with particular note given to the propensity to claim.

4.1.3. Type of claim

Here we refer to whether the claim relates to non-completion or defect claims. Defect claims may even be further subdivided between non structural and structural defects. Non completion claims may also be subdivided further into deposit insurance and other. This split is useful because these different types of claims have different claim emergence patterns and characteristics. Non completion claims tend to develop faster once reported and are generally finalised more rapidly than other HWI claims.

4.1.4. Indemnity on claim

The life-cycle of a claim may be thought of beginning at the notification of a claim. In some circumstances this is where the claim will end up, as it may be clear upon inspection that the claim is not valid. For other claims, there will be an investigation as to whether the insurer accepts indemnity on the claim. This stage of the claim cycle may involve some costs to determine whether a valid claim event has been triggered. The final stage of the claim is after the insurer has accepted indemnity of the claim.

This split is useful because claims are generally of a low value until indemnity is accepted on the claims. It is therefore useful to determine trends in the proportion of claims in each category over time. In particular it is useful to understand the pool of potential claims, where investigation of indemnity acceptance is under review. Analysis of the reasons that claims are denied can also be important to better understand the emerging experience.

4.1.5. Contract value

There is a high correlation between the contract value and type of cover. For example, non structural works such as kitchens and bathrooms are likely to have smaller contract values than new single dwellings. Nonetheless we have found that monitoring claim outcomes by contract value can provide several insights:

- Higher contract values are expected to have higher average claim sizes, as the potential for large defects increases with the size of the project. However, this effect tapers off at higher contract values as either maximum policy limits are reached or as the severity of the “average” defect stabilises.
- There can be a strong correlation between contract values and propensity to claim, with higher incidences of claim frequency on higher value policies. This may not be surprising given higher value projects are typically more complex, which may lead to a greater potential for things to go wrong. It is also possible that there will be a greater awareness of the insurance and a greater willingness to claim on larger projects.

The combined impact of the above points is important in understanding and testing the sufficiency of the premium rating basis by contract value.

4.1.6. Large versus working losses

It can be useful to split claims cost between *working losses* and large builder losses, because a single builder insolvency can bias results according to the characteristics of that builder. One way to reduce this bias is to consider looking at builder insolvencies or other builder trigger

events separately from claim frequencies or to limit the contribution of claims for any given builder insolvency when investigating working losses.

Large insolvencies often have unique circumstances which warrant looking at separately. For example, there may be an option to trade out of a specific insolvency and this can change the claim outcomes. Alternatively, the builder may specialise in certain projects, such as larger value boutique homes. Depending on the number of years that the builder has been on an individual insurers books, there can be a different split of non completion and defect costs. Similarly, the impact may be specific to a recent underwriting year or may have an impact across a wider number of underwriting years and for a longer period of time.

4.1.7. Builder characteristics

The financial and "character" assessment of a builder's risk of insolvency is a complex task and would be worthy of a research paper in its own right. It is important in being able to make informed underwriting decisions on builders. Our analysis indicates that the builders identified as experiencing financial difficulties can have claims experience more than ten times that of other builders, so identification of these builders is important to enable the risks to be properly managed.

Some of the types of information that may be useful to include in a builder assessment and to monitor over time include those identified in section 3.4. Tracking financial assessment over time can give an indication of the risk profile of the builders.

It is useful to monitor these builder characteristics to help to make informed decisions on portfolio management. One of the challenges is linking the underwriting assessment for eligibility of cover with pricing data, as the assessment is often performed on separate IT systems. Also, any underwriting assessment may or may not be updated over time, or the pricing basis may not correlate with the underwriting assessment.

4.1.8. Other miscellaneous splits

Other miscellaneous useful monitoring splits may include:

- *Principal cause* - this refers to the trigger of the claims, whether it be insolvency, death, disappearance, loss of license or other causes in respect to a last resort scheme.
- *Builder view* – the number of builders with eligibility and their premium and claim characteristics, especially for the larger builders.
- *Finalisation status* - the larger and more complex claims can take years to settle.

4.2. Monitoring reports

Here we discuss some monitoring reports that we would find useful in the context of HWI. Some are standard reports that you would expect to be produced for any insurance business, while other items are specific to the characteristics of HWI.

Given the size of this business, there is a trade-off between the granularity of the analysis and the identification of meaningful trends. It is more important to understand the reasons for the trends seen in the data. The level of granularity adopted for a portfolio will often depend on the size of the portfolio and available resources.

4.2.1. Monitoring claims experience

The starting point of any monitoring of claims experience is a one-way analysis of rating variables and other data splits, both by itself and also by underwriting year. The underwriting year analysis can determine if trends are consistent over time and also to standardise for different emergence patterns. One-way analysis can be enhanced by considering further subdivisions where appropriate.

Given the data splits identified in Section 4.1 we would view the following claim summaries to be important in the monitoring of HWI:

- Loss ratios defined as claims incurred divided by premium income and graphs showing loss ratio development over time, in the same manner as Figure 3.
- Claim frequency calculated as number of claims divided by number of certificates and graphs showing development over time.
- Average claim sizes defined as incurred estimates divided by number of claims, further split by finalised and open claims.
- Trends in indemnity claims as a percentage of total claims.
- Costs associated with large insolvencies can be separated out and determined as a percentage of total cost.
- For builders with claims recorded against them, the proportion of claims to certificates issued, in order to better understand exposures to builders where a trigger event has already occurred.
- A listing of new builders with claims and the relevant trigger
- A listing of builders with claims currently recorded against them, including the relevant trigger event and trigger date.
- Actual versus expected incurred cost development from the latest valuation of insurance liabilities.
- Identification of the largest claims, including claims development history and claim characteristics.
- Claim size by delay of report from the date of underwriting.

4.2.2. Monitoring exposures

The premise behind monitoring exposures is to ensure that premiums being collected are in line with expectations from the pricing basis. It also allows a view to be formed on trends in the risk profile of the business written, such as by type of cover, location, financial quality of builders or project value. We would view the following exposure summaries to be important:

- Number of certificates issued
- Average premium per certificate and as a rate per contract value
- Average contract value per certificate
- Top 50 exposures on individual builders including the growth in certificates over time
- Market share by comparing to ABS data.

4.2.3. Underwriting versus reporting period trends

There may be value in monitoring some of the above mentioned items by reporting year. For example, the number of claims and incurred cost development. This can help to better understand the impacts of the building cycle although care needs to be taken that trends identified are not just as a result of the mix characteristics of the portfolio or as a general result of the maturing of the portfolio.

5. Actuarial Valuation Considerations

The nature of HWI lends itself to an underwriting year valuation methodology rather than an accident year approach, primarily because the interpretation of the incidence of risk can be problematic, as discussed in section 3.7.

The insurance liability valuation is an important management tool because it provides an estimate of aggregate claim costs of the portfolio by underwriting year. This allows a periodic assessment of the profitability, or otherwise, of the historic (and current) pricing structure. It is useful to express aggregate claims cost as a cost per certificate or rate per contract value for each underwriting year.

In this section we consider:

- Splitting up the data for analysis
- Valuation methods
- Selection of valuation assumptions
- Estimating uncertainty.

5.1. Splitting up the data

In the work that we have examined, we have found the following factors to provide a meaningful segregation of data for valuation purposes:

- *Location* –where legislation and benefit structures are different, say by state.
- *Type of claim* – non-completion versus defect claims as the claim emergence patterns and average claim sizes vary significantly.
- *Indemnity status* – claims where indemnity has not been accepted by the insurer, such as notification only claims or disputed claims, should be separated.
- *Size of claim* – large builder insolvencies or large individual claims tend to have their own specific circumstances and characteristics, and separate analysis may be justified or traditional valuation techniques may need to be adjusted.
- *Type of cover* – there are different emergence patterns both in relation to claim incidence patterns and average claim sizes for different types of cover.

Other splits are possible, with the adopted level of granulation a compromise between the choice of homogenous claim groups, the size of portfolio (after considering sparsity of data and the ability to identify trends) and available resources. The integrity of the data may also be an issue. For example, is the type of cover definition robust and has this definition been applied consistently in the portfolio over time?

More often than not, a simple split of the data is performed, because claims data is relatively sparse for most private insurers. The key consideration is to ensure that you are aware of changing trends in the portfolio so that you can respond accordingly. Close linkages with monitoring report trends can aid the valuation process, and consistency in the data groupings will assist this process.

5.2. Valuation methods

Traditional valuation methods have limits or require significant change as a result of the impact of the building cycle on claim trends. So much so that it can be difficult to justify the use of standard actuarial methodologies without some form of adjustment.

Here we discuss some of the more common valuation methods, some limitations and consider some modifications that may be employed. It is assumed that the reader has familiarity with these valuation methods.

Bornheutter-Ferguson

This can be a useful technique for smaller portfolios as it is a reasonably robust methodology when faced with sparse data. However, there can be challenges in using this method including:

1. Appropriate a-priori assumptions may be difficult to estimate when faced with a limited history of data.
2. Setting an appropriate emergence pattern can be problematic, especially if trying to estimate a building cycle. Problems can emerge in circumstances where emergence patterns are calibrated in either times of economic stress or favour.

If estimating the ultimate number of claims for a given underwriting year then consideration may be given to using some form of adjusted Bornheutter-Ferguson method, based on claim number emergence.

Chain ladder

The cyclical nature of HWI will often mean that any chain ladder analysis is likely to be biased and hence limits the use of this method. This is best illustrated by considering Figure 3 of this paper which shows very different incurred cost development patterns over different underwriting years.

However, a useful way to use the chain ladder methodology is in the estimate of the ultimate incurred cost of *reported claims*. Given the life-cycle of a claim, it can be useful to consider the development of the incurred cost from the first time that the insurer accepts liability for a claim. These development patterns are generally more stable than underwriting year development patterns.

Other methods

We have found it difficult to apply traditional methods such as payments per claim incurred or payments per claim finalised, because the underlying assumptions for these methods are often not consistent with claim payment patterns for HWI.

The authors are of the view that a claim frequency times claim severity approach can provide an appropriate level of insight and control in the estimation of IBNR claims in most circumstances. Such an approach allows standard techniques to be used for reported claims (as described above), and allows the actuary to focus on making an appropriate allowance for the building cycle, rather than drawing too many conclusions based on the recent experience alone.

5.3. Selection of valuation assumptions

Predicting movements in the building cycle can be problematic, but it is our view that the next building cycle downturn needs to be allowed for in selecting assumptions. The implications for assumption setting are:

- Averaging of assumptions over longer periods of time and resisting the temptation of reducing assumptions based on favourable experience over recent years.
- It can be useful to identify working losses under "normal conditions" so that the relative experience during deteriorations in the building cycle can be measured and allowed for in assumption selection.
- Most underwriting years will be subject to a downturn in the building cycle over its lifetime, given the length of cover generally extends to over six years. Hence, more recent underwriting years should contain an allowance for a building cycle downturn at some stage. Forming a view on the building cycle may be useful for model selection.
- A methodology for running off any allowances for a downturn in the building cycle may be considered and this may not necessarily be a uniform run-off pattern. For example, a long term assumption selection may be "scaled up" over the short term when claims experience is deteriorating. This adjustment could be tapered off over time.

These comments indicate that there can be a relatively high subjective element in the adopted valuation basis. It is our view that the communication of these subjective elements to management is important. Scenario analysis or sensitivity analysis can be used to quantify the uncertainty associated with these elements, especially with respect to building cycle assumptions.

Some challenges associated with selecting valuation assumptions for HWI include:

- The estimation of the emergence of the defect claim tail, especially where data is not yet fully developed.
- We have seen many changes to HWI claims processes within insurers and this poses many challenges in estimating the impact of these changes.
- A case-by-case basis may need to be considered for large builder insolvencies. This is because the builder may have had a higher or lower average claim size compared to industry (because they complete smaller or larger building works), past exposure may be limited (in the case of a new builder in the insurer portfolio) or there may be significant potential recoveries in instances where the insolvent builder attempts to trade out of the situation.
- When measuring larger insolvencies separate to other insolvencies there is a need to maintain an IBNR component for large insolvencies.
- It's useful to look at portfolio trends and use these as an input into the valuation process. For example:
    - Analyse the financial assessment of builder profiles over time to assist in future claim frequency assumption selections.
    - Discuss with the underwriters their view of the strength, or otherwise, of the current builder profiles.
    - Make subjective assessments of the building cycle by referencing underlying local or global economic conditions.
    - Examine trends in types of cover or location over time and this may assist in assumption selection.

5.4. Estimating uncertainty

There are a large number of uncertainties impacting on a HWI valuation. At this stage we refer the reader back to Section 3.2 and how the 2002 underwriting year would be projected before the severe increase in incurred cost from mid 2008. If the 2008 downturn in economic conditions had not eventuated, then the 2002 underwriting year's ultimate loss ratio may well have been half what current projections imply.

Here we consider some sources of uncertainty for HWI:

- There are many influences on the Australian building cycle and this business is highly geared to the building cycle. For example, there have been various government stimulus initiatives such as the First Home Owners grant that has been aimed, in part, at moderating downturns in the building cycle. The Reserve Bank of Australia also influences the cycle as a result of its monetary policy and interest rate management. Many of these positive stimuli are currently being removed or reduced and it is unclear what impact this may have on the building cycle.
- There have been a number of legislative test cases that may impact claims emergence. These cases are testing benefit claim limits and considering new heads of damage such as consequential loss (e.g. loss of rental income). Other countries have specific policy options that cover some of these factors (loss of rent, other accommodation while getting defect fixed etc..) The court cases have the potential to significantly increase claims costs and this would probably manifest itself in the experience as superimposed inflation.
- Emergence of tail claims remains uncertain post legislative changes in some jurisdictions. For example, the ultimate outcomes for the 30 June 2002 reforms in NSW and Victoria are still uncertain, with many late reported claims. The impact of the Tasmanian reforms will not be known until many years into the future.
- There have been recent trends making it easier for home owners to access HWI, such as the license suspension trigger in NSW, and indeed this was one of the recommendations of the 2008 Senate Review.
- Large builder insolvencies can have a significant impact on claim outcomes and the uncertain size and low claim frequency can make these difficult to reserve for.
- Similar to the above point, there can be high uncertainties surrounding estimation of multi-unit claims. There have been instances of high-rise multi unit spruiking of claims that has led to a spikes in reporting and adverse development of high-rise claims.

These considerations amount to significant systemic risk. A downturn in the building cycle is likely to impact many underwriting years. Thus, statistical methods of analysing risk may not be particularly robust. However, an approach first described in O'Dowd et al (2005) could provide a sensible place to start. This may be based on a scenario testing regime or involve a stochastic valuation process which models the impact of different building cycles.

The uncertainty in HWI is evidenced by poor results in the late 1990's and early 2000's where we have viewed loss ratios that have been well over 300%. These uncertainties mean that by the time the underpricing is recognised and understood, losses may already be significant. There will be an additional time lag before pricing adjustments can be made.

6. Pricing Home Warranty Insurance

The pricing basis for HWI may be very different depending on whether a scheme is privately or publicly underwritten, as the two providers have different goals. The pricing paradigm within a private scheme is likely to be designed by each insurer to maximise their financial return, whereas the pricing of a publicly underwritten scheme may have different priorities, perhaps seeking prices that are affordable to all builders requiring coverage, sufficient in the long term and stable over time.

Despite these differences, both privately and publicly underwritten schemes have a lot to gain by first estimating the expected future claims cost, and understanding how this expected cost may vary between different building works, and between different builders.

6.1. Pricing philosophies

HWI is a form of consumer protection insurance. Hence, we believe that the pricing of the insurance should ideally abide by the following principles:

- *Stable* – premiums should be relatively stable over time and the across the building cycle.
- *Sufficient* – the premiums should be adequate to cover claims costs and all associated expenses over the lifetime of a policy.
- *Simple* – the premium basis should be easy for builders and consumers to understand and implement.
- *Support* – the premium basis should support the building industry and not work against it.

We discuss these in the context of pricing and the types of arrangements for this business, especially in the context of public versus privately underwritten insurance.

6.1.1. Pricing across the building cycle

You can price HWI to move in line with the building cycle or you can average the price of the insurance over a longer period of time. Under the latter approach it is assumed that the insurer does not distribute profits in good years, as they would be required to fund the poorer claim outcomes from the bad years. Section 7 considers the issue of profit emergence further.

If you were to price according to the building cycle then we note that it is during poor economic times that builders and consumers are unlikely to want to pay additional insurance premium costs and this may actually exacerbate the cycle, indirectly causing a greater number of building insolvencies.

Given the generally compulsory nature of HWI, we are of the opinion that the benefit of pricing stability over a longer period of time outweighs any equity imbalances that occur in this insurance. Additionally, there are difficulties associated with identifying the timing and severity of the next building cycle and a long term pricing approach provides some security against misestimating the cycle.

The choice of pricing approach across the building cycle may depend on the structure of the scheme. For example, public schemes may be able to price over a typical cycle. Private insurers, on the other hand, may be less willing to do so. Competition would increase during

times of economic strength and stability while insurers may exit the market during periods of economic downturn. This could lead to volatile premium outcomes over time and is probably not desirable for the industry. We have seen this happen in NSW and Victoria over recent times where the restriction of capacity has led the government to make the decision to publicly underwrite the risks.

6.1.2. Rating on builder characteristics and implications for scheme structure

Our experience has indicated that assessment of builder financial strength is a key differentiator of expected claims cost. A fundamental question for a scheme is whether to reward builders that are better financially managed. Put another way, is a "building" and / or "builder" centric rating approach taken?

For a privately underwritten scheme the answer appears obvious in that the rating structure should reflect the underlying builder specific risks or the insurer will get selected against.

For a monopoly publicly underwritten scheme it is less clear whether it is beneficial to reward better financially rated builders. If a rating structure is made publicly available then quotes to customers from different builders for the same coverage may indicate the financial assessment of individual builders. If it becomes known within the industry that a builder is poorly rated, then this may of itself contribute to a reduction in builder contracts (both because insurance costs are higher and from reputation damage) and hence the insolvency of the builder may become a self-fulfilling prophecy.

Other reasons a monopoly publicly underwritten scheme may not choose to rate on builder characteristics include:

- Transparency for builders and consumers as premium rates can be released to the public, such as via a government web site.
- Increased certainty for builders and consumers, with less chance of subjective assessment of builder risk resulting in unexpected changed to premiums.
- Easier to implement and easier for builders and consumers to understand.
- More control over the aggregate premium income, as there are less subjective assessments, and hence less 'creep' into lower risk categories.
- Any incentive to switch "insurers" due to price differential is removed and hence market churn is reduced, which should stabilise administration costs.

However, we believe that a scheme should provide incentives to improve builder's financial strength. A public scheme may still undertake a financial assessment and choose not to rate premiums based on builder characteristics. The analysis can provide awareness of cross-subsidies and be used to implement non- pricing levers to incentivise builder behaviour. For example, it may be used to manage builders who marginally miss out on attaining eligibility for cover, by requiring these builders to hold some sort of indemnities or other forms of security. These types of requirements can therefore act to incentivise builders to improve their financial position. Additionally, problem builders may be asked to participate in a managed builder program[14].

It is our view that a publicly underwritten scheme can more effectively provide a stable premium structure, as there are a number of pressures which can act to drive more volatile premium outcomes under a privately underwritten structure. A government authority can take

[14] A managed builder program is one where a builder is supervised during the building process, and may also involve limitations on the number and type of building works that can be performed.

a longer term view on pricing and manage the peaks and troughs of a building cycle without competitive pressures on pricing levels.

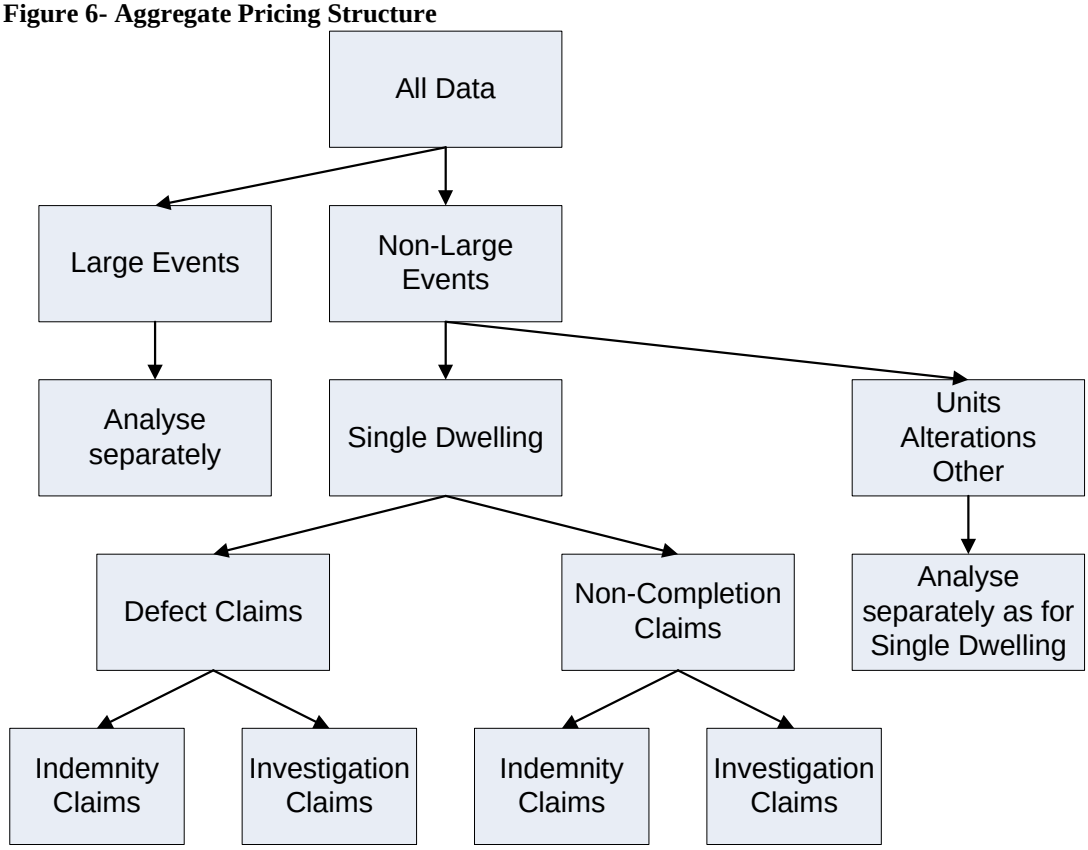
This leads us to the conclusion that in a compulsory environment, a publicly underwritten system will be more successful than a privately underwritten system in providing the blend of price stability, sufficiency, simplicity, and support that consumers expect.

6.2. Aggregate pricing analysis

Regardless of the nature of the scheme, a natural starting point for considering aggregate pricing levels is the estimated incurred cost by underwriting year. Taking a high level view can give insight into the appropriate cross-cycle risk premium, and can be used to back test the final rating basis selected to ensure it will be adequate in aggregate.

Such an analysis has much in common with the liability valuation discussed in section 5. Following a similar structure, the aggregate pricing analysis may consider, by underwriting year, claims experience split by type of cover, builder size and type of claim (both defect v non-completion, and investigation v indemnity claims). The diagram below illustrates one possible aggregate pricing structure.

Figure 6- Aggregate Pricing Structure



6.2.1. Large events

Large HWI events are usually the result of large building companies going insolvent, leaving many building works incomplete, and opening the door for claims to be lodged for defective works. Similarly to section 5, we separate these events out so as not to bias the analysis of working losses. The premium for large events will include consideration of:

- The definition of a "large" event.
- The frequency with which large events occur.
    - This may vary by cover type, though data is likely to be limited.
- The typical size of large events.

Consideration should be given as to how the costs associated with these large events are spread over the portfolio, and the answer to this may not be straightforward.

6.2.2. Non-Large events

A claim frequency / severity approach may be appropriate when analysing non-large events by sub-group. This may use similar techniques to or even draw on some of the results of the valuation of liabilities from section 5. The comments from this section regarding data splits and adjustments to standard analysis are equally applicable from an aggregate pricing perspective.

6.2.3. Adjustments

Once the expected claims cost (or aggregate risk premium) has been estimated, allowances are needed for:

- Timing: both the timing of claims cashflows (if not allowed for already), and the expected time period for which the rating basis will apply.
- Expenses: An allowance for policy administration, claims handling, broker commission and any other expenses will be required. As discussed previously, these costs can be a significant proportion of the final premium.
- Profit: Finally, a level of profitability or return on capital may be targeted. This is likely to depend on the scheme structure, with competitive or political pressures influencing the final premium charged.

6.3. Pricing Relativities

The aggregate pricing process above is relatively simple, splitting the data into sub-groups and by peril, and estimating the average claims cost for each, then combining the estimated costs together and allowing for investment income, expenses and profit.

There are however a myriad of other factors which can influence the cost of claims from a particular HWI policy, such as the size, experience, financial condition & company structure of the builder, and the location & size of the building works.

In our view, a secondary pricing support model to investigate and quantify these inter-relationships is appropriate. Such a model can uncover cross subsidies in the existing pricing basis, which can then be managed as desired.

The creation of a secondary pricing support model rather than further breaking down the aggregate analysis is driven by two factors:

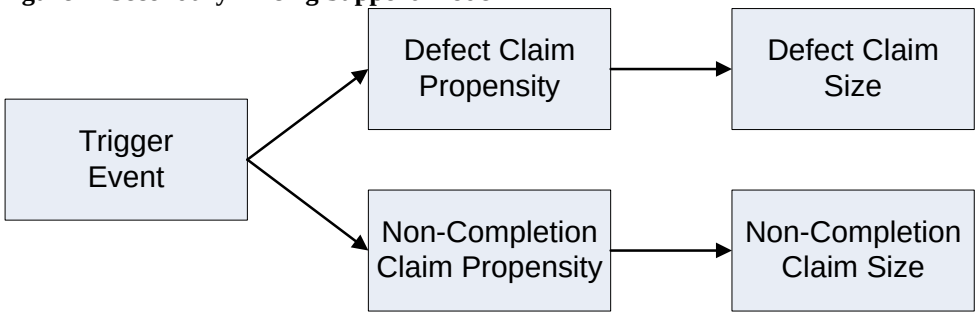
- Data limitations: The infrequency of HWI claims and history of changes in coverage means that more detailed breakdowns of the data are unlikely to have sufficient data on which to perform a reliable analysis.
- An alternative approach: The secondary model we propose utilises generalised linear models (GLMs), which consider the impact of each variable in the context of all the data and all the other variables included in the model. This may uncover relationships that are difficult to find simply by splitting the data into smaller groups.

The modelling approach we propose to investigate these additional factors attempts to replicate elements of the claims process:

- Trigger event: The builder goes insolvent, dies, disappears, or fails to comply with an order.
- Non-completion Claim: A HWI claim can be made for incomplete work (given a trigger event).
- Defect Claim: A HWI claim can be made for defective work (given a trigger event). The defect may be known prior to the trigger event or discovered a number of years later.

As such, our secondary model takes the form in the diagram below:

Figure 7- Secondary Pricing Support Model



GLMs are fitted to each of the five model components above.

Due to the smaller cost of investigation claims, a detailed analysis such as this is of less interest from a pricing perspective. Therefore we suggest limiting the analysis to indemnity claims only as a starting point. In addition, given the potential for large builder insolvencies to bias the models, we suggest limiting the analysis to exclude large builder insolvencies.

6.3.1. Trigger Event Model

In a last resort scheme, trigger events typically include builder insolvency, death, disappearance or failure to comply with a tribunal order. A register of builder insolvencies could be used to estimate this date as the vast majority of HWI claims arise from builder insolvencies.

If the date of the trigger event is not available, it is possible to create a proxy using the date an indemnity claim is first accepted against the builder. This will incorporate only trigger events which give rise to indemnity claims, and as such will understate trigger event rates, especially for small builders. The bias will however be corrected by the claim frequency model, as the trigger event proxy would be used as the denominator. In other words, lower trigger event frequencies for small builders would be offset by higher claim frequencies.

The trigger event probability is calculated for each development year following the certificate issue. The exposure measure would be 1 unit of exposure for each year in which a builder is issued a HWI certificate.

A GLM, using a log link and logit error structure, may be an appropriate starting point for the trigger event model.

6.3.2. Propensity to claim

The probability of a claim being reported, given that a trigger event has occurred, can then be calculated for each year after the occurrence of the trigger event until the expiry of the policy coverage. Defect and non-completion should be considered separately.

These models use an exposure measure of 1 unit of exposure for each year post trigger event for all certificates written by builders that have suffered a trigger event.

A GLM, using a log link and logit error structure, may be an appropriate starting point for the claim propensity model.

6.3.3. Average Claim Size

Given a claim has occurred, the average ultimate claims cost can then be modelled, typically expressed as a percentage of the building contract value.

A GLM, using a log link and gamma error structure, may be an appropriate starting point for the claim size model.

6.3.4. Combining the Models

The use of component models as described above can give insight into the drivers of each element of the claims process, which in turn can provide insights for managing a HWI portfolio. For example, if claim sizes appear to be increasing, investigating those variables which are most significant in the average size model is a good starting point.

However, for pricing purposes, the overall impact of each variable on claims cost is important, and, in line with the model structure, the above models can be combined to get a single risk premium estimate for each policy from which relativities can be estimated using the following formula.

$$RP = \sum_{i=0-n} \sum_{j=i-n} B_i \times \left\{ CD_{i,j} \times SD_{i,j} + CN_{i,j} \times SN_{i,j} \right\}$$

Where:

RP	is the estimated risk premium for the policy.
n	is the number of years projected under the model (this may need to be as much as 10 years, given the long tail nature of the cover).
B_i	is the probability that the builder suffers a trigger event in the ith year from policy inception.

$CD_{i,j}$ is the defect claim propensity in the jth year from policy inception, given a trigger event in the ith year from policy inception.

$SD_{i,j}$ is the defect claim size, measured as a percentage of contract value in the jth year from policy inception, given a trigger event in the ith year from policy inception.

$CN_{i,j}$ is the non completion claim propensity in the jth year from policy inception, given a trigger event in the ith year from policy inception.

$SN_{i,j}$ is the non completion claim size, measured as a percentage of contract value in the jth year from policy inception, given a trigger event in the ith year from policy inception.

Should a multiplicative pricing structure be required, due to system limitations or other reasons, a multiplicative GLM can be overlayed on the risk premiums in order to estimate multiplicative relativities.

7. Public Scheme Funding Considerations

For a public scheme, such as the ones now in place in NSW and Victoria, adequate funding is an important factor in scheme design and scheme management. In this section we consider the net funding position of a HWI scheme over time, allowing for premium income, claims costs, expenses (including any broker commission), estimated liabilities at any point in time, and investment income.

The specific characteristics of HWI, such as its strong linkage to the building cycle, provides some interesting challenges when it comes to managing the pricing of the insurance and the funding of the scheme over time.

For an informative discussion on funding measures, we direct the interested reader to the paper "*Funding Accident Compensation Schemes – the Distraction of Volatility and How to Avoid it*" (Latham et al, 2009). This paper considers the advantages and disadvantages of different funding measures, in the context of public insurance schemes.

The funding measure we have used in this section is the ratio of scheme assets to scheme liabilities and its changes over time. As mentioned in Latham et al, (2009), such a measure has its shortcomings; however, we have used this measure for its simplicity and prevalence in current actuarial practice.

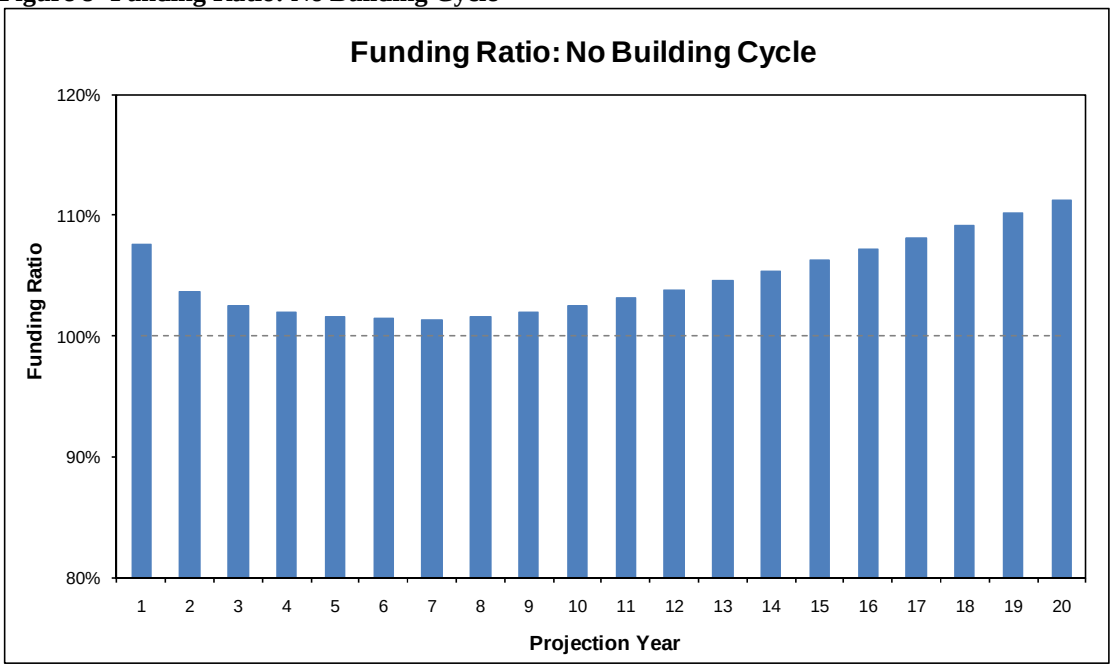
We present a number of scenarios below, illustrating the funding ratios which may emerge under various combinations of the building cycle and other conditions. The key assumptions underlying the model are as follows:

- The scheme starts from scratch, begins writing premium immediately and continues to write covers into the future.
- Starting funding is set equal to 1 months gross premium income.
- No explicit allowance for reinsurance. Implicitly allowed for through lack of large events included in the model.
- Net discounted ultimate loss ratio of 50% (on average over the building cycle)
- Expenses:
    - Commission, salaries, agency costs & other expenses: 40% of gross written premium.
    - Claims handling fee per report: $8k.
- Premium earned evenly over 5 years
- Claims reported evenly over 7 years
- Claims paid evenly over 10 years
- Tax rate of 30%
- Investment income 6% p.a.
- Average premium rate of 0.5% of contract value
- Average contract value of $150,000
- Average growth in the number of building works of 3% per annum across the building cycle.

7.1. Baseline Projection

As a starting point, we project the funding ratio for the above scenario over the next 20 years, assuming no building cycle. The results are illustrated in the graph below.

Figure 8- Funding Ratio: No Building Cycle



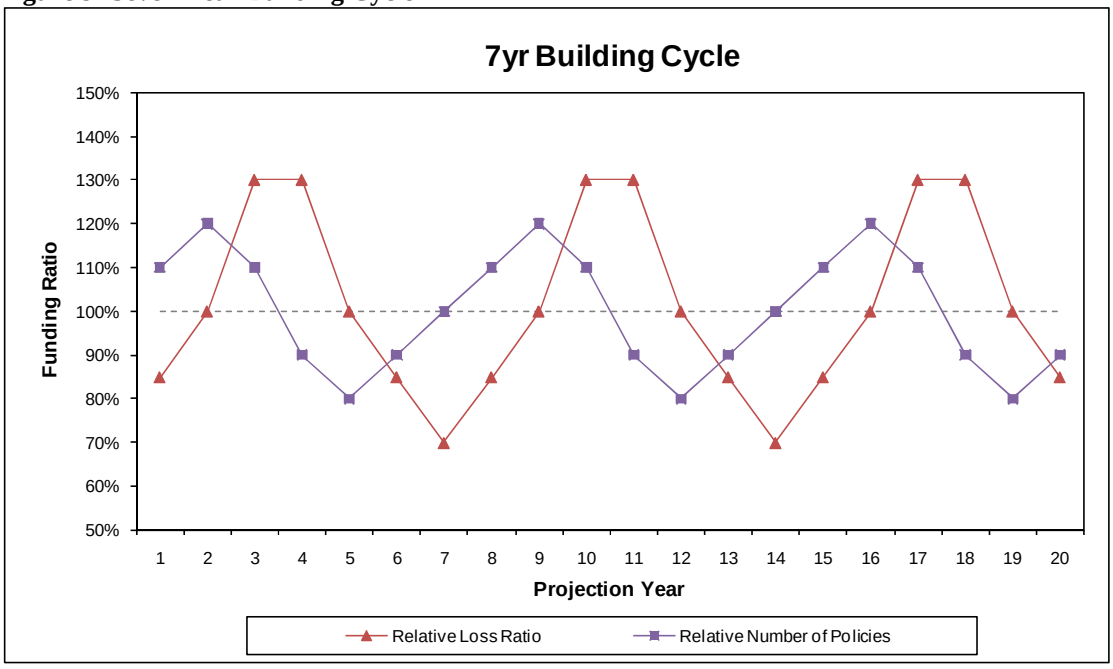
After an initial decrease, when expenses and claims costs costs outweigh premium and investment income, the scheme stabilises as the asset base increases, and the funding ratio then starts to improve.

7.2. Impact of the building cycle

As discussed in section 3.1, managing across the building cycle is a key challenge for HWI. We consider the impact of a 7 year building cycle on the funding position of the scheme.

The graph below shows our policy and loss ratio assumptions over a seven year building cycle.

Figure 9- Seven Year Building Cycle



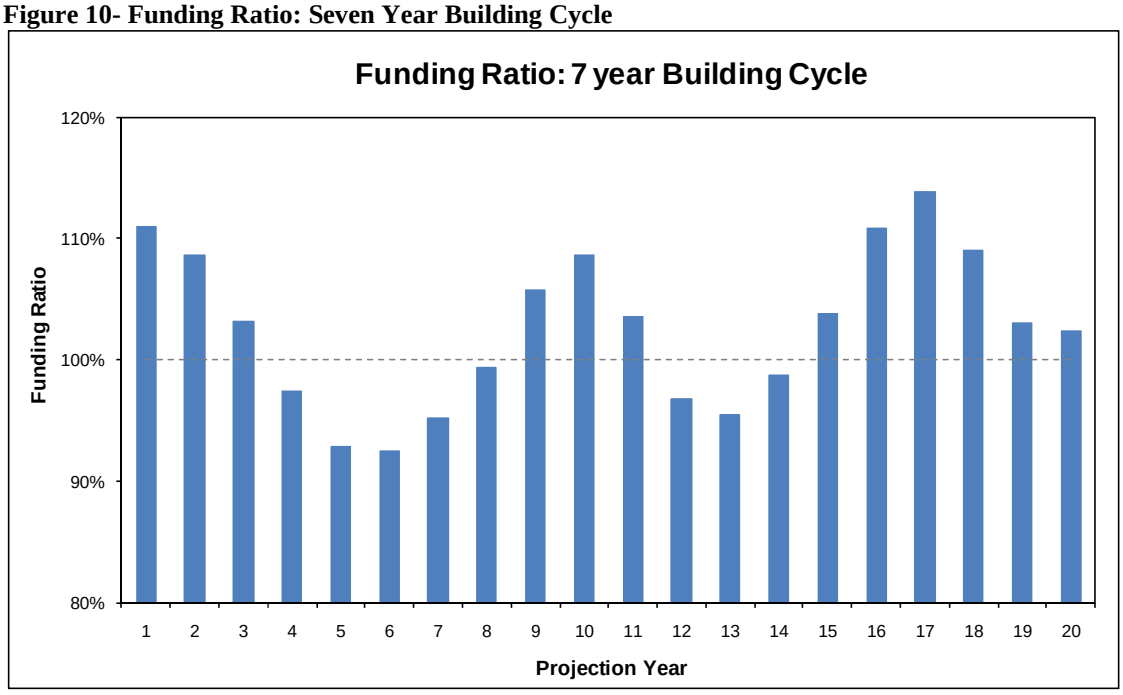
The selected building cycle varies in the number of building works by +- 20%, which is similar to the variations described in section 3 of this paper. It was noted in that section that building cycles vary in length, with the most recent three cycles lasting between five and nine years each.

The variations in the loss ratio over the building cycle is intended to reflect the increased exposure of some underwriting years to downturns in the building environment, which are associated with higher levels of builder insolvency and lead to higher numbers of HWI claims. Non-completion claims, with their faster notification, are especially impacted by the economic conditions in the first year or two after being underwriting, as most building works are completed within this timeframe. The amplitude of +-30% is similar to the variation in claims costs by underwriting year that we have observed over the building cycle.

Payment patterns for each underwriting year have also been adjusted to allow for higher payments during years in which there is a downturn in the building cycle. This allows for the systematic effect of a building cycle downturn, which tends to hit all open underwriting years at the same time. We have doubled the expected level of payments at the bottom of the building cycle downturn, and halved it at the building cycle peak.

The graph below illustrates the funding ratio after allowing for the above building cycle.

Figure 10- Funding Ratio: Seven Year Building Cycle



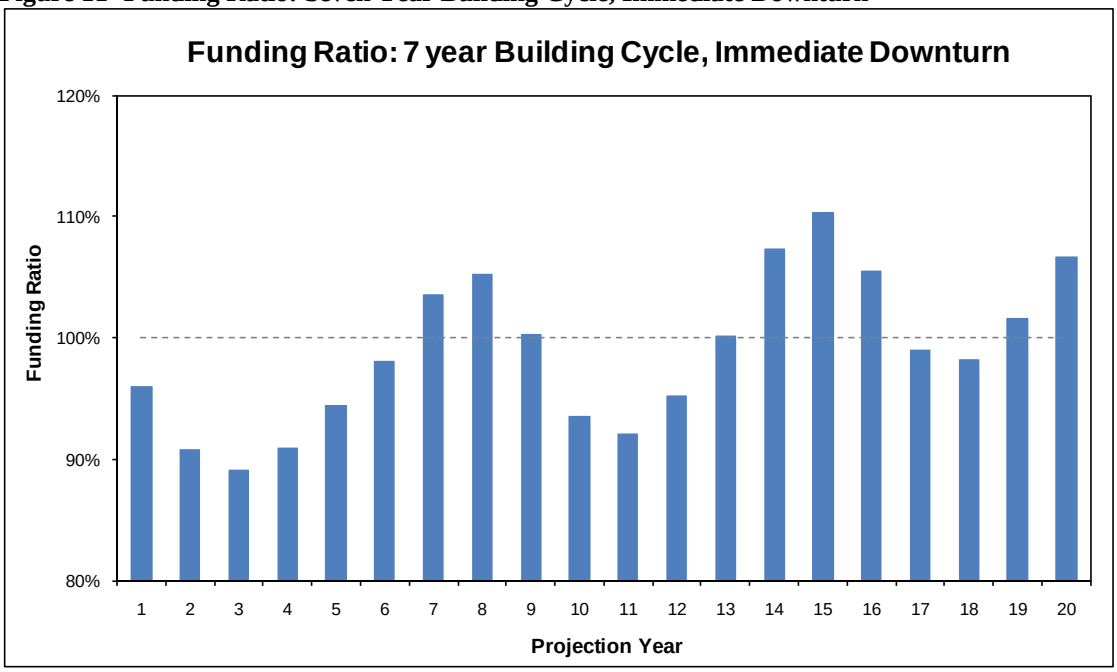
As can be seen, the funding ratio varies depending on the position in the building cycle. In the short term the funding position drops dramatically, before recovering as the building industry recovers and the scheme grows to a more stable size.

Recognising the potential for short term results to be significantly impacted by the building cycle, and avoiding actions which over-compensate is a challenging and important part of managing a HWI scheme.

An important consideration is where in the building cycle the scheme starts. A scheme that begins just before a downturn in the building cycle can take years to return to a positive

funding ratio. The scheme management needs to be prepared for such a situation and / or obtain sufficient capital up front to maintain a positive funding ratio in an adverse situation. The chart below shows the funding position of a scheme with the same specifications as the previous graph, however this scheme begins just as building conditions begin to deteriorate. It uses the same building cycle as the previous scenario, lagged by 2 years.

Figure 11- Funding Ratio: Seven Year Building Cycle, Immediate Downturn



As can be seen, the funding ratio can fall significantly, and take a number of years to recover. Adequate capitalisation up front can assist in alleviating the problem, but communication of the funding position relative to the building cycle is key.

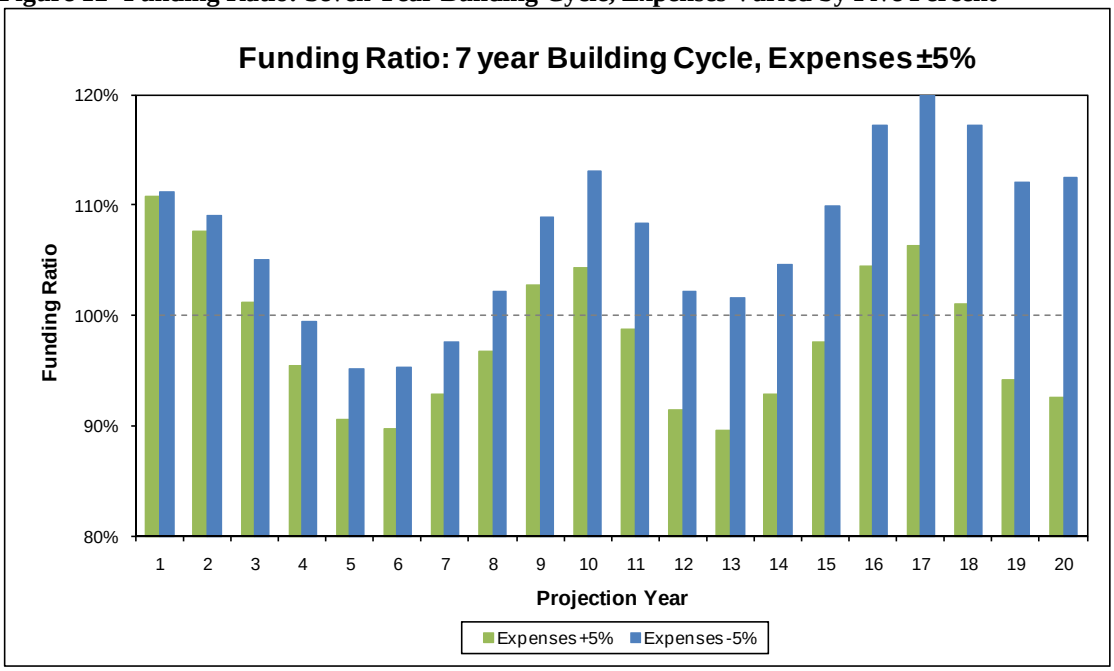
A shorter building cycle results in less extreme outcomes as poor years and good years occur in faster succession to offset each other. The converse is true of a longer building cycle, as an accumulation of good or bad years in succession can have a large cumulative effect on scheme funding.

The selected premium earning pattern affects the funding ratios through the emergence of net profit, although the ultimate net profit is the same in the longer run. The shorter the earning pattern selected, generally the more unstable the resulting net profit and funding ratios, although this will depend on the length and severity of the building cycle, among other things.

7.3. Impact of expenses

Another key driver of HWI scheme funding is the level of expenses of the scheme over time. This is due to the significant costs of administering the scheme, including significant underwriting and claims management costs. The graph below shows the impact of an increase or decrease in scheme expenses by 5% each year, on the 7 year building cycle scenario.

Figure 12- Funding Ratio: Seven Year Building Cycle, Expenses Varied by Five Percent



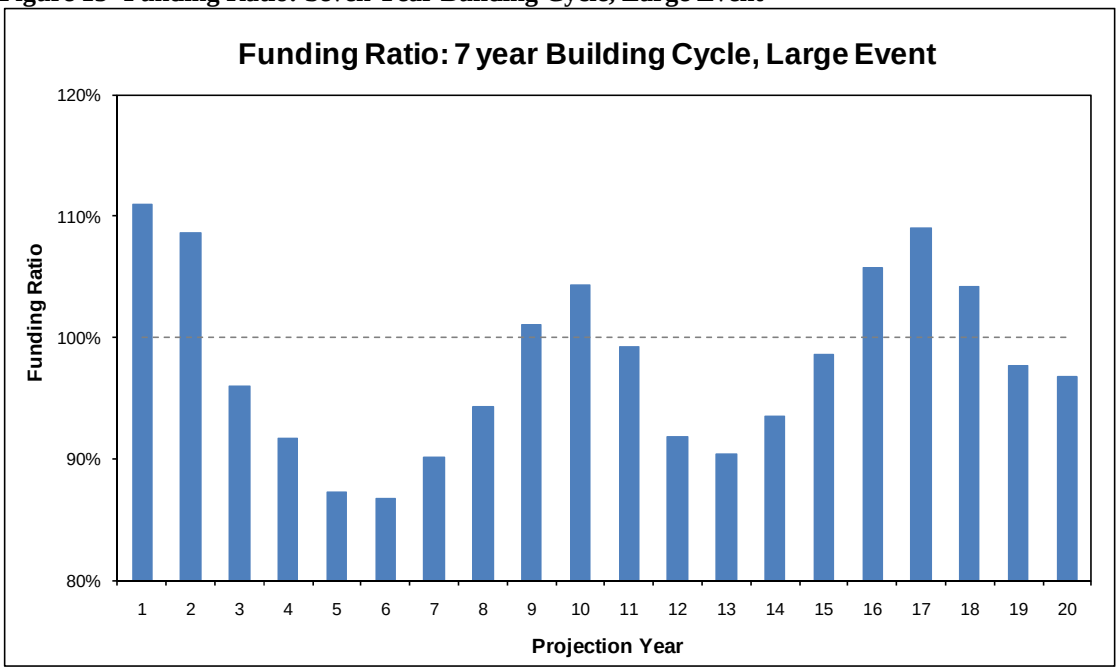
This illustrates the importance of keeping control of scheme expenses. The funding position can deteriorate over time unless pricing adjustments are made.

The ability of the scheme to increase or decrease the premium rate should prevent such a situation from getting out of control. However, this is difficult without the ability to identify the cause of the changing funding position, as it may be confounded by variations in the building cycle. As such, monitoring of scheme costs to isolate trends is especially important for HWI.

7.4. Impact of large builder insolvencies

In addition to the uncertainty in the level of scheme expenses, there is significant uncertainty in the level of claims cost, the variability in which is illustrated by events such as the insolvency of Beechwood Homes in NSW. To illustrate the impact of a large insolvency, we have projected the 7 year funding position allowing for a large insolvency event in the third year of the projection. A large event leading to a 30% increase in loss ratio in a single underwriting year has been allowed for. The impact of a large event on the scheme can be mitigated by reinsurance, which may limit the effect of a single insolvency. The graph below illustrates the impact of a large event in year 3.

Figure 13- Funding Ratio: Seven Year Building Cycle, Large Event



The large event in year 3 causes a significant reduction in the net assets of the scheme. It is important that premiums are agile enough to respond to emerging expense and claims experience.

8. Conclusions

HWI has a number of characteristics that makes it challenging to manage. Some of the major conclusions we draw in this paper are:

- *Understanding the impacts of the building cycle.* Any analysis of HWI experience needs to consider the longer term impacts of the building cycle. Forming a view on the length and severity of future building cycles is to some degree problematic, yet we are of the view that these assumptions need to be made to effectively manage the business. It is therefore **important to take a longer view** when forming conclusions on this insurance.
- *The importance of scheme stability.* HWI is, in the first instance, a form of consumer protection. In our opinion this requires scheme design to be stable over the longer term in order to operate effectively. There have only been a couple of examples of stable arrangements in Australia historically. Given the small size of this insurance portfolio in some states we propose that thought should be given to consideration of a national scheme. We are of the view that **public scheme structures are better equipped to assist in scheme stability** as they can better focus on longer term pricing strategies.
- *Understanding data and its limitations.* There is little publicly available information for HWI and this is a hindrance in being able to price and manage the product effectively. A balance needs to be struck between performing enough analysis to understand key trends in the data and the volatility that arises from the use of relatively sparse data. We hope that the discussion in this paper provides some impetus to the **establishment of a national HWI claims database** to better understand claim emergence patterns.
- *Effective communication of uncertainties.* We are of the opinion that communication of valuation, pricing, monitoring and funding results to management requires careful thought. Articulation of the inherent uncertainties and the **potential impacts of an uncertain building cycle need careful discussion**.
- *HWI is a complex insurance product.* Many aspects of HWI do not align with other insurance products and this poses many challenges in successfully managing the product. The business is long tail, heavily impacted by systemic risk factors, has limited data and high expense loadings. Many of these complexities lead to the conclusion that any **funding approach needs to accept a certain level of volatility.**

This paper has drawn heavily on the experience of the authors in their day to day experience of HWI. Hopefully it has provided some practical ideas on how to better manage this business such that availability of cover no longer becomes an issue and that there exists longer term scheme stability.

We leave the readers with some questions arising from Figure 2 of this paper. Where is the building cycle headed to now? What are the likely impacts of this over the next three years?

9. References

Accounting Standard 1023 General Insurance Contracts

APRA GPS110-116
www.apra.gov.au/General/upload/Final-GPS-110-July-2008.pdf

Consultation Paper: A New Consumer Building Framework, February 2008

Jewell M, 2010, *Builders Warranty Insurance: To BWI or not to BWI?*, Actuary Australia

Latham C, Simpson L & Hardy P, 2009, *Funding Accident Compensation Schemes – the Distraction of Volatility and How to Avoid it*, Presented to the Institute of Actuaries of Australia 12th Accident Compensation Seminar 22-24 November 2009 Melbourne

Roth L, 2010. *NSW Parliamentary Library Research Service E – Brief: Home Warranty Insurance*
http://www.parliament.nsw.gov.au/prod/parlment/publications.nsf/key/HomeWarrantyInsurance/$File/home+warranty+insurance.pdf

O'Dowd C, Smith A & Hardy P, 2005, *A Framework for Estimating Uncertainty in Insurance Claims Cost*, Proceedings of the 15th General Insurance Seminar, Institute of Actuaries of Australia

Productivity Commission Research Report, 2004, *Reform of Building Regulation*

Productivity Commission report –December 2007
www.pc.gov.au/__data/assets/pdf_file/0008/89207/subdr251.pdf

Smith D, 2005, *Builders' Warranty: First resort or last resort or does it really matter?*, Presented to the Institute of Actuaries of Australia XVth General Insurance Seminar 16-19 October 2005

The Senate Standing Committee on Economics- Australia's mandatory Last Resort Home Warranty Insurance scheme, November 2008
www.aph.gov.au/senate/committee/economics_ctte/home_warranty_08/report/report.pdf

Submissions:
www.aph.gov.au/senate/committee/economics_ctte/home_warranty_08/submissions/sublist.htm

Additional Website References

Insurers / Agents
www.qbe.com.au/Business/Builders-Warranty/Insurance.html
www.calliden.com.au/ourproducts/index.cfm
www.vero.com.au/vero/brokers/construction-engineering/products/warranty

NSW
www.fairtrading.nsw.gov.au/Tradespeople/Home_warranty_insurance.html
www.homewarranty.nsw.gov.au

QLD
www.bsa.qld.gov.au

VIC
www.buildingcommission.com.au
www.vmia.vic.gov.au

WA
www.buildingcommission.wa.gov.au
www.builders.wa.gov.au

TAS
www.consumer.tas.gov.au/fair_trading/consumerbuilding

NT
www.nt.gov.au/lands/building/constructionreform/

SA
www.ocba.sa.gov.au/licensing/buildingworkers/indemnity.html

ACT
www.actpla.act.gov.au/topics/design_build/manage_construction/building_insurance

Overseas HWI equivalent insurance schemes

Alberta New Home Warranty Program
www.anhwp.com

France
www.french-property.com/guides/france/building/new-build/defect-guarantee/builders/

UK- Building Defects Insurance
http://blpinsurance.com/default.asp?id=4
www.rowlands-hames.co.uk/documents/007%20Latent%20Defects%20CBGEN007.pdf
www.nhbc.co.uk/Warrantiesandcover/
www.nhbc.co.uk/NHBCPublications/LiteratureLibrary/RegistrationandCustomerServices/filedownload,15866,en.pdf