

SURVIVE THRIVE



Natural Selection

Financial Services Forum

21-22 May 2018 • Hilton Sydney



**Actuaries
Institute**



Income Protection – managing the cycles

**Ashutosh Bhalerao, Luv Bhatnagar,
Phin Wern Ting**

© < ClearView >

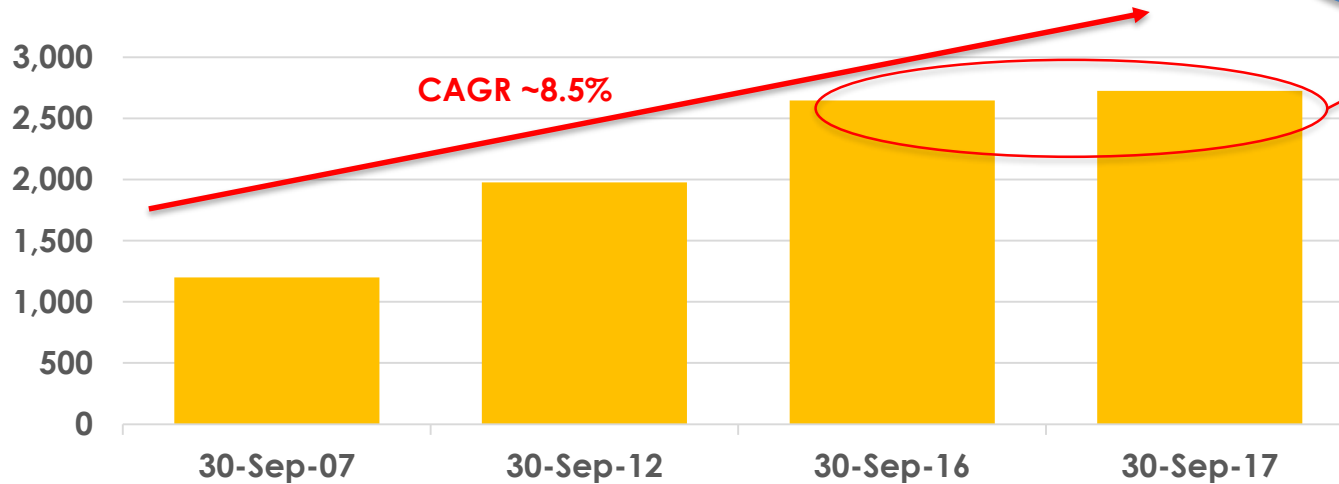
This presentation has been prepared for the Actuaries Institute 2018 Financial Services Forum. The Institute Council wishes it to be understood that opinions put forward herein are not necessarily those of the Institute and the Council is not responsible for those opinions.

Agenda

1. Current state of play
2. Are economic factors an 'underestimated' driver of IP claims cost?
3. How can we better manage the cycle?

Setting the scene

Retail Income Protection - Inforce Premium (\$'m) **



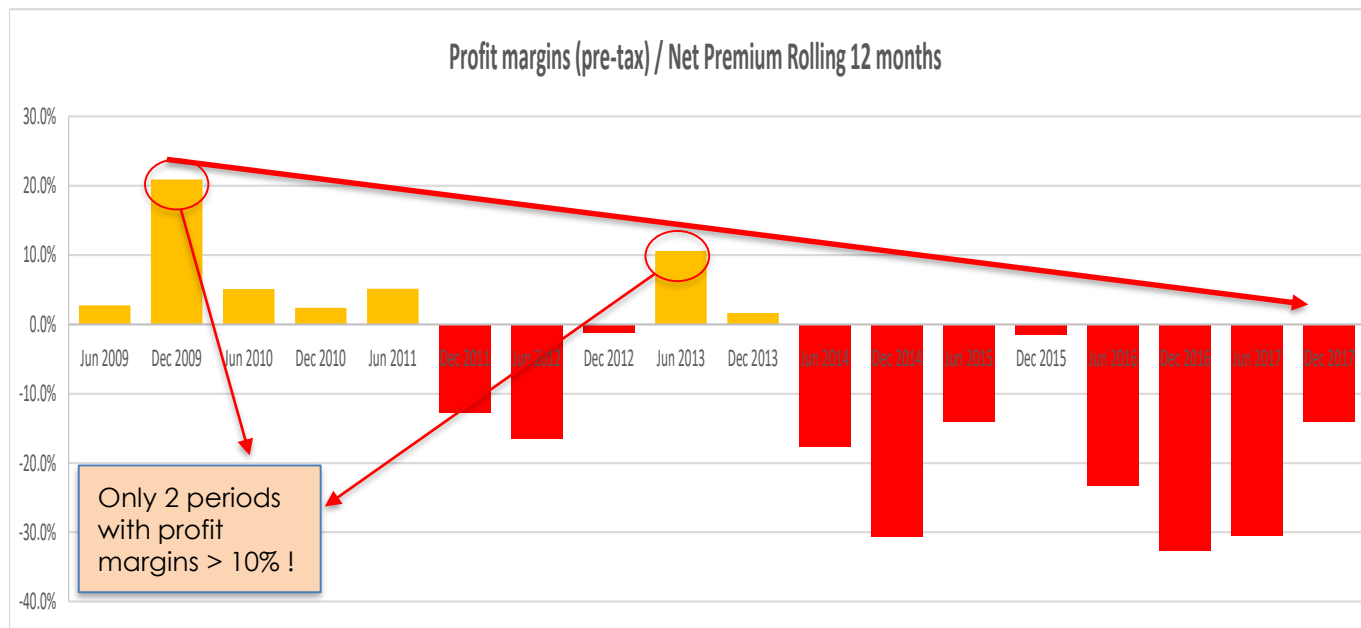
Is the Retail IP segment growing?

** Strategic Insight 10 Year Review, 2007-2017

Setting the scene

What's happening with profitability?

➤ Retail IP profit margins (pre tax) / Net premium rolling



** APRA quarterly statistics

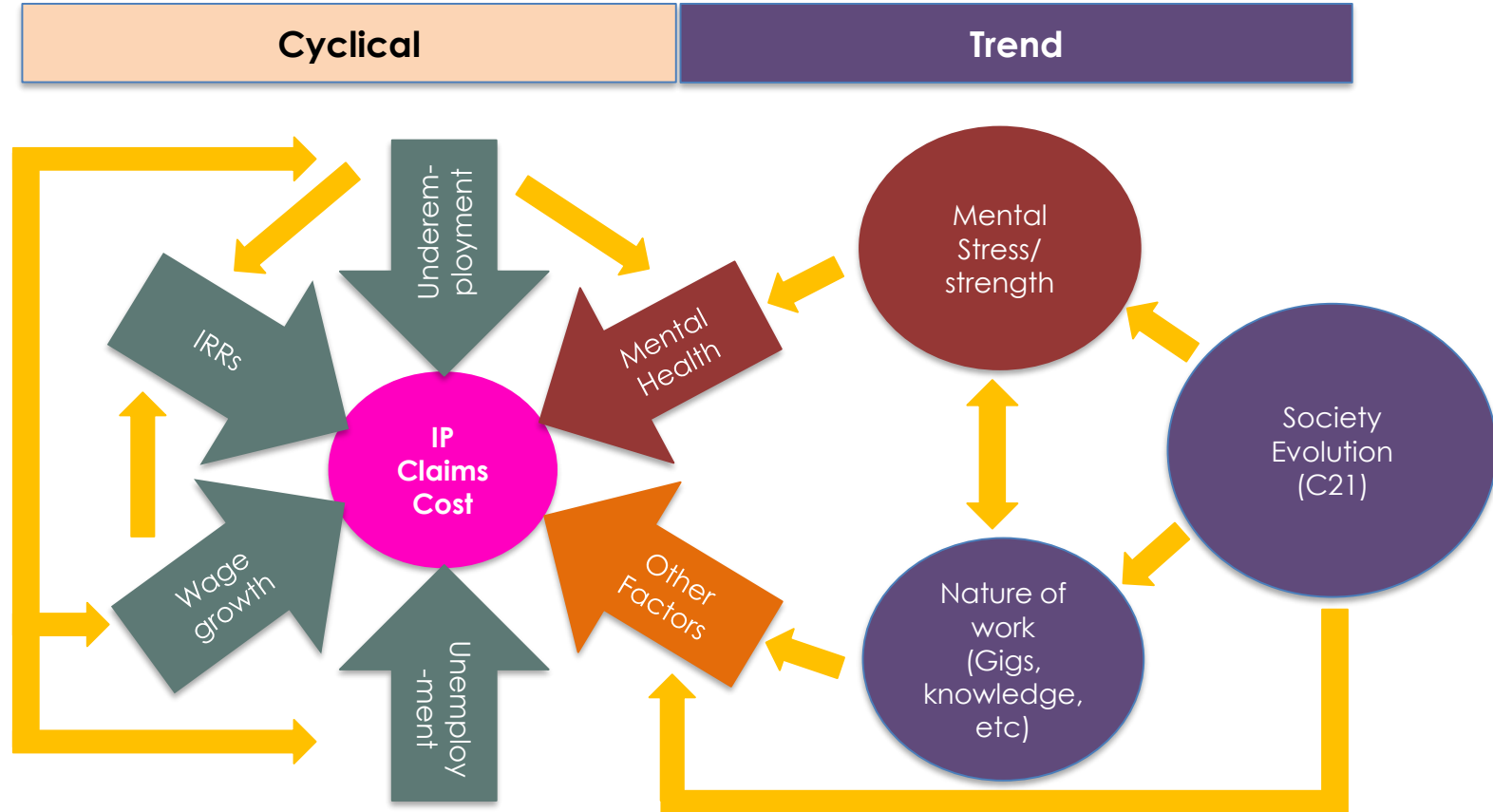
1. Volatility
2. Systemically under-priced
3. Potential long term trend?



Setting the scene

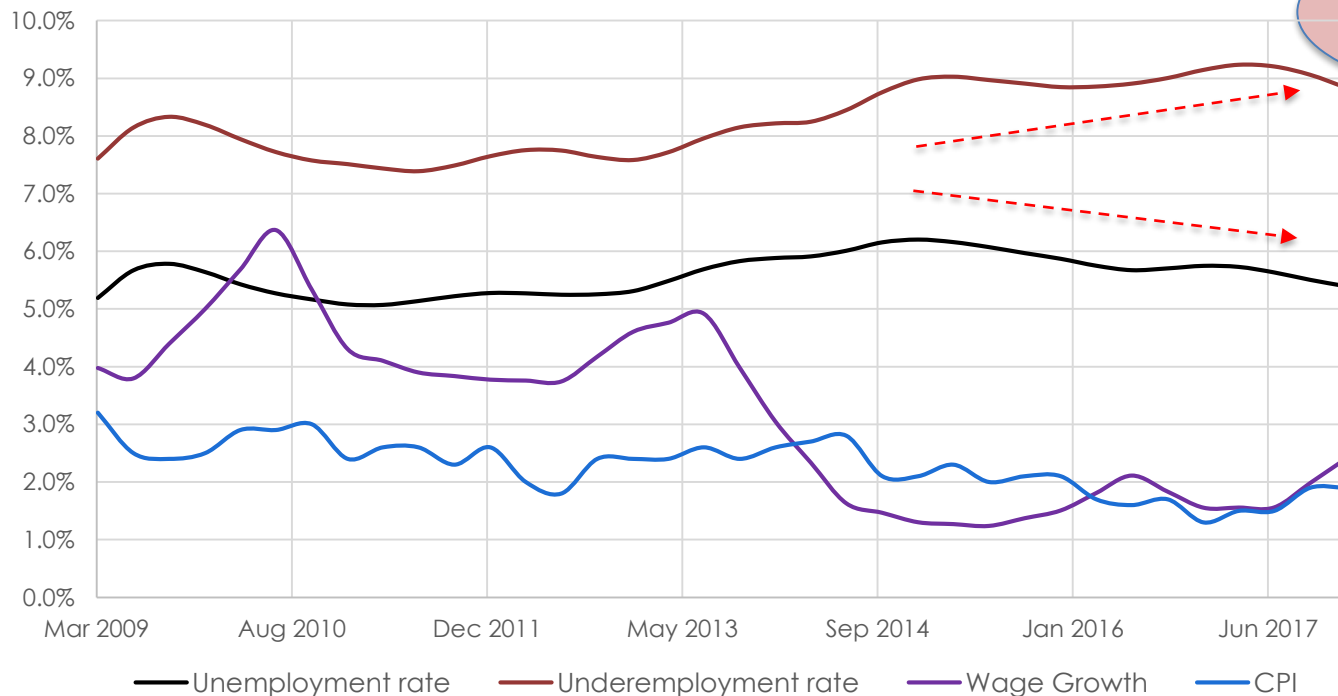
- Industry has attributed this to a **'sustainability issue'**
 - Benefit design issues (e.g. one-duty, 10 hour rule, able to work in WP, generous built in terms which could be optional etc.), no doubt have a claims cost effect. **But, why are they causing a deterioration in the last 10 years?**
 - Growing number of mental illness claims.
- In our view the adverse experience is **more driven by economic conditions** (e.g. Unemployment, under-employment, slow wage growth) and the extent to which these have had an impact on **Income Replacement Ratios**.

A model of drivers of IP experience



What's the current economic landscape?

Economic factors



Unemployment rate decreasing but underemployment trending upwards

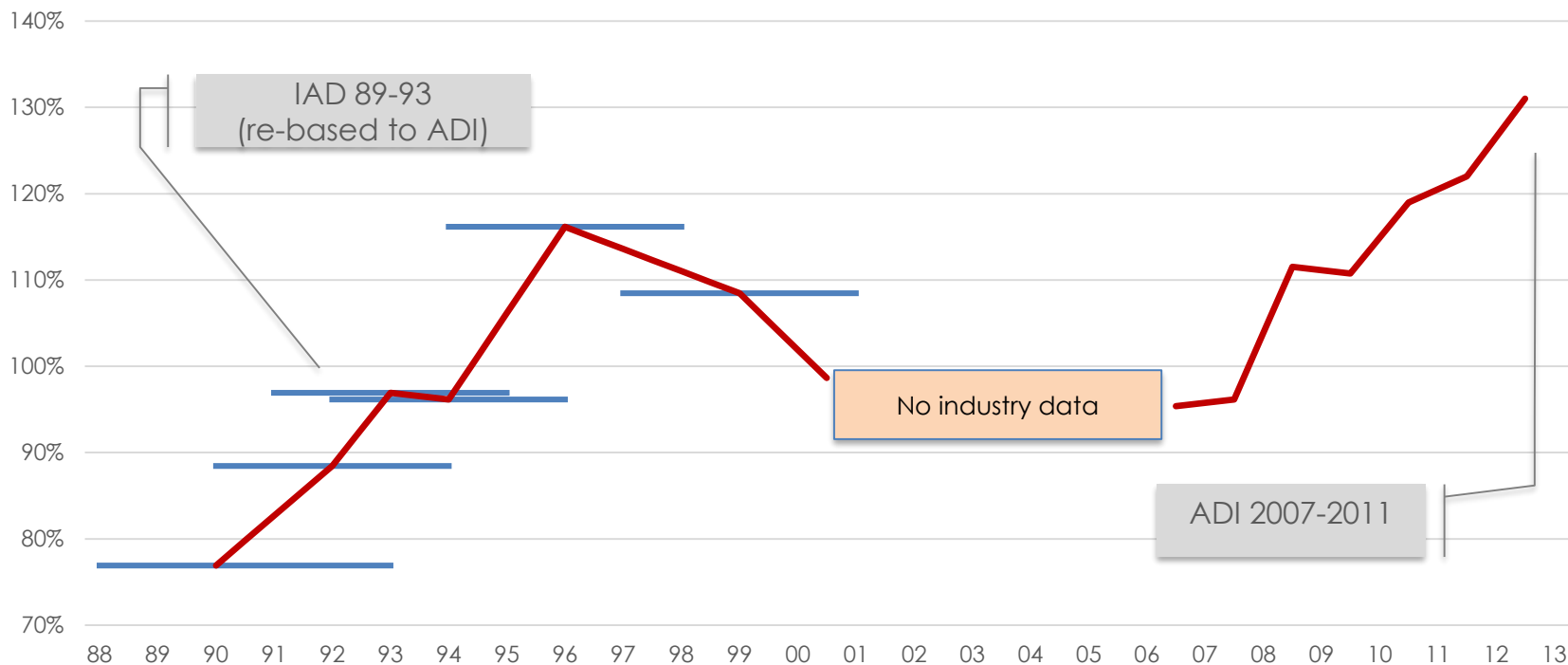
Wage growth across all industries tracking CPI (in some periods below, including recent periods)

What does this mean for the IP product?

- Does IP claim cost have an economic linkage?
 - Pro-cyclical vs anti-cyclical?
 - Performance will vary by sector – can be a 2 speed economy!
 - Is there an occupation linkage? What about Self-employed individuals?
 - Benefit indexation has over the recent periods outpaced wage growth.
- **What do these factors do to Income Replacement Ratios at policy inception vs point of claim?**

But first, what can we do statistically?

Claims cost % FSC-KPMG ADI 2007-2011



Source: 2002 Report of the Disability Committee, FSC-KPMG Disability Income Experience Investigation 2009-2013

Multivariate regression

Correlation with Claims cost AvE

Underemployment rate	79%
Unemployment rate	37%
% change in AWE	-10%

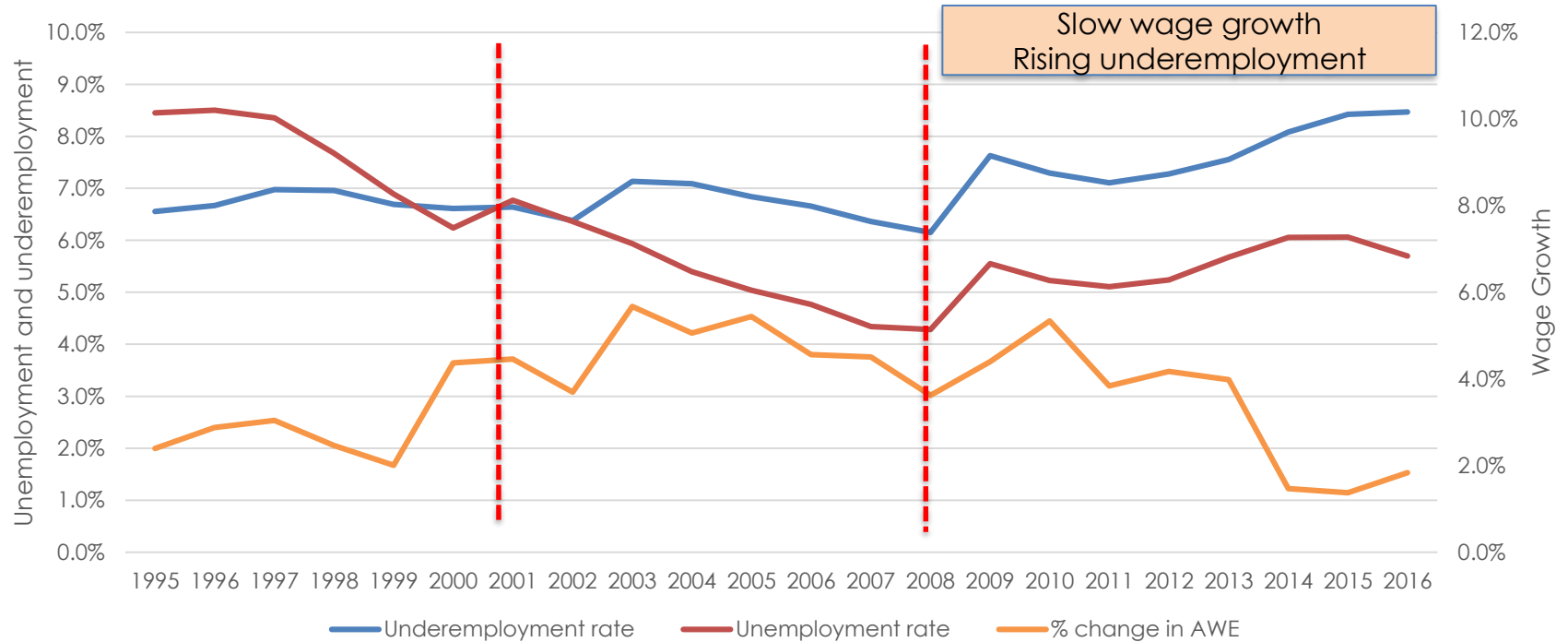
Regression equation:

Claims costs AvE = - 0.05 + 22.8 x Underemployment – 1.4 x Unemployment – 8.6 x % Δ AWE

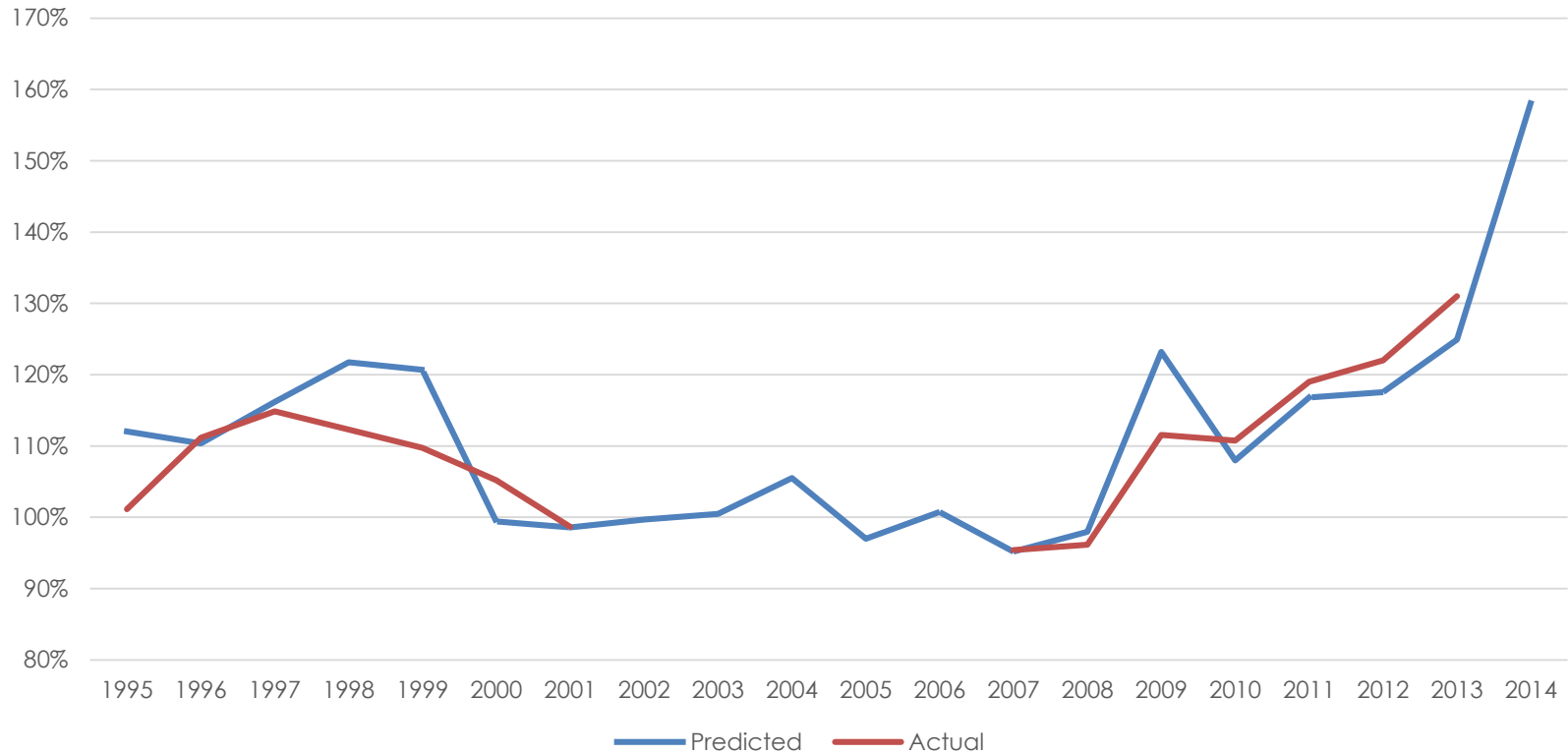
Adjusted R-squared = 68%

Significance of model F-statistic = 0.03 (< 0.05)

Economic indicators



Actual vs Predicted claims cost AvE



Observations

- What does this mean for claims cost?
 - Declining NPAT, rising loss ratios from APRA statistics
- The statistics suggest an anti-cyclical trend?
- The exposure to sector and occupation will vary by insurer
- Lag or lead?

	Incidence	Termination
Employed	Lag?	Lag?
Self-employed	Lead?	Lag?



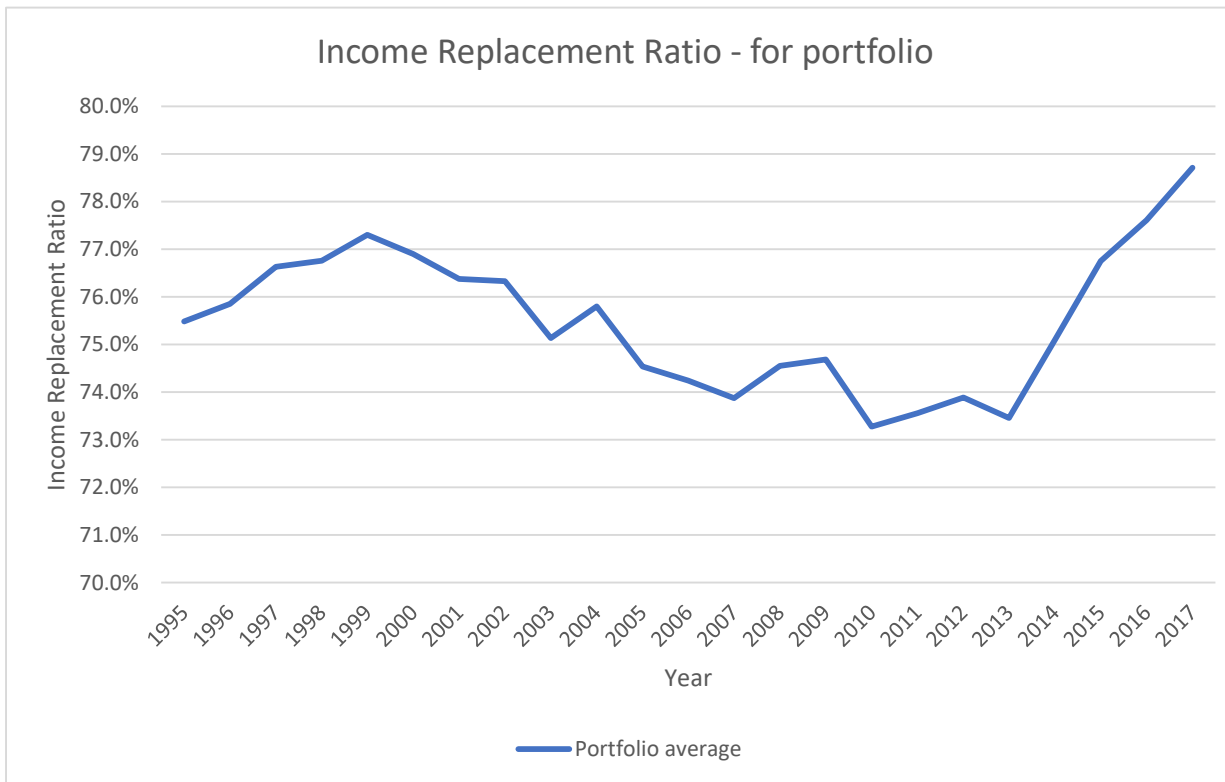
Further considerations

- Model limitations
- Lags in economic indicators
- Incidence versus termination experience
- Other studies
 - Australia & South Africa
 - Increase in claims incidence when unemployment rises

How have income replacement ratios moved over time?

- Lack of data to get this information directly.
- To answer this, we built a model with the following simplifying assumptions:
 - Incomes for new policies have increased by AWE each year
 - Anti-selective wage growth: -1% drift on inforce wage growth
 - Initial replacement ratio is 75% for each year of sale
 - Portfolio lapse rate of 12.5% p.a.
 - Sum insured indexation take-up rate is 85%
 - Average sum insured indexation rate is 4% p.a.
 - Partial lapse rate (i.e. sum insured decrease) is 0.5% p.a.

How have income replacement ratios moved over time?



Key takeaways

- IRRs have increased in recent times due to slow wage growth
- Claims will be linked to IRRs, which would explain some of recent deterioration

How do we better manage the cycles?

Key aspects are.....

- Data
- Reinsurance Strategy
- Reserving

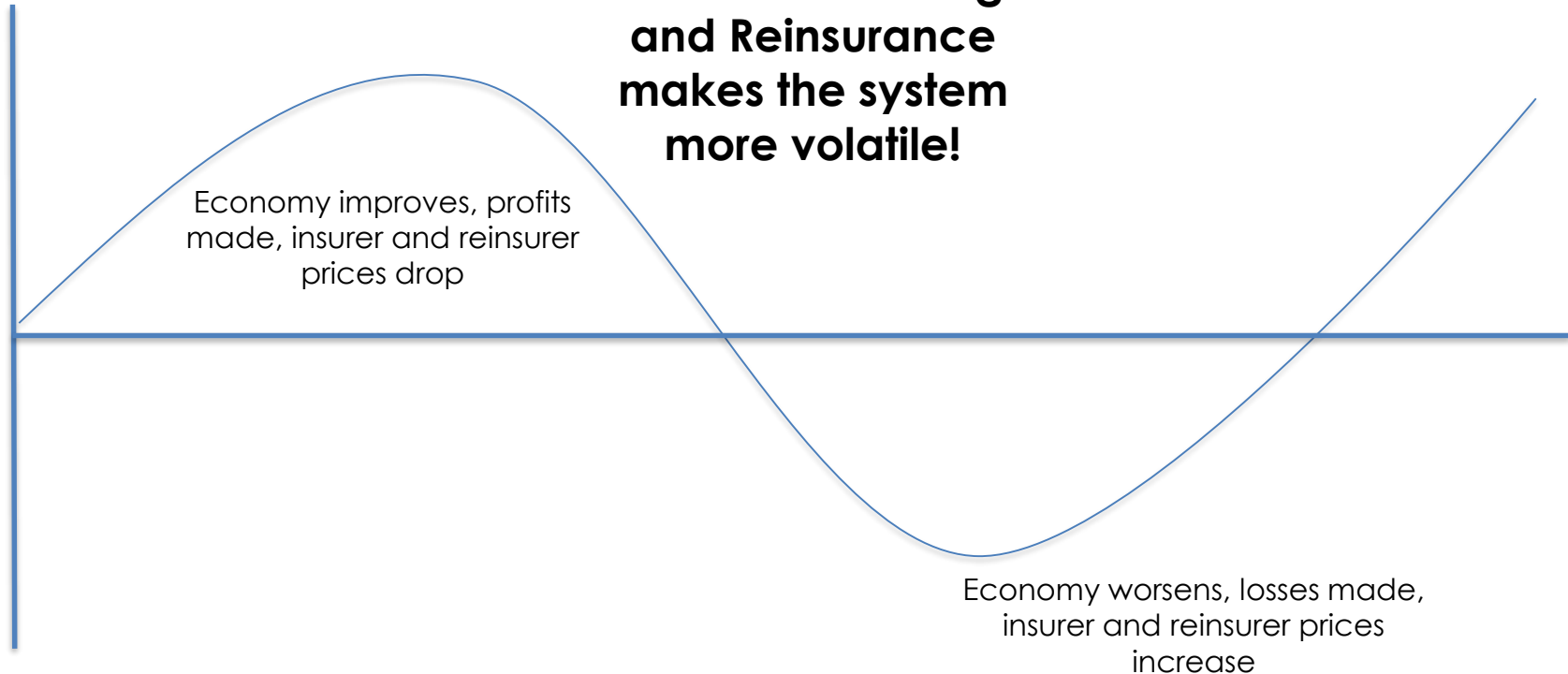
Data

- Ideally would track income replacement ratios (IRRs) including:
 - IRRs at policy commencement versus claim time
 - Estimated IRR for portfolio currently (broken by sector) and how this may change in future
- However, currently difficult to get this as:
 - **Policy commencement** - Financial evidence only always requested for guaranteed agreed value (above limits for agreed value and indemnity)
 - **Renewal** – no data collected
 - **Claim Time** – income information only collected for indemnity (highest average in last 3 years) and agreed value (highest average from one year pre policy inception).

Would a bank not know the LVR on its loan portfolio?

Reinsurance

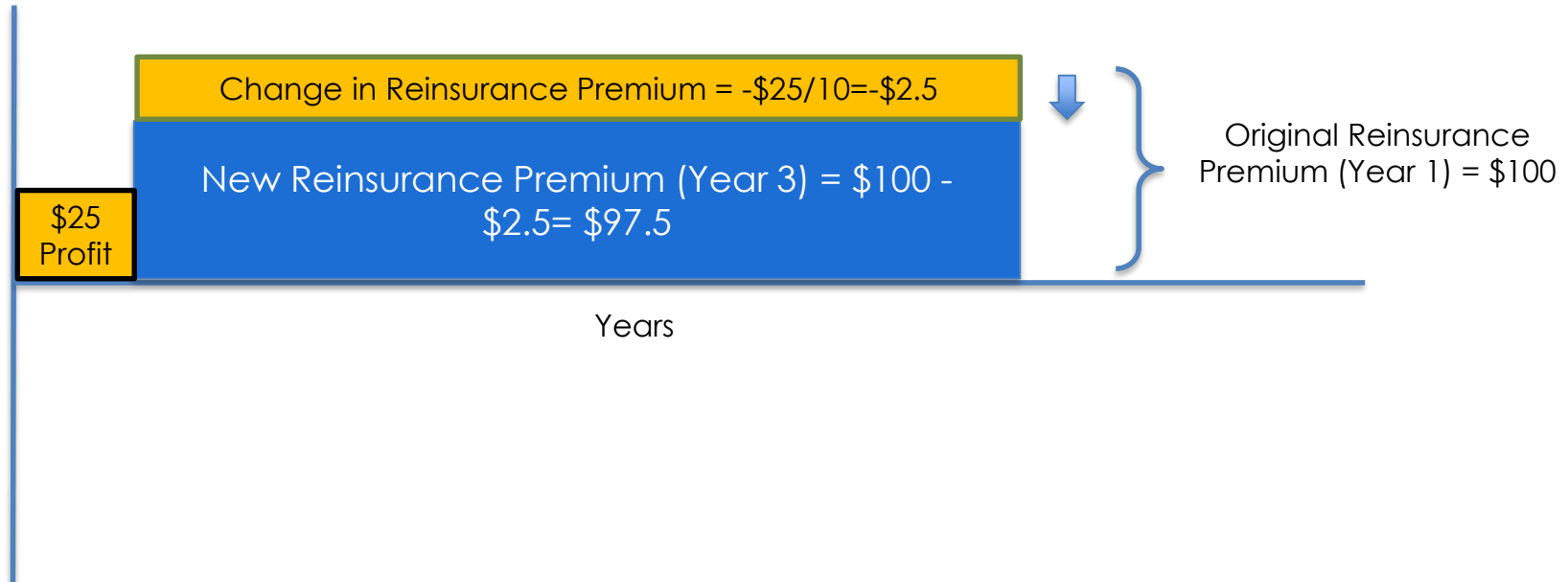
**Traditional Pricing
and Reinsurance
makes the system
more volatile!**



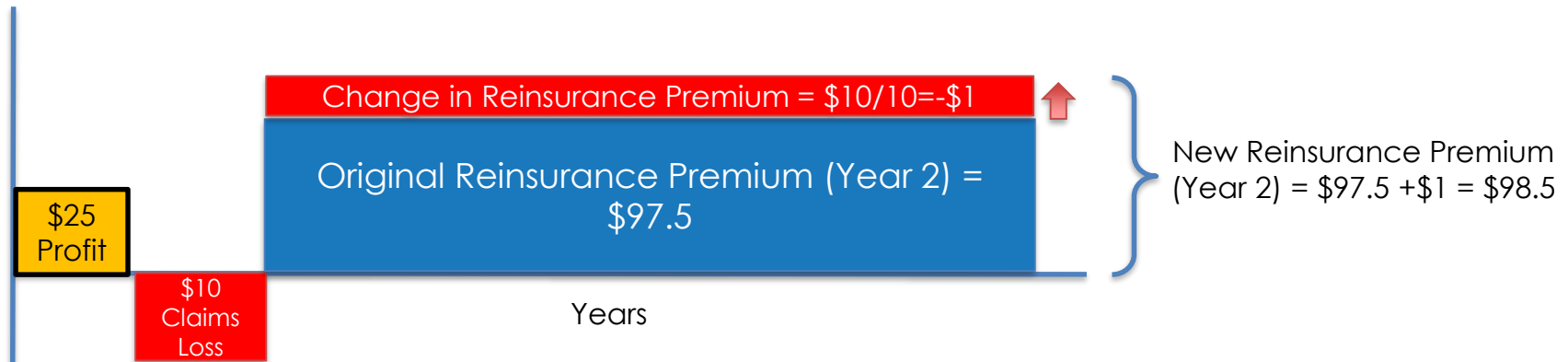
Alternative Reinsurance Strategy

- Build automatic repricing in the treaty:
 - Profit in the current year results in reinsurance rate dropping **(like an automatic credibility adjustment)**
 - Loss in the current year results in reinsurance rate increasing
- For example:
 - Gross Premium p.a. = \$200
 - Reinsurance premium = \$100 p.a.
 - In Year 1, say actual reinsured claims are \$60, compared to \$85 expected (i.e. \$25 profit for the reinsurer)
 - Average duration is 10 years

Impact of \$25 Profit on Reinsurance Premiums – Year 1



Impact of \$10 Loss on Reinsurance Premiums – Year 2

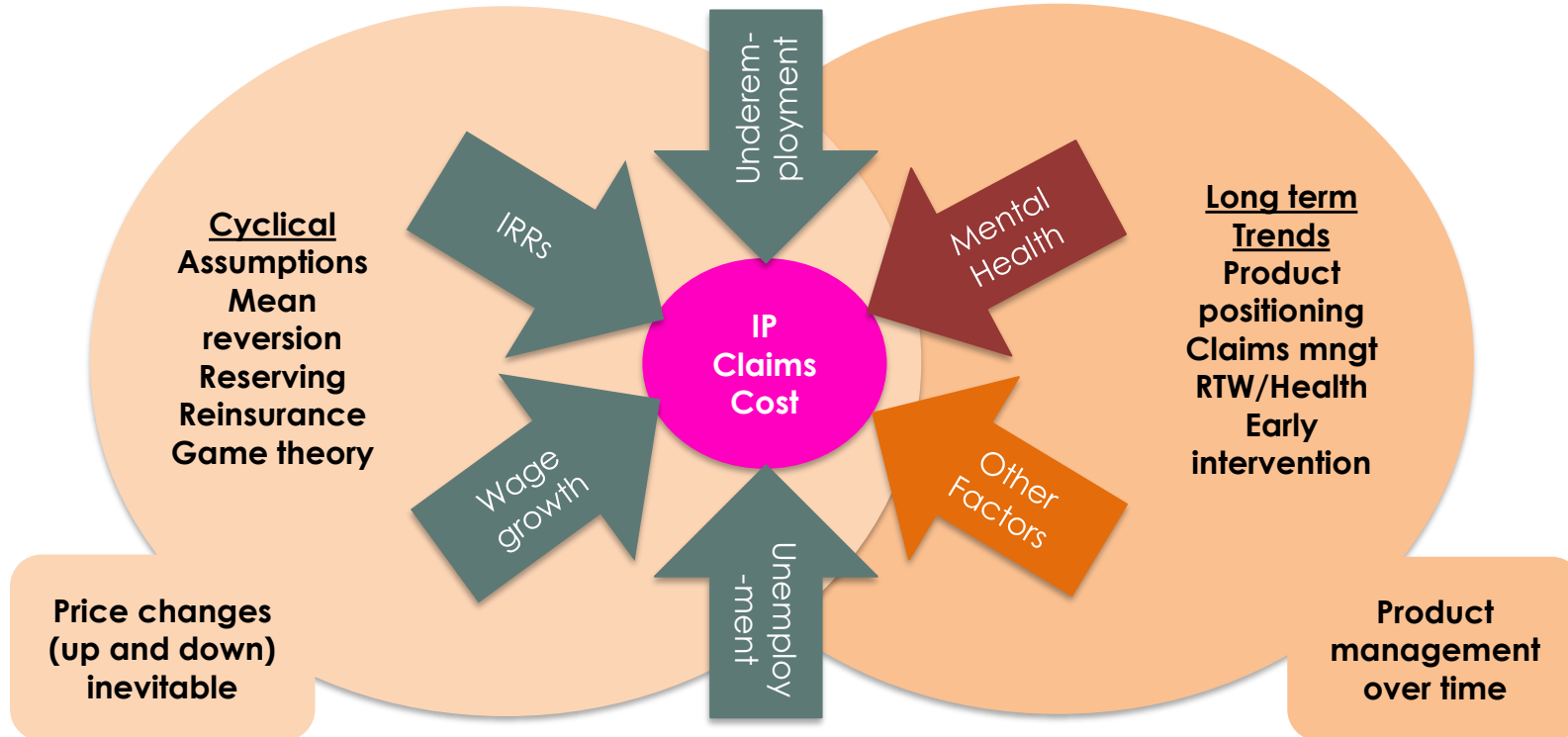


- Direct insurer pricing based on long term expected claims and reinsurance premiums
- Reduced reinsurance premiums from good times help pay for adverse experience in economic downturn => helps reduce pricing volatility for direct insurers

Reserving and Pricing

- Assumptions should be more dynamic
- Allow for mean reversion:
 - Incidence and Termination
- Allow for expected changes in IRRs based on forecast wage growth, underemployment etc.
- Industry has failed to do this in previous cycles

A model of drivers of IP experience



So what??

- IP experience impacted by:
 - Cyclical factors– economic drivers such as wage growth, underemployment => resulting impact on IRRs
 - Long term trends – mental illness, nature of work
- Benefit definitions have not changed, yet experience has deteriorated
- There are opportunities for better cycle management
 - Allowing for mean reversion in pricing and reserving
 - Reinsurance structuring
- **We need to collect better data as an industry!!**