Queensland CTP Market Briefing

Review of the risk premium for the 2021Q1 underwriting quarter

Richard Brookes and Soroush Amirabadi

17 September 2020

Risk premium

Taylor Fry estimates the components of the risk premium for the Queensland CTP scheme for each underwriting quarter and advises the Queensland Motor Accident Insurance Commission (MAIC) on these components. MAIC integrates our advice with its own views to set a floor and ceiling for insurer CTP premiums.

The risk premium is the expected future cost of claims made to insurers. We consider "core" claims separately from workers' compensation recovery (WC), interstate sharing (IS) and NSW accident postcode (NSW) claims. Each component is separated into the frequency of claim per registered vehicle and average claim size. These components make up the baseline risk premium.

Monitoring results confirm that the notifications for the 2020 accident year are lower than our baseline expectations, likely due to COVID-19 related shutdowns and claim-farming legislation. We have set our baseline frequency at the pre claim-farming reform frequency level. An allowance for the impact of the claim-farming reforms has been incorporated through an overlay.

As for the last few quarters, we have continued to incorporate adjustments for the Claims Mix model trends and trends of increasing number of claims with a psychological injury into our advice. Due to emerging evidence, we have reduced the weight given to our psychological injury overlay.

Taylor Fry's **estimated** risk premium is **$183.47**. The estimate is before the application of inflation and discounting and is based on modelling net costs to the CTP scheme after removing costs expected to be transferred to the National Injury Insurance Scheme Queensland (NIISQ). This estimate is **$8.10 lower** than our estimated risk premium made at the previous review (see Figure 1). The major contributors of the change in estimated risk premium are an overlay for claim-farming reform and a reduction in the overlay for growth in claims with a psychological injury, partially offset by increases in the AWE and the baseline frequency.

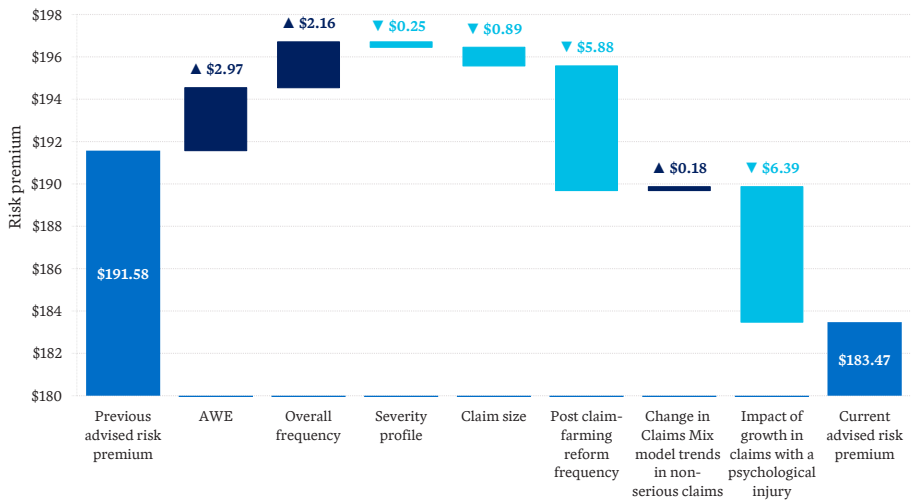
Risk premium

Table 1 Baseline estimate of risk premium at 30 June 2020

	Risk premium component		
	Frequency	Average claim size ($)	Risk premium ($)
Core claims			
Baseline	0.1700%	107,447	182.66
Overlay: Post claim-farming reform frequency	-0.0070%	1,008	-5.88
Overlay: claims mix trend		-3,493	-5.69
Overlay: Psychological claims		1,461	2.38
Estimated core claims	**0.1630%**	**106,422**	**173.47**
NSW accident postcode claims	0.0056%	125,365	7.07
Interstate sharing	0.0026%	66,236	1.72
Workers' compensation recovery	0.0123%	9,859	1.21
Estimated risk premium at 30 June 2020	**0.1840%**	**99,712**	**183.47**

Change in estimated risk premium estimate since the previous review

Figure 1 Change in estimated risk premium since the Mar-20 review



The main drivers of the decrease in risk premium relative to the estimated premium at the Mar-20 review are an overlay for claim-farming reform and a reduction in the overlay for growth in claims with a psychological injury. These have decreased the estimated risk premium by $5.88 and $6.39 respectively.

Partially offsetting the above is an increase to the QLD AWE since the previous quarterly review and an increase in the baseline frequency.

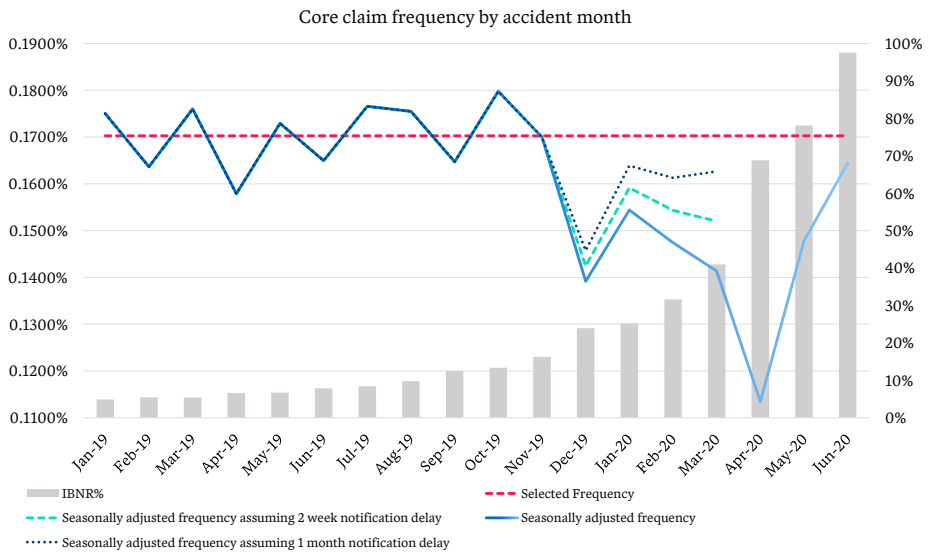
Core claim frequency and severity

Typically, Taylor Fry reviews the core claim frequency and severity profile at each annual review, but the experience is monitored quarterly and changes are made if necessary. In this quarterly review, we have updated the core claim frequency and made a minor revision to the severity profile. The frequency assumption and severity profile were previously revised in Mar-20.

The notifications for the 2020 accident year are lower than our baseline expectations as a result of COVID19 related shutdowns and claim-farming legislation. We have set our baseline frequency at our estimate of the pre claim-farming reform frequency level. An allowance for impact of the claim-farming reforms has been incorporated through an overlay and is discussed in the next section. This section outlines the assumptions for baseline core claim frequency and severity profile.

Baseline core claim frequency

Figure 2 Core claim frequency by accident month as at 30 June 2020

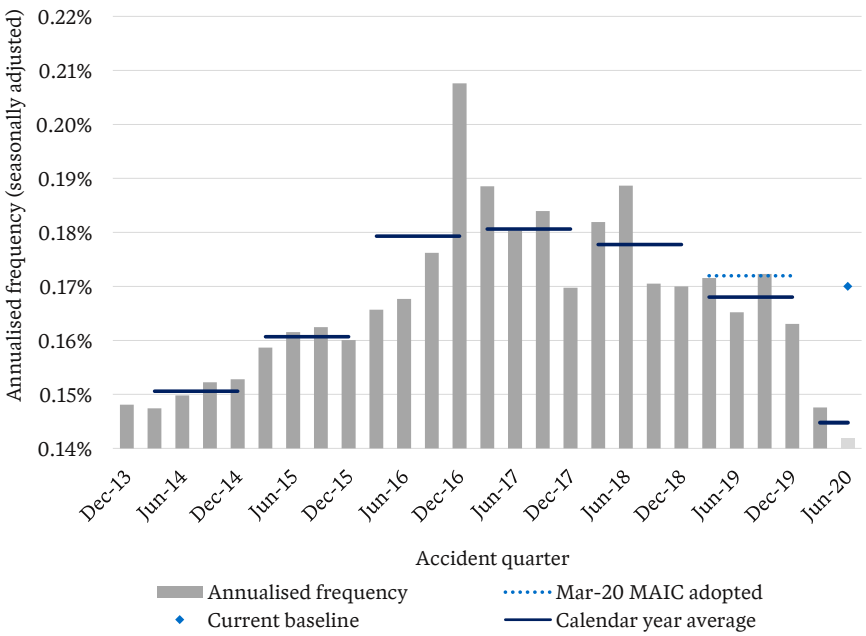


The total number of notifications in the quarter was **24%** lower than expected at Mar-20. The 2020 accident notifications were **32%** lower than the baseline forecast.

Core claim frequency by month shows a marked decrease after the Nov-19 accident month. There are two main contributors to this trend:

- Notification delays due to a more difficult claim submission form and COVID19 related insurer operational issues, and
- Decreased frequency due to claim farming reforms and COVID19 restrictions.

Figure 3 Estimated annualised core claim frequency as at 30 June 2020



This figure shows the projected ultimate annualised frequency for each historical accident quarter after allowing for seasonality.

Due to the marked decrease in frequency post Nov-19, we have set our baseline estimate as the average of the 3 quarters to Dec-19, excluding the Dec-19 accident month as an outlier. The current baseline frequency represents our estimate of the scheme's frequency level prior to claim-farming reforms and COVID.

Our **baseline** estimate of core frequency is **0.1700%**. This is a 1.2% increase from the estimated frequency at Mar-20 due to the exclusion of the Dec-19 accident month from the averaging period used to estimate frequency.

Baseline severity profile

The majority of claims are legally represented severity 1 claims (severity 1Y). These contribute 69% of core claim notifications and 51% of the core risk premium. While there are relatively few high severity claims, these have higher average claim sizes.

Table 2 Baseline severity-specific frequency

Severity	Proportion	Baseline frequency
1N	8.5%	0.0144%
1Y	68.5%	0.1165%
2	12.8%	0.0218%
3	5.3%	0.0091%
4	0.8%	0.0014%
5	0.4%	0.0007%
6	0.9%	0.0016%
9NA	2.7%	0.0046%
Total	**100%**	**0.1700%**

There has been a minor revision to the severity profile at this review.

We have left the projected claim frequencies of severity 4-6 claims unchanged since the Dec-19 review, despite the increase in baseline frequency. The rationale for this is that claim frequencies of severity 4-6 claims tend to be independent of movements in overall claim frequency.

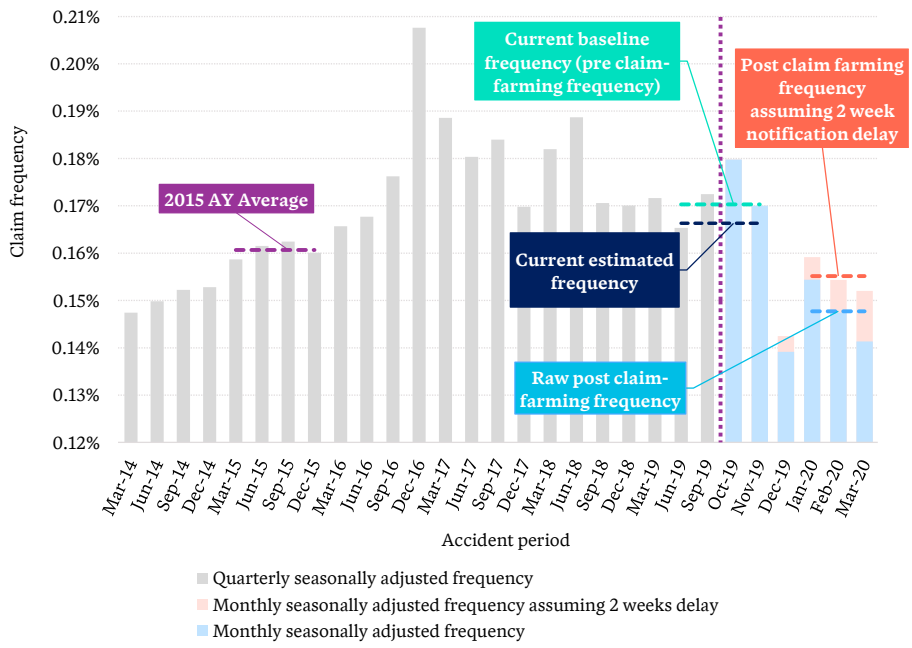
Core claim frequency overlay

Given the unusually low claim frequency post Nov-19, we have incorporated an overlay to allow for the impact of claim-farming reforms on frequency. The overlay frequency is based on the Mar-20 accident quarter experience adjusted for an assumed 2-week notification delay caused by the reforms and an assumption that the decrease in frequency comes from smaller claims. Like the baseline frequency estimate, our estimate of the post-claim farming reform frequency excludes the Dec-19 accident month as an outlier. The final estimated core claim frequency gives 50% weight to the baseline frequency and 50% weight to the overlay frequency. This section outlines the assumptions for frequency and average claim size of our core claim frequency overlay.

Frequency of core claim frequency overlay

Given the unusually low claim frequency post Nov-19, we have incorporated an overlay for post claim-farming reform frequency to form our estimated frequency. Our estimated frequency does not make an allowance for the impact of COVID19 related shutdowns on claim frequency as it is uncertain how these will affect the future underwriting period. However, a scenario has been provided to reflect the potential impact of recent post-COVID19 traffic levels at the request of MAIC.

Figure 4 Core claim frequency pre and post claim-farming reform



The claims farming reforms have two potential effects: a notification delay and a genuine decrease in the frequency of claims. The size and mix of these two effects are not yet clear in the data and we are exercising caution until the impacts become clearer.

To allow for the impact of claim-farming reform, our estimated frequency gives:

- 50% weight to the baseline frequency, and
- 50% weight to the post claim-farming reform frequency adjusted for an assumed 2-week notification delay.

This gives the **estimated** ultimate core claim frequency of **0.1630%,** a 3% decrease from the Mar-20 estimated frequency.

Severity profile of core claim frequency overlay

As the estimated frequency reduces significantly due to claims farming reforms, we also need to consider changes to the severity profile of claims.

The post claim-farming core frequency lies between the 2014 and 2015 accident year frequencies. The increasing trend in frequency starting after accident year 2014 was almost exclusively an increase in the frequency of non-serious same direction claims. Assuming the post claim-farming reform frequency reduction is a reduction in the frequency of the same segment of claims leads to an increase in the expected average claim size as claims in this segment have a lower average claim size than the remaining claims.

Based on historical experience in claim frequency and average claim size relativity by claim segment, we estimate the full impact of the post claim farming scenario to be $12 ($16 reduction in risk premium due to a reduction in frequency, partially offset by a $4 increase in risk premium due to a strengthening average claim size). Given the current level of uncertainty we are assigning a 50% weight to the post claim-farming frequency overlay in our estimated risk premium, giving a weighted impact of a **$5.88 reduction** in risk premium.

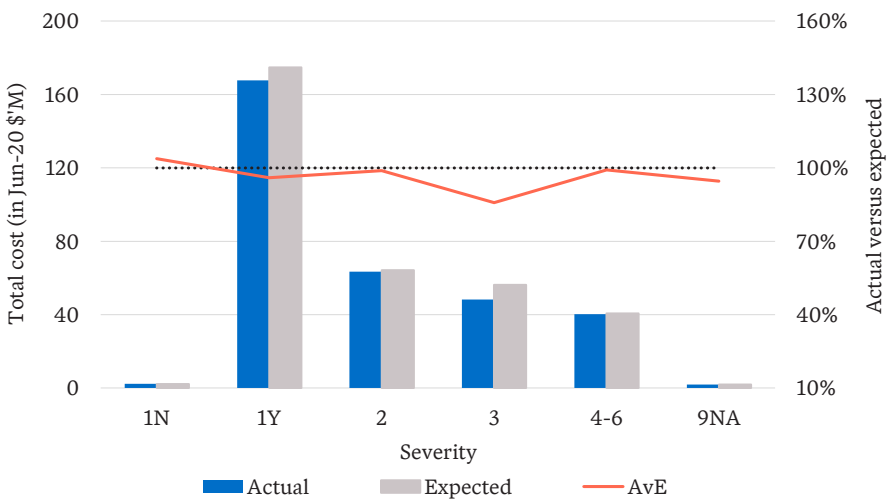
Finalised baseline average claim size

Taylor Fry reviews the average claim size by severity every quarter based on finalised claims. The average finalised claim sizes used for modelling are on a net of NIISQ basis. This section outlines the assumptions for our **baseline** average claim size.

Total cost of claims by severity

At this quarterly review, we compare the 2020YTD total cost of finalised claims to what was forecast at the previous annual review for the same number of claims. This comparison reveals the difference in, and materiality of, movements in average claim size by severity.

Figure 5 Total cost of finalised core claims in 2020YTD by severity

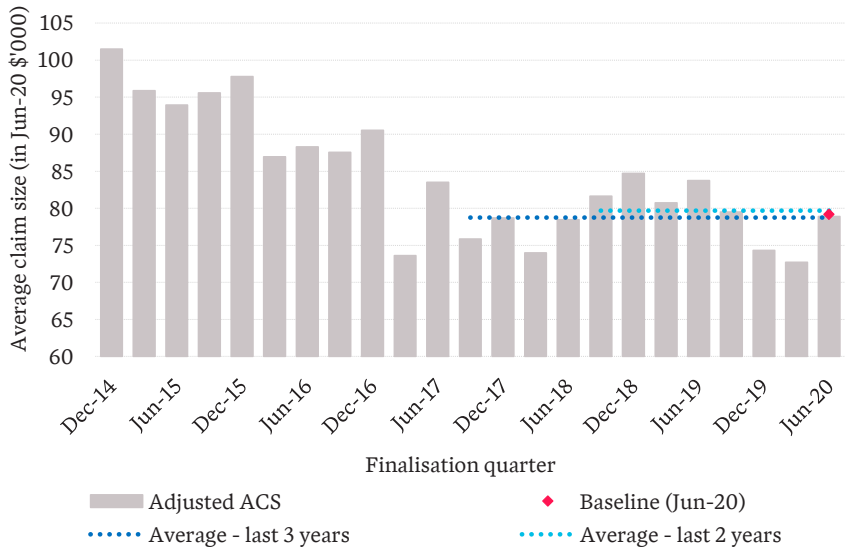


Overall, the 2020YTD average size for claims finalised was **5%** lower than expected at the Dec-19 with severities 1Y and 3 contributing a large proportion of this low experience.

The average finalised claim size in severity 1Y was **4%** lower than forecast at the Dec-19 review. This result is particularly important as severity 1Y claims comprise 52% the total cost, and outcomes are less volatile than higher severities.

Severity 1Y average finalised claim size

Figure 6 Severity 1Y average claim size



The projected average claim size for severity 1Y has reduced by **0.6%** from the estimated average size at the Dec-19 review to **$79,214.** The baseline average claim size is in line with the last two year and three-year averages.

The projected average claim size has decreased for all severities except severities 1N, 4 and 6. The overall projected average claim size has reduced by **0.6%** as a result.

Change in baseline average claim size since the previous review

Table 3 Change in baseline average claim size by severity ($'000, adjusted for inflation)

	Severity								Total
	1N	1Y	2	3	4	5	6	9NA	
Estimate at Mar-20	7	80	159	352	662	1,156	310	13	108
Baseline at Jun-20	7	79	159	348	672	1,128	313	13	107
Change in baseline	+0.9%	-0.6%	-0.1%	-1.0%	+1.5%	-2.4%	+1.0%	-0.4%	-0.6%

Lead indicators of claim size

We use lead indicators of claim size to validate our average claim size assumption. Two lead indicators are used as overlays to form our **estimated average claim size**. These indicators are claims mix model trends in non-serious claims and the possible impact of a growth in claims with a psychological injury code.

Lead indicators of claim size

At the current time, our advice regarding emerging claim size is informed primarily by the size of finalised claims. This is a proven and robust methodology and is established actuarial practice. However, it can be slow to recognise changes to the mix of claims or changes to the management/settlement environment, especially when the claims affected have not yet finalised. Therefore, we monitor three lead indicators of claim size: a separate claims' mix model which responds to the mix of claims yet to be finalised, such as legal representation, accident circumstance and hospitalisation; insurers' case estimates of open claims; and the emerging proportion of psychological claims.

Our claims mix model indicates a growing frequency of legally represented, non-serious, same direction claims until the 2017 accident year and an established decreasing trend in the size of all legally represented, non-serious claims[1]. This suggests that further drops in claim size, beyond those reflected in our finalised claim models, are likely. We allow for this trend to arrive at a 3% reduction in our average claim size for the claims mix trend overlay. Although case estimates also provide some support for this reduction, they are also being affected by an increasing proportion of claims with a psychological injury. We will investigate the feasibility of separating the impact of the trends in the claims mix model from psychological claims trends in the annual review

There was a decreasing trend in the proportion of claims with a psychological injury code up to accident year 2015. Since then it has been increasing, with expected proportion for accident years 2018 and 2019 much higher than 2017. Psychological claims are historically finalised for higher costs compared to non-psychological claims. While the incurred average claim sizes for psychological claims for accident years 2017-2019 are lower than for accident years 2011-2016, this is not enough to offset the increasing proportion. This suggests a potential increase in the overall average claim size.

Based on historical trends, we project the ultimate average incurred cost for each accident year allowing for trends in the proportion of claims with a psychological injury. The average claim size overlay for psychological claims is based on the difference between the projected average incurred cost for accident year 2018 and 2017. We previously assigned 50% weight to this difference, allowing for considerable uncertainty about this increase coming from a potential acceleration of recognition of psychological injuries and/or a substitution in psychological claims classification.

We have reduced the weight given to our psychological injury overlay from 50% to 25%. This is driven by the recent finalisation experience where the finalized psychological claim size for accident year 2018 has fallen significantly below that of accident year 2017 whereas the psychological claims' average incurred costs are very close between the two accident years. This suggests that a large proportion of the psychological claim overlay (which is reliant on incurred costs) is driven by insurer case estimates which are not currently supported by the finalised claim costs. In addition, MAIC commissioned an investigation into the increase in the frequency of claims with a psychological injury by Jensen McConaghy. The investigation concluded that the increasing trend in the prevalence of psychological claims is "not the result of an intentional strategy or trend on the part of the legal profession in Queensland" and that claim farming and the progressive coding of injuries were potential drivers of the trend. Views of the insurers expressed to Jensen McConaghy were mixed, with no consensus that the issue was one of concern in terms of increasing claim costs.

We will continue to monitor experience as it emerges and update our advice accordingly. There is considerable uncertainty about the potential increase we have identified but there is also considerable scope for insurers to intervene and exercise control over the increasing costs.

Estimated core average claim size

The **previous estimated** average claim size incorporating the claims mix model trends in non-serious claims and potential impacts of psychological claims is **$109,298** ($Jun-20). At this review, we have continued to incorporate the claims mix model trends overlay and updated our psychological injury overlay. We have also incorporated an overlay for post claim-farming frequency with its average claim size impact discussed in an earlier section. These result in an overall estimated average claim size of **$106,422.**

Notes:

1. *'Non-serious claims' refers to claims that are not fatal, do not result in brain and spinal cord injuries and do not require an overnight hospital stay.*

Risk premium scenarios

There is considerable uncertainty in the assumptions underlying our risk premium estimate. There is a risk that the claim frequency and size that ultimately emerge for the 2021Q1 underwriting quarter turn out to be different to our assumed values. We provide the impact on the estimated risk premium for some plausible scenarios with alternative sets of risk premium assumptions.

Risk premium advice and MAIC's pricing decisions

At each review we provide MAIC with our estimated risk premium and a range of plausible alternative scenarios. Our estimated risk premium is intended to reflect risk premium for the most recent past accident periods, to the extent we can reliably measure it, adjusted for the impact of changes we are reasonably confident will occur up until the time most of the cost of claims for the underwriting quarter has been paid.

We can measure a 12-month frequency with reasonable accuracy about 6 months after the end of the year. Generally, we trade some uncertainty for a more recent measurement by basing our estimated risk premium on our estimate of frequency for the 12-month period ending 3 months before the measurement date. However, from time to time there are issues specific to the quarter that cause us to change this approach.

On average, our finalisation models reflect claim sizes for accidents 2-3 years before. Our overlays are intended to reflect changes in average claim size that are not yet in our finalisation models but which we expect for the most recent accidents, based on other analysis. The overlays are subject to more uncertainty because they are not based on actual settlement sizes. This uncertainty requires us to exercise judgement in translating the overlay analysis into dollar items in the estimated risk premium. MAIC make separate allowance for general claims cost growth in the form of a Superimposed Inflation allowance.

In the current context, our estimated risk premium is pre-COVID although MAIC has requested, and we have provided, a scenario that is intended to reflect recent post-COVID traffic levels.

MAIC are setting prices for an accident period which is approximately one year in the future, with claims settling on average 3 years after that. We consider it proper for them:

- To anticipate future changes in the risk premium which we have not allowed for in our estimated risk premium
- To make different judgments on how the issues we have highlighted are translated into dollar items in the risk premium
- Incorporate the impact of other issues we have not considered in formulating our advice.

We do not expect that MAIC will necessarily adopt our estimated risk premium or a risk premium that is within the range covered by our scenarios.

Plausible alternative scenarios

We provide risk premium impacts from a range of plausible alternative scenarios. The definitions of these scenarios are provided in Table 4 below.

Table 4 Scenario definitions

Category	Scenario	Description
BAU variation based on time elapsed between measurement and payment	*+/- 6% change in core frequency*	The impact of recent differences in actual and expected frequency on risk premium. The percentage change is determined by comparing the current baseline frequency to the 12 month average frequency frequencies over the last 18 months
	+/- 8% change in core average claim size	The impact of recent differences in actual and expected average claim size on risk premium. The percentage change is determined by comparing the current baseline claim size to the ultimate claim size projected using the projected case estimate (PCE) model over the last 6 accident calendar years
Illustrative judgment variation, generally via the weighting of different trends and possibilities	*ACS overlay scenarios*	Change in weighting of average claim size overlays incorporated in the estimated risk premium
	Impact of claim farming legislation	» Change in weighting given to the estimated core claim frequency post the claim farming legislation i.e. Jan-20 to Mar-20 » Change in notification delay on post claim farming frequency
	NIISQ coverage	If the NIISQ covers gratuitous care
Scenarios requested by MAIC	*AY2015 risk premium*	MAIC has hypothesised that the increasing trend in frequency post 2015 has been due to claim farming which may be reversed as a result of the new claim farming legislation. This scenario aims to determine reasonable proxy for the reduction in risk premium expected as a result of claim farming reforms
	COVID19 current impact on traffic volumes sustained	This scenario is based on traffic volume reductions seen from Jun 19 to Jun 20 due to COVID19 related shutdowns

We show sensitivity of the risk premium to some different scenarios below. Although the table below shows the impact of each scenario in isolation, it is possible that more than one scenario may occur at the same time. In particular, if more than one scenario in the middle group was to occur, we estimate the impact to be approximately additive except for two post claim farming scenarios where the notification delay scenario is based on a 50% weight.

Table 5 Change in estimated risk premium for plausible alternative scenarios

Risk premium scenarios	Impact on estimated risk premium
Business as usual variation	
Core claim frequency +/- 6% (excluding severities 4-6)	+$9 / -$10
Core average claim size +/- 8%	+$14 / -$14
Illustrative judgement variation	
Psychological claims ACS overlay credibility 0% / 25% / 50%	-$2 / - / +$2
NIISQ gratuitous care coverage by NIISQ 0% / 100%	- / -$3
Post claim farming notification delay 0 weeks/ 2 weeks/ 4 weeks	-$3 / - / +$3
Post claim farming legislation claim frequency 0% / 50% / 100%	+$6 / - / -$6
Scenarios requested by MAIC	
Estimated frequency and severity profile set to AY2015 risk premium figures	+$3
Estimated frequency adjusted to allow for COVID19's current impact on traffic volumes	-$8

Economic assumptions

Taylor Fry uses AWE to bring past payments to current values, advises on the economic gap (the difference between risk-free investment return and QLD AWE inflation rate) and monitors superimposed inflation each quarter.

Past inflation

AWE in Queensland increased by 1.1% in the 6 months to May 2020 (based on total earnings). This ABS release has shown high wage inflation across Australia. This is less true in QLD but comes after a very high increase in QLD in the previous 6 months. According to the ABS the high national AWE increase is mainly due to COVID-19 related changes in the AWE employment base composition and the impact of different levels of COVID-19 related subsidies received by different industries. In these unusual economic conditions, AWE inflation will be a poorer proxy for claims cost inflation than is typically the case.

Economic gap

The economic gap is the difference between the projected risk-free investment return and the projected QLD AWE inflation rate up to the time of claim payment. A higher economic gap translates to a lower CTP premium.

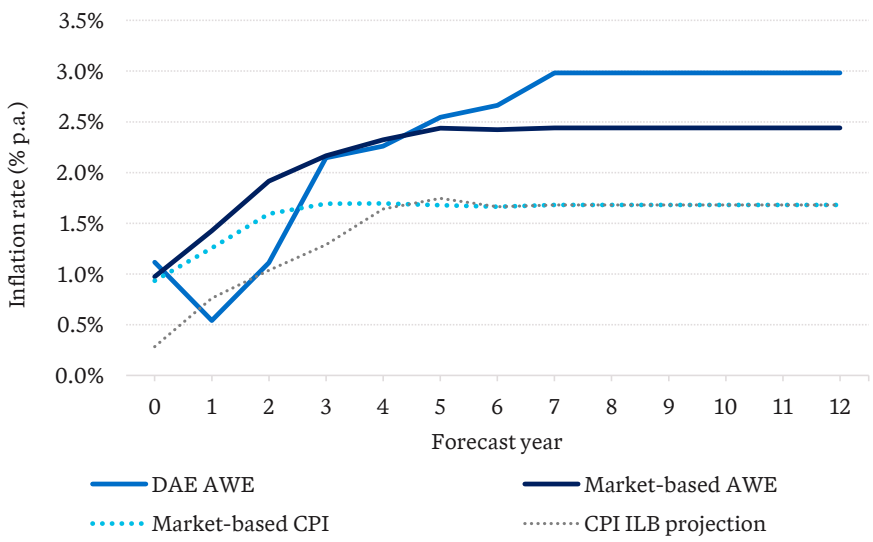
The projected risk-free investment return is derived from prevailing Australian Government bond yield curves available at the time of premium setting (as at 1st September 2020).

At the Jun-20 review, we have provided two projected QLD AWE inflation rates based on information available at the time of premium setting:

- One is derived using a market-based model based on
  - the shape of current nominal and inflation-linked bond yield curves,
  - the QLD unemployment rate, and
  - long run assumptions of CPI and the gap between AWE and CPI.

  Full details of this model are outlined in the discussion paper "An alternative approach to forecasting wage inflation" dated 29 July 2019 by Richard Brookes and Nelson Vasconcelos.
- Another is derived from Deloitte Access Economic (DAE) inflation forecasts.

Figure 7 Projected wage inflation rates

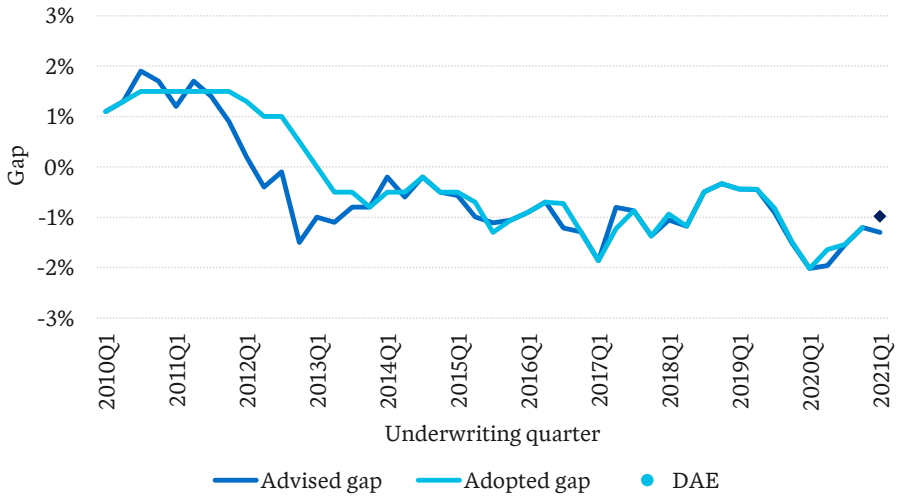


For the 2021Q1 underwriting quarter, the projected flat wage inflation rates are:

- **1.88% p.a.** based on the market-based model
- **1.57% p.a.** based on DAE inflation forecasts

The market-based estimate of Consumer Price Index (CPI) inflation rates and CPI inflation linked bond projection have also been shown for reference.

Figure 8 Economic gap



For the 2021Q1 underwriting quarter, **the economic gap based on the market-based forecast is -1.30%.** This is made up of a:

- Discount rate of 0.58% p.a. and
- Wage inflation of 1.88% p.a.

The economic gap widened slightly from -1.20% estimated at the previous review.

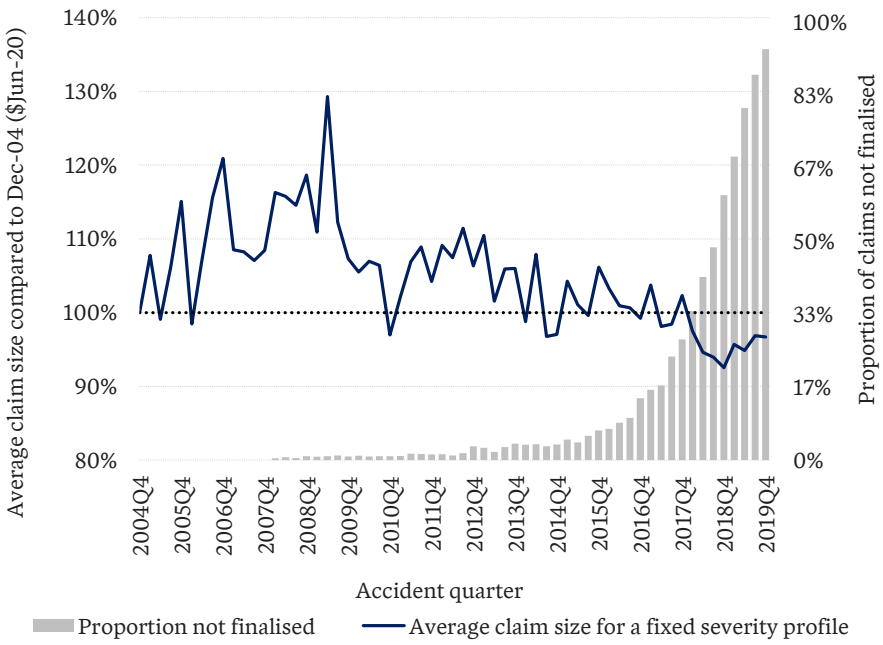
The economic gap for the 2021Q1 underwriting quarter **based on the DAE forecast is -0.98%**, compared to -0.84% last quarter.

There is a wide range of uncertainty in current economic forecasts. The market-based model only responds to around 50% of the immediate short-term forecasts of inflation and we are reluctant to make an ad hoc change. In our view it is open to MAIC to revert to the DAE model for a time.

Superimposed inflation

In the premium setting process, superimposed inflation is the growth in average claim size above the QLD AWE inflation rate that cannot be explained by changes in the severity mix. Currently, MAIC set the future superimposed inflation assumption at 0.5% p.a. We consider that the analysis of past superimposed inflation in the Scheme supports a future superimposed inflation assumption in the range 0% p.a. to 2% p.a.

Figure 9 Superimposed inflation illustration (adjusted for AWE inflation) assuming 0% p.a. *future* superimposed inflation



Superimposed inflation has been benign over the past decade. That is, average claim size has not increased at a materially faster rate than QLD AWE inflation.

With a high proportion of claims not finalised, there is potential for the average claim size for accidents in 2018 and 2019 to exhibit superimposed inflation before finalisation:

- At 0% p.a. future superimposed inflation, the 5-year change in average claim size to Jun-20 is -0.88% p.a.
- At 1% p.a. future superimposed inflation, the 5-year change to Jun-20 is -0.33% p.a.

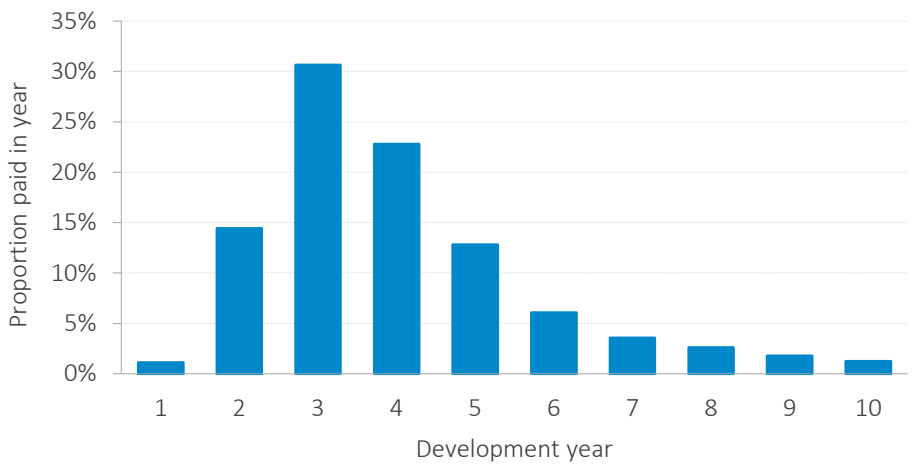
Other premium components

Taylor Fry advises on the pattern of future payments for applying the economic assumptions, and the vehicle class relativities.

Payment pattern

The payment pattern shows when claim payments are expected to be made following underwriting.

Figure 10 Payment pattern



The payment pattern at this review has remained unchanged to the payment pattern estimated at Dec-19. The mean term from underwriting to payment is **3.71 years.**

TAYLOR FRY

www.taylorfry.com.au

Sydney
Level 22
45 Clarence St
Sydney
NSW 2000
(02) 9249 2900

Melbourne
Level 27
459 Collins St
Melbourne
VIC 3000
(03) 9658 2333

Wellington
Level 16
157 Lambton Quay
Wellington
6011
+64 4 462 4009