



Motor Accident Insurance Commission

Annual review of premium components as at 31 December 2021

—

Peter Mulquiney, Soroush Amirabadi, Rahual Ram, Crispin Cayley, Emma Liu

25 March 2022

1

Summary

Key changes since the last annual review

Since the last annual review



Core claim frequency

- Our core claim frequency assumption has **increased** due to claim notification experience over 2021 emerging 6% higher than forecast
- This has resulted in a **4.6% increase** in the risk premium



Claim severity profile

- The severity profile has weakened over the year resulting in a **decrease of 2.0%** in risk premium
- The main driver of the decrease is that the increase in frequency over the year occurred mainly in Severity 1 claims, resulting in decreasing proportions of the higher cost high severity claims
- This weakening was slightly offset by an increasing proportion of legally represented severity 1 claims



Core average claim size

- Average finalised claim size in 2021 was **7% higher than forecast** at the last annual review, with the higher than forecast experience mostly concentrated in Severity 1Y and 2 claims. Our average claim size assumption has been strengthened in response to this experience.
- These changes have resulted in a **3.7% increase in risk premium**



Economic assumptions

- The two AWE releases by ABS over 2021 showed high wage inflation in QLD over the year, partly driven by changes in workforce composition and hours worked. This has led to an **AWE inflation increase of 4.8%**.
- The discount/inflation gap has been volatile over the year but has ended the year only **slightly narrower** than it started – from **-1.24% p.a.** at the last annual review to **-1.15% p.a.** at this review



Estimated risk premium (Dec-21 values)

- After allowing for the AWE inflation increase, the estimated risk premium has **increased by 5.6%** over the year
- Our current estimate of the risk premium remains **8.1% lower** than the risk premium estimate at Dec-19 after allowing for inflation – much of the strengthening over the year has been a partial unwinding of the weakening in risk premium that occurred over 2020

2

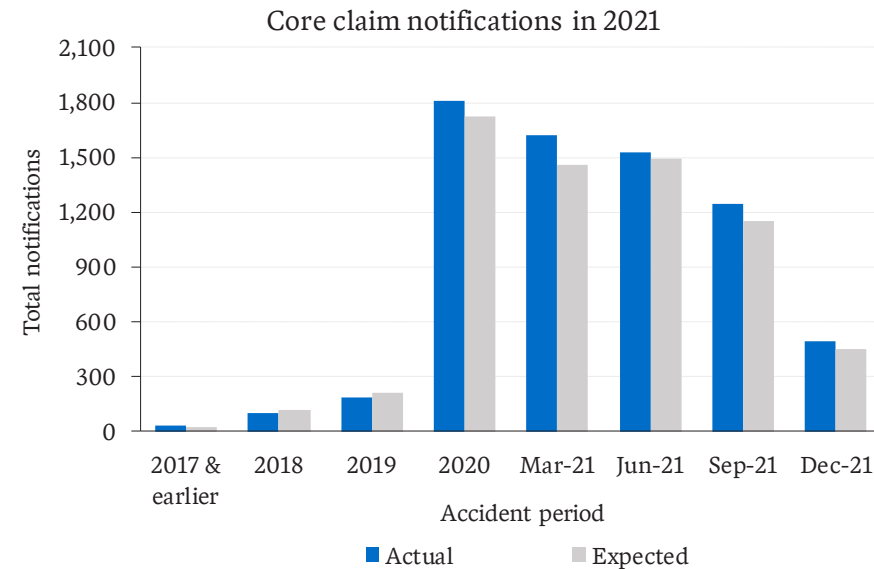
Core claim frequency

Claim notification have been higher than the forecasts made at the last annual review

Experience

- Total notifications over 2021 were **6% higher than our forecast** at 31 December 2020
- This higher than forecast experience occurred across the 2020 and 2021 accident years
- In making this comparison we adjusted our forecasts for the expected impacts of COVID-19 related lockdowns
- Had we not made these adjustments the overall experience would have been 3% higher than expected

Projection

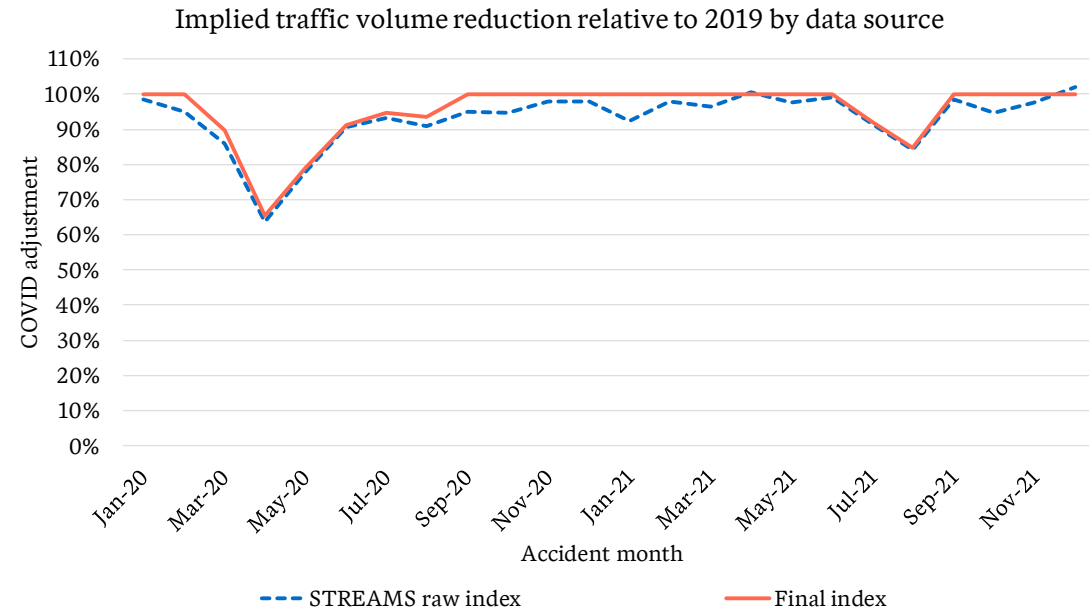


Historical notification experience has been adjusted for the impact of COVID-19 lockdowns on traffic volumes

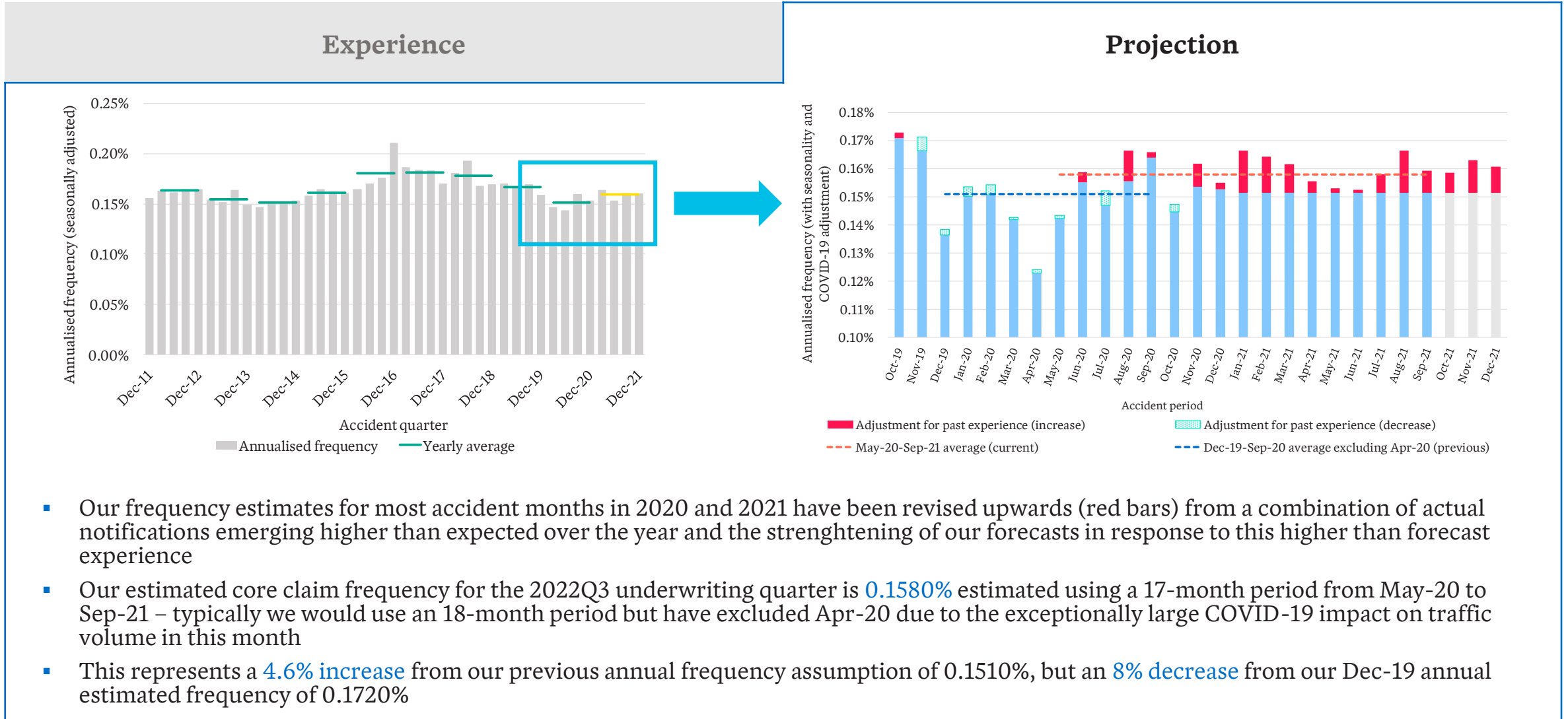
Experience

- The graph on the right shows the estimated reduction in traffic volumes compared to pre-COVID traffic volumes obtained from the STREAMS dataset provided by the TMR
- Our approach to selecting traffic volume adjustments has been to only adjust notification experience where the traffic volumes are significantly depressed due to COVID-19 related lockdowns – shown by the orange line in the figure.
- An implicit assumption in our core claim frequency estimate is that the level of traffic experienced over the non-lock-down affected months in 2020 and 2021 will continue into the future

Projection



Core claim frequency has increased over the year due to partial unwinding of the weakening that occurred over 2020



3

Severity profile

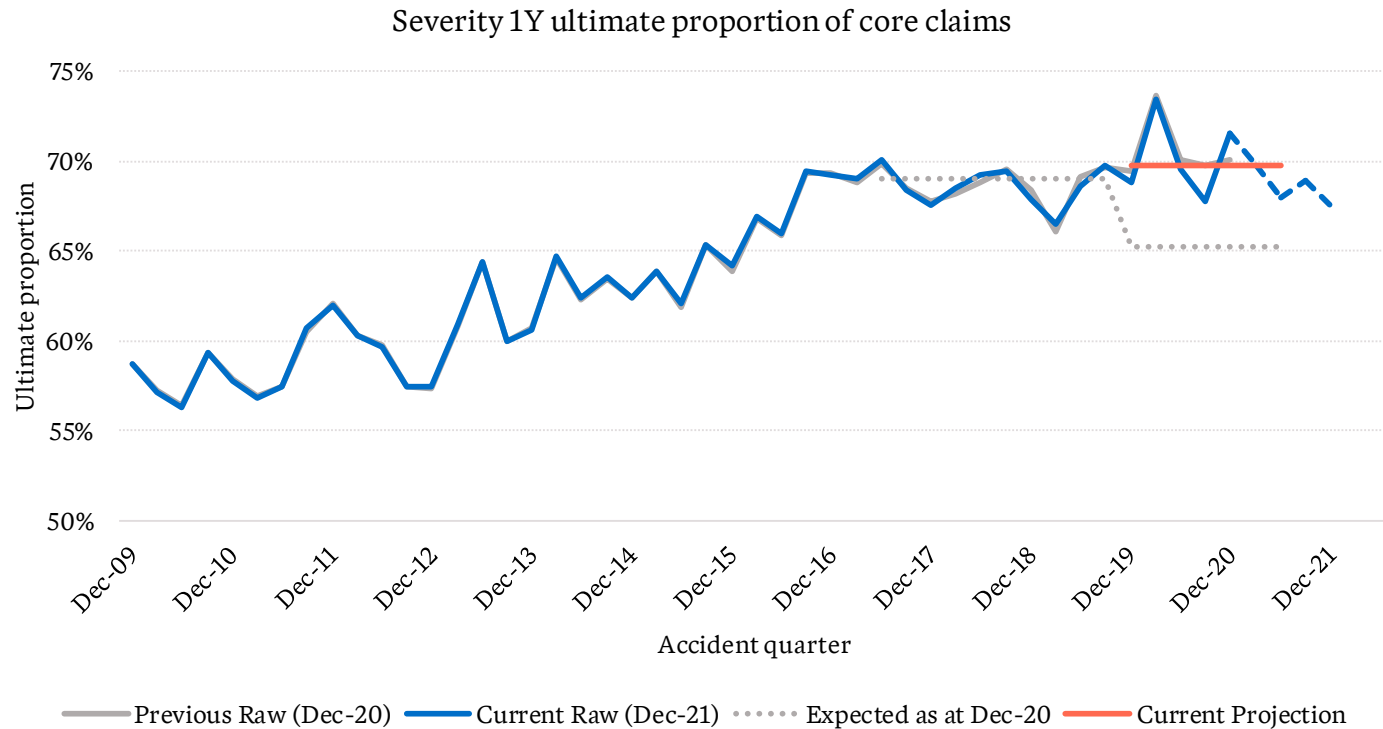
The severity profile has weakened since the last annual review

Estimated profile for 2022Q3 underwriting quarter

- The severity profile **has weakened** over the year which has resulted in a **\$3.3** decrease to the RP
- This main drivers of this weakening were:
 - The increase in frequency over the year occurring in Severity 1 claims
 - A decrease in the expected proportion of severity 2 claims
 - Offset partially by an increases in legal representation for severity 1 claims

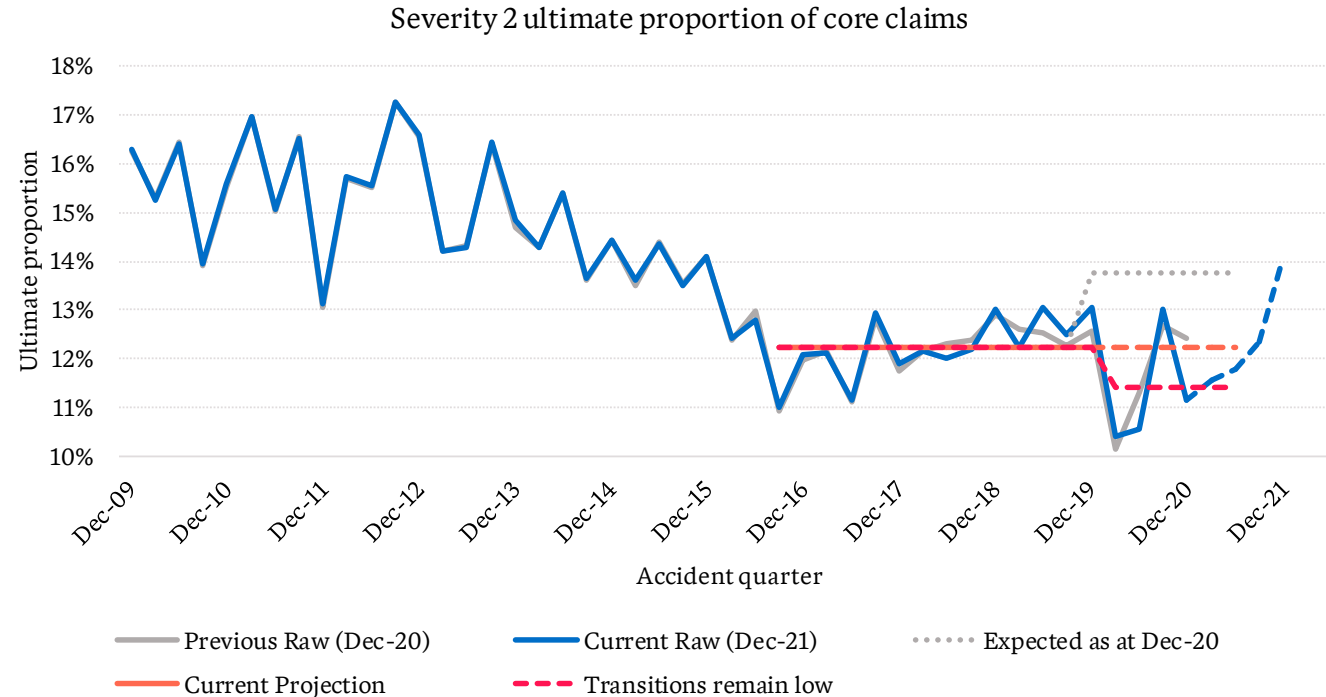
Severity	Estimated ultimate proportion			
	Previous review (Dec-20)	Current review (Dec-21)	Movement	Risk premium impact (\$)
1N	9.6%	7.4%	-2.2%	-\$0.3
1Y	65.2%	69.8%	4.6%	+\$5.9
2	13.8%	12.2%	-1.6%	-\$4.1
3	6.2%	5.8%	-0.4%	-\$2.2
4	1.0%	0.9%	-0.1%	-\$1.2
5	0.5%	0.4%	-0.1%	-\$1.4
6	1.0%	1.0%	-0.0%	-\$0.0
9NA	2.7%	2.5%	-0.2%	-\$0.0
All	100%	100%	-	-\$3.3

Experience for severity 1Y claims has emerged *higher* than our Dec-20 expectations



- Notifications for severity 1 and legally represented claims (“1Y”) have emerged higher than our Dec-20 expectations of the **proportion** of claims for *post-claims farming reform* accident periods – we had expected a drop relative to *pre-claims farming reform* accident periods as most of the claims removed due to the reforms were expected to be severity 1Y claims
- Severity 1Y notifications for *post-claim farming reform periods* continue to develop at a higher level compared to *pre-claim farming reform* accident periods

Experience for severity 2 claims has emerged *lower* than our Dec-20 expectations

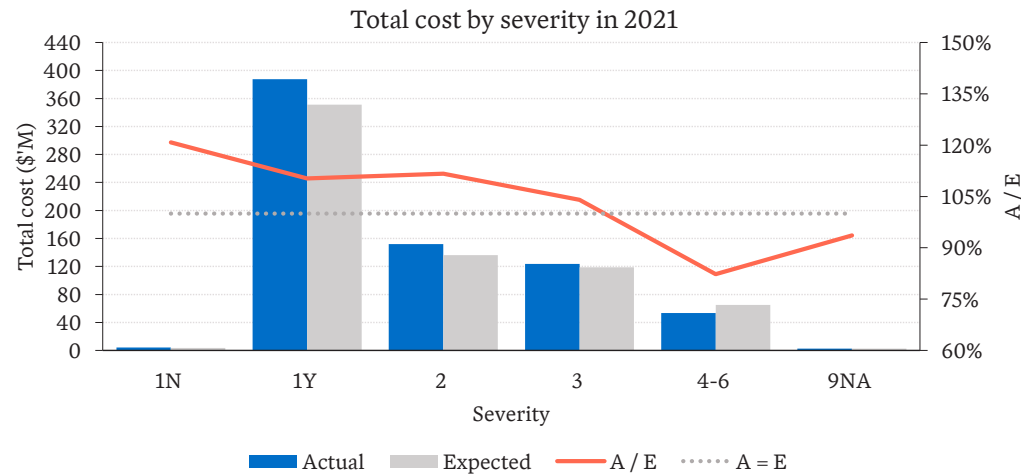


- At the previous annual review, we anticipated that the claims farming reforms would result in an increase in the proportion of severity 2 claims. However, since Mar-20 the proportion of severity 2 claims has emerged at lower levels than the pre-claims farming reform accident periods.
- This has been driven by fewer transitions into severity 2 from severity 1Y, which may be in part be due to claims processing issues reported by one of the insurers. This creates greater uncertainty in our assumption of the severity 2 core claim frequency.
- We have assumed that the proportion of claims in this severity will recover to pre-claims farming reform levels once the claim processing issues are rectified, however this assumption is highly uncertain

4

Core finalised claim size

The average size of finalised claims was 7% higher than forecast at the last annual review

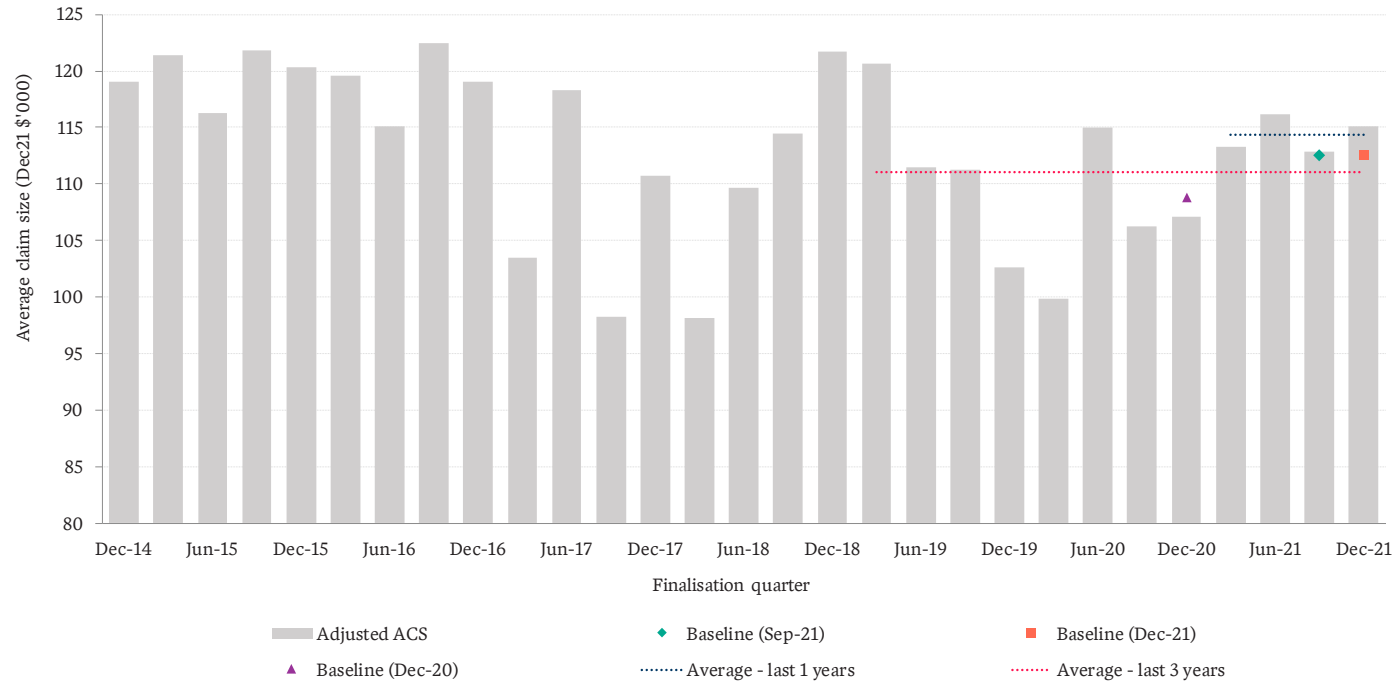


Average claim size in 2021 - based on Dec-20 model

ACS (\$000s)	Severity						All
	1N	1Y	2	3	4-6	9NA	
Actual	9	89	187	363	412	14	115
Expected	8	81	167	348	500	15	108
Ratio of Actual to Expected	121%	110%	112%	104%	82%	93%	107%

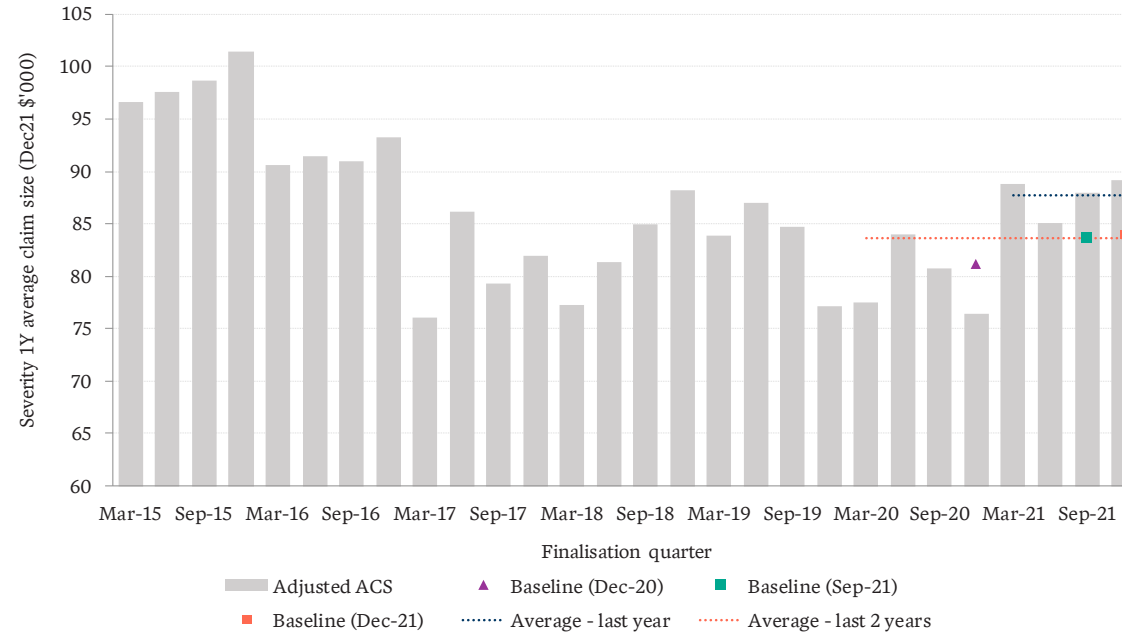
- Actual cost for 2021YTD across all severities was **7% higher than** projected at the previous *annual* review
 - Actual cost is **10% higher** than expected in **severity 1Y**
 - Actual cost is **12% higher** than expected in **severity 2**
 - Actual cost is **4% higher** than expected in **severity 3**
 - Actual cost is **18% lower** than expected in **severities 4-6**

Average claim size experience over 2021 emerged higher than 2019 and 2020



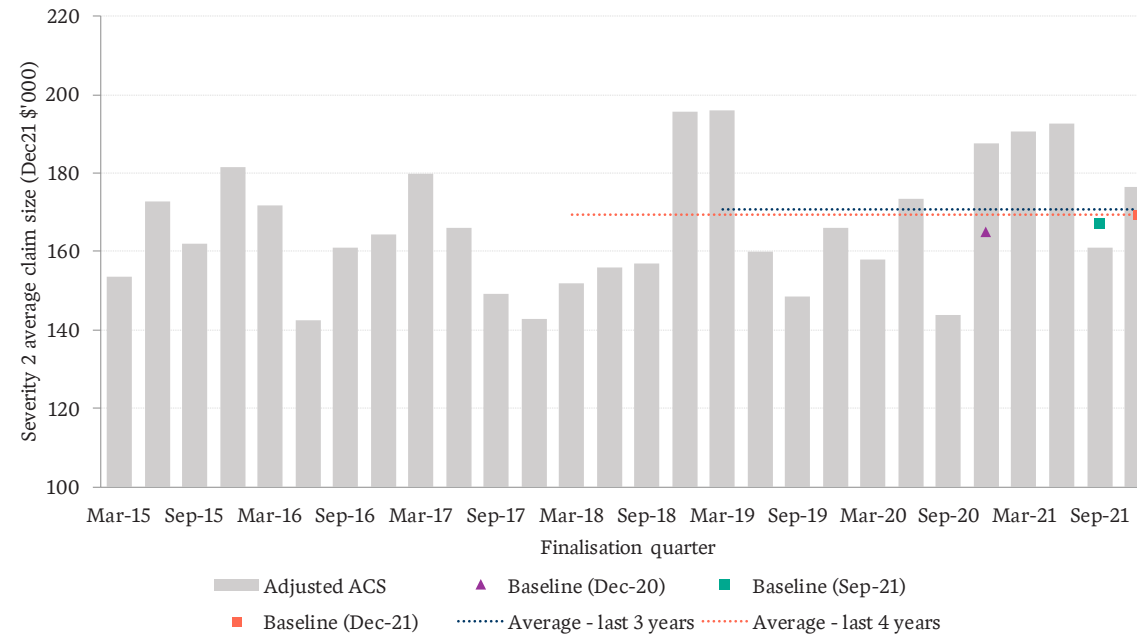
- Average claim size experience over 2021 has emerged much higher than 2019 and 2020, partially driven by several large claim finalisations over the year
- This has placed upwards pressure on average claim size for several severities, particularly severity 1Y and 2

We increased the finalised claim size for Severity 1Y claims by 4% in response to claims experience 10% higher than expected



- The finalised claim size for severity 1Y over 2021 has been much higher than recent experience
- Our model gives partial weight to this period of high experience leading to an increase in our selected severity 1Y average claim size of 3.6%

We increased the finalised claim size for Severity 2 claims by 3% in response to claims experience 12% higher than expected



- The finalised claim size experience for severity 2 claims has emerged higher over the year compared to our Dec-20 projections
- The experience over the year has led to an increase in our selected severity 2 average claim size of 2.9%

Overall there has been a 2% increase in the core average claim size assumption

2% increase in baseline core claim size since last year

Severity	Estimated average claim size (Dec-21 \$000s)			Impact on risk premium (\$)
	Baseline as at Dec-20	Baseline as at Dec-21	Change (%)	
1N	8	8	5.8%	+0.1
1Y	81	84	3.6%	+3.2
2	165	170	2.9%	+0.9
3	344	347	0.9%	+0.3
4	631	626	-0.8%	-0.1
5	992	960	-3.2%	-0.2
6	328	301	-8.2%	-0.4
9NA	13	13	-3.4%	-0.0
Total	110	113	2.1%	+3.7

- Over the year, the baseline core claim size has **increased by 2.1%**
- This is primarily due to an increase in the estimated average claim sizes for severities 1Y and 2

5

Analysis of claims mix

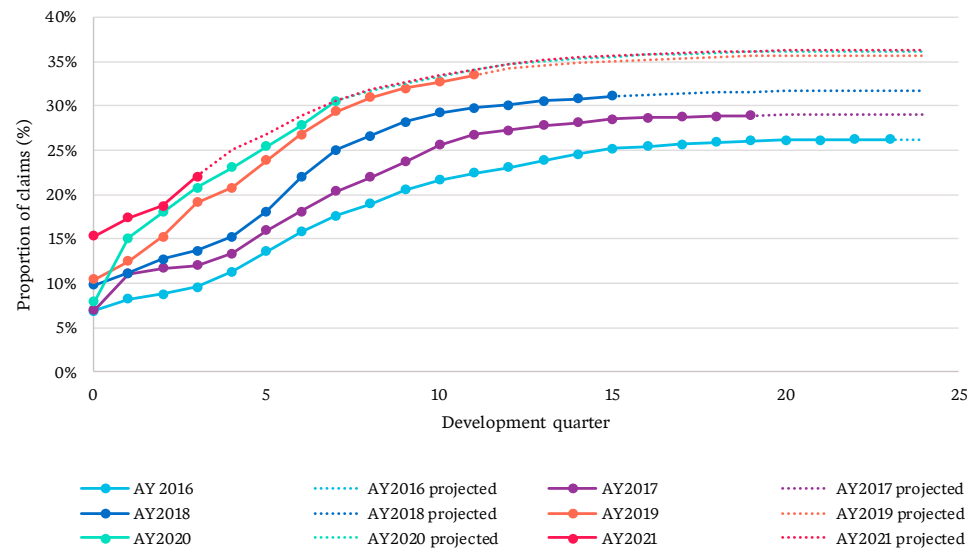
The proportion of claims having a psychological injury has increased significantly in recent accident years

Psychological claims

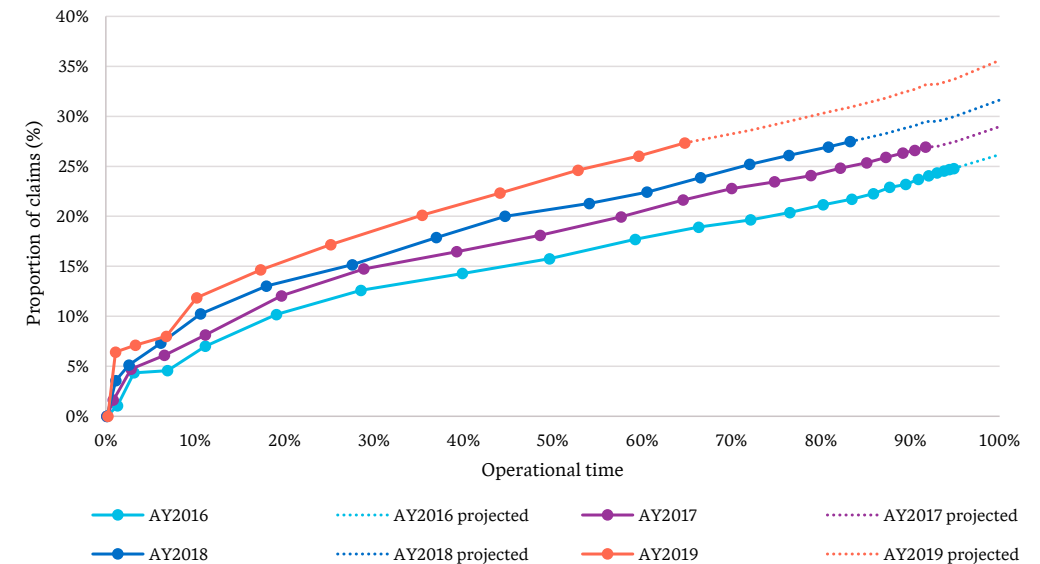
Claims mix model

Lapsed/discontinued claims

Proportion of claims coded with psychological injury



Proportion of *finalised* claims coded with psychological injury



- Recent accident years have seen a trend of increasing claims with psychological injury and faster coding of psychological injuries

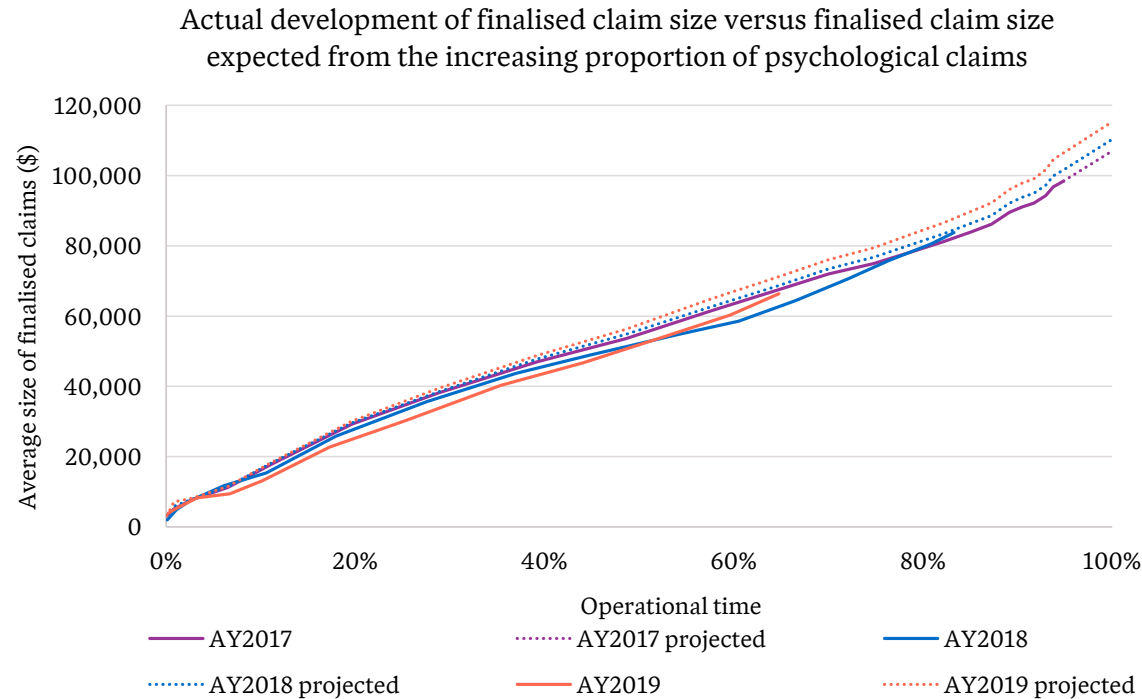
- This results in finalised claims having higher proportions of psychological injury in more recent years at the same stage of development

However this has not resulted in significantly higher average sizes for finalised claims

Psychological claims

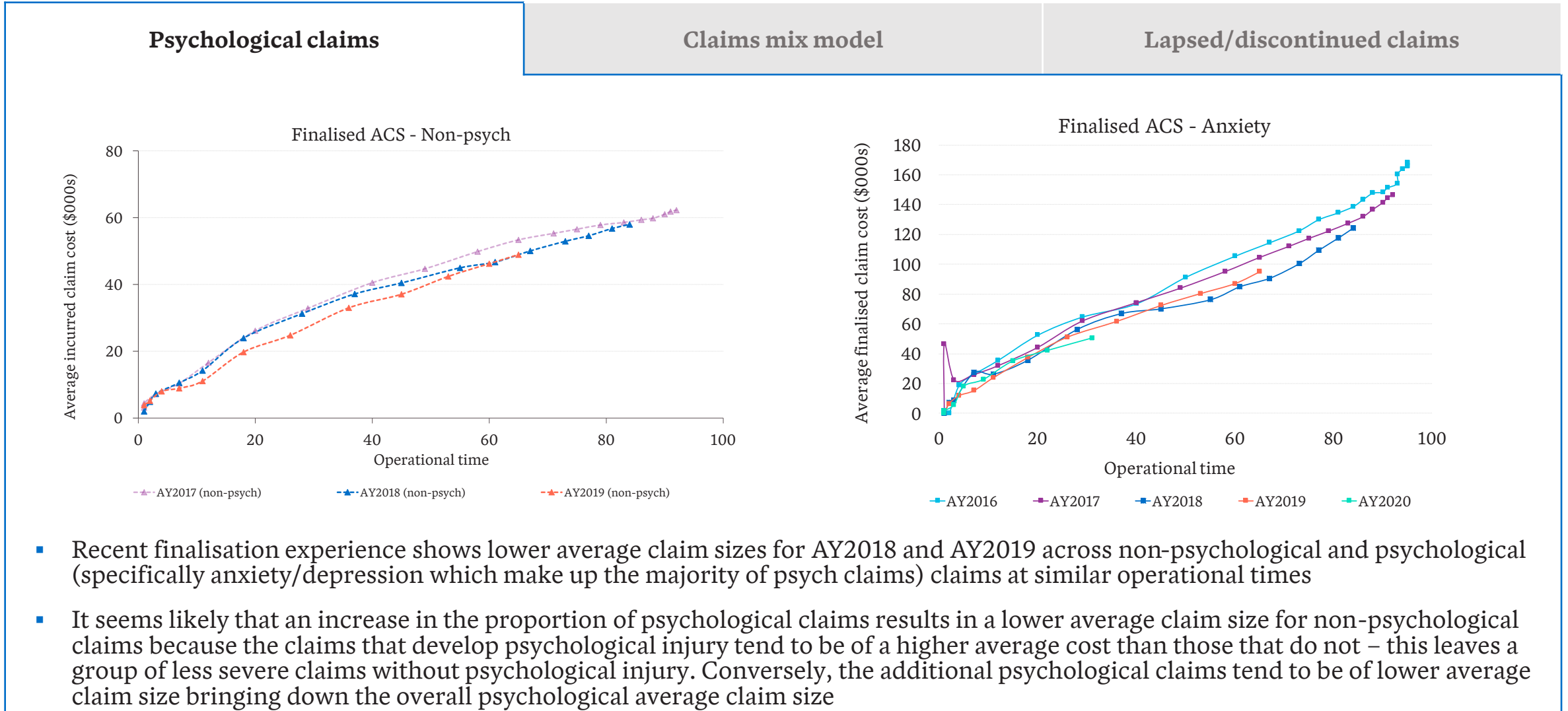
Claims mix model

Lapsed/discontinued claims



- AY2018 and AY2019 are finalising for lower costs than would be expected given their higher proportion of psychological claims

Finalised claims have emerged lower for AY2018 and AY2019 due to lower average claim size for non-psychological claims and Anxiety/Depression claims



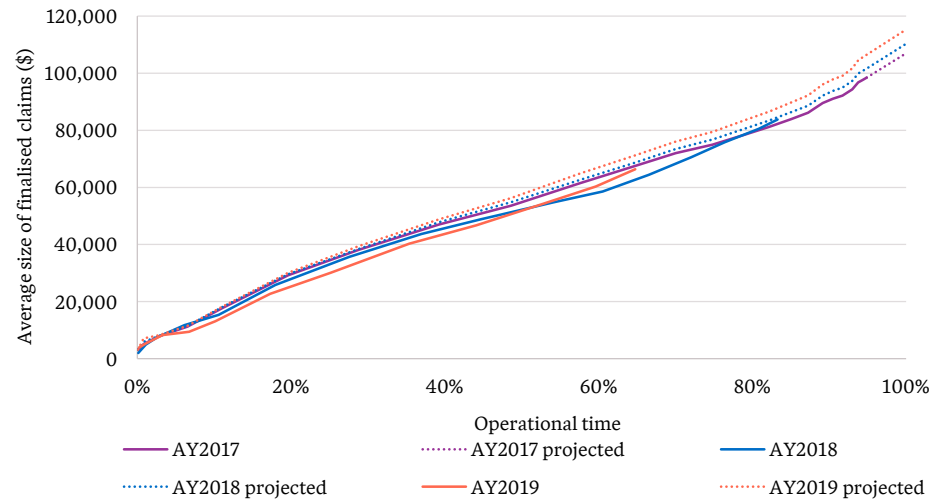
However, the average cost of finalised claims for AY2018 is now higher than AY2017 and trending upwards for AY2019

Psychological claims

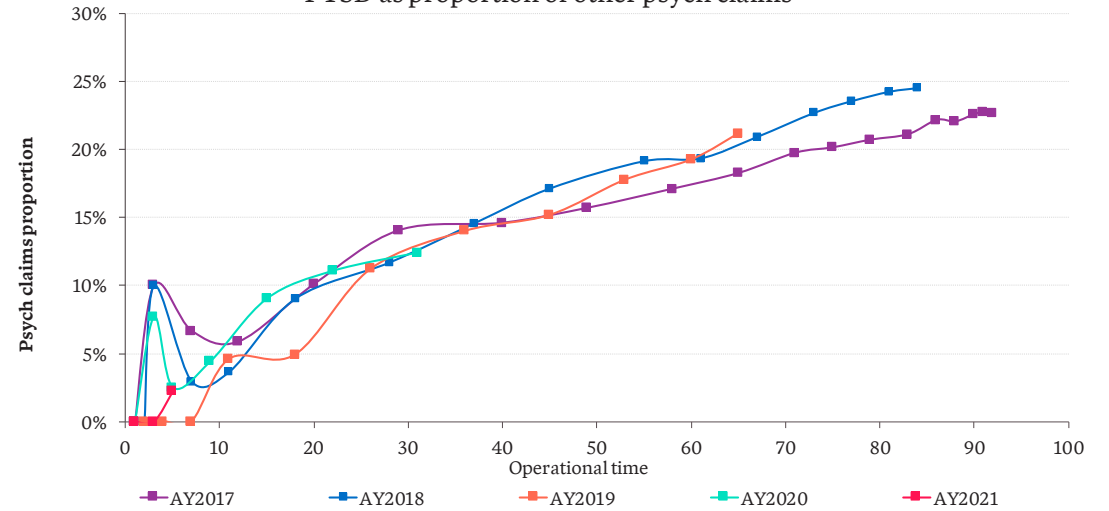
Claims mix model

Lapsed/discontinued claims

Actual development of finalised claim size versus finalised claim size expected from the increasing proportion of psychological claims



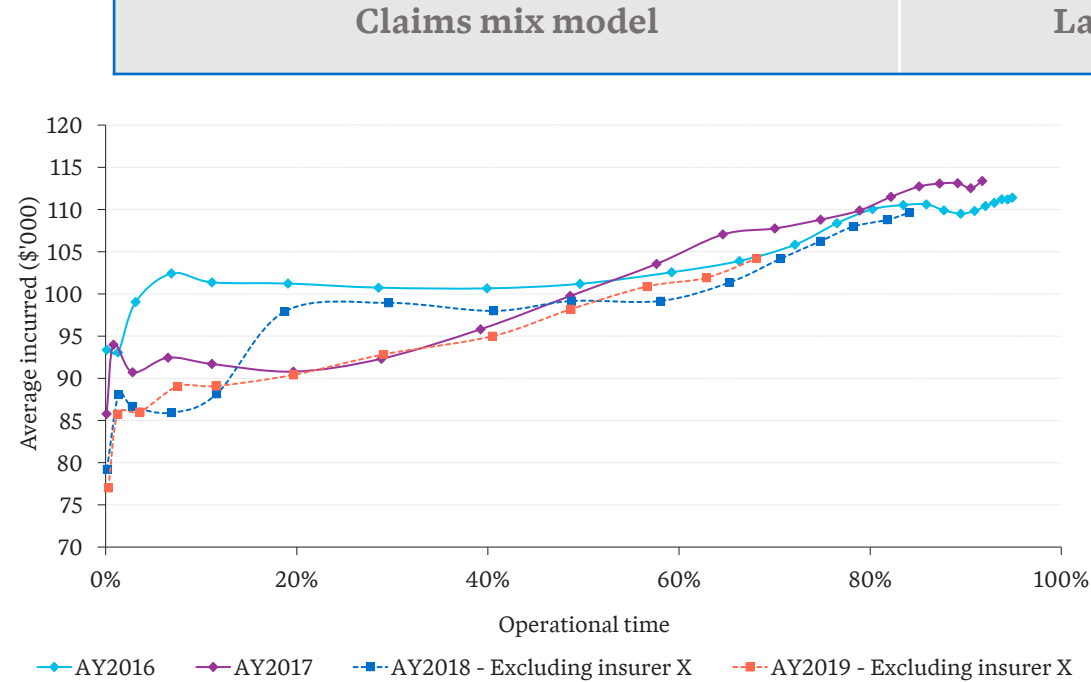
PTSD as proportion of other psych claims



- This has been driven by:
 - The average claim size difference for anxiety and non-psychological claims narrowing
 - An increasing proportion of PTSD claims – which finalise at higher costs relative to Anxiety/Depression claims

An analysis of incurred costs – which takes into account case estimates on open claims – indicates that average claim sizes for AY2018 & AY2019 are emerging similar to AY2017

Psychological claims



- The narrowing of the ACS gap for anxiety and non-psychological claims, together with the increasing proportion of PTSD claims, may put upward pressure on costs in AY2018 and 2019
- However, an analysis of historical incurred costs indicates that average claim sizes for AY2018 and AY2019 are emerging similar to AY2017 despite the higher proportion of psychological claims
 - Our analysis takes into account the costs of finalised claims as well as case estimates on open claims
 - One insurer’s incurred costs for AY 2018 and later has been excluded in the projections as their case estimate development has been unstable and out of line with the rest of the industry

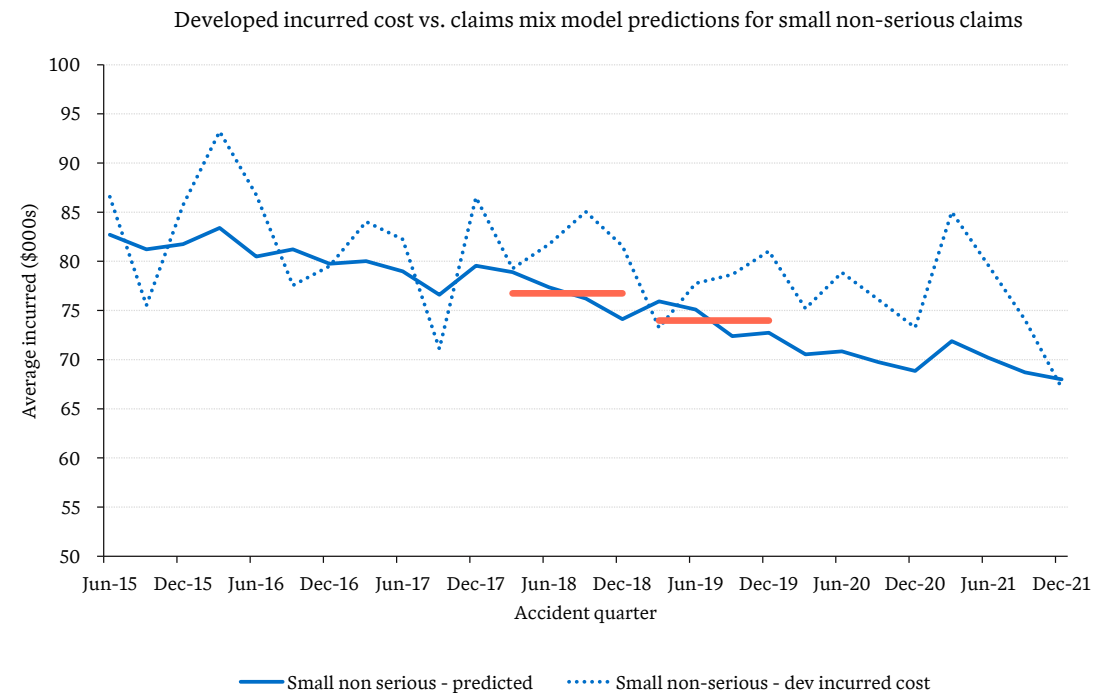
Reduction in weight given to claims mix trends as impact is absorbed into the average claim size model

Psychological claims

Claims mix model

Lapsed/discontinued 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 and continuing trend in the average size of these claims.
- In the last several reviews, we have **decreased** our average claim size assumption to allow for these trends
- However, the weight given to these trends has been **gradually reducing** as their impact is absorbed into the estimates of our baseline average claim size model
- This down weighting of the claims mix model has resulted in a **1.5% increase** in the risk premium since the last annual review

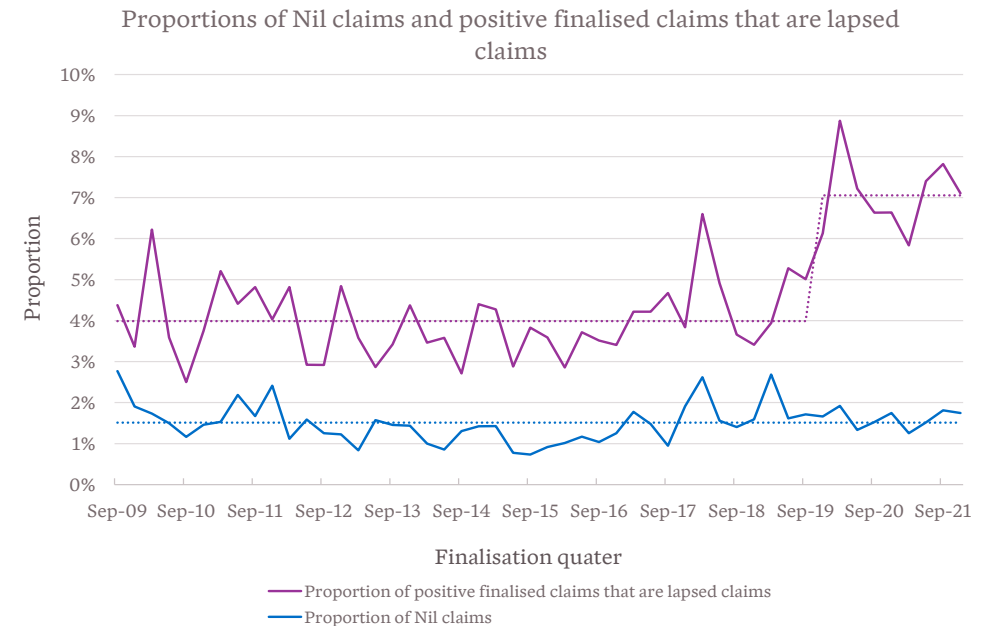
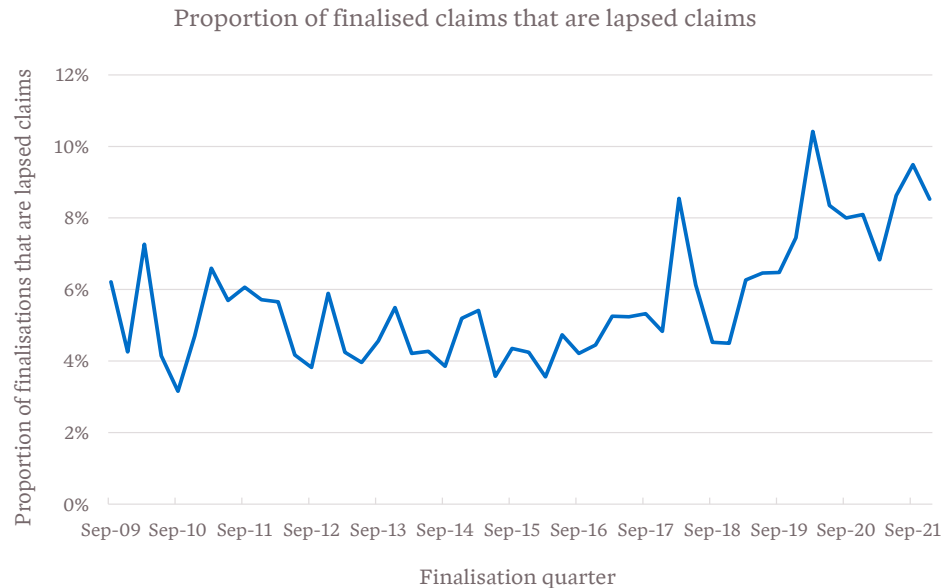


There has been a large increase in the proportion of finalized claims that are lapsed claims

Psychological claims

Claims mix model

Lapsed/discontinued claims



- Since the beginning of 2018 there has been a large increase in the proportion of finalised claims that are lapsed or discontinued
- This has had little impact on the proportion of nil finalisations, but has resulted in a large increase in the % of positive finalisations that are lapsed/discontinued claims
- Historically, non-nil lapsed/discontinued claims have finalised for approximately 5% of the cost of other positive claims

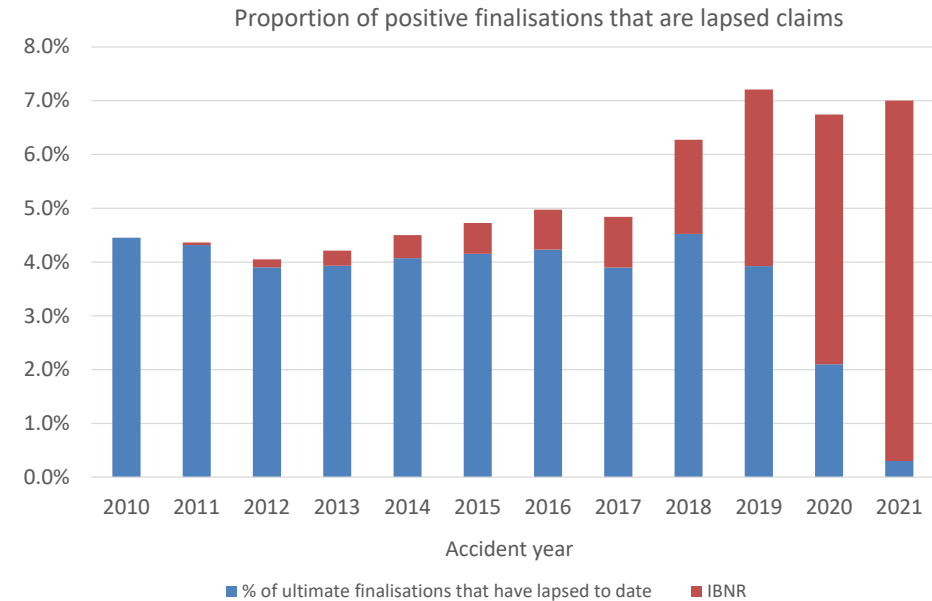
Our average claim size models will have largely responded to the increased number of lapsed claims

Psychological claims

Claims mix model

Lapsed/discontinued claims

- An analysis of the finalisation pattern of lapsed claims suggests that AY2019 and later will have approximately 2% more positive lapsed/discontinued claims
- In isolation, such a change would reduce the average claim size for these years by approximately 2% compared to earlier accident years
- However, with a couple of years of high lapse experience, our average claim size models will have largely responded to this experience, particularly at low operational times
- At higher operational times, the expected impacts are small relative to other uncertainties



6

Risk premium

Change in the risk premium since the last annual review

- The allowance for inflation over 2021 added \$8.12 (4.8%) to the risk premium
- The impact of claims experience over 2021 added a further \$9.90 (5.8%) increase in the estimated risk premium over the year
 - An increase in the estimated frequency – driven by higher-than-forecast experience over the year – resulted in a \$7.86 (4.6%) increase in risk premium
 - A weakening in the severity profile resulted in a \$3.33 (2.0%) decrease in risk premium
 - An increase in the estimated average claim size – mainly due to higher-than-expected experience over the year and a weakening of the allowance for trends in non-serious claims – resulted in a \$6.32 (3.7%) increase in risk premium
 - A decrease in non-core risk premium after giving more weight to recent claims experience resulted in a \$0.95 (0.6%) decrease in risk premium

	Risk premium (\$)
Estimated risk premium at 31 Dec 2020	169.16
Adjustment for AWE inflation	+8.12
Estimated risk premium at 31 Dec 2020 after allowing for inflation	177.28
Change due to:	
Estimated overall frequency	+7.86
Severity profile	-3.33
Average claim size	
Baseline average claim size	+3.72
Change in Claims Mix model trends in non-serious claims	+2.60
WC, IS and NSW claims assumptions	-0.95
Total change	9.90
Estimated risk premium at 31 Dec 2021	187.18

7

Risk premium uncertainty

Plausible alternative scenarios for the risk premium

- We show the sensitivity of the risk premium to some different scenarios below

Risk premium scenarios	Impact on estimated risk premium
Business as usual variation	
Estimated risk premium +/- 7.5%	+\$14 / -\$14
Key Uncertainties	
Frequency scenarios	
Core claim frequency develops in line with AY2021	+\$2.0
Transitions from Sev1Y to Sev2 remain low	-\$1.2
Severity 3+ frequency +/- 3%	+\$1.5 / -\$1.5
Reversion to pre COVID-19 traffic volumes	+\$3.0
Decrease in traffic volumes from increasing public transport use in the future	-\$8.8
Average claim size scenarios	
ACS across all severities emerges similar to the finalisation experience over the last 12 months	+\$2.8
ACS across all severities emerges similar to the finalisation experience over the last 3 years	-\$2.5
Psych claims scenarios	
Outstanding anxiety claims settle for 5% more in 2019 than 2017	+\$1.8
Outstanding anxiety claims settle for 5% less in 2019 than 2017	-\$1.8

* *Business as usual variation* represents the historical level of uncertainty in risk premium estimates. The *key uncertainties* show how the risk premium estimate would change if we made alternative assumptions. The estimated risk premium impacts across *business as usual* and *key uncertainty scenarios* are not additive.

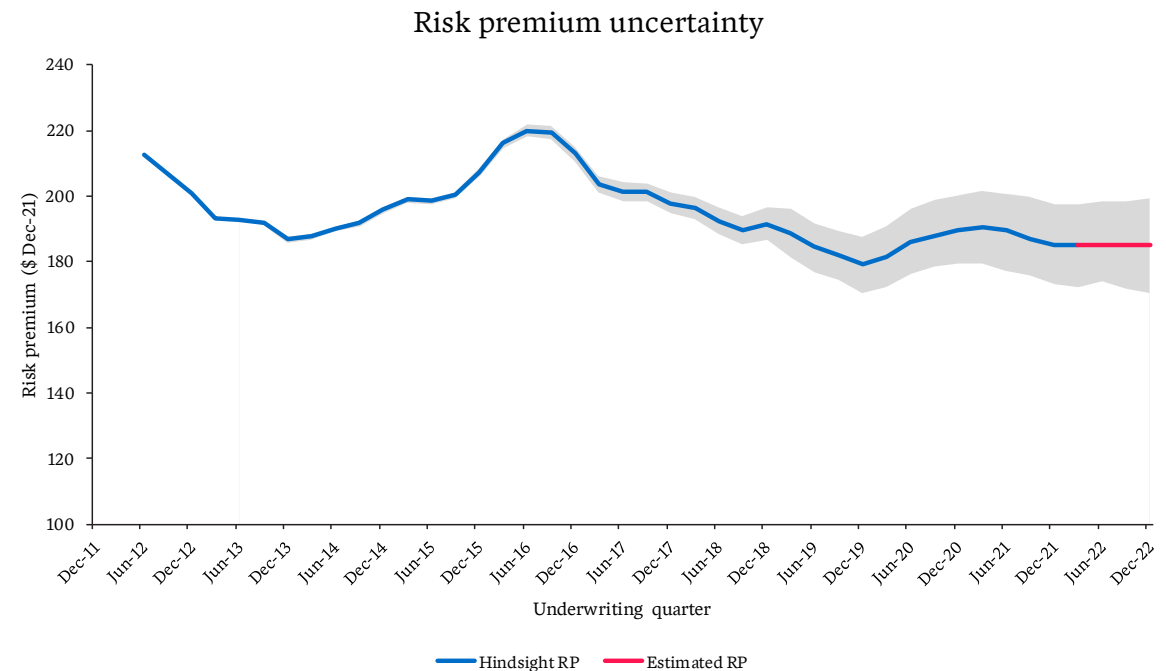
Scenarios illustrating plausible alternative scenarios for the risk premium

- We show the sensitivity of the risk premium to some different scenarios below

Risk premium scenarios	Impact on estimated risk premium
Business as usual variation	
Estimated risk premium +/- 7.5%	+\$14 / -\$14
Key Uncertainties	
Frequency scenarios	
Core claim frequency develops in line with AY2021	2.0
Transitions from Sev1Y to Sev2 remain low	-1.2
Reversion to pre COVID-19 traffic volumes	3.0
Decrease in traffic volumes from increasing public transport use in the future	-8.8
Average claim size scenarios	
ACS across all severities emerges similar to the finalisation experience over the last 12 months	2.8
ACS across all severities emerges similar to the finalisation experience over the last 3 years	-2.5
Psych claims scenarios	
Outstanding anxiety claims settle for 5% more in 2019 than 2017	1.8
Outstanding anxiety claims settle for 5% less in 2019 than 2017	-1.8

Business as usual variation

- **Business as usual variation is estimated to be +/- 7.5% for underwriting quarter 2022Q3** – the range has been constructed such that there is an approximately 50% chance that the true risk premium will fall within the range (a 50% CI)
- The main source of this uncertainty is **Risk premium evolution**
 - the average claim for underwriting quarter 2022Q3 will finalise around 4 years after the latest finalized claim data available to estimate to risk premium. Historically there have been considerable movements in the risk premium over a four-year period.
- A comparison of our historical risk premium estimates with our current hindsight estimates of risk premium is consistent with a range of 6% to 9% depending on the historical periods analysed



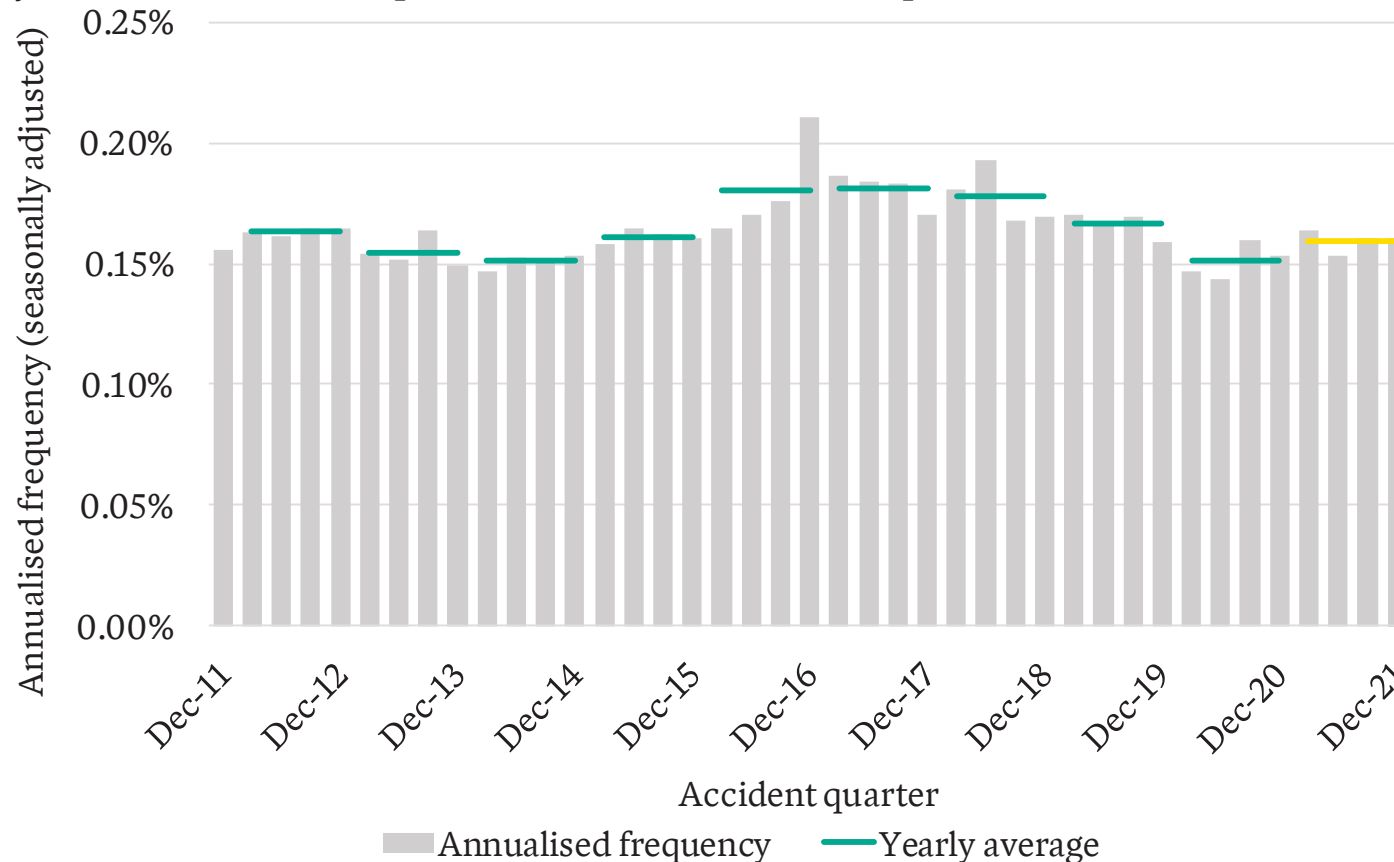
Scenarios illustrating plausible alternative scenarios for the risk premium

- We show the sensitivity of the risk premium to some different scenarios below

Risk premium scenarios	Impact on estimated risk premium
Business as usual variation	
Estimated risk premium +/- 7.5%	14.0 / -14.0
Key Uncertainties	
Frequency scenarios	
Core claim frequency develops in line with AY2021	+\$2.0
Transitions from Sev1Y to Sev2 remain low	-\$1.2
Severity 3+ frequency +/- 3%	+\$1.5 / -\$1.5
Reversion to pre COVID-19 traffic volumes	+\$3.0
Decrease in traffic volumes from increasing public transport use in the future	-\$8.8
Average claim size scenarios	
ACS across all severities emerges similar to the finalisation experience over the last 12 months	2.8
ACS across all severities emerges similar to the finalisation experience over the last 3 years	-2.5
Psych claims scenarios	
Outstanding anxiety claims settle for 5% more in 2019 than 2017	1.8
Outstanding anxiety claims settle for 5% less in 2019 than 2017	-1.8

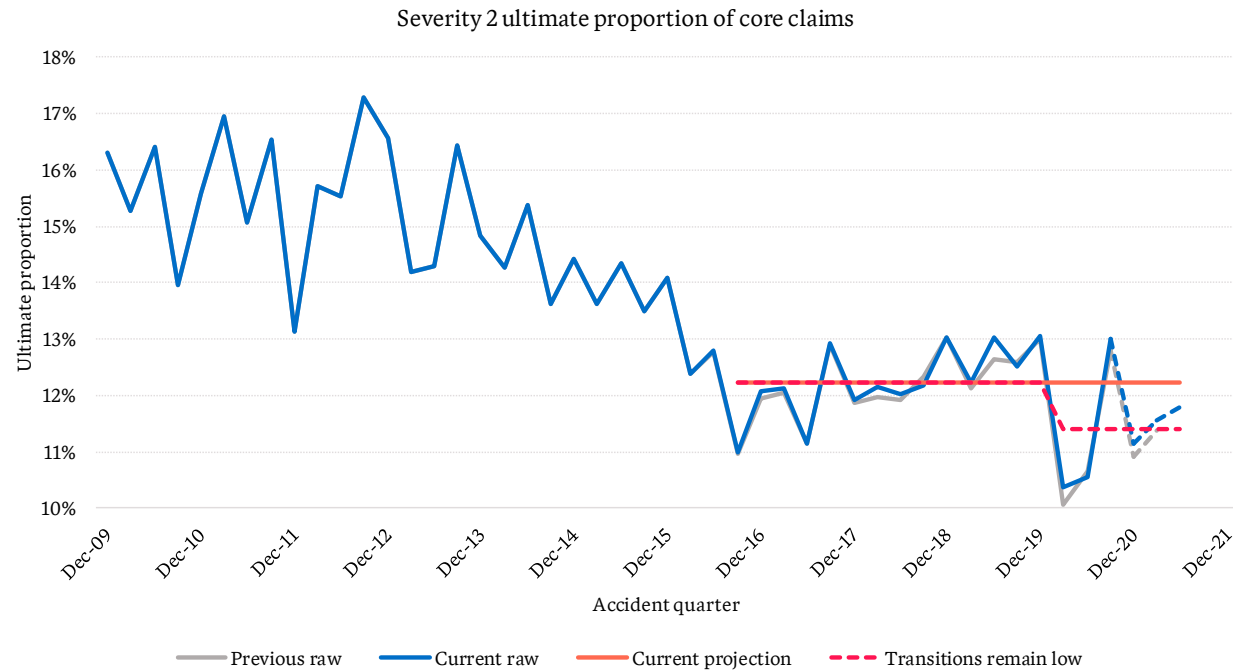
Core claim frequency develops in line with AY2021

- Our baseline claim frequency selection is calibrated on a 17-month average from May-20 to Sep-21
- Our current estimate of the AY2021 ultimate frequency is slightly higher than our baseline frequency estimate as it includes the high early notification experience in the Dec-21 accident quarter and excludes the low experience in the May-20 and Jun-20 accident months
- If core claim frequency continues to develop in line with the AY 2021 experience, there would be a **\$2 increase to risk premium**



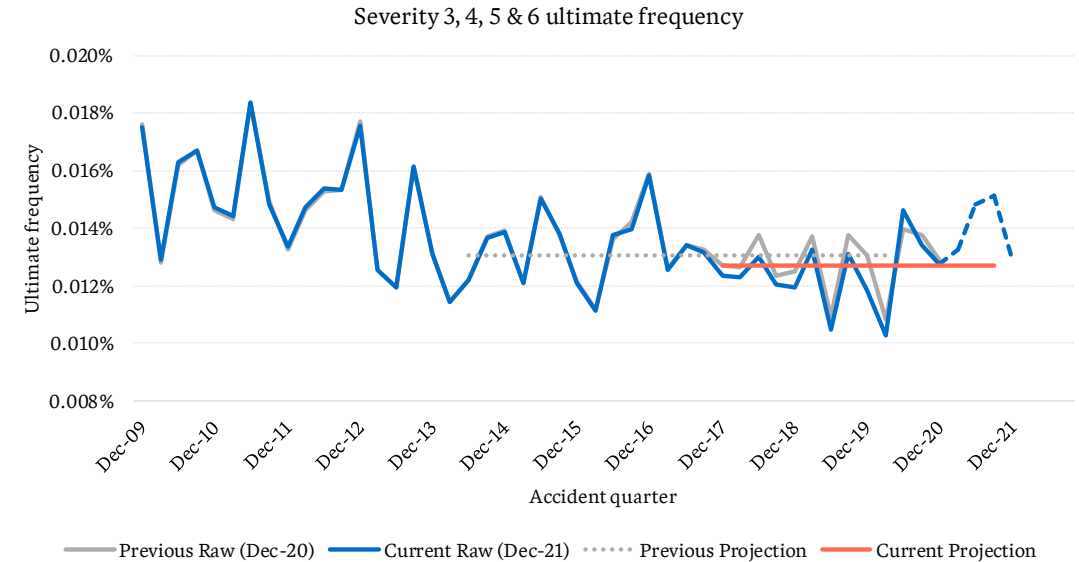
Transitions from sev1Y to 2 remain low

- There have been fewer transitions into severity 2 from severity 1Y since March 2020. This may in part be due to claims processing issues reported by one of the insurers. This creates greater uncertainty in our assumption of the severity 2 core claim frequency. To illustrate this:
 - If the reduction in severity 2 proportions observed since Mar-20 are fully recognised then there would be a **\$1.20 reduction in risk premium**



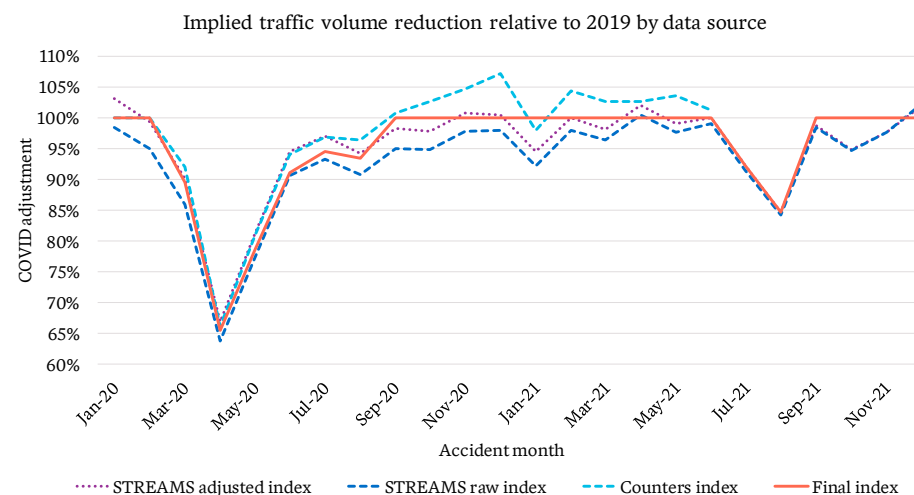
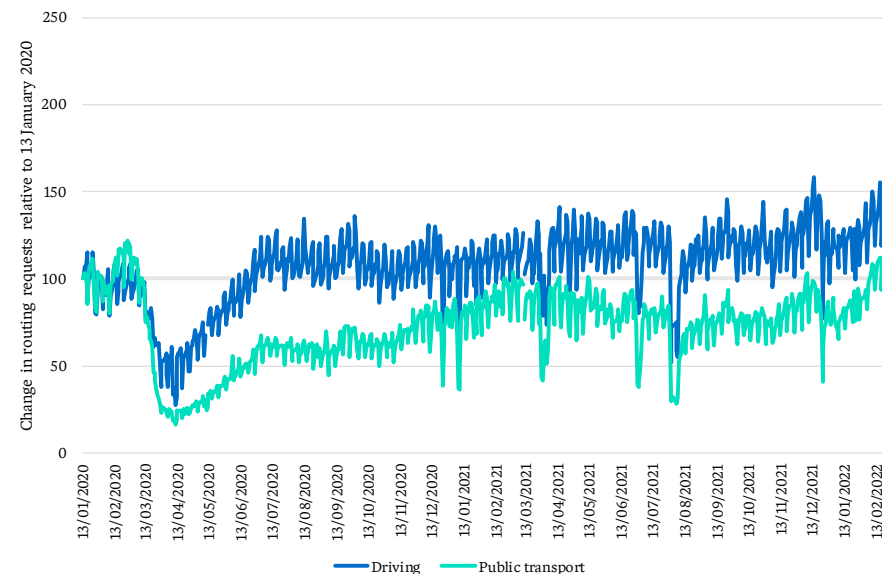
Uncertainty in the frequency of high severity claims

- The frequency of severity 3, 4, 5 and 6 claims has historically been variable
- Over the 2020 notification period, there was a disruption to the notification pattern for these adding uncertainty to frequency estimates
- If the frequency for these high severity claims was **increased by 3%** then our risk premium estimate will **increase by \$1.50**
- If the frequency for these high severity claims **was decreased by 3%** then our risk premium estimate will **decrease by \$1.50**



COVID-19 scenarios

- There is considerable uncertainty about the continuing impact of COVID-19 on future traffic volumes
 - Queensland Apple mobility data suggests that private vehicle use has substituted for public transport use to some extent during the pandemic
 - Traffic volume data suggest traffic volumes are still slightly depressed relative to 2019
- The following sensitivity illustrates the extent of the uncertainty regarding the impacts of COVID on risk premium:
 - A **decrease** in traffic volumes **by 5%** from increasing public transport use in the future would result in a **decrease of \$8.80**
 - An **increase** in traffic volumes **by 2%** from reversion to pre COVID-19 traffic levels would result in an **increase of \$3**

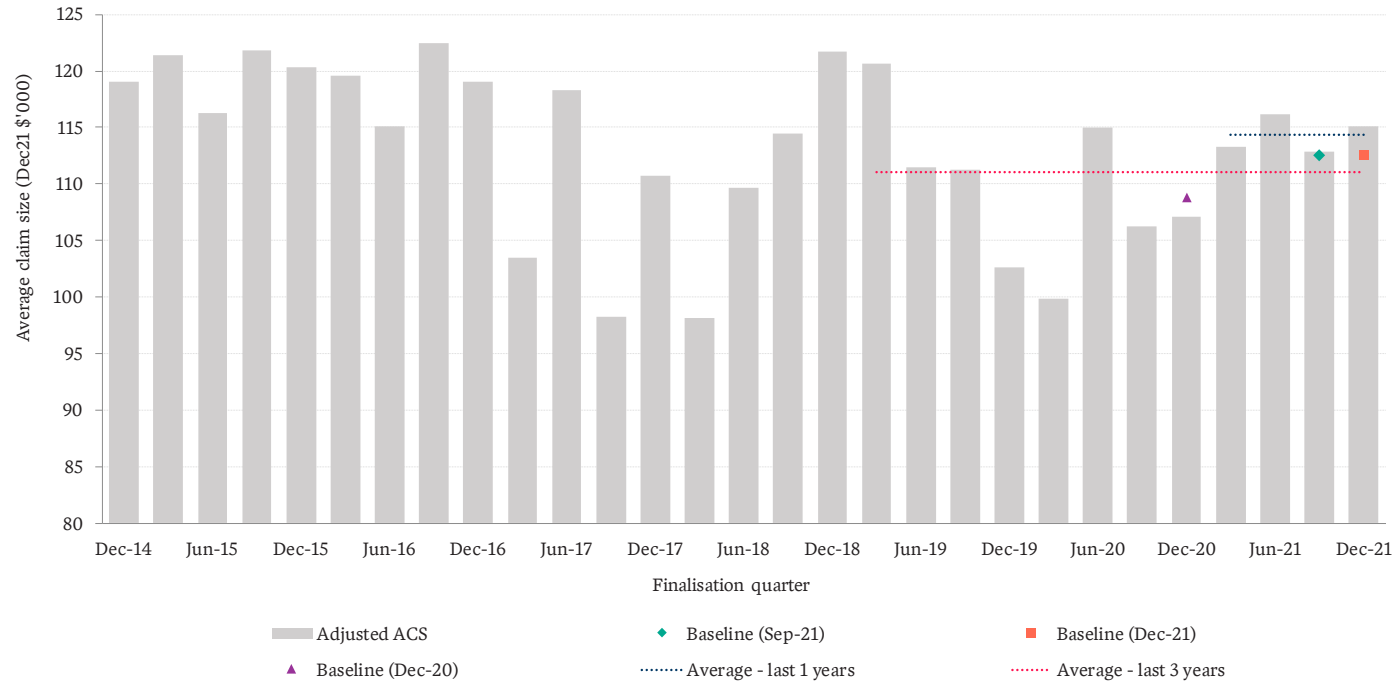


Scenarios illustrating plausible alternative scenarios for the risk premium

- We show the sensitivity of the risk premium to some different scenarios below

Risk premium scenarios	Impact on estimated risk premium
Business as usual variation	
Estimated risk premium +/- 7.5%	14.0 / -14.0
Key Uncertainties	
Frequency scenarios	
Core claim frequency develops in line with AY2021	2.0
Transitions from Sev1Y to Sev2 remain low	-1.2
Reversion to pre COVID-19 traffic volumes	3.0
Decrease in traffic volumes from increasing public transport use in the future	-8.8
Average claim size scenarios	
ACS across all severities emerges similar to the finalisation experience over the last 12 months	+\$2.8
ACS across all severities emerges similar to the finalisation experience over the last 3 years	-\$2.5
Psych claims scenarios	
Outstanding anxiety claims settle for 5% more in 2019 than 2017	1.8
Outstanding anxiety claims settle for 5% less in 2019 than 2017	-1.8

Uncertainty around the average claim size assumption



- If average claim size across all claims continues to emerge at levels similar to that experienced over the last 12 months then the **risk premium will be too low by \$2.80**
- If average claim size across all claims continues to emerge at levels similar to that experienced over the last 3 years then the **risk premium will be too high by \$2.50**

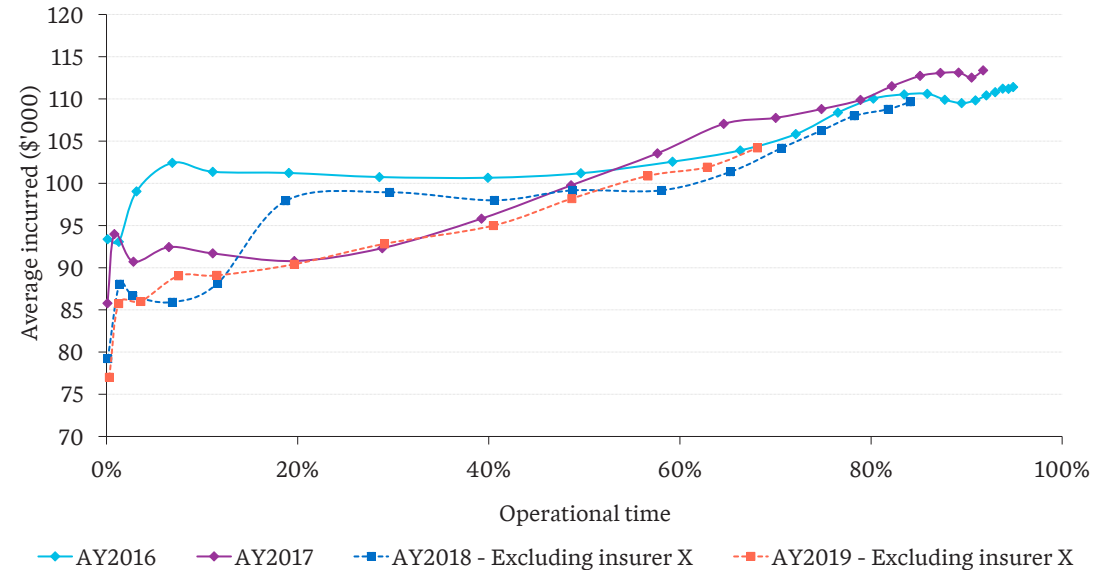
Scenarios illustrating plausible alternative scenarios for the risk premium

- We show the sensitivity of the risk premium to some different scenarios below

Risk premium scenarios	Impact on estimated risk premium
Business as usual variation	
Estimated risk premium +/- 7.5%	+\$14.0 / -\$14.0
Key Uncertainties	
Frequency scenarios	
Transitions from Sev1Y to Sev2 remain low	-\$1.2
Core claim frequency develops in line with AY2021	+\$2.0
Reversion to pre COVID-19 traffic volumes	+\$3.0
Decrease in traffic volumes from increasing public transport use in the future	-\$8.8
Severity 3+ frequency +/- 3%	+\$1.5 / -\$1.5
Average claim size scenarios	
ACS across all severities emerges similar to the finalisation experience over the last 12 months	+\$2.8
ACS across all severities emerges similar to the finalisation experience over the last 3 years	-\$2.5
Removal of the allowance for the trends in the Claims Mix Model	+\$0.9
Lapsed rates continue to emerge similar to the experience over AY2019	-\$0.9
Psych claims scenarios	
Outstanding anxiety claims settle for 5% more than current case estimates suggest	+\$1.8
Outstanding anxiety claims settle for 5% less than current case estimates suggest	-\$1.8

Uncertainty around the cost of open psychological claims

- The eventual cost impact of the higher proportions of psychological claims in recent years is highly uncertain.
- If open anxiety claims were to eventually settle for 5% more than current case estimates suggest then our risk premium estimate would *increase by \$1.8*.
- Alternatively, if they were to settle for 5% less, then our risk premium would *reduce by \$1.8*.
- Both of these scenarios are plausible when considering the historical finalisation and case estimate experience

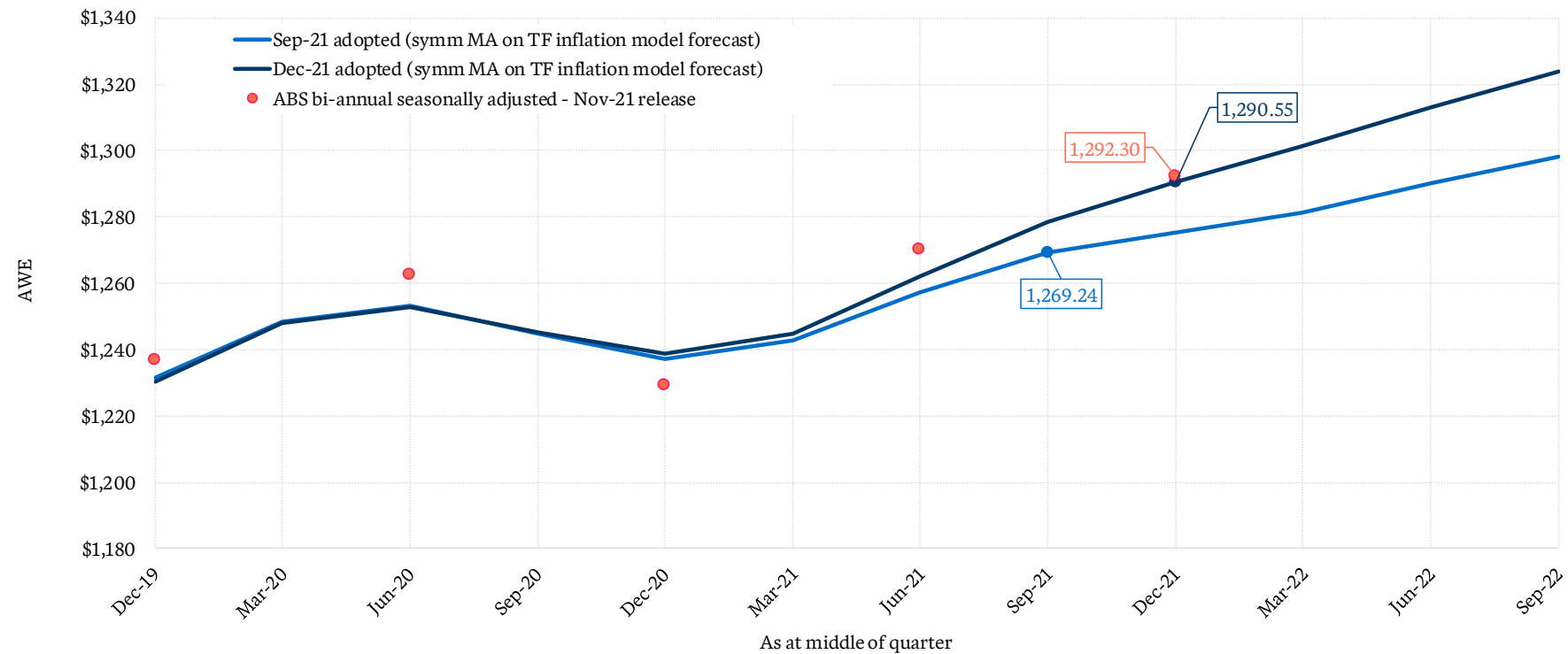


8

Economic parameters

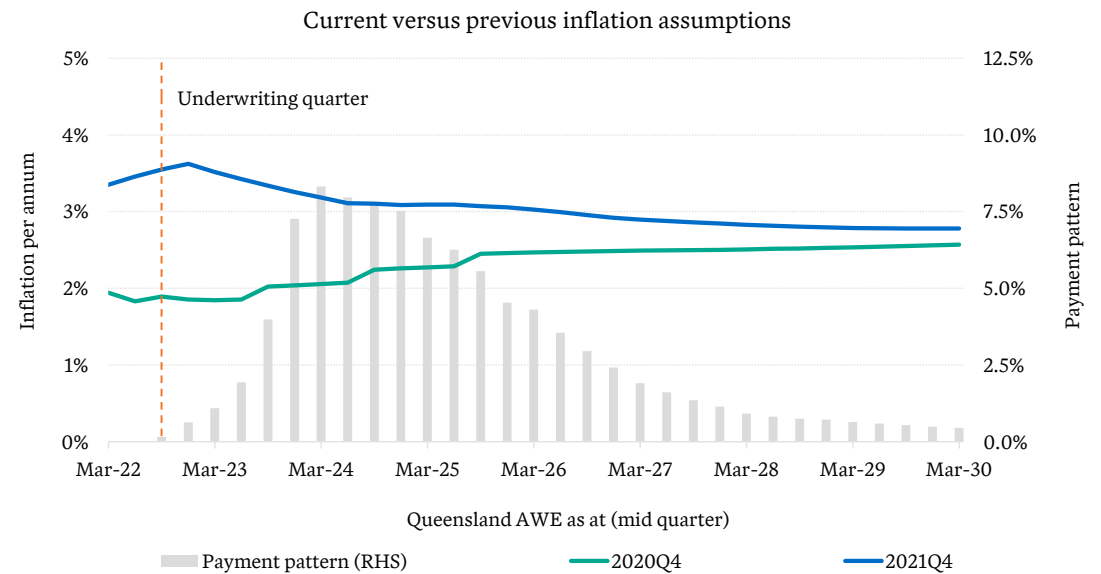
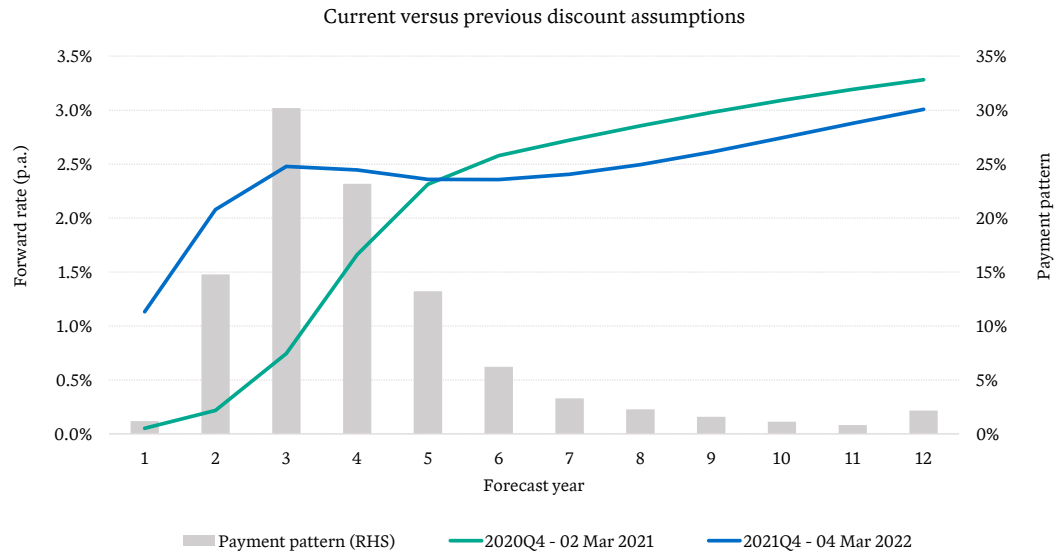
Wage inflation to 31 December 2021

- We have applied the future inflation rates forecast by the TF inflation model to the AWE result released by the ABS in Feb-22
 - This gives an AWE increase of 4.8% from the Dec-20 quarter to the Dec-21 quarter
 - This large increase is a result of the volatility in historical AWE due to swings in workforce composition and hours worked



Discount rates and future wage inflation

Taylor Fry inflation model



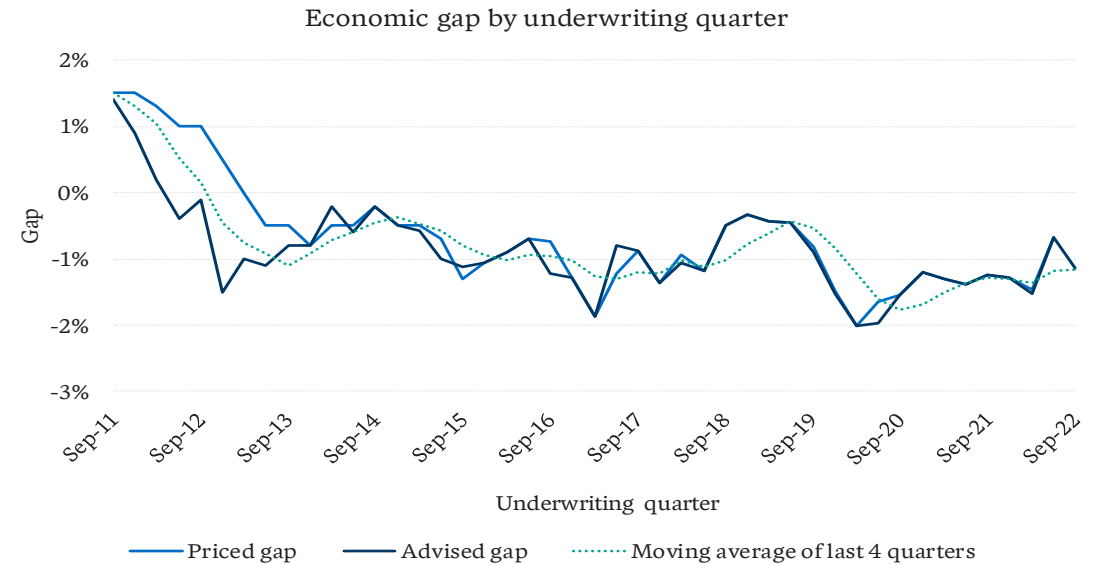
- We updated the discount rates on 4th March 2022
- Short to medium term discount rates have increased significantly over the year

- Inflation rates have been revised upwards
- In the short term a combination of a lower unemployment rate (now below the NAIRU) and higher yields have pushed AWE above the assumed long term rate (3.2%)

Discount rates and future wage inflation

Gap using TF inflation model

Review	Economic assumption (%p.a.)		
	Discount rate	Wage inflation	Economic gap
Current	2.03%	3.17%	-1.15%
Last quarter	1.53%	2.22%	-0.68%
Last annual review	0.90%	2.14%	-1.24%
Change since:			
Last quarter	0.49%	0.96%	-0.46%
Last annual review	1.13%	1.03%	0.09%



- Although the gap between inflation and discount rates have been volatile over the year, the current gap is only slightly narrower compared with Dec-20

9

Superimposed inflation

Superimposed inflation

Net of NIISQ Heads of Damage payments

Period (accident quarter)	Description	Accident period superimposed inflation (p.a.)
Mar-03 - Dec-21	Post-2003 Civil Liability Act	0.9%
Dec-16 - Dec-21	Last 5 years	0.0%
Sep-96 - Dec-21	Long term average	-0.2%

- Estimates of superimposed inflation have been made after controlling for historical changes in severity mix
- Superimposed inflation estimates vary depending on which accident periods are included in the estimate
- This [analysis of past Scheme SI](#) supports an assumption in the [range 0 - 1% p.a.](#)



Sydney

Level 22
45 Clarence Street
Sydney NSW 2000

www.taylorfry.com.au



Peter Mulquiney

(02) 9249 2959

Peter.Mulquiney@taylorfry.com.au



Soroush Amirabadi

(02) 9249 2972

Soroush.Amirabadi@taylorfry.com.au



Rahual Ram

(02) 9249 2987

Rahual.Ram@taylorfry.com.au



Crispin Cayley

(02) 9249 2976

Crispin.Cayley@taylorfry.com.au



Emma Liu

(02) 9249 2976

Emma.Liu@taylorfry.com.au