Discovery Life and Invest Investor Communication

A CASE STUDY OF DISCOVERY LIFE AND INVEST'S RECENT KEY EXPERIENCE ITEMS

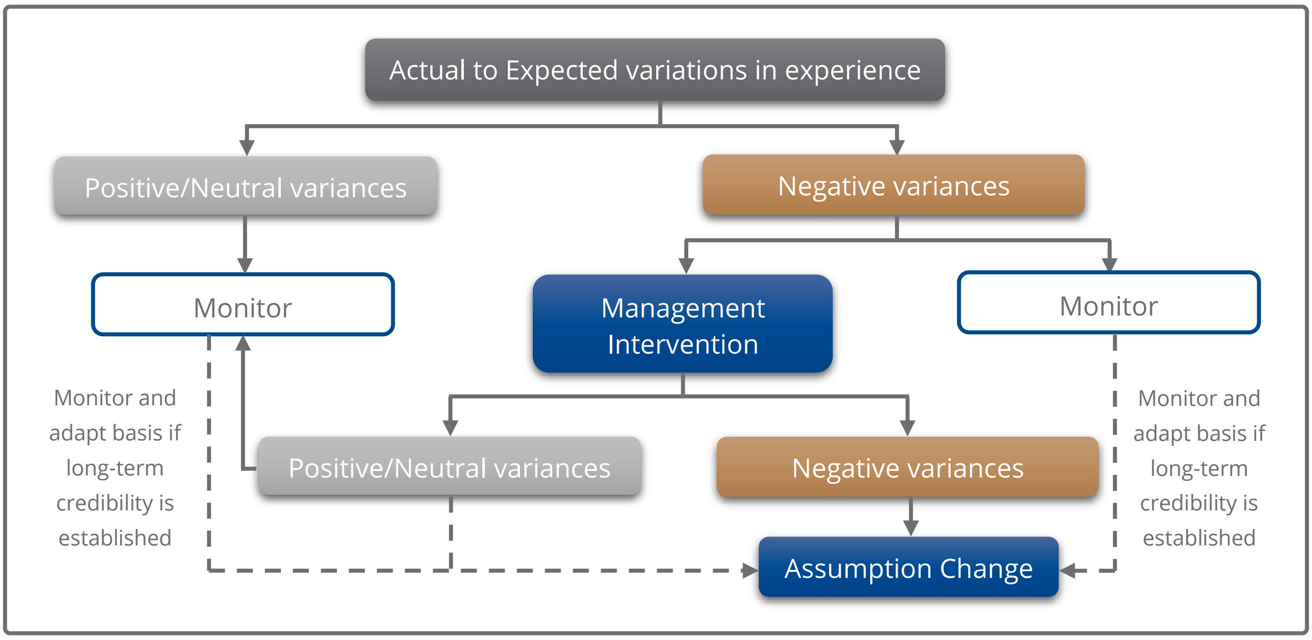
1. Introduction

Statutory reserves include margins for prudence and margins to avoid the premature recognition of earnings. On a statutory reserving basis, the in-force business of a life insurer thus contains value that is expected to unwind as the margins are released over time. The embedded value aims to provide supplementary information as to the expected value of margins to emerge, when assumptions are set to represent best estimates of future experience.

The assumptions underlying the calculation of a Life insurer's Embedded Value are long-term best estimates of future experience. Variances in the short-term relative to these assumptions are not unexpected and can usually be attributed to random variation in experience or may be as a result of the prevailing economic environment. In certain circumstances however, a systematic reoccurrence of negative variances may indicate that there has been a shift in policyholder behaviour which will need to be addressed, either through direct management intervention (to the extent to which this is within management's control) or through the revision of the long-term assumptions. Sustained positive experience variances indicate assumptions which may have been conservative and are also addressed through revisions to the best estimate basis.

Key assumptions in the long term projections include mortality, morbidity, lapse rates, expenses and economic assumptions. In Discovery Life's case, additional assumptions are made in respect of client behaviour related to Vitality integrated shared value products. These assumptions include correlations between Vitality status and relative policyholder health as well as the impact on persistency.

The following diagram summarises the decision-making process when actual to expected variances in experience are observed:



Discovery Life Ltd. Registration number: 1966/003901/06. An authorised financial services provider.

In particular, the following is noted from the diagram:

- Neutral and positive variances in experience are continually monitored, with the assumptions being adjusted only if long-term credibility is established
- Likewise, negative variances in experience are monitored:
  - should the experience lie outside management's control (for example negative variances arising from changes in mortality trends), an assumption change would be made where it is clear that this variance represents a true shift in the long-term estimate and not short-term volatility
  - should the experience variance be (to an extent) within management's control, short-term management interventions will be applied to manage experience back to the future long-term estimates or to achieve an optimal overall position. If after these interventions a negative variance persists or is expected to persist, an assumption change would be made.
- Overall, Discovery Life and Invest aim to avoid volatility in long-term assumptions of future experience by only making changes to assumptions when necessary and where management believes there has been a systemic shift in future experience.

In the remaining sections of this document we will use three recent examples of experience variances to practically illustrate the decision-making process described above:

1. **Premium and Fee Income** (primarily linked to **Vitality distribution shifts)** – in this example, management intervened with updates to the Vitality Programme to improve the correlation between Vitality status and claims risk to an even greater extent. Experience variances have been seen to improve substantially as a result of the intervention with no changes proposed in the long-term assumptions.
2. **Policy Alterations** – a growing net negative variance on policy alterations has been observed over the last few years. This experience was monitored for a period with management concluding that these negative variances are not only as a result of short-term volatility. Subsequently, management has intervened with a number of strategies to improve net experience however future experience retains a degree of uncertainty. For this reason, a change in assumption was recently introduced to explicitly allow for the residual impact of net policy alterations in the long-term assumptions.
3. **Mortality and Morbidity experience** – Following a period of strong positive experience variances, negative experience variances have been observed on mortality and morbidity claims experience in FY16 and to a larger extent in FY17. Management has been monitoring the recent negative experience variances and considers these to be primarily due to random variation. A positive variance (R82m) was observed in the second half of the 2018 financial year. No change in the long-term mortality assumption is therefore proposed however experience will continue to be tracked closely.
4. **Lapses and surrenders** – Discovery Life and Invest has seen improving positive lapse and surrender variances. The overall number of life policy lapses is further less than the expected number of lapses at all durational groupings, especially at the longest observed durations.

2. Item of Experience: Premium and Fee Income

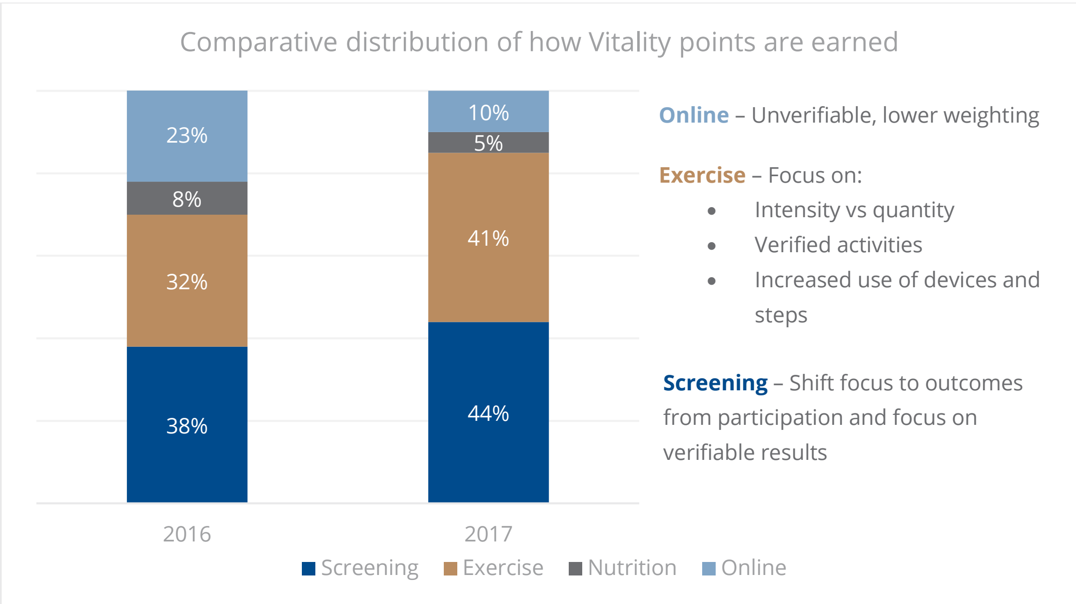
Since the 2015 financial year, there has been strong growth in both the number of engaged Vitality members and the level of member engagement with the program. This has been driven in part by the launch of Active Rewards in September 2015 together with the proliferation of wearable devices over the last few years which has resulted in a significant increase in verifiable physical activity among policyholders.

Discovery Life policyholders with Vitality are highly engaged with a significant portion of policyholders on Gold and Diamond statuses. This illustrates the true value that policyholders place on the shared-value insurance model whereby policyholders engaging with the program have significantly lower mortality and morbidity rates which generate value that is then shared in the form of larger premium discounts, lower premium increases and larger PayBacks. Richer benefits in turn lead to better persistency which closes the virtuous cycle.

Member's engagement with the Vitality program affords Discovery unique insight into the study of behavioural economics. These insights, together with the latest actuarial clinical research are used to refine the program over time to ensure that each status remains representative of the underlying risk of the lives.

During the course of the 2016 financial year, a trend of an observed upward shift in Vitality distribution without the corresponding immediate shift in mortality and morbidity improvements was noted. To ensure clinical credibility, a refinement to the program was made which placed less emphasis on unverifiable online assessments and more emphasis on relevant exercise and the outcomes of verifiable health screening tests to ensure that the correlation between Vitality status and claims risk was improved to an even greater extent. This change has led to a significant shift in the distribution of how Vitality members earn points, as shown in graph 1.

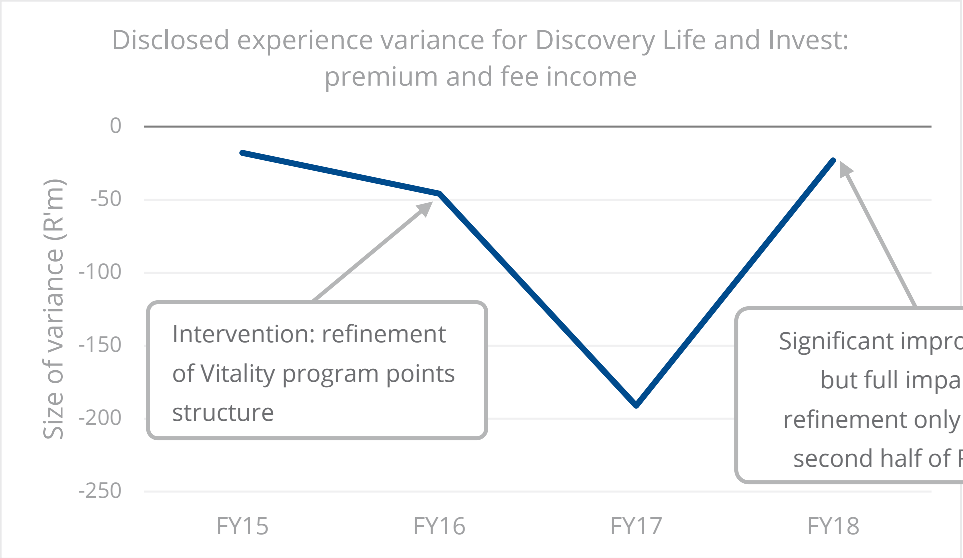
Graph 1: Comparison of the distribution of how Vitality points are earned by members before and after the 2016 points change



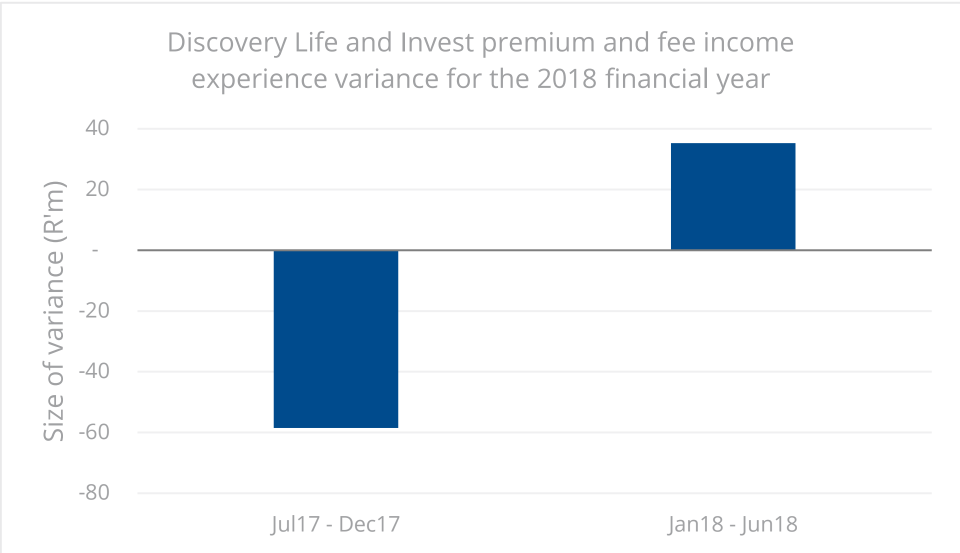
The upward shift in Vitality distribution without the corresponding immediate shift in mortality and morbidity improvements noted in the above paragraph corresponds with the reported negative

Premium and Fee Income experience for Discovery Life in the Embedded Value statement in the 2015 – 2017 financial years, as shown in graph 2. These negative experience items arose largely due to the impact of shifts in the distribution of policyholders by Vitality status compared to the long-term expected distribution between statuses. As anticipated, the experience variance improved significantly in the 2018 financial year following the refinement made to the Vitality program during the course of the 2016 financial year.

Graph 2: Disclosed premium and fee experience variance for Discovery Life: FY2015 – FY2018



Graph 3: Disclosed premium and fee experience variance for Discovery Life over the two reporting half years in the 2018 financial year



It should be noted that while the change was made to the program in the 2016 calendar year, policyholders carry over their status from the previous calendar year meaning that the full impact of the change on the Vitality status distribution would not have been seen in the 2017 calendar year. We would therefore only expect to see the full impact of the refinement to the Vitality program from calendar year 2018 i.e. only in the second half of the 2018 financial year.

Graph 3 confirms that while the experience variance remained negative in the first half of the 2018 financial year (albeit to a much lesser extent compared to previous periods), the full impact of the refinement to the Vitality program is only seen when considering the second half of the financial year (i.e. January 2018 – June 2018) where a significantly improved experience was observed.

Given the dynamic nature of the Vitality program with annual benefit updates, experience will, from time to time, deviate from long-term assumptions. The strategy of continuously managing the program to ensure that engagement correlates to health outcomes should however ensure that long-term assumptions are met over an extended period of time.

3. Item of Experience: Policy Alterations

The starting point of an actuarial valuation is to model contractual cash flows as per the contract at the valuation date. Policy Alterations relate to non-contractual or unexpected changes to existing benefits. Changes to contracts include benefit changes at the request of the policyholder as well as changes automatically applied to contracts for example, due to a change in a related contract that could impact on integration benefits and/or premiums. Policy alterations also include changes made to Discovery Invest policies.

Additional cover bought or additional amounts invested by policyholders have a positive VIF impact as it is generating future value. It does however result in up-front commission and expense payments which have a negative net worth impact. Overall though, additional cover bought and additional investments made by policyholders have a positive impact on EV. Policyholders reducing their level of cover lead to a negative VIF impact as future value is reduced. In this case, the only corresponding net worth offset is the extent to which commission can be clawed back (if any). Overall, policyholders reducing cover have a negative impact on EV.

This can be illustrated as follows:

	Net Worth impact	VIF impact	EV impact
Increase in cover	Reduction due to acquisition costs	Increase due to increased expected future profits	Increase
Reduction in cover	Typically small impact	Decrease due to lower expected future profits	Decrease
Multiple increases and/or reductions	Depends on the nature of the change		

Non-contractual increases and reductions in cover, as well as more complicated cases where policyholders may request multiple increases and/or reductions, are treated consistently as policy alterations. From the table above, it therefore follows that policy alterations are expected to result in negative net worth impacts while also resulting in positive VIF impacts.

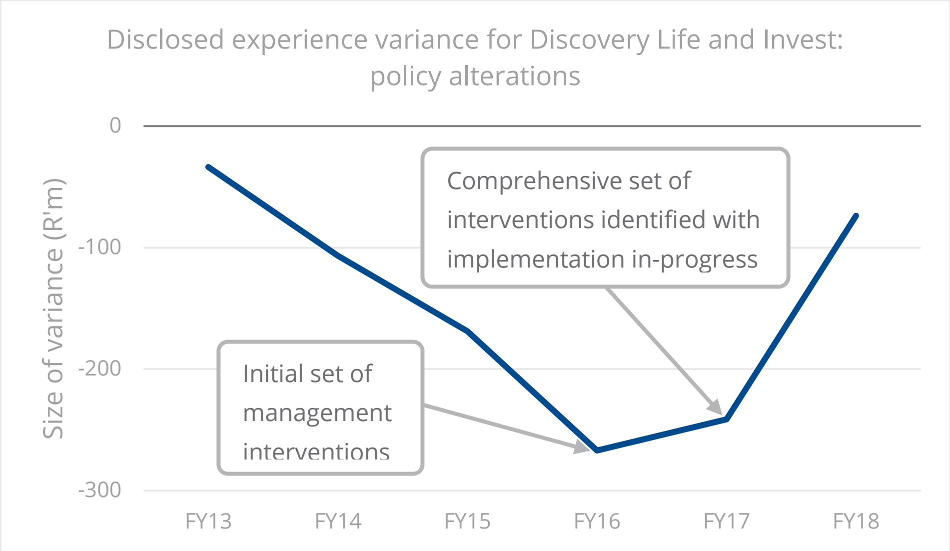
As shown in graph 4, a growing net negative variance on policy alterations was observed.

Discovery Life's approach to managing the variance involves ongoing experience and methodology investigations into the drivers of negative variances with appropriate management action being implemented to optimise policy alterations experience. An initial set of actions was taken in FY2017 with a more comprehensive intervention from management during the first half of the 2018 calendar year. These interventions can be broadly categorised as follows:

- **Systems and process changes** – There are a number of default options related to how policy alterations are implemented on the system which in some cases were inconsistent with the treatment in respect of new business, resulting in a net cost to Discovery Life. A number of these default options have either been or are in the process of being corrected.
- **New generation and improved risk rating practices (e.g. Tobacco use)**
- **Changes to avoid potential misalignment of sales incentives**

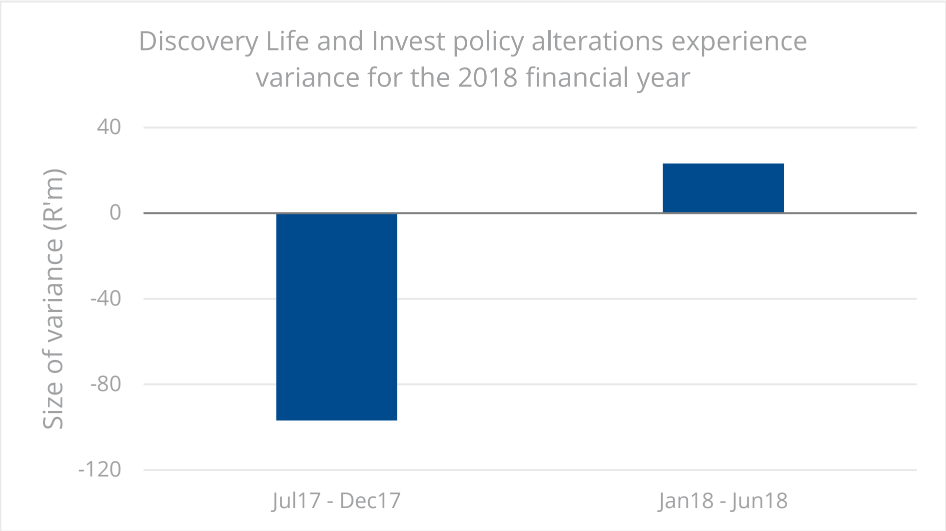
The implementation of management interventions to reduce the net negative policy alterations experience in the first half of the 2018 calendar year has been successful, significantly improving the policy alterations variance from –R267m in FY2016 to –R241m in FY2017 and then even further to –R74m in FY2018.

Graph 4: Disclosed net policy alterations experience variance for Discovery Life and Invest: FY2013 – FY2018



In graph 5 we consider the experience variance for the 2018 financial year split into the observed variance over the 2 half-years. While experience in the first half of the year remained negative (albeit to a lesser extent compared to previous periods), there was a significant improvement in the second half of the year to a positive variance (R23m).

Graph 5: Disclosed policy alterations experience variance for Discovery Life and Invest over the two reporting half years in the 2018 financial year



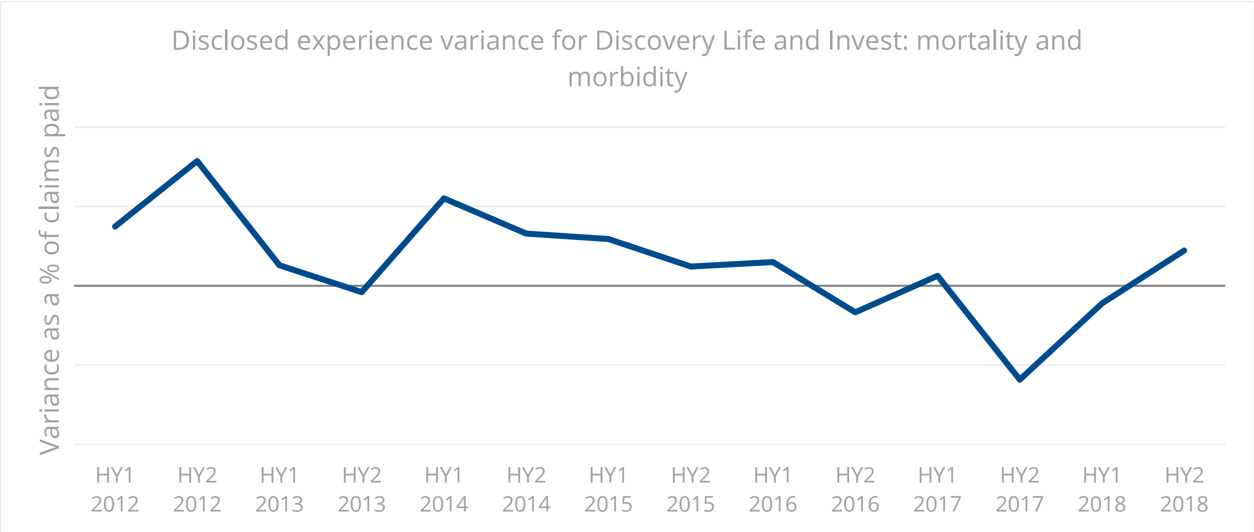
Although the results over the first half of the 2018 calendar year are very encouraging there is still uncertainty with management expecting a smaller negative variance to remain. For this reason, in addition to the management interventions, a change in assumption was implemented to explicitly allow for the impact of policy reductions in the long-term assumptions. The assumption is age-adjusted to allow for the trend of larger net negative policy alterations at older ages.

4. Item of Experience: Mortality and Morbidity Experience

Following a period of strong positive experience variances, negative experience variances have been observed on mortality and morbidity claims experience in the 2016 financial year and to a larger extent in the 2017 financial year. This experience was investigated and was found to be in part driven by random variation in experience, with a large increase in non-natural deaths being observed in particular. This trend has reversed in the 2018 financial year, with an overall positive experience variance being driven in particular by positive experience during the second half of the financial year.

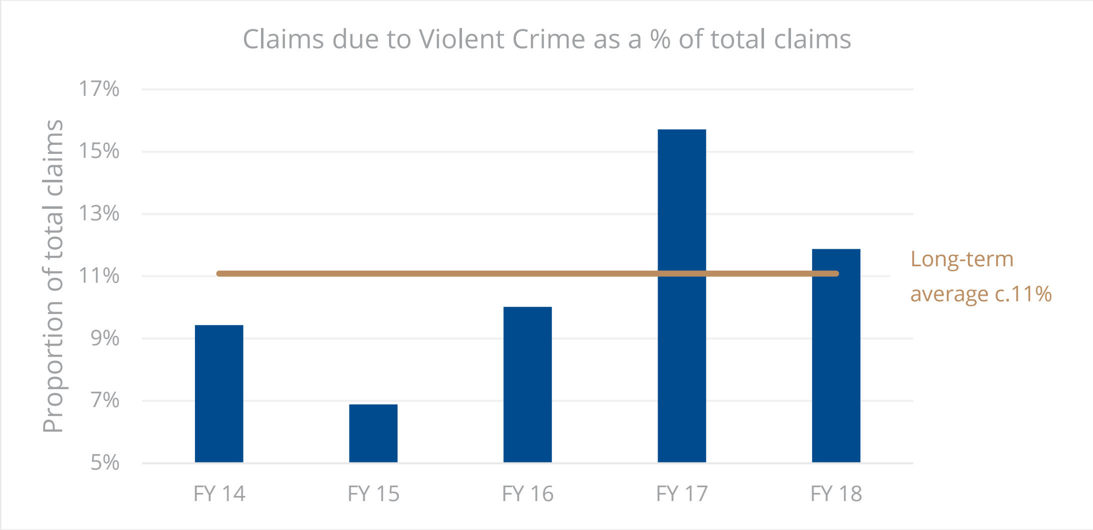
Graph 6 illustrates the half-yearly mortality and morbidity experience variances since June 2011 standardised for the actual claims paid in each period. While we have observed significant volatility in the experience variances owing to random variations in experience over a short period of time, actual mortality and morbidity claims have tracked below expected over the past 14 years.

Graph 6: Half-annual mortality and morbidity experience variances as a % of claims paid since June 2011



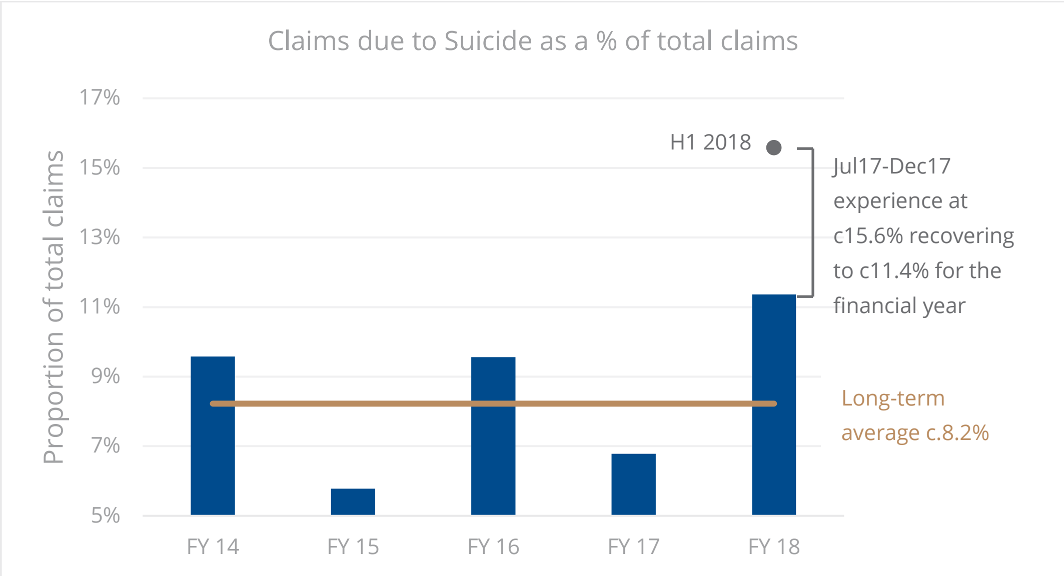
Management has been monitoring the recent negative experience variances and considers these to be impacted by random variation. Over the past few years, claims arising from non-natural causes have been particularly volatile with a large increase in the number of claims arising from violent crime being experienced in the 2017 financial year in particular. There does not appear to be any distinct trend in this experience that would lead to sustained negative variances, with FY 2017 appearing to be an outlier.

Graph 7: Claims arising from violent crime as a proportion of total life cover claims outgo



Graph 8 also shows that the proportion of life claims arising from suicide are volatile with the experience in the first half of the 2018 financial year being particularly anomalous. During this 6 month period (July 2017 – December 2017), there was a significant spike in suicide claims to R144m, which was very nearly at the same level as the highest ever 12 month maximum of R155m. Over the remainder of the year experience recovered to the extent that the overall suicide claims as a proportion of total life cover claims outgo was more in line with that experienced in FY 2014 and FY 2016.

Graph 8: Claims arising from suicide as a proportion of total life cover claims outgo

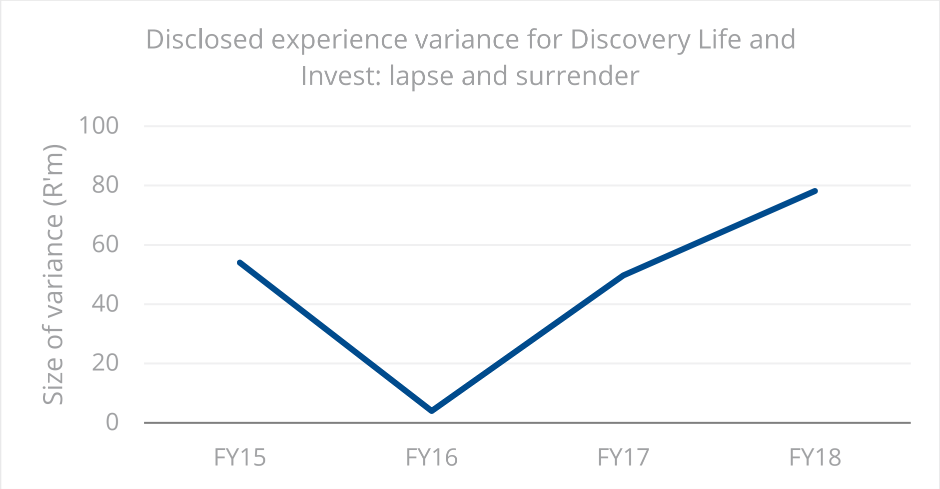


The recent negative mortality and morbidity experience variances are considered to be primarily due to random variation with examples of the volatile non-natural claims experience over the past few financial periods (which have significantly contributed to this experience) being discussed above. For this reason, no change in the long-term mortality assumption has been made, however experience will continue to be tracked closely.

5. Item of Experience: Lapse and Surrender

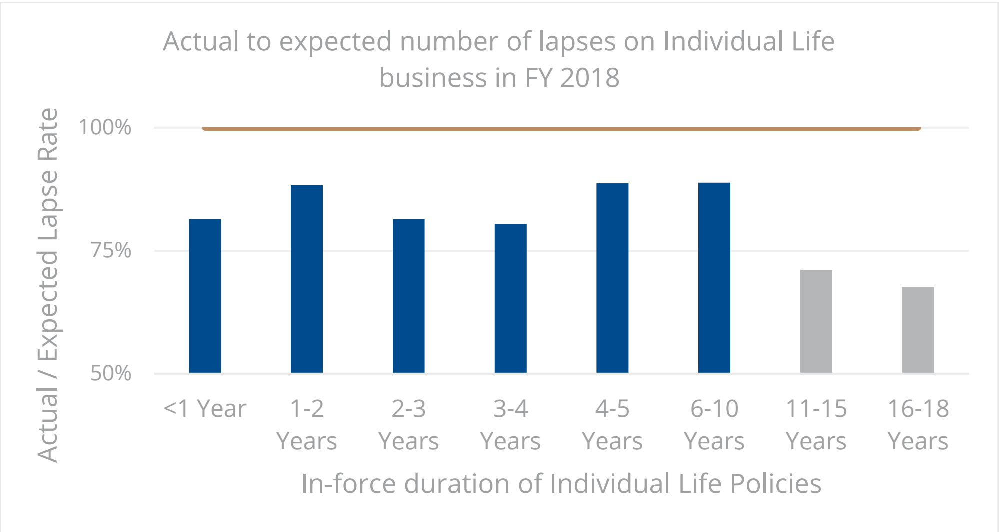
Discovery Life and Invest have seen positive variances arising from lapse and surrender experience, with these variances increasing since the 2016 financial year as shown in graph 9.

Graph 9: Disclosed lapse and surrender experience variance for Discovery Life and Invest: FY2015 – FY2018



An observed trend is that on individual Life business overall the actual number of lapses is less than the expected number of lapses at all durational groupings. This is particularly evident for longer-duration policies where actual lapse rates are c70% of the expected lapse rate. The lapse experience by duration in the 2018 financial year is shown in graph 10.

Graph 10: Actual to expected number of lapses on Individual Life business in the 2018 financial year split by the in-force duration of the policies



In addition to the lower than expected lapse rates across each durational group, experience also indicates that the net impact of policyholders cancelling automatic benefit increases is negligible.