37th India Fellowship Seminar

Date: 23rd & 24th June 2022

Case scenario: Discussion on expense study

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Guide: Subhash Khanna

- Subhash Khanna is a consulting actuary working with Milliman. He has over 11 years of experience and was one of the founding members of the Milliman's life insurance consulting practice based in New Delhi.

- He has worked with life insurance companies in India, the Middle East and the Asia Pacific. He has worked on a wide range of projects, which includes:

    - transformation of the actuarial function for an insurance company acquired by a private equity client of Milliman;
    - supporting IPO preparation jobs in the region;
    - multiple reviews of market-consistent embedded values and analysis of movement in embedded values;
    - model design and implementation for a new life insurance company in Singapore; multiple other Prophet model implementations; and
    - product reviews, pricing, and statutory valuations for life insurance companies in the Middle East.

Scenario

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- You have recently been appointed as the head of Actuarial in a life insurance company, reporting to the Appointed Actuary.
- Your predecessor conducted an expense analysis on last one-year's actual expenses based on a time and motion study. The study was conducted by interviewing all the functions/departments in the Company by asking them to fill an expense study questionnaire for their respective function/department.
- The results of the study indicated a shift in the ratio of acquisition to maintenance expense from 50:50 to 75:25.
- When the results were presented to the Board, they raised several concerns as mentioned on the next slide.

Board’s concerns

- Interpretation of questions from the expense study questionnaire can lead to varied responses and hence creating a room for subjective or biased human behavior.

- Decreasing the split of maintenance expenses will reduce the expense reserve, thus inhibiting Company’s ability to sustain adverse scenarios such as low future new business growth or closure to new business.

- One Board member noted that this change will have consequences on the capital position and future earnings of the Company. He further asked you to help him understand the impact of this change on the Company’s ability to write competitive future new business?”

- The Company has been in operations for more than 40+ years however a high split of acquisition expenses looks contrary and peculiar to this fact.

Agenda (1/2)

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Expense Analysis
- Objective
- Methodology
- Limitations

Addressing limitations
- Validation of Methodology
- Measures to limit the bias

Reserves
- Methodology
- Impact on reserves
- Proposed next steps

Agenda (2/2)

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Capital Position

- Impact on capital position
- Proposed next steps

Future Earnings

- Discussion on product competitiveness
- Assessment of impact on future earnings
- Proposed next steps

Expense Analysis

Objectives

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Setting assumptions for pricing, reserving, embedded value calculations, etc.

Checking for any deviations from the current assumptions

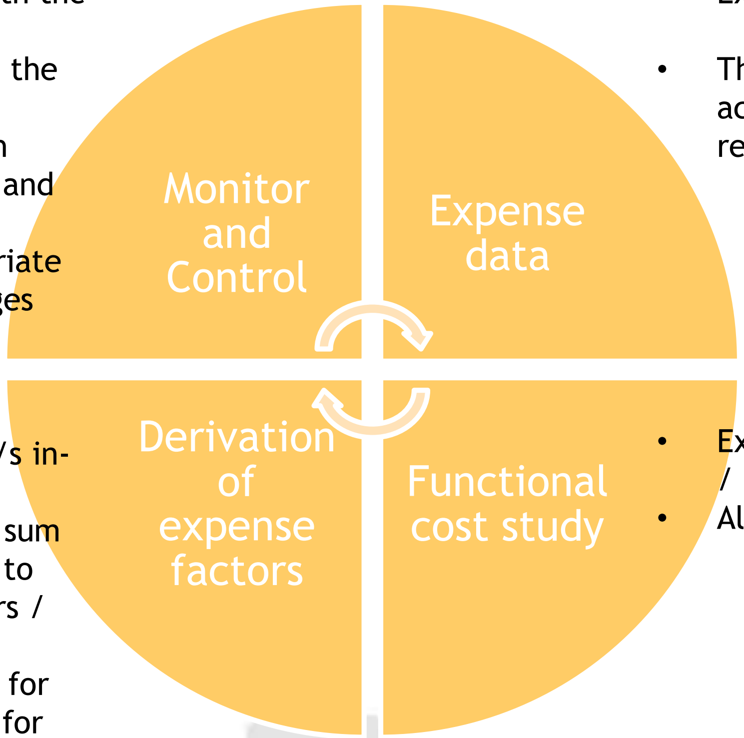
Comparing actual expenses against the budgeted levels

Monitoring expenses at a granular level to identify cost inefficiencies

Necessary for IFRS 17/USGAAP financial reporting

Monitoring profitability / capital requirements of the company

Methodology



- Reconciliation of modelled expenses with the actual expenses
- Monitoring trends in total expenses and the expense allocation
- Discussion of expense study results with various departments, including finance and accounting teams
- Recommending changes, where appropriate
- Assessing impact of the proposed changes

- Expense data taken from accounting systems
- The allocation / classification from the accounting systems form the base for further reclassification

- Analysis / projection of new business v/s in-force business
- Identifying drivers (number of policies, sum assured, premium income) of expenses to derive unit or per-policy expense factors / assumptions
- The "unit expense" derived is the basis for expense assumptions, which are inputs for valuation models calculating results at policy level

- Expenses re-allocated / reclassified by function / purpose
- Allocation could be based on
  - ➢ direct allocation – for expense that can directly attributed, for example, marketing expenditure
  - ➢ activity-based allocation using time sheets or surveys – for expenses which are not easy to split directly, for example, cost of an actuarial department;
  - ➢ actuarial judgement – allocating expense as required for the purpose of analysis

Limitations

The limitation / issues in the accounting system will have downstream impact on all steps of the analysis. Such issues are likely if there are changes in accounting systems / processes

Some expenses may not be directly attributable to either acquisition or renewal. For such expenses, time sheet data or survey responses are used for determining the split

Time sheets may not be properly maintained by every function, creating some difficulty in allocating expenses. Further, time sheet entries could be influenced by employee’s judgement

Subjectivity in interpreting the expense study questionnaire and the recency bias can lead to skewed responses

Actuarial judgement used to derive expense assumptions is also subjective

Addressing limitations

Validation of methodology

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Review of the change in the methodology from the previous study which suggested 50:50 split

Internally	Support from external consultants

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Compute the acquisition-renewal ratio across the various cost heads and analyze whether the change is driven by certain sales channel or line of business

Understand the cause which is resulting in the change in the split.	Critically evaluate the underlying business scenario which could support the results

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Validate the results with other sources of information

Insights from the trends observed over the past few years	Check changes in product mix, distribution mix, commission levels, new business APE etc.

Measures to limit the bias

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Discuss the key deviations, as observed from the responses, with concerned department heads. Ask other teams to review results.

Validate if the change is purely due to change in methodology or was developing over several years. Back test the survey questions for past couple of years

Train employees on the objective of the study and how they should answer specific questions / record time in the system

Repeat surveys with control groups; design questionnaire to control bias

Analyze reasons which could explain the results

Analyze reasons supporting results observed

- The acquisition expense ratio might have increased due to:
  - Higher New Business written
  - Significant increase in the sales force and thus, acquisition expenses
- At the same time, the renewal expenses might have reduced due to:
  - Maturity of a large block of business written years ago
  - Large chunk of policies reaching the end of their premium terms, leading to lower renewal expenses
  - Outsourcing or staffing rationalization may have reduced the renewal expenses.
- The change can be validated by analyzing the change under various expense heads.

Reserves

Valuation methodology

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- Mathematical reserves are calculated based on valuation assumptions.
- Consistency with last year assumptions & internal consistency with other assumptions is checked.
- MAD provisions included as per APS 7.
- The reserves are calculated using Gross Premium Valuation(GPV) method allowing for deaths, discontinuances, expenses, benefit payments, investment return, etc.
- In addition to above reserves, company also holds additional global reserves to cover any outgoes that are not covered in base reserves.
- Reserves are subject to a floor of the surrender value. Where there is no surrender value, reserves are floored to zero.
- Assumptions & Methodology reviewed by a peer reviewer in accordance with APS 4

Adequacy of Reserves

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- The change in the modelled reserves will depend on the change in the unit expense assumptions.
- In case the expense assumptions have not changed much, there will be minimal impact on the reserves.
- If the change in the ratios for acquisition and maintenance indeed reflects the current nature of expenses, then the reserves calculated on the revised assumptions will be adequate to meet expenses as they arise in future.
- The flooring applied to the modelled reserves may also mean that a lower maintenance expense assumption does not translate to a big impact on reserves.
- Company also holds additional reserves over and above the modelled reserves for ‘closure to new business’ scenario.

Steps to check adequacy of reserves

- Carry out a sensitivity to evaluate the change in reserves from the change in expense assumptions
- Carry out an analysis of surplus to ensure that the margins in the expense reserve are adequate to cover actual expenses
- Check if valuation assumptions need to be revised and also, if the MADs should be increased for expense assumptions. Any change will also be discussed with the peer reviewer
- Analyse the adequacy of additional reserves set-up over the modelled reserves
- Compare the loadings in the premium rates / charges deducted with the current valuation expense assumptions while considering a change in the assumptions

Capital position

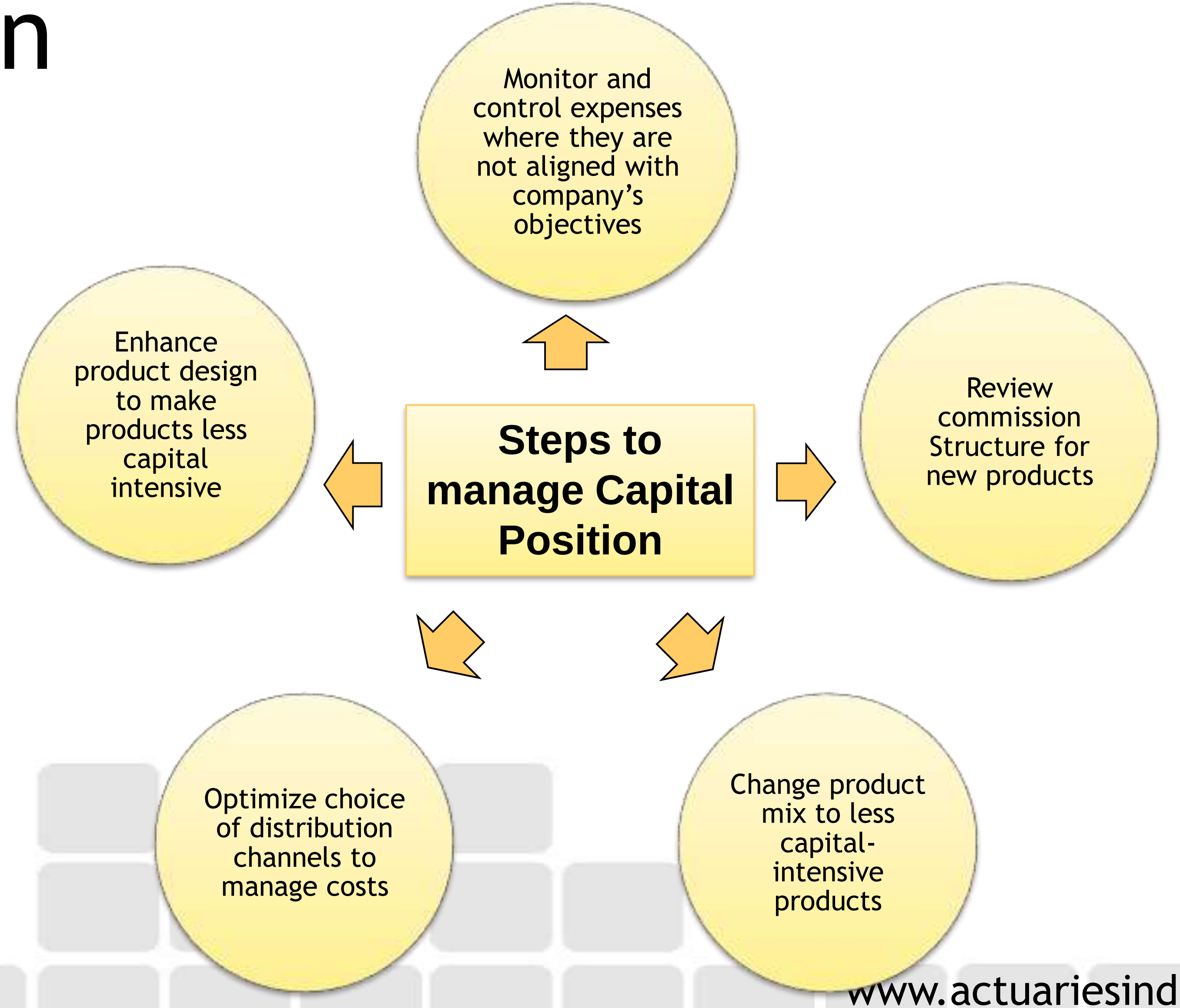
Capital Position (1/2)

- The capital support for new business is required to absorb the initial strain arising at the point of sale.
- The initial strain consists of acquisition expenses, initial commission, cost of setting up reserves and required capital.
- The increase in the ratio for acquisition expenses may be a result of higher new business written for the year or due to increase in total acquisition expenses.
- An increase in new business is an indication of additional capital required to sustain the increase in new business.
- An increase in acquisition expenses will lead to additional capital requirement even if there is no increase in new business volumes.

Capital Position (2/2)

- The company also needs to maintain capital as prescribed by the regulator for in-force business.
- The required capital may be maintained at the minimum regulatory level or at a higher-level set by the company.
- This capital is based on the total reserves and sum-at-risk
- The change on the total capital required will depend on the impact on the reserve.
- If the change in reserve is not very significant, it will not lead to a major change in the capital required for existing business.

Possible Steps to manage capital position



Future earnings

Discussion on product competitiveness

Overall competitiveness of the product depends on the final premium rates, product differentiation, distribution channel & brand image

If the change in the ratio is ascertained to be a long term change, pricing assumptions may be changed to reflect the same

Increasing the proportion of acquisition expenses will lead to more “front loading” of expenses, making the premiums slightly costlier

However, higher acquisition expenses can be a result of marketing campaigns being undertaken, which might help maintain/improve the competitiveness of the products

Impact on future earnings

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- The future earnings are the profits that the company will earn allowing for cost of reserving, solvency capital and tax from existing business and the future new business.
- The impact on earnings of the company will depend on the total level of expenses and any increase in the total expenses could hurt profitability.
- The increase in the total acquisition expenses will lower the profit margins (Value of new business margins).
- However, the increase in new business will lead to higher absolute profits if writing profitable business (the additional efforts to acquire business is helping scale the new business volumes).
- The change in expense split could also be an opportunity to reprice existing products / revisit product portfolio etc.

Proposed next steps to maintain competitiveness

Impact assessment of the change in premium rates due to change in expense allocation ratios

Compare the premium rates with competitors’ products to establish the competitiveness

Review product design & other assumptions if the rates come out to be significantly higher than competitors

Alternatively, premium rates can be kept unchanged

Steps to study impact on future earnings

Carry out sensitivity analysis on value of New Business & Embedded Value

Project future profits for the next 3-5 years using existing business & expected future new business. Analyze profitability under a range of possible scenarios

Present results of the above study and discuss the future product / sales strategy. Suggest changes where required

Propose measures to keep expenses under control / to evaluate effectiveness of various marketing / sales activities

Discussion synopsis

The Way Forward…

- The expense analysis suggested a change in the ratio of acquisition to maintenance.
- The change in the ratio will be validated internally and with external reviewers as well.
- If the change is considered to be long term, reserving and pricing assumptions will be revisited.
- The increase in new business will lead to increase in the additional capital required to absorb the initial strain.
- Company to review product design and distribution strategy to manage initial strain.
- Assess the impact of change in premium rates and compare with competitors.
- Project the existing business and expected future new business to ascertain impact on future profitability.

THANK YOU

QUESTIONS?