



AFRICAN
ACTUARIAL
CONSULTANTS



PRICING OF INSURANCE PRODUCTS – AN ACTUARIAL PERSPECTIVE

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ACTUARIAL PRACTICE


ALEXANDERFORBES
Securing your financial well-being

AGENDA

- Who is African Actuarial Consultants
- Aims of pricing insurance products
- Primary pricing consideration for the actuary
- Selecting Profitability Metrics
- Developing the Model Framework
- Pricing Assumptions
- Split of premium
- IPEC Circular 6 of 2016 requirements
- Considerations for different product types

Actuarial Consulting Team



Tinashe Mashoko

Engagement Director &
Peer Review Actuary

20+ years in all aspects of actuarial practice, including insurance consulting

Brian Karidza

Consulting and Working Actuary

7+ years in industry. Chartered Enterprise Risk Actuary. Ex Deloitte's Actuarial team

Donald Hove

Nearly Qualified Actuary & Head of Consulting

10+ years in insurance industry. Dealing with all forms of insurance

Tafadzwa Chiduzwa

Nearly Qualified Actuary & Head of Non-Life Consulting

Team leader, over 7 years experience in short term insurance

Aldrin Chari

Nearly Qualified Actuary – Actuarial Consultant

Over 3 years experience in short term insurance pricing and reserving.

Why Appoint Us?



**We have the skills,
resources and experience
to service IIZ and its
members**

**Opportunity for
transformation in practice**



**Local insurers are well
positioned to support young,
growing African Actuarial firm
and persons**

**We have value added
thought leadership and
solutions**



Key aims of pricing

- Ensure profitable products – setting right premiums and charges
- However not necessarily the case every time
- Other aims...
 - Guided by Company's objectives
 - Other present constraints
- Pricing actuaries need to work closely with all other key staff involved in product design, marketing and administration

Product Pricing

- Long term success by appropriately pricing products
- Being competitive
- The Pricing Challenge:
 - Reasonable to policyholders,
 - Equitable between shareholders,
 - Bear reasonable relationship to the benefits expected
- Ensure reasonable shareholder profit margins
- Test sensitivity of profit margin to variations in cost factors
- Suggest action for sensitive factors e.g. additional premium or design change
- Meet regulatory and professional requirements
 - Circular 6 of 2016

Key considerations

- The intended design of the product;
- The intended market and the competitive alternatives to the product;
- How the product will be sold;
- How the product will be administered, including any limitations in administrative and valuation systems that could impact product design or operational risks;
- Applicable law
- the tax treatment of the product as it applies to both the owner and the company

Pricing goes beyond just a point estimate of the product profitability



- As part of pricing work, need to go beyond the expected profitability
- Sensitivities should consider a wide range of possible events at point of sale and in the future
- Impact on capital position should consider initial and projected capital requirements
- Potential requirements in adverse scenarios
- Ensure risk and profitability profile is consistent with Company's risk appetite

Selecting Profitability Metrics- Profitability Metrics

Primary Metrics

- Use more than one
- Focus on expected return on capital
 - IRR, NPV

Other Metrics

- the average of expected future periodic returns on capital (for example, average return on equity)
- a measure of profitability expressed as a percentage of revenue (for example, profit margin)
- the present value of expected future profits (for example, embedded value at issue);
- the time period when a measure of profitability turns positive
- any other appropriate measures.



Considerations in Selecting Profitability Metrics

- **Key considerations**
 - the expected pattern of profits over time
 - the nature of the product's underlying risks
 - any other considerations that the actuary determines are relevant.
- **Key metrics vary by region**
 - European firms – present value of future profits and economic capital requirements
 - US Companies use projected US GAAP profits and IRR
 - Asian firms – traditional deterministic value of future profits and local statutory capital requirements. Also consider local accounting earnings
 - African firms largely influenced by European actuarial practice, including Zimbabwe

Developing the model framework

- Time Horizon—the degree to which the model extends over a sufficient time period such that the risk and returns of the product are adequately captured
- Model Points—the degree to which the model points are representative of the expected source of future sales
- Granularity of Assumptions—the degree to which the granularity of the assumptions is appropriate to the model points and profitability metrics selected
- Asset Returns—the degree to which the model incorporates asset returns in the same manner as such returns are expected to be recognized and allocated to the product
- Accounting Bases—the degree to which the model uses accounting bases that are expected to be used in practice;

Developing the model framework

Risk Capital Mechanics—the degree to which the model uses risk capital mechanics that are expected to be used in practice

Taxes—the degree to which the model uses tax mechanics that are expected to apply given the product, the tax position of the company, and the company’s tax allocation practices

Risk Quantification—the degree to which the model framework uses an appropriate method to quantify risks (for example, sensitivity analysis, stochastic analysis, etc.)

Risk Mitigation—the degree to which risk mitigation strategies, such as reinsurance or hedging, that are expected to be used are appropriately modelled

Model Validation—the degree to which the model framework is sufficiently transparent to support validation

Assumptions for pricing

Consistency

Reflect future experience and Appropriate

- relevant and credible data,
 - such as company experience and other relevant experience, such as industry experience, which may be modified to reflect the circumstances being modeled.
- consider whether there are reasons to expect that future experience will differ from past experience.

Reflect expectations over the entire modeling time horizon

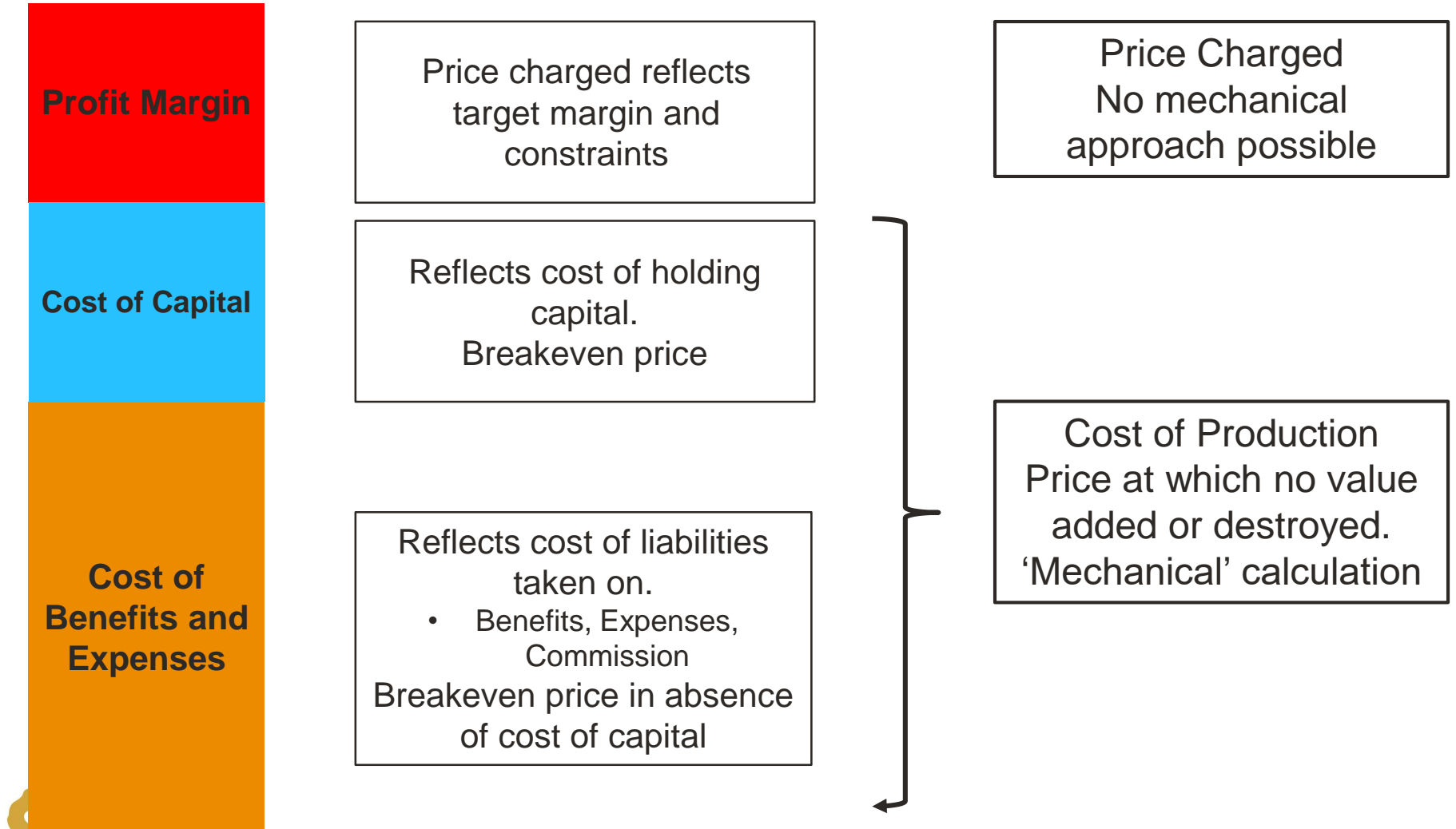
Assumption Setting

- Investment assumptions that include assumptions for reinvestment, asset default, and investment expenses
- Mortality assumptions - effects of selection and classification of future policyholders and the impact of expected trends on future mortality
- Policy and premium persistency assumptions that vary by policyholder characteristics (for example, age) and policy or rider characteristics (for example, size of policy)
- Expense assumptions plus effect of future inflation
- The principal's capacity and intent, when setting assumptions with regard to enforce management strategies, including nonguaranteed elements.

Cost of Risk and Profit Testing

- Assumption Margins— Appropriate individually and in aggregate
- Risk Capital—cost of establishing risk capital
- Sensitivity Analysis— evaluate the cost of the risk that future experience may be different than an assumption and affect expected profitability. Consider correlations
- Stochastic Analysis— To evaluate the cost of the risk that volatility in an assumption affects the expected profitability.

Split of Elements of Premium



Why premium charged may differ from calculated premium

- to meet business objectives, e.g. to increase market share
- to maintain market share in highly competitive markets or in certain market conditions (such as the “soft phase” of the insurance cycle)
 - ❖ if it is difficult to establish the technical premium
 - ❖ if insurers can charge certain loyal customers more (inertia pricing)
 - ❖ if the market does not accept different premiums (eg between new business and renewal premiums)
 - ❖ where no-claim discounts apply.

Theoretically, premiums for new business should be higher than those for renewals. However this is rarely the case due to market pressures.

Other practical factors affecting premiums recommended

- The stage of the insurance cycle
- competition and market share
- capital availability
- reinsurance capacity
- sales and quotes systems
- regulations
- relationships with sellers
- the method of sale
- Experience rating - prospectively or retrospectively

Differences between product types

Long Term Life Insurance products

- Long term hence capital modelling more complex
- Assumption risk high
- Mortality tables
- Expense inflation

Short Term Life

- Less complex
- Focus on averages
- Loadings for different clients
- Group products

General Insurance products

- Meticulous contract detail
- Probability distributions
- Solvency margins

Medical Aid products

- Use averages
- Premium is sum of charges for different benefits
- Tarrifs determine benefits
- Hard to rely purely on calculation due to limits and sub-limits

Product pricing is a cycle – Actuarial Control Cycle

IPEC'S CIRCULAR 6 OF 2016

WHAT IT IS ABOUT

- minimum principles to be adhered to by insurance companies in product design and development, pricing, marketing, as well as withdrawal of the products from the market

OBJECTIVES OF THE GUIDELINES

- ❑ Financial viability of the proposed product hence the ability of the insurer to meet claims as and when they arise
- ❑ Suitability, sustainability and affordability of the product to policyholders
- ❑ Marketing and promotion of new products is not misleading and inadequate
- ❑ Financial soundness and safety of the insurer's existing insurance business
- ❑ Fair treatment of policyholders and potential policyholders in line with the Treating Customers Fairly (TCF) thrust



IPEC Circular 6 of 2016: Requirements for Actuarial Report

- ❖ Scope of the report
- ❖ List of acronyms and abbreviations
- ❖ Description of the product and its salient features
- ❖ Pricing assumptions and bases in relation to interest rates, mortality rates, expenses, e.t.c.
- ❖ A detailed method on the calculation of surrender values and/or paid-up values
- ❖ Justification on the absence of surrender values and/or paid up values where this is applicable
- ❖ Break down of total premium clearly showing the pure risk premium, commission, expenses, profit margin and any other loadings
- ❖ The minimum capital required to underwrite the product
- ❖ A comment on the adequacy of the available economic capital vis-à-vis the minimum capital required for the new product(s)
- ❖ Stress testing results
- ❖ Actuarial recommendations and conclusions
- ❖ Any other information as may be deemed necessary



Summary

- Comprehensive understanding of the product is necessary
- Market knowledge and interaction with other stakeholders
- Specify appropriate, relevant and consistent assumptions
- Develop suitable model framework for calculations
- Recommended premium must be split into cost of liabilities, cost of capital and profit
- Cost of liabilities and cost of capital is the production price
- Cost of capital calculations quite complex
- Different types of products demand different approaches
- IPEC Circular 6 of 2016

Thank you

