INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

May 2025

CP3 - Communication Practice

Time allowed: 3 Hours 15 Minutes

Total Marks: 100

You are an Actuary working as the Chief Risk Officer (CRO) of SUBU (Smart Underwriting Better Understanding) Life Insurance Company operating in Country G – a new age tech driven insurer using advanced technologies like Artificial Intelligence, Blockchain, Insurtech etc with an aim to revolutionize the insurance industry through intelligent underwriting and deep customer insight.

As the Chief Risk Officer, your job is to identify, assess, manage, monitor and report risks so that company's objectives and goals are met.

Recently, a global tariff war has created financial market volatility impacting stock markets throughout the globe. It has also impacted the trade of AI Chips (like GPUs, TPUs, NPUs) which are essential for training and deploying large-scale AI Models.

The CEO of your company, read the following article in the leading newspaper of the country and is a little worried. He has asked you to write a paper and present in the upcoming Board meeting on "Impact of global tariff war on the risks faced by the company". The CEO is particularly interested in how the solvency and profitability are impacted. The Board members have basic financial background and understand that such changes have impact on businesses in general but are not aware of how such changes impact an insurance company, particularly impact on profitability and solvency.

Global Tariffs Trigger Market Turmoil: AI Chip Ban and Interest Rate Volatility Rattle Insurance Sector

A sweeping wave of global tariffs and trade restrictions—spearheaded by rising tensions between the major economies of the world—has sent shockwaves across global financial markets, with far-reaching consequences for equity valuations, interest rate stability, and the rapidly evolving insurance sector.

Equity markets worldwide closed sharply lower for the third consecutive week.

The surge in global tariffs is expected to increase the cost of imported components and technology, potentially increasing inflation.

Interest rates are already up by 50bps eroding bond values.

The central bank is expected to delay rate cuts and even a policy reversal to curb rising inflation further affecting interest rates and increasing the same.

*Country G's new-age insurers, many of which operate with AI-driven underwriting and claims management systems, face **operational and financial challenges** due to restricted access to GPUs and cloud AI infrastructure.*

Q. 1) You, as the CRO of the company have done Scenario testing and drafted some mitigating actions. Draft a paper with the title "Impact of global tariff war on the risks faced by the company" to be presented in the upcoming Board Meeting in about 800 words. The paper should cover the Key Developments that have happened, risk on strategy of the company, financial impacts especially on solvency and profitability through scenario testing and suggest some immediate risk mitigation steps that can be taken. **[90 Marks]**

Q. 2) Explain how you decided on:

i) Structure of your response (3)

ii) The depth of your explanation (5)

iii) Filtering information (2)

[10 Marks]

[The information given below is fictitious and does not belong to any company. It is meant to be used only for the purpose of this examination.]

Annexure: Background Available for the company

1. **Product Portfolio:**

SUBU is a new-age tech-driven life insurer, and its product offering includes:

- Protection Products: Term life insurance , aimed at young tech-savvy individuals.
- Savings & Investment Products: ULIPs and endowment plans linked to market performance (exposed to equity and bond markets).
- A ULIP (Unit Linked Insurance Plan) works by splitting your premium into life insurance coverage and market-linked investments, offering both financial protection and potential wealth growth in a single product.
- Retirement/Pension Products: With long-term guarantees sensitive to interest rates.
- Underwriting is mostly done using AI especially for Term life Insurance products.

2. **Key Product Features:**

- Highly digitized and automated underwriting and claims journey
- Customization and real-time risk pricing using AI/ML
- Fast onboarding—minimal manual intervention
- Robust and Fast Claims management – minimal manual intervention
- Dependency on cloud infrastructure and AI chips (GPUs, TPUs)

3. **Investment Strategy**:

- High exposure to equities (especially in ULIPs and participating funds) to attract higher returns
- Fixed-income assets (government and corporate bonds) for guaranteed products
- ALM (Asset-Liability Management) is sensitive to interest rate movements, especially for long-term liabilities.
- Investment in Cash and Cash equivalent assets for meeting Liquidity needs

4. **Current Investment Risk Exposure**:

- Bond portfolios face MTM (Mark-to-Market) losses due to rising interest rates.
- New business strain may increase as product pricing may lag market rate movements.
- Equity holdings are under stress due to global market declines.
- An equity market downfall reduces profitability from ULIPs because the fund value drops, leading to lower fund management charges (which are percentage-based), reduced customer satisfaction, potential policy surrenders, and ultimately lower fee-based income for the insurer.

5. **Market Share**

- SUBU is not a legacy insurer but a fast-growing digital player in Country G.
- Holds 5% market share, skewed towards the urban, digital-savvy segment.
- Competes with traditional players using its low-cost, tech-enabled operating model.
- Growing rapidly due to its AI-based underwriting, appealing to millennials and Gen Z.
- As a new insurer, it has lower capital buffers than legacy firms.
- Greater exposure to market volatility, tech risk, and operational dependencies on global supply chains.

6. **Company Strategy**

- **Tech-Led Innovation:** AI powers underwriting, claims, and customer service for faster, smarter operations.
- **Scalability via Cloud & APIs:** Use of cloud and GPUs/TPUs to run AI models efficiently and grow easily.

- **Disintermediation:** Selling directly to customers, cutting out agents to reduce costs and improve service
- **Agile, Data-Driven Decisions:** Use of real-time data to make quick, informed business choices.

7. AI Chips-related Vulnerabilities:

- The company's strategy of being new-age means that for many important aspects, it depends on the AI ecosystem which works through AI chips. These important aspects include, but are not limited to underwriting, claim processing, fraud detection, some aspects of pricing etc.
- Increase in AI chips costs and/or supply disruptions would impact the company's profitability and hence solvency as company's working ecosystem is built around it, also giving it an edge from other companies.
- Tariff war threatens access to cloud computing and AI chips.
- Increased inflation and import costs may erode profitability.
- Dependency on external technology partners can lead to operational risks.
- ALM in the company is done with the help of AI-driven asset management tools. This process may be disrupted due to chip shortages and/or cost increases. This is an operational risk for the company

8. Scenario Testing:

SUBU Life Insurance has done scenario testing (with the base of FY 24) for three scenarios of Low risk, Medium Risk and High Risk. Results of the test are as follows:

a. Low Risk Scenario:
   - Probability: 50%
   - Equity Market Decline: 10%
   - Interest Rate Hike: 50 basis points (0.5%)
   - AI Chip cost increase: 20%
   - Impact on Profitability: -15%
   - Solvency Ratio: 132% (Regulatory minimum is 100%, company's own solvency target is 130%)
   - The current market scenario is close to this scenario and is evolving rapidly

b. Medium Risk Scenario:
   - Probability: 30%
   - Equity Market Decline: 20%
   - Interest Rate Hike: 100 basis points (1%)
   - AI Chip cost increase: 40%
   - Impact on Profitability: -30%
   - Solvency Ratio: 110% (Regulatory minimum is 100%, company's own solvency target is 130%)

c. High Risk Scenario:
   - Probability: 20%
   - Equity Market Decline: 30%
   - Interest Rate Hike: 150 basis points (1.5%)
   - AI Chip cost increase: 60%
   - Impact on Profitability: -75%
   - Solvency Ratio: 88% (Regulatory minimum is 100%, company's own solvency target is 130%)

9. How Central banks use monetary policy and relationship with Bond Yields

- Central banks (like RBI) use repo rates for controlling inflation/ increasing expenditure in economy

- Lower rates → Cheaper borrowing → Boosts consumption and investment → Stimulates the economy
- Higher rates → Costlier borrowing → Slows down spending → Controls inflation
- High repo rates mean new bonds are issued with higher yields → Existing bonds lose value (prices drop) and vice versa

10. How new-age underwriting is done through Artificial Intelligence (AI) Techniques and the role of GPUs in the same

- Traditional underwriting is manual, rule-based, and time-consuming. New-age underwriting leverages AI to automate, accelerate, and improve accuracy in risk assessment and pricing.
- GPUs enable parallel processing of large datasets, significantly speeding up AI tasks like image recognition, speech analysis, and real-time risk scoring. By combining advanced AI algorithms with GPU acceleration, insurers can offer instant, accurate, and personalized underwriting decisions, enhancing both efficiency and customer experience.

11. Risk Mitigation Steps

- Infusion of capital: The company can look for sources to infuse capital through parent company or other sources especially in scenarios where its solvency is impacted and may go below the internal target and/or the regulatory threshold of solvency. Infusing capital would help the company to increase its assets without increasing its liability and hence increase the solvency of the company (as against taking a loan).
- Reduce Global tech dependency: The company is dependent on Global AI ecosystems to maintain its USP. The AI ecosystem helps the company to have an edge over its competitors and serve its strategy. However, the current environment showed that dependency on global AI ecosystem is not good, and the company is suggested to explore local AI systems and leverage them. This can help the company to reduce its overall costs and reduce its impact from supply disruptions.
- Increased monitoring of financial markets and operating costs: Regular monitoring of financial markets and operating costs is very important to take quick decisions wherever necessary especially in these sensitive scenarios. Regular monitoring will help the company to take swift actions as and when needed like buy derivatives, enter into interest rate swaps and having fixed costs contracts with penalties.

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