Institute of Actuaries of India

Subject SA7-Investment and Finance

September 2021 Examination

INDICATIVE SOLUTION

The indicative solution has been written by the Examiners with the aim of helping candidates. The solutions given are only indicative. It is realized that there could be other points as valid answers and examiner have given credit for any alternative approach or interpretation which they consider to be reasonable.

Solution 1:

i) investment strategy Drivers

- The investment strategy document covers the basic principles of compliance with investment regulations, Security & safety, yield & liquidity of investments, and meeting return expectations of policyholders & shareholders.
- The investment strategy is also driven by prudent risk management strategies and asset- liability management. For the non-linked products, the investment strategy addresses the twin objectives of meeting the guarantees and maximizing discretionary benefits through a mix of investments. For linked products, the strategy is to maximize the value of underlying assets, keeping in mind the investment objectives and risk profile of the respective funds.

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ii) The objective of the document is to assist the Board to understand the objective of investment in start-ups, strategy and process may include the following:

- Define Investment objectives for investment in start-ups - Risk and Return
- Why the company should take this level of risks
- Risk Appetite – Understanding the risk appetite
- Is the investment risk aligned with the risk appetite of the company?
- Is this investment aligned with the investment guidelines for insurance companies?
- Is it included in Permissible Investments
- Organisational governance structure
- Define and assign the responsibilities of various teams such as research team
- Whether equity research team has the capability to assess investments in start ups
- Does company have sufficient sector knowledge
- Process for investment management – buy and sales for this asset classes
- Exceptions management
- Review of Investment performance
- Performance benchmarks for such investments
- Format for review of investment
- Format for presenting investment summary
- To weigh the diversification benefit vis-à-vis liquidity for start ups
- Ensure that measures are in place to adhere to all investment regulatory norms
- Legal and compliance – format of shareholders agreement
- Various clauses withing the agreement to mitigate the risks associated with investments in start-up.
- Board position in the start-ups.

[12]

iii) All information related to the companies, including but not limited to past, future and quantitative information's

- Corporate Profile – Brief note on the companies
- Business Plan
- Past financials of the company
- Management approved projections
- Brief note supporting innovation, improvement and scalability
- What is the problem the start-up is solving
- How does your start-up propose to solve this problem
- Details of products and/or services.
- Details of the promoters.

- Profit drivers, cost drivers an risk factors
- SWOT analysis of the company

[6]

iv)

- Fintech company is a good sector to invest in due to increasing digitalisation – Fintech companies are those who use] technology for offering financial products to people at large. The increasing focus on digitisation and work from home compulsions have created a space for innovations in the areas of product, services or delivery process.
- Financial Inclusion focus of the government will be positive for Fintech Companies
- Lower cost of delivery of services through fintech platform will be positive
- Awareness about financial discipline and financial planning will favour fintech start ups
- Higher Financial savings may help Fintech Companies
- Stock market trends may be helpful to Fintech in trading areas
- New trends such as peer to peer lending is also helping Fintech to grow.
- Travel is a cyclical/seasonal sector and will be strongly affected by the economic cycle – Travel industry is a profitable sector but is a seasonal and cyclical sector.
- Due to ongoing pandemic and restrictions, the spend on travel will not increase in near future and so the outlook for this sector is not very bullish.
- Increasing need for liquidity will impact discretionary spending such as travel- People would prefer liquidity in this uncertain times and so the spend on travel might come down.
- Personal taxation will also impact the disposable income and so the spending –
- International travel restrictions will impact travel industry
- Regulatory risk on start-ups – The regulations for start-up is still emerging and there may be many grey areas which might impact the start-ups.
- Tax issues such as angel taxation for start ups
- Business risk and operational risk associated with the companies
- Inflation will also impact
- Political Scenario in the country will impact both the sectors.

[10]

[30 Marks]

Solution 2:

i) ESG Vision and Action Points

Environmental Vision: Serve the preservation of our planet by shaping and sharing technology solutions

- Leverage technology to support the transition to a low-carbon world
- Maintaining carbon neutrality missions every year
- Reducing absolute greenhouse gas (GHG)
- Reducing absolute GHG emissions
- Engaging clients on climate actions through our solutions
- Reduce our water footprint and enhance water availability in the communities where we operat
- Maintaining 100% wastewater recycling every year
- Reduce, reuse and recycle to minimize waste, including e-waste
- Ensuring zero waste to landfill

Social Vision: Serve the development of people by shaping a future with meaningful opportunities for all

- Enabling digital talent at scale: Facilitate skilling to ensure progress for all

- Diversity and inclusion- Foster diversity and nurture inclusion
- Energizing local communities: Enable opportunities for communities locally
- Tech for good- Partner with society to harness the power of technology solutions in their everyday
- Employee wellness and experience: Ensure fulfilling careers for our employees

Governance Vision: Serve the interests of all our stakeholders by leading through our core values

- Corporate governance Be a leader and get benchmarked for world-class corporate governance
- Data privacy Ensure the safety of stakeholder data
- Information management- Uphold the digital trust of our stakeholders

[12]

ii) ESG investment approaches

ESG considerations are relevant to all asset classes and at all stages of the investment process:

- Investment objectives – Some investors may have ESG-related objectives, such as having a positive social or environmental impact through their investments.
- Investment beliefs – These include beliefs about the way ESG factors will affect investment markets and the extent to which different investment management techniques can capture those effects.
- Asset allocation – ESG factors may affect the expected returns and volatility of those returns over the long-term, so should be considered when parameterising asset-liability models. Investors may wish to avoid or seek out certain asset classes for ESG reasons (for example, some may view commodity mining as problematic from an ESG perspective if it is linked to poor human rights standards).
- Manager selection and monitoring – If external asset managers are appointed, then their ESG beliefs, expertise, policies and processes can form part of the selection process. Any specific ESG requirements should be documented in the investment management agreement. Ongoing monitoring can ensure these requirements are met and that ESG policies and processes are being implemented effectively.
- Security selection – Analysis of possible investments can include consideration of ESG factors (see section 4.4 below).
- Portfolio construction and monitoring – The overall ESG characteristics of the portfolio can be studied using individual metrics such as greenhouse gas emissions or aggregate ratings covering groups of ESG factors. This can help to manage aggregate exposures to ESG risks and opportunities.
- Exercise of ownership rights – ESG topics are frequently a focus of voting and engagement activities (see section 4.5 below). Investors may use engagement to obtain ESG information that can inform their investment decisions and/or to encourage companies to adopt better ESG practices.

[12]

[24 Marks]

Solution 3:

i) The following points should be mentioned:

- SEBI lowering FMC charges that can be levied to mutual funds
- IRDAI putting pressure on fee levied by insurers via indirectly capping the yield reduction
- Online platforms leading to lowered transaction costs for retail and thus impacting institutional investors
- Impact on currency replacement by GOI that let to liquidity crunch and reduced confidence towards traditional investments
- Soft commissions to channel partners
- Unbundling of research and increased cost of research
- Passive increasing market share,

- Increased focus and scrutiny by regulators putting downward pressure on fees.
- Increased competition from international houses
- Increased competition from new products impacting traditional funds
- Smaller firms will be impacted more than large ones
- Problems in finding, training and retaining key staff
- Problems in delivering expected returns to shareholders
- Poor absolute returns in recent years
- Poor relative returns from balanced funds
- Lower forecast future returns impact profitability of managers
- Move to passive, fund of funds, hedge funds , specialists, increased bond exposure
- Increased interest in alternatives
- Alternative investments are less developed asset class = opportunity
- Higher fees available
- Performance fees often becoming the norm

[6]

ii) The key characteristics are

- More emphasis on absolute returns
- Returns not solely a function of underlying assets
- Limited downside often a feature
- Extensive use of all investment instruments
- Diversification due to low correlation with bond/equity returns
- Make use of short selling, stock lending, gearing, arbitrage
- The main types are
- Long and short equity/bond funds (specific asset classes)
- Long and short strategies based on futures/options worldwide
- Global opportunities - speculative investments
- Relative value funds - exploitation of perceived anomalies
- Event driven - takeover, merger, political

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iii)

Run underlying hedge funds directly

Advantages

- full fee income captured
- direct control of investment process and performance

Disadvantages

- takes time to build track record (longer time than fund of funds)
- no brand image
- seed capital required
- specialist staff require to be hired
- infrastructure required to manage new product
- timeframe for building successful business may be short

Run fund of funds that constructs portfolios of hedge funds run by other houses

Advantages

- less costly to set up
- quicker to set up
- less infrastructure needed
- more immediate choice to customers (product tailored)
- performance risks spread over different organisations and strategies
- Disadvantages
- lower fees
- less control of customers (could go direct)
- needs manager research process to be set up
- less investment control

Set up a Joint Venture with hedge fund manager
Advantages

- good hedge fund brand will allow sales sooner (track record)
- infrastructure and management expertise in place

Disadvantages

- less control
- share of fees
- exit/development strategy needed
- knowledge transfer
- brand dilution/confusion

[12]
[25 Marks]

Solution 4:

i)

- Unaffordable annuity increases have been granted in the past
- The valuation basis may have been changed to one which places a higher value on the value of liabilities
- Or a different value on the value of assets (for example a change from an adjusted long term value of assets to market value)
- Assets may have underperformed expectations since the last valuation on bond manager underperformed due to credit or duration positioning,
- Equity markets may have suffered a significant correction (relative to the size of the previous surplus)
- Interest rates may have changed significantly and the duration of the bond portfolio is quite different to that of the liabilities.
- The valuation rate used to value the liabilities may be unrealistically high compared to the underlying assets
- Mortality assumptions may have been too optimistic and pensioners are living longer than anticipated in the valuation basis.

[4]

ii)

- An interest rate swap is a derivative instrument whereby one party swaps floating rate payments for pre-determined fixed rate payments with another. The counterparty to the swap investor is a bank.
- They are OTC instruments and can be tailored to the needs of the investors.
- The fund would need to determine the liability profile for the pensioner pool – calculating the expected cashflows going forward in respect of pension payments.
- The main investment risk associated with the fund are interest rate and inflation risk.
    - Both can be managed by using swaps – to receive inflation-linked payments and/or extend the duration of the asset portfolio.

- From this the duration or interest rate sensitivity of the liability can be determined.
- The fund would then enter into a swap to pay floating and receive fixed payments
- The fixed rate payments can be tailored to hedge the interest rate risk exposure of the fund (by matching cashflows and/or duration)
- An overlay may be applied to hedge against inflation risk. In other words a swap whereby one party (the pension fund) pays fixed and the counterparty pays inflation linked payments.
- Margin makes leverage possible requiring lower immediate outlay to hedge a given exposure than compared with a portfolio of government bonds. It is also possible to hedge liabilities for which no natural physical asset hedge exists
- Swaps can be collateralized but do not have to be – which leaves the investor exposed to bank credit risk. Two-way collateralization requires management and available acceptable liquid assets

[4]

iii) Considerations:

- What is the valuation basis used to value the liabilities –
    - is it with reference to the inflation linked or nominal yields,
    - and does it use a single point yield or a yield curve
- The timing of the decision to change to a matched strategy is important. Consider current pricing of bonds and swaps in the market.
    - Bond yields are currently high due to fiscal uncertainty and it may be a good time to take advantage of this
- How to manage the change and any required disinvestment of existing assets. It is likely that there may be illiquidity in the bond portfolio should significant assets be realized.
- Moving to a more passive LDI strategy would mean giving up additional alpha generated by the bond manager – which may be necessary to fund pension increases
- What is the pension increase policy and past practice in terms of pension increases? Do we need to hedge against inflation as well as interest rate changes?
- What portion of the assets would you want to allocate towards the hedged component versus the unmatched component.
    - An ALM exercise will help determine the degree of risk mitigation or matching required
    - Consider the funding level and the current pricing of swaps.
- Will entering into a swap be permissible in terms of regulations as swaps are considered derivatives
- Does the fund's rules allow for use of swaps/derivatives. Will the IPS need to be changed.
- Do the trustees (and/or their actuary or asset consultant) have the expertise required to enter into and manage such a complex arrangement
- The fund is very large and may wish to split the swap overlay amongst a range of banks in order to mitigate risks. One bank may be unable/unwilling to take on the entire swap. How do you select, monitor and manage counterparties?
- What other hedging mechanisms are available to be considered – e.g.: repos, cashflow matching, other actively managed LDI opportunities

Advantages:

- Will immunise the fund against interest rate risk (and possibly inflation risk) provided that the valuation basis is consistent with the interest rates being hedged
- The liability exposure to interest rate risk can be fully hedged without using all the funds existing assets
- Swaps are OTC and can be tailored to closely hedge the portfolio
- If longer term government yields are historically high relative to floating rates you may be able to lock into a higher fixed component

- Can hedge very long term liabilities – swaps of longer than 50 years can be entered into

Disadvantages:

- There may still be “basis risk” between the valuation of the swap and the liabilities which cannot be perfectly hedged
- Liabilities may be measured off a bond curve not a swap curve
- Trustees will be locking into lower returns compared to the active bond portfolio
- Credit risk with the counterparty bank – even if it is a collateralized swap (how often is MTM done?)
- Will need cash for margin/collateral - especially if interest rates move significantly out of your favour
- Short rates may increase suddenly while longer term rates remain fixed
- Fund will be locked into a very long term agreement
- There may be an exit clause but this will come at potential significant cost
- Cost of the swap - can be quite expensive depending on position of swap curve relative to bond curve
- Legal risk – swaps are unique OTC instruments which leads to information asymmetry between parties and potential risk for the fund.
- Early termination may be exercised by the bank – in which case the fund will lose its hedge and will need to replace this with another –perhaps at worse terms
- Operational risk associated with such a complicated structure is quite high (ie mark to market, margining process)
- Future changes in banks (or pension funds) risk and capital requirements may require derivative to be unwound or reset on disadvantageous terms
- May require ongoing monitoring of the swap in order to maintain the hedge

[10]

iv) Insurers are allowed to deal as user with following types of Rupee Interest Rate Derivatives to the extent permitted, and in accordance with the IRDAI guidelines.

i) Forward Rate Agreements (FRAs);
ii) Interest Rate Swaps (IRS); and
iii) Exchange Traded Interest Rate Futures (IRF).

Permitted purpose of Dealing in Interest Rate Derivatives:

Hedging for forecasted transactions:

a. Reinvestment of maturity proceeds of existing fixed income investments;
b. Investment of interest income receivable;
c. Expected policy premium income receivable on the Insurance Contracts which are already underwritten in Life and Pension & Annuity business in case of Life Insurers and General Insurance business in case of General Insurers.

The overriding principle of any use of the above listed derivatives is that they must be used for hedging purposes only to reduce the interest rate risk in the company. The company must be able to demonstrate that this principle is adhered to.

[3]

[21 Marks]

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