

44th India Fellowship Seminar

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Issues in Unit Pricing

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Issues in Unit-Pricing Case Study (1)

- You are the Appointed Actuary of a joint venture ('JV') Indian life insurance company that has been selling unit-linked life insurance products (ULIPs) for a number of years. The Company offers a variety of funds and performs unit-pricing (i.e. calculation of the Net Asset Value or 'NAV' per unit) on a regular basis
- Your marketing manager (who is also an actuary recently deputed by the foreign promoter of the JV) is surprised that while performing the unit-pricing, the Company neither follows a bid-pricing or offer-pricing basis depending on whether the fund is shrinking or expanding; nor does it have two unit-prices (bid and offer) for divestments and investments into the funds respectively

Issues in Unit-Pricing Case Study (2)

- An internal audit carried out more recently has identified several issues in the unit-pricing systems which has the impact of either over- or under-reporting of the calculated NAVs. This issue would have impacted many of the previous generations of policyholders who have exited the funds since initially investing in them through the ULIPs
- The marketing manager is concerned about these issues and is worried that the Company may have to stop writing ULIPs as a result of these issues

Issues in Unit-Pricing Case Study (3)

1. Identify the key regulatory and professional requirements pertaining to unit-pricing (i.e. determination of NAVs) and discuss the areas that they could be argued to be inconsistent with each other
2. Discuss the implications of the over- or under-reporting of the historical NAVs and the steps you would take to address the issue
3. Considering the unit-pricing issues identified, how would you assess any reserving requirements?
4. What checks and balances would you consider implementing in order to ensure that issues do not recur in the future?

Key Regulatory and Professional requirement pertaining to unit pricing

Key Regulatory and Professional requirement pertaining to unit pricing (1)



- **Key Regulatory Requirement**

- 1. Before 2005 guidelines**

- i. 1st ULIP was launched by UTI in 1971.
- ii. ULIPs became more popular after opening of Insurance Industry to private and foreign players in 2000s.
- iii. There was no standardized formula with respect of calculation of NAV.

- 2. Guidelines for ULIPs in 2005 (IRDA/ACTL/032/Dec-2005)**

- i. Purpose of guidelines:
 - a. Protect the interests of policyholders.
 - b. Enhance transparency and product design.
 - c. Standard method for computing NAV.

Key Regulatory and Professional requirement pertaining to unit pricing (2)



- **Key Regulatory Requirement**

2. Guidelines for ULIPs in 2005 (IRDA/ACTL/032/Dec-2005)

ii. Unit Pricing:

- a. Basic Equity principle of Unit Pricing States that “The interests of policyholders who have purchased units in that fund and not involved in a unit transaction should be unaffected by that transaction.”
- b. Unit Price should be computed based on appropriation / expropriation price.
- c. This depends whether the fund is expanding / contracting.

Key Regulatory and Professional requirement pertaining to unit pricing (3)



- **Key Regulatory Requirement**

2. Guidelines for ULIPs in 2005 (IRDA/ACTL/032/Dec-2005)

ii. Unit Pricing

a. Appropriation price shall apply when the company is required to purchase assets to allocate units on the valuation date.

b. Appropriation Price =

(Market Value of investments held by the fund + expenses incurred in purchase of assets + value of current assets + any accrued income net of fund management charges - the value of any current liabilities - provisions, if any)

No of units existing at the valuation date (before new units are allocated)

Key Regulatory and Professional requirement pertaining to unit pricing (4)



- **Key Regulatory Requirement**

2. Guidelines for ULIPs in 2005 (IRDA/ACTL/032/Dec-2005)

ii. Unit Pricing

- c. Expropriation price shall apply when the company is required to sell assets to redeem units on the valuation date.
- d. Expropriation Price =
(Market Value of investments held by the fund - expenses incurred in sale of assets + value of current assets + any accrued income net of fund management charges - the value of any current liabilities - provisions, if any)

No of units existing at the valuation date (before any units are redeemed)
- e. Cutoff timing of 4.15 pm for applicability of NAV was specified.
- f. NAV should be made available to public in print media / displayed in insurer's web portal.

Key Regulatory and Professional requirement pertaining to unit pricing (5)

- **Key Regulatory Requirement**

3. **Guidelines for ULIPs in 2007 (008/IRDA/ACTL/ULIP_G/May-2007)**

- a. Cutoff timing was changed to 3pm.

4 . **Fund Approval Process and guidelines on NAV process (IRDA/F&I/CIR/INV/173/08/2011)**

- a. In this circular it was specified that henceforth the NAV should be computed without appropriation / expropriation price and same shall be applicable to all existing policies.

- b. NAV =

Market Value of Investments held by the fund + Value of current assets –
Value of current liabilities & provisions, if any

No of units existing on valuation date (before creation / redemption of units)

Key Regulatory and Professional requirement pertaining to unit pricing (6)



- **Key Regulatory Requirement**

4 . Fund Approval Process and guidelines on NAV process

(IRDA/F&I/CIR/INV/173/08/2011)

- c. NAV computed shall be audited by concurrent auditor on day-to-day basis.
- d. The NAV should be declared daily on insurer's website and life insurance council's website.

5. Declaration of NAV on a quarter ending day, which is a holiday

(IRDA/F&I/INV/CIR/248/12/2022)

This is done to sync the published NAV of a quarter end non-business day with the NAV as per the financials of ULIP Funds on that day.

Key Regulatory and Professional requirement pertaining to unit pricing (7)



- **Key Professional Requirements**

1. **APS1**

The AA must be satisfied that the procedures used are equitable to any policyholders affected either directly or indirectly due:

- a. Prices at which units are allocated to / de-allocated from policies.
- b. Prices at which units are created / cancelled.
- c. Compensation where errors of material size in unit pricing / in the allocation / de-allocation of units to policies have occurred.

Key Regulatory and Professional requirement pertaining to unit pricing (8)

- **Key Professional Requirement**

2. **Appropriation and Expropriation Price**

The above methods are important for NAV calculation to reduce cross-subsidy between policyholders who are holding units and policyholder who are buying/selling units.

3. **Side Pocketing**

Side pocketing in investment funds is a process where a fund manager separates illiquid or distressed assets from the main portfolio, creating a separate "side pocket". This is done to protect the fund's overall liquidity and prevent the poor performance of certain assets from dragging down the entire portfolio's value.

Key Regulatory and Professional requirement pertaining to unit pricing (9)

- Key Professional Requirement**

Without Side Pocketing

Year	Growth	NAV	Default/Recovery	A	B	C	D
1	10%	10.00		1,00,000			1,00,000
2	10%	11.00		1,10,000			1,10,000
3	10%	12.10		1,21,000			1,21,000
4	10%	12.21	1.00	1,22,100	1,00,000	1,00,000	1,22,100
5	10%	13.43		1,34,310	1,10,000	1,10,000	1,34,310
6	10%	16.11	1.21	1,61,051	1,31,901		

With Side Pocketing

Year	Add. Amt to D	NAV	Side-pocket	A	B	C	D
1		10.00		1,00,000			1,00,000
2		11.00		1,10,000			1,10,000
3		12.10		1,21,000			1,21,000
4		12.21	1.00	1,22,100	1,00,000	1,00,000	1,22,100
5		13.43	1.00	1,34,310	1,10,000	1,10,000	1,34,310
6	12,100	14.77	1.21	1,61,051	1,21,000		

Potential issues in the Unit-Pricing Systems

Potential issues in unit-pricing systems (1)



- **Issues in deduction of charges**

1. **Charges deducted by reducing units**

- a. **Mortality charge / Policy Admin / Premium Allocation**

- Incorrect deduction of charges could lead to higher or lower no. of units in the fund ultimately affecting the NAV computation
- Breach in the regulatory limit for the chargers leading to incorrect fund value and correspondingly the NAV
- Conditions around partial withdrawal feature offered under Unit-linked products which could lead to incorrect mortality charges being deducted at a policy level

Potential issues in unit-pricing systems (2)

- **Issues in deduction of charges**

2. **Charges adjusted in the NAV**

- a. **FMC / Guarantee Charge**

Any miscomputation of these charges shall directly affect the NAV since these are directly deducted from the NAV of the respective funds

- b. **Revival / Reinstatement**

At the time of revival/reinstatement of a policy, units being allocated with respect to the charges deducted while in the DPF not functioning appropriately

Potential issues in unit-pricing systems (3)



- **Operational and System Issues**

- a. Manual intervention at various stages of unit creation or deletion leading to incorrect capturing of NAV/Fund Value
- b. Discrepancy in valuation of underlying assets
- c. System nuances like rounding not as per regulations. These could sum up with time and create a substantial gap in the NAV
- d. Transaction expenses not recorded correctly in the system

Potential issues in unit-pricing systems (4)

- **Issues in Date of Allotment of Units**

- a. Incorrect timestamp being recorded for transactions leading incorrect NAV being allocated.
- b. Charges (e.g. Mortality) being deducted on the incorrect day's NAV.
- c. At the time of policyholder switching the funds, if the unit creation/deletion is not happening at the same day.
- d. Rules regarding revival, renewal and quarter ends as mentioned IRDAI (Actuarial, Finance and Investment Functions of Insurers, 2024, not correctly adhered to.
- e. Error at the time of redemption of units

Potential issues in unit-pricing systems (5)

- **Product Features**

- a. Product feature of return of mortality charges not built in the system correctly
- b. Loyalty additions in the form of unit creation – if built incorrectly could lead incorrect computation of NAV leading to an impact on existing policyholders
- c. Complicated product features like maintaining the RIY have high chances of errors get affected by incorrect computation of NAV

Implications of under-reporting or over-reporting of historic NAVs

Implications of under or over-reporting of historic NAVs (1)



- **Policyholder related**

- Policyholder reasonable expectations (PRE):
 - accuracy of their fund values being reported
 - Expectation of rectifications to be made soon
 - Confidence on the investment quality offered by the Company
 - Distrust on additional options like fund switch
- Change in policyholder behavior leading to poorer persistency correspondingly affecting profitability
- Legal proceeding by policyholders if the error is spotted and they are not satisfied with the resolution

Implications of under or over-reporting of historic NAVs (2)

- **Reputational**

- Reputational damage if there is public acceptance of the issue in NAV
- Drop in the share price if the company is listed
- Negative impact on new business volumes of the company which lead to lower profitability for the company due to fixed expense strain. This further leads to issues in meeting the business plans and affecting the company at a much larger scale.
- Negative impact on lines of business other than Unit Linked
- Reputational damage could lead to difficulty in hiring of employees and thereby higher costs for the company

Implications of under or over-reporting of historic NAVs (3)

- **Financial Implications**

- Due to the issues in the unit-pricing system leading to under or over reporting, the company would have to refund the losses to the policyholders whereas the company might not be able to recoup incase of over payment
- The issues will need resolution for the correct calculation of NAV. This resolution might require significant system development due to which the company might incur expenses
- If the issues are significant involving heavy payouts to the policyholder, it would lead to decrease in P&L of the company
- Solvency ratio of the company might also be affected

Implications of under or over-reporting of historic NAVs (4)

- **Financial Implications**

- There might also be an increase in reserves due to the errors
- Changes/rectifications in the Unit fund would lead to changes in the charges being deducted as well which could lead to reduction in the MCEV of the company
- It might be suggested to out-source some of the activities or buy new software to put controls in place which would lead to the company incurring high expenses
- Expenses related to any legal proceedings or settlement

Implications of under or over-reporting of historic NAVs (5)

- **Regulatory Implications**

- Fines/Penalties imposed by the regulator for incorrect NAV declaration
- Immediate rectification of NAV and communication with the policyholder
- Compensation to policyholders with interest rate penalties where the NAV error was greater than 1%
- Could demand impact report
- Continuous scrutiny and monitoring by the regulator
- Closure of ULIP business incase of a serious breach

Steps to address the issues

Steps to address the issues (1)

- **Resolution of issues identified**

- The company should try to resolve the issues that have been identified and make a timeline of implementing the same
- Since there have been several issues identified, it could take some time to develop and correct the issues, hence, the company should have a good idea as to by when would the resolution be completed
- Some of the issues might have an easy fix while others might require significant time and resources
- The company should also identify how many policyholders have been affected and for those who have exited, how long has it been since the exit

Steps to address the issues (2)

- **Resolution of issues identified**

- In addition to the number of policyholders affected, the company should also assess the severity of each issue i.e. the materiality of the issues
- There might be many operational challenges in resolving the issues including the cost that would be incurred
- These challenges would include the tediousness of the solution, whether a fully retrospective approach would be followed, wherein the NAV would be calculated everyday wherever applicable to reach the new NAV or there might be some approximation that could be used
- Further, the balance between accuracy and possibility will have to be met as accurate method might be too tedious

Steps to address the issues (3)

- **Compensation to the policyholder**

- As per the Master Circular (), if the change in fund value of the policyholder due to errors in NAV calculations is within 1%, the company might decide not to pay the differential amount to the policyholder
- If the NAV differs by more than 1%, specifically, if the amount paid to the policyholder is lower to the extent that the impact is more than 1%, the difference amount will have to be paid from the shareholder portfolio that does not support the Solvency Margin
- The company could choose to pay the differential amount even if the impact is within 1% to be fair to the policyholders

Steps to address the issues (4)

- **Communication to stakeholders**

- The company would have to report these issues and resolutions to the Board's Audit committee
- The company would also have to communicate the rectification of the errors to the policyholders to remain transparent
- The company would also have to inform to the regulator regarding the action plan of the company to address the issues
- Financial Impact of correction shall be explained to the shareholders
- A log of NAV errors would have to be maintained in the system and forwarded to Internal Auditors/ Concurrent Auditors

Steps to address the issues (5)

- **Controls to avoid such issues in the future**

- The company should also put in place more controls over the systems and processes to ensure that similar issues not arise in the future
- The company could look to seek help of consultants or build internal control units to enable such initiatives
- Subject matter experts might be able to help in developing strict measures over the risk management and controls over the unit-pricing system of the company

Assessment of the reserving requirement considering the issues identified

Reserving requirements due to issues identified (1)

- The company may already have some level of reserve maintained in the operational risk reserve (contingency reserve) to allow for issues in systems, data issues etc.
- This reserve could be re-looked to change if the same was not sufficient
- The company might keep a reserve with respect to the issues identified which have not been resolved yet
- Since there were several issues found in the system, some of the issues might take a long time to resolve. During this time, the company should hold reserves pertaining to the expected impact or payout that it would have to be make to the policyholders

Reserving requirements due to issues identified (2)

- The base unit reserves could also increase depending upon the correction in NAV
- Reserves to be set-up for over deduction of charges, specially, charges based on SAR. These excess charges need to be refunded to the policyholder once clearly quantified.
- Impact on non-unit reserves incase of highest NAV guaranteed products
- The extent of the full impact would be known once the issue has been resolved, hence there should be appropriate MAD taken in the calculation of the reserve
- There could also be additional reserve/provisioning with respect to expected developments in the systems
- Contingent Reserves incase of legal proceedings from policyholders

Checks and Balances to ensure that issues do not occur in future

Checks and Balances to ensure that issues do not occur in future (1)

- **Checks as per Guidance Note on Review and Certification of Investment Risk Management Systems and Process of Insurance Companies**
 1. Adherence to Guidelines on NAV Process as per IRDAI Actuarial, Finance and Investment Functions of the Insurers Regulations, 2024 and Master Circular
 2. Adherence to Cutoff timings
 3. Is NAV published on insurer's website and life insurer's council website on the same day?
 4. Daily audit of NAV by internal / concurrent Auditor before declaration
 5. Whether NAV declared tally with the system

Checks and Balances to ensure that issues do not occur in future (2)

- **Checks as per Guidance Note on Review and Certification of Investment Risk Management Systems and Process of Insurance Companies**
 6. Whether company has in place SOP for NAV Calculation
 7. Unit reconciliation is carried out on daily basis with policy administration system
 8. Daily reconciliation with investment accounts, bank and custodian records
 9. Whether all expenses and incomes accrued upto valuation date are considered
 10. Check the promptness of recording investment and unit related transactions

Checks and Balances to ensure that issues do not occur in future (3)

- **Checks as per Guidance Note on Review and Certification of Investment Risk Management Systems and Process of Insurance Companies**

12. Capability of system to upload corporate action
13. Check how much manual intervention is required in investment accounting system.
14. Whether every purchase, sale of investment, income on investment is accounted for
15. All applications received for premium payment, switches or redemptions should be stamped and dated.
16. Adequacy of business continuity plan of the company.

Checks and Balances to ensure that issues do not occur in future (4)

- **Additional checks company can implement**

1. Any special features with respect to ULIP product like loyalty additions/ wealth booster, etc. are built into the system
2. Verify on sample basis that correct process is followed for NAV computation.
3. Review of SOP at least yearly and make changes if required.
4. Maker-checker-reviewer process in place.
5. Restricted access to NAV computation system
6. Maintenance of Audit trail

Checks and Balances to ensure that issues do not occur in future (5)

- **Developments in the systems that the company can implement**
 1. Automation of tasks to reduce manual intervention and human errors
 2. Testing of product features that impact the allocation of units to the policyholders at the time of pricing thus reducing the reliance on system development when the features start to impact the units allocation
 3. Clear documentation of methodologies regarding revival/reinstatement
 4. Frequent audit of system responsible for allocation of units

Thank You