

ALM Survey-Company Questions

Thank you for completing the ALM practitioner survey for the Society of Actuaries. Your company is asked to complete up to four components of the survey. This is the Company survey and should be completed by each company. General Comments - "you" means your company at the highest aggregate level reported on for this survey. Responses left blank are treated the same as None/Not sure/Not applicable.

Section 1. Demographic Questions

Company Survey

Company Name

Primary Country

☐ United States

☐ Canada

☐ Other, please describe

Contact Name

Contact Title

Contact email

For the following questions, please include net statutory liabilities written in the United States and Canada, along with the assets backing them. Note that this survey asks for a company response (yet remains anonymous).

Company size: total general account assets under management (senior parent company, including offshore companies) - U.S. Dollars (select one)

- ☐ < \$1 billion
 - ☐ \$1 billion to < \$5 billion
 - ☐ \$5 billion to < \$20 billion
 - ☐ > \$20 billion
-

Company size: total separate account assets under management (senior parent company, including offshore companies) - U.S. Dollars (select one)

- ☐ < \$1 billion
 - ☐ \$1 billion to < \$5 billion
 - ☐ \$5 billion to < \$20 billion
 - ☐ > \$20 billion
 - ☐ Not applicable
-

Company AM Best rating (senior parent company, including offshore companies, if applicable)
(select one)

☐ A++

☐ A+

☐ A

☐ A-

☐ B+

☐ B

☐ B-

☐ C+

☐ C

Company S&P rating (senior parent company, including offshore companies, if applicable)
(select one)

- ☐ AAA
 - ☐ AA
 - ☐ A
 - ☐ BBB
 - ☐ BB
 - ☐ B
 - ☐ CCC
 - ☐ CC
 - ☐ C
 - ☐ D
 - ☐ Not sure/Not applicable
-

Company structure (select one)

- ☐ Public
 - ☐ Mutual holding company
 - ☐ Mutual
 - ☐ Fraternal
 - ☐ Insurance subsidiary of firm based in another country
 - ☐ Other _____
-

Section 2. Asset/Liability Management (ALM) Governance/Objectives

Company Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

How is implementation of the ALM strategy organized? (select one)

- ☐ Decentralized (business units)
- ☐ Centralized (corporate unit)
- ☐ Other _____
-

How is oversight of the ALM strategy organized? (select one)

- ☐ Decentralized (business units)
- ☐ Centralized (corporate unit)
- ☐ Other _____
-

Who has ultimate responsibility for ALM results (may serve as ALM chair)? (select one)

- ☐ Chief Risk Officer
- ☐ Chief Investment Officer
- ☐ Chief Operating Officer
- ☐ Chief Actuary
- ☐ Chief Financial Officer
- ☐ Other _____
-

Where is implementation of the ALM function located on the organizational chart? (select one)

☐ Risk Management/Enterprise Risk Management

☐ Investments

☐ Actuarial

☐ Treasury/Finance

☐ ALM team is direct report to CEO or Board

☐ Business units

☐ Other _____

What are the responsibilities/goals/objectives of the team focused on ALM implementation?
Please provide a response to each row - responses left blank will be counted as None/Not sure/Not applicable.

	Primary Decision Maker	Provide Input	Not sure/Not applicable
Strategic planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategic asset allocation/rebalancing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Performance attribution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stress testing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Total return analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Book yield reporting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Modeling to calculate regulatory reserves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Modeling to calculate regulatory capital	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Segmentation analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hedging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A/L efficient frontier	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Duration/Convexity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Greeks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What metrics do you use to manage ALM? (select all that apply)

- ☐ Statutory income
- ☐ Statutory balance sheet
- ☐ GAAP income
- ☐ GAAP balance sheet
- ☐ IFRS17/IFRS9 income
- ☐ IFRS17/IFRS9 balance sheet
- ☐ LICAT (Life Insurance Capital Adequacy Test)
- ☐ Cash flows
- ☐ Economic (fair value)
- ☐ Regulatory capital ratio (e.g., RBC ratio)
- ☐ Other _____



Select up to 3 considerations for aggregated ALM at your company (ranked with 1 being the top consideration). Select your responses from the list on the left and drag them to the box on the right, with your top ranked item listed first.

Top Considerations

- _____ Contribution of a given risk to VAR (Value at Risk)
- _____ Contribution of a given risk to earnings volatility
- _____ Contribution of a given risk to surplus volatility
- _____ Threat of a given risk to solvency

- _____ Historical impact of a given risk
- _____ Impact of interaction between two or more risks
- _____ Duration mismatch
- _____ Generating positive cashflow
- _____ Other

What board committees are accountable for ALM? (select all that apply)

- ☐ Audit
- ☐ Financial
- ☐ Risk
- ☐ Investment
- ☐ ALCO (ALM Committee)
- ☐ Board in its entirety
- ☐ Other _____

Do you have an Asset Liability Committee (ALCO)? If yes, briefly describe its role. (select one)

- ☐ Yes, please describe _____
- ☐ No
- ☐ Not sure

If yes, where on the organizational chart is your ALCO committee located? (select one)

- ☐ Board Committee
- ☐ Board Subcommittee
- ☐ Senior management
- ☐ Management
- ☐ Other _____

Briefly describe your ALM oversight process (i.e., three lines of defense) (select all that apply)

- ☐ First line of defense - risk owner/management

- ☐ Second line of defense - internal oversight (often corporate area)

- ☐ Third line of defense - audit function

- ☐ Other _____

At what organizational level does the Board and/or its committees receive ALM information?
(select all that apply)

- ☐ Entity (aggregate)
 - ☐ Subsidiary
 - ☐ Portfolio
 - ☐ Business unit
 - ☐ Other _____
-

Are ALM metrics included in incentive compensation calculations? (select one)

- ☐ Yes, please describe _____
 - ☐ Not currently but planned in next 3 years
 - ☐ Not currently and no plan to implement
 - ☐ Not sure/Not applicable
-

Has your ALM strategy changed due to climate change? (select one)

- ☐ Yes _____
 - ☐ Not yet, but expect it to within 5 years
 - ☐ No
 - ☐ Not sure/Not applicable
-

Section 3. Product/Asset Detail

Company Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

How many general account portfolios do you maintain (across all entities)? (select one)

- ☐ 1
- ☐ 2 - 5
- ☐ 6 - 15
- ☐ More than 15
-

What product lines do you manage (general and/or separate accounts)? (select all that apply)

- ☐ Life insurance
- ☐ Annuities
- ☐ Health insurance (includes disability and long-term care)
- ☐ P&C insurance
- ☐ Other _____
-

Do you have a portfolio whose main role is to back surplus rather than product liabilities? (select one)

- ☐ Yes, one per legal entity
- ☐ Yes, more than one per legal entity, please describe _____
- ☐ No
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable

Life Insurance Products In Force (by size of net statutory reserves)

Definitions

Small = less than \$5 billion statutory reserves

Medium = between \$5 billion and \$15 billion statutory reserves

Large = over \$15 billion statutory reserves

Annual renewable term	▼ None ... Large
Multi year term	▼ None ... Large
Universal life	▼ None ... Large
Universal life with secondary guarantees	▼ None ... Large
Participating life	▼ None ... Large
Whole life	▼ None ... Large
Variable universal life	▼ None ... Large
Variable universal life with secondary guarantees	▼ None ... Large
Indexed life	▼ None ... Large
Indexed life with secondary guarantees	▼ None ... Large
Other	▼ None ... Large

Annuity Products In Force (by size of net statutory reserves)Definitions

Small = less than \$5 billion statutory reserves

Medium = between \$5 billion and \$15 billion statutory reserves

Large = over \$15 billion statutory reserves

Deferred annuity	▼ None ... Large
Payout annuity (including pension risk transfer)	▼ None ... Large
Variable annuity	▼ None ... Large
Variable annuity with guaranteed minimum benefits	▼ None ... Large
Fixed indexed annuities	▼ None ... Large
Fixed indexed annuities with guaranteed minimum benefits	▼ None ... Large
Structured indexed annuities	▼ None ... Large
Other	▼ None ... Large

Health Insurance Products In Force (by size of net statutory reserves)Definitions

Small = less than \$5 billion statutory reserves

Medium = between \$5 billion and \$15 billion statutory reserves

Large = over 15 billion statutory reserves

Major medical	▼ None ... Large
Disability	▼ None ... Large
Long-term care	▼ None ... Large
Supplemental health	▼ None ... Large
Other	▼ None ... Large

Life Insurance Products In Force (by approximate percent of total net statutory reserves)Definitions

Small = less than 5% statutory reserves

Medium = between 5% and 20% statutory reserves

Large = over 20% statutory reserves

Annual renewable term	▼ None ... Large
Multi year term	▼ None ... Large
Universal life	▼ None ... Large
Universal life with secondary guarantees	▼ None ... Large
Participating life	▼ None ... Large
Whole life	▼ None ... Large
Variable universal life	▼ None ... Large
Variable universal life with secondary guarantees	▼ None ... Large
Indexed life	▼ None ... Large
Indexed life with secondary guarantees	▼ None ... Large
Other	▼ None ... Large

Annuity Products In Force (by approximate percent of total net statutory reserves)Definitions

Small = less than 5% statutory reserves

Medium = between 5% and 20% statutory reserves

Large = over 20% statutory reserves

Deferred annuity	▼ None ... Large
Payout annuity (including pension risk transfer)	▼ None ... Large
Variable annuity	▼ None ... Large
Variable annuity with guaranteed minimum benefits	▼ None ... Large
Fixed indexed annuities	▼ None ... Large
Fixed indexed annuities with guaranteed minimum benefits	▼ None ... Large
Structured indexed annuities	▼ None ... Large
Other	▼ None ... Large

Health Insurance Products In Force (by approximate percent of total net statutory reserves)Definitions

Small= less than 5% statutory reserves

Medium= between 5% and 20% statutory reserves

Large = over 20% statutory reserves

Major medical	▼ None ... Large
Disability	▼ None ... Large
Long-term care	▼ None ... Large
Supplemental health	▼ None ... Large
Other	▼ None ... Large

Asset Classes Owned (by size) - General account backing net statutory liabilitiesDefinitions

Small= less than \$5 billion book value

Medium = between \$5 billion and \$15 billion book value

Large = over \$15 billion book value

Treasuries	▼ None ... Large
Bonds - corporate investment grade	▼ None ... Large
Bonds - corporate below investment grade	▼ None ... Large
Bonds - municipal	▼ None ... Large
Bonds - economic development	▼ None ... Large
Commercial mortgages	▼ None ... Large
Residential mortgages	▼ None ... Large
RMBS - residential mortgage backed securities	▼ None ... Large
CMO - collateralized mortgage obligations	▼ None ... Large
CMBS - commercial mortgage backed securities	▼ None ... Large
CLO - collateralized loan obligations	▼ None ... Large
Other Asset backed securities	▼ None ... Large
Real estate	▼ None ... Large
Common stock	▼ None ... Large
Preferred stock	▼ None ... Large
Derivatives (net asset value)	▼ None ... Large
Private equity	▼ None ... Large
Hedge funds	▼ None ... Large
Infrastructure	▼ None ... Large
Natural resources (e.g., timber, coal, gold)	▼ None ... Large
Agriculture	▼ None ... Large
Other (note alternative asset class question that follows)	▼ None ... Large

Asset Classes Owned (by size) - General account backing surplus
Definitions

Small= less than \$5 billion book value

Medium = between \$5 billion and \$15 billion book value

Large = over \$15 billion book value

Treasuries	▼ None ... Large
Bonds - corporate investment grade	▼ None ... Large
Bonds - corporate below investment grade	▼ None ... Large
Bonds - municipal	▼ None ... Large
Bonds - economic development	▼ None ... Large
Commercial mortgages	▼ None ... Large
Residential mortgages	▼ None ... Large
RMBS - residential mortgage backed securities	▼ None ... Large
CMO - collateralized mortgage obligations	▼ None ... Large
CMBS - commercial mortgage backed securities	▼ None ... Large
CLO - collateralized loan obligations	▼ None ... Large
Other Asset backed securities	▼ None ... Large
Real estate	▼ None ... Large
Common stock	▼ None ... Large
Preferred stock	▼ None ... Large
Derivatives (net asset value)	▼ None ... Large
Private equity	▼ None ... Large
Hedge funds	▼ None ... Large
Infrastructure	▼ None ... Large
Natural resources (e.g., timber, coal, gold)	▼ None ... Large
Agriculture	▼ None ... Large
Other (note alternative asset class question that follows)	▼ None ... Large

Asset Classes Owned (by size) - Separate accountDefinitions

Small = less than \$5 billion book value

Medium = between \$5 billion and \$15 billion book value

Large = over \$15 billion book value

Treasuries	▼ None ... Large
Bonds - corporate investment grade	▼ None ... Large
Bonds - corporate below investment grade	▼ None ... Large
Bonds - municipal	▼ None ... Large
Bonds - economic development	▼ None ... Large
Commercial mortgages	▼ None ... Large
Residential mortgages	▼ None ... Large
RMBS - residential mortgage backed securities	▼ None ... Large
CMO - collateralized mortgage obligations	▼ None ... Large
CMBS - commercial mortgage backed securities	▼ None ... Large
CLO - collateralized loan obligations	▼ None ... Large
Other Asset backed securities	▼ None ... Large
Real estate	▼ None ... Large
Common stock	▼ None ... Large
Preferred stock	▼ None ... Large
Derivatives (net asset value)	▼ None ... Large
Private equity	▼ None ... Large
Hedge funds	▼ None ... Large
Infrastructure	▼ None ... Large
Natural resources (e.g., timber, coal, gold)	▼ None ... Large
Agriculture	▼ None ... Large
Other (note alternative asset class question that follows)	▼ None ... Large

Asset Classes Owned (by percent) - General account backing total net statutory liabilitiesDefinitions

Small = less than 5% book value

Medium = between 5% and 20% book value

Large = over 20% book value

Treasuries	▼ None ... Large
Bonds - corporate investment grade	▼ None ... Large
Bonds - corporate below investment grade	▼ None ... Large
Bonds - municipal	▼ None ... Large
Bonds - economic development	▼ None ... Large
Commercial mortgages	▼ None ... Large
Residential mortgages	▼ None ... Large
RMBS - residential mortgage backed securities	▼ None ... Large
CMO - collateralized mortgage obligations	▼ None ... Large
CMBS - commercial mortgage backed securities	▼ None ... Large
CLO - collateralized loan obligations	▼ None ... Large
Other Asset backed securities	▼ None ... Large
Real estate	▼ None ... Large
Common stock	▼ None ... Large
Preferred stock	▼ None ... Large
Derivatives (net asset value)	▼ None ... Large
Private equity	▼ None ... Large
Hedge funds	▼ None ... Large
Infrastructure	▼ None ... Large
Natural resources (e.g., timber, coal, gold)	▼ None ... Large
Agriculture	▼ None ... Large
Other (note alternative asset class question that follows)	▼ None ... Large

Asset Classes Owned (by percent) - General account backing surplus
Definitions

Small = less than 5% book value

Medium = between 5% and 20% book value

Large = over 20% book value

Treasuries	▼ None ... Large
Bonds - corporate investment grade	▼ None ... Large
Bonds - corporate below investment grade	▼ None ... Large
Bonds - municipal	▼ None ... Large
Bonds - economic development	▼ None ... Large
Commercial mortgages	▼ None ... Large
Residential mortgages	▼ None ... Large
RMBS - residential mortgage backed securities	▼ None ... Large
CMO - collateralized mortgage obligations	▼ None ... Large
CMBS - commercial mortgage backed securities	▼ None ... Large
CLO - collateralized loan obligations	▼ None ... Large
Other Asset backed securities	▼ None ... Large
Real estate	▼ None ... Large
Common stock	▼ None ... Large
Preferred stock	▼ None ... Large
Derivatives (net asset value)	▼ None ... Large
Private equity	▼ None ... Large
Hedge funds	▼ None ... Large
Infrastructure	▼ None ... Large
Natural resources (e.g., timber, coal, gold)	▼ None ... Large
Agriculture	▼ None ... Large
Other (note alternative asset class question that follows)	▼ None ... Large

Asset Classes Owned (by percent) - Separate accountDefinitions

Small = less than 5% book value

Medium = between 5% and 20% book value

Large = over 20% book value

Treasuries	▼ None ... Large
Bonds - corporate investment grade	▼ None ... Large
Bonds - corporate below investment grade	▼ None ... Large
Bonds - municipal	▼ None ... Large
Bonds - economic development	▼ None ... Large
Commercial mortgages	▼ None ... Large
Residential mortgages	▼ None ... Large
RMBS - residential mortgage backed securities	▼ None ... Large
CMO - collateralized mortgage obligations	▼ None ... Large
CMBS - commercial mortgage backed securities	▼ None ... Large
CLO - collateralized loan obligations	▼ None ... Large
Other Asset backed securities	▼ None ... Large
Real estate	▼ None ... Large
Common stock	▼ None ... Large
Preferred stock	▼ None ... Large
Derivatives (net asset value)	▼ None ... Large
Private equity	▼ None ... Large
Hedge funds	▼ None ... Large
Infrastructure	▼ None ... Large
Natural resources (e.g., timber, coal, gold)	▼ None ... Large
Agriculture	▼ None ... Large
Other (note alternative asset class question that follows)	▼ None ... Large

What types of alternative asset classes do you invest in that were not listed in the previous set of questions?

In the insurance industry under today's low interest rate environment, in your opinion, what primary strategies are being used to improve yields in general account portfolios? (select all that apply)

- ☐ Diversification
- ☐ Yield pickup
- ☐ Extend duration
- ☐ Credit risk
- ☐ Reduced liquidity
- ☐ Alternative asset classes
- ☐ Equities
- ☐ Other _____

As a follow up to the last question, in your opinion, what asset classes are being purchased in an attempt to improve yields? (select all that apply)

- ☐ Treasuries
- ☐ Bonds - corporate investment grade
- ☐ Bonds - corporate below investment grade
- ☐ Bonds - municipal
- ☐ Bonds - economic development
- ☐ Commercial mortgages
- ☐ Residential mortgages
- ☐ RMBS - Residential mortgage backed securities
- ☐ CMO - Collateralized mortgage obligations
- ☐ CMBS - Commercial mortgage backed securities
- ☐ CLO - Collateralized loan obligations
- ☐ Other Asset backed securities
- ☐ Real estate
- ☐ Common stock
- ☐ Preferred stock
- ☐ Derivatives (net asset value)
- ☐ Private equity

- ☐ Hedge funds
 - ☐ Infrastructure
 - ☐ Natural resources (e.g., timber, coal, gold)
 - ☐ Agriculture
 - ☐ Not sure/Not applicable
 - ☐ Other _____
-

Are the following included in your integrated ALM process? (select all that apply)

- ☐ Corporate defined benefit pension plan
 - ☐ Corporate post retirement health benefits
 - ☐ Holding company debt
 - ☐ Other _____
 - ☐ None
-

Are there common ALM practices in the insurance industry that are not consistent with profitable long-term thinking?

Have Principle-Based Reserve regulations impacted ALM practices? (select one)

- ☐ Yes, describe _____
- ☐ No
- ☐ Not sure/Not applicable

Section 4. Key Metrics

Company Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Do you define mismatch as Asset duration - Liability duration? (select all that apply)

- ☐ Yes - inclusive of surplus
- ☐ Yes - excluding surplus
- ☐ Yes - key rate/partial duration inclusive of surplus
- ☐ Yes - key rate/partial duration excluding surplus
- ☐ No
- ☐ Other _____
-

For asset classes with undefined duration, what metric is used as a proxy for aggregation? (e.g., equities) Please briefly explain how you use this proxy metric. (select all that apply)

☐

Weighted average life

☐

Arbitrary

☐

Other

☐

Not sure/Not applicable

What is the greatest frequency that key metrics are calculated by the ALM team? (select one)

☐

Continuously

☐

Daily

☐

Weekly

☐

Monthly

☐

Quarterly

☐

Annually

☐

Ad hoc

☐

Other

What is the greatest frequency that key metrics are aggregated and reported to senior management? (select one)

- ☐ Weekly
 - ☐ Monthly
 - ☐ Quarterly
 - ☐ Annually
 - ☐ Ad hoc
 - ☐ Other _____
-

How often are key metrics reported to the board? (select one)

- ☐ Quarterly
 - ☐ Annually
 - ☐ Ad hoc
 - ☐ Other _____
-

What is the time lag between the valuation date and reporting to the board? (select one)

- ☐ Less than 2 weeks
 - ☐ More than 2 weeks and less than 1 month
 - ☐ More than 1 month and less than 3 months
 - ☐ More than 3 months
-

How are risk metrics considered for decision making? (select all that apply)

- ☐ Threshold responses (action always taken when limit breached)
 - ☐ Guidance (action considered when limit breached)
 - ☐ Action levels enforced at all levels of aggregation
 - ☐ Other _____
-

What actions are taken based on risk metrics? (select all that apply)

- ☐ Adjust asset mix
 - ☐ Rebalance hedges
 - ☐ Adjust product mix or sales emphasis
 - ☐ Strategic acquisition or divestiture
 - ☐ Reinsurance transaction
 - ☐ Other _____
-

What metrics do you use for liquidity risk? (select all that apply)

- ☐ Internally defined
 - ☐ Rating agency defined
 - ☐ Regulatorily defined
-

How do you manage liquidity in an ALM context? (select all that apply)

- ☐ Determination of cash positioning in modeling
- ☐ Relationships to assets
- ☐ Relationships to liabilities
- ☐ Internal hedges (natural hedging)

For liquidity ratios, what time horizons do you consider? (select all that apply)

- ☐ < 1 month
- ☐ 2 -11 months
- ☐ 1 - 3 years
- ☐ More than 3 years

Section 5. IFRS (if applicable)

Company Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Where do you see the biggest challenge of implementing IFRS17 for ALM?

What implementation challenges do you foresee with the new standard for portfolio management?

Do you see different impacts for different types of products?

What approach are you taking to come up with the new discount rate?

What is your company's preferred approach for setting IFRS 17 discount rates for cashflows that do not vary with underlying asset returns? (select one)

- ☐ Top-down
 - ☐ Bottom-up
 - ☐ Not sure/Not applicable
-

When doing a top-down approach, what is the primary approach you are planning to use when constructing the reference portfolio of asset returns? (select one)

- ☐ Market benchmarks
 - ☐ Own actual assets
 - ☐ Not sure/Not applicable
-

When doing a top-down approach, what is the preferred approach to adjusting the reference portfolio to remove items not relevant to the liability (e.g., credit risk)? (select one)

- ☐ Market-based approach (e.g., use of credit default swaps)
 - ☐ Credit loss model (e.g., use of IFRS 9 expected credit loss modeling)
 - ☐ Function of observable market credit spreads (e.g., X% of observable market credit spreads)
 - ☐ Use of historical data (e.g., use long-term average adjustment)
 - ☐ Not sure/Not applicable
-

Are you anticipating an increase in P&L/Balance Sheet volatility from IFRS 17? (select one)

- ☐ Yes
- ☐ No
- ☐ Other, please describe _____
- ☐ Not sure
- ☐ Not applicable
-

Which accounting policy are you considering for the IFRS 17 liability? (select all that apply)

FVPL = Fair Value through Profit or Loss

FVOCI = Fair Value through Other Comprehensive Income

- ☐ FVPL for almost all products
- ☐ FVPL for most, FVOCI for some
- ☐ FVOCI for most, FVPL for some
- ☐ FVOCI for almost all products
- ☐ Other, please describe _____
- ☐ Not sure
- ☐ Not applicable
-

Will your approach for setting the risk adjustment for non-financial risk be sensitive to changes in interest rates? (select one)

- ☐ Yes (e.g., insurance risk margins discounted at current discount rates)
 - ☐ No (e.g., insurance risk margins discounted at locked-in discount rates)
 - ☐ Not sure/Not applicable
-

To aid us in the development of future surveys, please let us know how long it took in total to gather all relevant information and to complete the ALM Company Survey. (select one)

- ☐ 15 minutes
 - ☐ 30 minutes
 - ☐ 45 minutes
 - ☐ 1 hour
 - ☐ Longer
-

To aid us in the development of future surveys, please let us know how difficult it was to complete the ALM Company Survey. (select one)

- ☐ Easy
 - ☐ Moderate
 - ☐ Challenging
 - ☐ Not doable
-

Thank you for completing this survey. Clicking the arrow button on the right below will end the survey and submit your responses.

ALM Survey-General Account Fixed Product

Thank you for completing the ALM practitioner survey for the Society of Actuaries. Your company is asked to complete up to four components of the survey. This is the General Account Fixed Products survey and should be completed by each company managing those types of products.

General Comments - "you" means your company at the highest aggregate level reported on for this survey. Responses left blank are treated the same as None/Not sure/Not applicable.

Section 1. Demographic Questions for Asset Liability Management (ALM) Survey General Accounts Fixed Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

What company are you completing this survey for?

Please provide us with a contact in case we need to follow-up with you on your submission. This information will only be available to SOA staff.

	Name	Email
Contact		

Which risks, when aggregated, are managed primarily by the ALM team? (select all that apply)

- ☐ Interest rates
 - ☐ Liquidity
 - ☐ Capital
 - ☐ Default
 - ☐ Policyholder behavior
 - ☐ Currency
 - ☐ Equity
 - ☐ Correlation risk between equities
 - ☐ Correlation risk between interest rate risk and equity risk
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable
-

What are the goals of your ALM program? (select all that apply)

- ☐ Regulatory
 - ☐ Rating agency
 - ☐ Managing earnings volatility
 - ☐ Protecting solvency
 - ☐ Strategic
 - ☐ Other, please describe
-

- ☐ None
 - ☐ Not sure/Not applicable
-

Does ALM vary, strategically and/or tactically, between products? (select all that apply)

- ☐ Yes - strategically, please describe
-

- ☐ Yes - tactically, please describe
-

- ☐ No
 - ☐ Not sure/Not applicable
-

Do internal product line hedges play a role? (select one)

- ☐ Yes - full
- ☐ Yes - partial
- ☐ No
- ☐ Not sure/Not applicable
-

If yes (full/partial), how are internal hedges managed? (select all that apply)

- ☐ Conscious - quantitatively measured
- ☐ Conscious - conceptual
- ☐ Indirect/qualitative
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

How are premiums considered for duration/convexity calculations? (select one)

- ☐ Separately, as an asset
- ☐ Net against liabilities
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

How do you segment investment portfolios? (select one)

- ☐ Notional
- ☐ Formal
- ☐ Not sure/Not applicable

What factors differentiate between asset segmented portfolios? (select all that apply)

- ☐ Liability product
- ☐ Duration (e.g., short, intermediate, long)
- ☐ Asset mix/investment strategy
- ☐ General vs. Separate account
- ☐ Risk tolerance
- ☐ Closed block
- ☐ Other
- ☐ Not sure/Not applicable

If Other or multiple responses were selected in the previous question, please describe.

What asset classes have you added in the last 10 years? Why?

Is Cash Flow Testing integrated into the ALM process? (select one)

- ☐ Yes
- ☐ No
- ☐ Not sure/Not applicable

What method is used to credit interest to policies? (select one)

- ☐ Investment Year Method (IYM)
- ☐ Portfolio Method
- ☐ Combination
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

How often are buckets created for assets purchased and interest credited? (select one)

- ☐ Daily
- ☐ Weekly
- ☐ 1 month
- ☐ 3 months
- ☐ Annual
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

How long does a bucket stay open before consolidation with the portfolio bucket? (select all that apply)

- ☐ Never
- ☐ Less than 1 year
- ☐ More than 1 year and less than 5 years
- ☐ More than 5 years and less than 10 years
- ☐ Over 10 years
- ☐ Other, please describe on next screen
- ☐ Not sure/Not applicable
-

If you selected Other or multiple responses in the previous question, please describe.

The following three questions refer to allocation of investment income to product lines or business units. They differentiate companies that allocate based on portfolio characteristics and may incorporate a surplus portfolio.

How do you allocate investment income to product line income statements? (select one)

- ☐ Formula - balance sheet items x rate
- ☐ Pro rata
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable

What factors do you consider when allocating net investment income to product lines or business units? (select all that apply)

Example: Allocated net investment income = (Statutory reserves) x (Gross rate - Inv expense - Overhead charge - Liquidity charge)

- ☐ Beginning of period
- ☐ End of period
- ☐ Average of beginning/End of period
- ☐ Other, please describe
-
- ☐ Reserves, please describe (e.g., statutory, GAAP)
-
- ☐ Capital (allocated/required/target surplus), please describe (e.g., BCAR, LICAT/RBC with or without diversification)
-
- ☐ Unallocated surplus
- ☐ Other balance sheet items, please describe
-
- ☐ Pro rata using balance sheet items
- ☐ Gross earnings rate
- ☐ Duration bucket, please describe
-
- ☐ Investment credit (e.g., capital gain), please describe
-
- ☐ Investment expense
- ☐ Overhead expense
- ☐ Liquidity charge

- ☐ Allocate total company net investment income
 - ☐ Residual fund to true up total investment income
 - ☐ Other charges, please describe
-
- ☐ Not sure/Not applicable

How are investment expenses built into net investment income? (select all that apply)

- ☐ Asset class
 - ☐ Rating
 - ☐ Evenly
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

How is interest crediting strategy aligned with investment strategy? (select all that apply)

- ☐ Expected investment earnings
 - ☐ Optimization across a set of deterministic scenarios
 - ☐ Optimization across a set of stochastic scenarios
 - ☐ Balance investment expectations with competitive considerations
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable
-

Describe the tolerances allowed while managing the risk between liability and hedged assets.
(select all that apply)

- ☐ Dollar amount of exposure
 - ☐ Percent of liability exposure
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable
-

Section 2. Valuation Methods / Discount Rates

General Accounts Fixed Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Do you use risk neutral curves? (select one)

- ☐ Yes
- ☐ No
- ☐ Not sure/Not applicable
-

If yes, what type of risk neutral curve do you use? (select all that apply)

- ☐ Flat rate, no curve
- ☐ Forward curve
- ☐ Use forward curve and add MV of hedges used to support guarantee to valuation
- ☐ Stochastically generated risk neutral forward curves
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

Do you use real world scenarios? (select one)

- ☐ Yes
- ☐ No
- ☐ Not sure/Not applicable
-

If yes, what type of real world curve do you use? (select all that apply)

- ☐ Flat rate, no curve
- ☐ Yield curve
- ☐ Use yield curve and add MV of hedges used to support guarantee to valuation
- ☐ Stochastically generated real world yield curves
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

Does your valuation methodology for ALM purposes vary by product? (select one)

- ☐ Yes _____
- ☐ No
- ☐ Not sure/Not applicable
-

What spread is used for discounting liabilities? (select all that apply)

- ☐ None
- ☐ Current new money spread
- ☐ Spread curve based on benchmark
- ☐ Own credit spread
- ☐ Spread for liquidity premium
- ☐ Other, please describe _____

☐ Not sure/Not applicable

Are spreads consistent between products? (select one)

- ☐ Yes
- ☐ No, please describe _____
- ☐ Not sure/Not applicable

How are liability options modeled? (select all that apply)

- ☐ Stochastic modeling
 - ☐ Analytical formula approximations
 - ☐ Monte Carlo least squares
 - ☐ Stochastic on stochastic (SOS)
 - ☐ Neural networks
 - ☐ Difference equations
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable
-

Section 3. Scenario Testing
General Accounts Fixed Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Briefly describe your process for ALM deterministic testing.

How many deterministic scenarios are performed for each ALM purpose? Please include an approximate number in the boxes and briefly describe the risks/opportunities tested.

☐ Regulatory _____

☐ Internal stress tests (negative outcomes)

☐ Internal opportunity tests (positive outcomes)

☐ Other _____

☐ Not sure/Not applicable

Describe how stochastic modeling varies between hedging and other ALM uses.

What proxies do you use for stochastic modeling? For example, GMDB costs determined stochastically in one model may be represented as a percent of account value in another model. (select all that apply)

- ☐ Cost element
- ☐ Haircut to investment earnings
- ☐ Percent of account value
- ☐ Percent of benefit amount
- ☐ Other, please describe
-
- ☐ Not sure/Not applicable
-

Do available stochastic generators meet your needs? (select one)

- ☐ Yes
- ☐ No _____
- ☐ Other (e.g., yes for liabilities, but no for assets)

- ☐ Not sure/Not applicable
-

If you use the NAIC stochastic generator for pricing, do you make adjustments for internal use?
(select all that apply)

- ☐ Don't use/Not applicable
- ☐ Mean reversion
- ☐ Negative rates
- ☐ VM-20 spreads/defaults
- ☐ Company specific spreads (vs. VM-20 default)
- ☐ Company specific defaults (vs. VM-20 default)
- ☐ Other, please describe

- ☐ Not sure/Not applicable
-

What do you model dynamically to reflect changing market conditions? (select all that apply)

- ☐ Dividends
 - ☐ Surrenders
 - ☐ Premiums
 - ☐ Partial withdrawals
 - ☐ Annuitization
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

What is your strategy for managing disintermediation if rates spike by at least 5%? Does the reason for the increase matter?

Section 4. Metrics

General Accounts Fixed Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Which metrics do you use to MEASURE interest rate risk?

Leave blank if not applicable or None

	Assets	Liabilities	Surplus (Combine A/L)
Duration - Macaulay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - DV01	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Modified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Effective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Key rate/Partial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Principal components analysis (PCA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weighted average life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Convexity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cash flow sufficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interest rate volatility risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which metrics do you use to MEASURE equity risk?
Leave blank if not applicable or None

	Assets	Liabilities	Surplus (Combine A/L)
Greeks - Delta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Greeks - Gamma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Greeks - Vega	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correlation - Between equities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correlation - Between equity/interest rates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which metrics do you use to MANAGE interest rate risk?

Leave blank if not applicable or None

	Assets	Liabilities	Surplus (Combine A/L)
Duration - Macaulay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - DV01	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Modified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Effective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Key rate/Partial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Principal components analysis (PCA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weighted average life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Convexity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cash flow sufficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interest rate volatility risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which metrics do you use to MANAGE equity risk?
Leave blank if not applicable or None

	Assets	Liabilities	Surplus (Combine A/L)
Greeks - Delta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Greeks - Gamma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Greeks - Vega	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correlation - Between equities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correlation - Between equity/interest rates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you use duration, how tight is the portfolio level mismatch constraint (e.g., +/- 0.5 or 3%)

Do you calculate Value at Risk (VaR)? (select one)

☐ Yes - aggregate, please describe

☐ Yes - product line, please describe

☐ No

☐ Not sure/Not applicable

Do you calculate Conditional Tail Expectation (CTE, also called Tail VaR or Expected Shortfall ES)? (select one)

☐ Yes - aggregate, please describe

☐ Yes - product line, please describe

☐ No

☐ Not sure/Not applicable

Are metrics calculated across different time horizons? (select one)

☐ Yes, please describe _____

☐ No

☐ Not sure/Not applicable

The purpose of attribution analysis for an insurance company is to explain (or attribute) the changes in the values of the objective function that is measured and reported due to changes in the underlying factors (interest rate changes, credit spread changes, equity market changes, etc.). It can identify fast-emerging trends, explain asset movements from period to period, and serve as a control mechanism. It can measure the effectiveness of ALM and identify any issues that might require a change in ALM strategy.

Has attribution led to attention or increased attention to certain risks? (select one)

- ☐ Yes, please describe _____
- ☐ No
- ☐ Not sure/Not applicable
-

What interest rate risk factors does the attribution measure? (select all that apply)

- ☐ Duration - Macaulay
 - ☐ Duration - DV01
 - ☐ Duration - Modified
 - ☐ Duration - Effective
 - ☐ Duration - Key rate/Partial
 - ☐ Duration - Principal components analysis (PCA)
 - ☐ Weighted average life
 - ☐ Convexity
 - ☐ Cash flow sufficiency
 - ☐ Interest rate volatility risk
 - ☐ Not sure/Not applicable
-

What equity risk factors does the attribution measure? (select all that apply)

- ☐ Greeks - Delta
- ☐ Greeks - Gamma
- ☐ Greeks - Vega
- ☐ Correlation - Between equities
- ☐ Correlation - Between equity/interest rates
- ☐ Not sure/Not applicable

What actuarial risk factors does the attribution measure? (mortality, lapse, etc.)

What risk mitigation tools are used to manage ALM risk? (select all that apply)

- ☐ Reinsurance
 - ☐ Internal diversification
 - ☐ Asset hedging
 - ☐ Liability hedging
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

How do you measure credit spread risk for existing assets? (select all that apply)

- ☐ Deterministic shocks to expected spreads
 - ☐ Stochastic modeling of future spreads
 - ☐ Other, please describe
-
- ☐ Not tracked
 - ☐ Not sure/Not applicable

How do you measure spread risk for future reinvestment asset purchases? (select all that apply)

☐ Deterministic shocks to expected spreads

☐ Stochastic modeling of future spreads

☐ Other, please describe

☐ Not tracked

☐ Not sure/Not applicable

How is ALM integrated into pricing? (select all that apply)

☐ NAIC/OSFI required model

☐ Explicit stochastic model

☐ Cost element

☐ Haircut to investment earnings

☐ Other, please describe

☐ Not sure/Not applicable

How do you determine interest rates for pricing? (select all that apply)

- ☐ Real world deterministic
 - ☐ Real world stochastic
 - ☐ Risk neutral deterministic
 - ☐ Risk neutral stochastic
 - ☐ Other, please describe
-

☐ Not sure/Not applicable

How do you manage equity risk in these products? (select all that apply)

- ☐ Risk diversification
 - ☐ Hedging
 - ☐ Natural hedging
 - ☐ Use riders to offset risks in other riders or base product
 - ☐ Other, please describe
-

☐ Not sure/Not applicable

Section 5. Hedging

General Accounts Fixed Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Define your hedging strategy. Select all that apply and please describe.

- ☐ Dynamic _____
 - ☐ Static _____
 - ☐ Semi-static (combination of dynamic and static hedges)

 - ☐ Product balancing _____
 - ☐ Natural hedging _____
 - ☐ From riders _____
 - ☐ Other _____
 - ☐ None
 - ☐ Not sure/Not applicable
-

What hedge targets do you use? (select all that apply)

- ☐ Statutory
- ☐ GAAP
- ☐ Economic capital
- ☐ Fair value
- ☐ IFRS
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable

What is your rebalancing process? (select one)

- ☐ Tolerance based
- ☐ Time interval based
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable

Is your strategy to partially or fully hedge? (select one)

- ☐ Fully
- ☐ Partially
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

What hedging instruments are used? (select all that apply)

- ☐ Futures
- ☐ Options
- ☐ Variance swaps
- ☐ VIX
- ☐ Interest rate swaps
- ☐ Swaptions
- ☐ Equity/interest cross term hedges
- ☐ Currency forwards
- ☐ Currency swaps
- ☐ Equity total return swaps
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable

How are scenarios generated to adjust currently held hedges? (select all that apply)

- ☐ Brownian motion
 - ☐ Regime switching
 - ☐ Constant equity volatility
 - ☐ Equity volatility curve
 - ☐ Equity volatility surface
 - ☐ Stochastic equity volatility
 - ☐ Constant interest volatility
 - ☐ Interest volatility curve
 - ☐ Interest volatility surface
 - ☐ Stochastic interest volatility
 - ☐ Equity correlation
 - ☐ Equity/interest correlation
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable
-

What items are measured in hedge program attribution for Interest Rate Risk? (select all that apply)

- ☐ Duration - Macaulay
- ☐ Duration - DV01
- ☐ Duration - Modified
- ☐ Duration - Effective
- ☐ Duration - Key rate/Partial
- ☐ Duration - Principal Components Analysis (PCA)
- ☐ Weighted average life
- ☐ Convexity
- ☐ Cash flow sufficiency
- ☐ Interest rate volatility risk
- ☐ Not sure/Not applicable

Please describe your responses in the previous question

What items are measured in hedge program attribution for Equity Risk? (select all that apply)

- ☐ Greeks - Delta
 - ☐ Greeks - Gamma
 - ☐ Greeks - Vega
 - ☐ Greeks - Theta
 - ☐ Correlation - Between equities
 - ☐ Correlation - Between equity/interest rates
 - ☐ Other
 - ☐ Not sure/Not applicable
-

Please describe your responses in the previous question

What is the greatest frequency that key metrics are calculated by the ALM team for investments? (select one)

- ☐ Continuously
 - ☐ Daily
 - ☐ Weekly
 - ☐ Monthly
 - ☐ Quarterly
 - ☐ Annually
 - ☐ Ad hoc
 - ☐ Other, please describe _____
 - ☐ Not sure/Not applicable
-

What is the greatest frequency that key metrics are calculated by the ALM team for hedging?
(select one)

- ☐ Continuously
 - ☐ Daily
 - ☐ Weekly
 - ☐ Monthly
 - ☐ Quarterly
 - ☐ Annually
 - ☐ Ad hoc
 - ☐ Other, please describe _____
 - ☐ Not sure/Not applicable
-

Section 6. Software

General Accounts Fixed Products Survey

If multiple software packages are used for either assets or liabilities, use the software associated with the largest book value or statutory reserve.

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

What type of modeling software is used for assets? (select one)

- ☐ Internally developed
 - ☐ Commercial software
 - ☐ Not sure/Not applicable
-

If commercial, is the source code available to the user? (select all that apply)

- ☐ No
 - ☐ Some
 - ☐ All
 - ☐ Can be partially modified
 - ☐ Fully modifiable
 - ☐ User can build customized logic
 - ☐ Additional cost to build customized logic
 - ☐ Not sure/Not applicable
-

What type of modeling software is used for liabilities? (select one)

- ☐ Internally developed
 - ☐ Commercial software
 - ☐ Not sure/Not applicable
-

If commercial, is the source code available to the user? (select all that apply)

- ☐ No
 - ☐ Some
 - ☐ All
 - ☐ Can be partially modified
 - ☐ Fully modifiable
 - ☐ User can build customized logic
 - ☐ Additional cost to build customized logic
 - ☐ Not sure/Not applicable
-

How are assets and liabilities combined in the software? (select one)

- ☐ Assets and liabilities modeled separately with different software
 - ☐ Assets and liabilities modeled separately with the same software
 - ☐ Asset and liability modeling is integrated
 - ☐ Other (please describe Other or multiple responses)
-

☐ Not sure/Not applicable

Is graphical processing unit technology used? (select one)

- ☐ Yes
 - ☐ No
 - ☐ Not sure/Not applicable
-

Is distributed processing used? (select one)

- ☐ Yes - internal infrastructure
 - ☐ Yes - via the cloud
 - ☐ No
 - ☐ Not sure/Not applicable
-

Have you tested negative interest rates in the software? (select one)

- ☐ Yes
- ☐ No
- ☐ Not sure/Not applicable
-

Is the software sufficient for your needs? (select one)

- ☐ Yes
- ☐ No, please describe why not

- ☐ Not sure/Not applicable
-

Do you plan to shop for new modeling software in the next 3 years? (any of assets, liabilities, combined) (select one)

- ☐ Yes
- ☐ No
- ☐ Not sure/Not applicable
-

Please describe your response to the previous question

Is there anything about software we didn't ask about but you want to share?

Section 7. Summary

General Accounts Fixed Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Do you have plans to update your ALM process? (select one)

- ☐ No
- ☐ Yes, make our ALM process more sophisticated/detailed
- ☐ Yes, make our ALM process less sophisticated/detailed
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable

How are ALM management incentives defined and managed? (select all that apply)

- ☐ Earnings volatility
 - ☐ Actual earnings vs. plan
 - ☐ Actual investment spreads vs. pricing investment spreads
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

To aid us in the development of future surveys, please let us know how long it took in total to gather relevant information and to complete the ALM General Account Fixed Product Survey. (select one)

- ☐ 15 minutes
- ☐ 30 minutes
- ☐ 45 minutes
- ☐ 1 hour
- ☐ Longer

To aid us in the development of future surveys, please let us know how difficult it was to complete the ALM General Account Fixed Product Survey. (select one)

- ☐ Easy
 - ☐ Moderate
 - ☐ Challenging
 - ☐ Not doable
-

Thank you for completing this survey. Clicking the arrow button on the right below will end the survey and submit your responses.

ALM Survey-General Account Assets Backing Indexed & Variable Products

Thank you for completing the ALM practitioner survey for the Society of Actuaries. Your company is asked to complete up to four components of the survey. This is the survey for General Account Assets Backing Indexed and Variable Products and should be completed by each company managing those types of products.

General Comments - "you" means your company at the highest aggregate level reported on for this survey. Responses left blank are treated the same as None/Not sure/Not applicable.

Section 1. Demographic Questions for Asset Liability Management (ALM) Survey
General Account Assets Backing Indexed and Variable Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Which company are you completing this survey for?

Please provide us with a contact in case we need to follow-up with you on your submission. This information will only be available to SOA staff.

	Name	Email
Contact		

Which risks, when aggregated, are managed primarily by the ALM team? (select all that apply)

- ☐ Interest rates
 - ☐ Liquidity
 - ☐ Capital
 - ☐ Default
 - ☐ Policyholder behavior
 - ☐ Currency
 - ☐ Equity
 - ☐ Correlation risk between equities
 - ☐ Correlation risk between interest rate risk and equity risk
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

What are the goals of your ALM program? (select all that apply)

- ☐ Regulatory
 - ☐ Rating agency
 - ☐ Managing earnings volatility
 - ☐ Protecting solvency
 - ☐ Strategic
 - ☐ Other, please describe
-

- ☐ None
 - ☐ Not sure/Not applicable
-

Does ALM vary, strategically and/or tactically, between products? (select all that apply)

- ☐ Yes - strategically, please describe
-

- ☐ Yes - tactically, please describe
-

- ☐ No
 - ☐ Not sure/Not applicable
-

Do internal product line hedges play a role? (select one)

- ☐ Yes - full
- ☐ Yes - partial
- ☐ No
- ☐ Not sure/Not applicable
-

If yes (full/partial), how are internal hedges managed? (select all that apply)

- ☐ Conscious - quantitatively measured
- ☐ Conscious - conceptual
- ☐ Indirect/qualitative
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

How are premiums considered for duration/convexity calculations? (select one)

- ☐ Separately, as an asset
- ☐ Net against liabilities
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

How do you segment investment portfolios? (select one)

- ☐ Notional
- ☐ Formal
- ☐ Not sure/Not applicable

What factors differentiate between asset segmented portfolios? (select all that apply)

- ☐ Liability product
- ☐ Duration (e.g., short, intermediate, long)
- ☐ Asset mix/investment strategy
- ☐ General vs. Separate account
- ☐ Risk tolerance
- ☐ Closed block
- ☐ Other
- ☐ Not sure/Not applicable

If Other or multiple responses were selected in the previous question, please describe.

What asset classes have you added in the last 10 years? Why?

Is Cash Flow Testing integrated into the ALM process? (select one)

- ☐ Yes
- ☐ No
- ☐ Not sure/Not applicable

What method is used to credit interest to policies? (select one)

- ☐ Investment Year Method (IYM)
- ☐ Portfolio Method
- ☐ Combination
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

How often are buckets created for assets purchased and interest credited? (select one)

- ☐ Daily
- ☐ Weekly
- ☐ 1 month
- ☐ 3 months
- ☐ Annual
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

How long does a bucket stay open before consolidation with the portfolio bucket? (select all that apply)

- ☐ Never
- ☐ Less than 1 year
- ☐ More than 1 year and less than 5 years
- ☐ More than 5 years and less than 10 years
- ☐ Over 10 years
- ☐ Other, please describe on next screen
- ☐ Not sure/Not applicable
-

If you selected Other or multiple responses in the previous question, please describe.

The following three questions refer to allocation of investment income to product lines or business units. They differentiate companies that allocate based on portfolio characteristics and may incorporate a surplus portfolio.

How do you allocate investment income to product line income statements? (select one)

- ☐ Formula - balance sheet items x rate
- ☐ Pro rata
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable

What factors do you consider when allocating net investment income to product lines or business units? (select all that apply)

Example: Allocated net investment income = (Statutory reserves) x (Gross rate - Inv expense -

Overhead charge - Liquidity charge)

- ☐ Beginning of period
- ☐ End of period
- ☐ Average of beginning/End of period
- ☐ Other, please describe
-
- ☐ Reserves, please describe (e.g., statutory, GAAP)
-
- ☐ Capital (allocated/required/target surplus), please describe (e.g., BCAR, LICAT/RBC with or without diversification)
-
- ☐ Unallocated surplus
- ☐ Other balance sheet items, please describe
-
- ☐ Pro rata using balance sheet items
- ☐ Gross earnings rate
- ☐ Duration bucket, please describe
-
- ☐ Investment credit (e.g., capital gain), please describe
-
- ☐ Investment expense
- ☐ Overhead expense
- ☐ Liquidity charge

- ☐ Allocate total company net investment income
 - ☐ Residual fund to true up total investment income
 - ☐ Other charges, please describe
-
- ☐ Not sure/Not applicable

How are investment expenses built into net investment income? (select all that apply)

- ☐ Asset class
 - ☐ Rating
 - ☐ Evenly
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

How is interest crediting strategy aligned with investment strategy? (select all that apply)

- ☐ Expected investment earnings
 - ☐ Optimization across a set of deterministic scenarios
 - ☐ Optimization across a set of stochastic scenarios
 - ☐ Balance investment expectations with competitive considerations
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable
-

Describe the tolerances allowed while managing the risk between liability and hedged assets.
(select all that apply)

- ☐ Dollar amount of exposure
 - ☐ Percent of liability exposure
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable
-

Page Break

Section 2. Valuation Methods / Discount Rates

General Account Assets Backing Indexed and Variable Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Do you use risk neutral curves? (select one)

- ☐ Yes
- ☐ No
- ☐ Not sure/Not applicable
-

If yes, what type of risk neutral curve do you use? (select all that apply)

- ☐ Flat rate, no curve
- ☐ Forward curve
- ☐ Use forward curve and add MV of hedges used to support guarantee to valuation
- ☐ Stochastically generated risk neutral forward curves
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

Do you use real world scenarios? (select one)

- ☐ Yes
- ☐ No
- ☐ Not sure/Not applicable
-

If yes, what type of real world curve do you use? (select all that apply)

- ☐ Flat rate, no curve
- ☐ Yield curve
- ☐ Use yield curve and add MV of hedges used to support guarantee to valuation
- ☐ Stochastically generated real world yield curves
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

Does your valuation methodology for ALM purposes vary by product? (select one)

- ☐ Yes _____
- ☐ No
- ☐ Not sure/Not applicable
-

What spread is used for discounting liabilities? (select all that apply)

- ☐ None
 - ☐ Current new money spread
 - ☐ Spread curve based on benchmark
 - ☐ Own credit spread
 - ☐ Spread for liquidity premium
 - ☐ Other, please describe _____
 - ☐ Not sure/Not applicable
-

Are spreads consistent between products? (select one)

- ☐ Yes
 - ☐ No, please describe _____
 - ☐ Not sure/Not applicable
-

How are liability options modeled? (select all that apply)

- ☐ Stochastic modeling
 - ☐ Analytical formula approximations
 - ☐ Monte Carlo least squares
 - ☐ Stochastic on stochastic (SOS)
 - ☐ Neural networks
 - ☐ Difference equations
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

Section 3. Scenario Testing

General Account Assets Backing Indexed and Variable Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Briefly describe your process for ALM deterministic testing.

How many deterministic scenarios are performed for each ALM purpose? Please include an approximate number in the boxes and briefly describe the risks/opportunities tested.

- ☐ Regulatory _____
- ☐ Internal stress tests (negative outcomes)

- ☐ Internal opportunity tests (positive outcomes)

- ☐ Other _____
- ☐ Not sure/Not applicable

Describe how stochastic modeling varies between hedging and other ALM uses.

What proxies do you use for stochastic modeling? For example, GMDB costs determined stochastically in one model may be represented as a percent of account value in another model. (select all that apply)

- ☐ Cost element
- ☐ Haircut to investment earnings
- ☐ Percent of account value
- ☐ Percent of benefit amount
- ☐ Other, please describe
-
- ☐ Not sure/Not applicable

Do available stochastic generators meet your needs? (select one)

- ☐ Yes
- ☐ No _____
- ☐ Other (e.g., yes for liabilities, but no for assets)

- ☐ Not sure/Not applicable
-

If you use the NAIC stochastic generator for pricing, do you make adjustments for internal use?
(select all that apply)

- ☐ Don't use/Not applicable
- ☐ Mean reversion
- ☐ Negative rates
- ☐ VM-20 spreads/defaults
- ☐ Company specific spreads (vs. VM-20 default)
- ☐ Company specific defaults (vs. VM-20 default)
- ☐ Other, please describe

- ☐ Not sure/Not applicable
-

What do you model dynamically to reflect changing market conditions? (select all that apply)

- ☐ Dividends
 - ☐ Surrenders
 - ☐ Premiums
 - ☐ Partial withdrawals
 - ☐ Annuitization
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

What is your strategy for managing disintermediation if rates spike by at least 5%? Does the reason for the increase matter?

How do you manage ALM for living benefits attached to indexed annuities? (select all that apply)

- ☐ Asset duration
 - ☐ Interest rate hedges
 - ☐ Equity risk hedging - explicit
 - ☐ Equity risk hedging - offsetting equity risk associated with equity index interest rate crediting
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable
-

Section 4. Metrics

General Account Assets Backing Indexed and Variable Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Which metrics do you use to MEASURE interest rate risk?

Leave blank if not applicable or None

	Assets	Liabilities	Surplus (Combine A/L)
Duration - Macaulay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - DV01	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Modified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Effective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Key rate/Partial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Principal components analysis (PCA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weighted average life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Convexity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cash flow sufficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interest rate volatility risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which metrics do you use to MEASURE equity risk?
Leave blank if not applicable or None

	Assets	Liabilities	Surplus (Combine A/L)
Greeks - Delta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Greeks - Gamma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Greeks - Vega	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correlation - Between equities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correlation - Between equity/interest rates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which metrics do you use to MANAGE interest rate risk?

Leave blank if not applicable or None

	Assets	Liabilities	Surplus (Combine A/L)
Duration - Macaulay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - DV01	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Modified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Effective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Key rate/Partial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Principal components analysis (PCA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weighted average life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Convexity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cash flow sufficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interest rate volatility risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which metrics do you use to MANAGE equity risk?
Leave blank if not applicable or None

	Assets	Liabilities	Surplus (Combine A/L)
Greeks - Delta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Greeks - Gamma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Greeks - Vega	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correlation - Between equities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correlation - Between equity/interest rates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you use duration, how tight is the portfolio level mismatch constraint (e.g., +/- 0.5 or 3%)

Do you calculate Value at Risk (VaR)? (select one)

☐ Yes - aggregate, please describe

☐ Yes - product line, please describe

☐ No

☐ Not sure/Not applicable

Do you calculate Conditional Tail Expectation (CTE, also called Tail VaR or Expected Shortfall ES)? (select one)

☐ Yes - aggregate, please describe

☐ Yes - product line, please describe

☐ No

☐ Not sure/Not applicable

Are metrics calculated across different time horizons? (select one)

☐ Yes, please describe _____

☐ No

☐ Not sure/Not applicable

The purpose of attribution analysis for an insurance company is to explain (or attribute) the changes in the values of the objective function that is measured and reported due to changes in the underlying factors (interest rate changes, credit spread changes, equity market changes, etc.). It can identify fast-emerging trends, explain asset movements

from period to period, and serve as a control mechanism. It can measure the effectiveness of ALM and identify any issues that might require a change in ALM strategy.

Has attribution led to attention or increased attention to certain risks? (select one)

- ☐ Yes, please describe _____
- ☐ No
- ☐ Not sure/Not applicable
-

What interest rate risk factors does the attribution measure? (select all that apply)

- ☐ Duration - Macaulay
 - ☐ Duration - DV01
 - ☐ Duration - Modified
 - ☐ Duration - Effective
 - ☐ Duration - Key rate/Partial
 - ☐ Duration - Principal components analysis (PCA)
 - ☐ Weighted average life
 - ☐ Convexity
 - ☐ Cash flow sufficiency
 - ☐ Interest rate volatility risk
 - ☐ Not sure/Not applicable
-

What equity risk factors does the attribution measure? (select all that apply)

- ☐ Greeks - Delta
- ☐ Greeks - Gamma
- ☐ Greeks - Vega
- ☐ Correlation - Between equities
- ☐ Correlation - Between equity/interest rates
- ☐ Not sure/Not applicable

What actuarial risk factors does the attribution measure? (mortality, lapse, etc.)

What risk mitigation tools are used to manage ALM risk? (select all that apply)

- ☐ Reinsurance
 - ☐ Internal diversification
 - ☐ Asset hedging
 - ☐ Liability hedging
 - ☐ Other _____
 - ☐ Not sure/Not applicable
-

How do you measure credit spread risk for existing assets? (select all that apply)

- ☐ Deterministic shocks to expected spreads
 - ☐ Stochastic modeling of future spreads
 - ☐ Other, please describe _____
 - ☐ Not tracked
 - ☐ Not sure/Not applicable
-

How do you measure spread risk for future reinvestment asset purchases? (select all that apply)

☐ Deterministic shocks to expected spreads

☐ Stochastic modeling of future spreads

☐ Other, please describe

☐ Not tracked

☐ Not sure/Not applicable

How is ALM integrated into pricing? (select all that apply)

☐ NAIC/OSFI required model

☐ Explicit stochastic model

☐ Cost element

☐ Haircut to investment earnings

☐ Other, please describe

☐ Not sure/Not applicable

How do you determine interest rates for pricing? (select all that apply)

- ☐ Real world deterministic
 - ☐ Real world stochastic
 - ☐ Risk neutral deterministic
 - ☐ Risk neutral stochastic
 - ☐ Other, please describe
-

☐ Not sure/Not applicable

How do you manage equity risk in these products? (select all that apply)

- ☐ Risk diversification
 - ☐ Hedging
 - ☐ Natural hedging
 - ☐ Use riders to offset risks in other riders or base product
 - ☐ Other, please describe
-

☐ Not sure/Not applicable

How is basis risk defined? (select one)

- ☐ Actual fund returns compared to expected fund returns based on the returns consistent with the performance of the hedge instruments
 - ☐ Actual fund returns compared to expected fund returns based on the returns consistent with the benchmark of the fund
 - ☐ Other, please describe _____
 - ☐ Not sure/Not applicable
-

How is basis risk measured? (select one)

- ☐ Difference between actual fund returns and expected fund returns based on returns on hedge instruments
 - ☐ Difference between actual fund returns and expected fund returns based on returns consistent with fund benchmarks
 - ☐ Impact on liability based on change in liability calculated using actual fund returns and change in liability calculated using fund returns based on returns on hedge instruments
 - ☐ Other, please describe _____
 - ☐ Not sure/Not applicable
-

How is basis risk managed? (select all that apply)

☐

Add additional equity indices to the hedge

☐

Adjusting separate account assets to better align with available hedge instruments

☐

Other, please describe

☐

Not sure/Not applicable

Section 5. Hedging

General Account Assets Backing Indexed and Variable Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Define your hedging strategy. Select all that apply and please describe.

- ☐ Dynamic _____
 - ☐ Static _____
 - ☐ Semi-static (combination of dynamic and static hedges)

 - ☐ Product balancing _____
 - ☐ Natural hedging _____
 - ☐ From riders _____
 - ☐ Other _____
 - ☐ Not sure/Not applicable
-

What hedge targets do you use? (select all that apply)

- ☐ Statutory
 - ☐ GAAP
 - ☐ Economic capital
 - ☐ Fair value
 - ☐ IFRS
 - ☐ Other, please describe _____
 - ☐ Not sure/Not applicable
-

What is your rebalancing process? (select one)

- ☐ Tolerance based
 - ☐ Time interval based
 - ☐ Other, please describe _____
 - ☐ Not sure/Not applicable
-

Is your strategy to partially or fully hedge? (select one)

- ☐ Fully
- ☐ Partially
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

What hedging instruments are used? (select all that apply)

- ☐ Futures
- ☐ Options
- ☐ Variance swaps
- ☐ VIX
- ☐ Interest rate swaps
- ☐ Swaptions
- ☐ Equity/interest cross term hedges
- ☐ Currency forwards
- ☐ Currency swaps
- ☐ Equity total return swaps
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable

How are scenarios generated to adjust currently held hedges? (select all that apply)

- ☐ Brownian motion
 - ☐ Regime switching
 - ☐ Constant equity volatility
 - ☐ Equity volatility curve
 - ☐ Equity volatility surface
 - ☐ Stochastic equity volatility
 - ☐ Constant interest volatility
 - ☐ Interest volatility curve
 - ☐ Interest volatility surface
 - ☐ Stochastic interest volatility
 - ☐ Equity correlation
 - ☐ Equity/interest correlation
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable
-

What items are measured in hedge program attribution for Interest Rate Risk? (select all that apply)

- ☐ Duration - Macaulay
- ☐ Duration - DV01
- ☐ Duration - Modified
- ☐ Duration - Effective
- ☐ Duration - Key rate/Partial
- ☐ Duration - Principal Components Analysis (PCA)
- ☐ Weighted average life
- ☐ Convexity
- ☐ Cash flow sufficiency
- ☐ Interest rate volatility risk
- ☐ Not sure/Not applicable

Please describe your responses in the previous question

What items are measured in hedge program attribution for Equity Risk? (select all that apply)

- ☐ Greeks - Delta
- ☐ Greeks - Gamma
- ☐ Greeks - Vega
- ☐ Greeks - Theta
- ☐ Correlation - Between equities
- ☐ Correlation - Between equity/interest rates
- ☐ Other
- ☐ Not sure/Not applicable

Please describe your responses in the previous question

What is the greatest frequency that key metrics are calculated by the ALM team for investments? (select one)

- ☐ Continuously
 - ☐ Daily
 - ☐ Weekly
 - ☐ Monthly
 - ☐ Quarterly
 - ☐ Annually
 - ☐ Ad hoc
 - ☐ Other, please describe _____
 - ☐ Not sure/Not applicable
-

What is the greatest frequency that key metrics are calculated by the ALM team for hedging?
(select one)

- ☐ Continuously
- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Quarterly
- ☐ Annually
- ☐ Ad hoc
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable

Page Break _____

Section 6. Software

General Account Assets Backing Indexed and Variable Products Survey

If multiple software packages are used for either assets or liabilities, use the software associated with the largest book value or statutory reserve.

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

What type of modeling software is used for assets? (select one)

- ☐ Internally developed
 - ☐ Commercial software
 - ☐ Not sure/Not applicable
-

If commercial, is the source code available to the user? (select all that apply)

- ☐ No
 - ☐ Some
 - ☐ All
 - ☐ Can be partially modified
 - ☐ Fully modifiable
 - ☐ User can build customized logic
 - ☐ Additional cost to build customized logic
 - ☐ Not sure/Not applicable
-

What type of modeling software is used for liabilities? (select one)

- ☐ Internally developed
 - ☐ Commercial software
 - ☐ Not sure/Not applicable
-

If commercial, is the source code available to the user? (select all that apply)

- ☐ No
 - ☐ Some
 - ☐ All
 - ☐ Can be partially modified
 - ☐ Fully modifiable
 - ☐ User can build customized logic
 - ☐ Additional cost to build customized logic
 - ☐ Not sure/Not applicable
-

How are assets and liabilities combined in the software? (select one)

- ☐ Assets and liabilities modeled separately with different software
 - ☐ Assets and liabilities modeled separately with the same software
 - ☐ Asset and liability modeling is integrated
 - ☐ Other (please describe Other or multiple responses)
-

☐ Not sure/Not applicable

Is graphical processing unit technology used? (select one)

- ☐ Yes
 - ☐ No
 - ☐ Not sure/Not applicable
-

Is distributed processing used? (select one)

- ☐ Yes - internal infrastructure
 - ☐ Yes - via the cloud
 - ☐ No
 - ☐ Not sure/Not applicable
-

Have you tested negative interest rates in the software? (select one)

- ☐ Yes
- ☐ No
- ☐ Not sure/Not applicable
-

Is the software sufficient for your needs? (select one)

- ☐ Yes
- ☐ No, please describe why not

- ☐ Not sure/Not applicable
-

Do you plan to shop for new modeling software in the next 3 years? (any of assets, liabilities, combined) (select one)

- ☐ Yes
- ☐ No
- ☐ Not sure/Not applicable
-

Please describe your response to the previous question

Is there anything about software we didn't ask about but you want to share?

Section 7. Summary

General Account Assets Backing Indexed and Variable Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Do you have plans to update your ALM process? (select one)

- ☐ No
- ☐ Yes, make our ALM process more sophisticated/detailed
- ☐ Yes, make our ALM process less sophisticated/detailed
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable

How are ALM management incentives defined and managed? (select all that apply)

- ☐ Earnings volatility
 - ☐ Actual earnings vs. plan
 - ☐ Actual investment spreads vs. pricing investment spreads
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

To aid us in the development of future surveys, please let us know how long it took in total to gather relevant information and to complete the ALM General Account Assets Backing Indexed & Variable Products Survey. (select one)

- ☐ 15 minutes
- ☐ 30 minutes
- ☐ 45 minutes
- ☐ 1 hour
- ☐ Longer

To aid us in the development of future surveys, please let us know how difficult it was to complete the ALM General Account Assets Backing Indexed & Variable Products Survey.
(select one)

- ☐ Easy
 - ☐ Moderate
 - ☐ Challenging
 - ☐ Not doable
-

Thank you for completing this survey. Clicking the arrow on the right below will end the survey and submit your responses.

ALM Survey-Separate Account Assets Backing Variable Products

Thank you for completing the ALM practitioner survey for the Society of Actuaries. Your company is asked to complete up to four components of the survey. This is the survey for Separate Account Assets Backing Variable Products and should be completed by each company managing those types of products.

General Comments - "you" means your company at the highest aggregate level reported on for this survey. Responses left blank are treated the same as None/Not sure/Not applicable.

Section 1. Demographic Questions for Asset Liability Management (ALM) Survey Separate Account Assets Backing Variable Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Which company are you completing this survey for?

Please provide us with a contact in case we need to follow-up with you on your submission. This information will only be available to SOA staff.

	Name	Email
Contact		

Which risks, when aggregated, are managed primarily by the ALM team? (select all that apply)

- ☐ Interest rates
 - ☐ Liquidity
 - ☐ Capital
 - ☐ Default
 - ☐ Policyholder behavior
 - ☐ Currency
 - ☐ Equity
 - ☐ Correlation risk between equities
 - ☐ Correlation risk between interest rate risk and equity risk
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

What are the goals of your ALM program? (select all that apply)

- ☐ Regulatory
 - ☐ Rating agency
 - ☐ Managing earnings volatility
 - ☐ Protecting solvency
 - ☐ Strategic
 - ☐ Other, please describe
-

- ☐ None
 - ☐ Not sure/Not applicable
-

Does ALM vary, strategically and/or tactically, between products? (select all that apply)

- ☐ Yes - strategically, please describe
-

- ☐ Yes - tactically, please describe
-

- ☐ No
 - ☐ Not sure/Not applicable
-

Do internal product line hedges play a role? (select one)

- ☐ Yes - full
 - ☐ Yes - partial
 - ☐ No
 - ☐ Not sure/Not applicable
-

If yes (full/partial), how are internal hedges managed? (select all that apply)

- ☐ Conscious - quantitatively measured
 - ☐ Conscious - conceptual
 - ☐ Indirect/qualitative
 - ☐ Other, please describe _____
-

How are premiums considered for duration/convexity calculations? (select one)

- ☐ Separately, as an asset
 - ☐ Net against liabilities
 - ☐ Other, please describe _____
 - ☐ Not sure/Not applicable
-

How do you segment investment portfolios? (select one)

- ☐ Notional
- ☐ Formal
- ☐ Not sure/Not applicable

What factors differentiate between asset segmented portfolios? (select all that apply)

- ☐ Liability product
- ☐ Duration (e.g., short, intermediate, long)
- ☐ Asset mix/investment strategy
- ☐ General vs. Separate account
- ☐ Risk tolerance
- ☐ Closed block
- ☐ Other
- ☐ Not sure/Not applicable

If Other or multiple responses were selected in the previous question, please describe.

What asset classes have you added in the last 10 years? Why?

How many separate account portfolios do you have?

Section 2. Valuation Methods / Discount Rates

Separate Account Assets Backing Variable Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Do you use risk neutral curves? (select one)

- ☐ Yes
- ☐ No
- ☐ Not sure/Not applicable

If yes, what type of risk neutral curve do you use? (select all that apply)

- ☐ Flat rate, no curve
 - ☐ Forward curve
 - ☐ Use forward curve and add MV of hedges used to support guarantee to valuation
 - ☐ Stochastically generated risk neutral forward curves
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable
-

Do you use real world scenarios? (select one)

- ☐ Yes
 - ☐ No
 - ☐ Not sure/Not applicable
-

If yes, what type of real world curve do you use? (select all that apply)

- ☐ Flat rate, no curve
- ☐ Yield curve
- ☐ Use yield curve and add MV of hedges used to support guarantee to valuation
- ☐ Stochastically generated real world yield curves
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

Does your valuation methodology for ALM purposes vary by product? (select one)

- ☐ Yes _____
- ☐ No
- ☐ Not sure/Not applicable
-

What spread is used for discounting liabilities? (select all that apply)

- ☐ None
- ☐ Current new money spread
- ☐ Spread curve based on benchmark
- ☐ Own credit spread
- ☐ Spread for liquidity premium
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable

Are spreads consistent between products? (select one)

- ☐ Yes
 - ☐ No, please describe _____
 - ☐ Not sure/Not applicable
-

How are liability options modeled? (select all that apply)

- ☐ Stochastic modeling
 - ☐ Analytical formula approximations
 - ☐ Monte Carlo least squares
 - ☐ Stochastic on stochastic (SOS)
 - ☐ Neural networks
 - ☐ Difference equations
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

Section 3. Scenario Testing

Separate Account Assets Backing Variable Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Briefly describe your process for ALM deterministic testing.

How many deterministic scenarios are performed for each ALM purpose? Please include an approximate number in the boxes and describe the risks/opportunities tested. (select all that apply)

☐ Regulatory

☐ Internal stress tests (negative outcomes)

☐ Internal opportunity tests (positive outcomes)

☐ Other

☐ Not sure/Not applicable

Describe how stochastic modeling varies between hedging and other ALM uses.

What proxies do you use for stochastic modeling? For example, GMDB costs determined stochastically in one model may be represented as a percent of account value in another model. (select all that apply)

- ☐ Cost element
 - ☐ Haircut to investment earnings
 - ☐ Percent of account value
 - ☐ Percent of benefit amount
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

Do available stochastic generators meet your needs? (select one)

- ☐ Yes
- ☐ No _____
- ☐ Other (e.g., yes for liabilities, but no for assets)

- ☐ Not sure/Not applicable
-

If you use the NAIC stochastic generator for pricing, do you make adjustments for internal use?
(select all that apply)

- ☐ Don't use/Not applicable
- ☐ Mean reversion
- ☐ Negative rates
- ☐ VM-20 spreads/defaults
- ☐ Company specific spreads (vs. VM-20 default)
- ☐ Company specific defaults (vs. VM-20 default)
- ☐ Other, please describe

- ☐ Not sure/Not applicable
-

What do you model dynamically to reflect changing market conditions? (select all that apply)

- ☐ Dividends
 - ☐ Surrenders
 - ☐ Premiums
 - ☐ Partial withdrawals
 - ☐ Annuitization
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

What is your strategy for managing disintermediation if rates spike by at least 5%? Does the reason for the increase matter?

What ALM/risk management techniques are used within separate accounts? (select all that apply)

- ☐ Volatility control funds switch to more conservative assets when volatility is high
 - ☐ Portfolio insurance
 - ☐ Other hedging inside separate account
 - ☐ Mandated asset allocation/Model portfolios
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable
-

Section 4. Metrics

Separate Account Assets Backing Variable Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Which metrics do you use to MEASURE interest rate risk?

Leave blank if not applicable or None

	Assets	Liabilities	Surplus (Combine A/L)
Duration - Macaulay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - DV01	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Modified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Effective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Key rate/Partial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Principal components analysis (PCA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weighted average life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Convexity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cash flow sufficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interest rate volatility risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which metrics do you use to MEASURE equity risk?
Leave blank if not applicable or None

	Assets	Liabilities	Surplus (Combine A/L)
Greeks - Delta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Greeks - Gamma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Greeks - Vega	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correlation - Between equities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correlation - Between equity/interest rates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which metrics do you use to MANAGE interest rate risk?

Leave blank if not applicable or None

	Assets	Liabilities	Surplus (Combine A/L)
Duration - Macaulay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - DV01	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Modified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Effective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Key rate/Partial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duration - Principal components analysis (PCA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weighted average life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Convexity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cash flow sufficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interest rate volatility risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which metrics do you use to MANAGE equity risk?
Leave blank if not applicable or None

	Assets	Liabilities	Surplus (Combine A/L)
Greeks - Delta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Greeks - Gamma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Greeks - Vega	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correlation - Between equities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correlation - Between equity/interest rates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you use duration, how tight is the portfolio level mismatch constraint (e.g., +/- 0.5 or 3%)

Do you calculate Value at Risk (VaR)? (select one)

☐ Yes - aggregate, please describe

☐ Yes - product line, please describe

☐ No

☐ Not sure/Not applicable

Do you calculate Conditional Tail Expectation (CTE, also called Tail VaR or Expected Shortfall ES)? (select one)

☐ Yes - aggregate, please describe

☐ Yes - product line, please describe

☐ No

☐ Not sure/Not applicable

Are metrics calculated across different time horizons? (select one)

☐ Yes, please describe _____

☐ No

☐ Not sure/Not applicable

The purpose of attribution analysis for an insurance company is to explain (or attribute) the changes in the values of the objective function that is measured and reported due to changes in the underlying factors (interest rate changes, credit spread changes, equity market changes, etc.). It can identify fast-emerging trends, explain asset movements from period to period, and serve as a control mechanism. It can measure the effectiveness of ALM and identify any issues that might require a change in ALM strategy.

Has attribution led to attention or increased attention to certain risks? (select one)

- ☐ Yes, please describe _____
- ☐ No
- ☐ Not sure/Not applicable
-

What interest rate risk factors does the attribution measure? (select all that apply)

- ☐ Duration - Macaulay
 - ☐ Duration - DV01
 - ☐ Duration - Modified
 - ☐ Duration - Effective
 - ☐ Duration - Key rate/Partial
 - ☐ Duration - Principal components analysis (PCA)
 - ☐ Weighted average life
 - ☐ Convexity
 - ☐ Cash flow sufficiency
 - ☐ Interest rate volatility risk
 - ☐ Not sure/Not applicable
-

What equity risk factors does the attribution measure? (select all that apply)

- ☐ Greeks - Delta
- ☐ Greeks - Gamma
- ☐ Greeks - Vega
- ☐ Correlation - Between equities
- ☐ Correlation - Between equity/interest rates
- ☐ Not sure/Not applicable

What actuarial risk factors does the attribution measure? (mortality, lapse, etc.)

What risk mitigation tools are used to manage ALM risk? (select all that apply)

- ☐ Reinsurance
 - ☐ Internal diversification
 - ☐ Asset hedging
 - ☐ Liability hedging
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

How do you measure credit spread risk for existing assets? (select all that apply)

- ☐ Deterministic shocks to expected spreads
 - ☐ Stochastic modeling of future spreads
 - ☐ Other, please describe
-
- ☐ Not tracked
 - ☐ Not sure/Not applicable

How do you measure spread risk for future reinvestment asset purchases? (select all that apply)

☐ Deterministic shocks to expected spreads

☐ Stochastic modeling of future spreads

☐ Other, please describe

☐ Not tracked

☐ Not sure/Not applicable

How is ALM integrated into pricing? (select all that apply)

☐ NAIC/OSFI required model

☐ Explicit stochastic model

☐ Cost element

☐ Haircut to investment earnings

☐ Other, please describe

☐ Not sure/Not applicable

How do you determine interest rates for pricing? (select all that apply)

- ☐ Real world deterministic
 - ☐ Real world stochastic
 - ☐ Risk neutral deterministic
 - ☐ Risk neutral stochastic
 - ☐ Other, please describe
-

☐ Not sure/Not applicable

How do you manage equity risk in these products? (select all that apply)

- ☐ Risk diversification
 - ☐ Hedging
 - ☐ Natural hedging
 - ☐ Use riders to offset risks in other riders or base product
 - ☐ Other, please describe
-

☐ Not sure/Not applicable

How is basis risk defined? (select one)

- ☐ Actual fund returns compared to expected fund returns based on the returns consistent with the performance of the hedge instruments
 - ☐ Actual fund returns compared to expected fund returns based on the returns consistent with the benchmark of the fund
 - ☐ Other, please describe _____
 - ☐ Not sure/Not applicable
-

How is basis risk measured? (select one)

- ☐ Difference between actual fund returns and expected fund returns based on returns on hedge instruments
 - ☐ Difference between actual fund returns and expected fund returns based on returns consistent with fund benchmarks
 - ☐ Impact on liability based on change in liability calculated using actual fund returns and change in liability calculated using fund returns based on returns on hedge instruments
 - ☐ Other, please describe _____
 - ☐ Not sure/Not applicable
-

How is basis risk managed? (select all that apply)

- ☐ Add additional equity indices to the hedge
- ☐ Adjusting separate account assets to better align with available hedge instruments
- ☐ Other, please describe

- ☐ Not sure/Not applicable

Section 5. Hedging

Separate Account Assets Backing Variable Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Define your hedging strategy. Select all that apply and please describe.

- ☐ Dynamic _____
 - ☐ Static _____
 - ☐ Semi-static (combination of dynamic and static hedges)

 - ☐ Product balancing _____
 - ☐ Natural hedging _____
 - ☐ From riders _____
 - ☐ Other _____
 - ☐ Not sure/Not applicable
-

What hedge targets do you use? (select all that apply)

- ☐ Statutory
- ☐ GAAP
- ☐ Economic capital
- ☐ Fair value
- ☐ IFRS
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable

What is your rebalancing process? (select one)

- ☐ Tolerance based
- ☐ Time interval based
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable

Is your strategy to partially or fully hedge? (select one)

- ☐ Fully
- ☐ Partially
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable
-

What hedging instruments are used? (select all that apply)

- ☐ Futures
- ☐ Options
- ☐ Variance swaps
- ☐ VIX
- ☐ Interest rate swaps
- ☐ Swaptions
- ☐ Equity/interest cross term hedges
- ☐ Currency forwards
- ☐ Currency swaps
- ☐ Equity total return swaps
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable

How are scenarios generated to adjust currently held hedges? (select all that apply)

- ☐ Brownian motion
 - ☐ Regime switching
 - ☐ Constant equity volatility
 - ☐ Equity volatility curve
 - ☐ Equity volatility surface
 - ☐ Stochastic equity volatility
 - ☐ Constant interest volatility
 - ☐ Interest volatility curve
 - ☐ Interest volatility surface
 - ☐ Stochastic interest volatility
 - ☐ Equity correlation
 - ☐ Equity/interest correlation
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable
-

What items are measured in hedge program attribution for Interest Rate Risk? (select all that apply)

- ☐ Duration - Macaulay
- ☐ Duration - DV01
- ☐ Duration - Modified
- ☐ Duration - Effective
- ☐ Duration - Key rate/Partial
- ☐ Duration - Principal Components Analysis (PCA)
- ☐ Weighted average life
- ☐ Convexity
- ☐ Cash flow sufficiency
- ☐ Interest rate volatility risk
- ☐ Not sure/Not applicable

Please describe your responses in the previous question

What items are measured in hedge program attribution for Equity Risk? (select all that apply)

- ☐ Greeks - Delta
- ☐ Greeks - Gamma
- ☐ Greeks - Vega
- ☐ Greeks - Theta
- ☐ Correlation - Between equities
- ☐ Correlation - Between equity/interest rates
- ☐ Other
- ☐ Not sure/Not applicable

Please describe your responses in the previous question

What is the greatest frequency that key metrics are calculated by the ALM team for investments? (select one)

- ☐ Continuously
 - ☐ Daily
 - ☐ Weekly
 - ☐ Monthly
 - ☐ Quarterly
 - ☐ Annually
 - ☐ Ad hoc
 - ☐ Other, please describe _____
 - ☐ Not sure/Not applicable
-

What is the greatest frequency that key metrics are calculated by the ALM team for hedging?
(select one)

- ☐ Continuously
 - ☐ Daily
 - ☐ Weekly
 - ☐ Monthly
 - ☐ Quarterly
 - ☐ Annually
 - ☐ Ad hoc
 - ☐ Other, please describe _____
 - ☐ Not sure/Not applicable
-

What types of separate account hedges do you use to mitigate risk? (select all that apply)

- ☐ Futures
 - ☐ Options
 - ☐ Variance swaps
 - ☐ VIX
 - ☐ Interest rate swaps
 - ☐ Swaptions
 - ☐ Equity/Interest cross term hedges
 - ☐ Currency forwards
 - ☐ Currency swaps
 - ☐ Equity total return swaps
 - ☐ Portfolio insurance
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

Page Break

Section 6. Software

Separate Account Assets Backing Variable Products Survey

If multiple software packages are used for either assets or liabilities, use the software associated with the largest book value or statutory reserve.

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

What type of modeling software is used for assets? (select one)

- ☐ Internally developed
 - ☐ Commercial software
 - ☐ Not sure/Not applicable
-

If commercial, is the source code available to the user? (select all that apply)

- ☐ No
 - ☐ Some
 - ☐ All
 - ☐ Can be partially modified
 - ☐ Fully modifiable
 - ☐ User can build customized logic
 - ☐ Additional cost to build customized logic
 - ☐ Not sure/Not applicable
-

What type of modeling software is used for liabilities? (select one)

- ☐ Internally developed
- ☐ Commercial software
- ☐ Not sure/Not applicable
-

If commercial, is the source code available to the user? (select all that apply)

- ☐ No
- ☐ Some
- ☐ All
- ☐ Can be partially modified
- ☐ Fully modifiable
- ☐ User can build customized logic
- ☐ Additional cost to build customized logic
- ☐ Not sure/Not applicable
-

How are assets and liabilities combined in the software? (select one)

- ☐ Assets and liabilities modeled separately with different software
 - ☐ Assets and liabilities modeled separately with the same software
 - ☐ Asset and liability modeling is integrated
 - ☐ Other (please describe Other or multiple responses)
-

☐ Not sure/Not applicable

Is graphical processing unit technology used? (select one)

- ☐ Yes
 - ☐ No
 - ☐ Not sure/Not applicable
-

Is distributed processing used? (select one)

- ☐ Yes - internal infrastructure
 - ☐ Yes - via the cloud
 - ☐ No
 - ☐ Not sure/Not applicable
-

Have you tested negative interest rates in the software? (select one)

- ☐ Yes
- ☐ No
- ☐ Not sure/Not applicable
-

Is the software sufficient for your needs? (select one)

- ☐ Yes
- ☐ No, please describe why not

- ☐ Not sure/Not applicable
-

Do you plan to shop for new modeling software in the next 3 years? (any of assets, liabilities, combined) (select one)

- ☐ Yes
- ☐ No
- ☐ Not sure/Not applicable
-

Please describe your response to the previous question

Is there anything about software we didn't ask about but you want to share?

Section 7. Summary

Separate Account Assets Backing Variable Products Survey

NOTE: Responses that are left blank are treated the same as None/Not sure/Not applicable.

Do you have plans to update your ALM process? (select one)

- ☐ No
- ☐ Yes, make our ALM process more sophisticated/detailed
- ☐ Yes, make our ALM process less sophisticated/detailed
- ☐ Other, please describe _____
- ☐ Not sure/Not applicable

How are ALM management incentives defined and managed? (select all that apply)

- ☐ Earnings volatility
 - ☐ Actual earnings vs. plan
 - ☐ Actual investment spreads vs. pricing investment spreads
 - ☐ Other, please describe
-
- ☐ Not sure/Not applicable

To aid us in the development of future surveys, please let us know how long it took in total to gather relevant information and to complete the ALM Separate Account Assets Backing Variable Products Survey. (select one)

- ☐ 15 minutes
- ☐ 30 minutes
- ☐ 45 minutes
- ☐ 1 hour
- ☐ Longer

To aid us in the development of future surveys, please let us know how difficult it was to complete the ALM Separate Account Assets Backing Variable Products Survey. (select one)

- ☐ Easy
 - ☐ Moderate
 - ☐ Challenging
 - ☐ Not Doable
-

Thank you for completing this survey. Clicking the arrow button on the right below will end the survey and submit your responses.
