Workshop on Asset & Liability Management

Developing a Strategic Asset Allocation Framework

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What is SAA?

- SAA is a set of long term target allocations with the highest likelihood of achieving long term investment goals.

- Determining the specific assets and the proportion of each within the portfolio to meet cash flow requirements and long-term investment objectives at the appropriate risk tolerance. SAA is about identifying and remaining consistent with a “policy mix”.

- The efficient optimisation of investment allocation to asset classes in order:
  - to meet the overall investment objectives of the institution; and
  - to achieve an acceptable balance between risk and return.

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Importance of SAA

SAA is one of the key drivers of long-term investment success:

- defines the overall return-risk profile of the portfolio
- ranks high in the hierarchy of investment decisions
- needs to be owned at the highest level
- requires adequate resources

Governance structure

Board of directors
Investment Policy & Strategic Orientation

- Objectives for holding reserves
- Tranching according to the objectives
- Currency composition of reserves
- Market risk tolerance and investment horizon
- Credit risk tolerance
- Assets' universe and authorised instruments
- Authorisation of external asset managers
- Authorisation for active management
- Reporting framework
- Delegation to RESMANCO

Investment Committee
Investment Guidelines

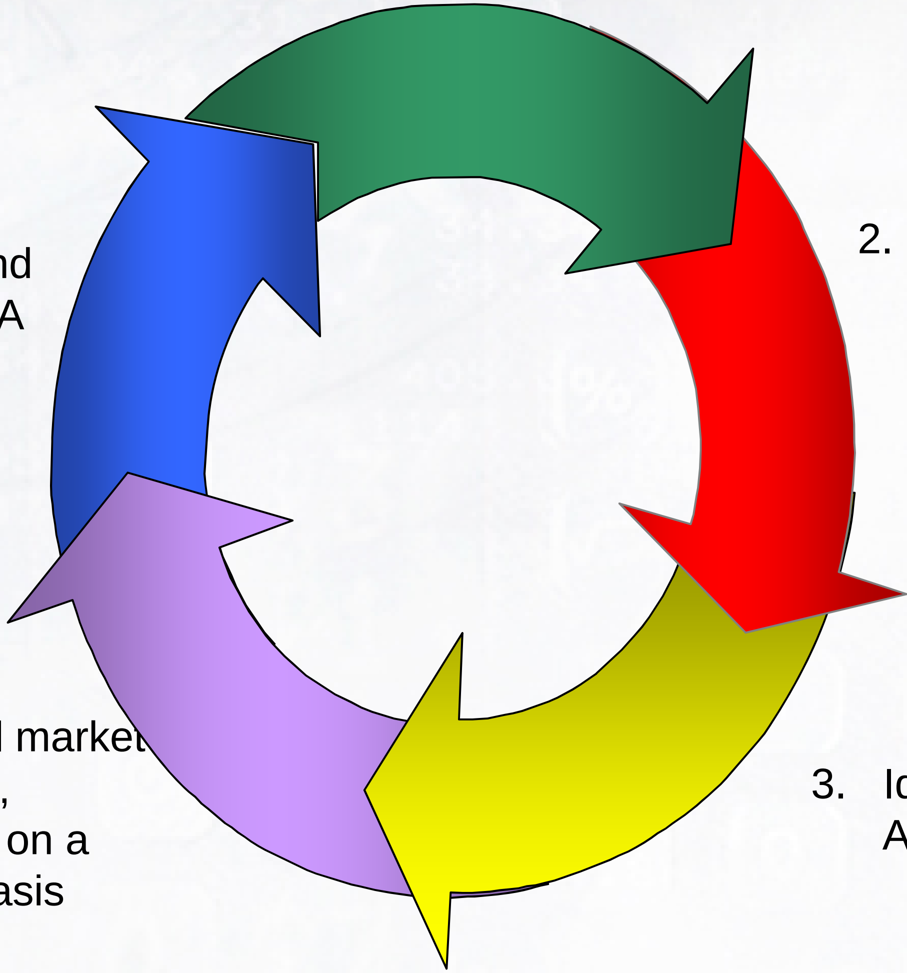
- Exact size of each tranche and transfer rules
- Exact currency composition, globally and for each tranche
- Strategic asset allocation
- Benchmarks for each tranche
- List of eligible counterparties, limit setting methodology, limits
- Exact list of authorised assets and instruments
- List of external managers, mandate amounts and guidelines
- Allocation of the risk budget

Treasury department
Day to day management

- Transact, settle authorised operations, in the authorised markets within the authorised limits
- Keep accounting records of transactions
- Analyse and manage the risks
- Regularly report to their hierarchy, the RESMANCO and the GEC
- Are regularly monitored about their compliance to the rules
- Functional segregation of responsibilities

SAA process

1. Articulate Objectives and Investment Horizon



2. Specify Risk
   Tolerance and
   Constraints

3. Identify Eligible
   Asset Classes

4. Determine Capital market
   assumptions (e.g.,
   expected returns) on a
   forward-looking basis

5. Decide on neutral
   asset allocation and
   Implement the SAA

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Defining objectives

- Liquidity
  - ❖ The ability to sell a security and realize cash in a short period without negatively affecting the price;
- Safety -Capital Preservation
  - ❖ Constraining the portfolio risks to preserve the principal value of the portfolio over the investment horizon;
  - ❖ Based on market values (mark to market)
- Return Generation
  - ❖ Total return of the portfolio as compensation for a commensurate amount of risk taken on the portfolio

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Other objectives

- Achieve a target minimum return
- Reduce cost of sterilization
- Match assets and liabilities, and manage balance sheet risks
- Minimize headline/political risks
- Ensure steady remittances to government

Risk tolerance and constraints

- Risk stems from the inherent uncertainty in investment returns (market risk, credit risk)

- Risk tolerance should ideally reflect an institution's ability to take risk, and not the Board's or decision maker's willingness to tolerate risk
  - Opportunity cost of overly conservative behavior

- Risk can be defined or measured in different ways
  - Likelihood versus magnitude of potential losses
  - shortfall probability, probability of not achieving a certain target return, worst case outcome at a certain confidence level etc.

- Other related constraints (reputation risk, risk of criticism by the public, parliament etc.)

Risk tolerance of central banks

- Capital Preservation is typically expressed as having no negative total return
  - Preservation of reserves or Central Bank capital?
  - In nominal or in real terms?
  - In foreign or domestic currency terms?
- How to translate 'no negative return' constraint?
  - Never… or at a certain confidence level?
  - Over 1 month, 12 months, 3 years?
  - Low likelihood of potential losses
  - Low magnitude and likelihood of potential losses

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Commonly used risk measures

- Duration - measures sensitivity to changes in interest rates

- Modern portfolio theory – constructing an efficient frontier> return/risk trade-off

- Downside risk measures
  - Shortfall probabilities - probability of negative return / probability of underperforming a hurdle rate
  - Minimum return at given confidence level
  - Value at risk
  - Maximum Drawdown

Asset class eligibility

- Selection of eligible asset classes is an important part of the asset allocation process

- Considerations influencing choice of eligible asset classes:
  - Investment objectives and risk-return considerations
  - Headline/Reputational risk issues
  - Staff capabilities and skill mix
  - Sophistication of portfolio and risk management infrastructure

- Focus should be on total portfolio risk and return –not the riskiness of individual assets in isolation

- Typical investment universe for central banks
  - Cash & Money-Market Instruments
  - Government Bonds, Agencies
  - Mortgage-Backed Securities

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Market assumptions

- **Expected returns for each asset class**
  - Historical (full sample or rolling window)
  - Factor models (regressions or building block models)
- **Volatilities and correlations**
  - Historical (full sample, rolling window, exponential weighting)
  - Conditional covariance matrix depending on e.g., bull or bear market regime

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From SAA to benchmarks

- **Implementation of strategic asset allocation**
  - Translation of strategic duration and asset weights into benchmarks
  - Necessary for active management
  - Appoint internal and external managers

- **Benchmarks serve various functions**
  - Reflect the institution’s long-term risk return profile
  - Establish the risk neutral position for active management
  - Yardstick for measuring and attributing the success of active or passive management
  - Pre-requisite for effective risk control

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Tranching

Handle Daily Cash Flow needs Typically, one to six month investment horizon	→	Liquidity Tranche
Liquid assets Available to replenish Liquidity Tranche or for other draw down requirements Fairly sensitive to volatility of returns Six month to one year investment horizon	→	Buffer Tranche
Liquidity less of a concern Low probability of draw down Less sensitive to short-term volatility of returns One to two year investment horizon	→	Investment Tranche

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From SAA to portfolio structure

SAA

Investment Management Activity

- Active Management
  - Externally Managed
    - External Consultants
    - Internal Advisory Team
  - Internally Managed
- Passive Management
  - Internally Managed
  - Externally Managed
    - External Consultants
    - Internal Advisory Team

SAA review

- Legitimate reasons to revisit the SAA:

    - Internal factors

      Changes in balance of payments situation, reserves adequacy measures, macro-economic vulnerability

    - External factors

      Decisive changes in market environment, capital market outlook

Summary

- **Strategic asset allocation is the single most important investment decision**
  - Decision should be owned at the highest level
  - Implementation should be delegated to the investment department

- **A comprehensive understanding and articulation of each of the components of the SAA process is fundamental:**
  - What is the portfolio for?
  - When will the funds be required?
  - What outcomes are unacceptable?
  - What type of asset classes are appropriate?
  - Is there a good understanding of the capital market assumptions used to translate return and risk preferences into portfolio alternatives?
  - Do the key players have sufficient experience and market knowledge to understand such assumptions?

- **Periodically test that the SAA and the portfolio's objectives are aligned.**
  - Internal developments such as changes in the nature of the fund, cash flow projections etc.
  - Externalities such as significant changes in market conditions.