# Investment Governance Workshop for BPJS

## Day 2: Investment Policy: objectives, constraints and asset allocation

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# Workshop Agenda

| Time | Topic |
|---|---|
| 13:00-13:10 | Introduction |
| 13:10-13:20 | Overview of Strategic Asset Allocation |
| 13:20-13:45 | Objectives and Constraints |
| 13:45-14:00 | Asset classes and market assumptions |
| 14:00-14:30 | Portfolio Construction |
| 14:30-14:40 | Break |
| 14:40-15:30 | Risk and Return - risk budgeting |
| 15:30-16:00 | Implementation |
| 16:00-16:15 | Exercise |
| 16:15-16:20 | Trends and Challenges |
| 16:20-16:30 | Summary and Q&A |

# Strategic Asset Allocation

Process to determine asset classes and allocation that will best meet an organization’s objectives.

### Step 1
- Objectives
- Constraints

### Step 2
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- Market Assumptions

### Step 3
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- Optimization
- Testing

### Step 4
- Operationalization

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# Two primary objectives for the investment of social security funds[1]:

- **Security: the investments should assist the social security scheme to meet its commitments in a cost effective way;**

- **Profitability: the investments should achieve maximum returns, subject to acceptable risk.**

**Investments of social security funds should be made with a view to achieving a reasonable balance between the two objectives**

[1]as stated in the Guidelines for investment of social security funds

# Constraints

- **Funding policy**
- **Regulations**
- **Risk tolerance**
- **Investment Horizon**

# Restrictions on investments

- Maximum/minimum level/proportion of a particular category (e.g. asset type, currency, credit rating, sustainable investments)
- Level of liquidity
- Non benchmark assets
- Prohibited categories

# Typical Portfolio Risks

- **Market Risk**
- **Credit Risk**
- **Liquidity Risk**
- **Headline or reputational risk**

# Risk Tolerance

- drawing a line between acceptable and unacceptable outcomes
- translate concerns of decision makers into numbers (risk measures).
- should reflect an institution’s ability to take risk rather than willingness to take risk
- opportunity cost of overly conservative behaviour

# Perspectives of Risk

| Portfolio Managers, Risk managers, quants | Decision makers |
|---|---|
| • Duration<br>• Volatility<br>• VaR<br>• Expected Shortfall | • Reputational risk<br>• Relative performance<br>• Downside risk |

# INVESTMENT HORIZON

Is the time period over which:

- The investor expects to have the funds with a high degree of probability
- Portfolio performance has meaningful significance
- All risk measures are specified and evaluated

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# Eligible Asset Classes

**Selection is an important part of the process**

**Considerations:**

- **Objectives**
- **Risk-return considerations**
- **Reputational risk issues**
- **Staff and portfolio and risk management infrastructure capabilities**

**Total portfolio risk and return**

**Typical investment universe**

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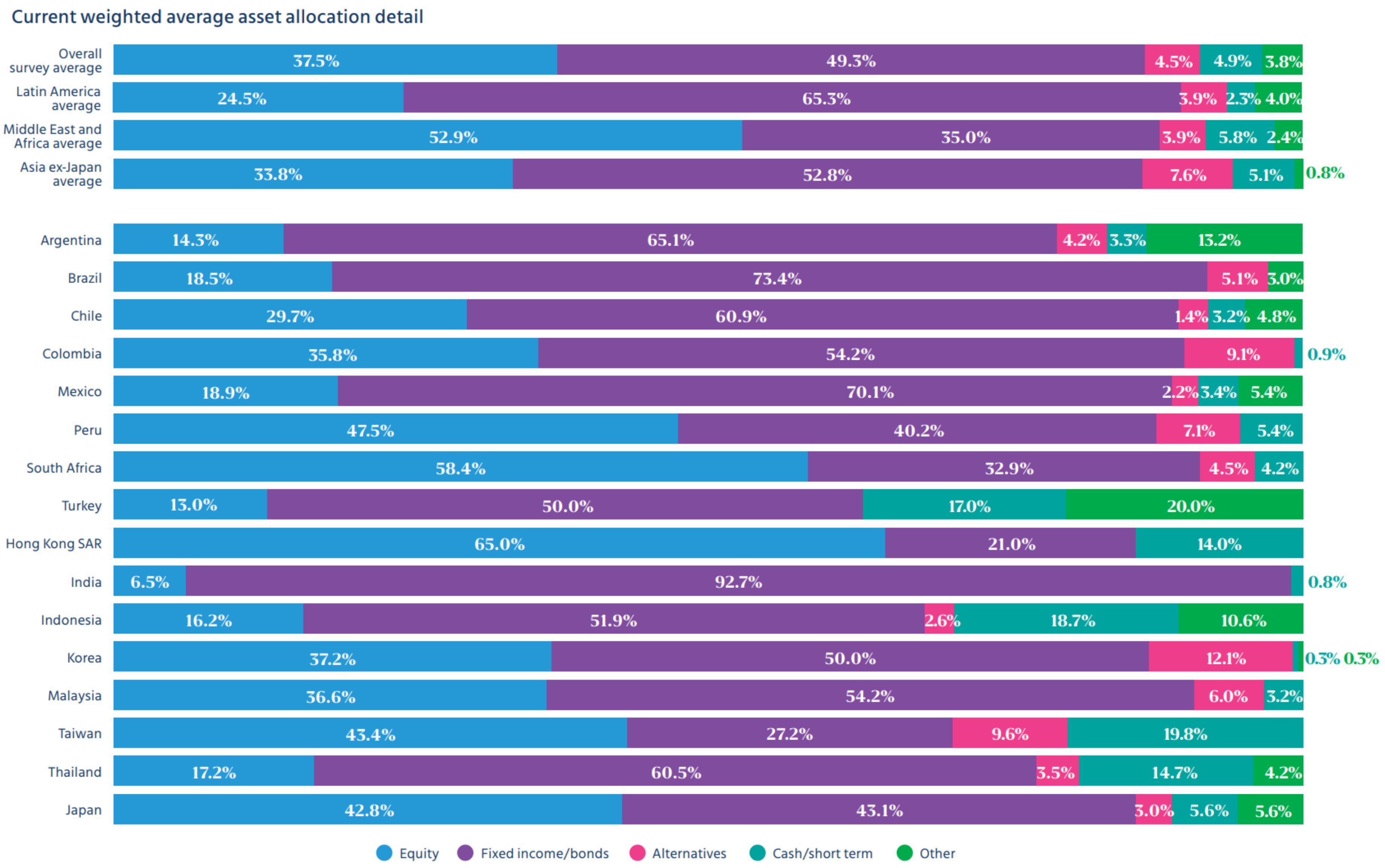


https://www.mercer.com/content/dam/mercer/attachments/private/Mercer_Asset_Allocation_Insights_2020.pdf

# WHY DO INVESTORS INVEST IN DIFFERENT ASSET CLASSES?

- **Diversification benefits**
- **Liability hedging considerations/ Asset classes that are strongly and positively correlated with an investor's liabilities**
- **Regulatory guidance/constraints**
- **Liquidity**
- **Favourable risk-adjusted returns**

# Capital Market Assumptions

- **Expected Returns for each asset class/ currency market**
- **Volatilities and correlations (risk)**

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# Portfolio Construction

**Most common approach is the mean variance optimization**

**Diversify**

# Mean Variance Optimization

**Inputs:**

- **Expected return of each asset class**
- **Standard deviation of each asset class**
- **Correlation of returns between asset classes**

**Output:**

- **The efficient frontier, i.e. the set of portfolios with the highest expected return for a given level of risk**

# Mean Variance Optimization Example (Two Asset Classes)[2]

**Table 4.10** Mean Return and Standard Deviation for Combinations of Stocks and Bonds

| Proportion Stocks | Proportion Bonds | Mean Return | Standard Deviation |
|---|---|---|---|
| 1 | 0 | 11.8 | 20.3 |
| 0.9 | 0.1 | 11.26 | 18.29 |
| 0.8 | 0.2 | 10.72 | 16.33 |
| 0.7 | 0.3 | 10.18 | 14.43 |
| 0.6 | 0.4 | 9.64 | 12.63 |
| 0.5 | 0.5 | 9.1 | 10.98 |
| 0.4 | 0.6 | 8.56 | 9.56 |
| 0.3 | 0.7 | 8.02 | 8.47 |
| 0.2 | 0.8 | 7.48 | 7.85 |
| 0.1 | 0.9 | 6.94 | 7.83 |
| 0 | 1 | 6.4 | 8.40 |

[2]Modern Portfolio Theory and Investment Analysis 2013, Elton, Gruber et. al.

# Mean Variance Optimization Example (Two Asset Classes)[2]

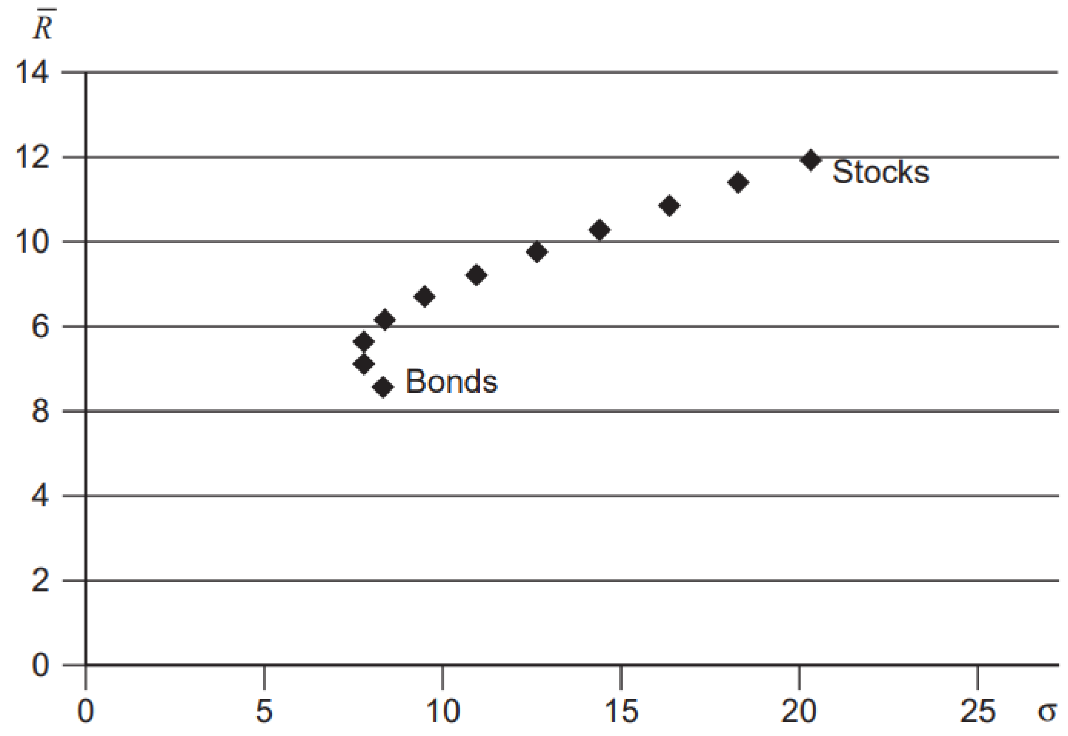


**Figure 4.4** Combinations of bonds and stocks.

[2]Modern Portfolio Theory and Investment Analysis 2013, Elton, Gruber et. al.

# What is tranching?

- **Process of segregating the fund into multiple parts (Tranches) with specific objectives and guidelines for each part (tranches) since it may not be possible to achieve all objectives in the same portfolio**

# Asset and Liability Management

- Insulate the capital or surplus (from e.g. interest rate movements) by asset/liability matching
- Simulate balance sheet and evaluate impact of different investment policies

# STRESS TESTING

Stress testing: a risk management technique used to evaluate the impact of a specific event and/or movement in financial variables on a firm or organization

Viewed as complement to Value at Risk and other risk measures

Generally fall into 2 categories: scenario analysis and sensitivity analysis

Scenario analysis: typically start with identifying various risk sources that cause changes in financial markets and analyze the impact on the portfolio

Sensitivity analysis: assess the impact of a single risk factor

# STRESS TESTING

- scenarios can be either historical or hypothetical

- could be used either to test the robustness of the optimal portfolio or to help choose from among a range of reasonable portfolios the most suitable one

- can be used to: explore the properties of those portfolios, make sure that they have desirable risk and return characteristics in different market circumstances, and express final preferences

# WHAT MAKES MEANINGFUL STRESS TESTING?

**Framed around two central questions:**

1. **How much could I lose if a stress scenario occurs**
2. **What event could cause me to lose more than my threshold**

**Good stress tests should:**

1. tie back into the decision making process
2. be relevant to current position
3. consider market interplays
4. consider potential regime shifts
5. spur discussion

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# IMPLEMENTATION OF THE STRATEGIC ASSET ALLOCATION

•Translation of strategic duration and asset allocation into policy benchmarks
•Rebalancing rules (e.g. monthly rebalancing or range rebalancing)
•Active or passive management
•Risk budget for active management

Policy benchmarks serve various purposes
•Reflect the investor’s long-term risk return profile
•Yardstick for measuring and attributing the success of any active or passive management
•Precondition for effective risk control

# How to implement the strategic asset allocation?

| Passive | Active |
|---|---|
| Replicate benchmark | Seek to outperform these benchmarks |

# INTRODUCTION TO BENCHMARKS

- Coverage
- Replication
- Stability
- Precision
- Transparency
- Opportunity

# BENCHMARK VERSUS INDEX

- An index generally consists of a group of securities, based on certain objective criteria

- A benchmark can be composed of one or more indices

# PORTFOLIO REBALANCING

**-the process of bringing a benchmark portfolio that has deviated away from one’s target allocation back into line**

**-is a risk-control process and is based on a trade-off between deviations from the target allocation (risk) and costs (explicit and implicit)**

# Exchange-Traded Funds (ETF)[3]

- **Represent shares in an index-tracking (i.e. benchmark) portfolio that trades on secondary markets**

- **The issuer (i.e. sponsor or manager) of the ETF allocates the portfolio based on the stated index/style and stands ready to redeem or create new shares in kind.**

- **Portfolios uses of ETFs include the following:**

  1. Efficient portfolio management
  2. Asset class exposure management
  3. Active investing

[3]Kaplan 2020 CFA Level 2

# Exchange-Traded Funds Risks (ETF)[3]

- Counterparty risk
- Settlement risk
- Security lending
- Fund Closures
- Expected-related risk

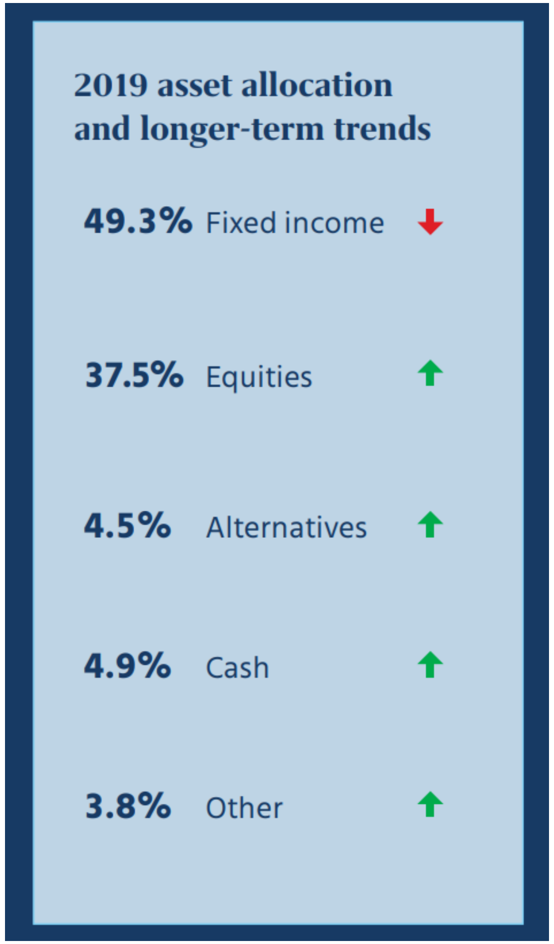
[3]Kaplan 2020 CFA Level 2

# REVIEW OF THE SAA DECISION

- **Periodic review of the market conditions and the changes of circumstances and objectives for the institution**
- **Review and re-specify the risk tolerance and risk measures used**
- **Reassess the optimality of the portfolio**

# Global Trends[4]: The Proportion of Equities in Total Assets is Rising in Pension Plans

**Over the past six years, equities have risen as a proportion of aggregate assets, whereas fixed income has declined. This trend is driven largely by Japan, particularly its Government Pension Investment Fund (GPIF), which has moved toward greater equity holdings.**




[4]https://www.mercer.com/content/dam/mercer/attachments/private/Mercer_Asset_Allocation_Insights_2020.pdf

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# Trends[4]

### Foreign assets continue to rise

Allocations to foreign assets continued to rise, but significant home biases remain. Home biases are clearest within fixed income but are evident in equities as well.

### Investors are increasingly looking toward alternatives

Allocations to alternative asset classes remained relatively flat on a year-on-year basis in 2019. However, these allocations have increased since the inaugural[2] period, rising from 3.7% to 4.5%. We believe the trend is likely to continue as more investors look for greater alpha potential and diversification.

### Broad market trends are becoming more important

Investors are considering global trends, such as environmental, social and governance (ESG) issues, and plan oversight and fees, but the response to these trends varies widely by market.

[4]https://www.mercer.com/content/dam/mercer/attachments/private/Mercer_Asset_Allocation_Insights_2020.pdf

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# Terima kasih