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# **BOK's Reserve Management in a challenging environment**

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BANK OF KOREA

# **I. Recent Developments**

## **II. BOK's Reserve Management Overview**

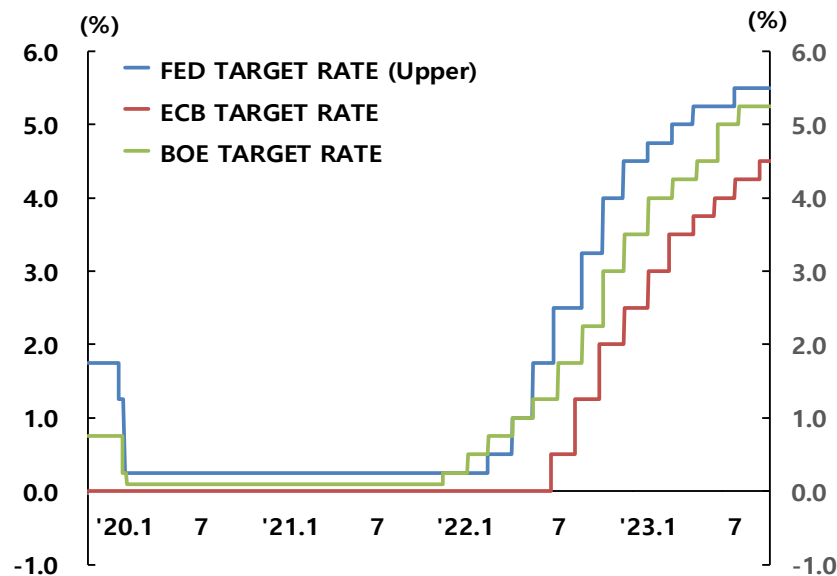
## **III. BOK's Reserve Investment Strategies**

# **I. Recent Developments**

# Rate Hike close to the Peak, but Higher for Longer

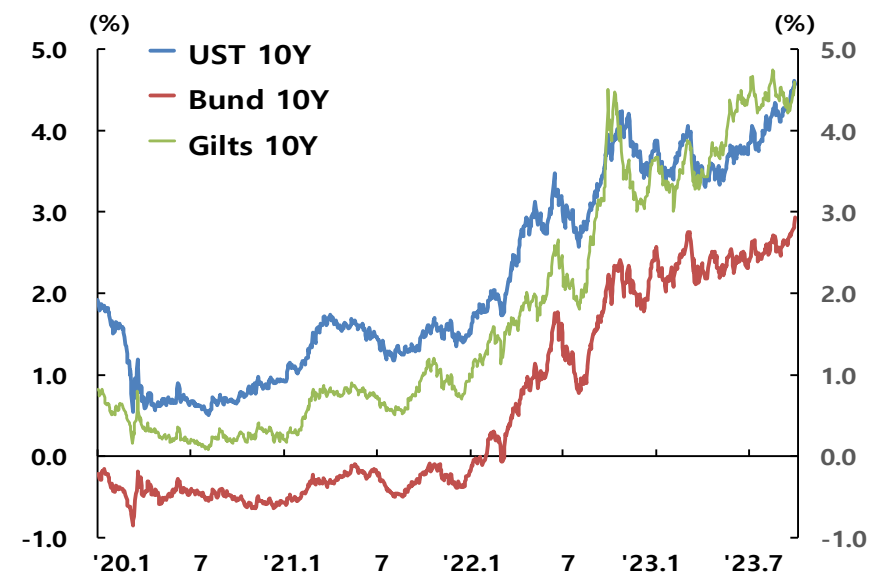
- Even if policy rates in DM are close to the peak, market interest rates stay high due to the expectation of higher for longer.
  - Weigh on mark to market value of bonds

## Policy Rates



Source: Bloomberg

## Market Interest Rates

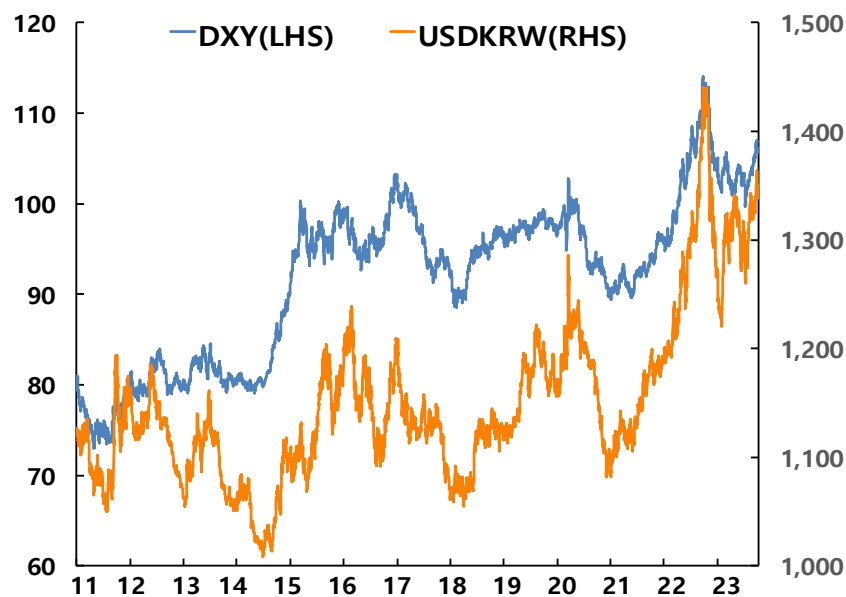


Source: Bloomberg

# USD Appreciation, Global FX Reserves decrease

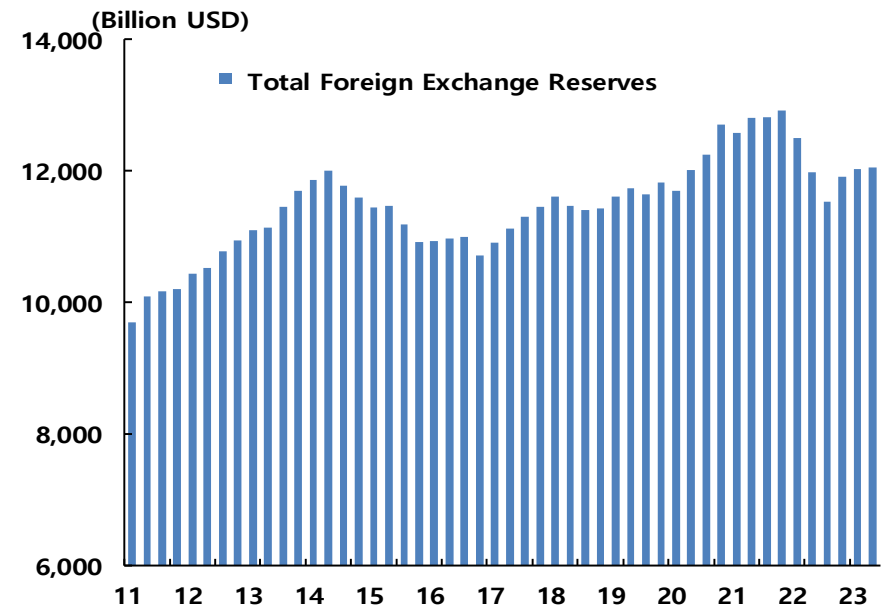
- Global FX reserves volume is decreasing as USD strengthens
  - Drop of reserve market value (dollar appreciation, asset price declines)
  - FX market intervention

### U.S Dollar and EM Currency



Source: Bloomberg

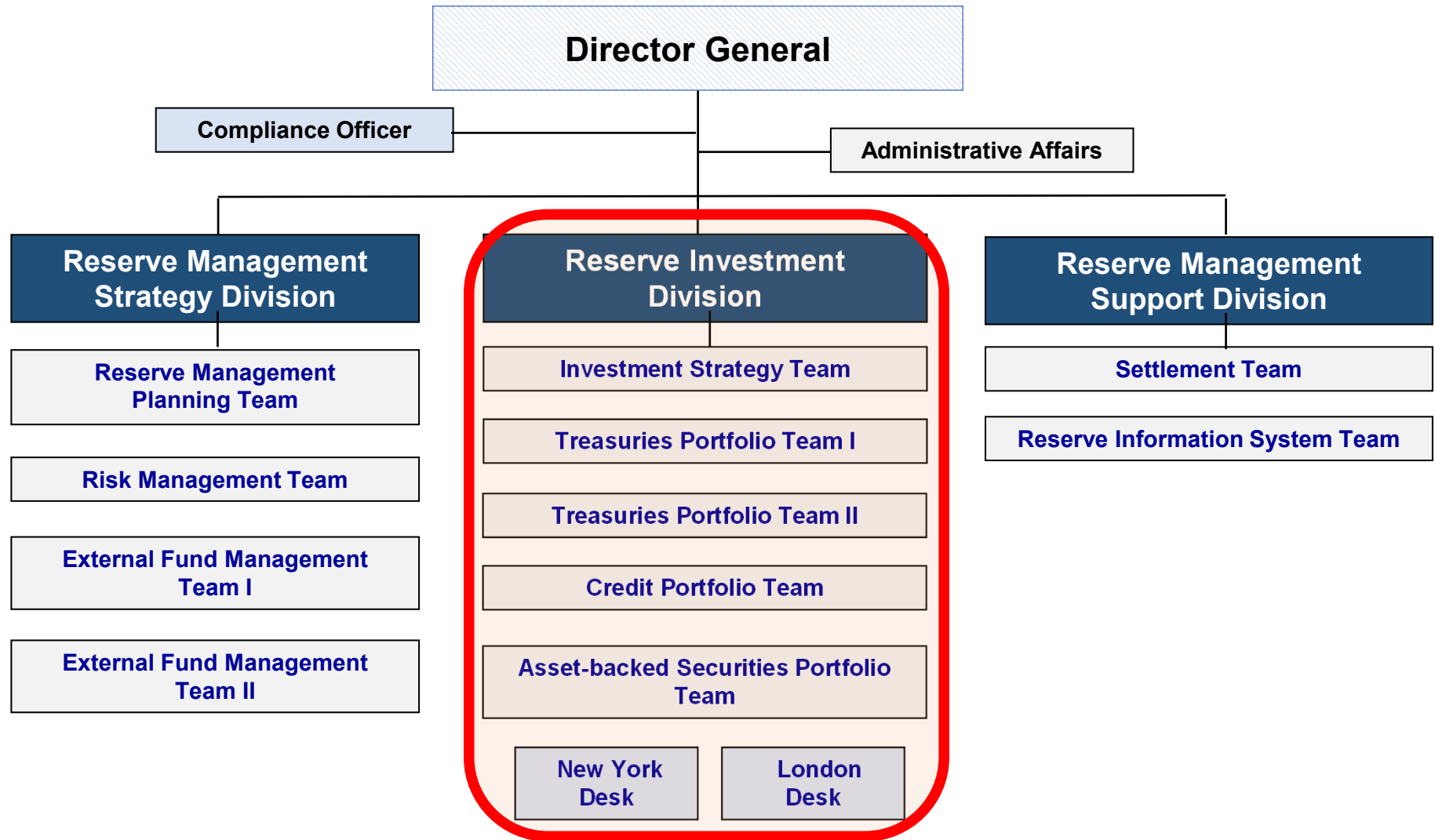
### Global Total FX Reserves



Source: World Bank

# **II. BOK Reserve Management Overview**

# Reserve Management Group



# Foreign Assets of BOK

(As of year-end, %)

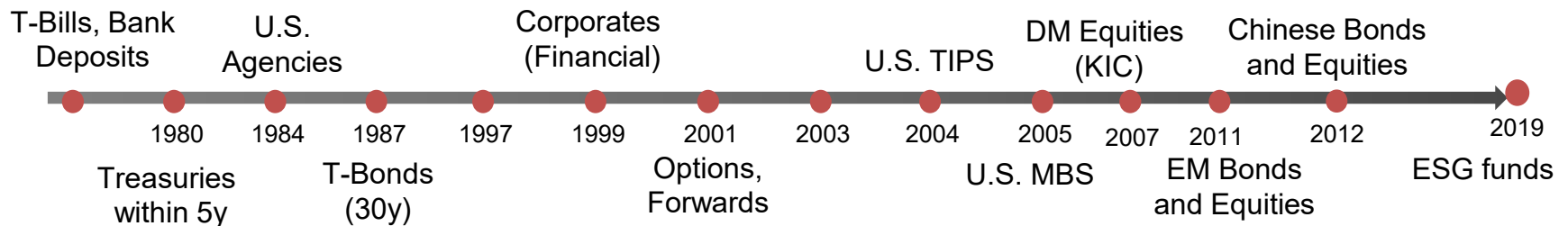
|                                       | 2010  | 2013  | 2016  | 2019  | 2020  | 2021  | 2022  |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| <b>By purpose</b>                     |       |       |       |       |       |       |       |
| Short-term Liquidity Tranche          | 3.2   | 3.1   | 4.7   | 4.6   | 5.1   | 5.2   | 10.0  |
| Internally-managed Investment Tranche | 82.5  | 81.6  | 77.3  | 74.6  | 73.9  | 72.0  | 65.7  |
| Externally-managed Investment Tranche | 14.3  | 15.3  | 18.0  | 20.8  | 21.0  | 22.8  | 24.3  |
| <b>By Currency</b>                    |       |       |       |       |       |       |       |
| USD                                   | 63.7  | 58.3  | 70.3  | 69.1  | 67.7  | 68.3  | 72.0  |
| others                                | 36.3  | 41.7  | 29.7  | 30.9  | 32.3  | 31.7  | 28.0  |
| <b>By Asset class</b>                 |       |       |       |       |       |       |       |
| Deposits                              | 6.0   | 4.4   | 6.5   | 5.0   | 7.1   | 6.9   | 12.6  |
| Government notes & bonds              | 35.8  | 36.8  | 36.9  | 44.6  | 44.5  | 44.9  | 39.4  |
| Agencies & Supras                     | 21.8  | 22.0  | 21.0  | 15.8  | 14.4  | 14.1  | 14.1  |
| Corporate bonds                       | 16.5  | 15.9  | 14.8  | 13.4  | 13.6  | 12.9  | 11.0  |
| ABS                                   | 16.1  | 14.8  | 13.1  | 12.5  | 11.5  | 10.8  | 11.5  |
| Equity                                | 3.8   | 6.1   | 7.7   | 8.7   | 8.9   | 10.4  | 11.4  |
| Foreign Reserves (billion USD)        | 291.6 | 346.5 | 371.1 | 408.8 | 443.1 | 463.1 | 416.1 |

Source: Bank of Korea Annual Report



# BOK Investment Diversification

- **Eligible asset classes -- Direct investment**
  - ✓ Government bonds
  - ✓ Agencies and Supras
  - ✓ MBSs, ABSs
  - ✓ Corporates
  - ✓ Chinese government bond
- **Wider investment universe -- External tranche**
  - ✓ Developed market equities
  - ✓ Emerging market bonds
  - ✓ Chinese equity market (QFII)



# **III. BOK Reserve Investment Strategies**

# 1. Recent Challenges

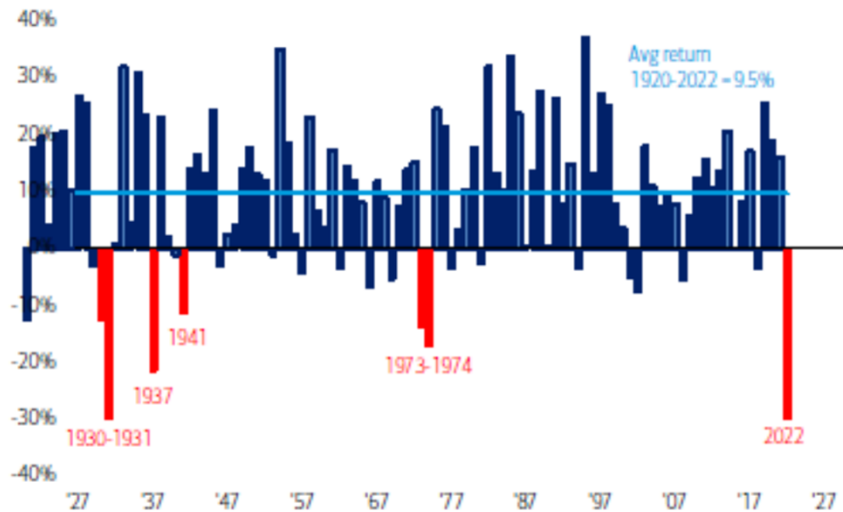
- **Preserving capital value in real terms**
  - Restraints in seeking profitability in times of financial volatility
  - Less room to seek further diversification to improve profitability
  - Big loss in a bond market due to the increasing interest rate
- **Complementing monetary policy to achieve price and financial stability is an important role**
  - FX market stabilization measures(managing liquidity tranche)
  - Priority on **liquidity** and **safety objective**
- **Adjusting portfolios to fast-changing investment environment and social responsibility**
  - Periodic review and prudent risk management, TAA(vs SAA), etc
  - Public Disclosure(Transparency), ESG investment, etc.

## 2. Strategies to preserve capital

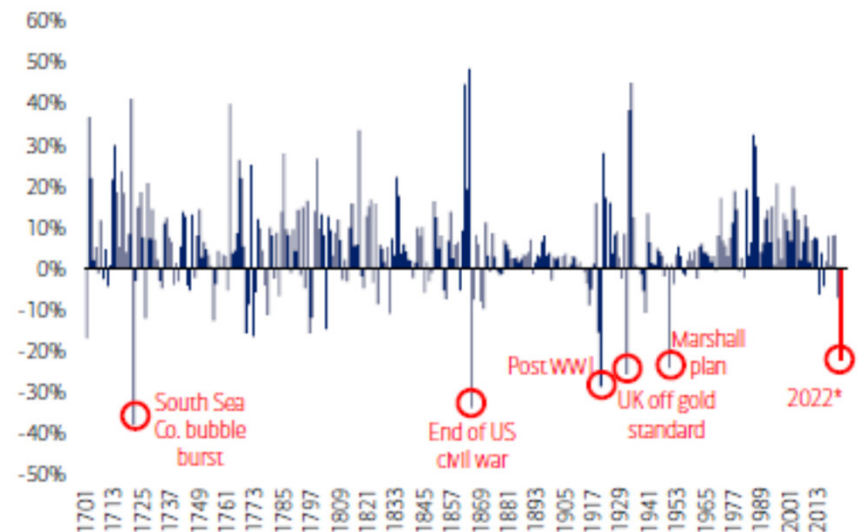
### (Challenging environment to Preserve Capital)

- Restraints in seeking profitability in high interest rate era
- Less room to seek further diversification
- Using interest rate futures, FX swaps to protect NAV

#### Worst annual returns for 60/40 portfolio



#### Gov't bond annual return since 1700s



## 2. Strategies to preserve capital

### (Challenging environment to Preserve Capital)

- **(High Inflation)** Deglobalization, Global Supply Chain weakening, Protectionism(onshoring)
- **(High interest rate)** Great Moderation → Great Repricing, Ultra-low interest rate(QE) → Higher for Longer interest rate(QT)

Headline Inflation and GDP Growth

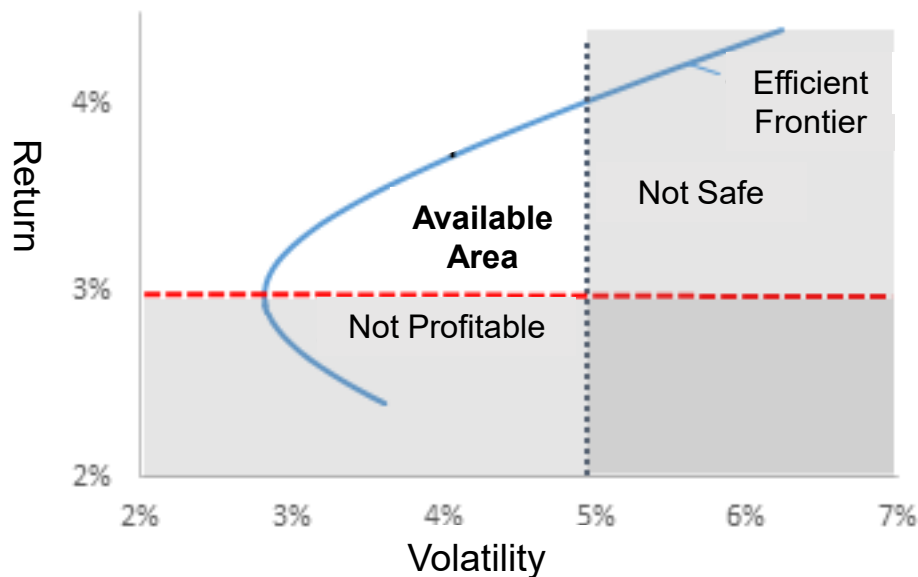


## 2. Strategies to preserve capital

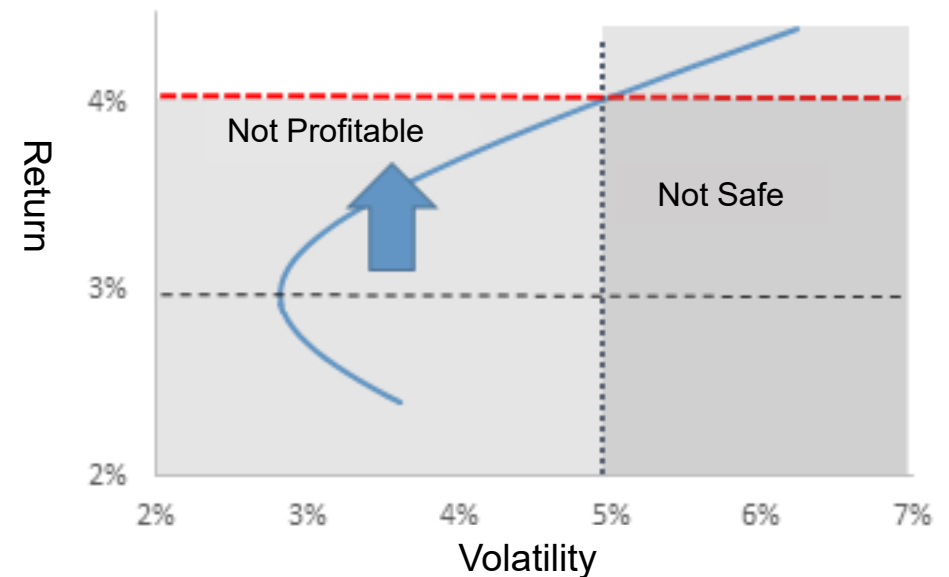
### More Strict Asset Allocation Constraints with High Inflation

- Duration and yield curve strategies(rolling down effect)
- Diversification(currency and product composition)

#### Pre-Pandemic(Low Inflation) Era



#### Post-Pandemic(High Inflation) Era

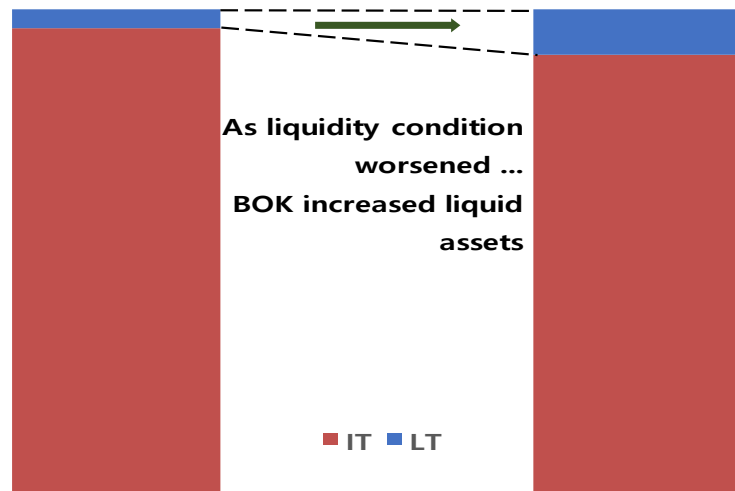


## 2. Strategies to preserve capital

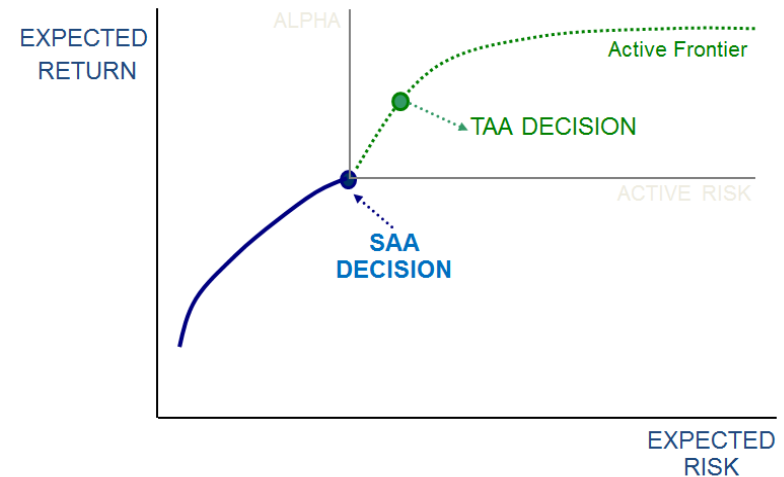
### (Key ideas : Major Strategies)

- Rebalancing between Liquidity Tranche and Investment Tranche
- Taking advantage of Derivatives(hedging position construction\*)
- \* Using the interest rate futures, FX swaps for the protection of NAV
- SAA vs TAA(flexibility to changing investment environment)

### Rebalancing LT and IT



### SAA vs TAA

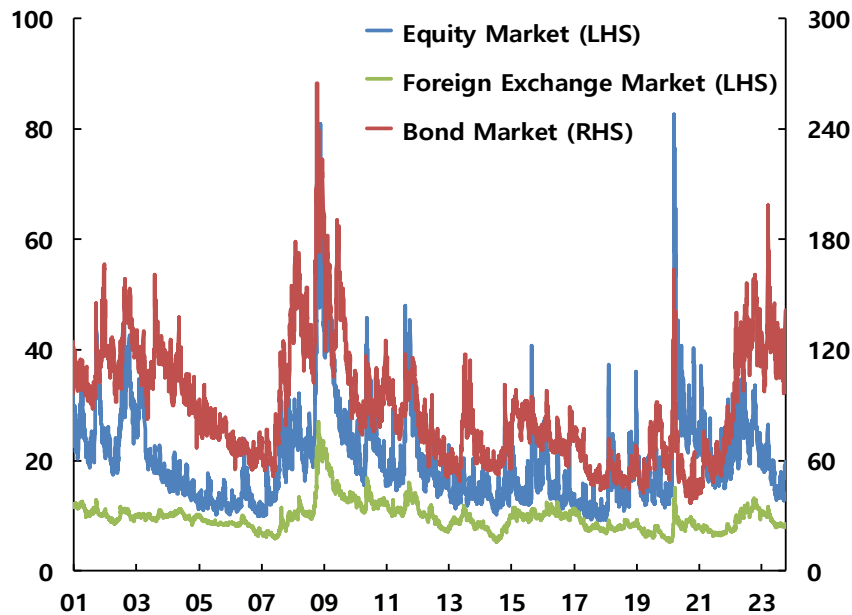


# 3. Strategies to preserve liquidity

## (Liquidity Condition Index)

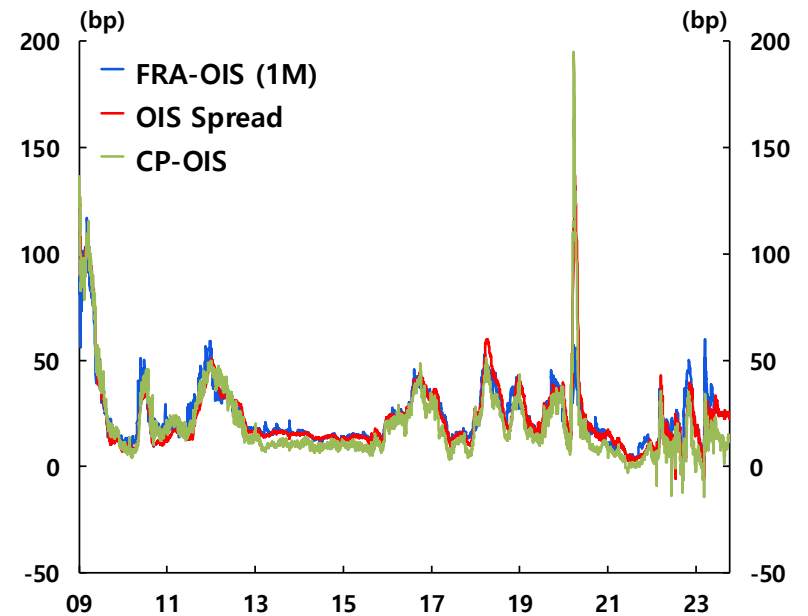
- high volatility + tight regulation = lack of liquidity

### Market Volatility



Source: Bloomberg

### Liquidity Condition



Source: Bloomberg



# 3. Strategies to preserve liquidity

## (Preserving Liquidity)

- More working orders than before
- Smaller amount for each transaction
- Best price with full amount is not realistic, so we should focus either price or amount

## (Alternative Strategies)

- Outright sales : effective but high liquidity cost
- Reverse R/P : counterparty risk, relatively small(market liquidity)
- FIMA R/P : stigma effect
- Regional Currency Swap : similar situation

# 3. Strategies to preserve liquidity

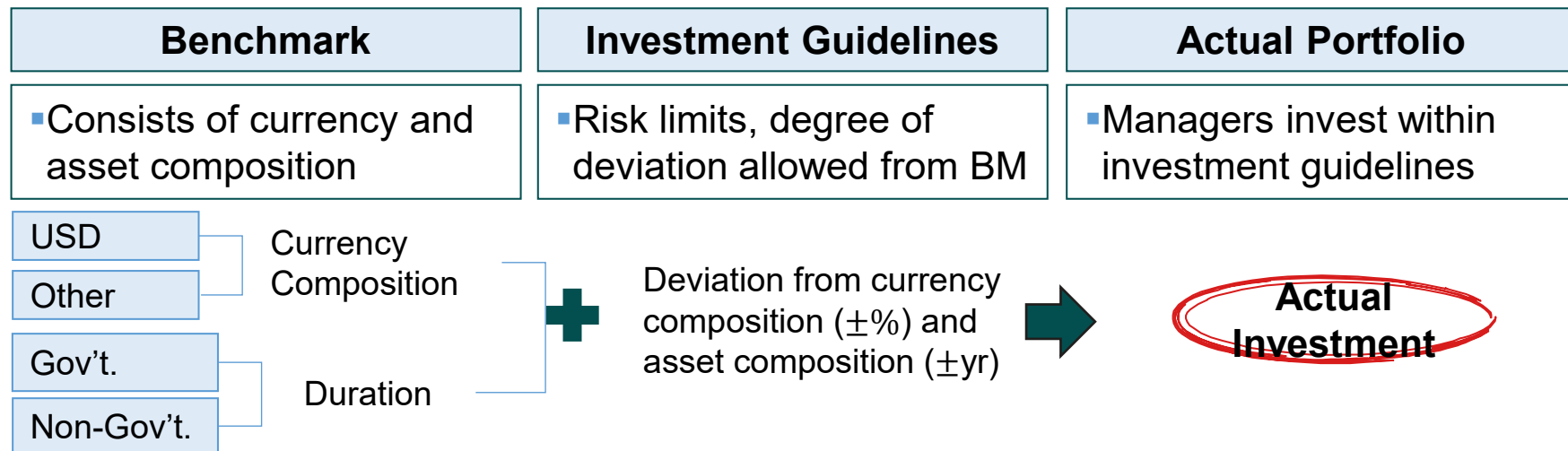
## (Outflows and Liquidity Management)

- More focus on Safety and Liquidity(harmony with profitability)
  - Keeping Short-term Liquidity tranche sufficient for FX market intervention
  - Flexibility on the limit of Short-term Liquidity tranche

| Tranche                     |                    | Investment Objective                                                                                                                                                                                                | 2022  |
|-----------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| <b>Short-term Liquidity</b> |                    | <ul style="list-style-type: none"> <li>• <b>Accommodate unexpected cash flows and FX volatility</b></li> <li>• 100% USD money market instruments</li> <li>• Periodic rebalancing with investment tranche</li> </ul> | 10.0% |
| Investment                  | Internally managed | <ul style="list-style-type: none"> <li>• Return generation while maintaining liquidity &amp; safety</li> <li>• Diversified currency composition and instruments</li> </ul>                                          | 65.7% |
|                             | Externally managed | <ul style="list-style-type: none"> <li>• Return maximization with higher risk tolerance</li> <li>• Focus on Corporate bonds, MBS and Public Equities</li> <li>• Testing investment strategy</li> </ul>              | 24.3% |

## 4. Efforts to Enhance Returns(Potential assets)

- **Enhancing profitability** to the extent that it fully secures key principles of **liquidity** and **safety**
  - Monitoring yield levels where we'd prefer a long position to pick up
  - Deriving a long-term target, optimal share of risky assets



## **4. Efforts to Enhance Returns(Potential assets)**

### **(Our ideas)**

- To improve risk/return profile

### **(Appetites for spread products)**

- Attractive in terms of carry, but high alertness is needed for risk management
- Securities Selection(more important)

### **(More sophisticated risk management)**

- Various predicted scenario analysis(baseline/worst/best)
- Stress test
- Collateral management



**Thank you.**



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