

BOK Reserve Management in Recent Market Environment

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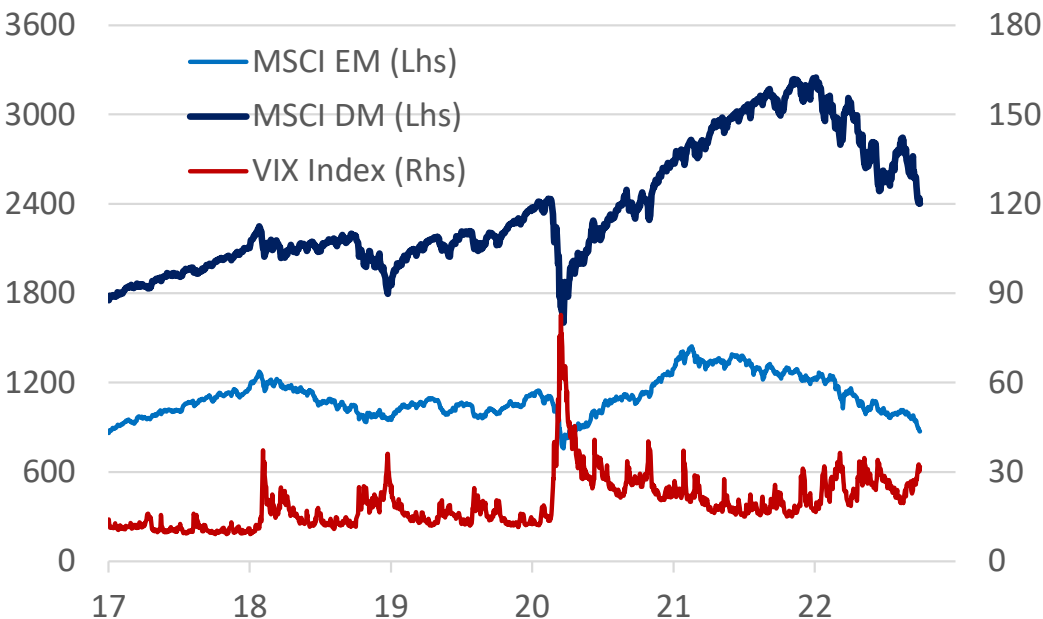
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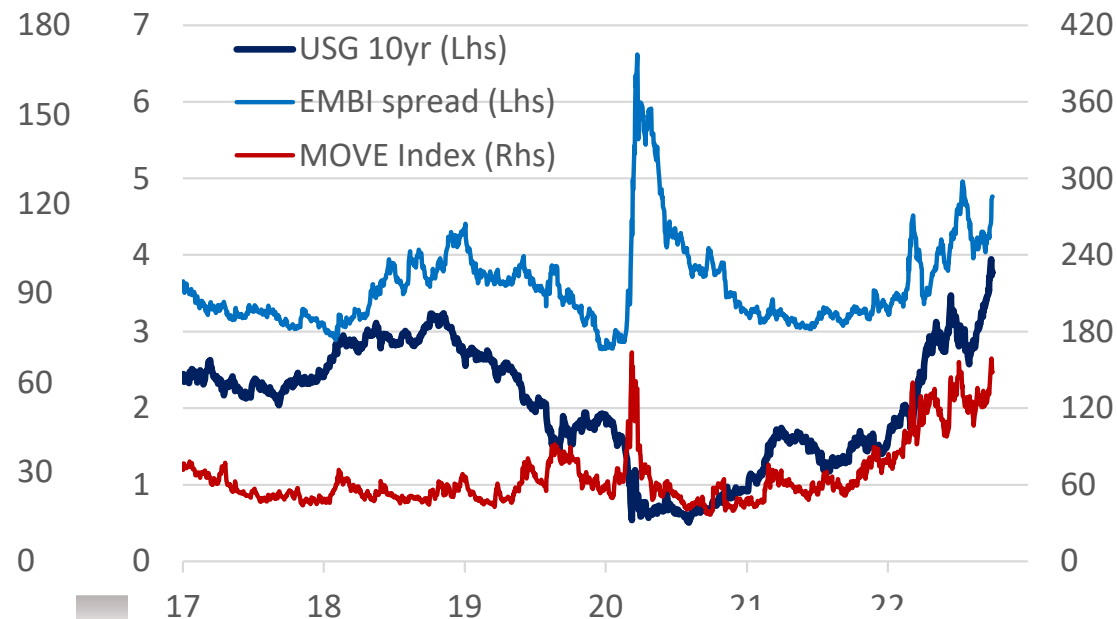
Recent Financial Conditions

- **Financial volatility has heightened**
 - Negative return in traditional assets, both bonds and stocks
 - Emerging market economies (EMEs) bond spreads widen
 - Strong U.S. dollar & currency market volatility

Equity Market Volatility



Bond Market Volatility

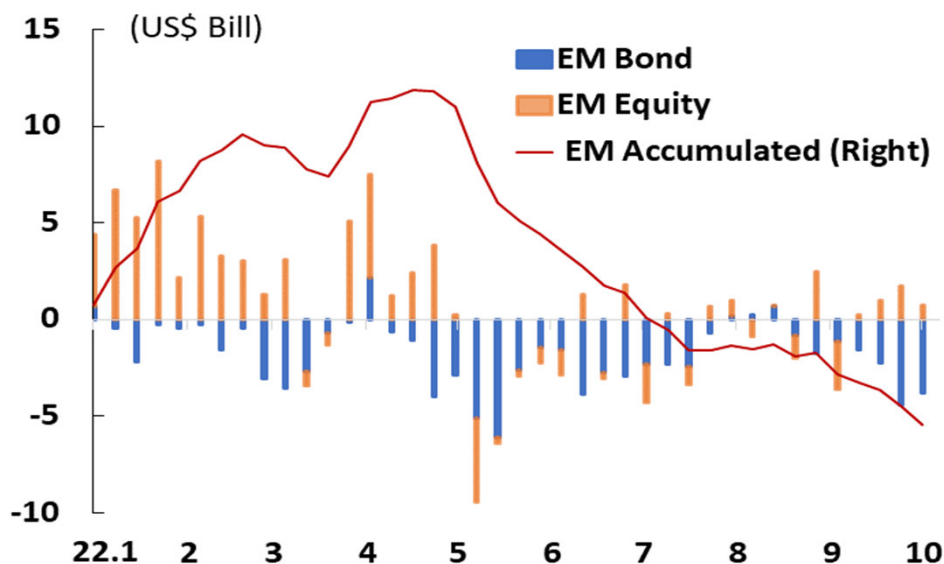


Source: Bloomberg

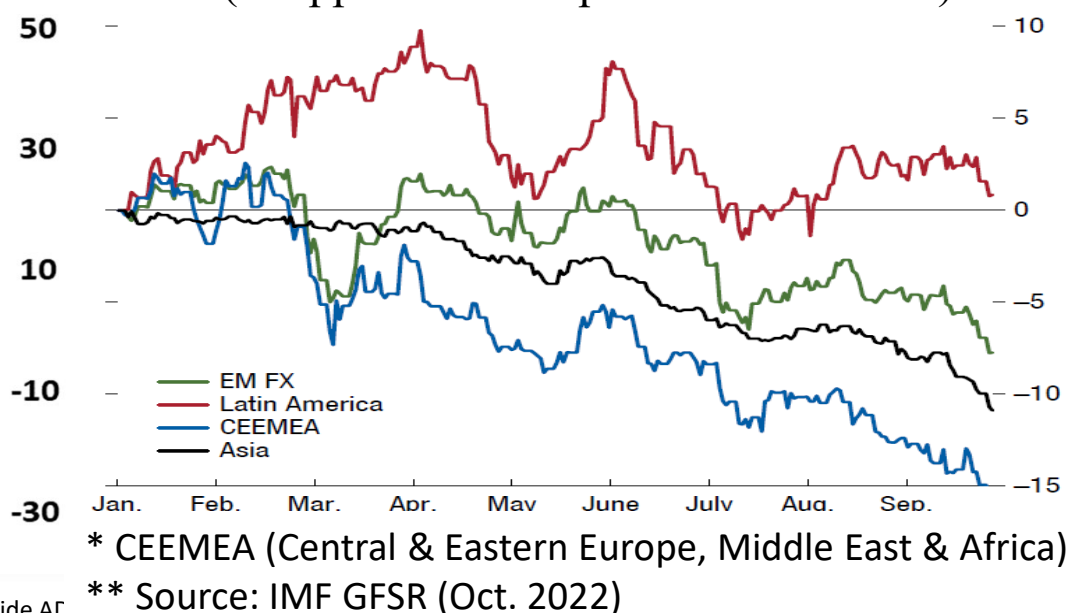
Fund Flows in EMEs, Currency Depreciation

- EMEs as a whole have experienced fund outflows.
- Key drivers are the Fed's rapid tightening, concerns about EME macroeconomic outlook, and risk-off sentiment.
- Regional differences in currency depreciation within EMEs
 - European EME currencies being hardest hit by Russian invasion of Ukraine

Global Bond & Equity Fund Flows in EMEs



EME Regional Currencies
(% appreciation/depreciation vs. USD)



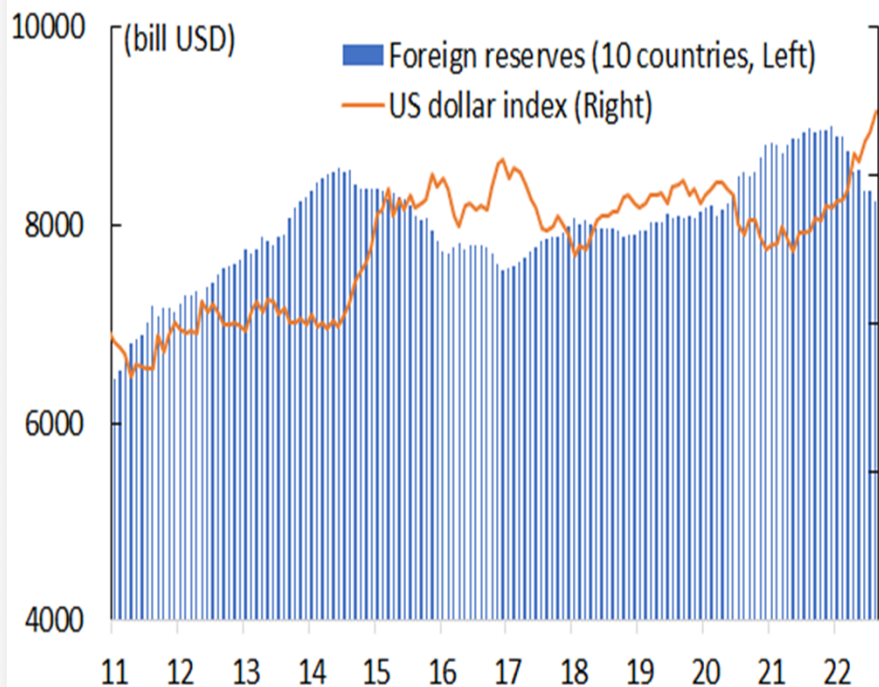
* CEEMEA (Central & Eastern Europe, Middle East & Africa)

** Source: IMF GFSR (Oct. 2022)

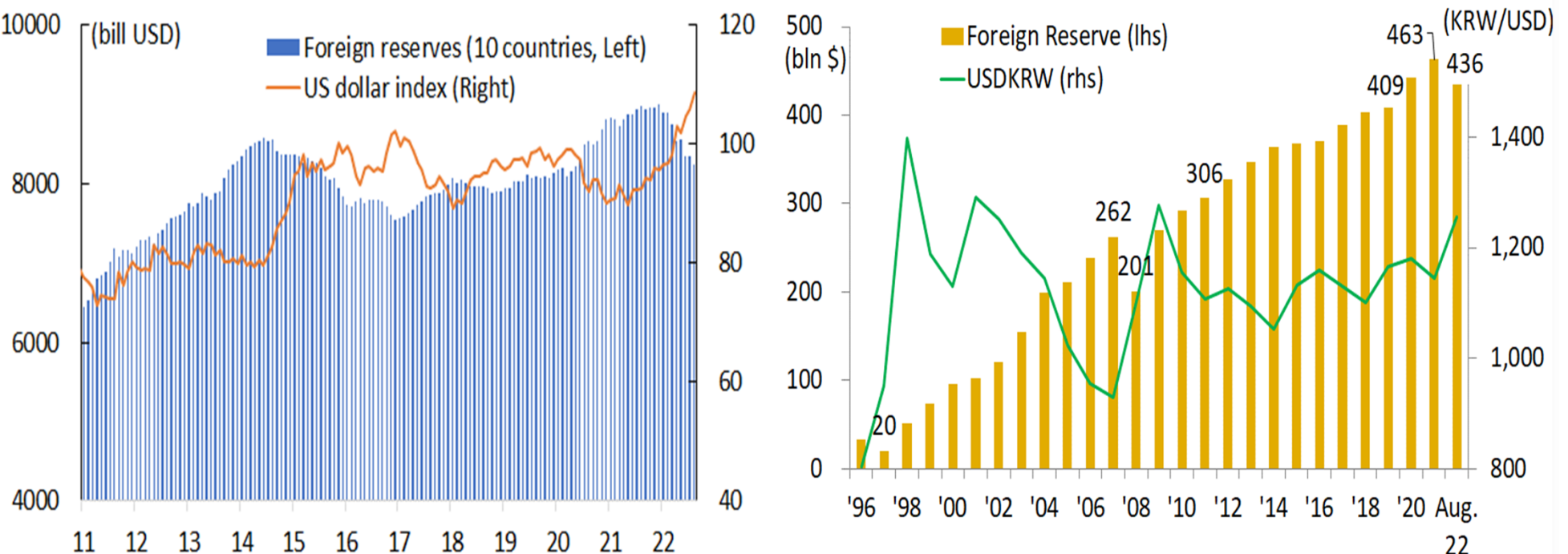
USD Appreciation, Global FX Reserves

- Global FX reserves volume decreasing as USD strengthens
 - Depreciation in market value (dollar appreciation, asset price declines)
 - FX market stabilization measures

FX Reserves of Top 10 Countries



Korean Won & FX Reserves



II. Challenges in Reserve Management

Recent Challenges

- **Difficulties in adjusting large portfolios promptly at the SAA level**
 - Several decision-making steps needed to adjust portfolios
- **Frequent in & out flows of foreign reserve assets**
 - FX market stabilization measures, EME capital outflows, etc.
 - Priority on **liquidity** and **safety objectives**
- **Preserving capital value in real terms becomes hard**
 - Restraints in seeking profitability in times of financial volatility
 - Less room to seek further diversification to improve profitability

BOK Strategic Asset Allocation

SAA Process

1 Set investment objectives

- Safety, liquidity & profitability

2 Decide investment universe

- Based on the degree of diversification
- Investing in currencies (generally accepted, convertible in global financial markets), and in assets with high level of liquidity

3 Derive market forecasts

- Forecasting FX rates, yield curves, credit spreads with internal secular outlook model

4 Derive efficient frontier

- Utilizing mean-variance optimization process to derive efficient frontier

Setting Annual Investment Plan

1 Propose the annual investment plan
(**Reserve Management Group**)

2 Advise on market outlook and strategy
(**Advisory Committee**)

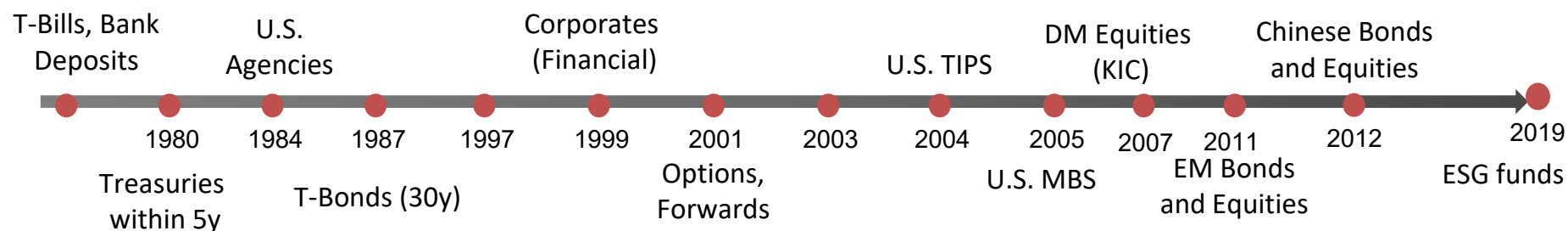
3 Discuss market outlook and the
annual investment plan
(**Risk Committee**)

4 Determine the outline of the annual
investment plan
(**Monetary Policy Board**)

5 Approve the annual investment plan &
investment guidelines (**Governor**)

BOK Investment Diversification

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



III. BOK Responses

1. Stronger need to secure liquidity

- **Focusing on liquidity management**
 - Keeping the liquidity tranche amount at a sufficient level for the needs of domestic FX market stabilization
- **Flexibly setting the limit of the liquidity tranche**
 - Saving the effort of having to frequently transfer assets from other tranche
 - Letting the overall portfolio management process be more stable and reliable

Tranche		Investment Objectives	2021
Short-term Liquidity		<ul style="list-style-type: none"> • Accommodate unexpected cash flows and FX volatility • 100% USD money market instruments 	5.2%
Investment	Internally managed	<ul style="list-style-type: none"> • Return generation, while maintaining liquidity & safety • Diversified currency composition and instruments 	72.0%
	Externally managed	<ul style="list-style-type: none"> • Return maximization with higher risk tolerance • Testing investment strategy, i.e., MBSs and equities 	22.8%

2. Addressing market volatility

- In case of a structural shift, adjust the overall SAA
- Responding with TAA adjustment within investment guidelines
 - Shorten duration and overweight USD
- Preparing contingency plans
 - Top priority in ensuring liquidity during financial volatility
 - Return to normal operations promptly in a recovery scenario

Strategic Asset Allocation



Tactical Asset Allocation



Actual Management

Financial instability deepening

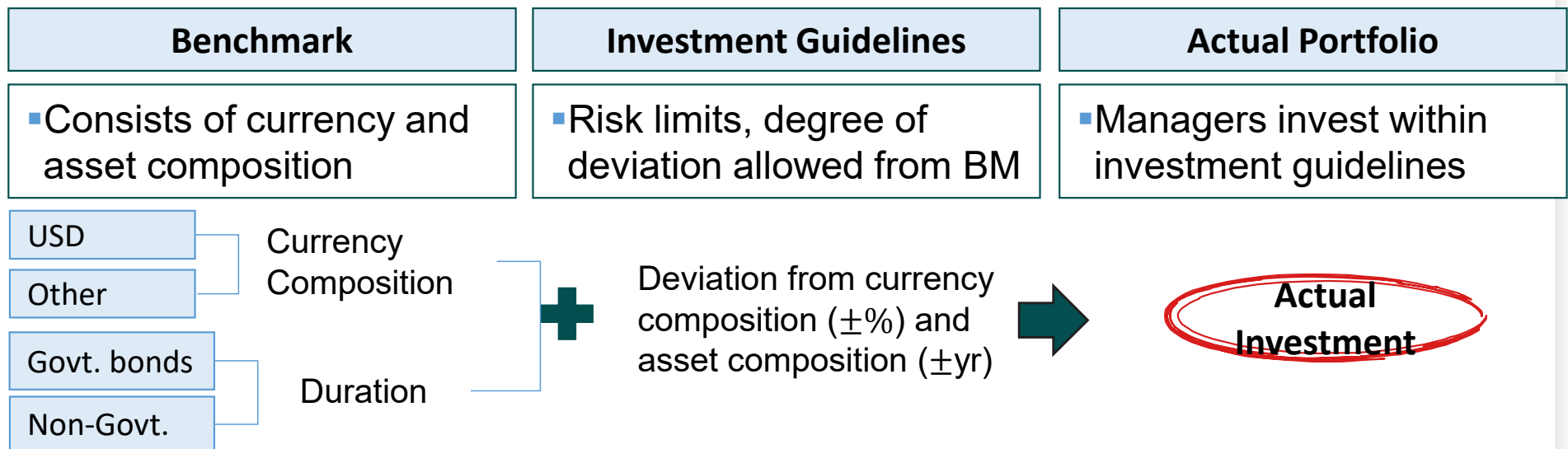
Keeping the portfolio composition balanced and stable

Streaming down relatively illiquid assets

Keeping soundness of asset composition for external creditworthiness

3. Efforts to enhance returns

- **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



Efforts toward ESG investment

- **BOK** increasing its ESG holdings, going toward **ESG integration**
- Having corporate bond portfolio in directly managed assets internally screened, and ESG mandated funds in externally managed assets

Increasing trend in **ESG holdings**

	Dec. 2020	Jun. 2022
Stocks	1.1	1.4
Bonds	4.4	8.2
Total	5.5	9.6

* USD billions, based on market value

Starting with **negative screening**

- Apply to externally managed assets, use external index



Going toward **ESG integration**

- Incorporate ESG factors into overall investment process in the long run

Thank You

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