



Financial Risk Management

Session 4: Risk Management Framework

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2025 ASIAN REGIONAL FORUM
ON INVESTMENT MANAGEMENT
OF FOREIGN EXCHANGE RESERVES

Risk Management and Control Division



Strategic Asset Allocation

Objectives:
• Safety
• Liquidity
• Profitability

Frequency: Annually
Time Horizon: 1 year

Risk Tolerance:
estimated with VaR/
CVaR 95% Conf. level



Market Risk

- Price sensitivity
- Duration Analysis
- Stress Testing
- Portfolio VaR Estimation
- Active Risk Limits

Financial Risk Management



Credit Risk

- Portfolio Credit Risk Model
- Counterparty Monitoring
- Probability of Default Estimation
- Credit Risk Limits
- Live Bloomberg Alerts



Liquidity Risk

- Concentration Limits
- Asset Class distributions
- Maturity Analysis
- Asset Liability Matching
- Tranching



Reporting

- Performance Attribution
- Reserve Decomposition
- Investment Committee
- Board Reports
- Risk Limit Reporting



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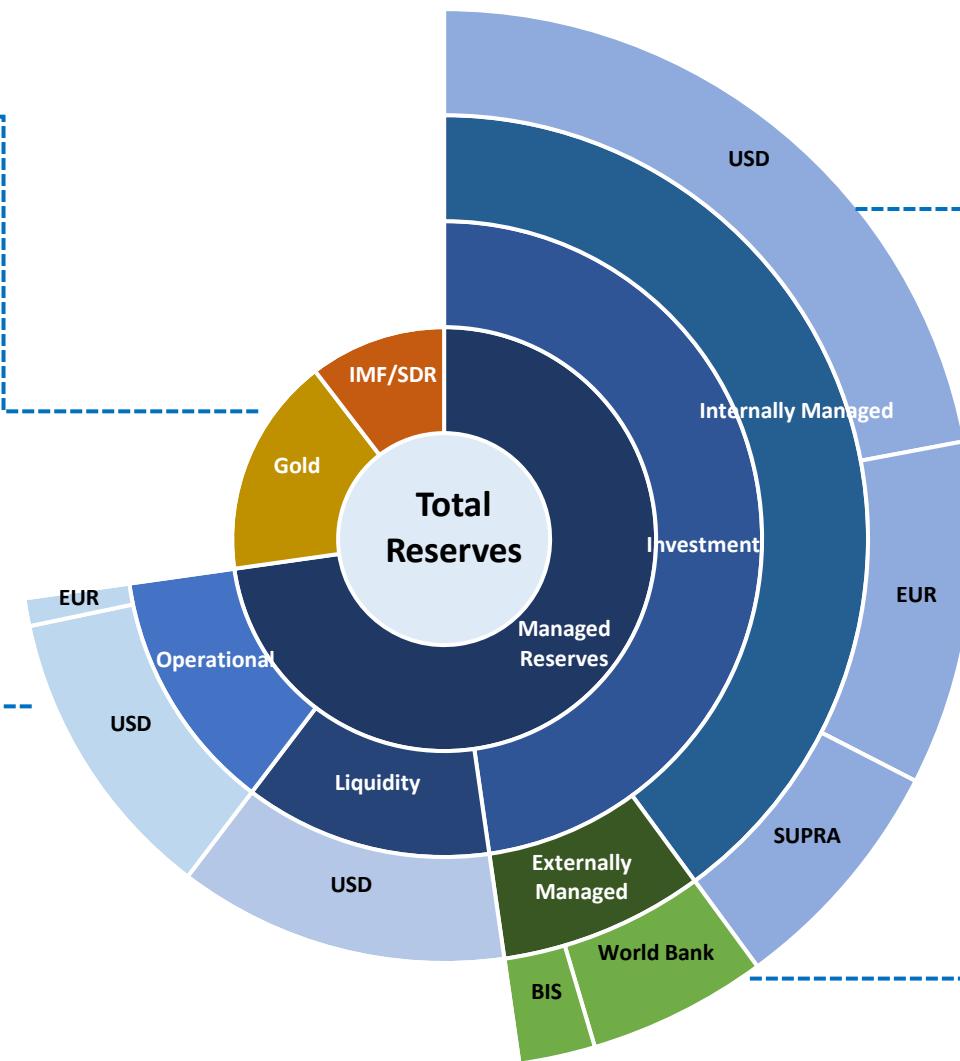
NBG Portfolio Structure



Gold for Diversification & Liquidity Purposes.
↑50% since acquisition



Total Reserves increased by ↑\$462 mln YTD



Operational Tranche:

Serves short-term liabilities within 3 months



Liquidity Tranche:

Provides liquidity coverage within 6 months



Investment Tranche:

Invests excess cash to generate additional return

Portion of FX Reserves under **External Management**

Strategic Asset Allocation

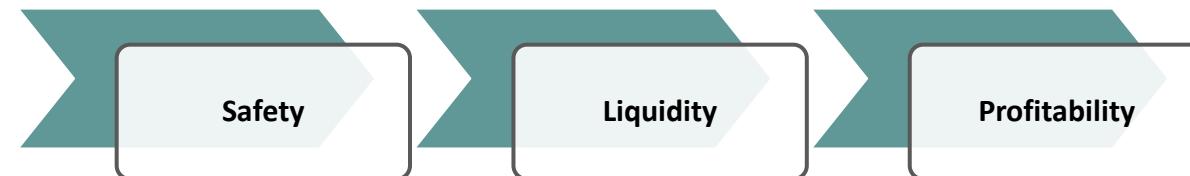
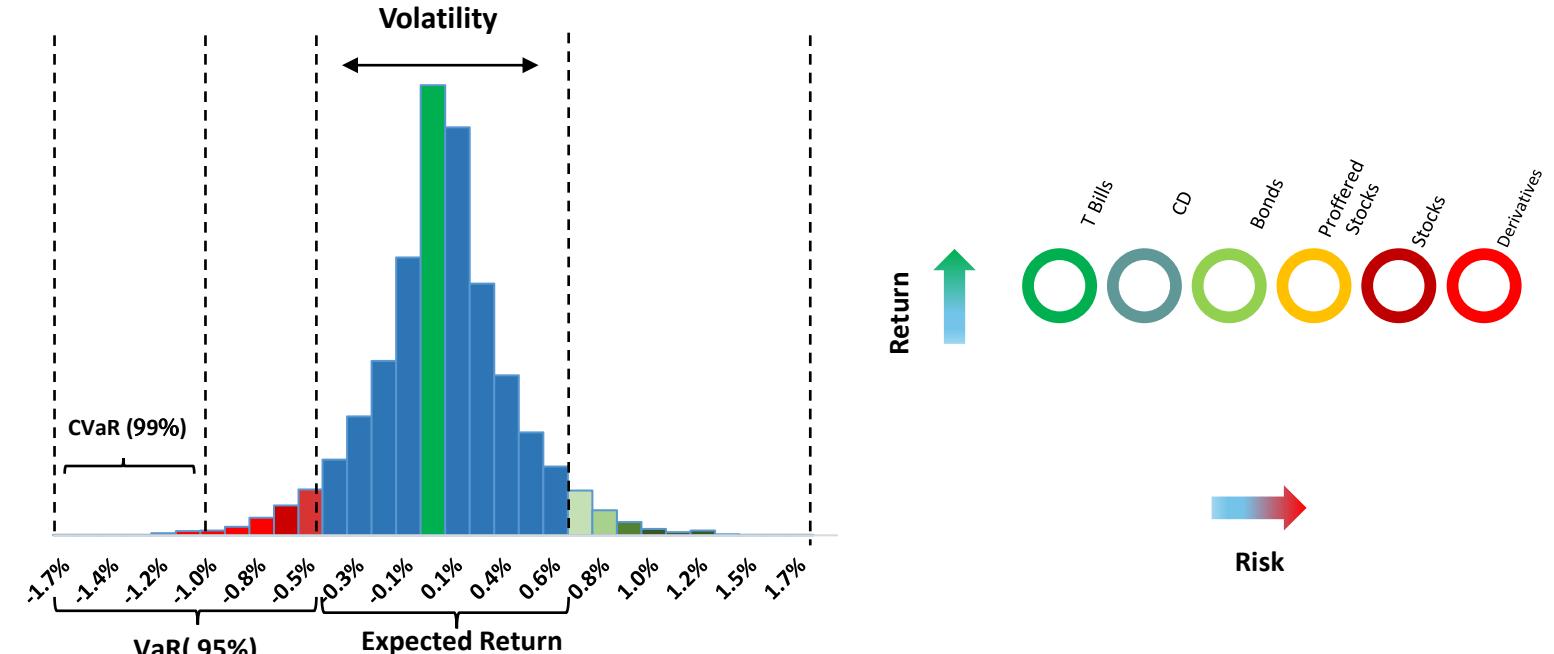
Risk tolerance is the level of risk acceptable/permmissible for achieving the strategic and investment objectives set out in the Investment Policy Document.

Risk tolerance is measured by the **CVaR** indicator for a given confidence level.

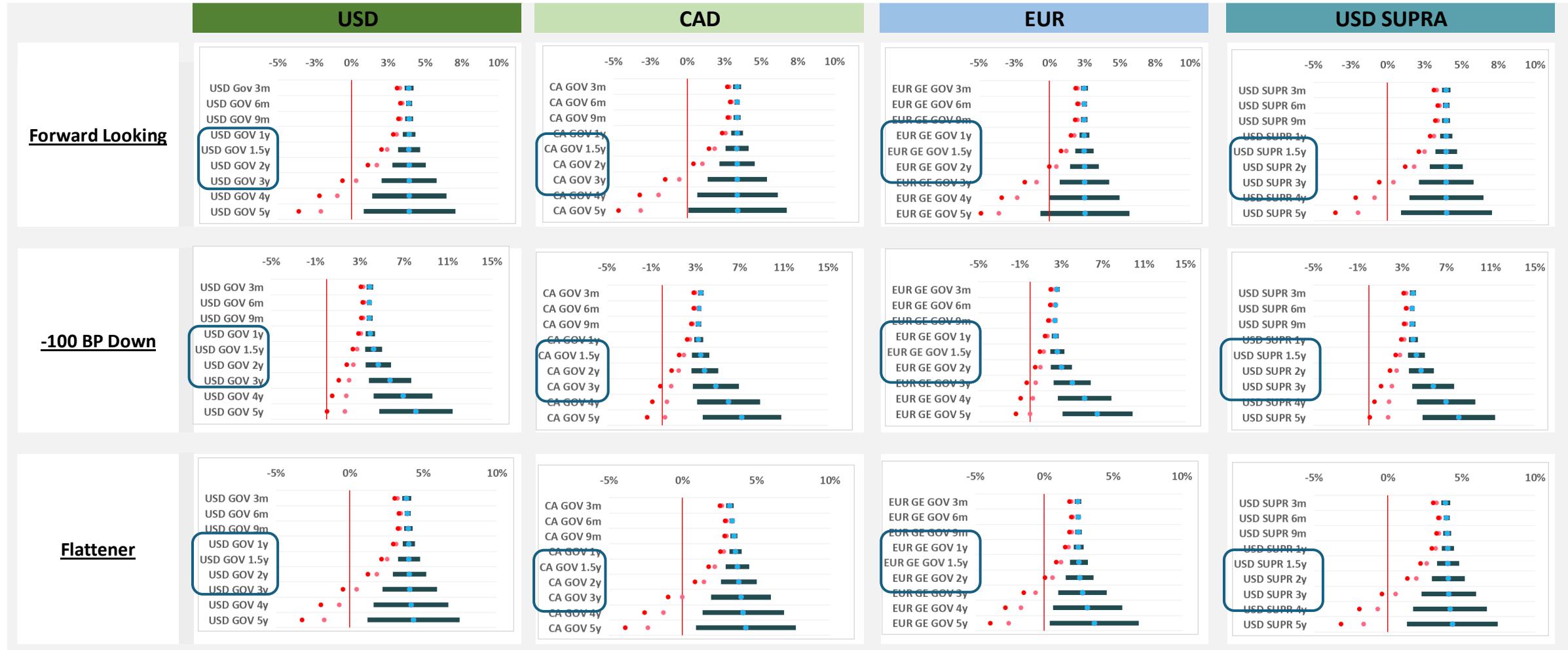
Liquidity Portfolio: CVaR (99%),

Investment Portfolio: CVaR (95%)

Working Capital Portfolios are not managed actively relative to benchmark.

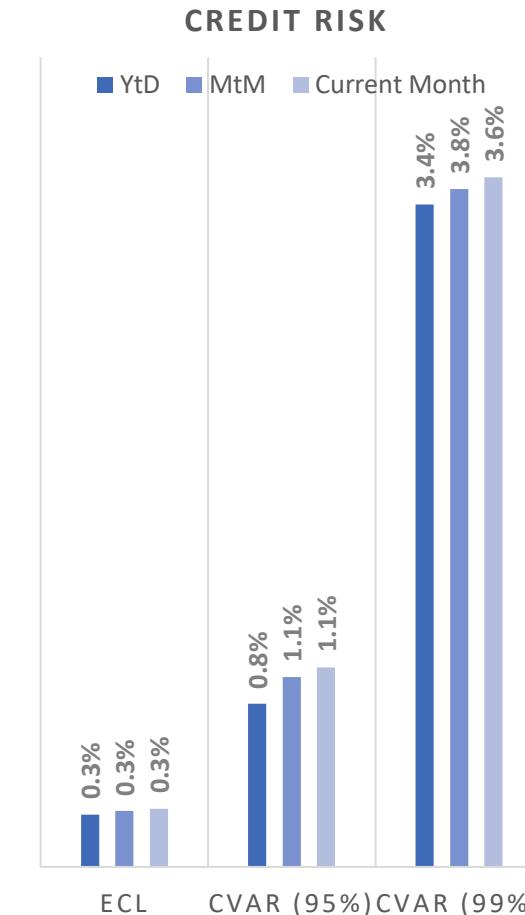


Scenarios Analysis for Benchmarks



Credit Risk Monitoring and Management

- **Credit VaR (CreditMetrics methodology):** Identifies the main sources of credit risk and potential losses arising from the deterioration of counterparties' credit quality.
- **Issuer & Counterparty Control:** Involves the review, approval, and ongoing monitoring of issuers and counterparties.
- **Limits:**
 - Minimum investment rating requirements
 - Exposure limits based on credit ratings
 - Spread Duration and Tracking Error (TE) limits relative to the benchmark
- **Ongoing Monitoring:** Continuous monitoring of credit ratings and market data, with live alerts on rating changes, stock prices, spreads, CDS, DRSK, and SRKS indicators.
- **In-house Credit Assessment:** Incorporates both financial and qualitative metrics, supplemented by expert judgment, particularly for unrated counterparties.



*ECL – estimated loss due to the risk of default

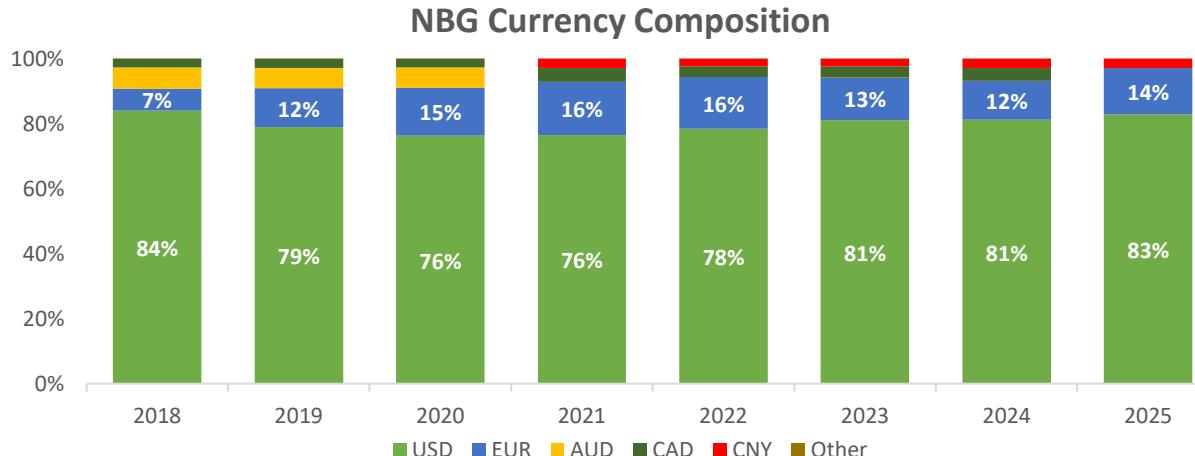
*CVaR (95% / 99%) - is the average loss expected in the worst 5% / 1% of cases for portfolio, providing a measure of tail risk beyond the standard Value at Risk (VaR) threshold.

Currency Composition

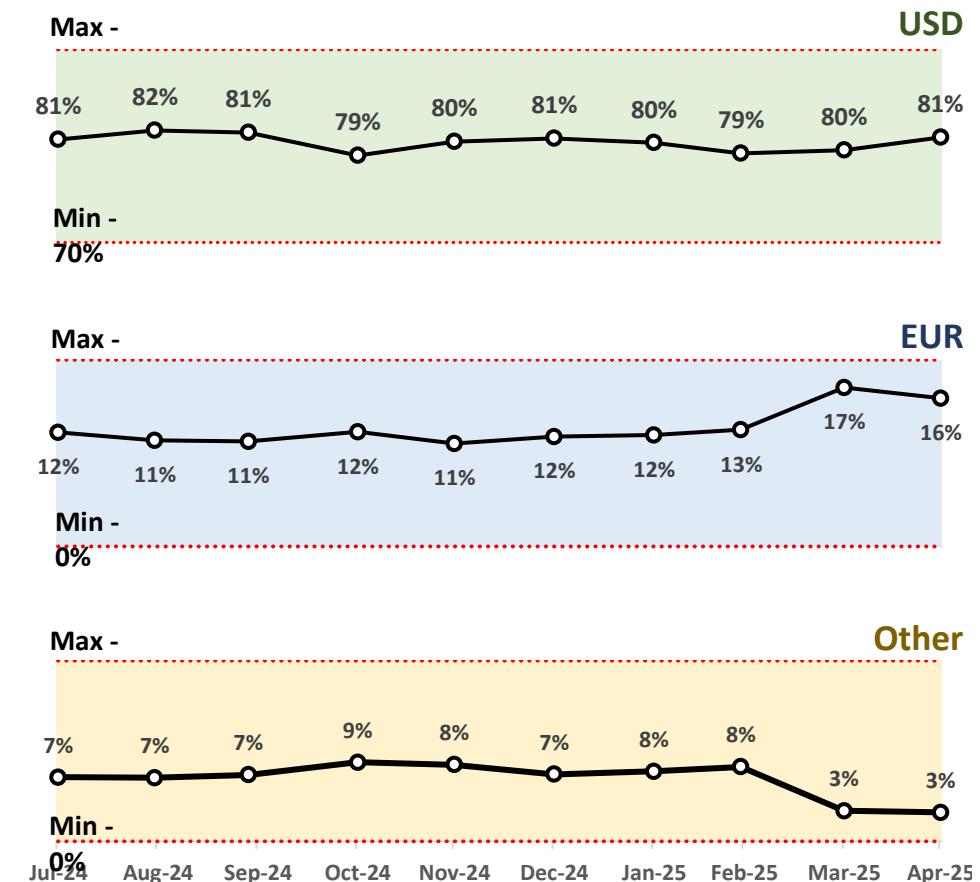
FX risk is primarily managed through the Strategic Asset Allocation process -

Defines the neutral FX currency composition with broad passive deviation limits, approved by the Reserve Management Committee and the Board.

- Deposits Maximum Maturity - 1 month
- Limits for Short Term Deposits:
 - Low Risk - 25%
 - Medium Risk - 15%
 - High Risk - 10%
- Maximum Duration of the Bonds - 5.5y
- Minimum Rating of the Bonds - A
- Minimum Amount Outstanding of Bonds – 500 mln



Limits: Internal Reserves

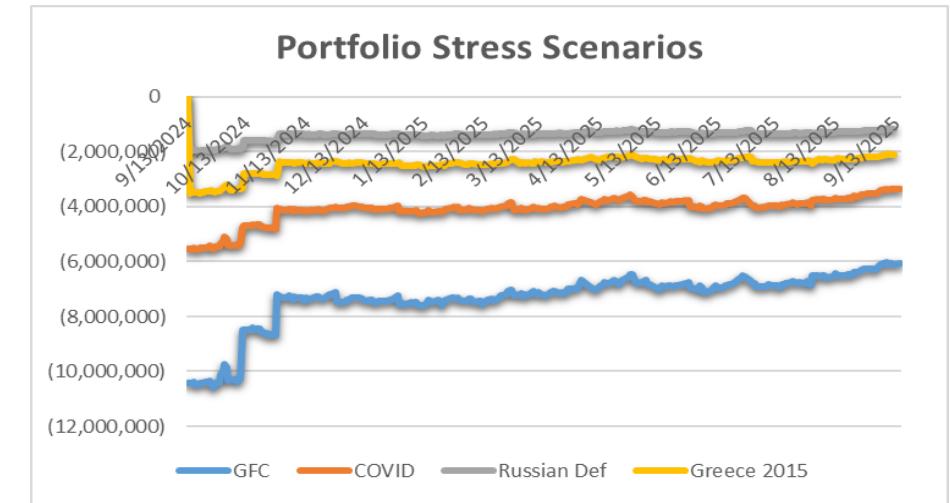
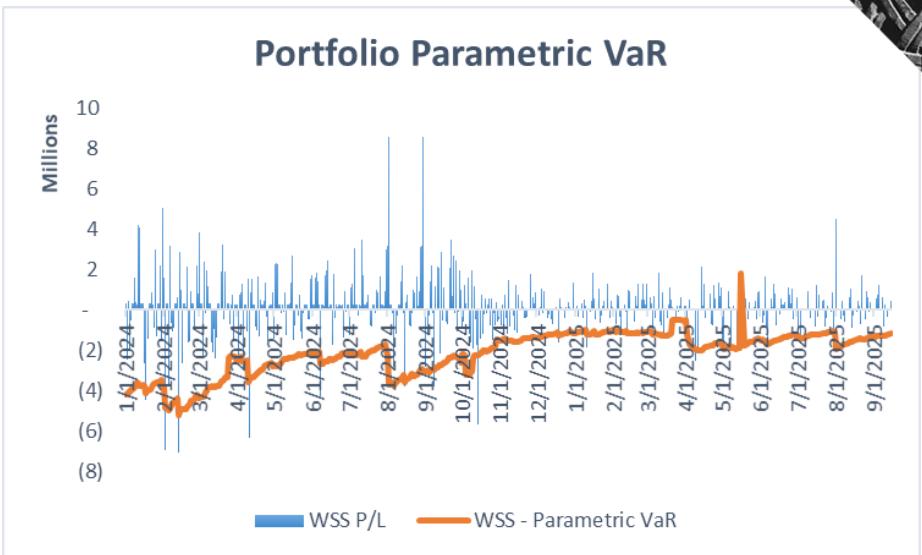


Daily Risk Limit Monitoring

Daily Risk Limits Monitoring and Stress-Scenario Analysis: Identifying, measuring and managing potential losses across all investment portfolios.

- Daily monitoring and reporting of every limit specified in Investment Policy Document
- Live update on limits in WSS covering all types of risks
- Design and maintenance of in-house tools to improve oversight of market dynamics and emerging threats (*Bank & Issuer Monitoring File, Credit Risk Report Tool, Price & Liquidity Analysis File*, etc.)

Limit Name	Currency Risk	Market Risk	Credit Risk	Liquidity Risk	Settlement Risk	Concentration Risk
Transche Size				✓		
<u>Active Limits</u>		✓	✓			
<u>Treasury Concentration Limits by Portfolios</u>						✓
<u>External Manager Concentration</u>						✓
<u>Gold Concentration</u>						✓
<u>Forward Operations Limit by Portfolios</u>						✓
<u>Currency Composition</u>	✓					
<u>Daily Trading Limits</u>			✓		✓	
<u>Credit Rating</u>			✓			
<u>Security Lending</u>			✓			
<u>Minimum Investment Issue Amount</u>				✓		
<u>Maximum Investment % in Financial Instrument</u>				✓		
<u>Limit Amounts by Issuers</u>						✓
<u>Limit Amounts by Financial Instrument Types/Asset Classes</u>						✓
<u>Short Selling</u>		✓		✓		
<u>Eligible Financial Instruments/Maturity</u>						





Thank you

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