Strategies for effective risk mitigation:
Bank of Lithuania perspective

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16 February 2018
Skopje
Big picture and key facts

- Size of foreign reserves
  - max limit: €5.86 billion
  - end-2017: €4.55 billion

- Investment horizon
  - three-year rolling investment horizon

- Risk (loss) tolerance
  - €150 million absolute risk budget

- Portfolios
  - investment
  - reserves [new]
  - short-term
  - gold

Largest among the Baltic States

- Half of the Baltic region GDP
- Population: 2.81 million (2017)
- Capital: Vilnius (pop. 0.62 million)
- Member of the EU, euro area, NATO and the Shengen area
- Financial sector is highly integrated with the Nordic market
Search for yield, but different choices

% of Central Banks which have approved the asset class

Key asset allocation milestones

2012
- 3-year rolling investment horizon
- €100 mn risk budget
- EUR corporate bonds

2014
- Chinese Renminbi added

2016
- More US govt (hedged)
- First external mandate: World Bank (RAMP)

2018
- US agency MBS
- Quant strategies
- Equities: smart beta?

2013
- Equities: first purchases
- Duration and credit risks increased

2015
- Unhedged USD exposure added
- Equities: build-up was frozen

2017
- Risk parity approach for SAA
- €150 mn risk budget
- US inflation-protected bonds
- US corporate bonds
- $1 bn reserves portfolio
Strategic asset allocation (SAA)

- World equities
- USD corp 1-10y AAA—BBB- (Hedged)
- US TIPS 1-10y (Hedged)
- US govt 1-5y (Hedged)
- US govt 1-5y
- China govt 1-3y (Hedged)
- US, CA, UK govt 1-10y (Hedged)
- EUR corp 1-10y AAA—BBB-
- EUR quasi-govt 1-10y AAA—AA
- Euro area govt 1-10y AAA—A
- Money market
Why risk parity?

► Investment result = Portfolio size × Rate of return

► Issues:
  - low (negative) yields of safe assets
  - risk budget constraint (limits portfolio size)
  - risk of yields going up

► Possible solutions:
  - more (higher-yielding) asset classes
  - maximum diversification (risk parity)
  - active management?

Lose less in the short-term and earn more in the medium-term
Diversification is measured in terms of the effective number of minimum-torsion bets.

Diversification is maximised for every potential portfolio size and risk level, and

Results in risk parity portfolios with equal absolute risk contributions from uncorrelated risk factors.

Meucci, A., “Effective Number of Minimal Torsion Bets”, 2013
SAAs with maximum diversification

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SAAs with maximum diversification

% contribution to portfolio volatility from uncorrelated risk factors

- Current SAA: VaR=75
- VaR=96
- VaR=112
- VaR=128
- VaR=145
- VaR=161
Uncorrelated active management


Trading vs Tactical, bps

Corr = -0.05

(Tactical and Trading) vs Strategic, bps

Corr = 0.14

Tactical vs Strategic, bps

Strategic, bps
Additional observations

► Risk parity is a defensive SAA
  - when the Board does not (want to) have views about expected returns
  - emphasis on diversification/correlation rather than expected returns; as well as on active management

► Relatively easy to communicate to public
  - although the mechanics behind is rather complex

► Clear methodology, streamlines SAA updates and decisions