LIETUVOS BANKAS
EUROSISTEMA

High-Level International Conference on Monetary Policy and Asset Management

Strategies for effective risk mitigation:

Bank of Lithuania perspective

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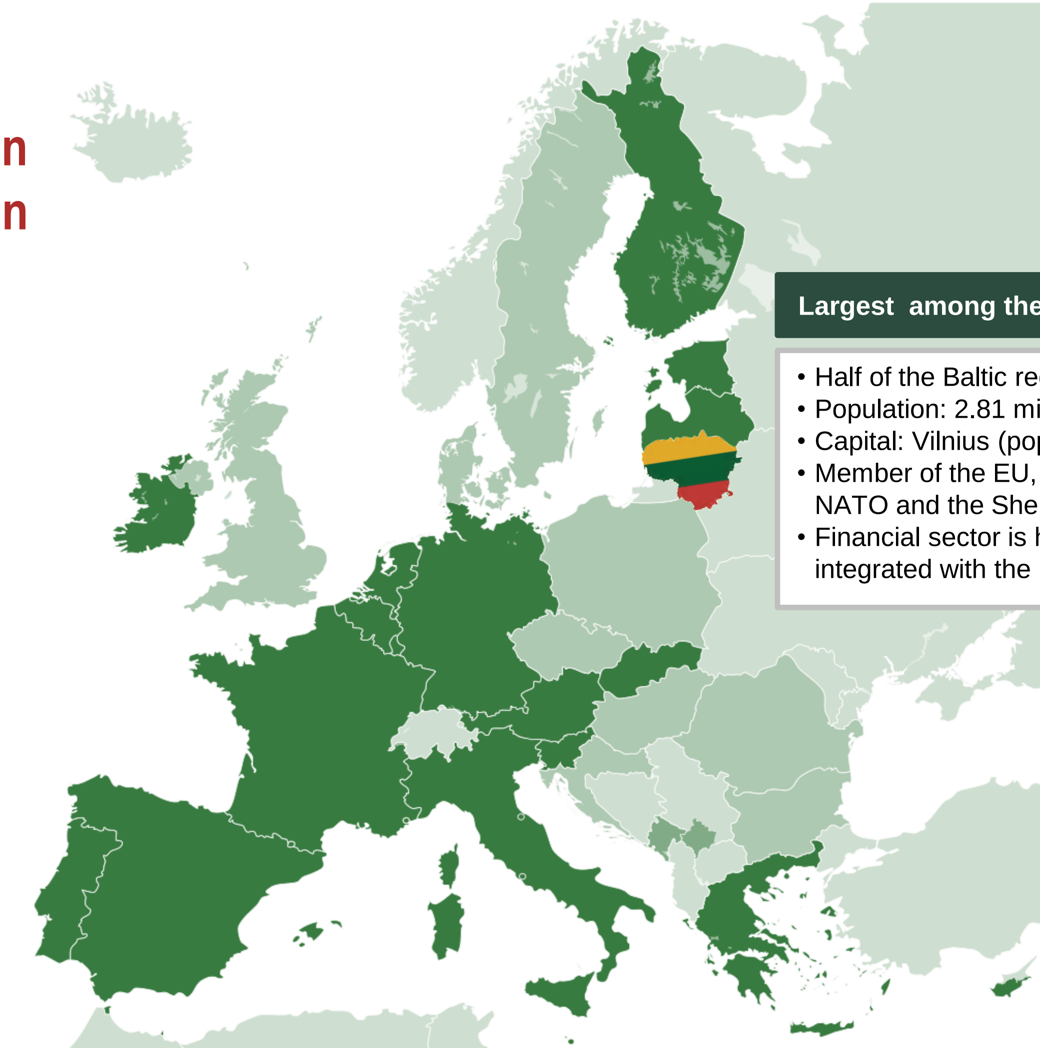
Skopje

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

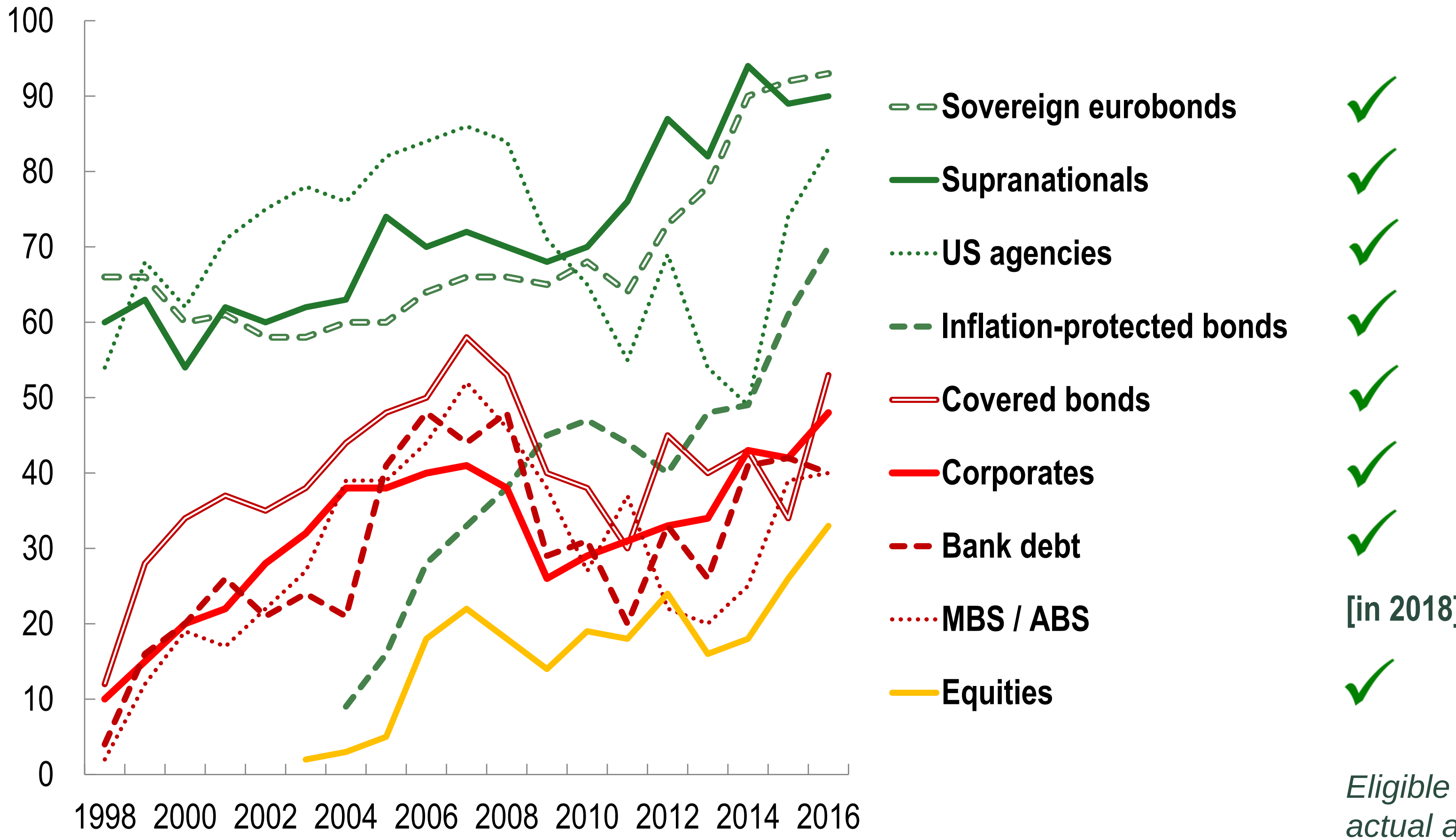


Largest among the Baltic States

- 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



Eligible and/or actual assets in BoL portfolio

Sources: UBS Central Bank Surveys 1998-2016 and World Bank Treasury.

Key asset allocation milestones

2012

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

2013

- Equities: first purchases
- Duration and credit risks increased

2014

- Chinese Renminbi added

2015

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

2016

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

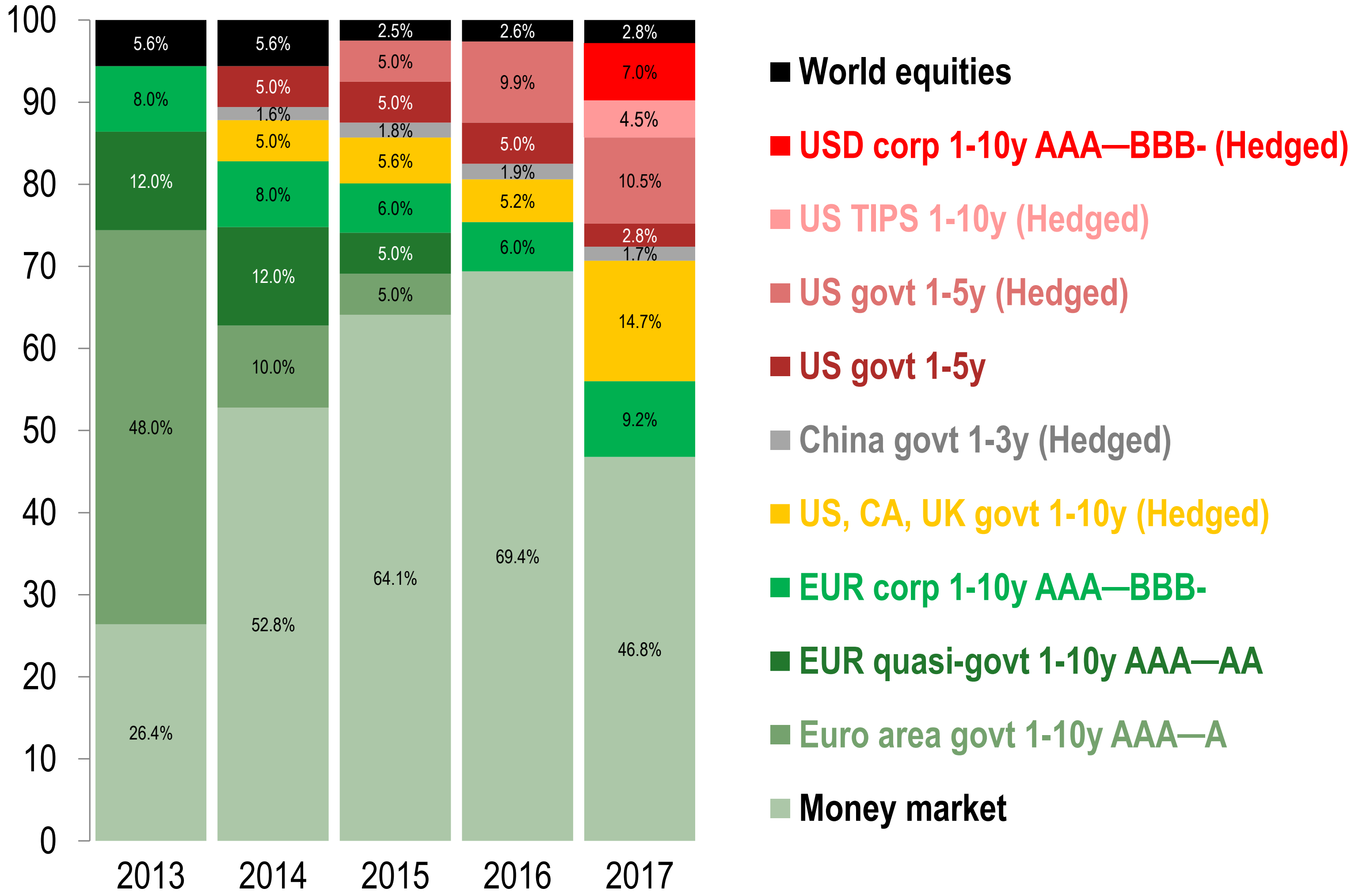
2017

- Risk parity approach for SAA
- €150 mn risk budget
- US inflation-protected bonds
- US corporate bonds
- $1 bn reserves portfolio

2018

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

Strategic asset allocation (SAA)



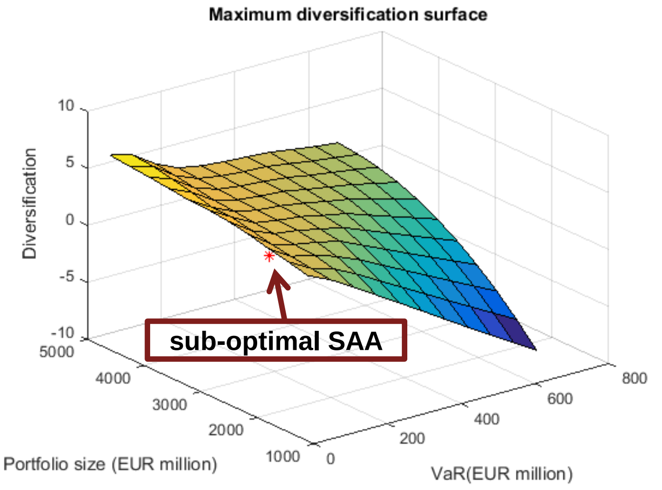
Why risk parity?

- **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

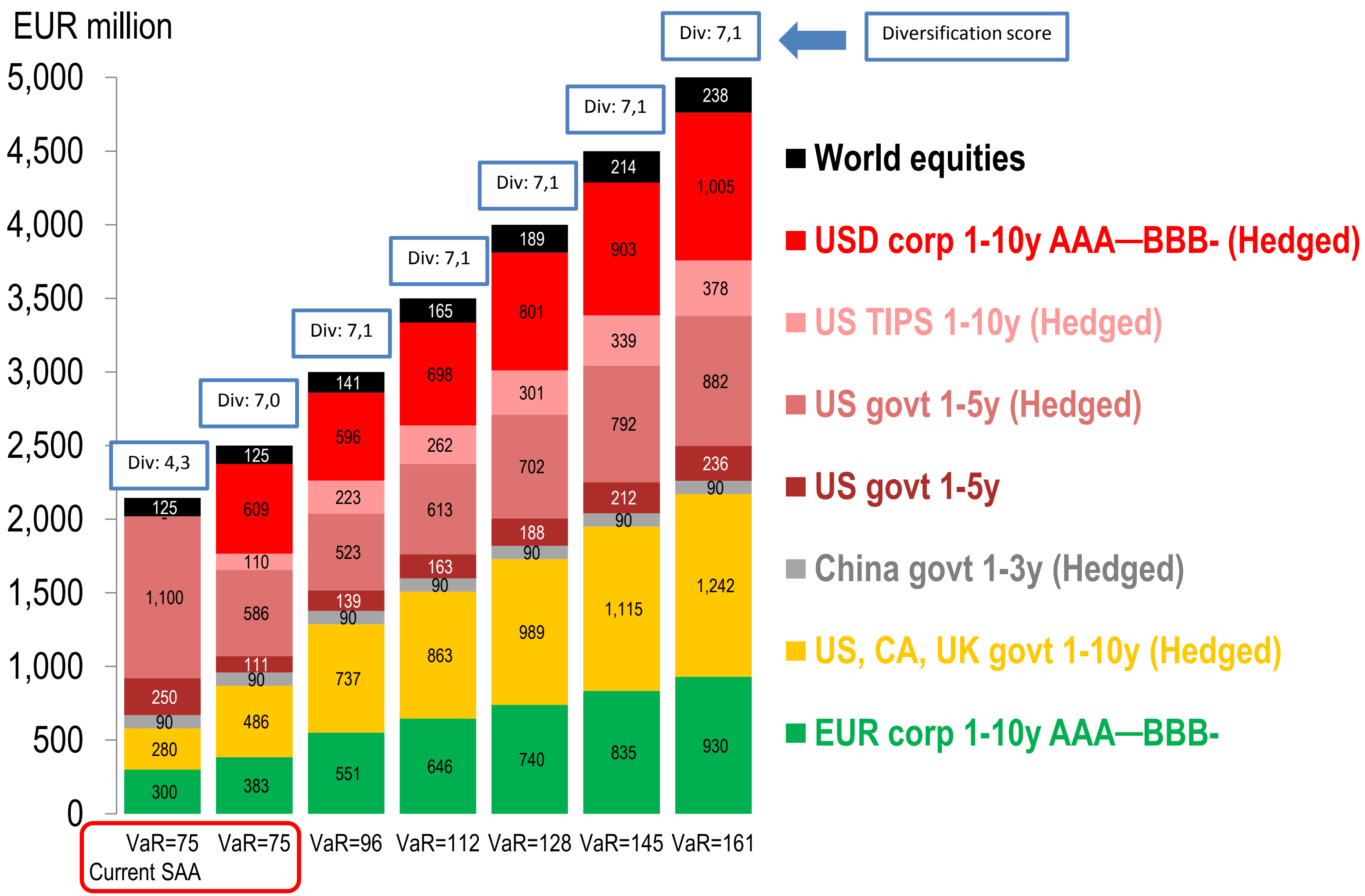
Maximum diversification surface

- 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



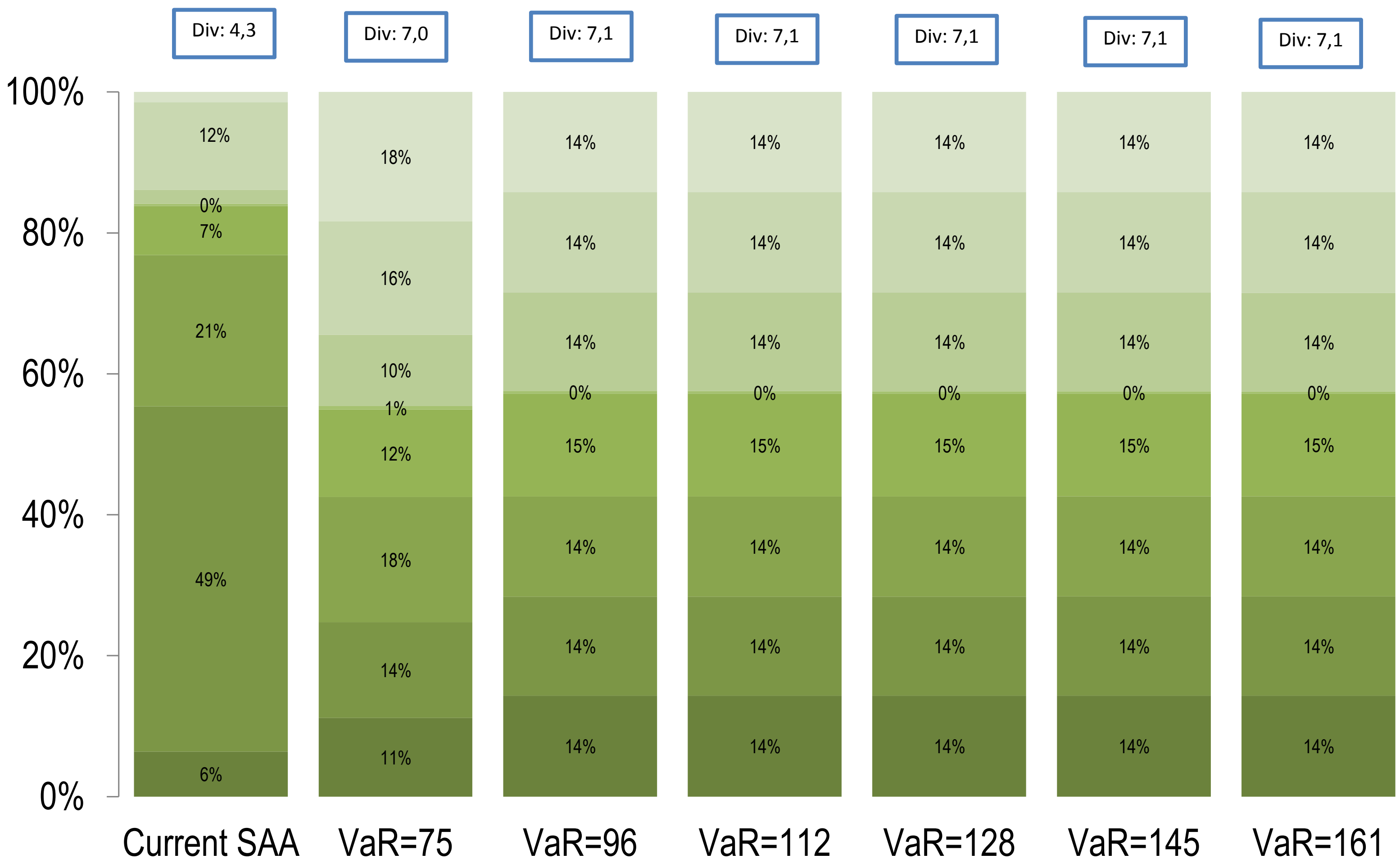
López de Prado, M., “Managing Risks in a Risk-On/Risk-Off Environment”, 2012
Meucci , A., “Effective Number of Minimal Torsion Bets”, 2013
Brignone, R. and Forte, G., “Solving Markowitz's Inefficiencies through MVD Frontier”, 2016

SAAs with maximum diversification

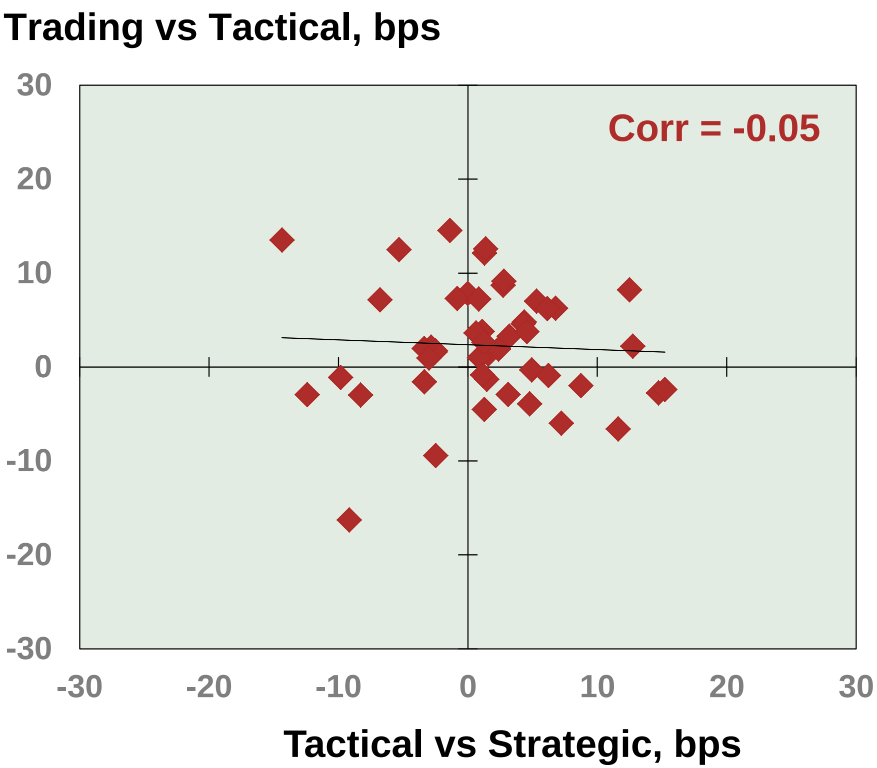


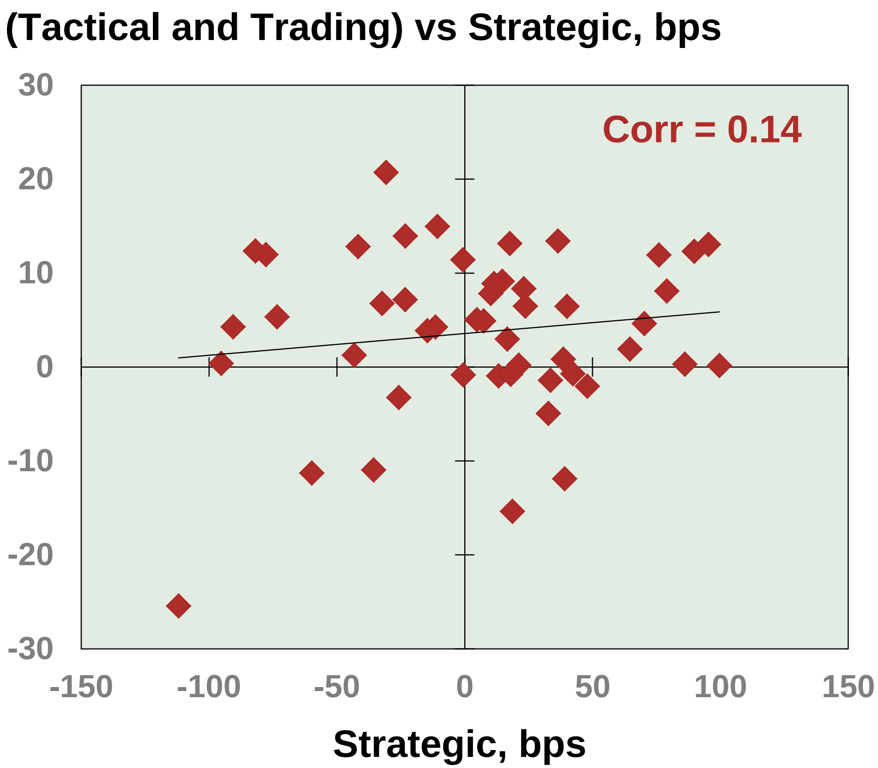
SAAs with maximum diversification

% contribution to portfolio volatility from uncorrelated risk factors



Uncorrelated active management





Monthly returns, Jan. 2014 – Jan. 2018

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**