



ORIGO
CONSULTING

Active Risk Allocation

Strategic Wealth Management - portfolio optimisation

30 May 2023

Independent | Transparent | Disciplined



Inconvenient
facts
Investments
version 1.01

- Return forecast are always wrong
- Asset covariances are unstable
- Autocorrelation do exist
- Markets are not always efficient

NB Broad application of the Capital Asset Pricing Model (CAPM) is puzzling, from an academic vantage point. It is used, because its simple, used by all bank peers and so fits the bank industry business model.

Targeting returns vs Risk management

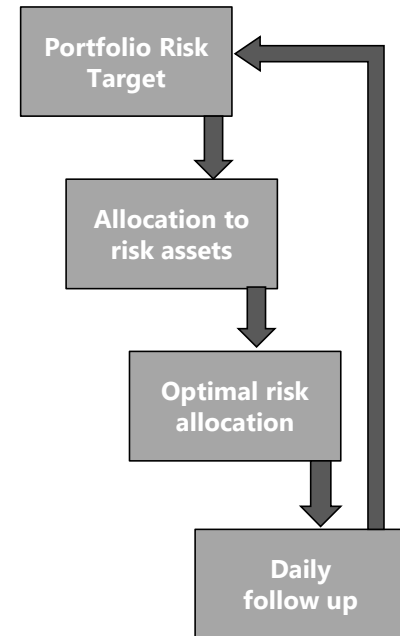


- *The traditional way:*
Return targeting
 - Based on **expectations** of future returns
 - Expectations are most often wrong
 - Fixed intervals for portfolio rebalancing
 - Changes in risk/volatility not taken into consideration
 - Assumes that assets move in stable patterns relative to each other
 - In times of trend changes, portfolio is only rebalanced as trend estimates are revised
- *The ARA way:*
Volatility targeting
 - Based on **existing** volatilities
 - No guesswork as the volatilities are available
 - Adaptive intervals for rebalancing determined by target volatility
 - Adjusting to changes in risk
 - Takes into consideration that correlation patterns change
 - In times of trend changes, volatility changes force a portfolio rebalancing

ARA optimisation

Summary of process

- Decide on desired portfolio volatility band
 - 3.5-5%, 6-8% or 9-11% target
 - Depending on model input
- Allocate between risk assets and non-risk assets
 - Between 0 and 100% of portfolio may be allocated to risk assets
 - Depending on model input
- Calculate portfolio allocation
 - Allocating assets in a way that no asset class gives a too large risk contribution (almost Risk Parity)
 - Respecting overall volatility target
 - Respecting overall allocation target
- Daily follow up
 - Daily calculation of expected portfolio volatility
 - Daily supervision of OMRI and portfolio risk allocation
 - Corrective action if necessary





ARA optimisation

IR Benchmark (baseline) Approximately a 60/40

Performance structurally
challenged *);

- as choice of assets correlate
- benchmark deviate from peers
- when US stocks outperform
- when USD strengthen

*) Ref. analysis of 25.11.2021

IR Medium risk model portfolio

| Name | Class | Mid | ETF Proxy |
|--------------------------------|--------------|-----|-------------------|
| IR Basis | | 25 | Composite |
| | Aktier-EU | 60 | XSX6 DE |
| | Bonds-EU GOV | 10 | XGLE DE |
| | Bonds-DK MBS | 10 | Nyk dmb Composite |
| | Bonds-HY | 15 | IHYG DE |
| | Cash | 5 | XEIN:GR |
| IR Favoritter/IR Danske Aktier | Aktier-DK | 25 | BIKF DC |
| IR Vækstlande | Aktier-GEM | 20 | BRIC LN |
| IR Erhverv | Bonds-HY | 10 | IHYG DE |
| IR Højrente | Bonds-HY | 15 | EMBE LN |
| Danske obligationer | Bonds-DK | 5 | NYK DMB Composite |
| | | 100 | |

Consequences of structural deficits:

2022, no uncorrelated asset classes and no USD

2023, no US stocks and no IT-sector



ARA portfolio

April 2023

IR Medium risk model portfolio

| Name | Limit used | | Allocation | Change | Limit used | |
|----------------|------------|--------|------------|--------|------------|----------------|
| | Minimum | Prior | | | Maximum | ETF proxy |
| Cash | | 19% | 12% | -7% | | Cash |
| IR Basis | | 20% | 28% | 8% | | Composite |
| IR Danmark | | 15% | 15% | 0% | | BIKF DC |
| IR Vækstlande | | 8% | 8% | 0% | | BRIC LN |
| IR Short Stoxx | | 0% | 0% | 0% | | XSSX DE |
| IR Erhverv | | 25% | 25% | 0% | | IHYG DE/HYG US |
| IR Højrente | | 13% | 12% | -1% | | EMBE LN |
| DK DMB | | 0% | 0% | 0% | | Nyk Composite |
| | | 100.0% | 100% | 0% | | |

Cash (low duration) overweight and GEM underweight were largest excess performance contributions for April



ARA optimisation

Performance

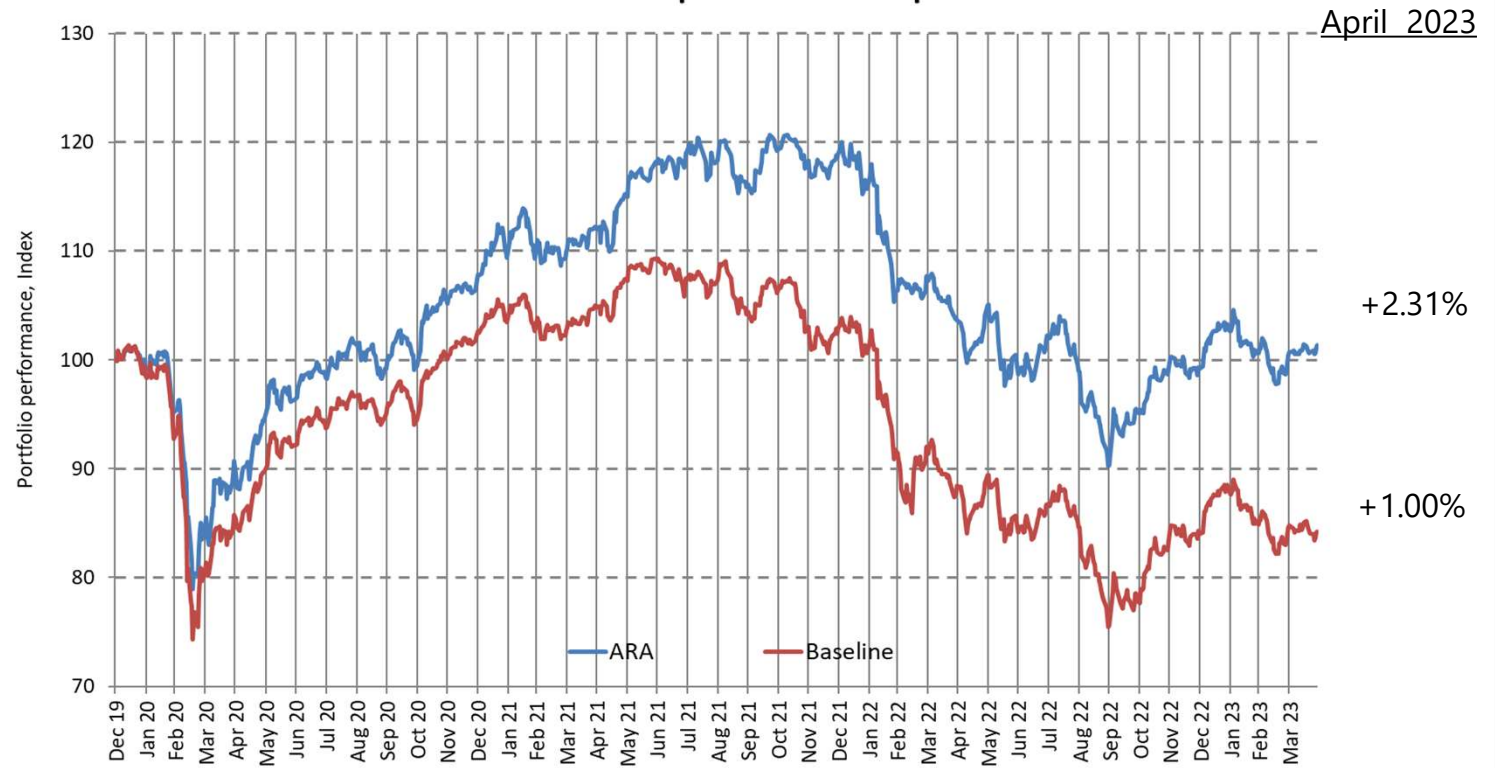
IR optimised vs Baseline

Performance structurally challenged *);

- as choice of assets correlate
- benchmark deviate from peers
- when US stocks outperform
- when USD strengthen

*) Ref. analysis report of 25.11.2021

Baseline portfolio vs ARA portfolio



ARA optimisation

Performance

Uptrend resumed



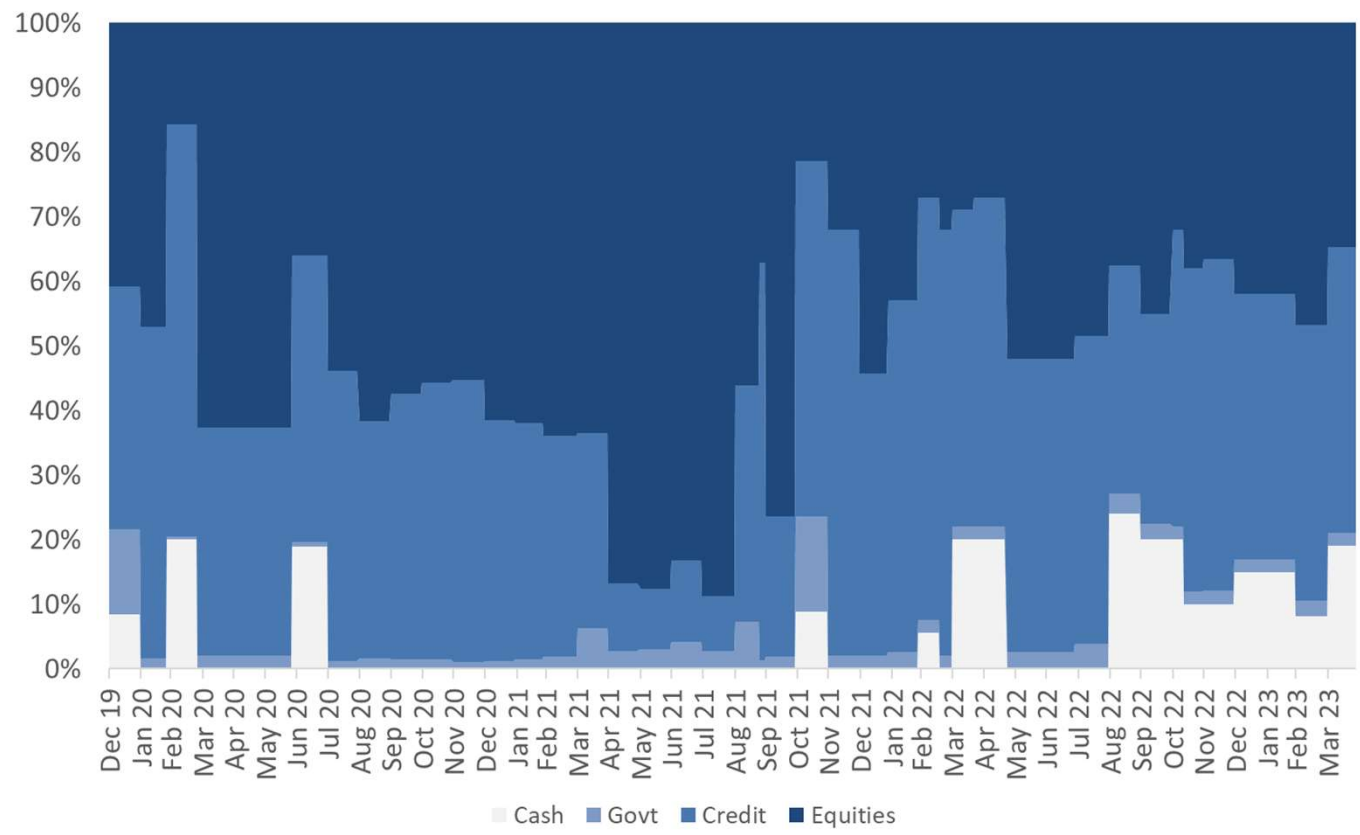
Accumulated excess performance



IR Asset Allocation - timeline



Asset Allocation





ARA portfolio

May 2023

Preference to IG (short-term) and more IR Basis

IR Medium risk model portfolio

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|----------------|------------|--------|------------|------------|-------------------|
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| | | 100.0% | 100% | 0% | |

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