



Crypto-Assets – Curse or blessing?

An analysis

"If you can measure it, you can improve it."

William Thomson, Lord Kelvin (1824 – 1907)

Who We Are

ETH Spin-Off

- Founded in 2016 – building upon more than a decade of academic research at ETH Zurich and affiliated universities

Solution Provider

- Providing financial markets professionals access to the most advanced statistical methods and financial engineering solutions

Academic Bridge

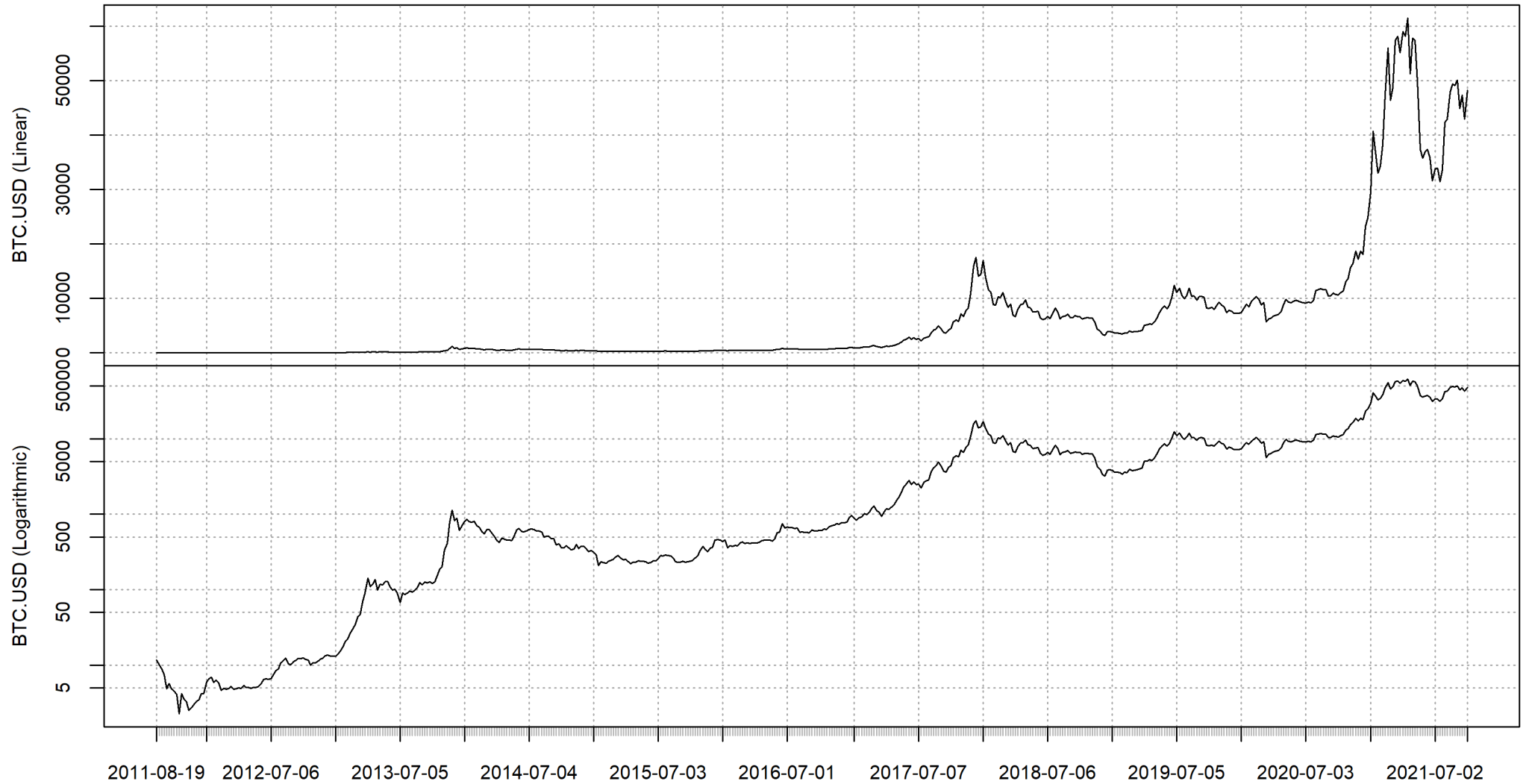
- Engaged in ongoing transfer of academic research into commercially viable products and services

CRYPTO UNIVERSE



Visualization

- Do not use linear scales for crypto currencies
- Use a log-scale to make different time horizons visually comparable



Building an Index

Crypto Benchmark

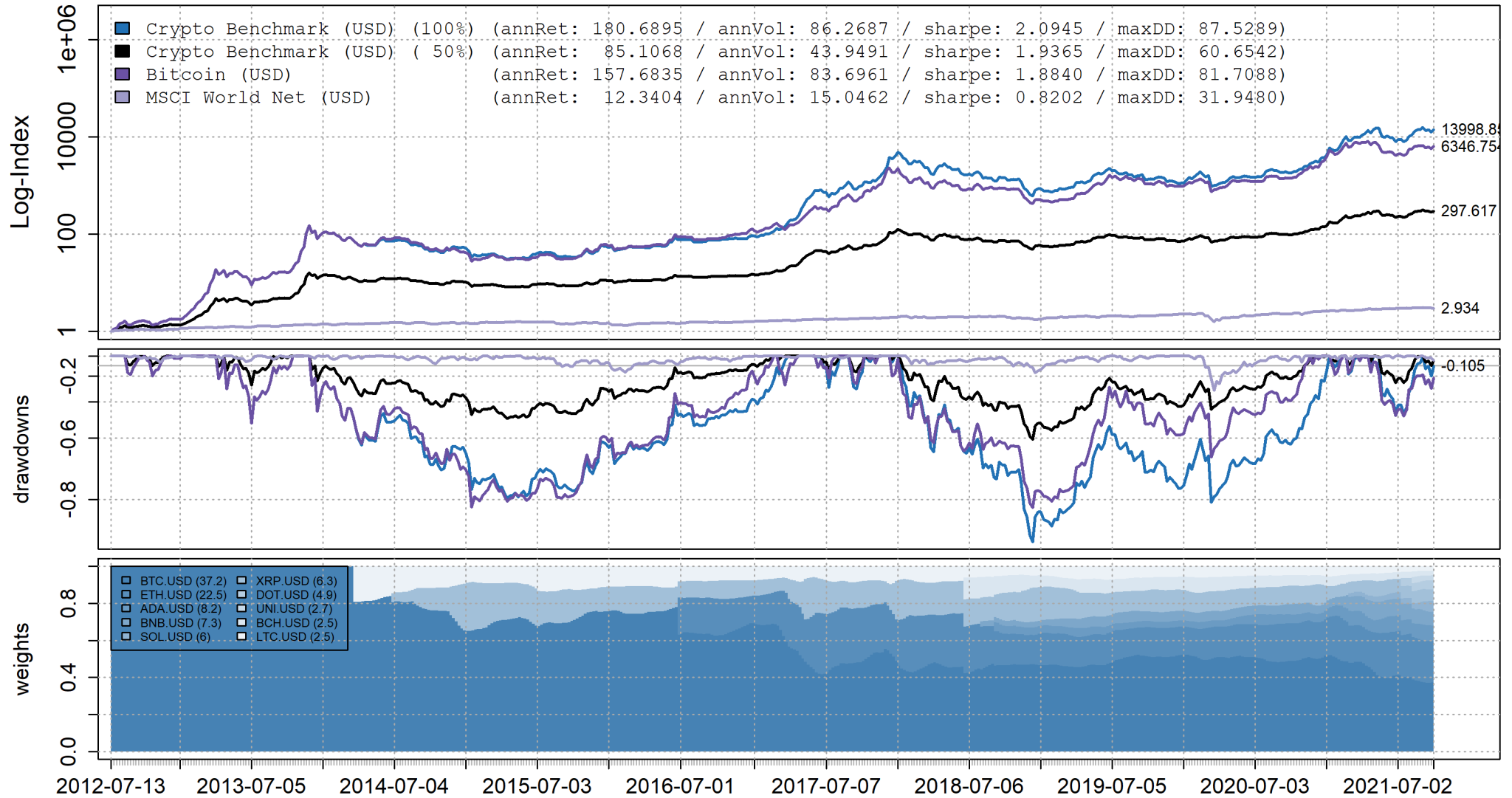
Universe
Selection of 10 crypto assets

Weights
Capital weighting scheme

Risk-Averseness
Exposure: 100%

Hedging-Method
None

Rebalancing
Weekly



RISK MANAGEMENT



Latest ETH Zurich Research – Full Transparency

OpenMetrics technology is based on latest research developed throughout almost a decade at **ETH Zurich**.

All presented models and applications are based on this research and thus conceptually fully transparent.

See latest publication:

T. Setz, STABLE PORTFOLIO DESIGN USING BAYESIAN CHANGE POINT MODELS AND GEOMETRIC SHAPE FACTORS, Dissertation ETH Zurich No.: 24754, (2018).

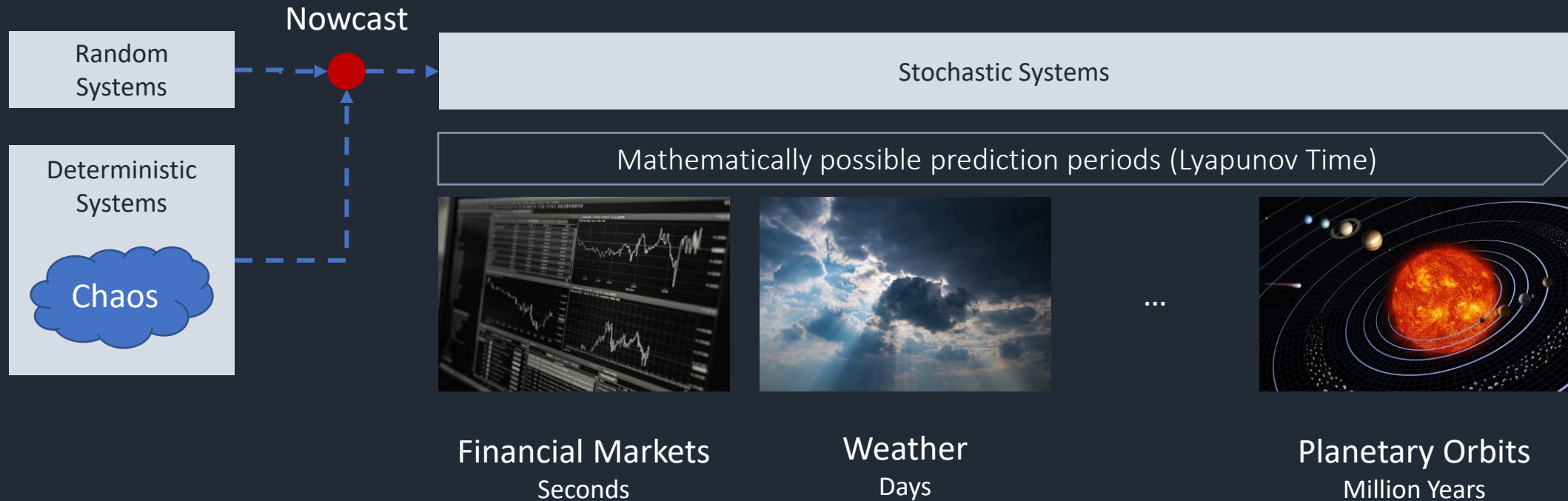
<https://doi.org/10.3929/ethz-b-000244960>



**Stable Portfolio Design
Using Bayesian Change Point
Models and Geometric Shape
Factors**

Tobias Setz
DISS. ETH NO. 24754

«Nowcasts» Instead of «Forecasts»



- Why are we not all rich yet? *The **more drivers** (e.g. participants) a system has, the **more random** a system becomes, the **shorter** the possible **prediction period** gets.*
- We concentrate on **measuring the current state of a market** as precisely as possible and adjust allocations accordingly in a **consistent and regular process**.
- Instead of finding a crystal ball we propose a **sensor system**.

What's new?

1) Structural break point probability

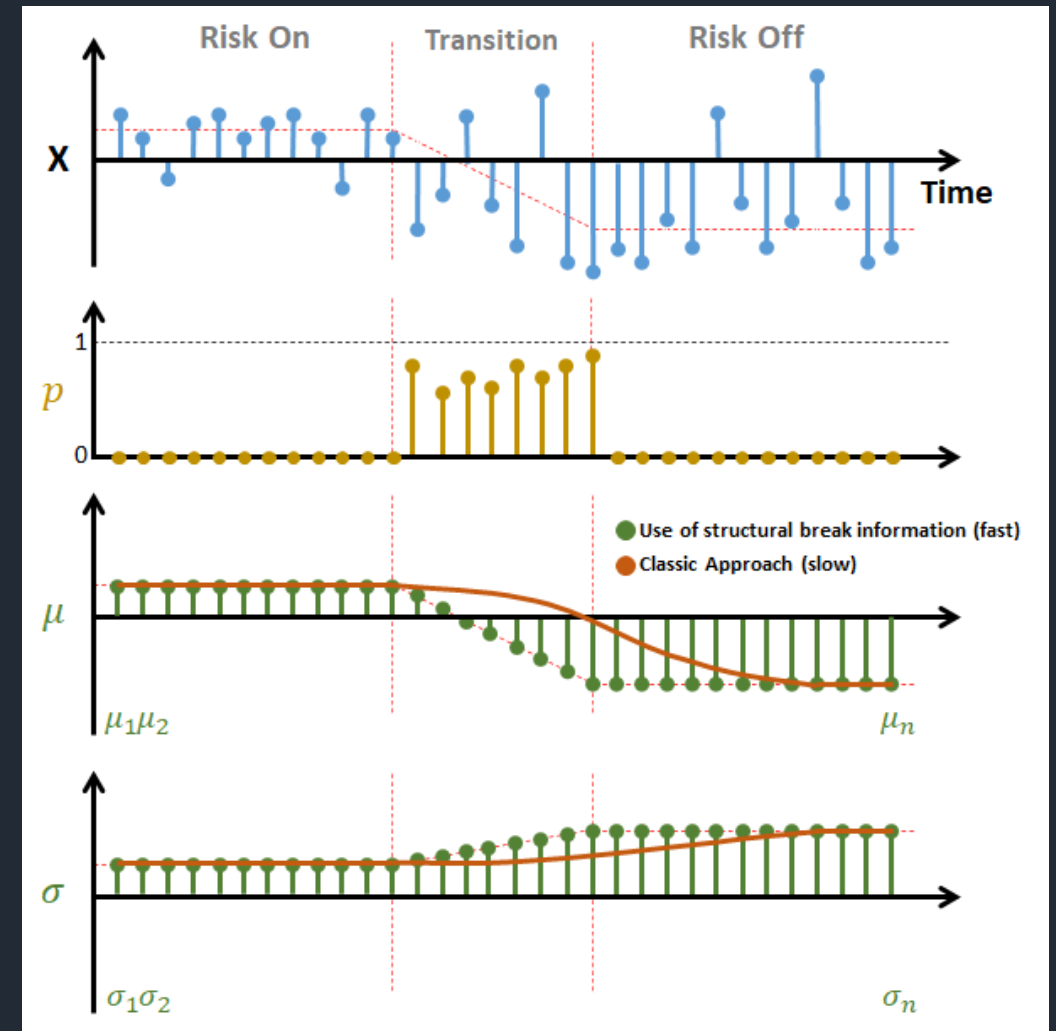
- If newer observations cannot be explained with the same **random dynamic** as older observations the structural break point probability is high.
- To calculate these probabilities a new version of the **Bayesian Change Points (BCP)** methodology is used that can deal with **non-normal** distributions.

2) Weighting of the past

- The higher the structural break probability, the more the algorithm concentrates on **newer observations** to measure trend and risk.

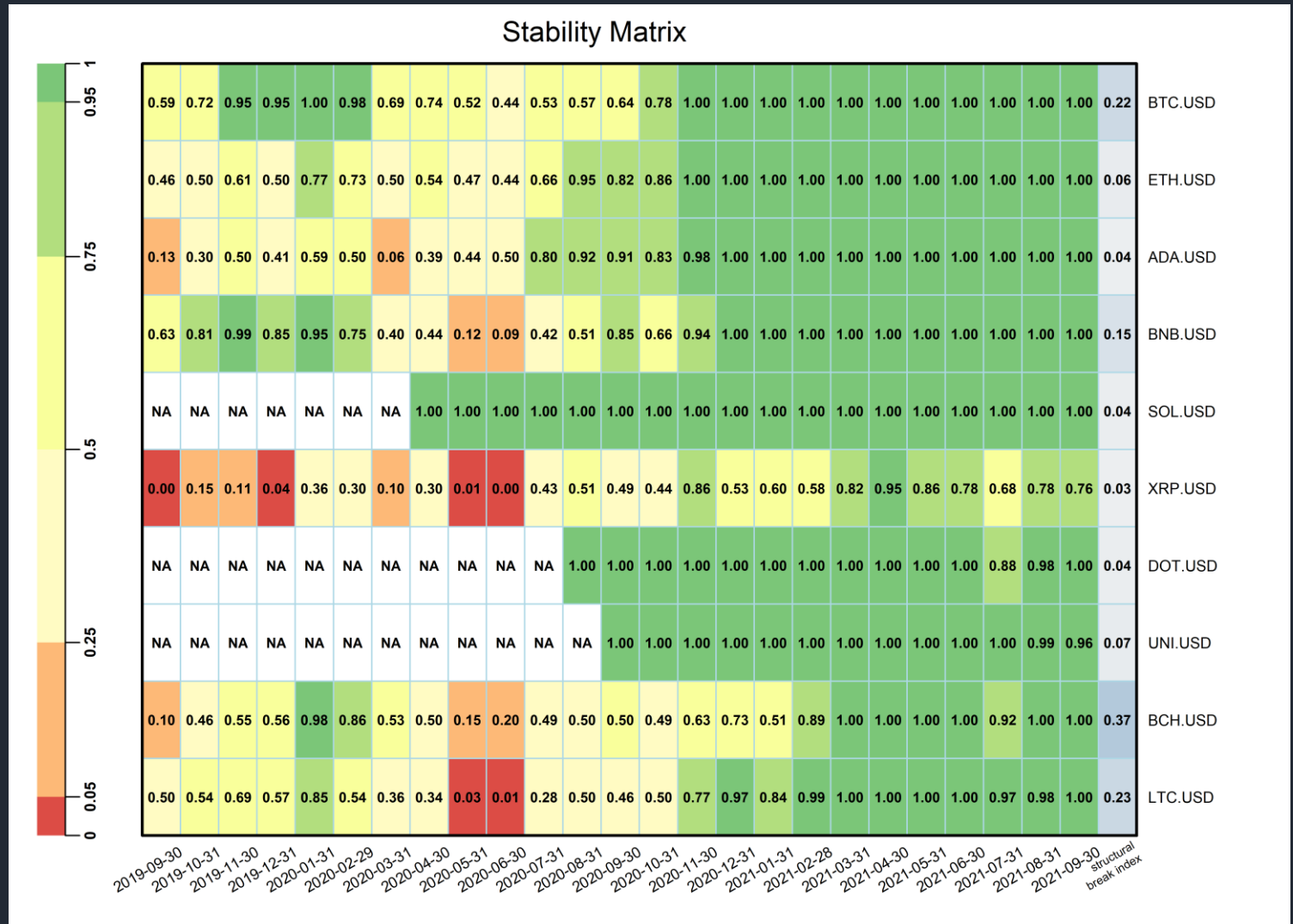
3) Benefit

- All applications that rely on the calculation of trend and risk (e.g. Markowitz optimization) show a **faster adaption** to changing dynamics and are **more robust** under non-normal developments.



Stability Levels Control the Exposure

- The **stability** is calculated using the **BCP trend and risk**.
- Based on these stability assessments the final **allocation** is calculated.
- These stability assessments are actively by **pension funds** for their tactical asset allocation (TAA) and by other investment committees.
- **Stability based exposure management works across almost all asset classes without having to be re-calibrated.**



Active Crypto Strategy

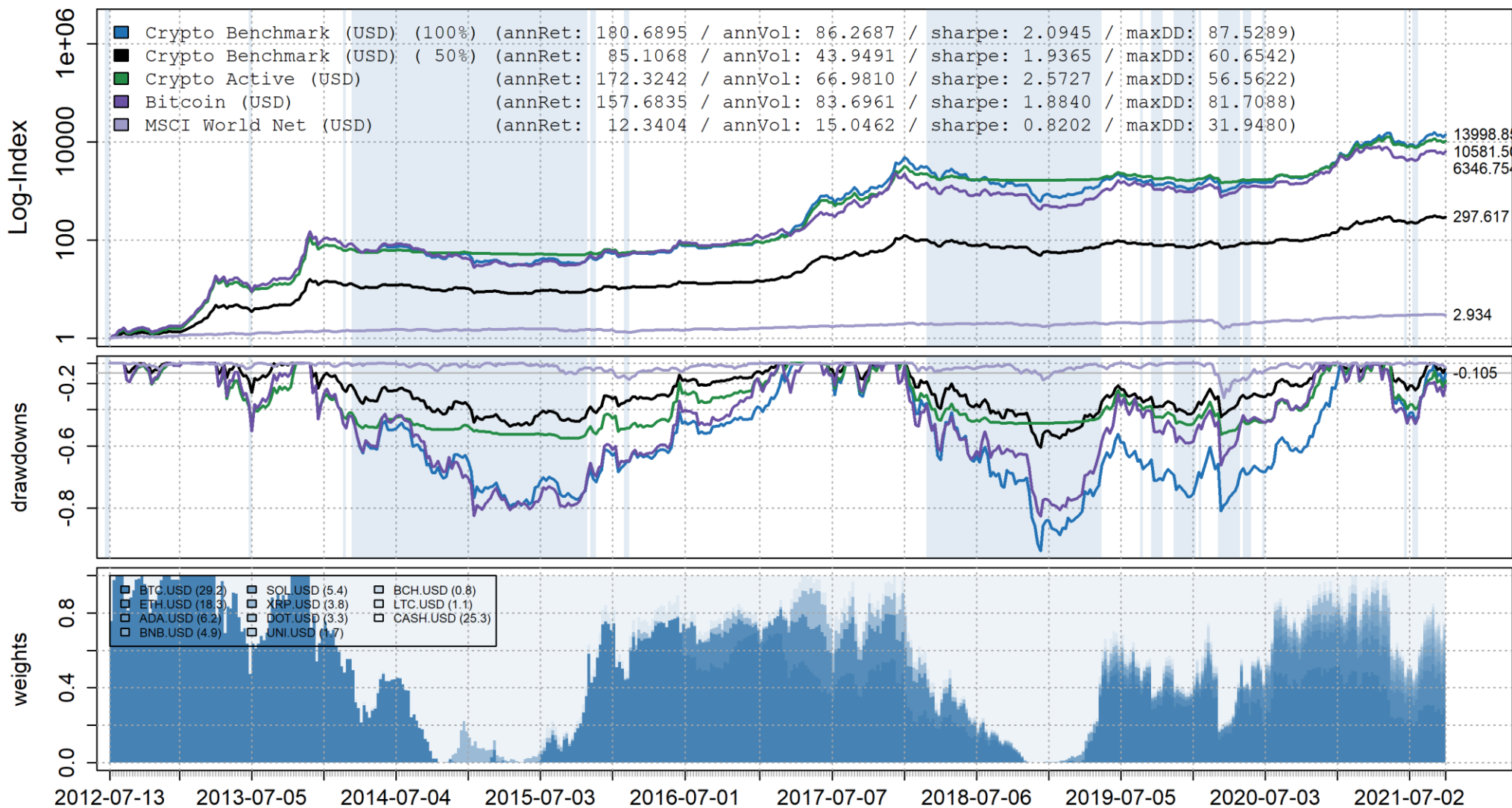
Benchmark
Crypto Benchmark

Weights
Capital weighting scheme combined with stability levels

Risk-Averseness
Exposure: 0-100%

Hedging-Method
Cash

Rebalancing
Weekly

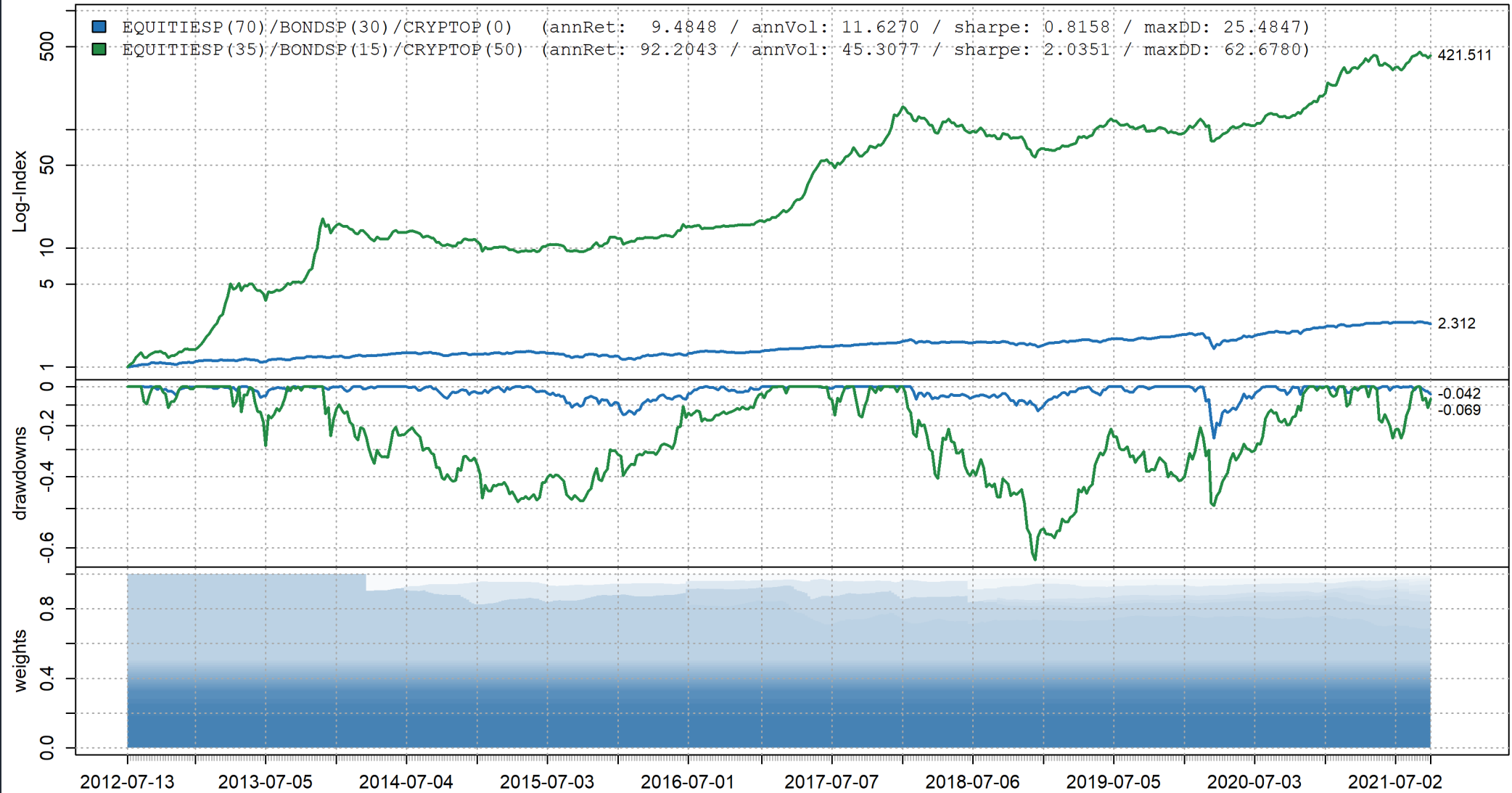


PORTFOLIOS



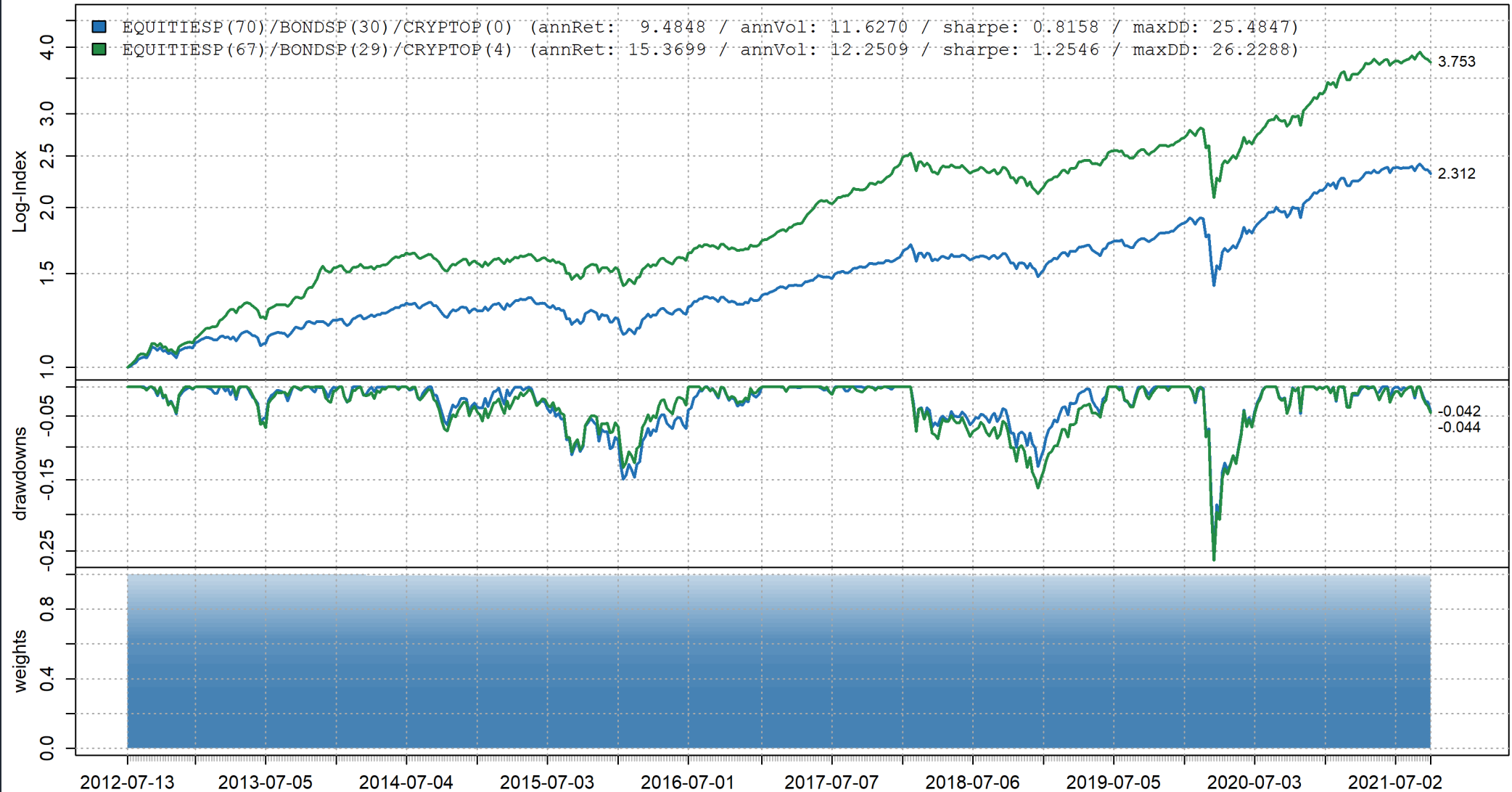
Passive Blend (I)

- Adding too much crypto exposure (50%) to a portfolio makes the equity and bond dynamics insignificant



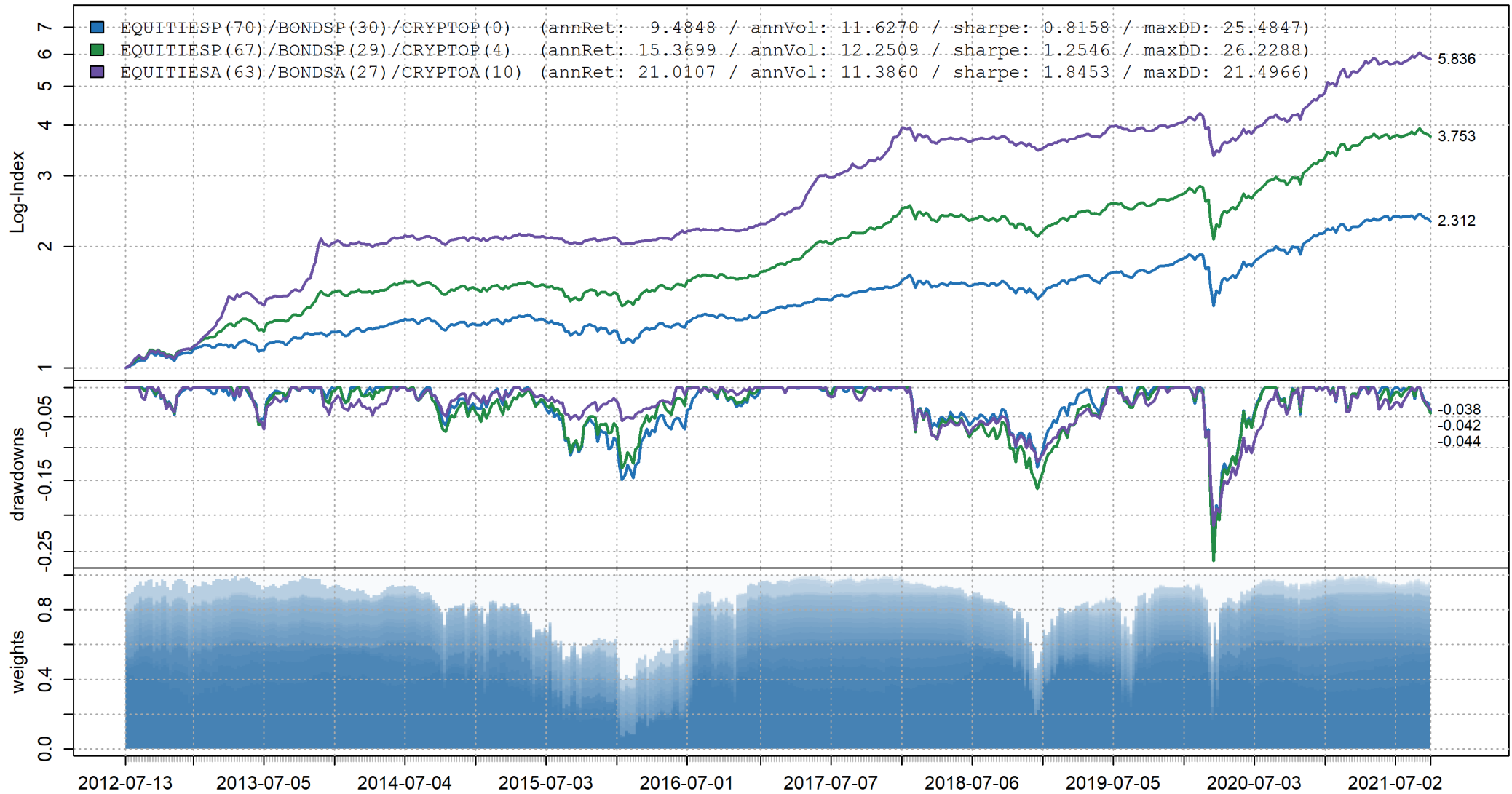
Passive Blend (II)

- Adding a moderate crypto exposure (4%) does not change the risk profile too much but leads to significant additional returns

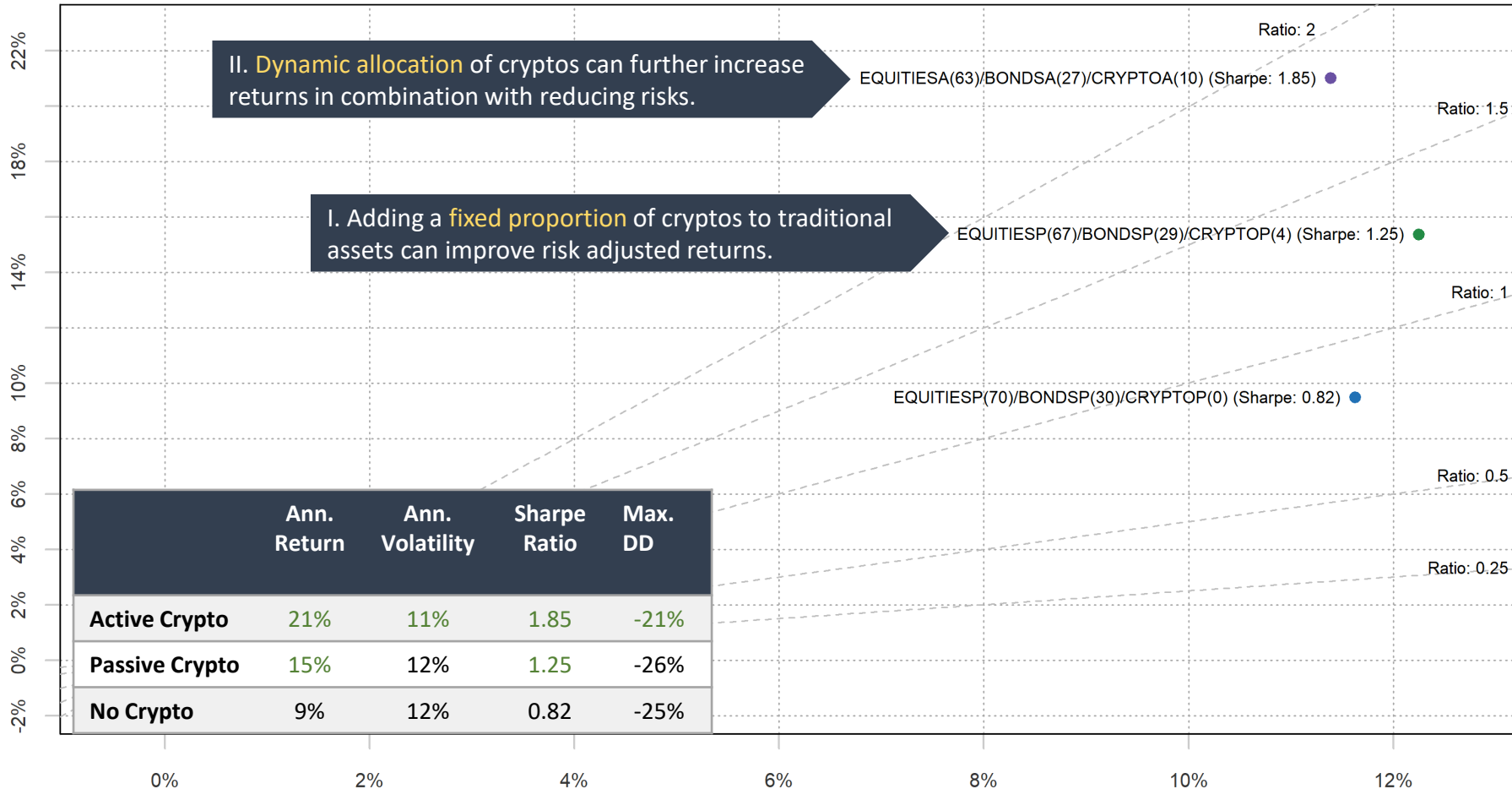


Active Blend

- Actively managing the whole portfolio leads to further upside since the maximum exposure can be raised (in this example from 4% to 10%)



Conclusions



Expectations 2021/2022

1. There is probably consensus in the market that cryptoassets e.g., Bitcoin will not disappear.
2. Also, the ongoing adoption of DLT technology across the financial industry (and others) is generally not disputed.
3. Reliable exposure to bitcoin is now mainstream (e.g., cryptocurrency ETPs & regulated crypto exchanges).

However, there is still a lot of speculation about the future price development of Bitcoin (and other cryptos) driven by investor expectations, moves from larger market players and potentially regulatory constraints*.

This implies that investors will have to continue with considering high volatility and potentially major drawdowns for this asset class, which requires to (1.) control the maximum exposure of cryptos in the portfolio and (2.) use a sound risk management process.

* (E.g., 19.01.2021): When Janet Yellen, who is expected to lead the Treasury Department for the incoming Biden Administration described cryptocurrencies as a "particular concern" when it comes to terrorist financing.

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OpenMetrics Solutions LLC

Dufoursstrasse 47

CH-8008 Zurich

+41 44 552 4909

contact@openmetrics.ch

www.openmetrics.ch

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