

200 years momentum trading

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Seizing Opportunities

Let profits run & limit losses

System with experience

Over 330 international awards since 2003

High flexibility

Seeking the strongest & most consistent trends worldwide



Active risk management

Equity exposure control & stop loss limits

Multi Asset Strategy

A choice of more than 10,000 funds & ETFs

Trend following system

Algorithm-based & emotionless trading approach

ARTS

THE ART OF TRADING

Marketing message

This document is only directed to professional clients and authorised distributors and not to retail investors.

ARTS

THE ART OF TRADING

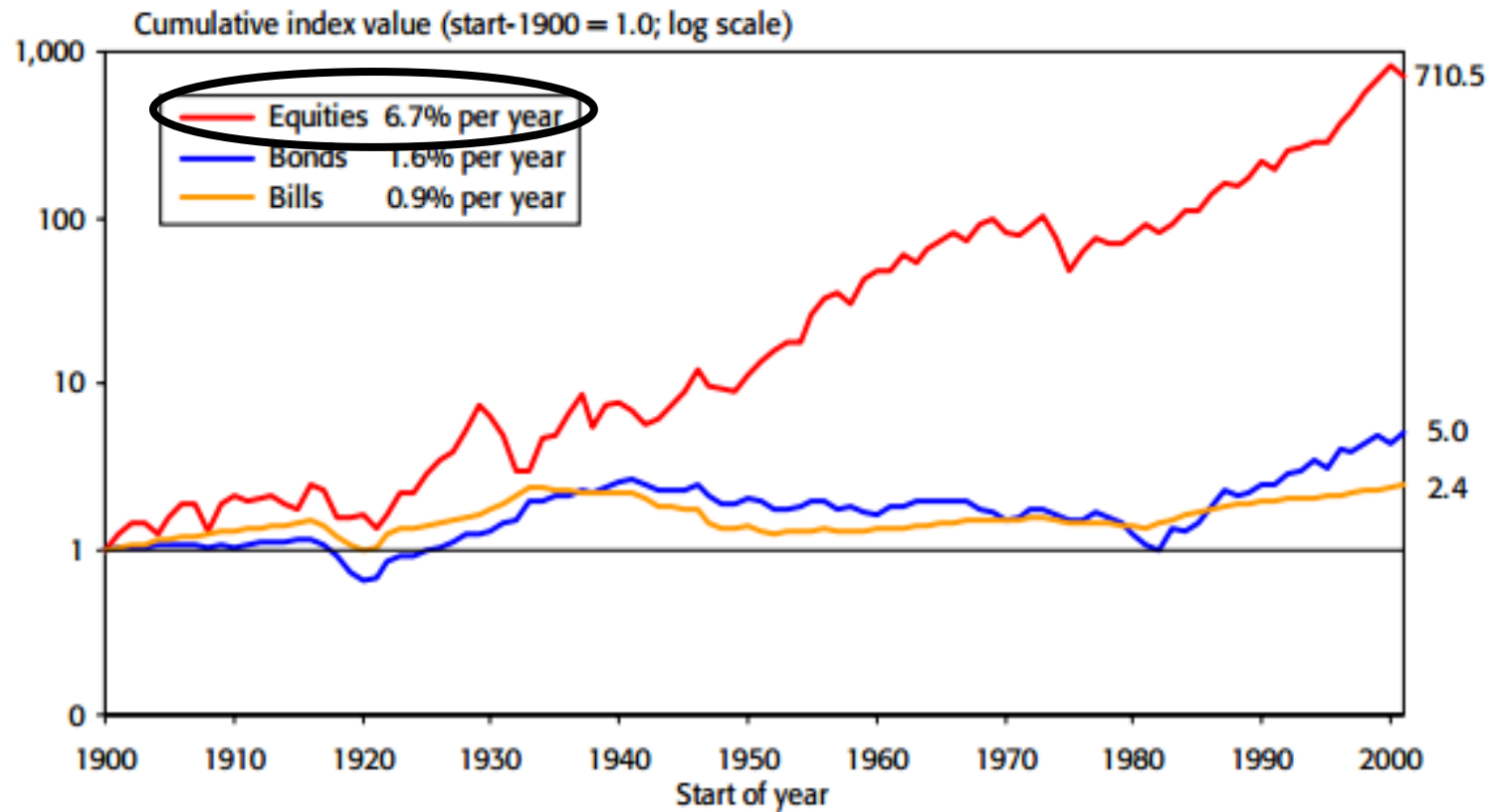
- Active trading vs. buy & hold
- Discretionary vs. quantitative
- Momentum-trading



Active trading vs. buy & hold

Active trading vs. buy & hold

EQUITIES results - 100 years “buy & hold”



* Inflation-adjusted cumulative performance data (effective return) based on U.S. asset classes, 1900-2000; Triumph of the Optimists: 101 Years of Global Investment Returns

Active trading vs. buy & hold

Buy & hold-strategy on the stock market:

- ... Delivers satisfactory performance over a very long time period ➡ 6,7% p.a.

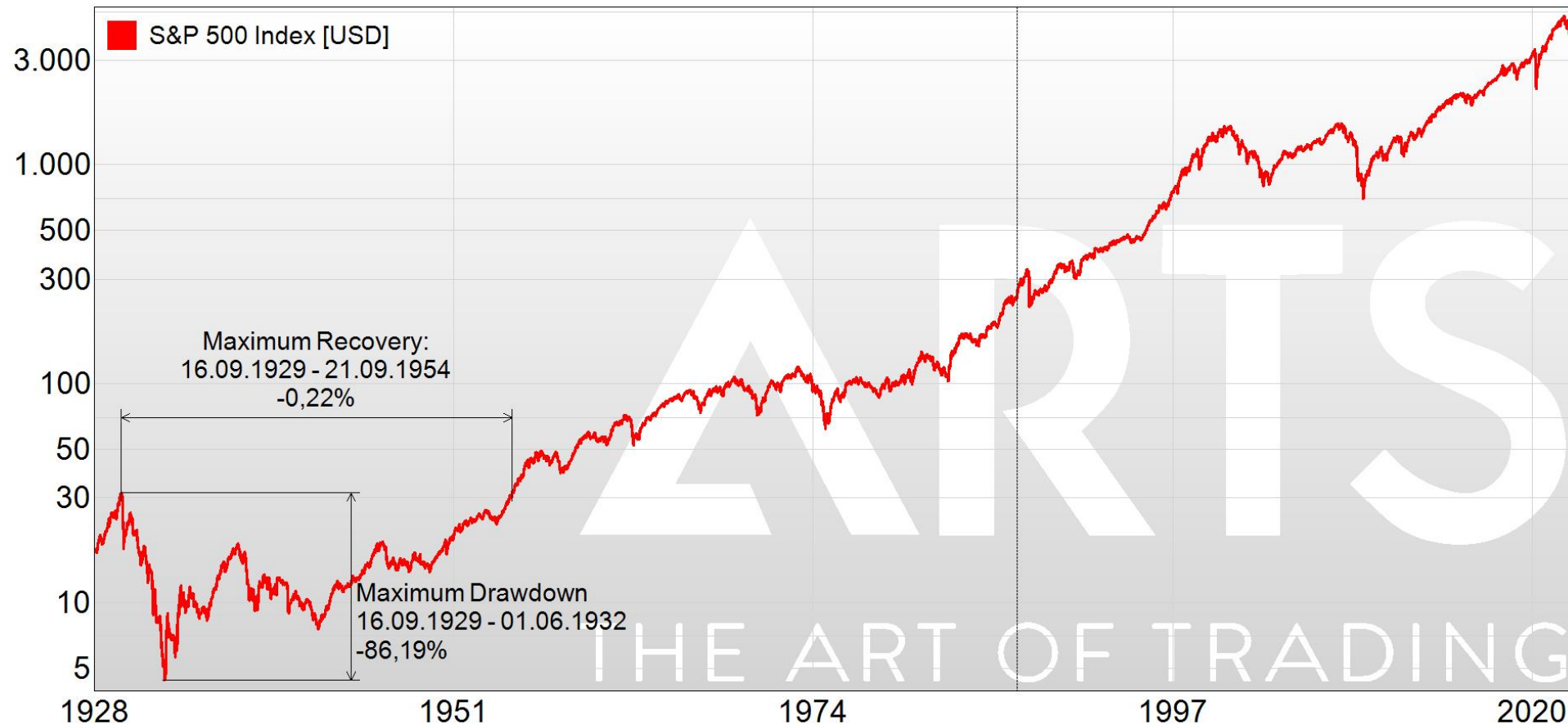
but

- ... high drawdowns
- ... long recovery phases

➡ a glance at the largest stock indices (S&P500, Nikkei225, EuroStoxx50)

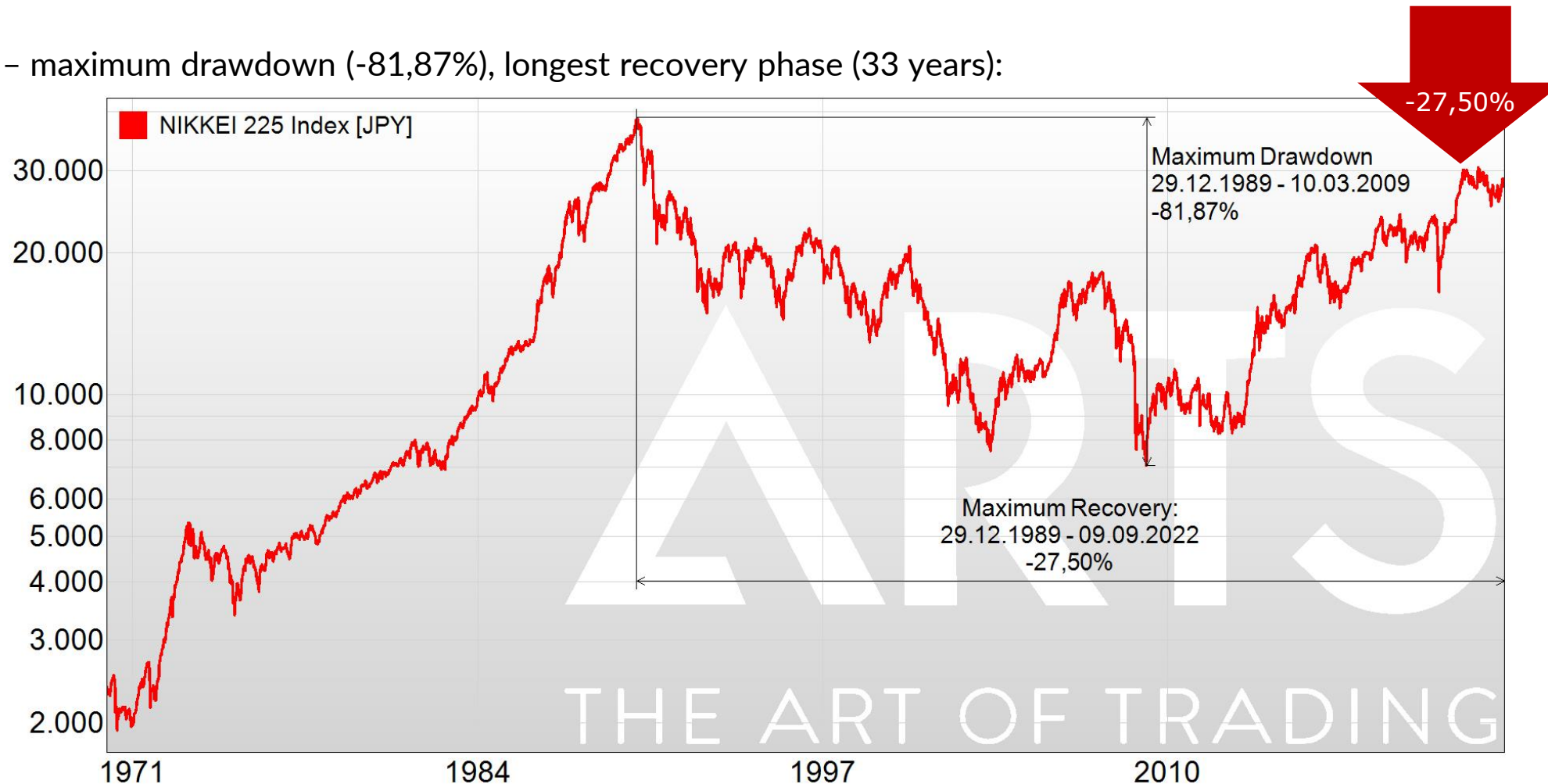
Active trading vs. buy & hold

S&P500 – maximum drawdown (-86,19%), longest recovery phase (25 years):



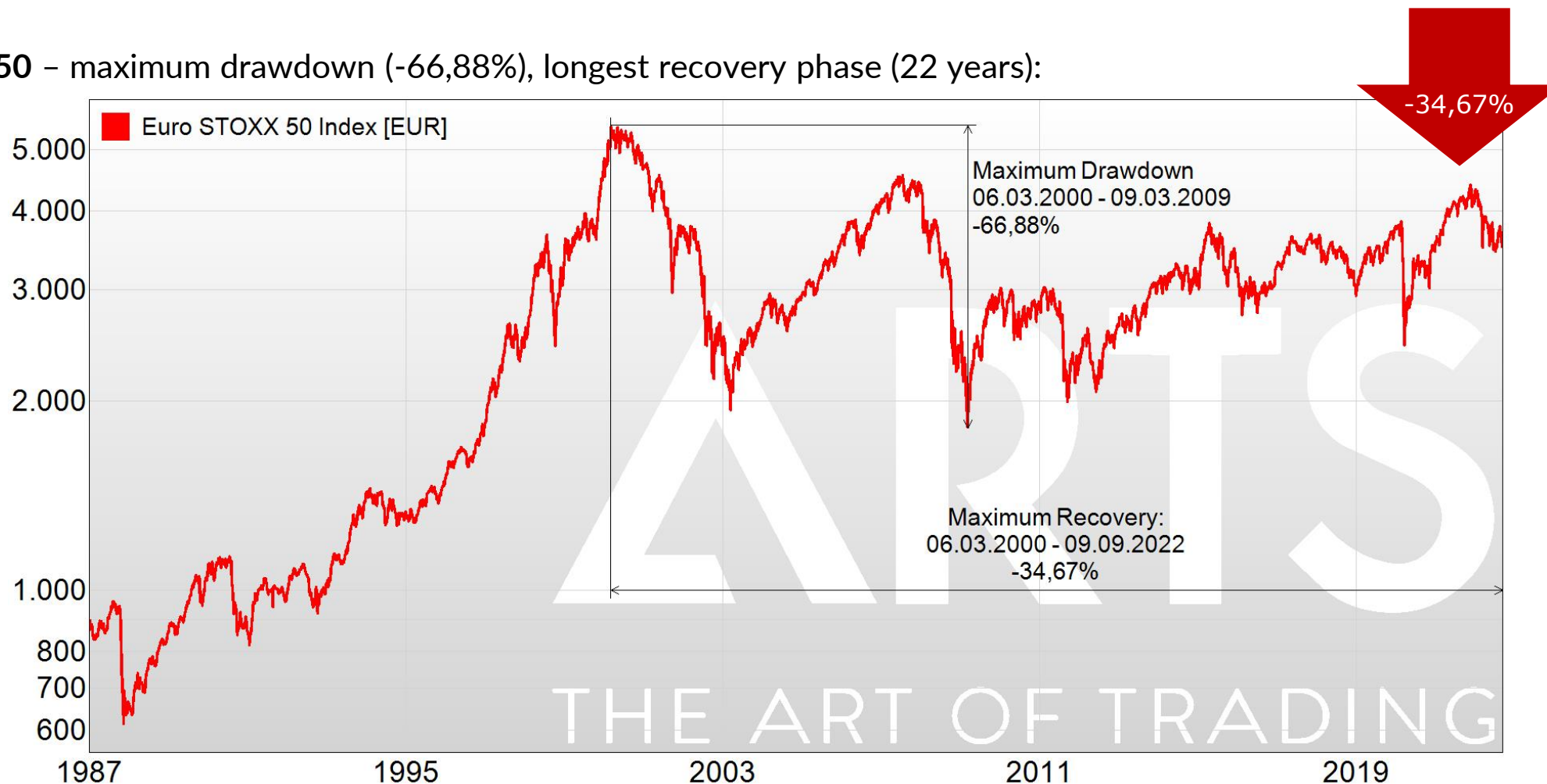
Active trading vs. buy & hold

Nikkei225 – maximum drawdown (-81,87%), longest recovery phase (33 years):



Active trading vs. buy & hold

EuroStoxx50 – maximum drawdown (-66,88%), longest recovery phase (22 years):



Why reduce long loss phases?

A stock market crash is worse than a divorce:

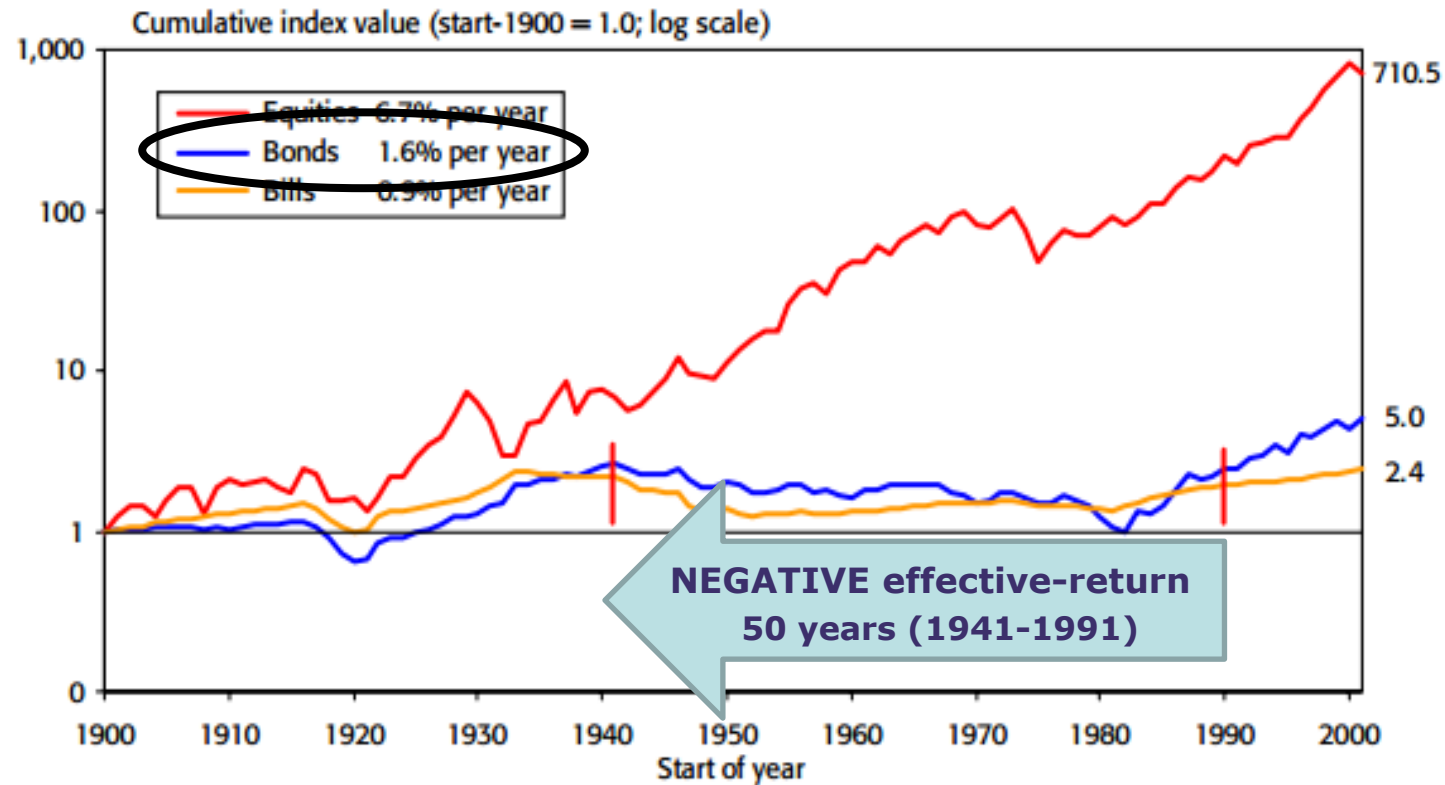
"You lose half your fortune...

... but you are still married. 😊 "



Active trading vs. buy & hold

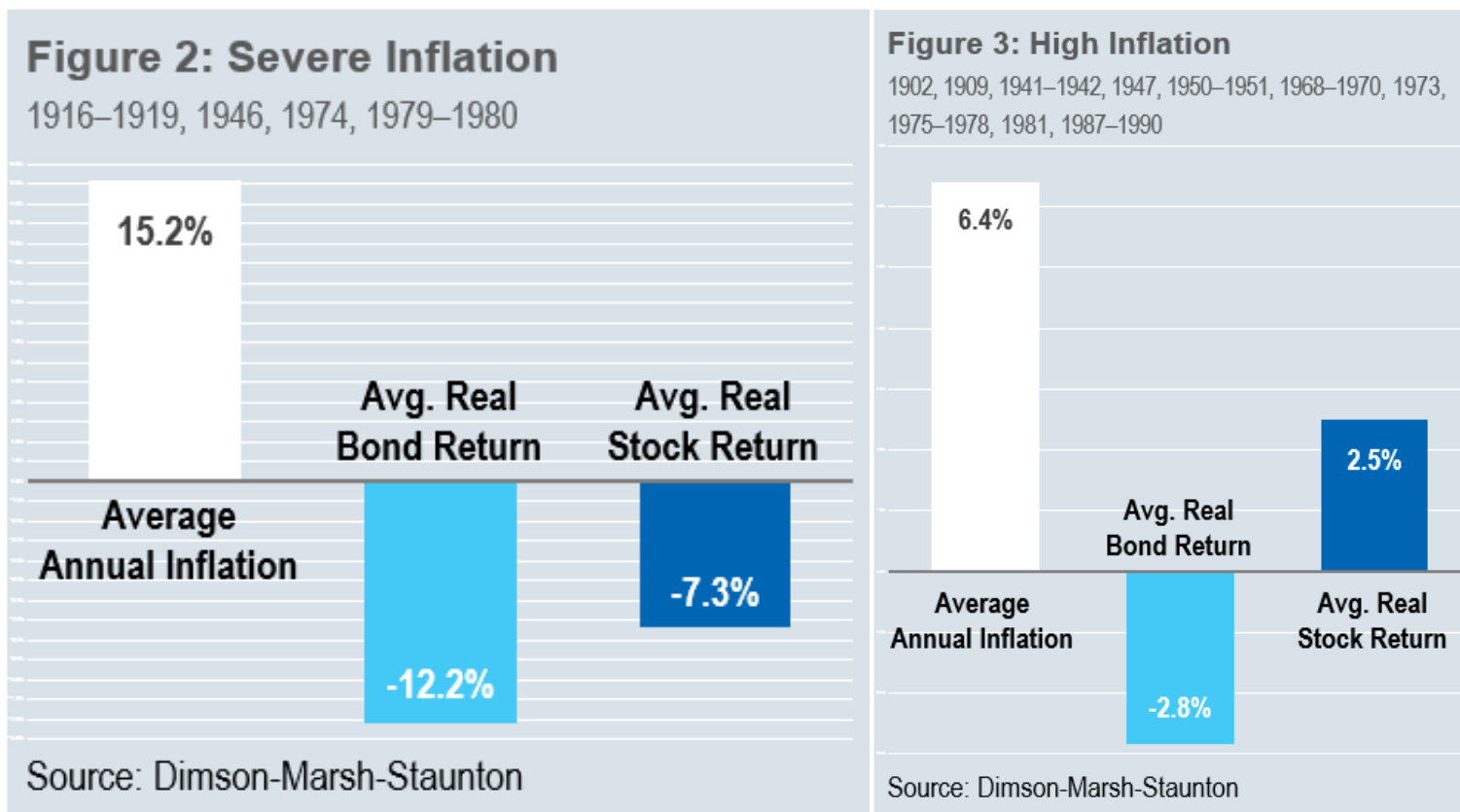
BONDS results - 100 years “buy & hold”:



* Inflation-adjusted cumulative performance data (effective return) based on U.S. asset classes, 1900-2000; Triumph of the Optimists: 101 Years of Global Investment Returns

Active trading vs. buy & hold after inflation

1/3 of developed countries showed negative results - 100 years of "buy & hold":



* Inflation-adjusted cumulative performance data (effective return) based on U.S. asset classes, 1900-2000; Triumph of the Optimists: 101 Years of Global Investment Returns



Discretionary vs. quantitative

Human vs. rule-based action:

“There is a large amount of research, showing that simple quantitative models are superior to human (expert) judgment in almost every domain.

One study, which includes over 130 studies from a wide variety of fields such as firefighting, wine pricing, brain damage detection, art of cooking, to heart attack diagnosis, etc, concludes that rule-based systems work "better" than expert decisions.

*In only 8 out of 130 cases the opposite was true. All 8 of these studies had one thing in common. The human participants had access to information not available to the quant models. **Where quant models and human had the same information set, the models performed much better.***

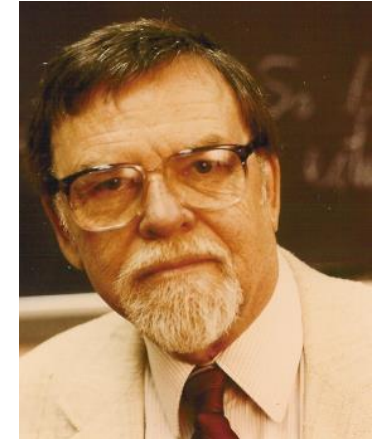
James Montier for Dresdner Kleinwort "Global Equity Strategy: Painting By Numbers - An Ode To Quant"

Discretionary vs. quantitative

Paul Meehl, referred to as ...

“... the smartest psychologist of the 20th century”

(Psychology Today)



Paul E. Meehl
(1920-2003)
University of Minnesota
Department of Psychology

Conclusion for practice:

*“In the future let all decisions, forecasts, diagnoses, as well as judgments - whether important or insignificant - be made
by
rule-based systems. Because nowadays there is no doubt that "algorithms" lead us to better results.”*

Discretionary vs. quantitative

There are so many rules - but only a few work:

Academic studies show that most trading rules and indicators, after extensive testing, often only work to a very limited extent.

- **7,846 different trading rules were tested on the Dow Jones Index**
(1897-2011, study by Bajgrowicz and Scaillet)
- **93 market indicators were tested on the S&P500**
(over the past 54 years, study by Fang, Quin and Jacobson)

- Momentum trading (trend following) is one of the most studied financial topics of the past 20 years
- Approved strategy for more than 200 years - in almost all asset classes
- Momentum is "the most significant anomaly" in the markets (Fama/French)

Returns to buying winners and selling losers

Jegadeesh and Titman (momentum-study 1993)

- **time frame studied: 1965 – 1989**

„... Trading strategies that buy past winners and sell past losers realize significant abnormal returns ...“

Profitability of momentum strategies

Jegadeesh and Titman (momentum-study 2001)

- **time frame studied: 1990 – 1998**

„... This paper evaluates various explanations for the profitability of momentum strategies documented in Jegadeesh and Titman (1993). The evidence indicates that momentum profits have continued in the 1990s, suggesting that the original results were not a product of data snooping bias ...“

A century of evidence on trend-following investing

Hurst, Ooi, Pedersen (momentum-study 2012)

„... Given its attractive returns and diversifying characteristics, allocating to a time series momentum strategy would have significantly improved a traditional portfolio's performance over the past 110 years ...“

Two centuries of trend-following

Lempérière, Deremble, Seager, Potters, Bouchaud (momentum-study 2014)

- examined two time series
 - *Futures-prices (since 1960)*
 - *Spot-prices (since 1800)*

- Trends are the "most statistically significant anomaly" in the financial markets

- „... We establish the existence of anomalous excess returns based on trend following strategies across four asset classes (commodities, currencies, stock indices, bonds) and over very longtime scales ...“



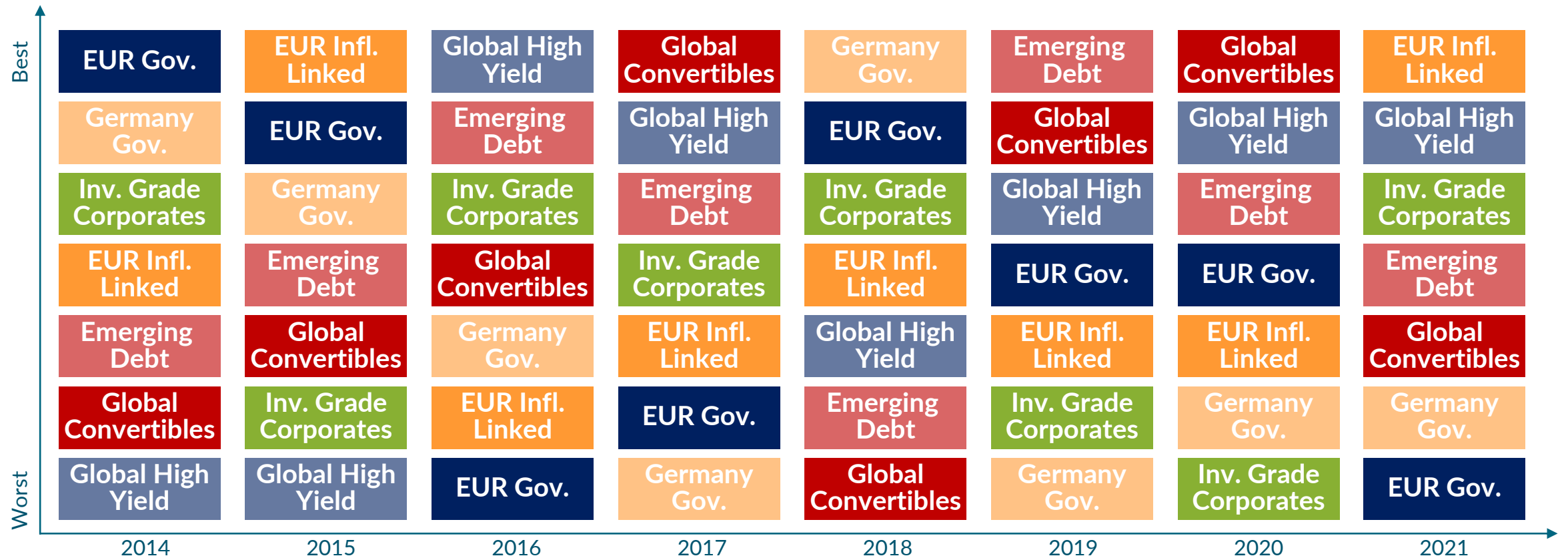
C-QUADRAT ARTS Total Return Bond T

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- Free investment guidelines: ➔ „Unconstrained Bond“ – funds
- No „benchmark-thinking“
- Broad investment universe (over 1.000 bond funds)
 - Government bonds
 - Corporate bonds
 - High yield / emerging market bonds
 - Inflation-linked bonds
 - Short-duration bonds
 - In various regions / durations / currencies / credit ratings
 - etc...
- Trend following strategy with active risk management
- Strict stop-loss systematic

C-QUADRAT ARTS Total Return Bond T

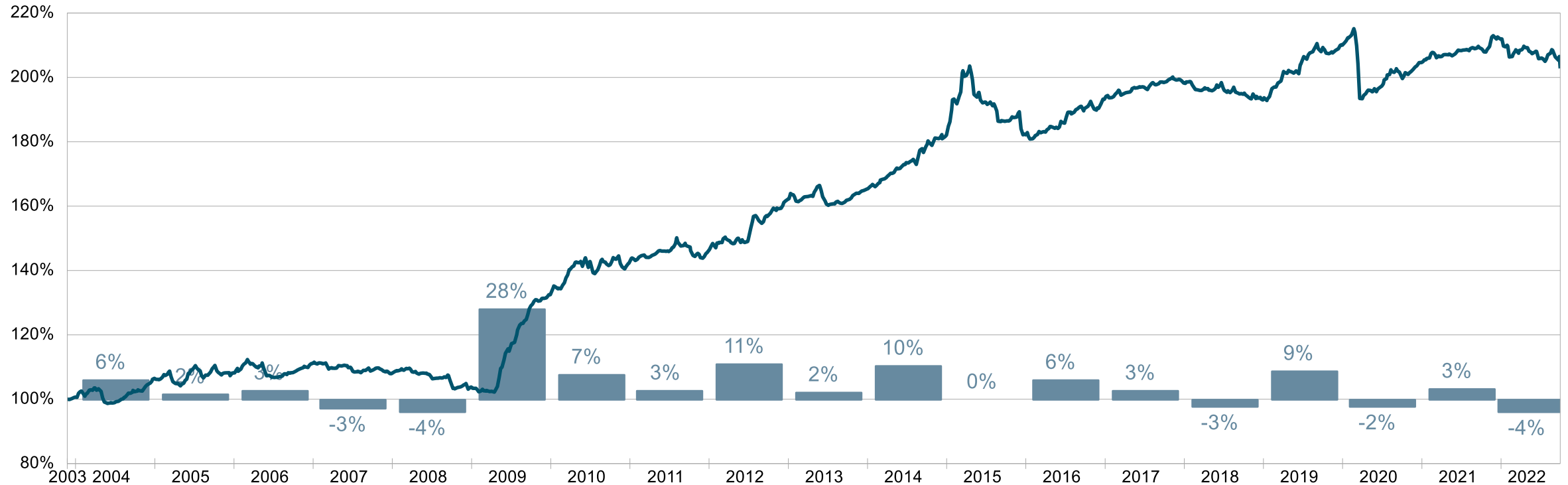
Global bond rotation (2014-2021)



C-QUADRAT ARTS Total Return Bond T

Performance & Data since 11/24/2003 (Track-record since 19 years)

as of 09/30/2022



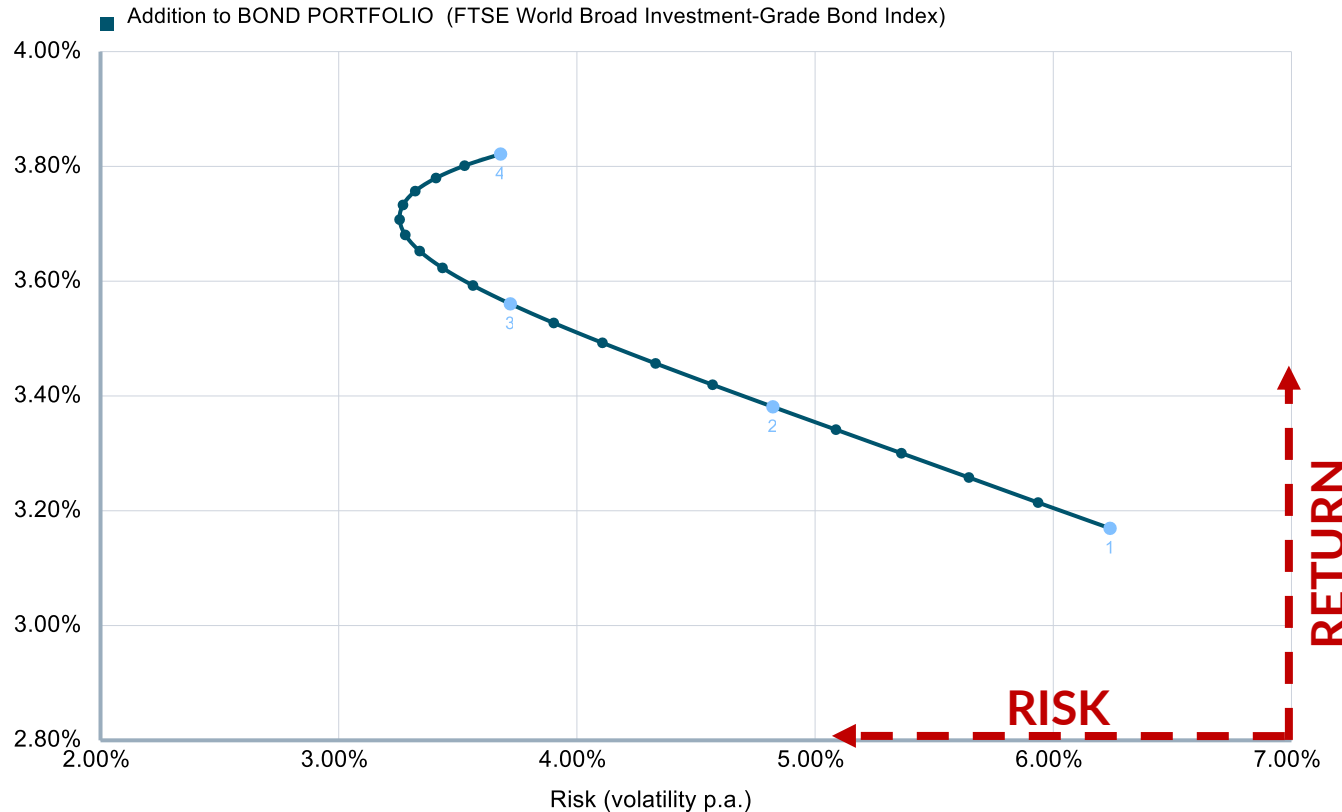
YTD	-4.14%	Performance since inception	102.79%	Performance p.a. since inception	3.82%	5 years	2.33%	5 years p.a.	0.46%
Correlation to FTSE World Broad Investment-Grade Bond Index	0.24	Correlation to MSCI World Index EUR	0.43	Mod. sharpe ratio	0.73	Maximum drawdown	-11.29%	Volatility	3.68%

Past performance figures do not constitute any reliable indicator of future performance. Every capital investment bears a risk. Prices may rise as well as fall. Issue and redemption fees have not been taken into account when calculating performance. Performance data have been calculated using the OeKB method.
 In case of an investment amount of 1,000 EUR the investor will be required to pay a subscription fee of max. 30,- EUR. This will accordingly diminish the performance of his investment. The performance figures indicated correspond to the gross performance, which includes all costs arising at the fund level and assumes the reinvestment of any distributions. Other, individual costs incurred at the investor level, such as transaction costs, custodian expenses and taxes, additionally reduce the investor's return.
 Calculation provided by Cyberfinancials Datenkommunikation GmbH

C-QUADRAT ARTS Total Return Bond T

Addition to the Portfolio since 11/24/2003

as of 09/30/2022



	BOND PORTFOLIO	ARTS Bond	Performance p.a. since 11/24/2003	Volatility	Maximum drawdown
1	100%	0%	3.17%	6.24%	-11.89%
2	75%	25%	3.38%	4.82%	-9.49%
3	50%	50%	3.56%	3.72%	-7.69%
4	0%	100%	3.82%	3.68%	-11.29%
Correlation to BOND PORTFOLIO					0.24

Past performance figures do not constitute any reliable indicator of future performance. Every capital investment bears a risk. Prices may rise as well as fall. Issue and redemption fees have not been taken into account when calculating performance. Performance data have been calculated using the OeKB method. In case of an investment amount of 1,000,- EUR the investor will be required to pay a subscription fee of max. 30,- EUR. This will accordingly diminish the performance of his investment. The performance figures indicated correspond to the gross performance, which includes all costs arising at the fund level and assumes the reinvestment of any distributions. Other, individual costs incurred at the investor level, such as transaction costs, custodian expenses and taxes, additionally reduce the investor's return. Calculation provided by Cyberfinancials Datenkommunikation GmbH

- "Buy & hold strategies" ➔ too risky (high drawdowns & long recovery phases)
- "Active Trading" ➔ can reduce these risks
- To find a functional trading system is really "tricky"
- Even simple quantitative models outperform so-called experts
- Momentum strategies ➔ scientifically most studied (past 20 years)
- Momentum strategies ➔ function in almost all asset classes and time frames
- Attractive risk/return profile and low correlation to traditional stocks/bonds
➔ an ideal component for a broadly diversified portfolio

Triumph of the Optimists: 101 Years of Global Investment Returns

<https://www.osam.com/Commentary/inflation-and-the-us-bonds-and-stock-markets>

James Montier for Dresdner Kleinwort "Global Equity Strategy: Painting By Numbers - An Ode To Quant"

<https://studylib.net/doc/10451396/global-equity-strategy--macro-research-painting-by-number...>

Orley Ashenfelter, economist

<https://doi.org/10.1080/09332480.1995.10542468>

Paul Meehl

<https://www.psychologytoday.com/us/blog/cui-bono/201402/paul-e-meehl-smartest-psychologist-the-20th-century>

Jegadeesh and Titman (momentum-study 1993)

"Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency", by Narasimhan Jegadeesh and Sheridan Titman in "The Journal of Finance" Vol. 48, No. 1 (Mar. 1993), pp. 65-91 (27 pages); Published By: Wiley

<https://www.jstor.org/stable/i340162>

Jegadeesh and Titman (Momentum-Studie 2001)

"Profitability of Momentum Strategies: An Evaluation of Alternative Explanations", by Narasimhan Jegadeesh and Sheridan Titman, in "The Journal of Finance" Vol. 56, No. 2 (Apr. 2001), pp. 699-720 (22 pages); Published By: Wiley

<https://www.jstor.org/stable/i302117>

Hurst, Ooi, Pedersen (momentum-study 2012)

"Demystifying Managed Futures" by Brian Hurst, Yao Hua Ooi, and Lasse Heje Pedersen in "Forthcoming Journal of Investment Management" (2013/04/10)

https://scholar.google.at/scholar?q=hurst+ooi+and+pedersen&hl=de&as_sdt=0&as_vis=1&oi=scholar

Lempérière, Deremble, Seager, Potters, Bouchaud (momentum-study 2014)

https://www.researchgate.net/publication/261635941_Two_centuries_of_trend_following

Research by Whitebox

<https://de.extraktf.com/news/etf-news/das-tut-weh-deutsche-privatanleger-verlieren-rekordvermoegen>

Thanks for your attention!

Mag. Leo Willert
Founder & Head of Trading

ARTS
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Trends may change and lead to negative return developments. Trend-following trading software may overweight or underweight trends.

Unit classes denominated in foreign currencies entail an additional currency risk. Their performance may rise or fall due to currency fluctuations.

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The basis for the purchase of investment units is the presently valid prospectus, the current versions of the key investor document ("KID" or "KIID") as well as the annual report and, if older than eight months, the semi-annual report. Potential investors may obtain the current German-language versions free-of-charge from Ampega Investment GmbH, Charles-de-Gaulle-Platz 1, D-50679 Köln and ARTS Asset Management GmbH, Schottenfeldgasse 20, A-1070 Vienna. They are also available at www.ampega.de and www.arts.co.at.

Description of the Figures used in this Review

Volatility:

Value fluctuation of the fund (on daily basis).

Mod. Sharpe ratio:

Ratio of return to volatility (excluding risk-free interest rate, on daily basis).

Correlation:

Dependence of the fund's price performance relative to a benchmark index (on monthly basis).

(1) - concurrent performance

(-1) - opposite performance

(0) - independent performance

Share Classes:

A = distributing; T = accumulating; VT = fully reinvesting in local and foreign; VT-A = fully reinvesting foreign; VT-I = fully reinvesting local