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Target-Risk Equity Funds

9 February 2016

Presented by John Caslin on behalf of the Authors

Disclaimer

The views expressed in this presentation are

those of the authors,

John Caslin, Mark Caslin, Patrick Hogarty,

and Simon Stroughair,

of the paper and not necessarily of the

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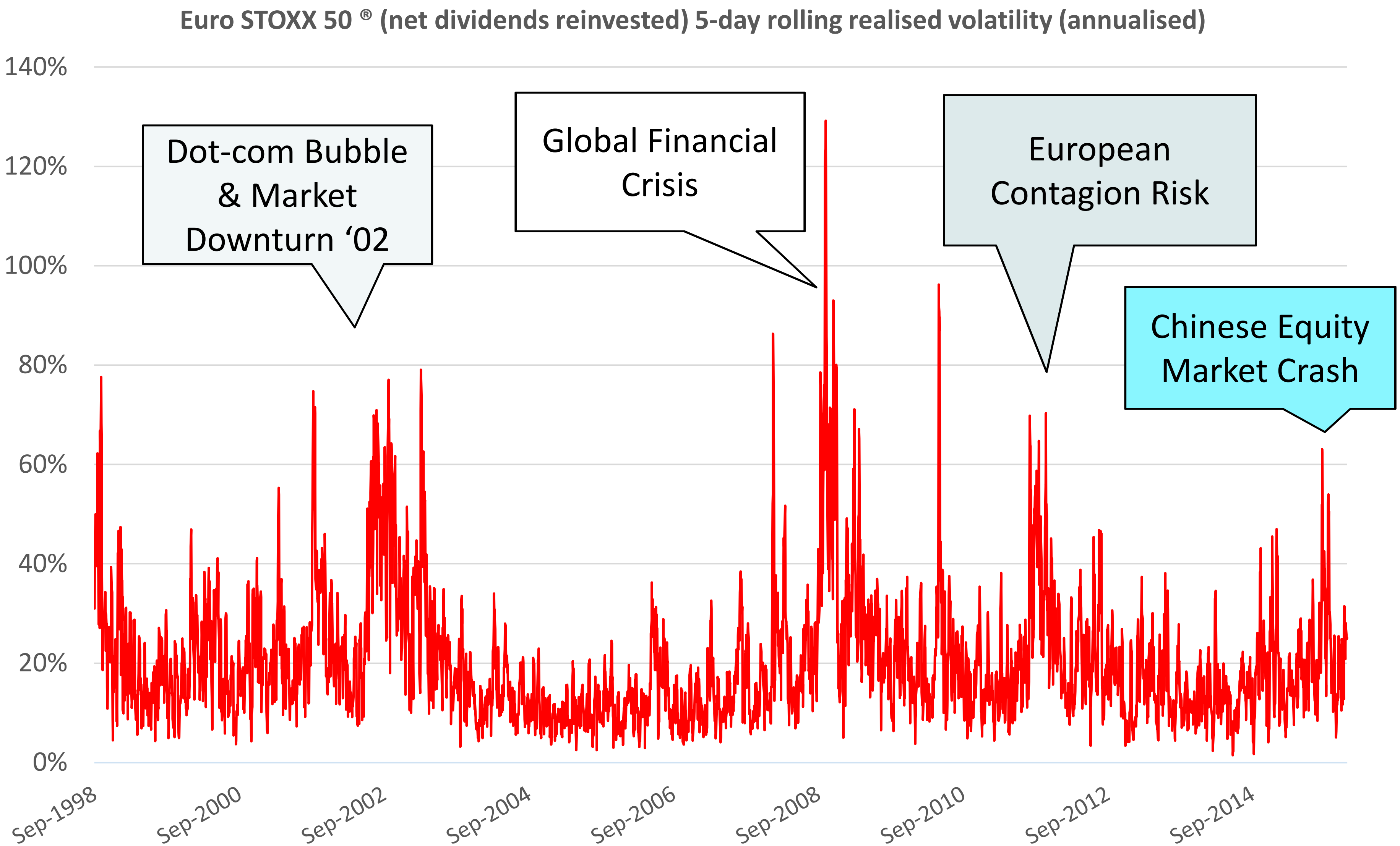
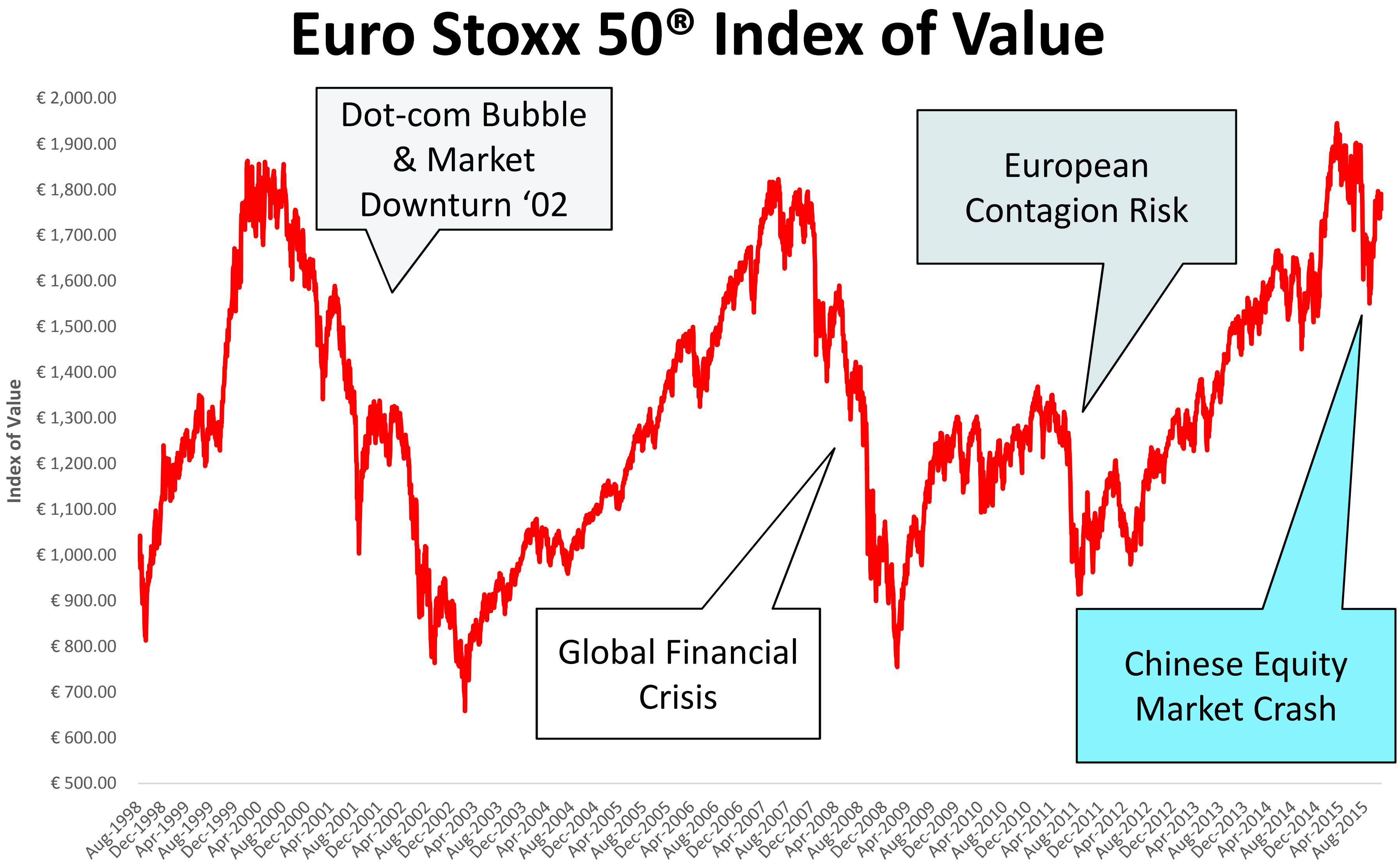
Huge Variation in Equity Volatility



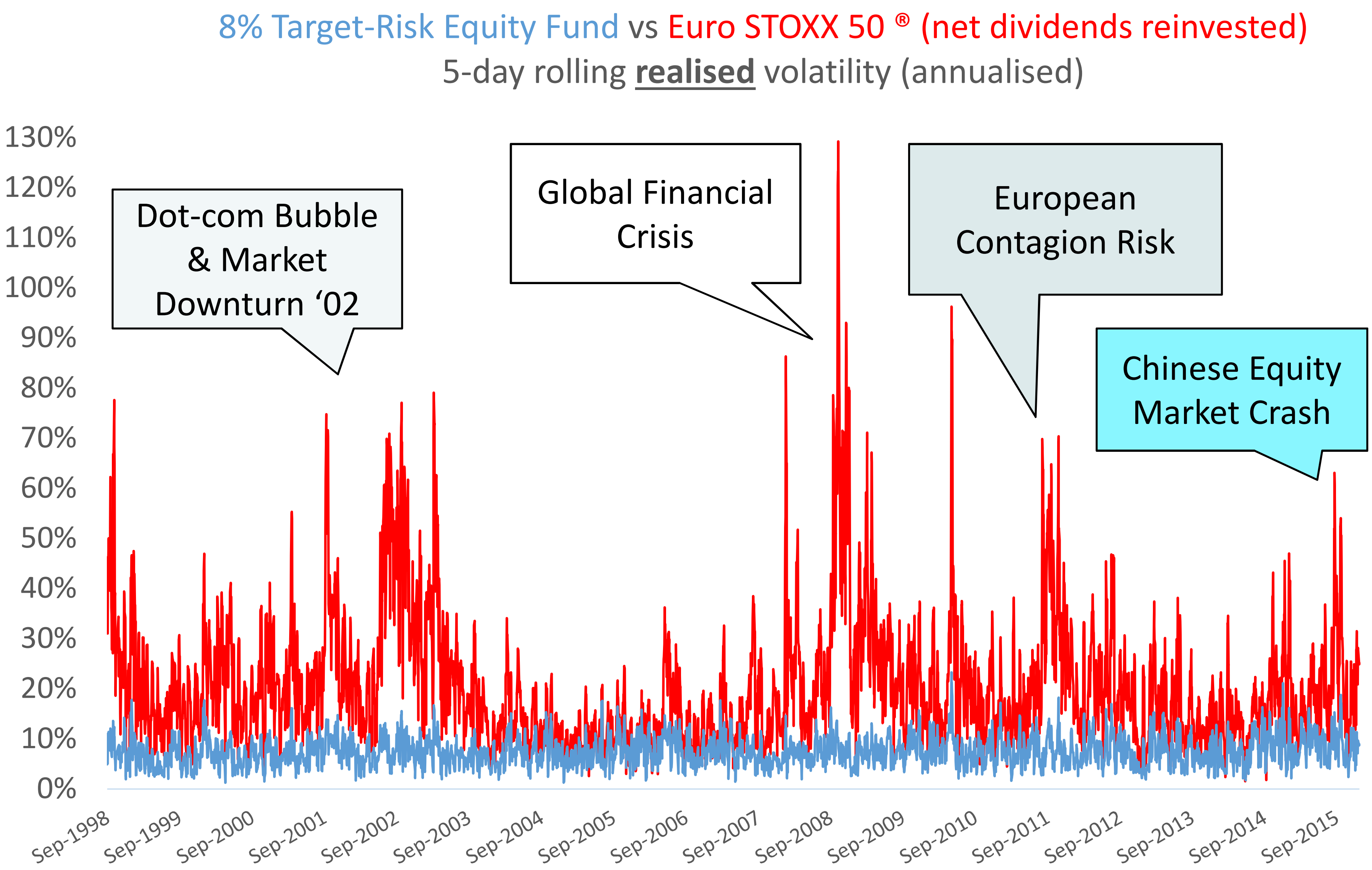
Huge Peak-To-Trough Falls In Value



What is a Target-Risk Equity Fund?

- Aim
  - Keep the fund's volatility in a tight range around the target level
- Method
  - Forecast the risk of the fund
  - Vary the exposure to equities inversely to the forecast risk

Huge Variation in Equity Volatility



Research Findings

- EURO STOXX 50® Index with net dividends reinvested
  - Period: 1 September 1998 to 31 December 2015
- Target-risk level: **8% p.a.** of the value of the fund
  - Same return every **three to five years**
  - Cut peak-to-trough falls in value by **64%**

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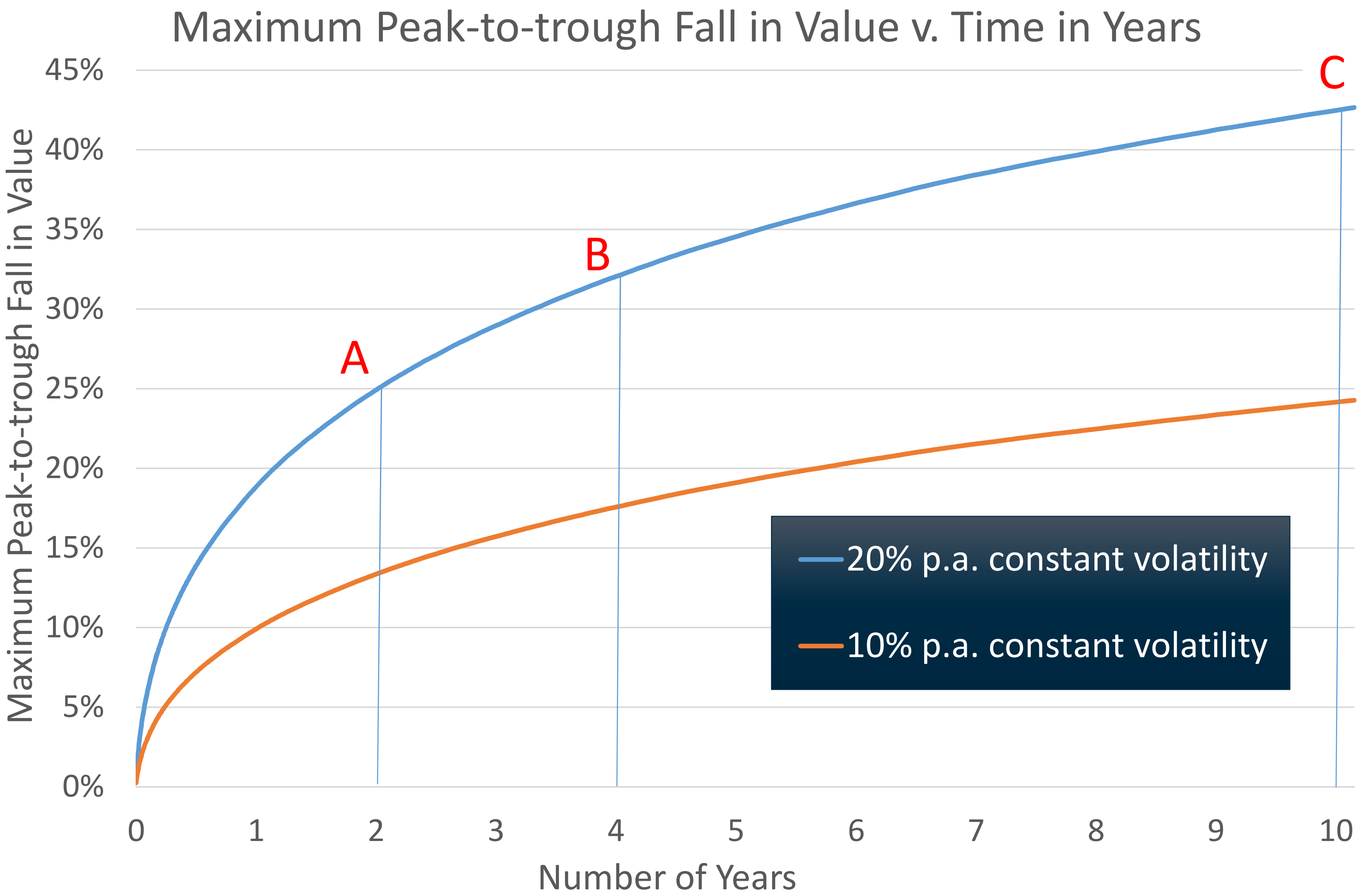
Large Peak-to-trough Falls in Value Destroy a Portfolio

Key Drivers

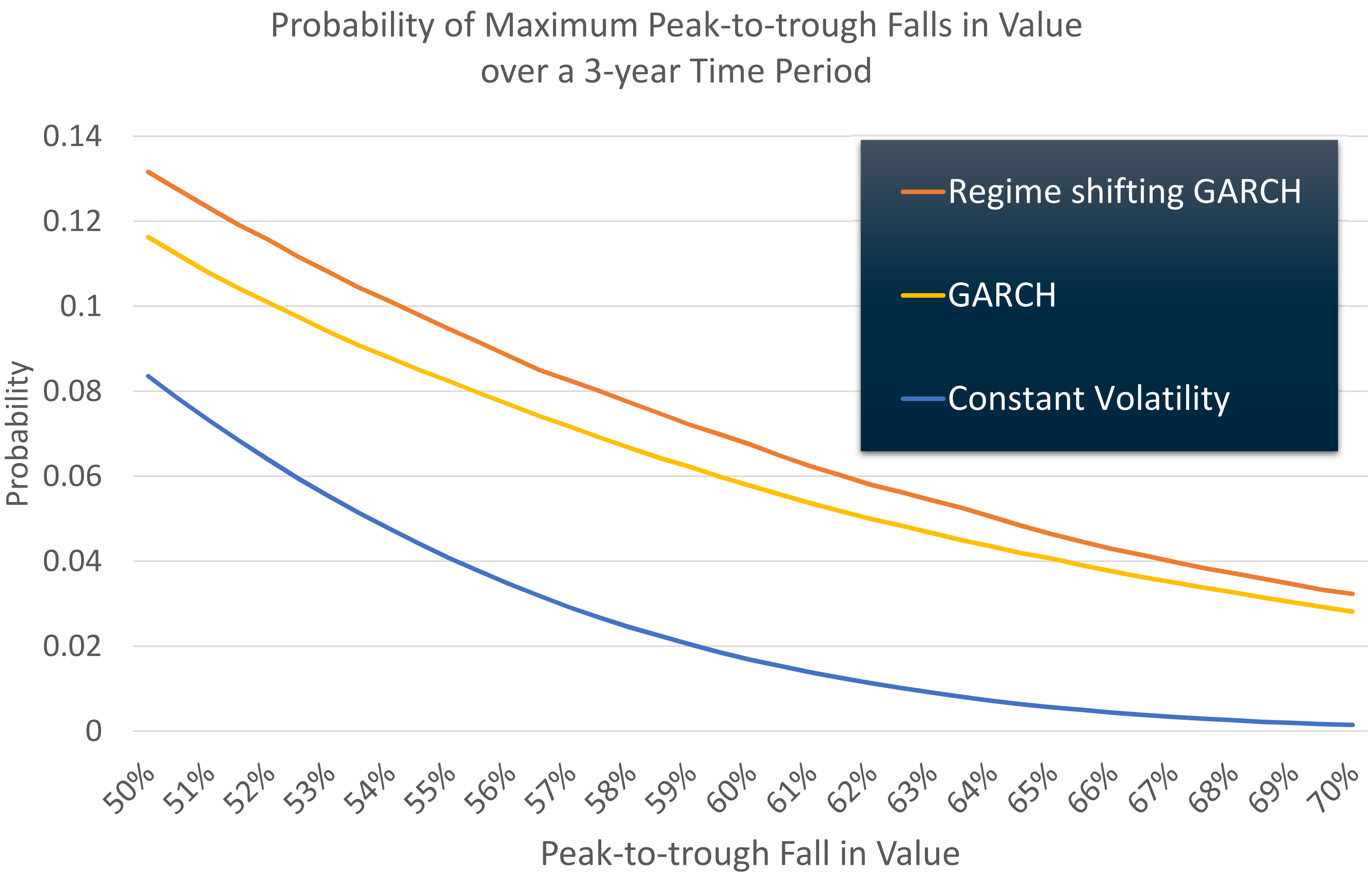
of peak-to-trough falls in value

1. Volatility level
2. Time window
3. Volatility of volatility
4. Return

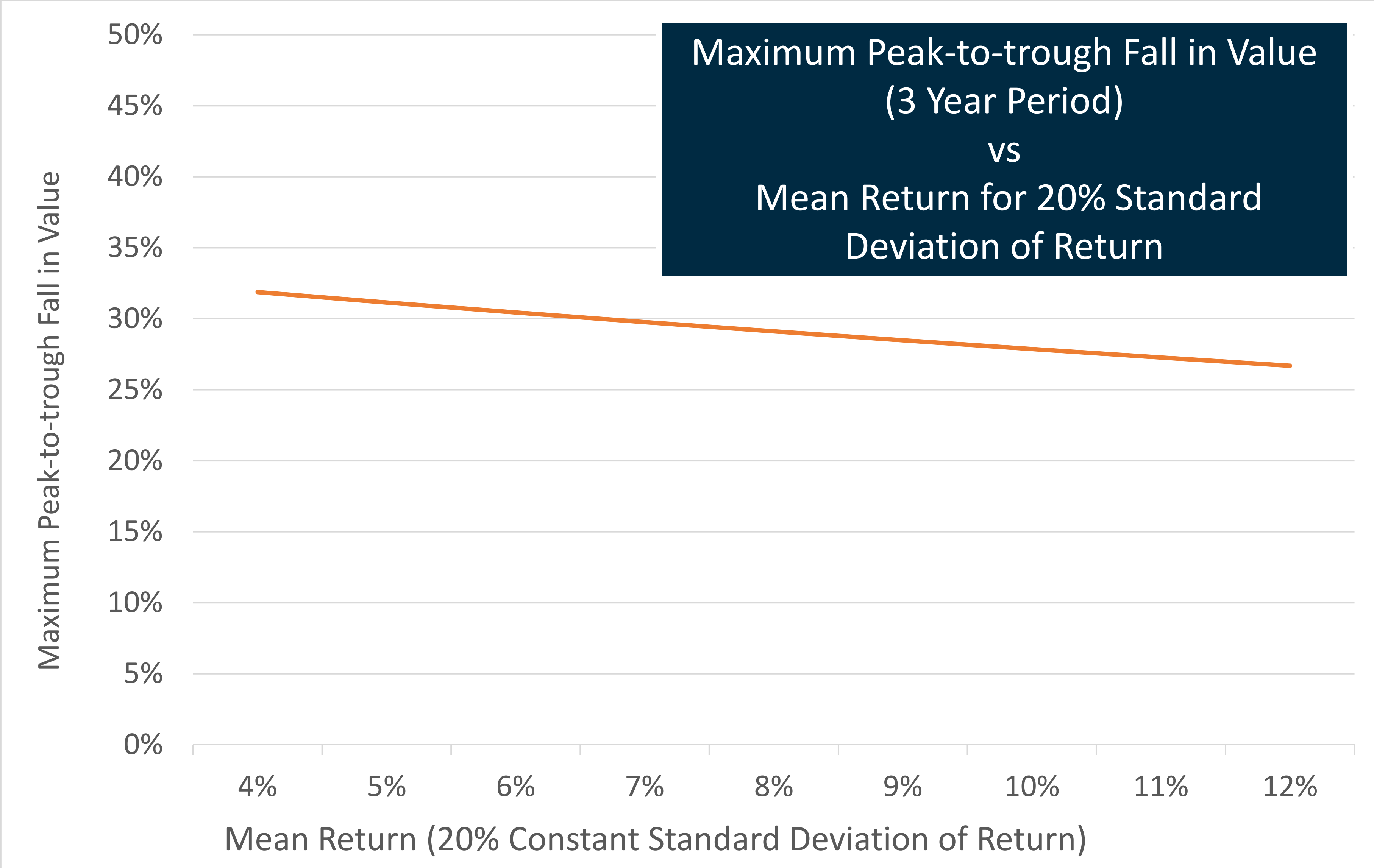
Volatility Level and Time Window



Volatility of Volatility

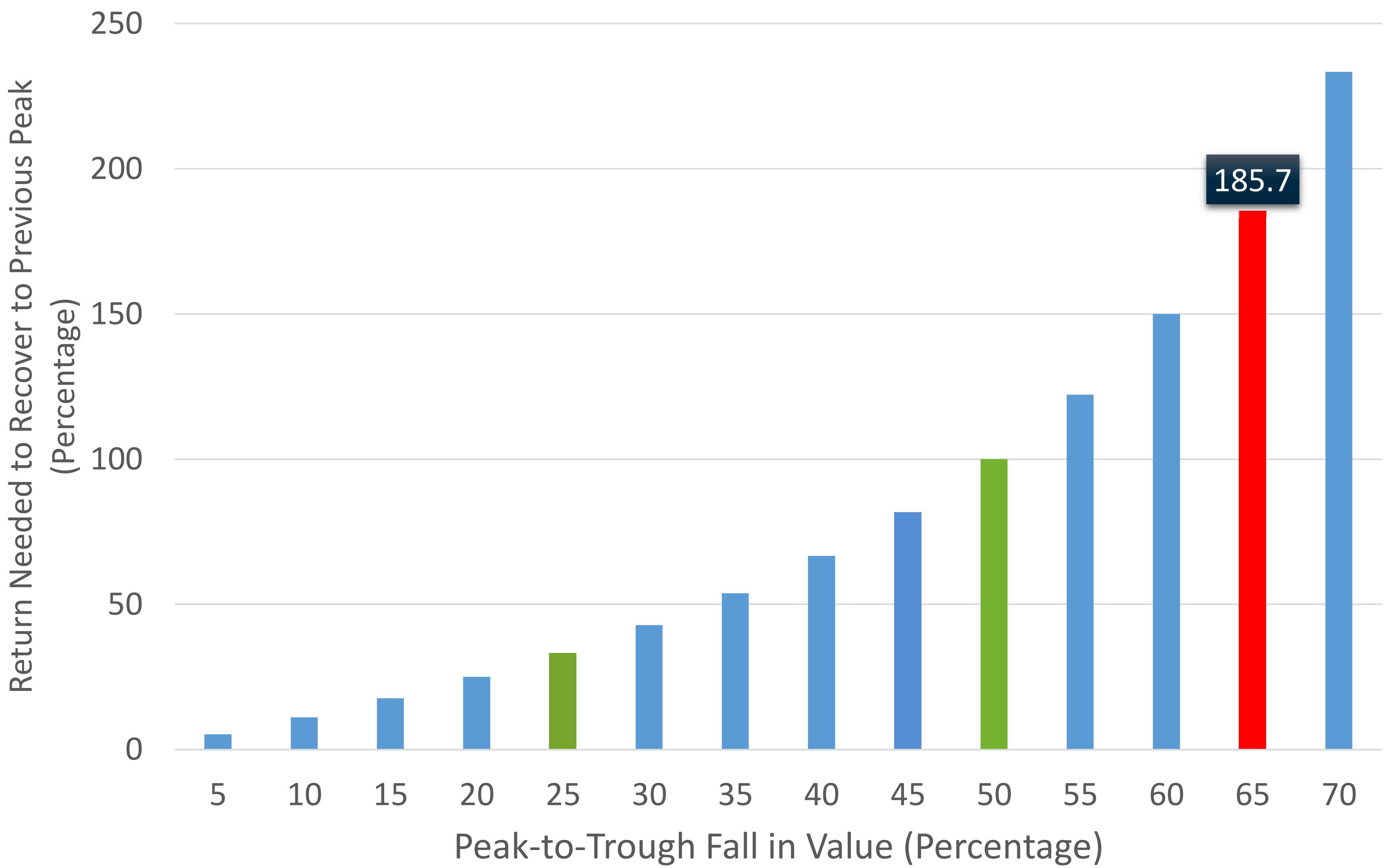


Return



Maximum Peak-to-trough Fall in Value
(3 Year Period)
vs
Mean Return for 20% Standard
Deviation of Return
Maximum Peak-to-trough Fall in Value
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
4%
5%
6%
7%
8%
9%
10%
11%
12%
Mean Return (20% Constant Standard Deviation of Return)

Return Required to Recover from Losses



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Capturing the Upside and Avoiding the Downside of Equities

Controlling Portfolio Risk

Two Approaches

1. Diversification

2. Direct control of risk

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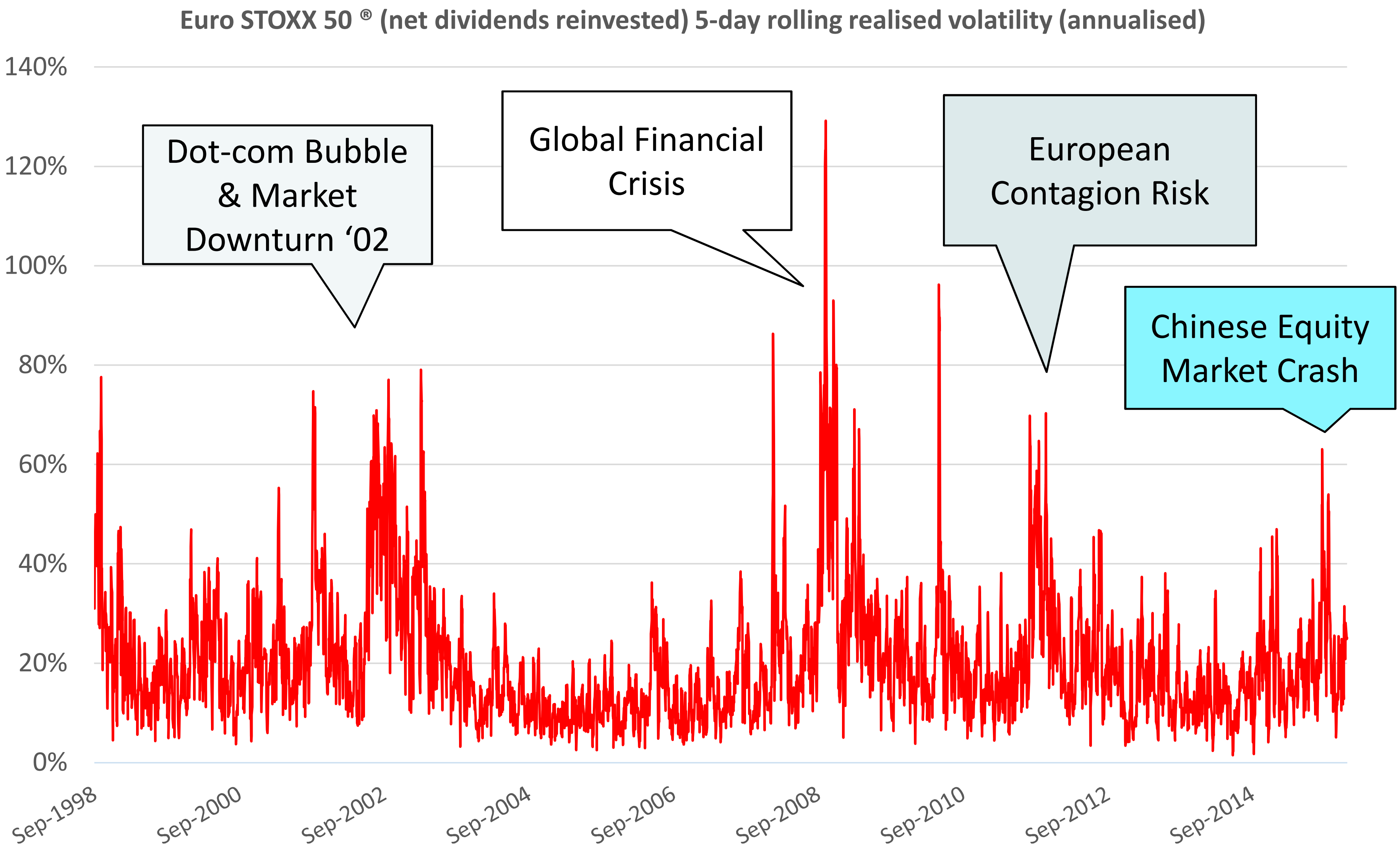
Diversification

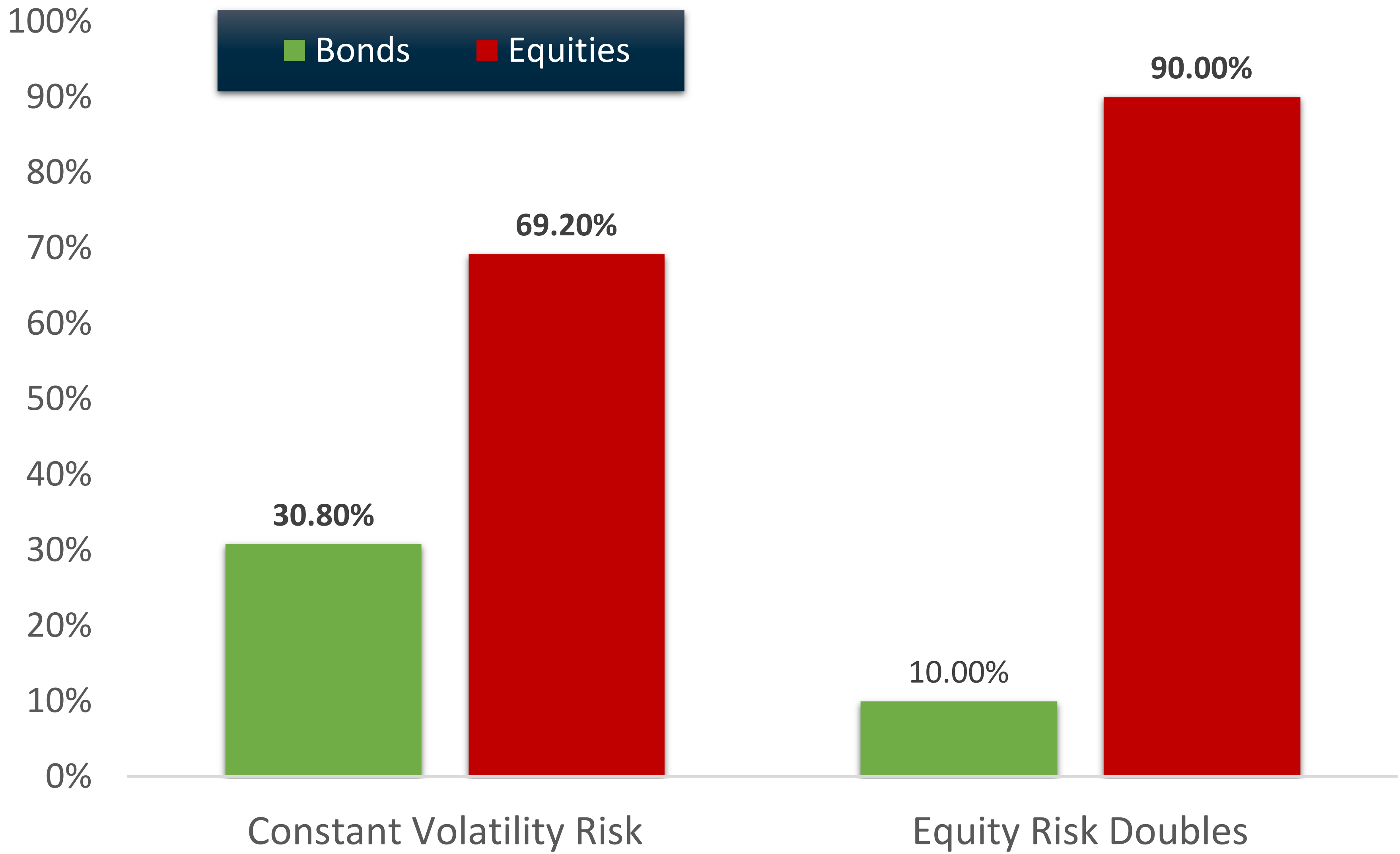
Huge Variation in Equity Volatility



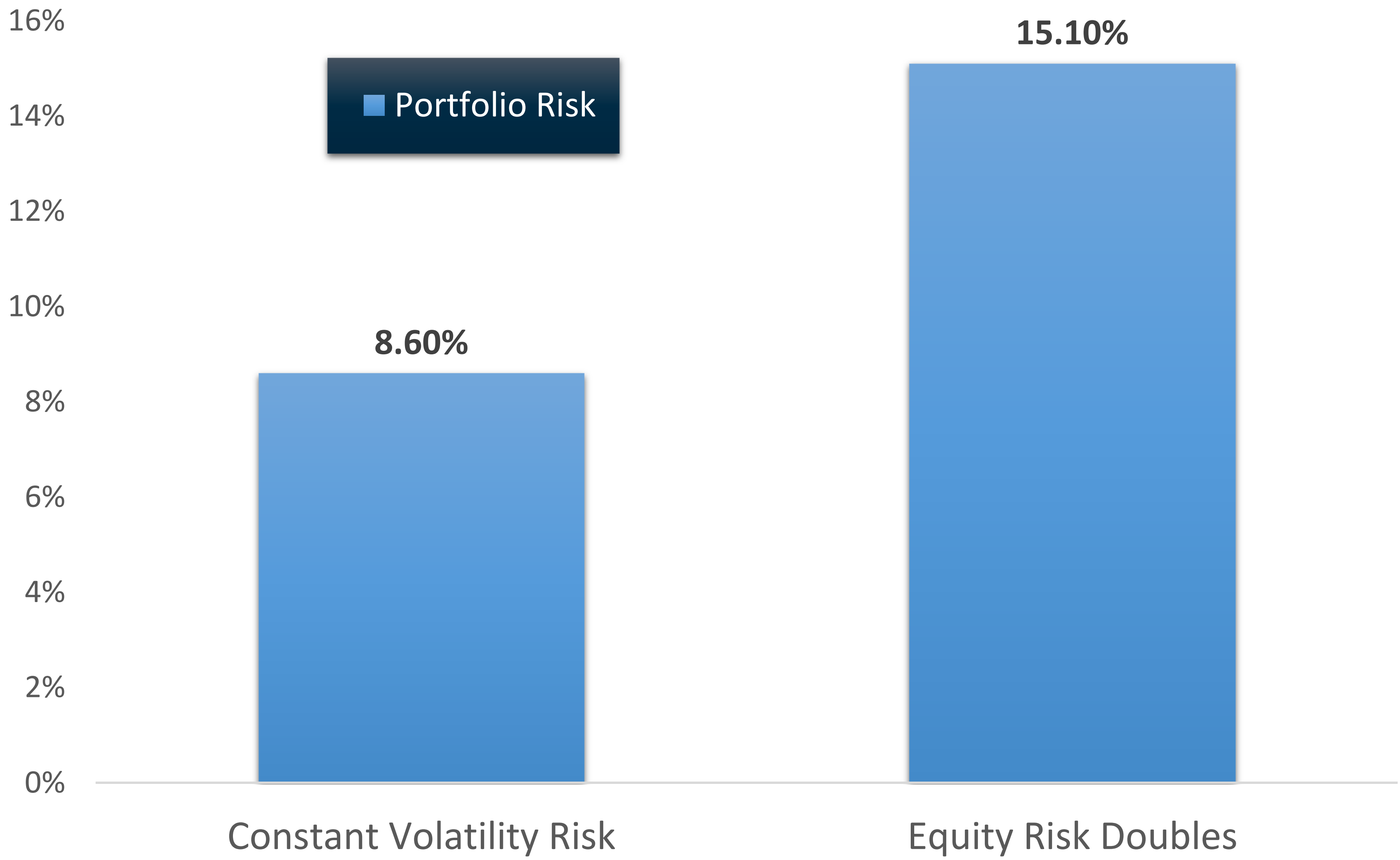
Diversification

- Exposure to a range of asset classes
  - Impression of diversification
  - One asset class in the portfolio is riskier than all the others and exhibits huge variation in risk
- Efficient frontier analysis
  - Assets have constant volatility
- Illustration: 60% bond 40% equity portfolio
  - Assumptions:
    - **Risk:** 8% bonds, 18% equities, zero correlation

Source of Portfolio Variance



Overall Portfolio Risk



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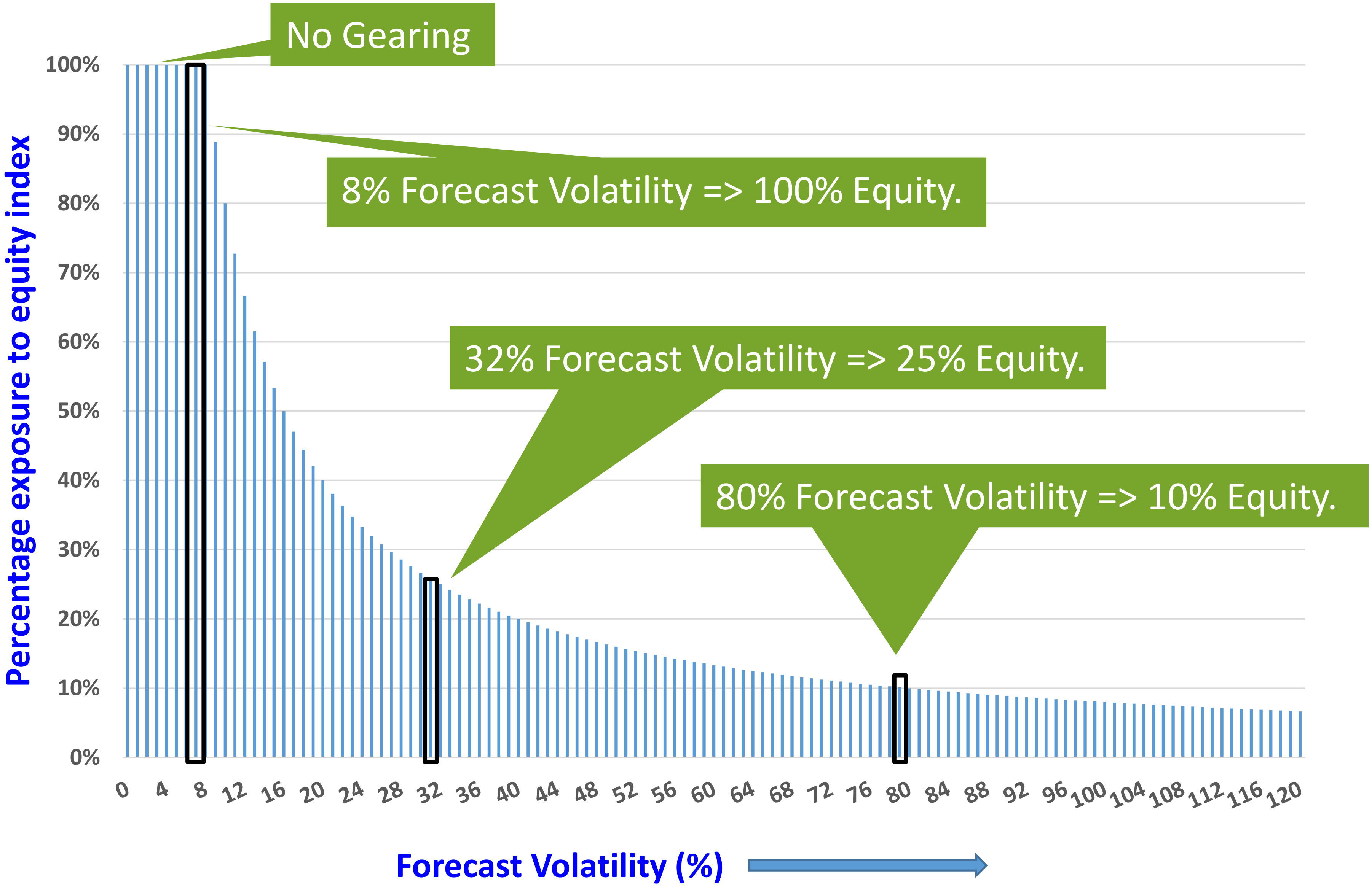
Direct Control Of Risk
Target-Risk

Controlling Portfolio Risk Directly

- Target-risk
  - Choose the risk level:
    - Investor's maximum tolerable loss
    - Given time period
    - Given probability
  - Forecast portfolio risk
  - Adjust exposure to equities inversely to forecast risk

How do you target risk?



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Designing a Target-Risk Equity Fund

Design

Target Risk Equity Fund

- Choice of risk level
- Risk and return do not scale linearly
- Realised Risk and its implications for leverage and the target-risk level
- Liquidity of underlying equity portfolio
  - Transaction costs
- <u>Ability to forecast volatility</u>

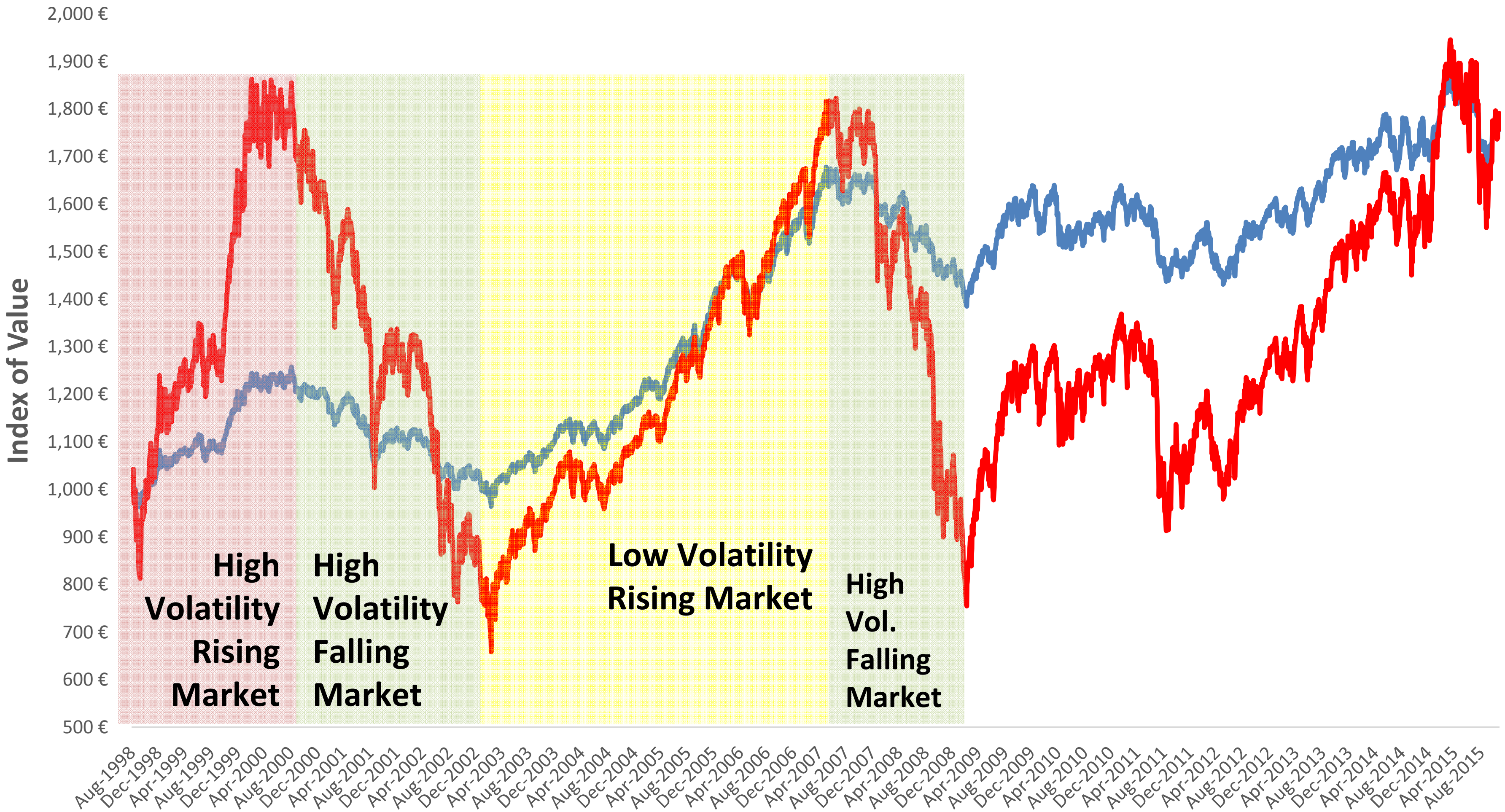
Index Of Value

Summary of Research

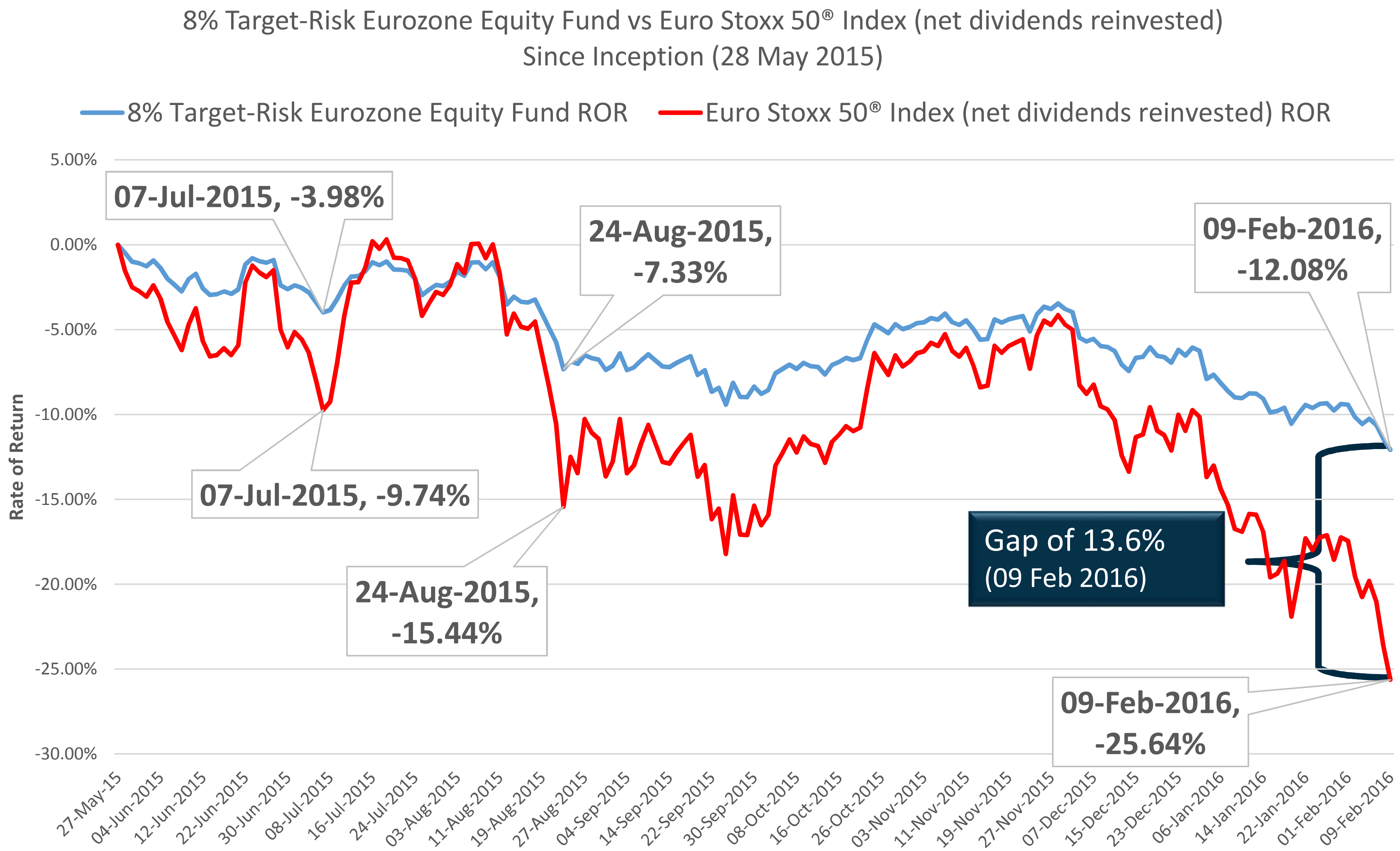
Fund / Parameter for the Period	8% Target-risk Fund	EURO STOXX 50® Index with Net Dividends Reinvested
Annualised daily volatility (%)	**8.1**	24.4
Maximum peak-to-trough fall in value (%)	**23.3**	64.6
Annualised Return (%)	**3.2**	3.1
Simple Sharpe Ratio	**0.40**	0.13

Expectations Management

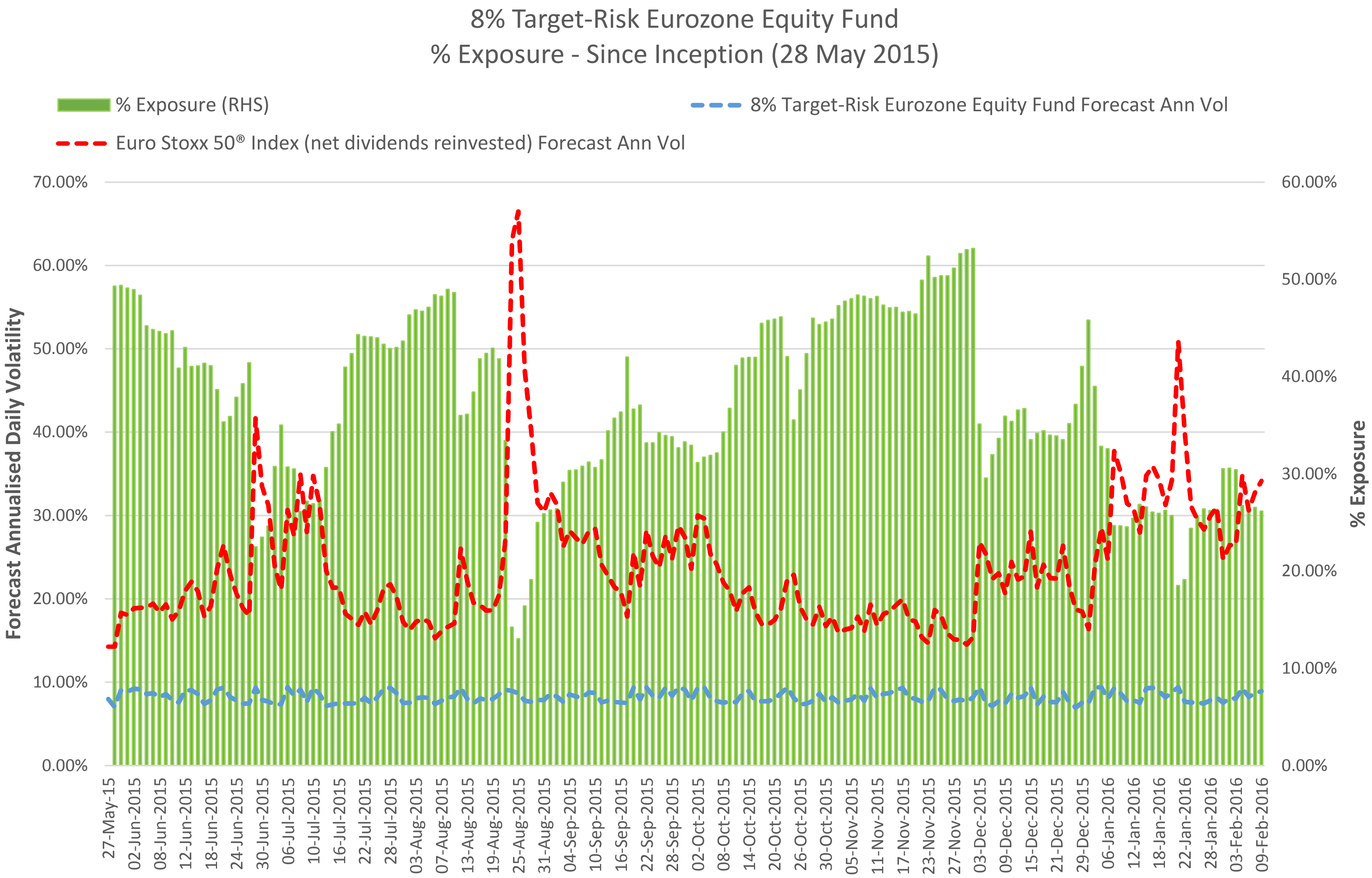
8% Target Risk v Euro Stoxx 50® Index of Value



Live Trading - Returns



Live Trading – Volatility Control



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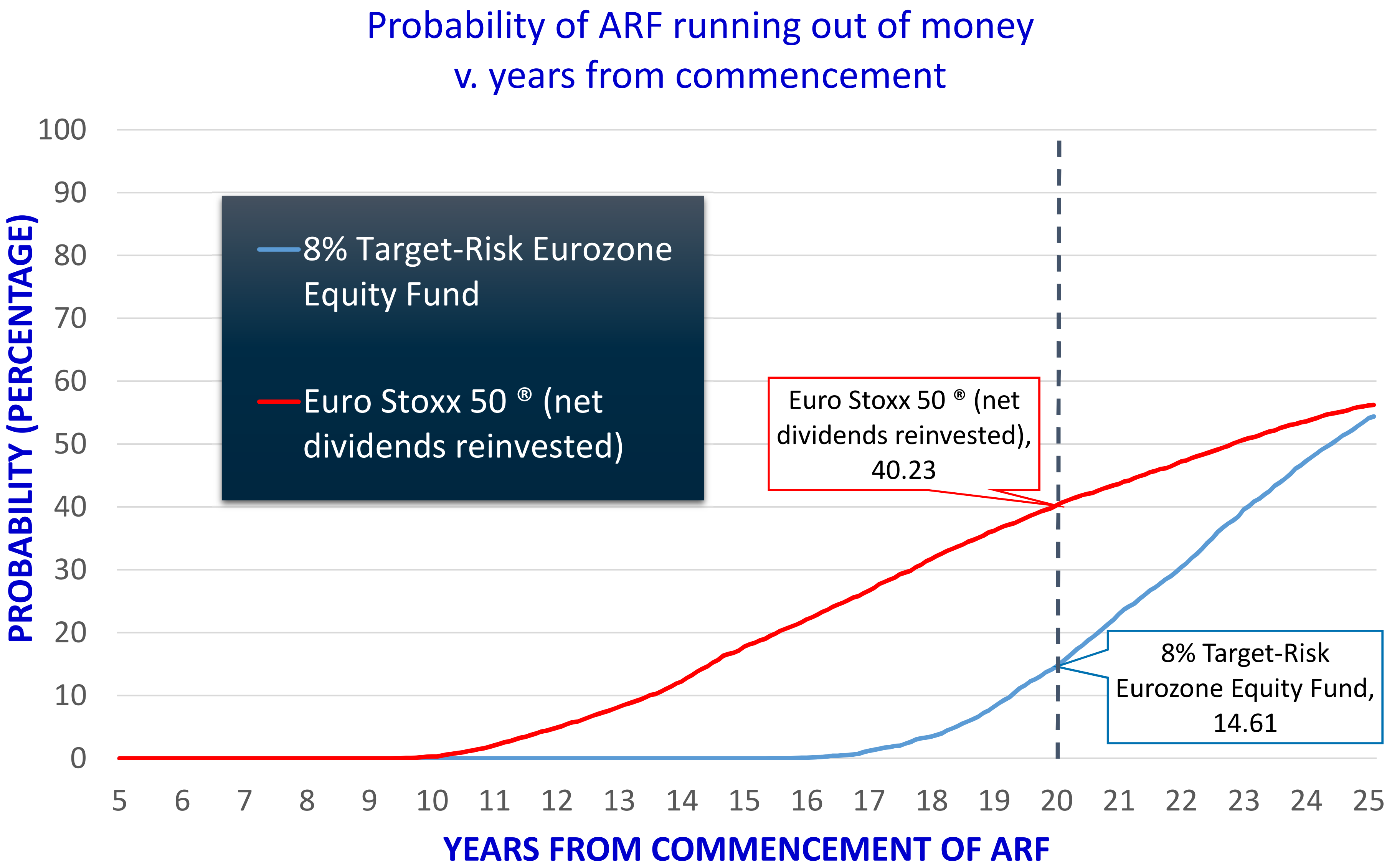
Applications

Approved Retirement Funds



Defined Benefit Pension Plans

- Low yield environment equities look attractive
- Equities raise risk of a breach of Funding Standard
- Equities may increase the size of the Funding Standard Reserve

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- Target-risk approach
  - Risk of equity portion is controlled
  - Funding Standard Reserve may be reduced

Insurance Companies – Solvency II

- Investment assets must meet the *prudent person principle*
- *Own funds > MAX(*SCR, MCR*)*
- Equity holdings increase the SCR
- Equity analysts’ views

- *Target-risk equity likely to be a better means of including equities in “own funds”*
- *Demonstrates the **IDENTIFY**, **MEASURE**, **MONITOR**, **MANAGE**, **CONTROL**, and **REPORT** requirements*

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Summary

Summary

Research results

- Same return every three to five years
- 1/3rd of the risk of the index
- 64% reduction in peak-to-trough falls in value

March of regulation and accounting standards demanding more risk control

Significant applications for	
DB Pensions ✓	DC Pensions ✓
ARFs ✓	Capital Protection Products ✓
Multi-Asset Portfolios ✓	

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Thank you for your attention