

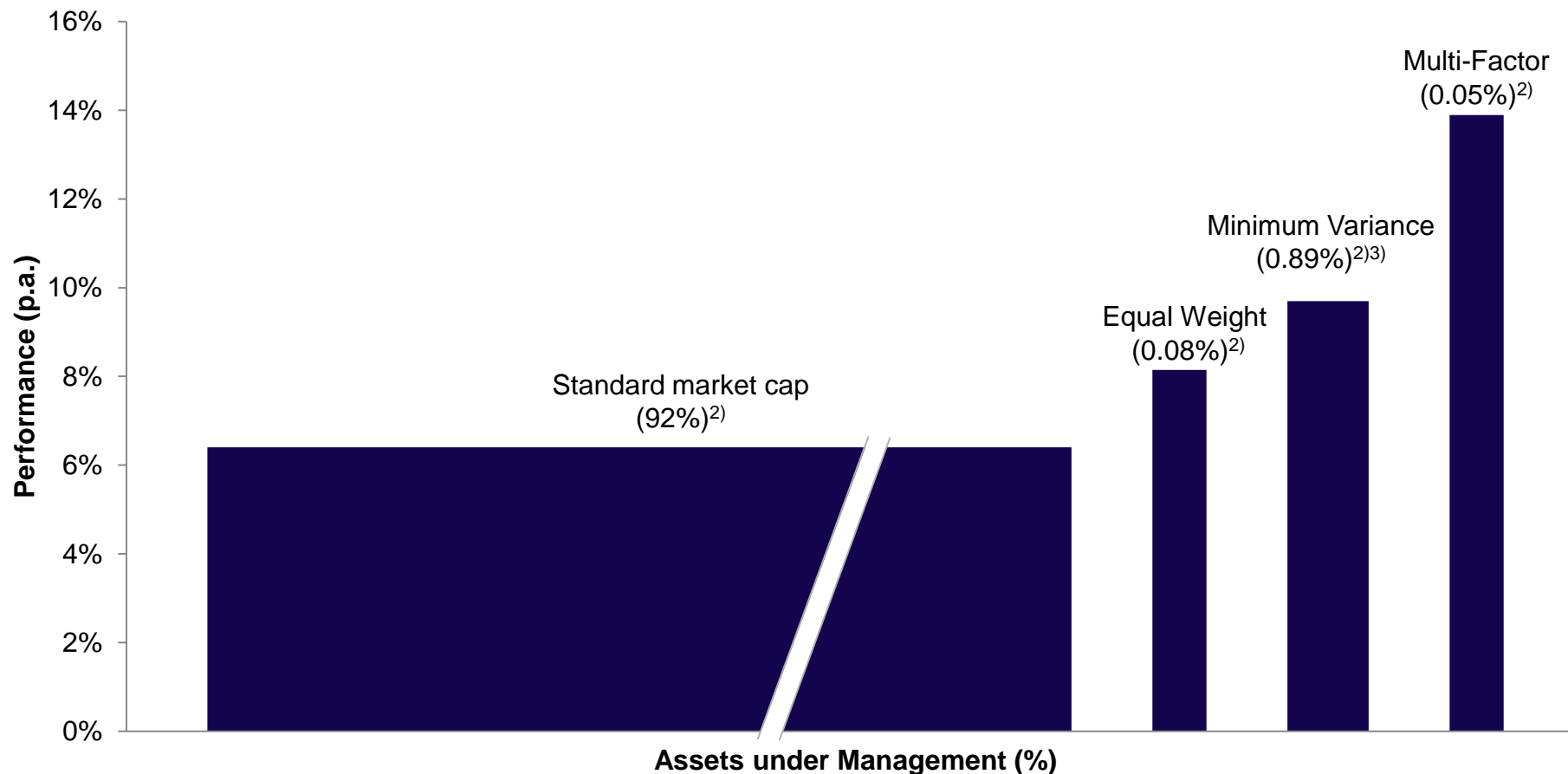
Market neutral factor investing: harvesting equity risk premia with bond like volatility

March, 2017



Do investors lose money by choosing the wrong concept?

Example: Dev. Europe / index performance [Oct. 2004 - Jan.2017]¹⁾



Why do alternative weighting and selection concepts outperform market cap weighted indices?

Concept

From the traditional CAPM...

$$\mu_i = r_f + \beta_1(r_m - r_f) + \alpha$$

Market factor

...to the inclusion of style factors.

$$\mu_i = r_f + \beta_1(r_m - r_f) +$$

$$\beta_2\text{SIZE} + \beta_3\text{VAL} + \beta_4\text{GRW} + \beta_5\text{MOM} + \beta_6\text{QAL} + \beta_7\text{VOL} + \alpha$$

Style factors

Sharpe (1964)/ Lintner / Mossing (1965)
CAMP

Haugen / Baker (1991) Carhart(1997)
Low volatility Momentum

Fama/French(2015)
Quality

Fama / French (1992)
Value / Size

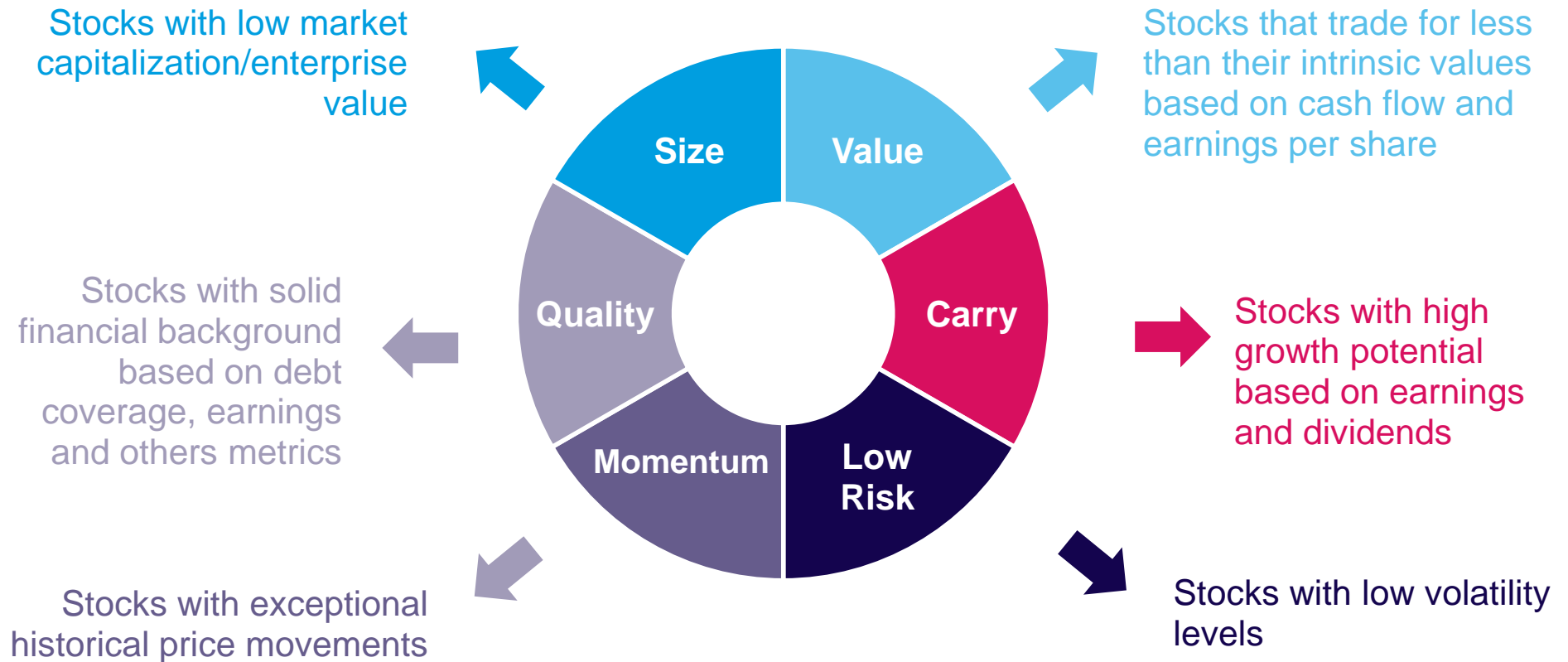


Investors are rewarded for their exposure to one systematic source of risk: the market factor.



In excess of the market factor, investors may earn a reward for their exposure to systematic sources of risk in excess of the market factor

Factor indices aim at harvesting premia as compensation for exposure to specific sources of risk



The construction of iSTOXX Europe Factor Indices aims at gaining factor exposure while being constrained to benchmark

Overview – Factor index construction

Factor index construction

Maximize exposure to targeted factor subject to:

- » Maximum **tracking error** of **3%** relative to STOXX Europe 600.
- » Maximum **systematic risk contribution** of **10%** to tracking error.
- » **Targeted beta** of **1** relative to STOXX Europe 600 with allowed maximum deviation of +/- 0.025.
- » Number of **components** between **50 and 120**.
- » Components are capped at a **maximum weight** of **10%**.
- » **Industry weights** cannot deviate from those of the STOXX Europe 600 by more than **+/- 1.5%**,
- » **One-way turnover** per month is set to a maximum of **25%**.
- » **Liquidity constraint** on constituent level, defined by $((x_{bn} * weight) / value\ traded)$ needs to be below y .

Result

» **Factor tilt index** which captures

broad market

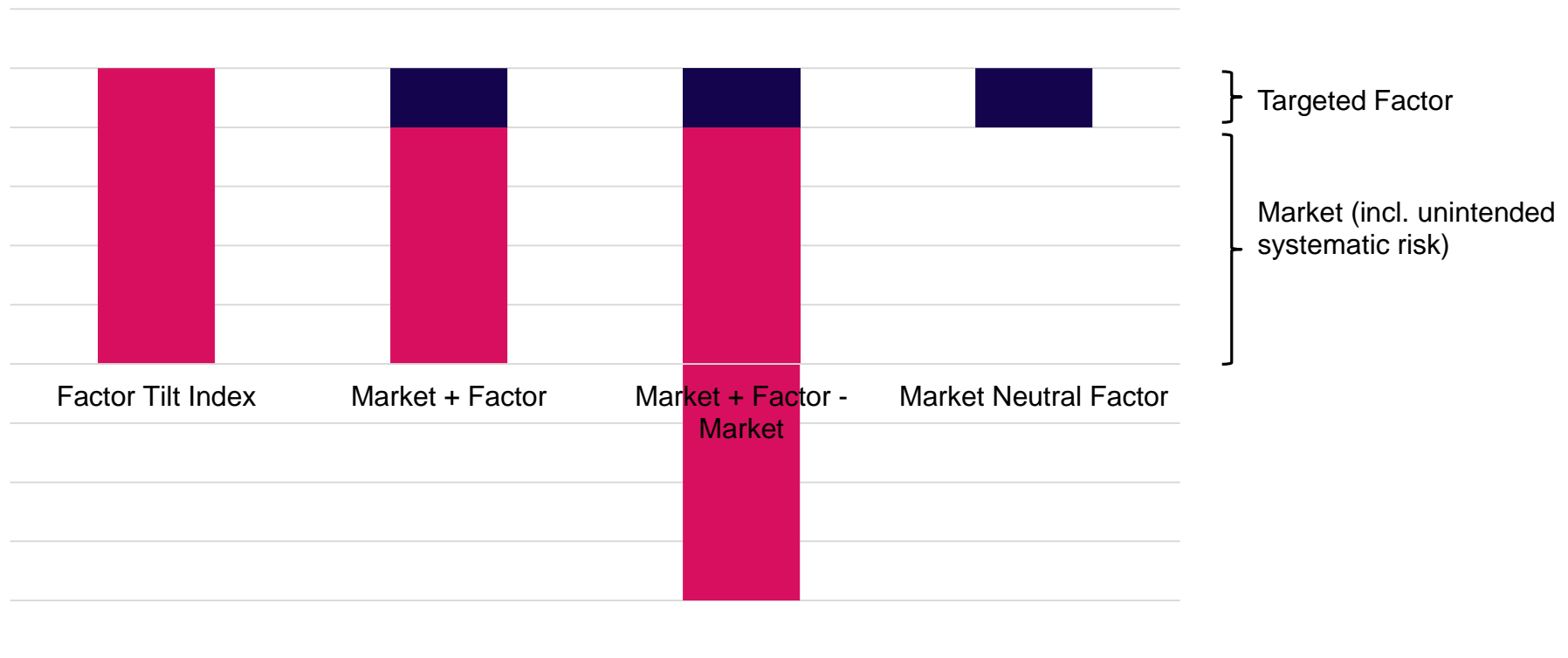
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targeted factor exposure

From indices with factor tilt to market neutral factor indices (I)

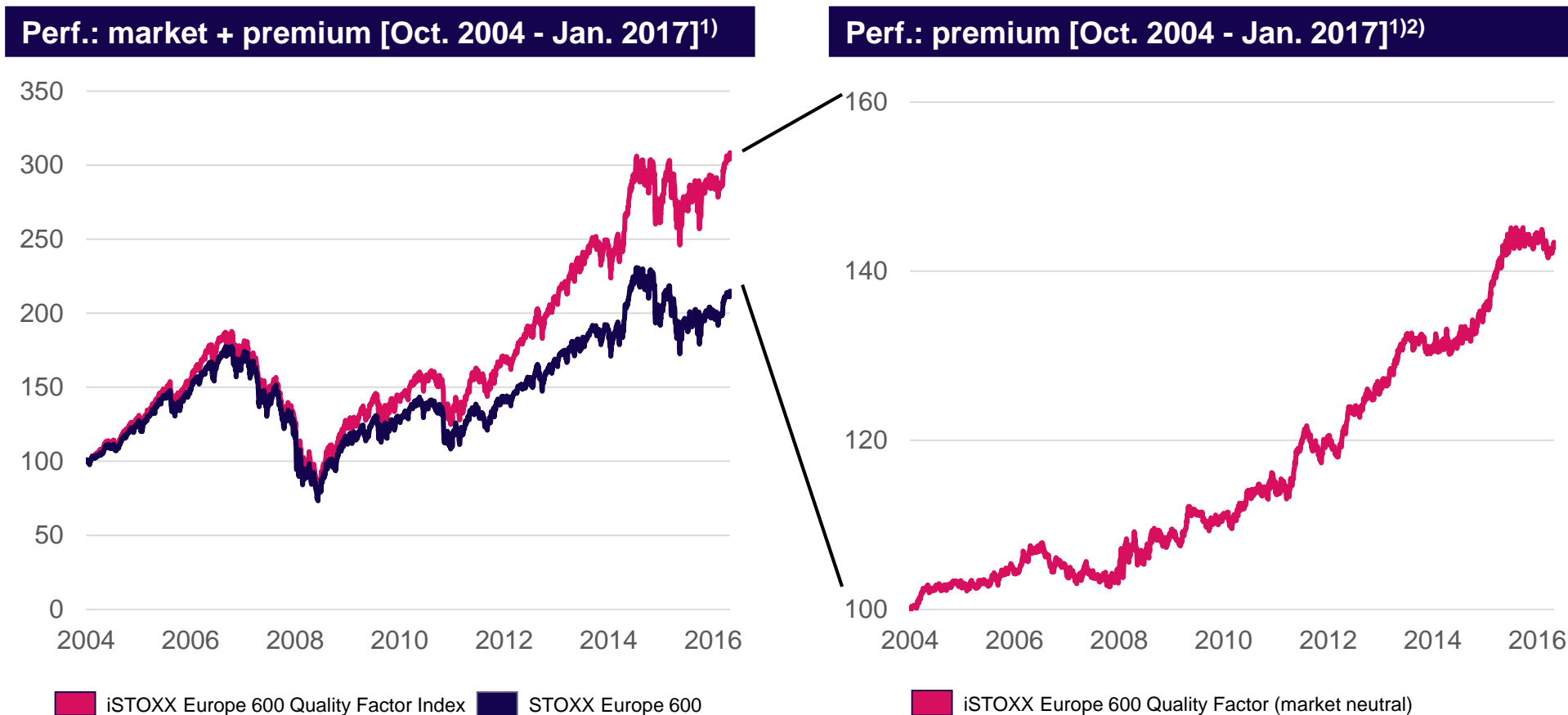
Constructing market neutral factor indices

Graphical representation of factor extraction



From indices with factor tilt to market neutral factor indices (II)

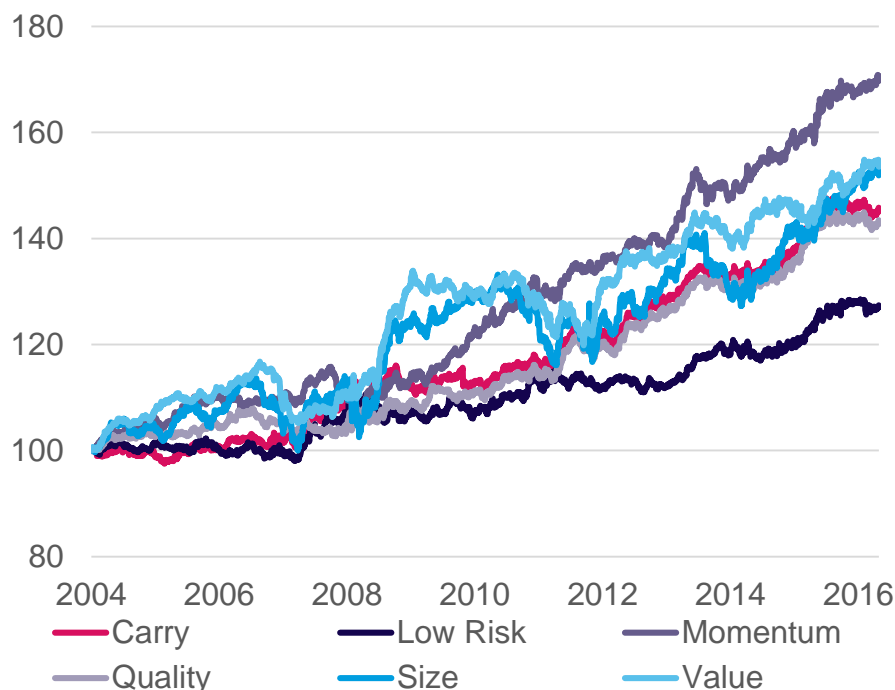
Constructing market neutral factor indices



Exposure to risk factors has been systematically rewarded by additional return

Factor returns¹⁾

Market neutral factor returns¹⁾



Risk and return characteristics¹⁾²⁾

	Perf (p.a.)	Vol. (p.a.)	Correl. ²⁾
Growth	3.37%	4.01%	-0.37
Low Risk	2.02%	4.02%	-0.67
Momentum	4.54%	4.00%	-0.17
Quality	3.23%	3.34%	-0.28
Size	3.35%	6.60%	-0.21
Value	3.57%	4.59%	0.04

» Systematic exposure to style factors (value, size, quality, momentum, risk and growth) have captured a premium over last decade

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