



Equity Factor Investing

From theory to implementation

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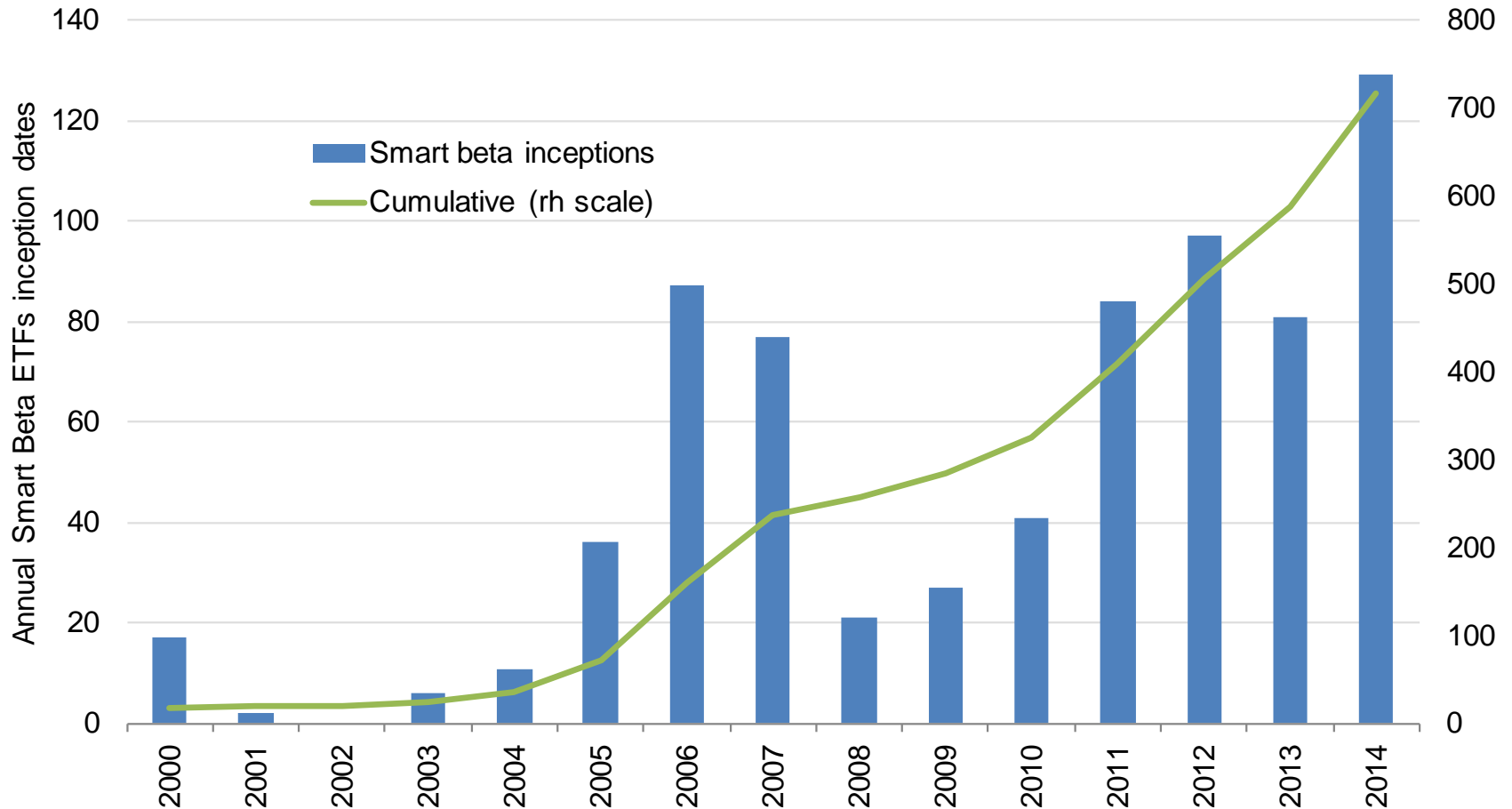
SOCIETE GENERALE
Cross Asset Research

SMART BETA BONANZA!

“During the **gold rush** its a good time to be in the pick and **shovel** business ...” Mark Twain

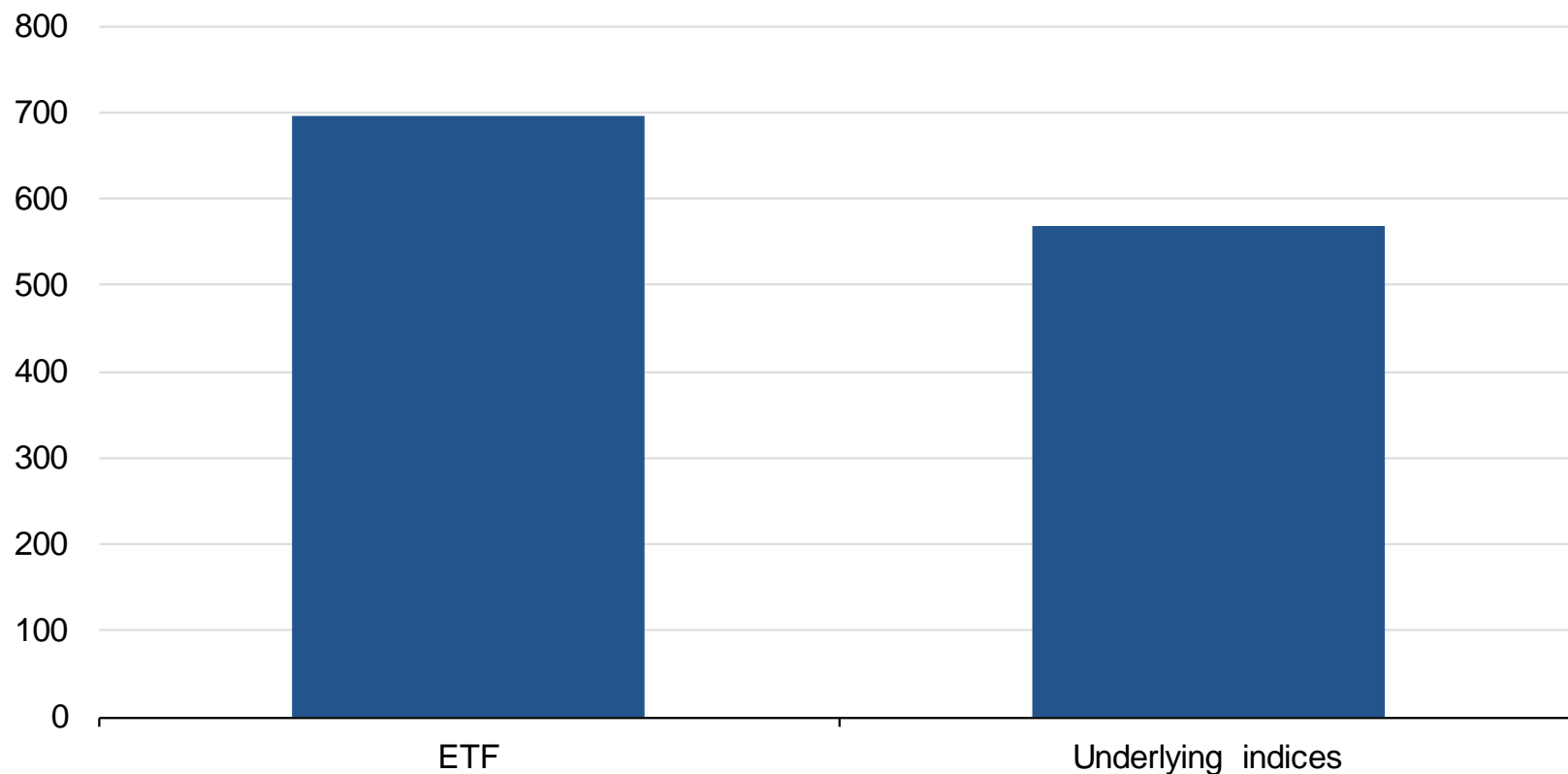


RAPID INCREASE IN “SMART BETA” ETFS



Source: SG Cross Asset Research/Equity Quant, Bloomberg

MASSIVE EXPANSION IN “SMART BETA” ETFs AND INDICES



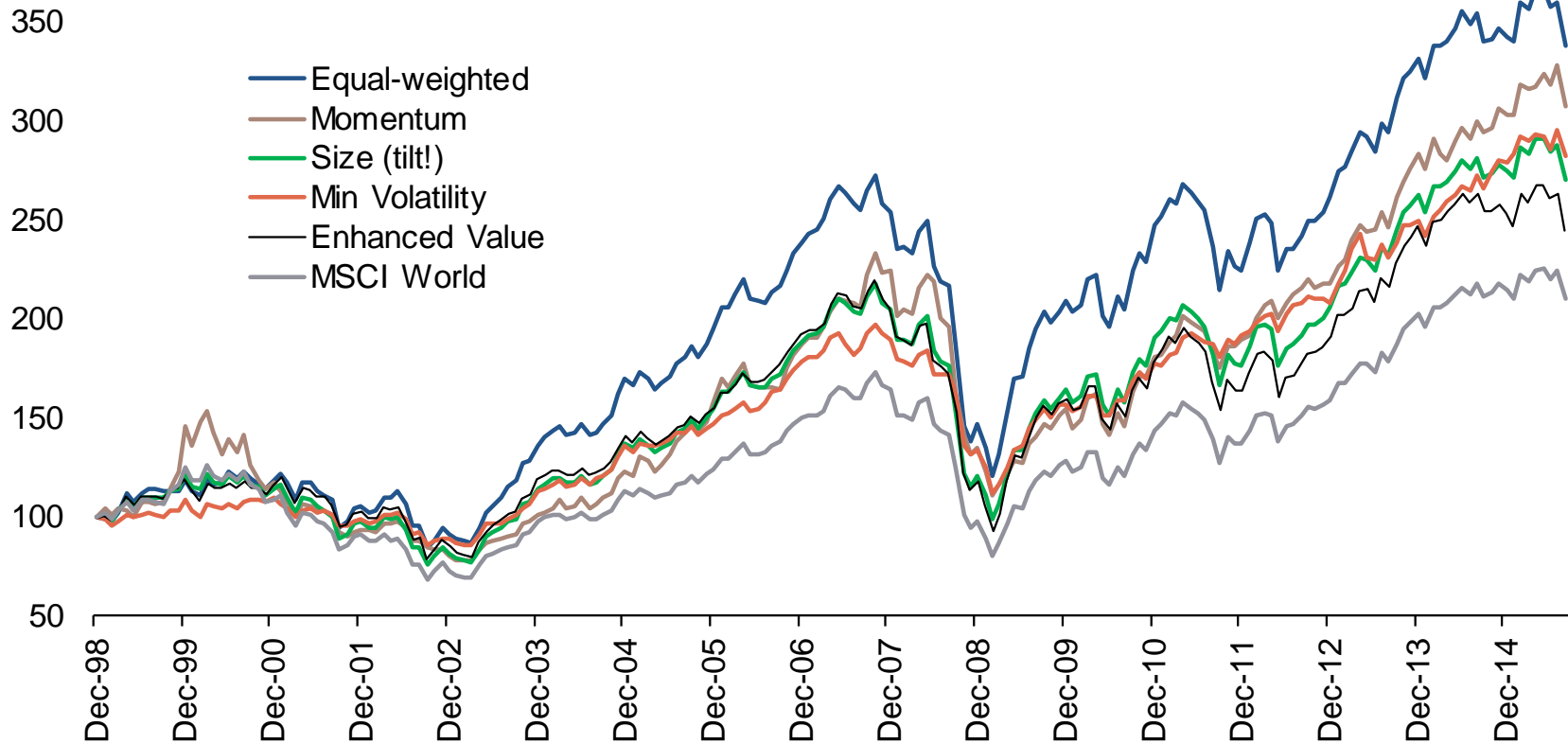
Source: SG Cross Asset Research/Equity Quant, Bloomberg

MSCI FACTOR INDEXES – WELCOME TO THE FACTOR “ZOO”

- **Min Vol**
- **Factor Tilt**
- **Risk weighted**
- **Risk control**
- **Value weighted**
- **Momentum**
- **Quality**
- **Quality Mix**
- **High Dividend Yield**
- **GDP weighted**
- **Barra weighted**
- **Equal weighted**
- **Market neutral Barra Factor**
- **Multi-Factor**
- **Diversified Multi Factor**
- **Dividend Master**
- **Enhanced Value Index**

Source: MSCI

A SELECTION OF GLOBAL MSCI FACTOR INDICES – TOTAL RETURNS SINCE 1998



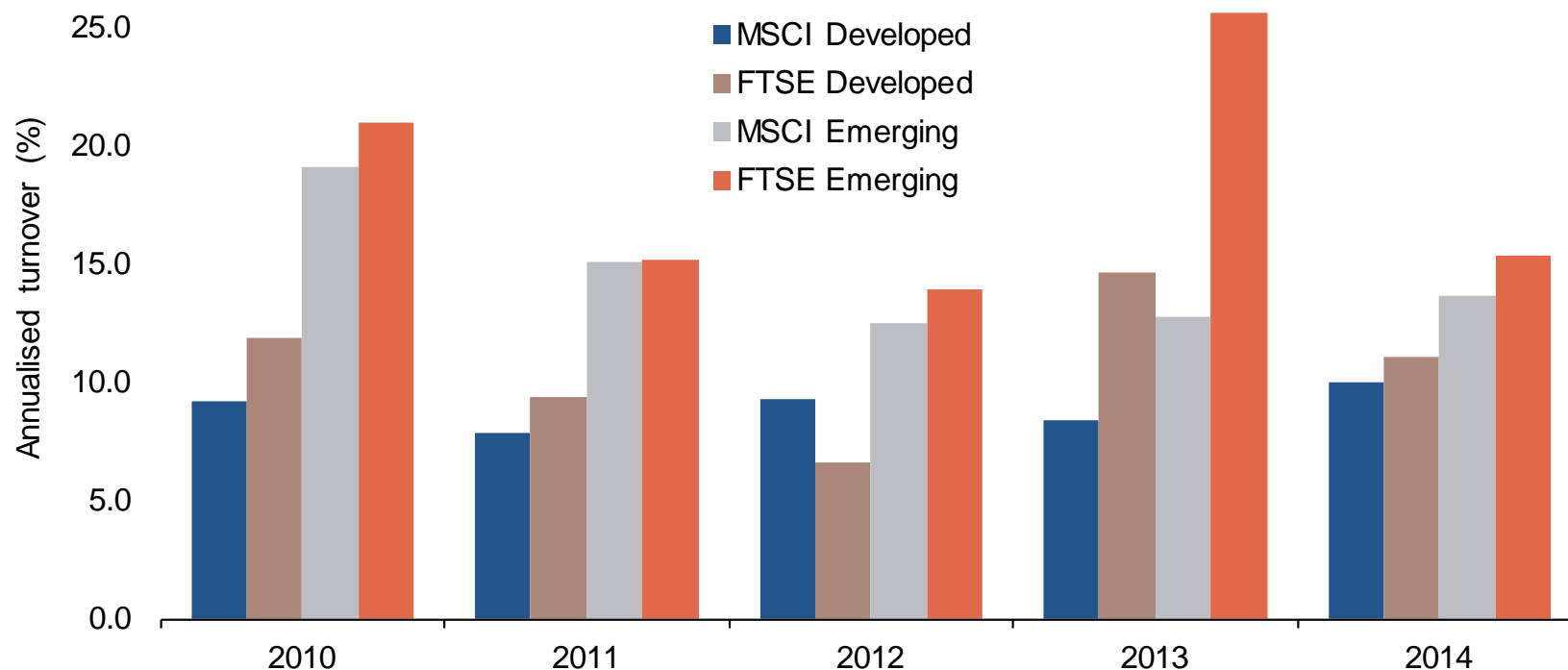
Source: MSCI via Thomson Reuters Datastream

Trading risk and factor investing

From theory to implementation



PASSIVE INVESTING OFTEN INVOLVES A LOT OF ACTIVE TRADING

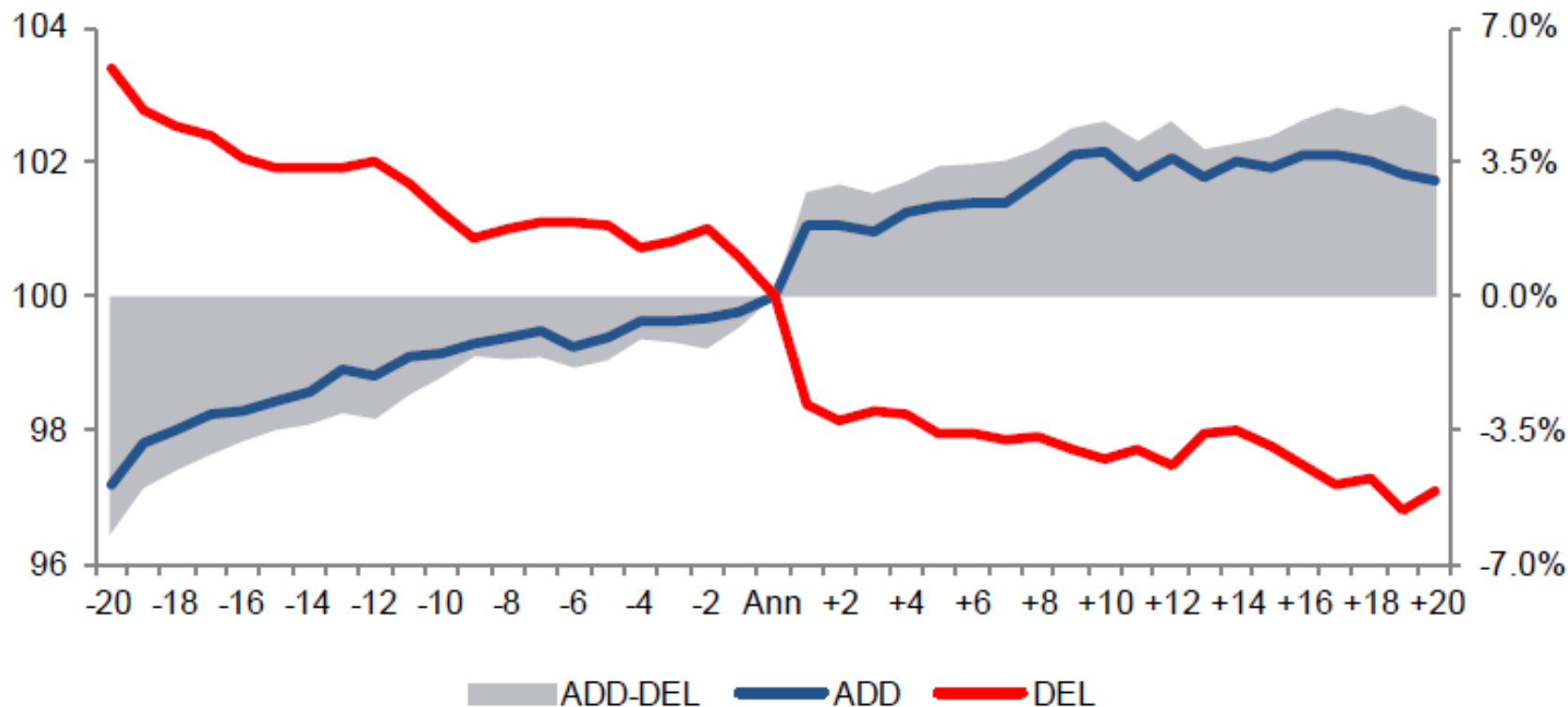


Source: SG Quantitative Research/ Equity Quant

Note: Past performance is not indicative of future performance. Portfolio presented assumes no transaction costs. For additional details on portfolio performance please contact us.

'FRONT-RUNNING' NOT TAKEN INTO CONSIDERATION IN BACKTESTED PERFORMANCE

MSCI World Index add/delete performance prior to review announcement date (2003-2014)

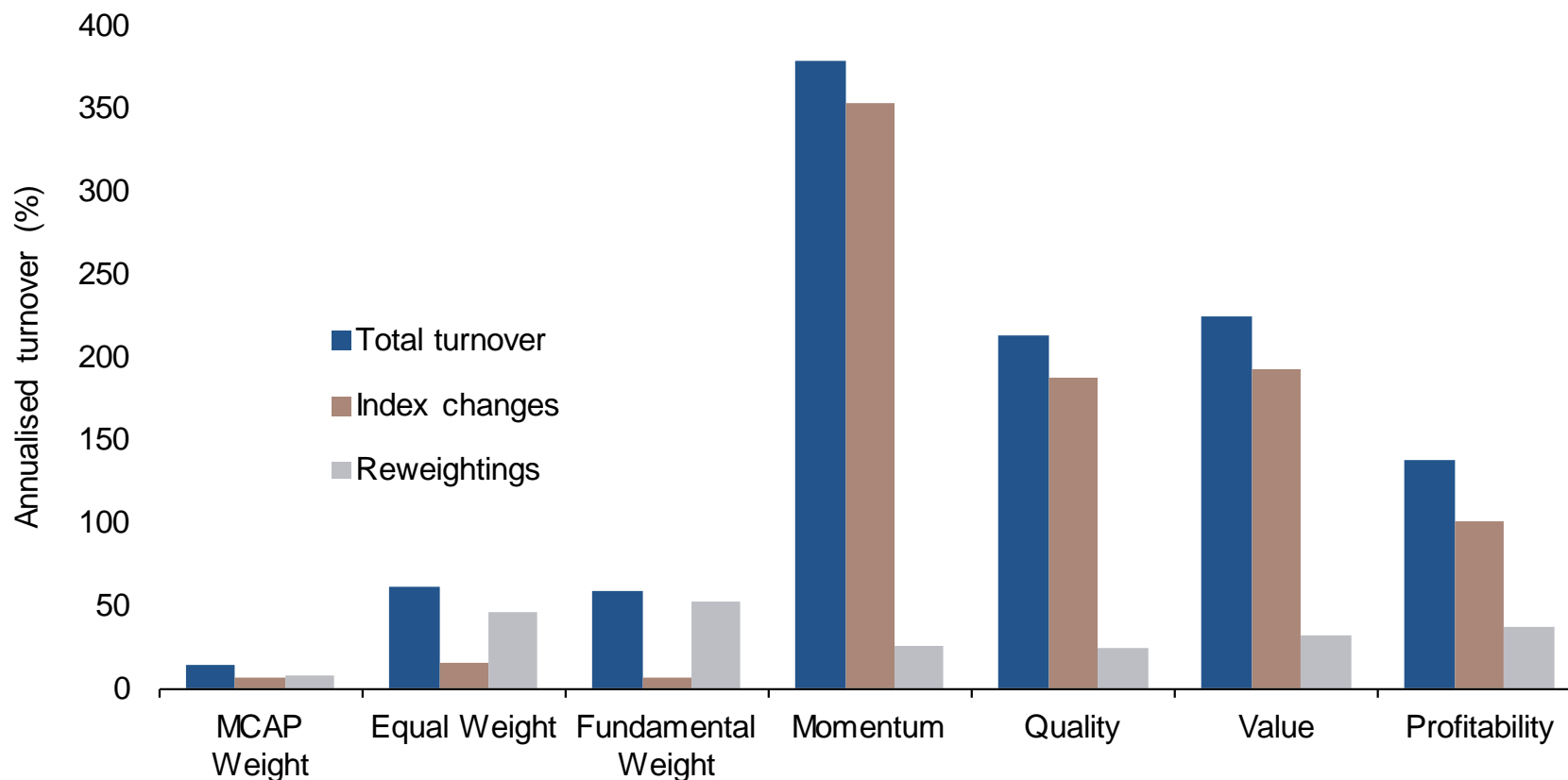


Source: SG Cross Asset Research/Equity Quant from the Index Watch database

Source: SG Quantitative Research/ Equity Quant

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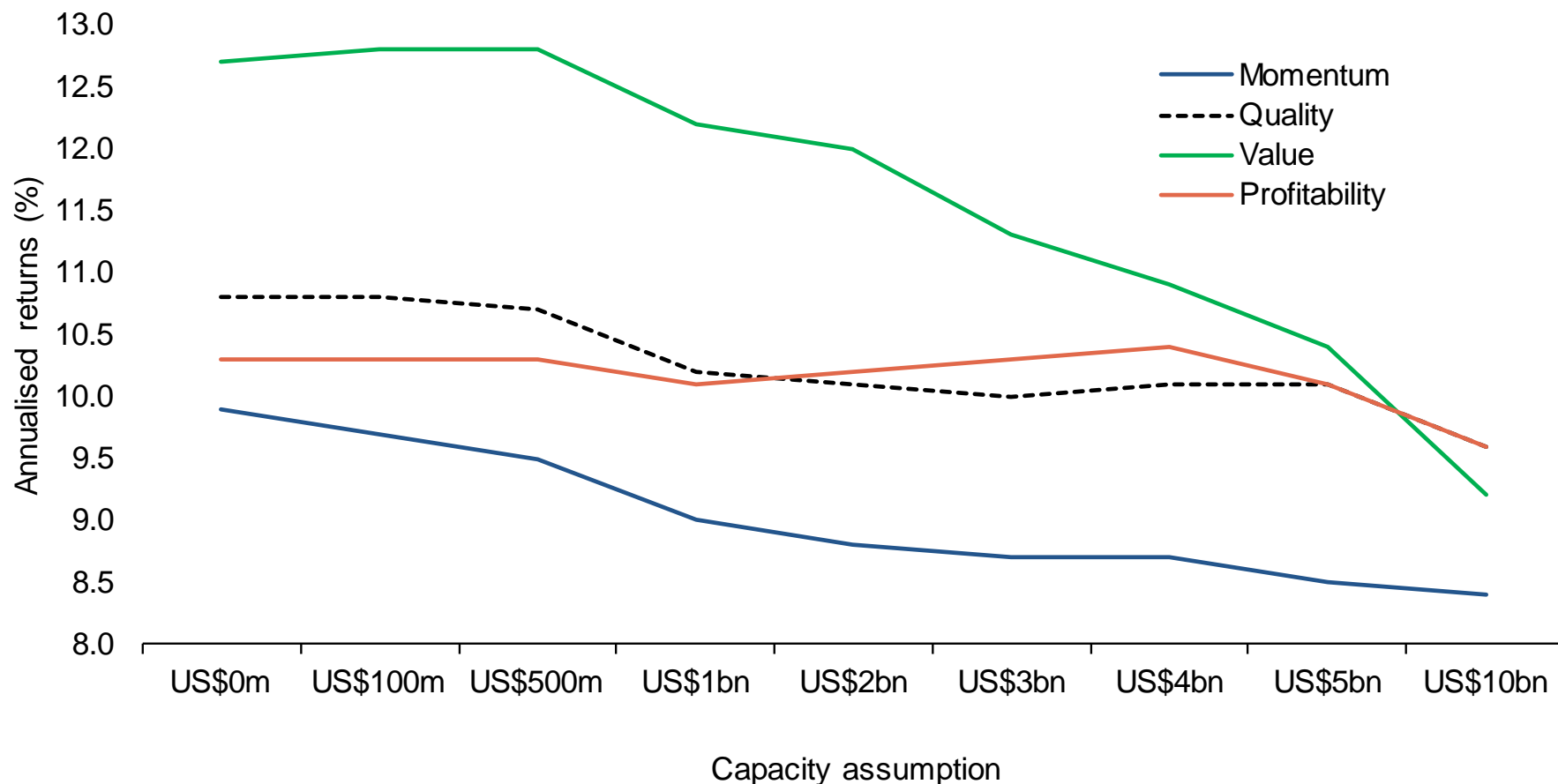
THE THEORETICAL TURNOVER OF MANY STRATEGIES IS INCREDIBLE



Source: SG Quantitative Research/ Equity Quant

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DEGRADATION OF FACTOR PERFORMANCE GIVEN CAPACITY LEVEL



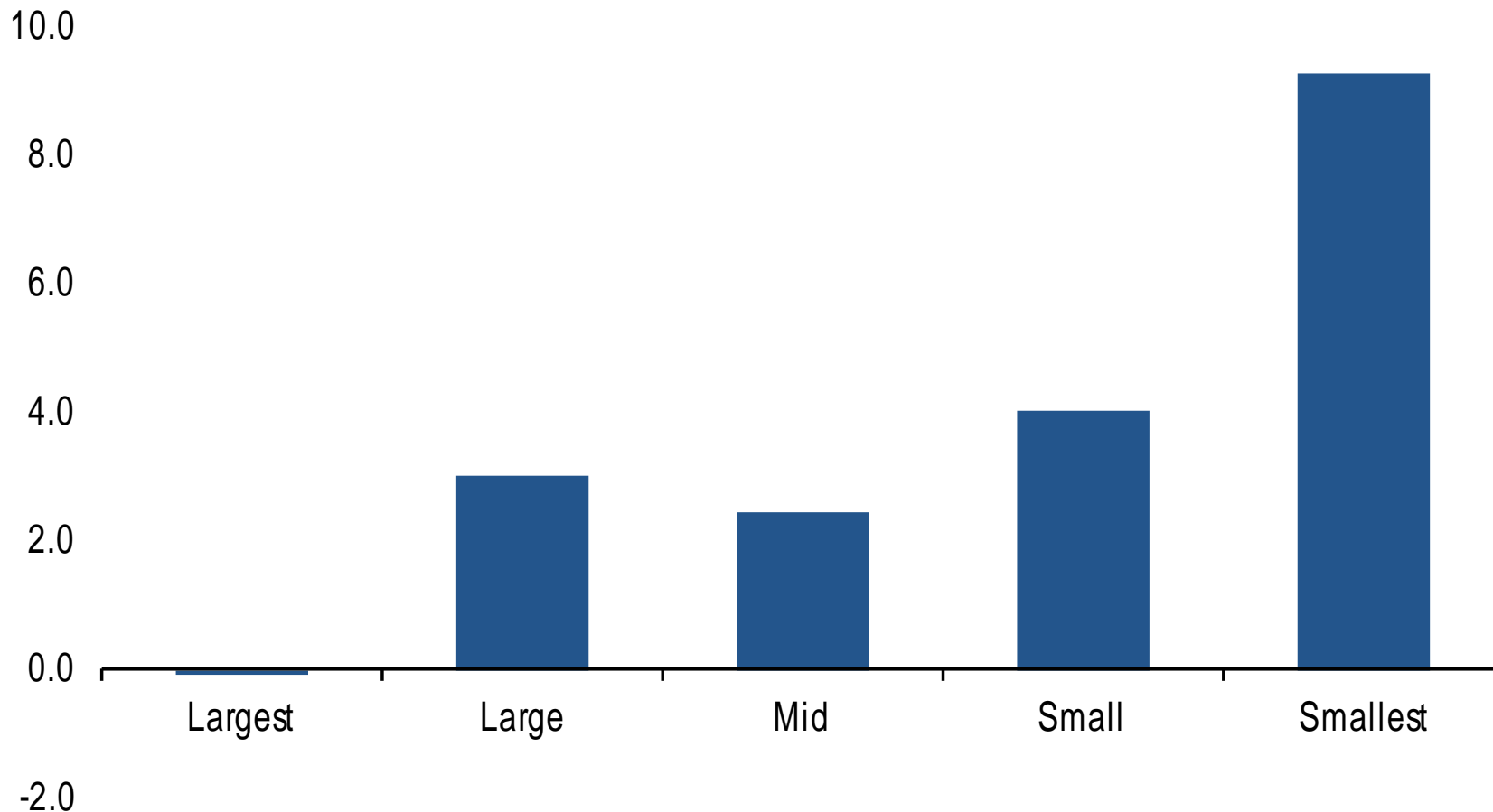
Source: SG Quantitative Research/ Equity Quant

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VALUE DOES NOT WORK IN LARGE CAPS!

VALUE PERFORMANCE PER SIZE SEGMENT

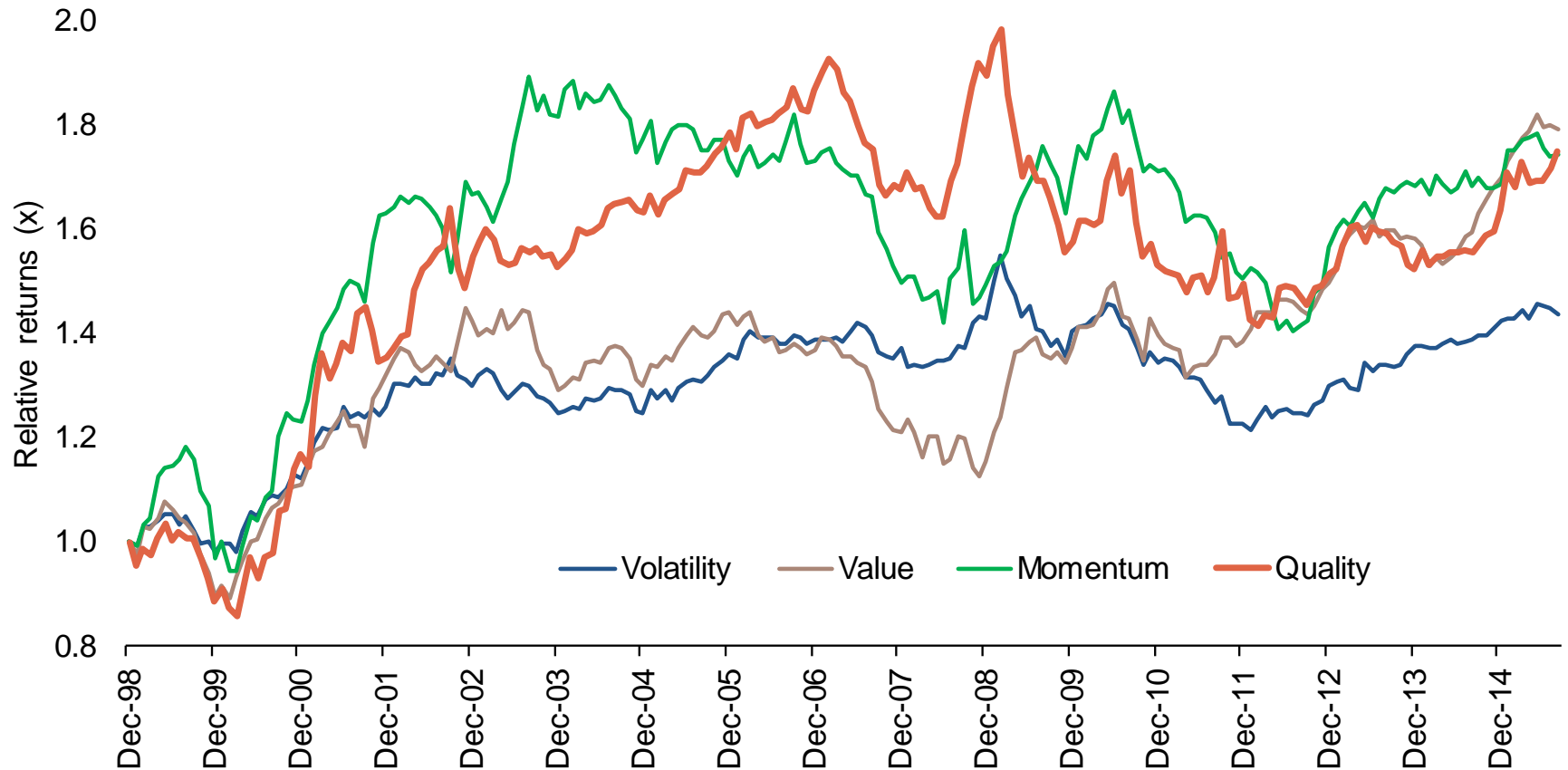
(Long minus size segment, FTSE world, 1990-2014)



Source: SG Quantitative Research/ Equity Quant

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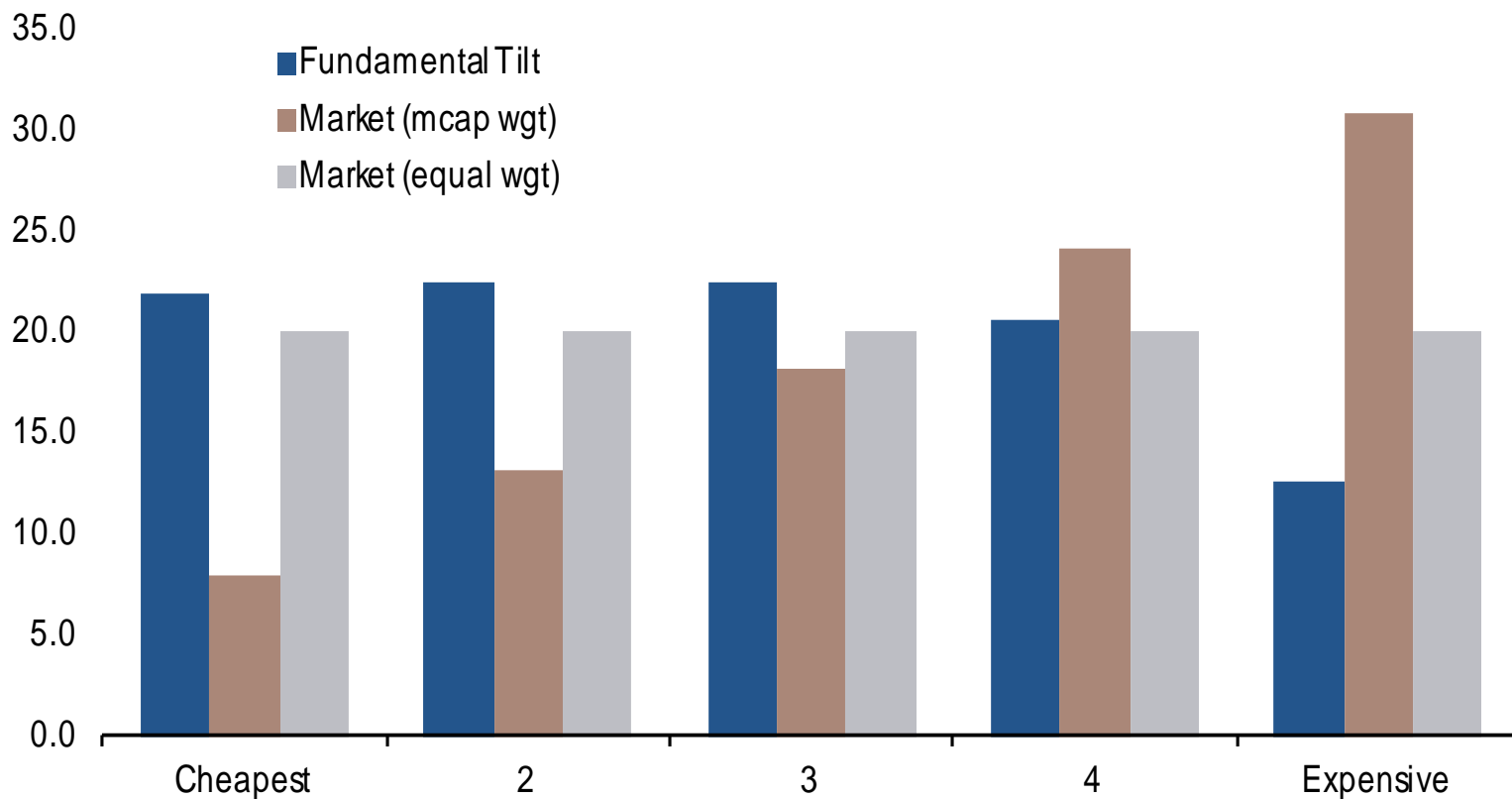
BACKTESTED RETURNS VERSUS FACTOR INDEX RETURNS (EQUATES TO BETWEEN 2% - 3.5% PER ANNUM)



Source: SG Cross Asset Research/Equity Quant, MSCI

IS FUNDAMENTAL INDEXING BETTER?

AVERAGE WEIGHT DISTRIBUTION PER VALUE QUINTILE



Source: SG Quantitative Research/ Equity Quant

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ADDING A VALUE STRATEGY TO A GLOBAL PASSIVE INDEX

Historical risk/return profile based on the percentage allocated to SGVB (since 1994)

	Percentage allocated to SGVB										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Total return	6.9	7.7	8.4	9.2	9.9	10.7	11.4	12.2	12.9	13.6	14.3
Tracking error	0.0	0.9	1.8	2.7	3.6	4.5	5.4	6.3	7.2	8.1	9.1
Volatility	14.6	14.7	15.0	15.3	15.6	16.0	16.4	16.8	17.3	17.8	18.4
Max Loss	54.1	50.5	51.8	53.1	54.4	55.7	56.9	58.1	59.3	60.4	61.6
Return/Risk	0.48	0.52	0.56	0.60	0.64	0.67	0.70	0.72	0.74	0.76	0.78

Source: SG Quantitative Research/ Equity Quant

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Factor not Multi-factor investing

OVER THE NEXT FIVE YEARS DO YOU THINK?

1. Japan will outperform Eurozone equities.
2. The US dollar will outperform Yen
3. Bunds will be a better investment Treasuries
4. Equities will be a better investment than bonds.

OVER THE NEXT FIVE YEARS DO YOU THINK?

1. Cheap stocks will outperform expensive stocks.
2. Higher quality stocks will outperform low quality stocks.
3. Corporate debt will outperform sovereign debt
4. High yield will outperform low yield currencies.
5. Implied volatility will be higher than realised volatility

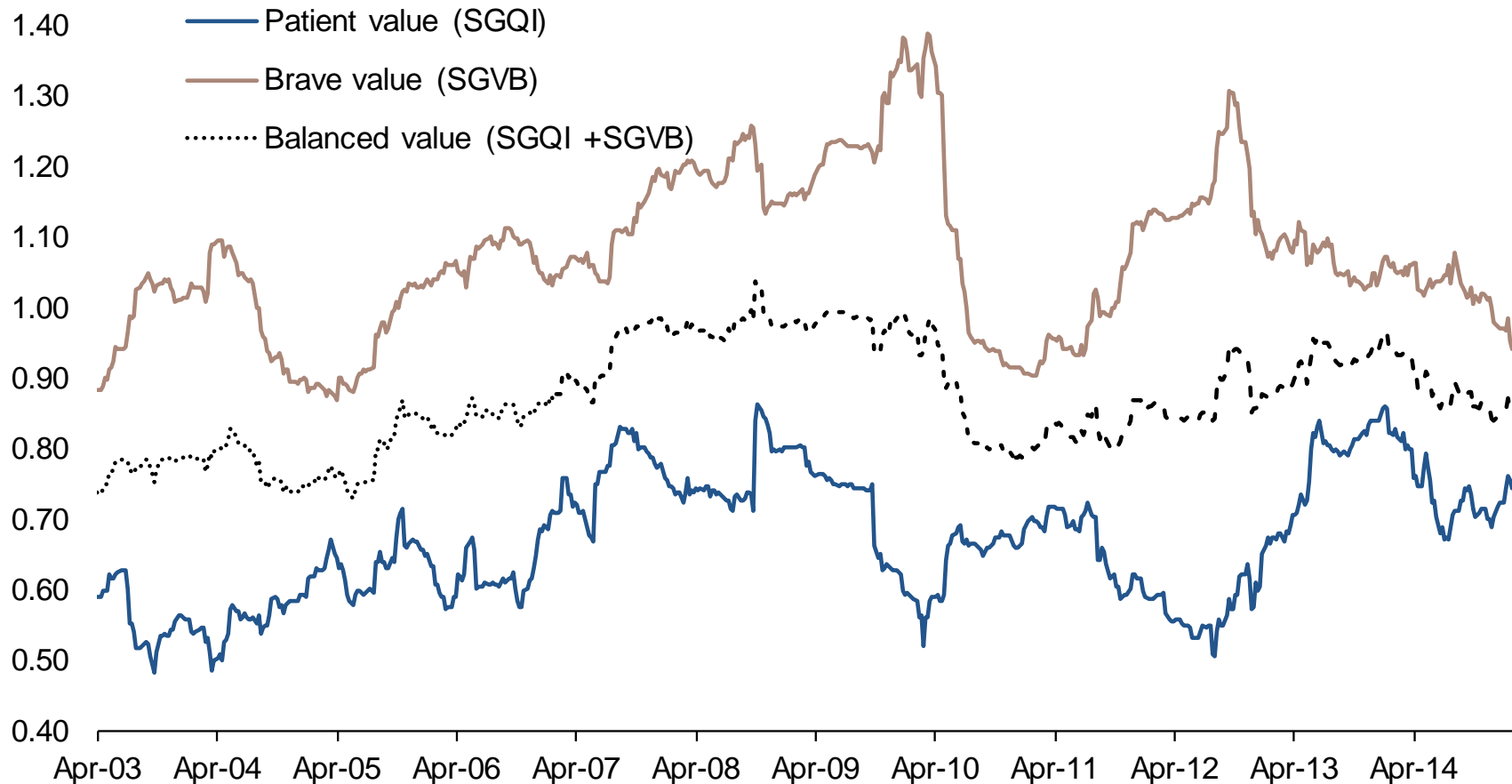
DEFINITION OF A RISK-PREMIA STRATEGY?

1. Demonstrated an attractive positive historical return profile
2. Has a fundamental value that allow a judgement on future expected returns.
3. Diversification benefits when combined into a multi-asset portfolio

THERE ARE ONLY REALLY TWO FACTORS BUYING AND SELLING INSURANCE

	Quality	Quality Tilt	Volatility Tilt	Dividend Tilt	Momentum Tilt	Growth	Momentum	Value	Size Tilt	Equal-weighted	Value-weighted
Quality	0.93	0.58	0.51	0.45	0.48	0.38	-0.49	-0.52	-0.53	-0.67	
Quality Tilt		0.60	0.53	0.60	0.60	0.51	-0.61	-0.46	-0.51	-0.81	
Volatility Tilt			0.68	0.34	0.03	0.29	-0.05	-0.57	-0.55	-0.55	
Dividend Tilt				0.14	-0.12	0.11	0.11	-0.36	-0.32	-0.20	
Momentum Tilt					0.48	0.96	-0.50	-0.34	-0.42	-0.77	
Growth						0.43	-1.00	0.02	-0.08	-0.72	
Momentum							-0.44	-0.26	-0.33	-0.69	
Value								0.00	0.10	0.74	
Size Tilt									0.98	0.45	
Equal-weighted										0.54	

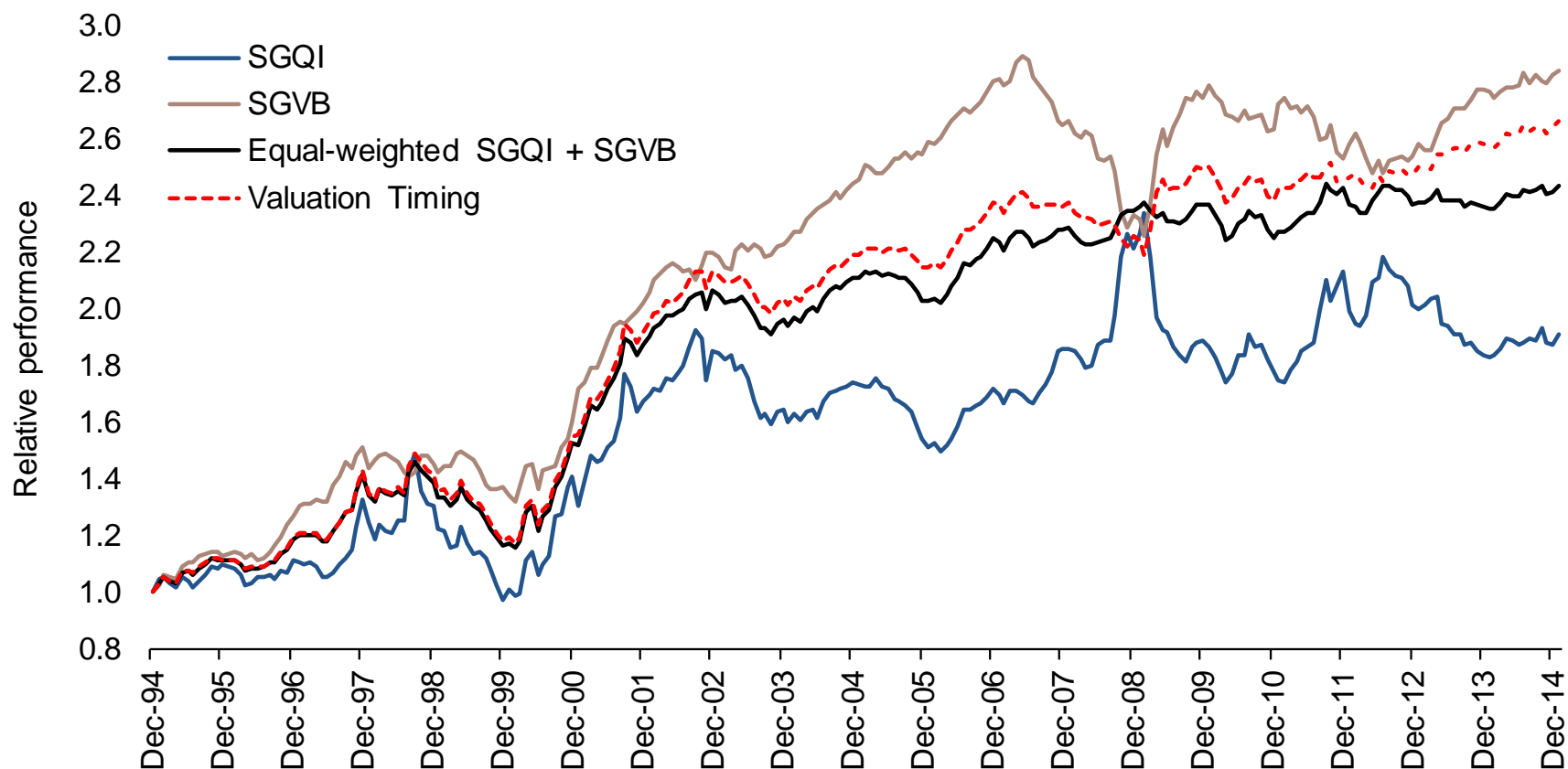
BRAVE VALUE HAS TYPICALLY HAD A BETA HIGHER THAN THE MARKET, AND IT TENDS TO RISE IN A CRISIS



Source: SG Quantitative Research/ Equity Quant, MSCI

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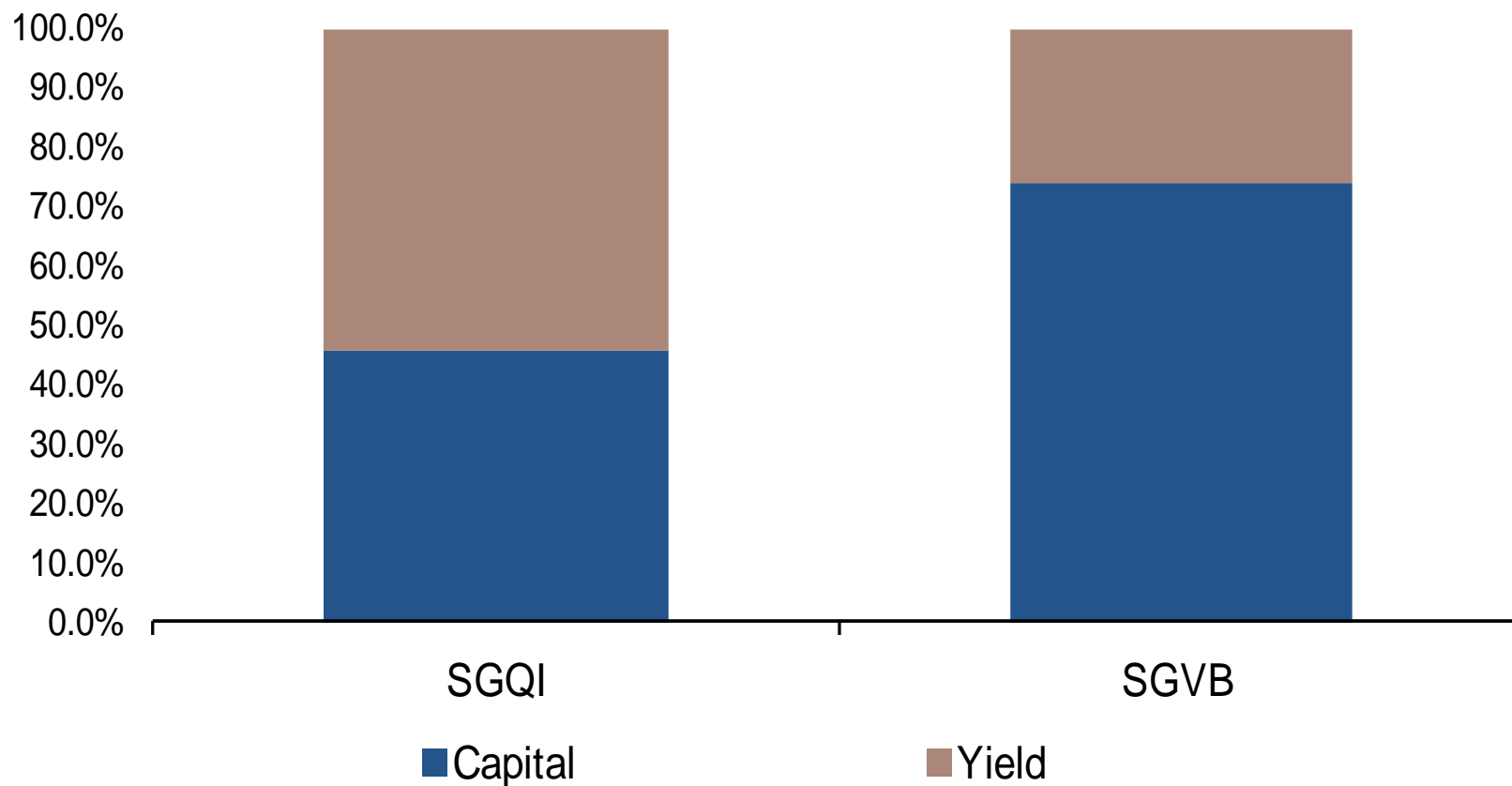
COMBINING SGVB AND SGQI BASED ON THEIR RELATIVE VALUATION



Source: SG Quantitative Research/ Equity Quant, MSCI

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BRAVE VALUE INVESTING IS ALL ABOUT PRICE APPRECIATION, PATIENT VALUE INVESTING IS ALL ABOUT YIELD



Source: SG Quantitative Research / Equity Quant, MSCI

Note: Past performance is not indicative of future performance. Portfolio presented assumes no transaction costs. For additional details on portfolio performance please contact us.

COMBINING AND MARKET TIMING SGVB AND SGQI

Performance statistics of SG Value Beta Index, SG Quality Income Index and a variety of combined strategies since 1994

	Equal weighted market	SG Quality Income (SGQI)	SG Value Beta (SGVB)	Equal weight (SGQI + SGVB)	Trend following	Regime switching	Deep-value indicator	Relative valuation
Average Return	9.3	12.0	15.2	13.6	13.7	15.1	13.9	14.5
Compound Return	8.4	11.9	14.3	13.4	13.5	15.0	13.6	14.0
Volatility	15.2	11.7	18.6	13.8	14.0	14.1	14.0	15.4
Return/Risk	0.55	1.02	0.77	0.97	0.97	1.07	0.97	0.91
Max Loss	50.7	33.1	61.6	48.5	43.6	47.2	47.2	55.9
Tracking error	0.0	17.8	5.4	7.1	9.7	7.7	8.9	7.1

Source: SG Quantitative Research/ Equity Quant, MSCI

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