

MSCI ANNUAL CONFERENCE ON **GLOBAL INVESTING AND RISK MANAGEMENT 2017**

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Jumeirah Carlton Tower

London, UK



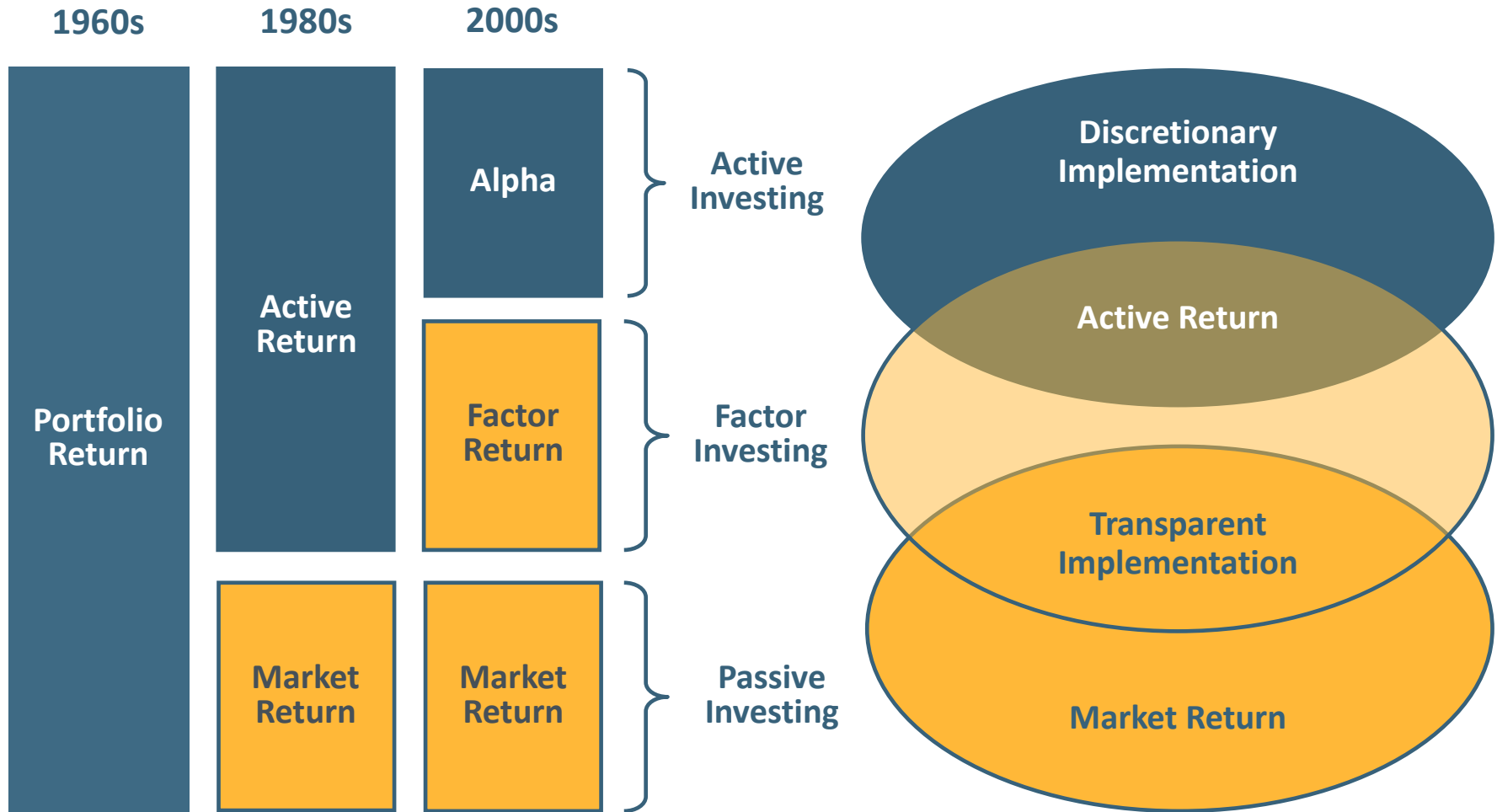
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INTEGRATING ESG INTO FACTOR INVESTING

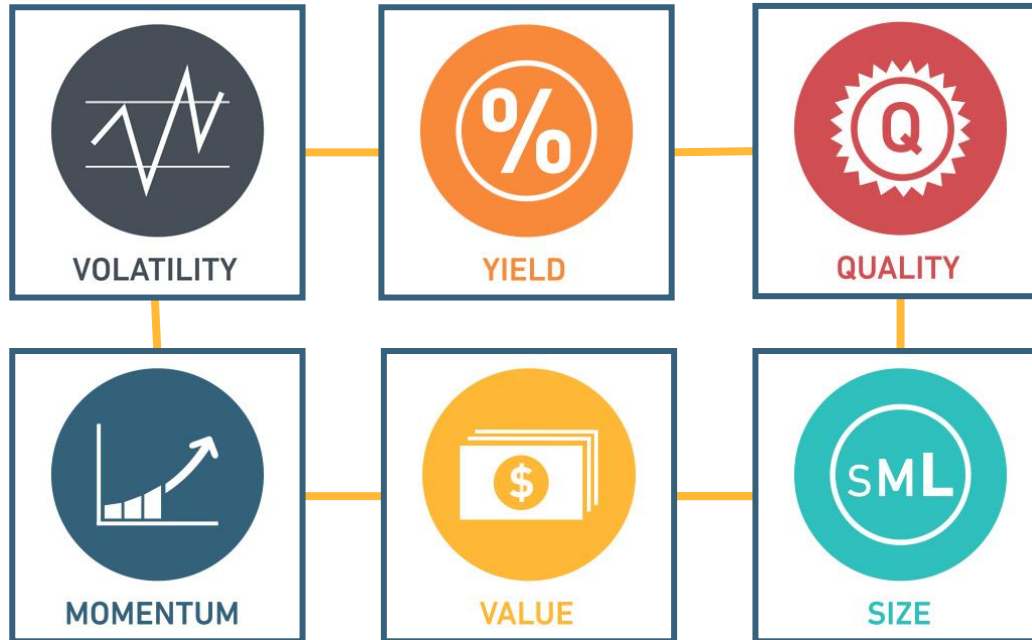


Stuart Doole, *Managing Director and Global Head of New Product Development Index Research*, **MSCI**

INSTITUTIONAL INVESTORS ARE ALLOCATING TO FACTORS



FACTORS TARGETED BY LONG TERM INSTITUTIONS



- Factors are stock characteristics that explain portfolio performance over long horizons
- Well documented in academic research
- Used in portfolio risk models and in traditional & quantitative investment strategies
- Factor indexes provide a transparent and efficient method to seek exposure to factors

ESG INTEGRATION MEANS FOR FACTOR ALLOCATIONS TOO

ASSET OWNERS ARE CHOOSING TO INTEGRATE ESG FOR MULTIPLE REASONS

ESG Issues May Align with Values



Regulation

Alignment mandated on controversial weapons, executive pay, ESG reporting,...



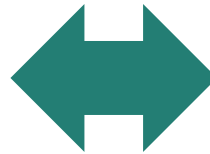
Reputational Risk

Influential stakeholders and high visibility brings headline risk of linkage with "unsavory" investments



Investor Values

AOs align investments with outcomes they want to see in the world



ESG Issues May Be Material



Fiduciary Duty

ESG factors may flag risks or opportunities requiring attention



Long-Termism

ESG issues may change the investment landscape over long holding periods

65% of total global AUM*

could be influenced by ESG regulations, mandates, investor initiatives, or clarifications by regulators in the next five years

Americas	Europe	APAC
<p>DOL - investing along ESG lines does not conflict with the fiduciary duty</p> <p>California – DoJ – required public disclosure of fossil fuel risk; PERS/STRS legislated to divest from coal companies</p> <p>Montreal Pledge: 120+ AOs with \$10 trn AUM commit to disclose portfolio carbon footprint</p>	<p>Art. 173 of French Energy Transition Law: Mandates carbon disclosure</p> <p>Portfolio <u>Decarbonization</u> Coalition: \$600bn AUM</p> <p>UK Financial Stability Board’s Task Force on Climate-Related Financial Reporting</p> <p>EC’s Communication on Long-Term Financing of European Economy underlined ESG issues</p>	<p>GPIF Request for stewardship and ESG integration</p> <p>Japan Stewardship Code and Japan Corporate Governance Code launched</p> <p>Stewardship codes being discussed across Asia including Hong Kong, Korea, Malaysia</p>

INTEGRATING ESG INTO FACTOR INVESTING

- ESG integration into long-term investment strategies poses key questions:
 - How are the dimensions of ESG associated with factors?
 - What is the impact of ESG on factor index performance and characteristics?
 - How does integration alter the risk profile and the factor exposures?
- We found that:
 - ESG generally improved the historical performance of strategies
 - ESG tilted strategies towards stocks with higher quality and lower volatility
 - ESG impact on target factor exposure was:
 - Modest in defensive strategies such as quality and low volatility
 - Higher for dynamic strategies such as value, size and momentum

MSCI ESG RATINGS: AN OVERVIEW



Assessment of
Best-in-Class Practices

AAA to CCC industry-relative ratings
Numerical scores between 0 & 10



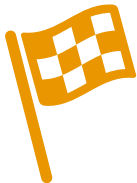
Significant issues only

Selecting from 10 Themes and 37 Key
Issues leads to 156 industry model
variants, with differently weighted issues



Exposure-driven analysis

Operational and revenue risk exposures
drive issue management

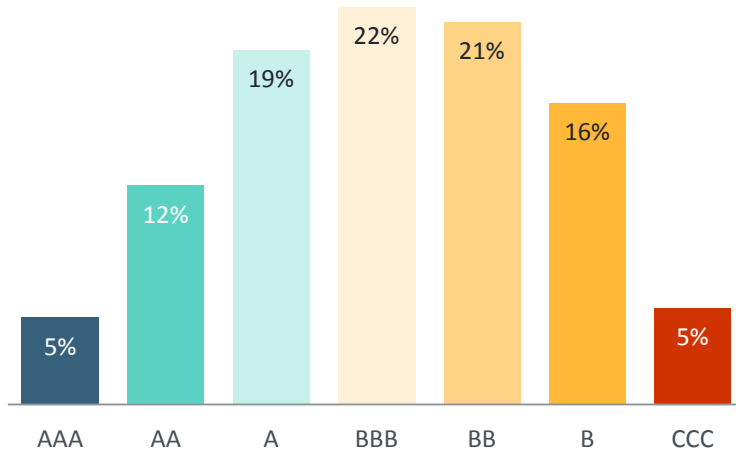


Governance Risk Assessment

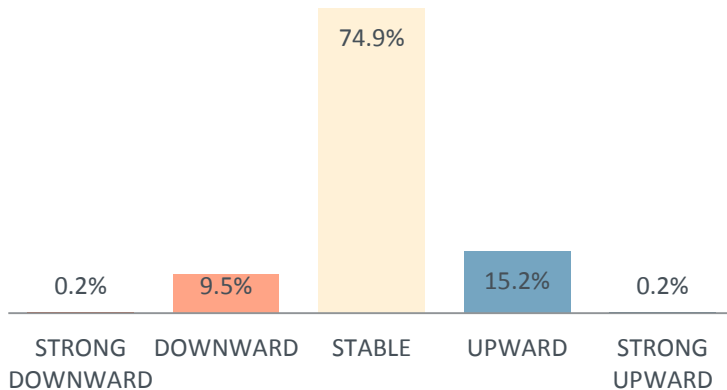
Flag potential governance concerns
across 96 key metrics covering
Governance and Behaviour

HOW ARE MSCI ESG RATINGS DISTRIBUTED?

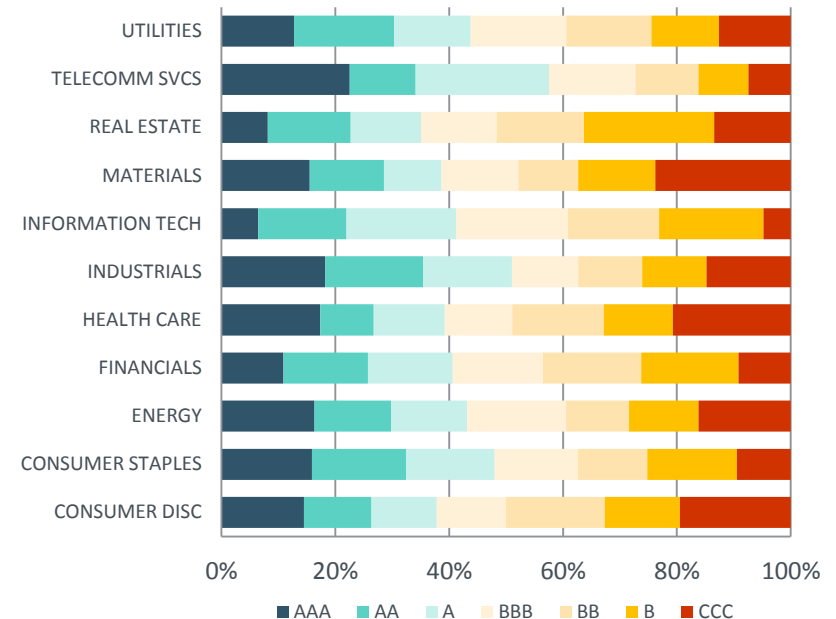
MSCI ESG RATING DISTRIBUTION (%)



MSCI ESG RATING TREND (%)



MSCI ESG RATING DISTRIBUTION BY SECTOR

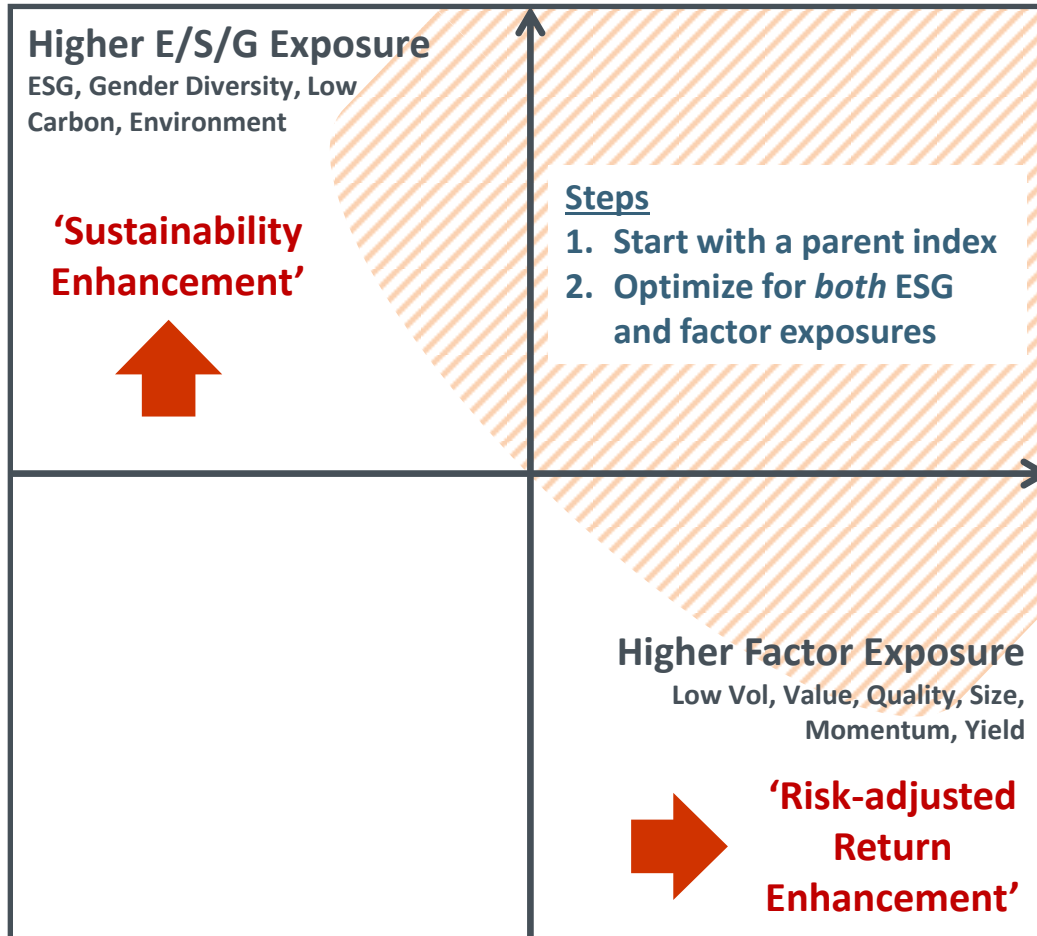


HOW ARE ESG AND RISK FACTORS CORRELATED?

Correlations	ESG	E	S	G	Stat. Significance	ESG	E	S	G
Mid Capitalization	-17%	-19%	-7%	-4%	Mid Capitalization	-6.9	-7.6	-2.8	-1.7
Earnings Variability	-12%	-12%	-8%	-10%	Earnings Variability	-5.0	-4.6	-3.0	-4.0
Residual Volatility	-7%	-7%	-6%	-11%	Residual Volatility	-3.0	-2.7	-2.5	-4.5
Book-to-Price Ratio	-6%	-8%	-3%	-7%	Book-to-Price Ratio	-2.3	-3.1	-1.1	-2.6
Liquidity	-4%	-3%	-1%	1%	Liquidity	-1.4	-1.2	-0.4	0.3
Leverage	-3%	2%	0%	-3%	Leverage	-1.3	0.9	0.0	-1.0
Beta	-3%	0%	-2%	-7%	Beta	-1.0	0.0	-0.8	-2.7
Growth	-2%	0%	-2%	-2%	Growth	-0.9	0.0	-0.9	-0.8
Momentum	0%	2%	-1%	3%	Momentum	-0.1	0.9	-0.4	1.3
Earnings Yield	1%	1%	-3%	1%	Earnings Yield	0.3	0.6	-1.0	0.3
Earnings Quality	3%	5%	4%	3%	Earnings Quality	1.2	2.0	1.5	1.0
Long-Term Reversal	4%	1%	4%	-3%	Long-Term Reversal	1.5	0.5	1.5	-1.1
Profitability	6%	6%	3%	8%	Profitability	2.2	2.3	1.3	3.2
Dividend Yield	7%	4%	5%	7%	Dividend Yield	2.7	1.7	1.9	2.9
Investment Quality	8%	9%	5%	5%	Investment Quality	3.2	3.4	1.8	2.1
Size	17%	19%	7%	4%	Size	6.6	7.5	2.8	1.5

- Cross-sectional correlations of stock-level factor exposures with ESG scores
- Positive correlation with Size, Investment Quality and Profitability
- Negative correlation with Midcap, Earnings Variability, Residual Volatility, Book/Price

COMBINING ESG & FACTOR OBJECTIVES IN ONE INDEX



CHALLENGES

- What is the right level of improvement?
- Does this beat an 'overlay' approach?
- What are the key non-performance index design metrics?

ESTABLISHING ESG CREDENTIALS

EXCLUDE WORST ESG PERFORMERS TO AVOID 'HEADLINE RISK' AND ALIGN WITH MANDATES



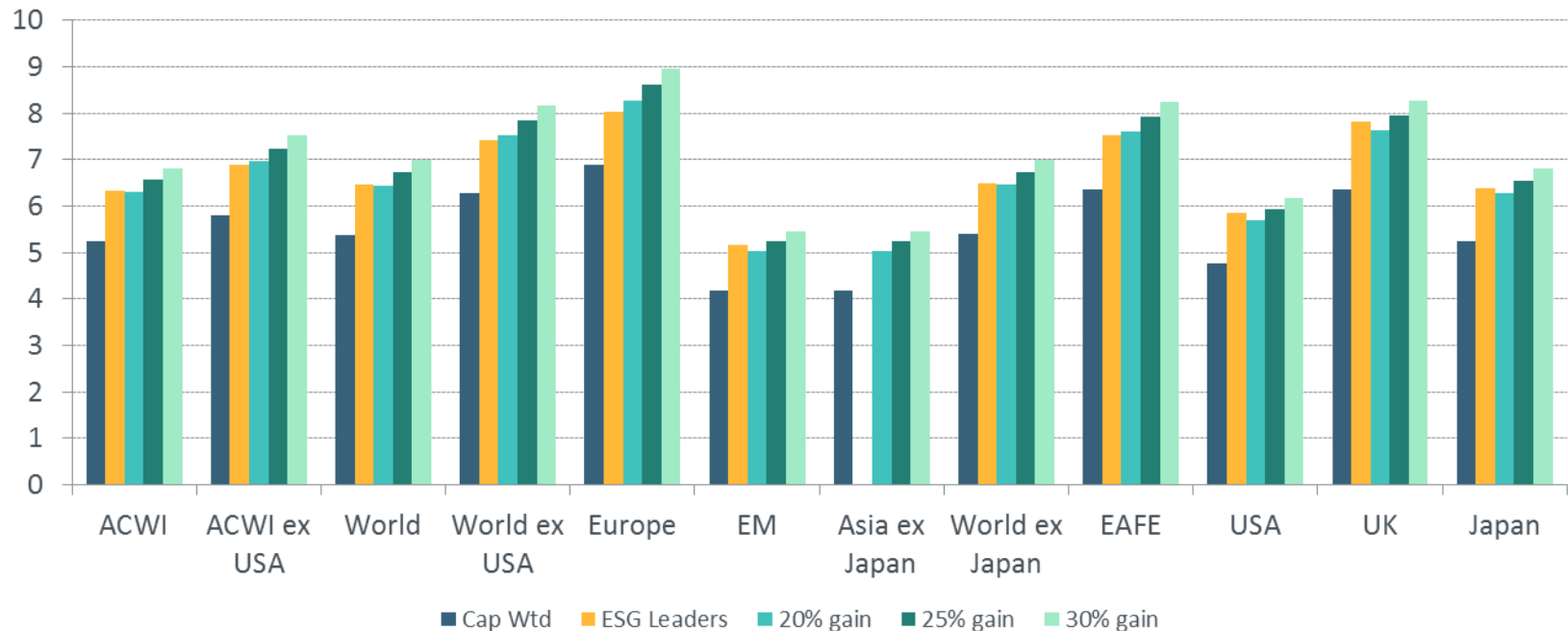
RED FLAGS

(very severe ESG controversies over the past 3 years)



CONTROVERSIAL WEAPONS

(landmines, cluster bombs, depleted uranium and biological/chemical weapons)*



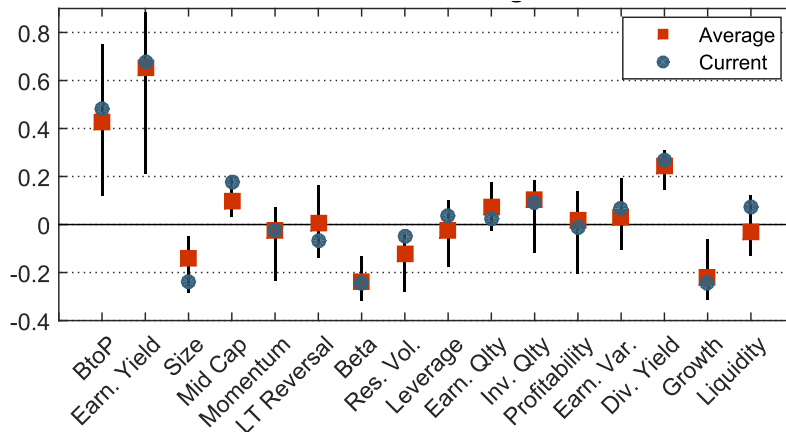
AN INTEGRATED ESG & VALUE FACTOR INDEX

Parameters	Comments
Parent Index	MSCI World with ex-CW and 'red flag' exclusions
Objective	Maximize target factor up to 3% active risk (GEM LT)
Target Factors	Value: 80% Earnings Yield + 20% Book-to-Price (GEM LT)
ESG Profile	Index ESG score improvement of: 20%, 30%, 40%, 50%
Exposure Constraints	<ul style="list-style-type: none">• Target factors unconstrained• Other active style exposures: ± 0.25 standard deviations• Max. country and sector active weights: $\pm 5\%$
Investability Constraints	<ul style="list-style-type: none">• Max. active weight: 2%• Max. benchmark multiple: 10x• Quarterly rebalancing, maximum turnover 10%

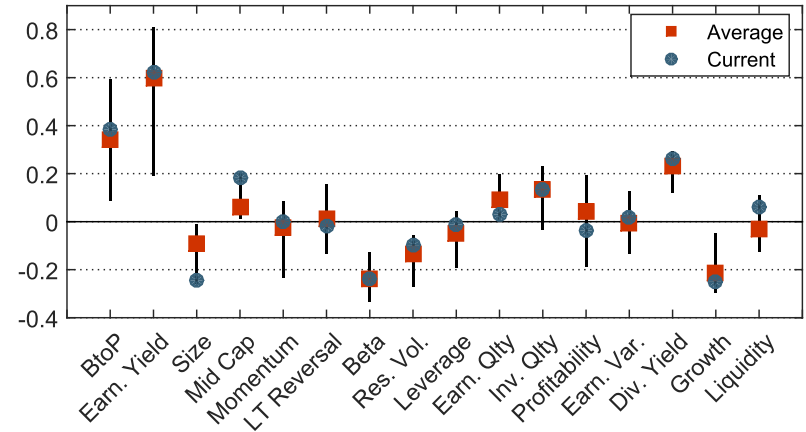
KEY METRICS – ESG & THE VALUE FACTOR

Performance & Characteristics	MSCI World Index	Value TE3	Value TE3 ESG 20	Value TE3 ESG 30	Value TE3 ESG 40	Value TE3 ESG 50*
Total Return (%)	3.1	4.3	4.4	4.5	4.7	4.8
Total Risk (%)	17.5	16.0	16.0	16.2	16.4	16.5
Sharpe Ratio	0.14	0.23	0.24	0.24	0.26	0.26
Active Return (%)	0.0	1.2	1.4	1.4	1.6	1.7
Tracking Error (%)	0.0	3.1	2.9	2.7	2.6	2.4
Information Ratio	NA	0.40	0.47	0.53	0.64	0.71
Historical Beta	1.00	0.90	0.90	0.92	0.93	0.94
Price To Book	1.9	1.5	1.5	1.6	1.6	1.7
Price to Earnings	16.1	10.6	10.9	11.3	11.9	12.8
Ret on Equity (%)	11.8	14.2	13.8	14.2	13.4	13.3
ESG Score	5.3	4.9	6.3	6.8	7.4	7.9
ESG Trend Pos (%)	17.9	19.2	16.9	14.1	14.5	15.8
Number of Stocks	1660	368	328	298	265	399
Days to Trade 95%	0.1	3.6	3.9	4.2	4.0	4.0

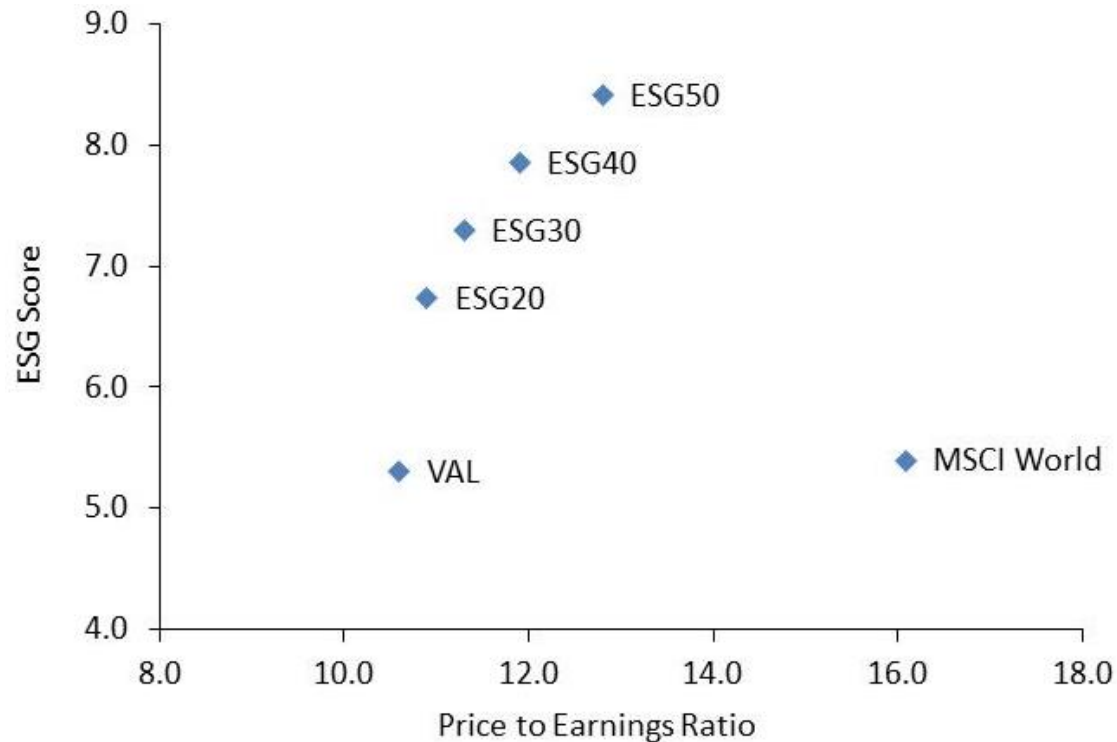
MSCI WORLD VALUE TE3 INDEX



MSCI WORLD VALUE TE3 ESG 20 INDEX

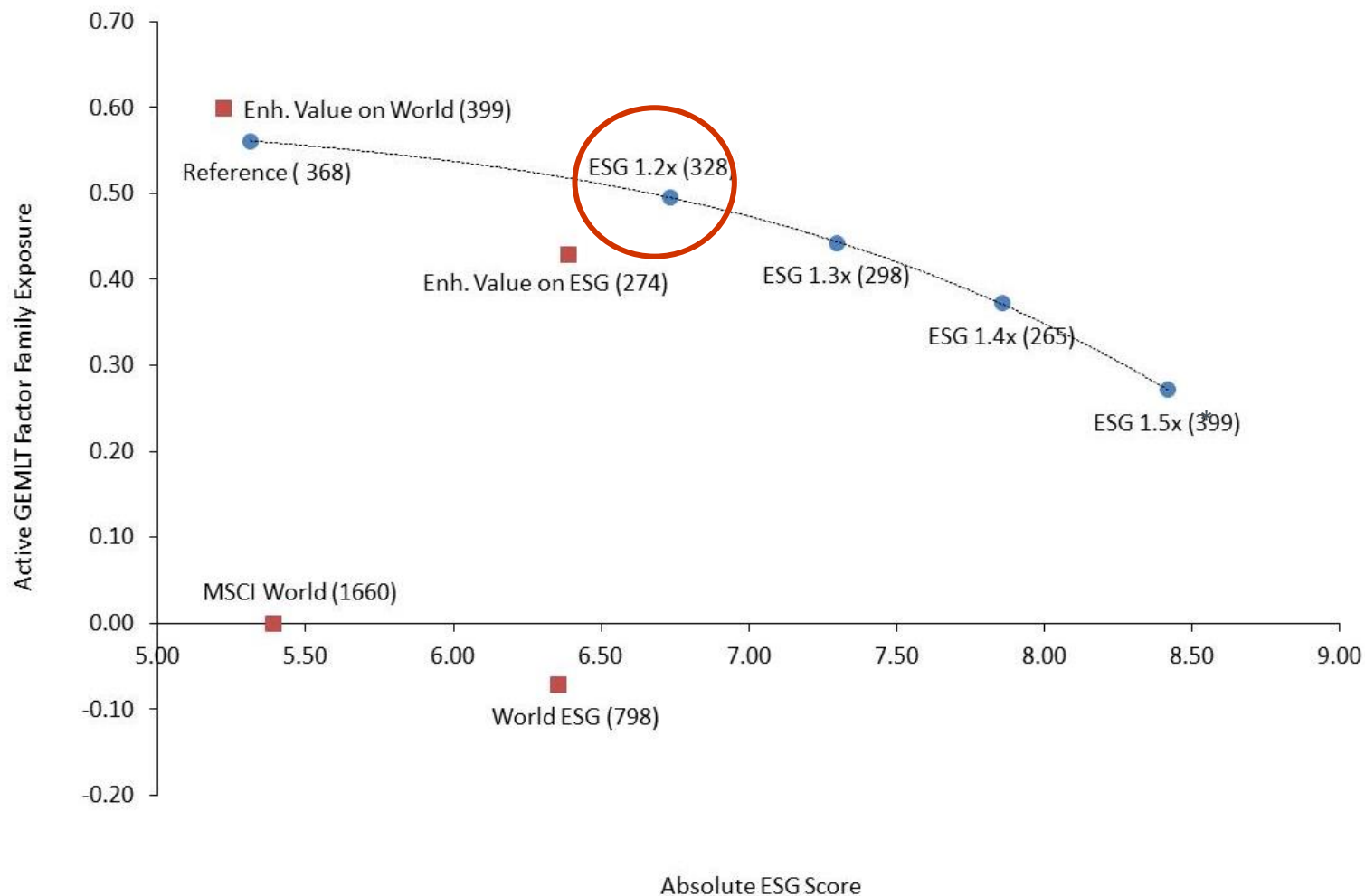


THE TRADE-OFF: ESG AND PRICE-TO-EARNINGS



- Compared to the 'pure' factor approach (VAL), the PE of ESG-20 only rises by 0.3x to 10.6x while the ESG score is raised by 1.4 points to 6.3
- There is no change in yield (3.0%) and no change in the P/B (1.5x)

THE TRADE-OFF: ESG AND 'VALUE FACTOR FAMILY' EXPOSURE



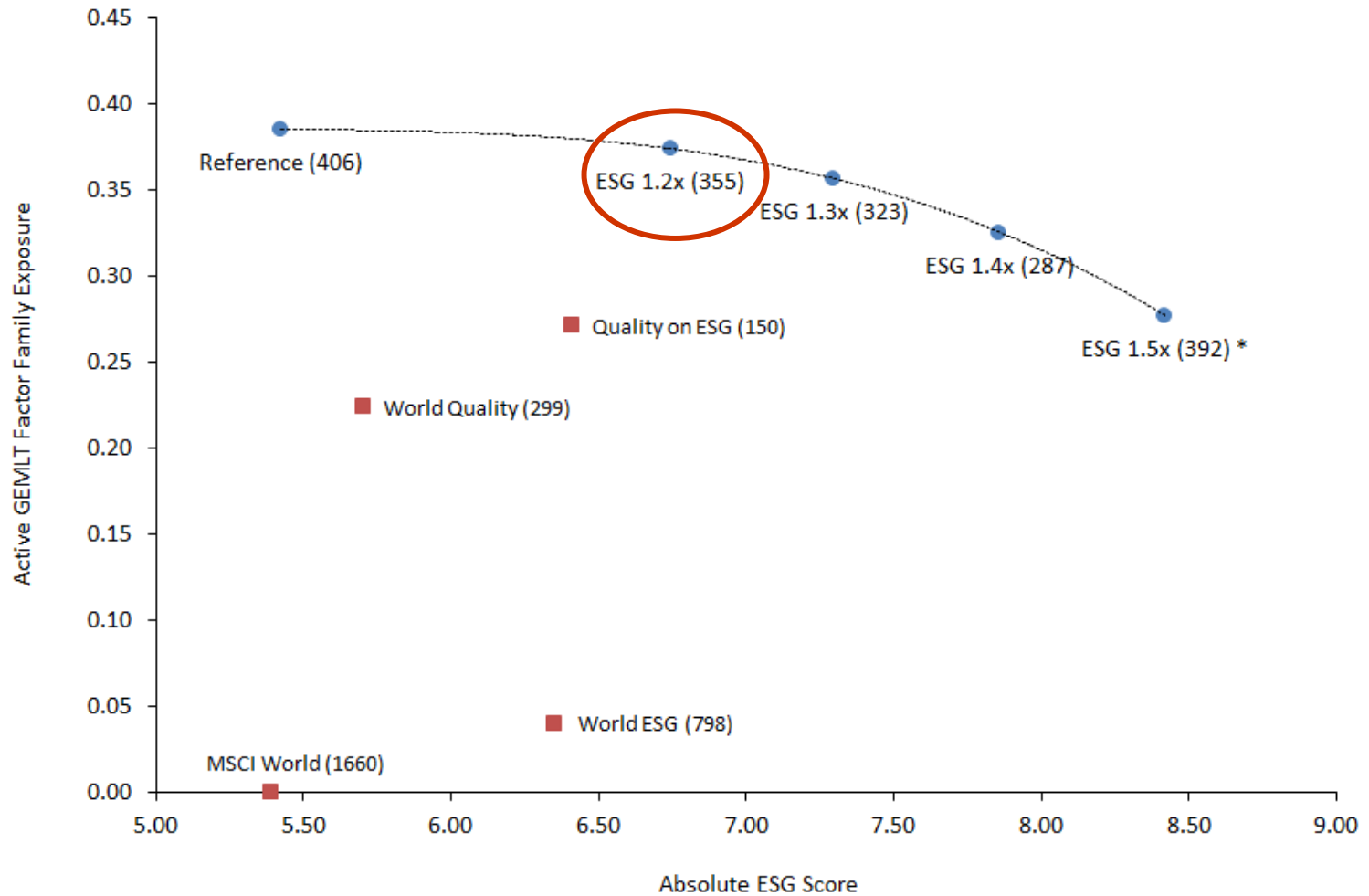
...AND NOW TARGETING THE QUALITY FACTOR



Performance & Characteristics	MSCI World Index	Quality TE3	Qty TE3 ESG20	Qty TE3 ESG30	Qty TE3 ESG40	Qty TE3 ESG50
Total Return* (%)	3.1	6.6	6.9	6.9	6.5	5.4
Total Risk (%)	17.5	15.7	15.7	15.8	16.0	16.3
Sharpe Ratio	0.14	0.39	0.40	0.40	0.37	0.29
Active Return (%)	0.0	3.6	3.8	3.8	3.4	2.3
Tracking Error (%)	0.0	3.2	3.1	2.9	2.8	2.5
Information Ratio	NaN	1.1	1.2	1.3	1.2	0.9
Historical Beta	1.00	0.89	0.89	0.90	0.90	0.93
Price To Book	1.9	2.3	2.3	2.3	2.2	2.2
Price to Earnings	16.1	15.9	16.1	16.3	16.4	16.5
Ret on Equity (%)	11.7	14.3	14.1	14.0	13.7	13.5
ESG Score	5.4	5.4	6.7	7.3	7.9	8.4
ESG Trend Pos (%)	17.9	23.2	23.3	23.4	23.9	25.4
Number of Stocks	1660	406	355	323	287	392
Days to Trade 95%	0.1	3.2	3.4	3.3	3.6	3.8

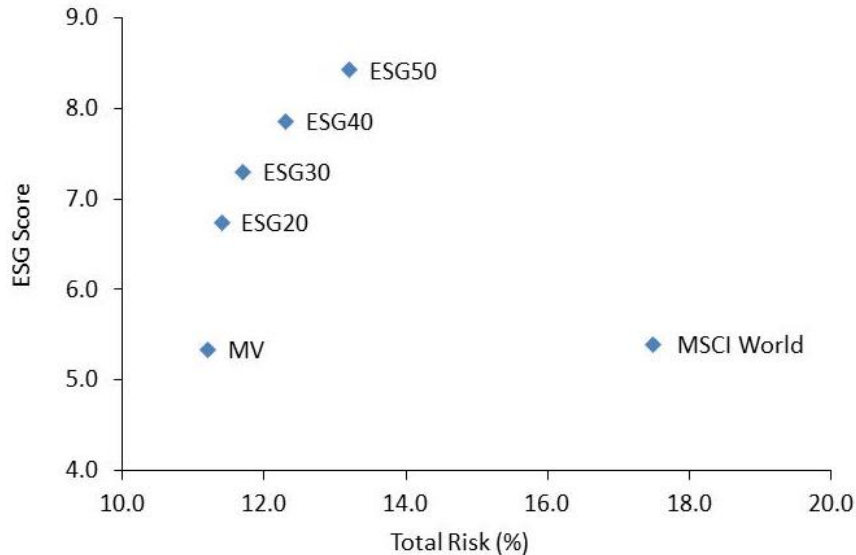
- Compared to the 'pure' factor approach, the RoE of ESG-20 only falls by 20 bps to 14.1% while the ESG score is raised by 1.3 points to 6.7
- There is no change in yield (2.5%) and no change in beta (0.89)

THE TRADE-OFF: ESG AND 'QUALITY FACTOR FAMILY' EXPOSURE

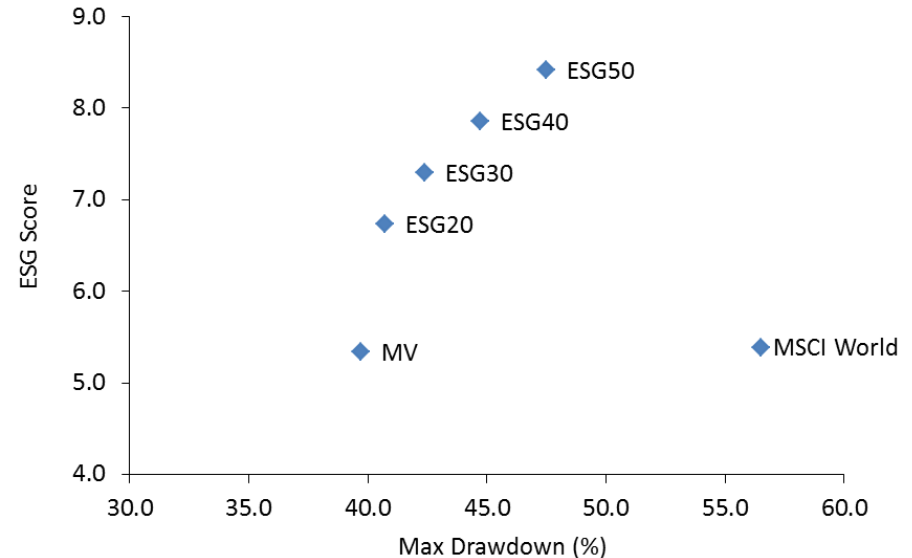


IMPROVING ESG PROFILE OF MIN VOL STRATEGIES

REALIZED ANNUAL VOLATILITY



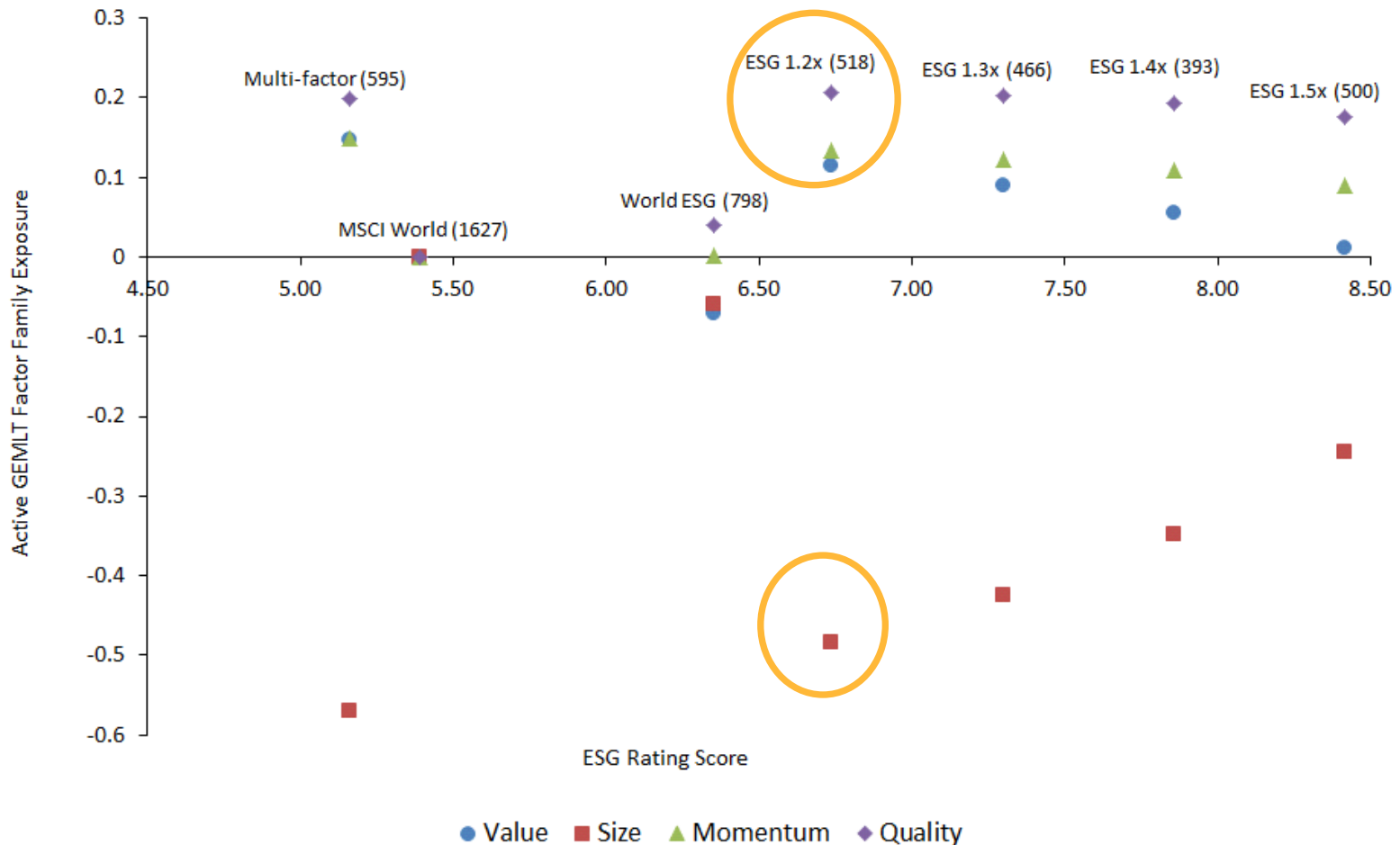
MAX DRAWDOWN (%)



- **Question:** How does ESG impact the risk reduction in minimum volatility strategies?
- **Answer:** Targeting ESG improvement does increase the volatility of the strategy but:
 - The increase was only 50 bps for up to 30% improvement in the ESG index score
 - The beta then only changed from 56% to 62% over the simulation period

APPROACH SCALES TO MULTI-FACTOR INDEXES TOO

ESG SCORE AND TARGET FACTOR EXPOSURES



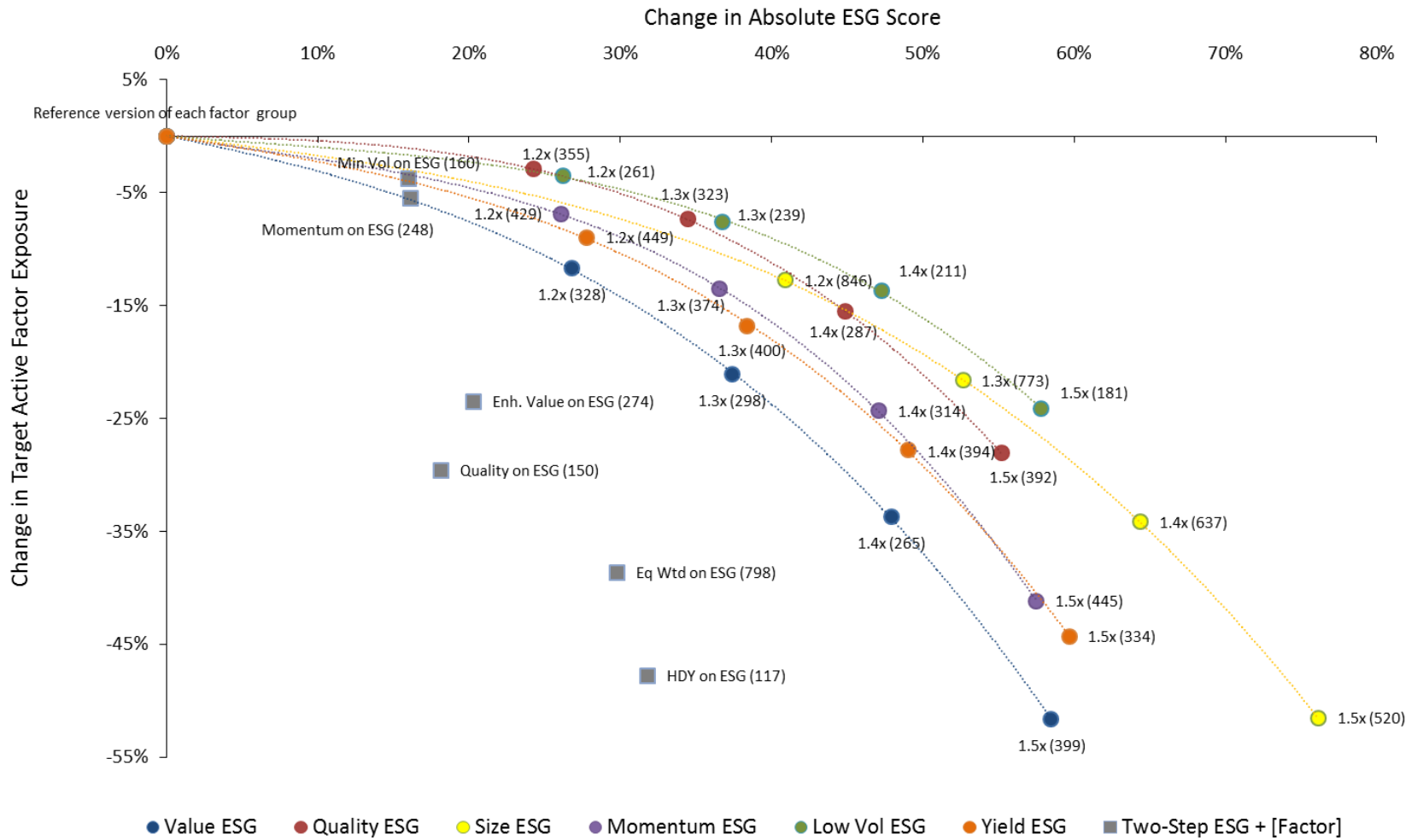
ESG PROFILE CAN IMPROVE IN MANY DIMENSIONS

ESG Metrics	MSCI World	Value	ESG 20	ESG 30	ESG 40	ESG 50*
<i>Key Integration Metrics</i>						
ESG Score	5.3	5.1	6.3	6.9	7.4	7.9
ESG Leaders (AAA-AA) (%)	20.8	15.3	36.7	49.0	59.7	70.6
ESG Laggards (B-CCC) (%)	17.0	13.7	4.7	2.7	1.3	0.0
<i>ESG Pillars</i>						
Environmental	5.5	5.6	6.1	6.4	6.7	6.9
Social	4.3	4.2	4.7	5.1	5.4	5.6
Governance	5.0	4.9	5.3	5.4	5.5	5.6
<i>Key Governance Metrics</i>						
Lack of Indep. Board Majority (%)	13.1	16.0	14.9	14.5	15.0	15.0
Deviation from 1 Share1 Vote (%)	21.3	16.5	12.2	11.7	11.1	11.3
No Female Directors (%)	6.6	9.3	7.5	6.9	7.0	6.5
<i>Values</i>						
Global Compliance Watch List (%)	13.9	7.1	4.8	3.9	3.6	3.4
Red Flag Controversies (%)	2.8	0.0	0.0	0.0	0.0	0.0
Orange Flag Controversies (%)	27.8	17.4	17.2	15.5	14.7	12.7

ESG Metrics	MSCI World	Quality	ESG 20	ESG 30	ESG 40	ESG 50*
<i>Key Integration Metrics</i>						
ESG Score	5.3	5.6	6.4	7.0	7.5	8.0
ESG Leaders (AAA-AA) (%)	20.8	27.9	37.9	47.8	58.6	69.4
ESG Laggards (B-CCC) (%)	17.0	10.3	4.5	2.0	0.8	0.2
<i>ESG Pillars</i>						
Environmental	5.5	5.9	6.3	6.5	6.8	7.0
Social	4.3	4.3	4.7	5.0	5.3	5.5
Governance	5.0	5.1	5.3	5.4	5.5	5.7
<i>Key Governance Metrics</i>						
Lack of Indep. Board Majority (%)	13.1	19.1	18.0	18.2	17.6	16.5
Deviation from 1 Share1 Vote (%)	21.3	19.9	18.0	17.1	15.5	16.9
No Female Directors (%)	6.6	7.6	7.6	7.5	6.9	6.2
<i>Values</i>						
Global Compliance Watch List (%)	13.9	6.9	5.3	5.3	4.7	5.8
Red Flag Controversies (%)	2.8	0.0	0.0	0.0	0.0	0.0
Orange Flag Controversies (%)	27.8	21.5	20.4	20.0	16.8	16.4

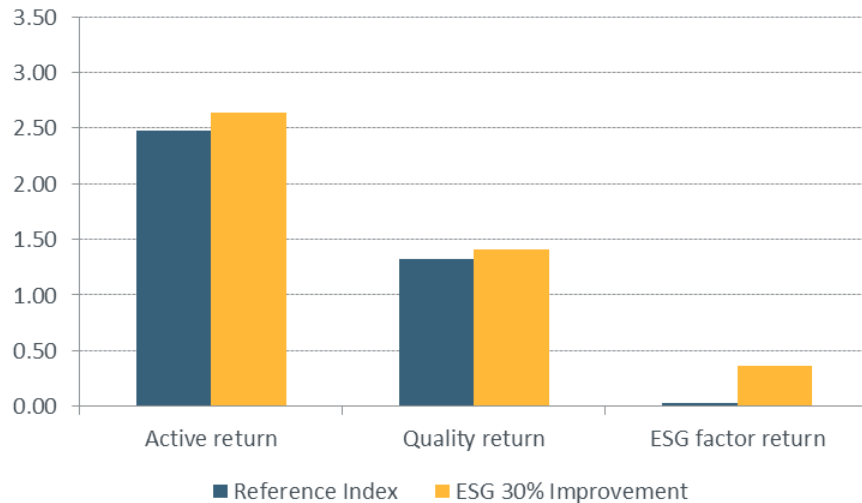
- Index ESG score improvements driven by optimization are not achieved through a barbell of overweighting leaders and laggards
- Improvement across all three individual pillars of E, S & G
- Improving picture for other more granular dimensions, even without direct targeting

TRADING OFF ESG IMPROVEMENT VS. FACTOR EXPOSURE

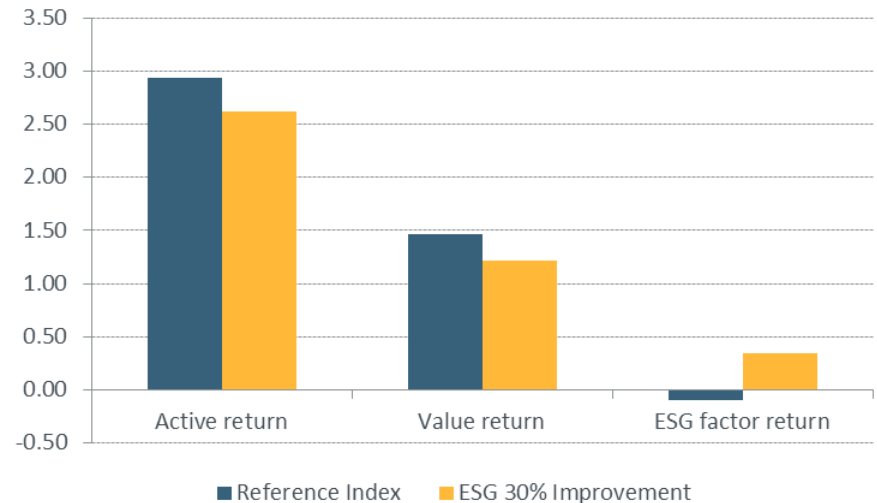


ESG EXPOSURE AND ESG-RELATED RETURNS

QUALITY



VALUE



- How has the increased ESG exposure contributed to the simulated index returns?
- Complementary factor (Quality): combined index performed better with a greater contribution from quality-related factors plus a notable positive contribution from ESG
- Less-aligned factor (Value): the simulated index return modestly reduced with the lower index factor exposure but the prior negative ESG contribution is reversed

Source: MSCI. Barra Custom Factor Attribution was used to attribute returns to standard GEM LT factors as well as an ESG ratings factor from 2012 to 2016. Attributed returns from the five quality factors and three value factors in the GEM LT model are added to calculate the effective [factor] return

SUMMARY

- Increasing need to impose ESG requirements or decarbonisation so
How do you continue to be a factor investor while becoming 'ESG-aware'?
- Applying a factor index overlay onto a broad enough ESG index can yield a reasonable solution...
- But taking an optimization approach to combine both dimensions, we:
 - Improve the ESG score considerably
 - Improve volatility reduction (MV) or generally improve factor exposure
 - Reduce index concentration
 - Obtain a higher number of constituents and reduce stock-specific risk
 - Are better adapted to wide range of regional, country parent indexes
- Performance impact generally positive; factor impact least for defensive strategies

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