

ESG Investing

BREAKFAST BRIEFING

LOS ANGELES MAY 15 | SAN FRANCISCO MAY 17 | CHICAGO MAY 22

Harnessing ESG as an Alpha Source in Active Quantitative Equities

At State Street Global Advisors, our mission is to invest responsibly on behalf of our clients to enable economic prosperity and social progress over time

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ESG Investing Landscape

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Understand ESG Investment Styles and Terminology

Our framework for understanding and comparing ESG strategies & overcoming the terminology barrier

	Exclusionary Screening	Positive Screening	ESG Integration	Impact Investing	Active Ownership/ Stewardship
Definitions	Excludes companies, sectors or countries involved in activities that do not align with global standards or investors' moral values	Tilts portfolio toward: <ul style="list-style-type: none"> • Best-in-class companies on ESG measures • Companies with strong ESG momentum • Companies solving specific ESG Themes 	Incorporates ESG data, alongside traditional financial analysis, into the securities selection process	Targets a measurable positive social and/or environmental impact. Investments are generally project specific.	Voting company shares and engaging with companies on a variety of ESG issues to effect changes in behavior or company practices and policies
Common Objectives	<p>Align portfolios with moral and ethical values</p> <p>Mitigate ESG risks</p> <p>Influence companies to change business models or stop certain practices</p>	<p>Mitigate ESG risks</p> <p>Achieve higher returns</p> <p>Support business models solving sustainability issues</p> <p>Improve or maximize a portfolio's ESG score</p>	<p>Mitigate ESG Risks</p> <p>Achieve higher returns</p>	<p>Generate and measure specific social and/or environmental benefits that aligns with purpose</p>	<p>Influence company strategy for long-term value creation</p> <p>Help management capture value and reduce risk</p> <p>Enhance ESG disclosure and practices</p>
Investment Considerations	Introduces tracking error and potentially impacts performance	Securities selection is based predominantly on ESG scores/ratings — sourcing quality ESG can be a challenge	Sourcing quality ESG data. Securities selection is based on quantitative and qualitative assessment of ESG factors, requiring analyst expertise. A long-term mindset is necessary.	Investments may be illiquid and investment returns could aim to be below or at/above the market rate	A significant ownership stake is needed to exert influence. Resource intensive. Active ownership is crucial for index strategies.

Capturing Value Within A Shifting Landscape

Academic Research is Increasingly Providing Support

HIGHER COST OF CAPITAL

for poor ESG performers, including loan debt, bond debt, and cost of equity

HIGHER VOLATILITY

for poor ESG performers and after ESG events such as spills, labor strikes, and fraud

ACCOUNTING IRREGULARITIES AND PERFORMANCE

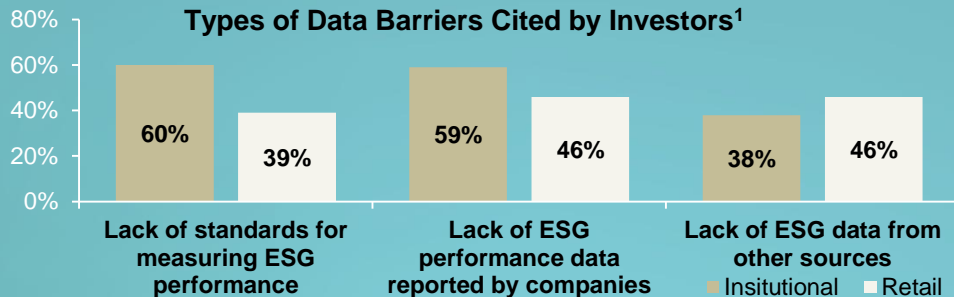
linked to ESG and broad governance factors

Sources: MSCI, Chava, 2011; 20+ studies, both academic and industry; Lansilahti, 2012; Credit Suisse; Deutsche Bank; MSCI ESG Research, et al.; Huang, 2010; Bhagat and Bolton, 2008; Cremers et al., 2005; Deutsche Bank, 2012; ISS, 2011 et al; From the Stockholder to the Stakeholder: How Sustainability Can Drive Financial Outperformance, March 2015, University of Oxford and Arabesque Partners. Retrieved January 20, 2016. The authors reviewed 29 cost of capital studies, 51 operating performance studies, and 41 stock price studies, respectively.

Factors Impacting Adoption

Data limitations, terminology confusion and measurement issues are primary concerns

Data Challenges



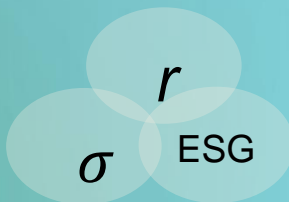
The primary barrier to effective ESG integration is the lack of standardized, high-quality ESG data

Tradeoffs & Terminology



Clarifying ESG objectives and understanding terminology within organizations is essential for implementation.

Measurement & Benchmarking



Maximum risk-adjusted return may not be the ultimate or sole objective

¹ Investing Enlightenment: How Principles and Pragmatism Can Create Sustainable Value Through ESG, Center For Applied Research, State Street Corporation. The study was conducted from November to December 2016. The findings are based on a global survey of 582 institutional investors across 29 countries and 750 individual investors across 24 countries, as well as more than 25 interviews with senior executives.

² Sources: Dimson, Marsh and Staunton (2015), Hong and Kacperczyk (2008), Blitz and Fabozzi (2017). Blitz and Fabozzi posit that outperformance is explained by quality factors rather than a risk premium from shunning by investors.

Here Come the Quants

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Research Philosophy

- 1 Identify an investment problem and the investment intuition about that problem**
- 2 Develop a well-informed, testable hypothesis based on strong economic rationale**
- 3 Identify an effective method and the relevant metrics to test the hypothesis**
- 4 Build the model and test the hypothesis**
- 5 Incorporate the signal into the stock selection model**

1 Identify an investment problem and the investment intuition about that problem

- Improve our assessment of a firm's quality, specifically focused on the firm's long term prospects and exposure to regulatory and public-relations risk.
- ESG metrics to evaluate sustainability could fit the bill – buy or build scores?

ESG Scores Differ Across Providers

Cross-Sectional Correlation for Constituents of the MSCI World Index

	Sustainalytics	MSCI	RobecoSAM	Bloomberg ESG
Sustainalytics	1	0.53	0.76	0.66
MSCI		1	0.48	0.47
RobecoSAM			1	0.68
Bloomberg ESG				1

Source: Sustainalytics, MSCI, RobecoSAM, Bloomberg and SSGA

As of June 30, 2017

PERFORMANCE CONFERENCES

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2 Develop a well-informed, testable hypothesis based on strong economic rationale



Because a company's **environmental actions** can signal:

- ✓ Operational efficiency and costs
- ✓ Environmental liability
- ✓ Opportunities for low-carbon revenue sources



Because a company's **social behaviors** can signal:

- ✓ Effective management of human capital
- ✓ Reduced risks related to product/service safety
- ✓ Reputation and trust with customer base



Because a company's **governance practices** can signal:

- ✓ Long-term strategy and capital allocation decisions
- ✓ Financial and operational performance
- ✓ Regulatory liability

Sources: SSGA

The information contained above is for illustrative purposes only.

PAI CONFERENCES

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3

Identify an effective method and the relevant metrics to test the hypothesis



General

Environmental

Environmental Policy
Carbon Intensity
Green Procurement
Environmental Liability

Environmental Supply Chain Incidents

Social

Discrimination Policy
Employee Turnover Rate
Supply Chain Monitoring
Customer Incidents

Governance

Bribery & Corruption Policy
Business Ethics Incidents
Board Remuneration Disclosure
Board Independence



Industry Specific

Environmental

Oil Spill Disclosure & Performance	Oil & Gas Producers, Refiners & Pipelines, Transportation
Forest Certifications	Paper & Forestry
Share of Green Buildings	Real Estate
Sustainable Food	Food Retailers

Social

Conflict Minerals	Aerospace & Defense, Auto Components, Automobiles, Consumer Durables, Electrical Equipment, Healthcare, Industrial Conglomerates, Machinery, Semiconductors, Software & Services, Technology Hardware, Telecommunication Services
Responsible Marketing	Consumer Durables, Food Products, Food Retailers, Household Products, Retailing

Data Privacy	Media, Software & Services, Telecommunication Services
Drug Donations	Pharmaceuticals

Governance

Green Building Memberships	Building Products, Construction & Engineering, Construction Materials, Homebuilders, Real Estate
Money Laundering	Banks, Diversified Financials, Real Estate
Animal Welfare	Food Products, Food Retailers, Textiles & Apparel
Clinical Trial Standards	Pharmaceuticals

Source: Sustainalytics, SSGA

As of September 30, 2017

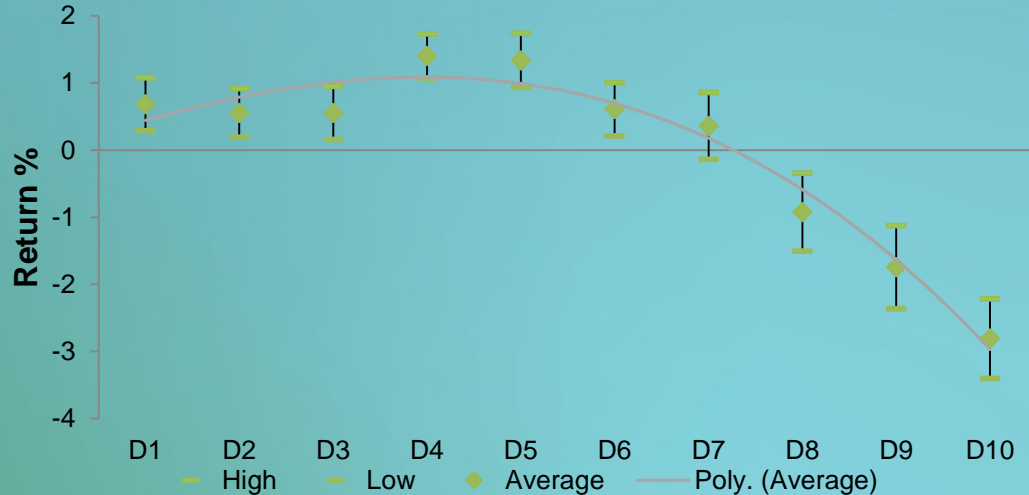
P&I CONFERENCES

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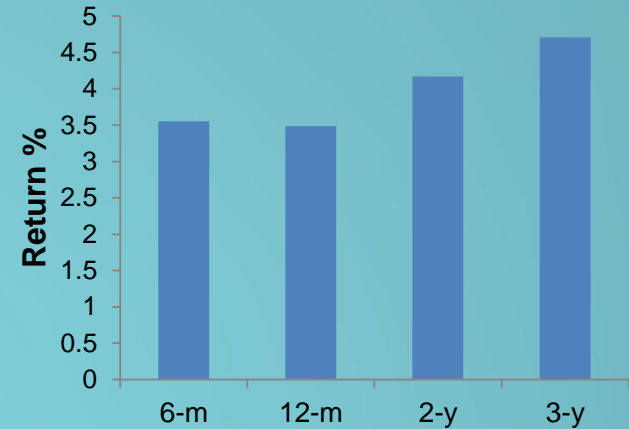
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Build the model and test the hypothesis

MSCI ACWI 12 Month Returns by Decile
8/2009 - 2/2017



MSCI ACWI Annualized Decile Spreads
8/2009 - 2/2017



Source: SSGA. ESG Factor returns represent the returns of components of the MSCI All Country World Index (equal weighted) which have been grouped methodically based on their factor exposure. The performance assumes no transaction and rebalancing costs, so actual results will differ. Past performance is not a guarantee of future results. Index returns reflect all items of income, gain and loss and the reinvestment of dividends. Performance is calculated in USD. Performance of an index is not indicative of the performance of any product managed by SSGA.

4 Incorporate the signal into the stock selection model

Differentiating investment opportunities through alpha and ESG

Company #1 – Brazilian manufacturer of coated and uncoated paper

Company #2 – Chilean maker of forestry, pulp, paper and tissue products

		Company # 1	Company # 2
Alpha	Earnings Growth Expectations	3	3
	Valuation	3	2
	Quality	2	1
ESG	Bribery & Corruption Policy	3	1
	Whistleblower Programmes	3	3
	Global Compact Signatory	3	1
	ESG Reporting Standards	3	3
	Health and Safety Management System	3	2
	Health & Safety Certifications	3	1
	Supply Chain Monitoring	3	1
	Human Rights Policy	3	1
	Community Involvement Programmes	3	1
	Water Management Programmes	3	2
	GHG Reduction Programme	3	2
	Green Procurement Policy	2	1

Source: SSGA, Sustainalytics. As of February 2018. Categories are scored on a scale of 1 to 3.

The information contained above is for illustrative purposes only.

5 Incorporate the signal into the stock selection model

Investment Philosophy

Markets are **not efficient** due to behavioural biases and limits to arbitrage — leading to opportunities for excess return

Our insights are best applied to a **wide investment universe** with a **robust** and **systematic investment process**

A strong emphasis on **economic rationale**, vetted by rigorous research is critical to ensure successful outcomes

ESG Integration



Hypothesis

- Sustainability can payoff financially
- ESG weakness can be costly

Integration

- Material ESG metrics
- Part of the evaluation of all stocks

Goal

- Superior risk adjusted returns
- Continuous research to test thesis

Important Information

Investing involves risk including the risk of loss of principal.

The information provided does not constitute investment advice and it should not be relied on as such. It should not be considered a solicitation to buy or an offer to sell a security. It does not take into account any investor's particular investment objectives, strategies, tax status or investment horizon. You should consult your tax and financial advisor.

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