

# The ESG framework - Adding value through corporate sustainability scores

May 2019

## Research Signals

A range of environmental, social and governance (ESG) related themes have the potential to heavily impact the long-term viability of equity investments, from climate change and other environmental risks, to human capital management, compensation practices, supply chain impact and brand reputation. These value drivers extend well beyond those captured in traditional financial reporting, but are nevertheless fundamentally linked to shareholder returns. Using a set of specialty data (formerly the ASSET4 database) provided by [Refinitiv](#), we confirm the ability to add value through ESG data, and propose possibilities for integration into traditional modeling processes. We first added ESG factors to our library in 2009 and at that time noted the limited use of ESG data by investment managers. Ten years later, we review performance of factors and screens, as well as extend our research to global markets, where the interest in ESG data is growing rapidly.

- ESG data offer uncorrelated insights into security performance and can provide a degree of outperformance from the highest ranked ESG companies over the lowest ranked names, as demonstrated by positive average 1-month spreads in US (0.16%), European (0.14%) and Pacific (0.06%) markets, with stronger performance over a 12-month investment horizon
- Based on a 25+ year backtest of our Value Momentum Analyst stock selection model over various holding periods, ESG's use as a screening criterion preserved the stand-alone model's positive top versus bottom quintile return spreads, though with expected weaker results as the underlying universe was significantly constrained
- We find more success using ESG as an overlay to our Value Momentum Analyst model, observing healthy returns from long intersection and exclusion strategies, establishing viable applications of ESG factor overlays in long-only portfolio construction

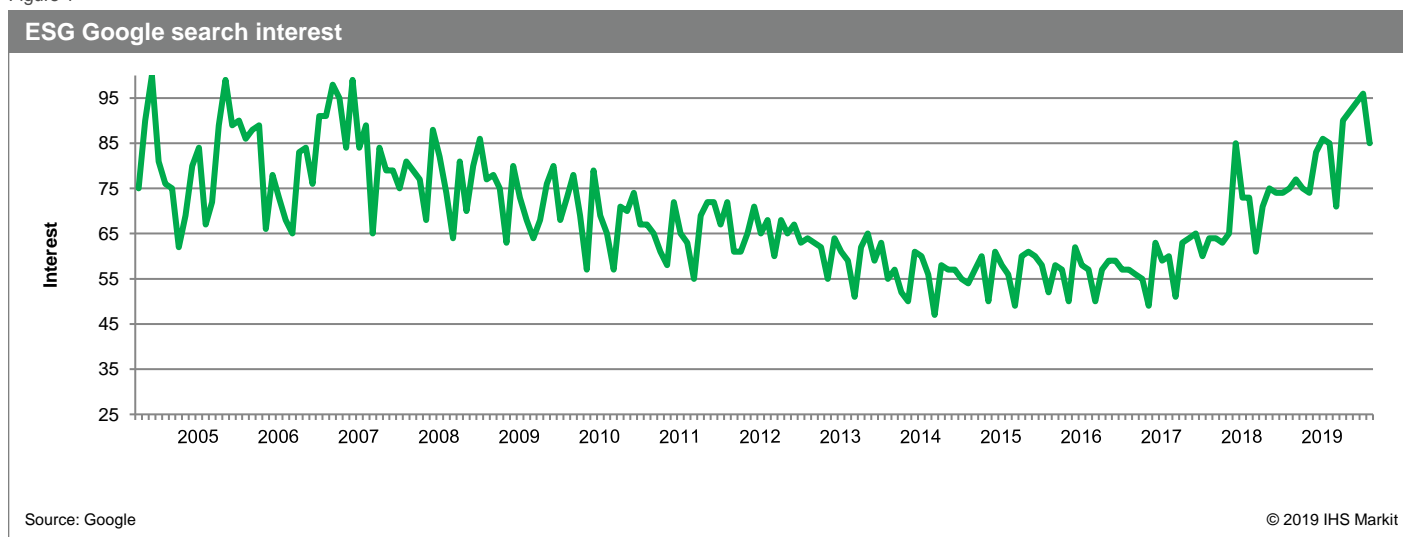
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## Introduction

We first noted interest rising in sustainability of corporations and transparency in the investment management process in our original ESG report in 2009, and we continue to see increased attention in understanding the relationships that exist between investment performance and real world corporate activity. In fact, ESG has seen a significant increase in Google search interest (Figure 1) since 2016. Organizations such as Global Reporting Initiative (GRI) and Sustainability Accounting Standard Board (SASB) have introduced standards to assist market participants in measuring key facets of sustainability. Meanwhile, key industry players like the SEC and London Stock Exchange have issued guidance on reporting ESG information to encourage companies to increase disclosures. All the while, data providers continue to bring new ESG datasets to the market place to help managers account for environmental, social or governance issues during the security selection process. Many believe ESG investing to be a holistic approach that can both add value and mitigate portfolio risk.

Figure 1



In order to effectively incorporate environmental, social and corporate governance information into an investment process, a necessary first step is to understand the nature of ESG factors and their influence on investment returns. ESG information helps identify the relatively ‘good’ companies, or those in harmony with social ideals, versus ‘bad’ companies, those whose behavior is judged to be socially irresponsible. The information is designed to reflect management practices that generate shared benefits for all constituencies, thereby enhancing the ability to produce long-term shareholder value. However, if poor ESG behaviors do not result in an immediate cost to the firm, but instead manifest themselves in the decreased likelihood of future profits, this effect may be overwhelmed in the short term and only apparent over medium- to long-term horizons.

## Literature review

A widespread disagreement has existed among academicians and investors regarding socially responsible investing results. On one hand, many individuals believe that companies cannot use their financial resources to improve social or environmental performance without decreasing shareholder value. Walley and Whitehead (1994), for example, suggest that the costs of adhering to ethical standards will translate into higher product prices, a competitive disadvantage and lower profitability. On the other hand, some argue that improved social or environmental performance can enhance a company’s input-output efficiency and generate new market opportunities. Porter and Van der Linde (1995) submit that active policies to improve environmental performance can create a competitive advantage due to a more cost-efficient use of resources. Blank and Daniel (2002) discuss the potential usefulness of eco-efficiency scores in making investment decisions and

report that an equal-weighted eco-efficiency portfolio delivered somewhat higher Sharpe ratios than the S&P 500 Index during the 1997–2001 period. Guerard (1997), however, uses the social performance database of Kinder, Lydenberg, Domini & Company and concludes that portfolios derived from a socially screened investment universe did not perform materially differently from those obtained from an unscreened set.

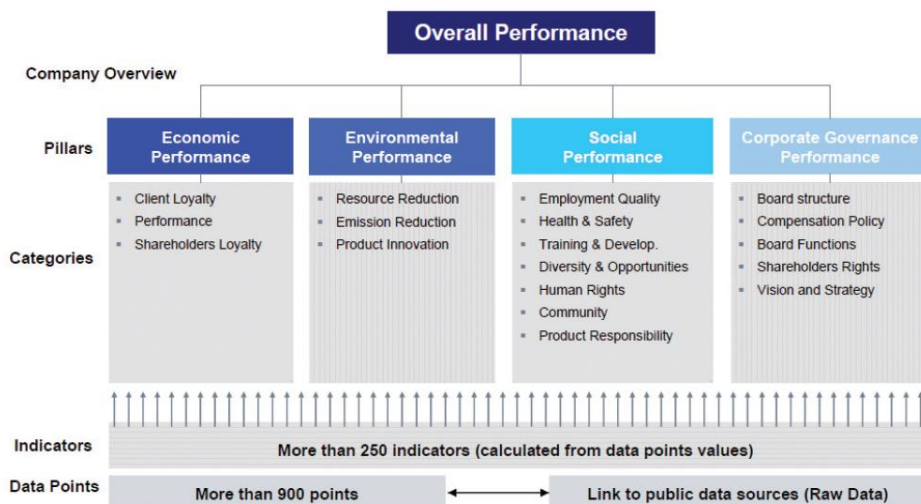
While there is no shortage of divergent views, some of these conflicting results can be attributed to differences in methodology and choice of ESG indicators as pointed out by Ullman (1985) and Griffin and Mahon (1997). Furthermore, advocates of ESG investing argue that corporate social responsibility reflects the managers’ views on how the company will perform in the long term. These views may be mispriced in the short term, but can generate incremental returns in the long run (Derwall. et al, 2005).

## Data and methodology

If the benefits of social or environmental initiatives outweigh their costs, then businesses that adhere to the concept of corporate and social responsibility should be able to report relatively higher earnings than less responsible peers. However, the extent to which social or environmental based investment policies contribute to returns depends on the ability to factor the financial reward of corporate social responsibility into share prices.

This research note investigates whether ESG scores, as provided by Refinitiv, have predictive power for stock-picking. In this report, we leverage the original Refinitiv Integrated ESG Rating structure, based on economic, environmental, social and corporate governance pillar scores to test the outperformance of stocks with high ESG characteristics. This information is based upon a framework consisting of over 250 key performance indicators taken from 900 individual data points. A general outline is shown in Figure 2.

Figure 2



Source: Refinitiv

To arrive at a single aggregate ESG score by company, we normalize the four pillar scores - economic, environmental, social and governance - and then combine these on an equal weighted basis to create the overall Integrated ESG Rating. This metric gives a holistic view of corporate performance, and allows for a general assessment of the efficacy of this data. Granular pillar and category scores permit a more targeted approach for constructing optimized investment strategies than that of the integrated study, but we primarily focus on the overall rating score to represent a holistic measure of ESG. Table 1 highlights this diversity by presenting the average monthly percentile rank correlations between pillar scores from June 2003 to March 2019. As can be seen from the table, only the social pillar consistently scores above 0.60 against the other areas.

Table 1

ESG Pillar average monthly rank correlations, 30 Jun 2003 – 31 Mar 2019					
Region	Pillar	Corporate Governance	Economic	Environmental	Social
US	Corporate Governance	<b>1.00</b>	0.42	0.51	0.56
	Economic	0.42	<b>1.00</b>	0.44	0.61
	Environmental	0.51	0.44	<b>1.00</b>	0.70
	Social	0.56	0.61	0.70	<b>1.00</b>
Europe	Corporate Governance	<b>1.00</b>	0.35	0.40	0.45
	Economic	0.35	<b>1.00</b>	0.52	0.60
	Environmental	0.40	0.52	<b>1.00</b>	0.75
	Social	0.45	0.60	0.75	<b>1.00</b>
Pacific	Corporate Governance	<b>1.00</b>	0.40	0.20	0.41
	Economic	0.40	<b>1.00</b>	0.51	0.66
	Environmental	0.20	0.51	<b>1.00</b>	0.76
	Social	0.41	0.66	0.76	<b>1.00</b>

Source: IHS Markit

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To test the signal strength of this data, we construct quantile portfolios on the basis of the equal-weighted performance score, thereby splitting our population sample into individual groups containing an equal number of stocks. Rankings and portfolio rebalancing occur at the end of each month for all tests, and companies with no performance score on the rank date are excluded for that period. Firm information is estimated to be available in the database approximately six months after a company's fiscal year end depending on when companies publish their Corporate Social Responsibility (CSR) reports. In response to this, all data before October 2009 is lagged by six months in our study, while results after October 2009 reflect our live results for the ESG data.

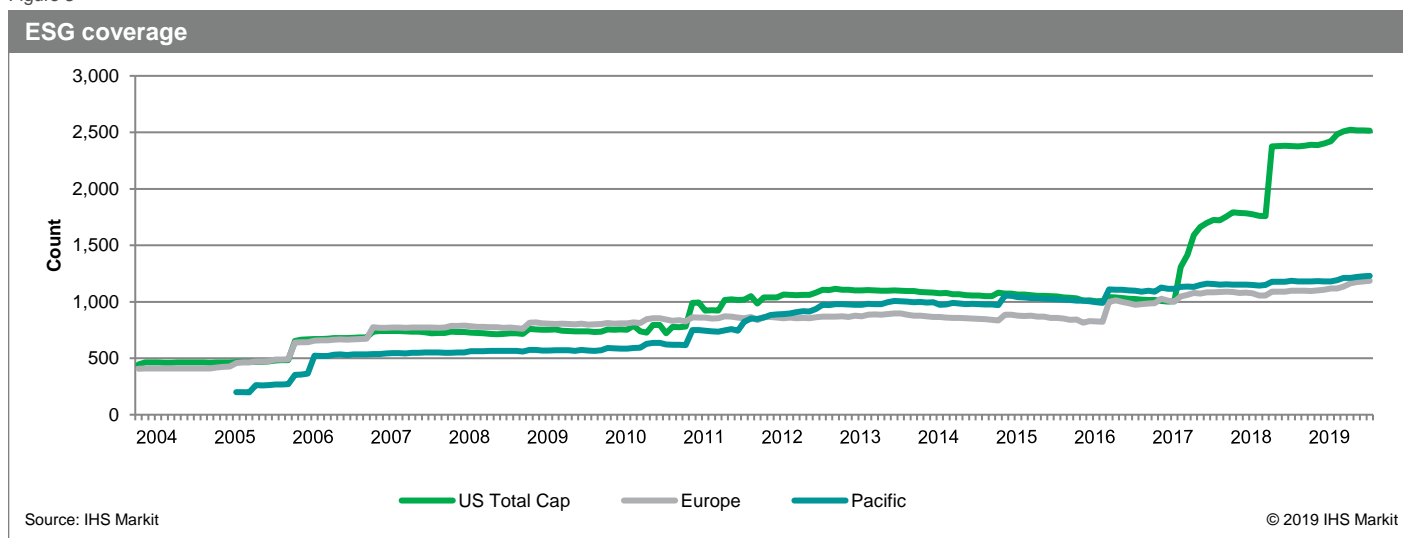
The remainder of this paper is organized as follows. We will first explore the characteristics of the ESG coverage universe, and then evaluate the results of a univariate study of ESG data using decile portfolios formed on the basis of the equal-weighted overall performance score. From there, we will perform a series of tests to determine an optimal methodology for integrating ESG data into both socially responsible portfolios and traditional alpha frameworks.

## ESG universe

Before exploring the return generating properties of this data set, we first review coverage of the ESG universes (Figure 3). First, for the US Total Cap universe, representing 98% of the cumulative market cap or approximately 3,000 names, ESG factor coverage has spanned from 445 in July 2003 to just over 2,500 in March 2019.

Subsequent to the initial introduction of the ESG framework in the US market, we have expanded our coverage globally to factor availability in developed Europe and Pacific regions, representing 95% of cumulative market cap for each member country subject to a minimum market cap of USD 250 million. Europe coverage began with 400 names in July 2003, reaching nearly 1,200 in March 2019. For the Pacific region, coverage has ranged from approximately 200 in October 2004 to just over 1,200 names in March 2019. We also remark that data availability for the Pacific region begins in October 2004, so all statistics in the remainder of this report pertaining to this universe will have this later start date.

Figure 3



## Univariate signal

To test the predictive power of the equal-weighted performance score on a stand-alone basis, we create monthly decile portfolios using ESG data. The top decile (D1) therefore captures the most highly ranked ESG companies, while the bottom decile (D10) represents the lowest ranked. We then compare the returns of the deciles to that of the underlying universe. We also calculate an average return spread representing an investment strategy based on buying D1 stocks and shorting D10, with the spread computed simply as the difference between these returns. We also calculate the Spearman rank correlation (IC) between the initial ranks and forward returns, while the hit rate represents the percent of months with positive results. Table 2 summarizes performance over 1-, 3-, 6- and 12-month time horizons (overlapping periods).

Overall, we find a degree of outperformance over the full analysis period for the highest ranked ESG companies over the lowest ranked names, as demonstrated by positive average 1-month spreads for US (0.16%), European (0.14%) and Pacific (0.06%) markets. Hit rates also tended to exceed 50% for D1-D10 spreads over each holding period, with the highest hit rate associated with 12-month spreads in the US (63%). In addition, ICs, which gauge signal efficacy across the full cross-section of ranks, are positive across each holding period with particularly strong hit rates at the 12-month horizon (US: 75%; Europe: 60%; Pacific: 60%).

Focusing on cumulative returns for long-only strategies (Figure 4), we find that D1 ESG stocks have outperformed the broad universe from 30 June 2003 through 31 March 2019 by an annualized 71 bps and 92 bps in US and Pacific markets, respectively, with a more neutral annualized underperformance in Europe (-23 bps). These results emphasize the likelihood that ESG data can provide uncorrelated insights into security performance, especially in times of duress. An interesting observation from Figure 4 is D1 outperformance manifested itself across each coverage universe during the heart of the financial crisis, while the signal struggled as the market turned positive in early 2009. The signal has performed well in the US since late 2014, while the best ESG names in Europe and Pacific have generally tracked the market since 2010.

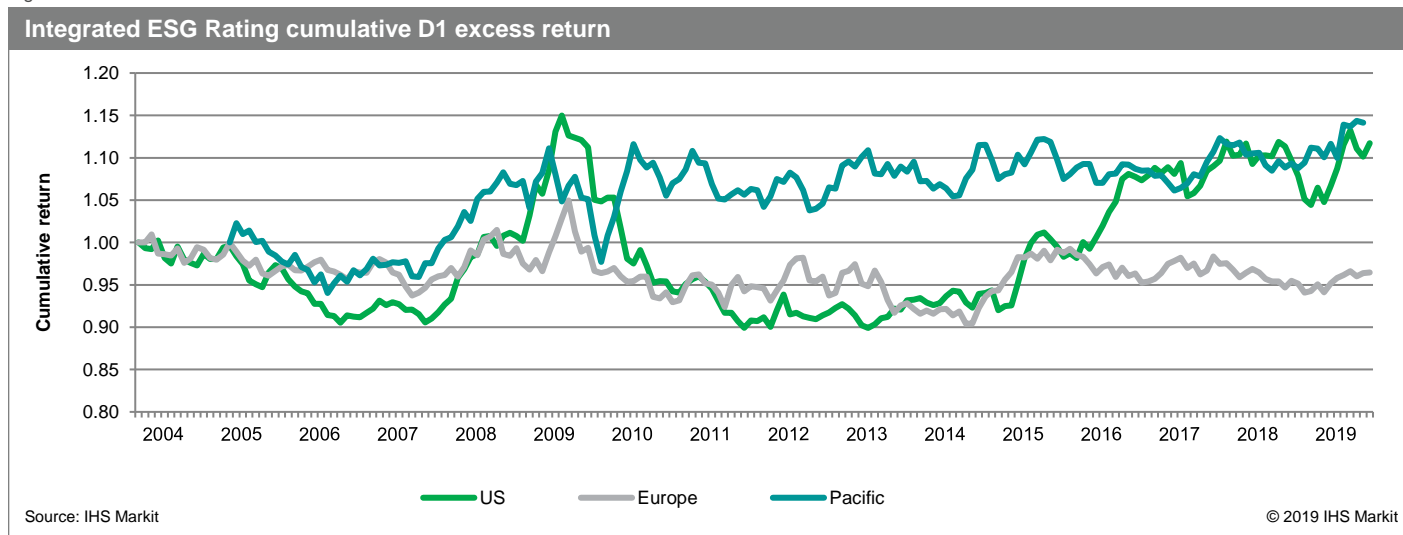
Table 2

Integrated ESG Rating monthly performance, 30 Jun 2003 – 31 Mar 2019									
Region	Holding period	D1-D10 spread		D1 excess return		D10 excess return		IC	
		Average	Hit rate	Average	Hit rate	Average	Hit rate	Average	Hit rate
US	1 month	0.16%	53%	0.07%	50%	-0.09%	48%	0.010	56%
	3 months	0.39%	51%	0.21%	52%	-0.18%	53%	0.019	56%
	6 months	-0.05%	53%	0.08%	50%	0.13%	48%	0.029	62%
	12 months	0.99%	63%	0.70%	62%	-0.29%	42%	0.045	75%
Europe	1 month	0.14%	52%	-0.01%	54%	-0.16%	43%	0.007	57%
	3 months	0.22%	52%	-0.24%	41%	-0.46%	40%	0.008	55%
	6 months	0.58%	54%	-0.41%	41%	-0.99%	42%	0.011	54%
	12 months	1.11%	55%	-1.34%	37%	-2.45%	37%	0.017	60%
Pacific	1 month	0.06%	53%	0.09%	53%	0.30%	48%	0.016	62%
	3 months	0.26%	52%	0.29%	52%	0.02%	51%	0.022	59%
	6 months	0.28%	49%	0.35%	54%	0.07%	50%	0.026	62%
	12 months	0.07%	53%	0.18%	53%	0.12%	47%	0.032	60%

Source: IHS Markit

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Figure 4



Source: IHS Markit

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For additional detail, we also present performance at the individual pillar level for 1-month holding periods (Table 3). In the US, D1 excess returns were positive on average, while D10 averages resided in negative territory, resulting in positive spreads across all four pillars. Corporate Governance (spread: 0.67%) was the strongest performer, followed by Social (spread: 0.41%). IC hit rates also tended to exceed that of the spreads.

Interestingly, the US Social pillar results contrasted with that of Europe, where it was the only segment which resided in negative territory (-0.03%) on average over the full period. In fact, performance across all four pillars in Europe was weaker on average, with Corporate Governance the strongest performer with an average spread of 0.22%, followed by Economic (spread: 0.10%).

In the Pacific region, similar results were posted for Corporate Governance (0.21%), Economic (0.23%) and Social (0.18%) ratings, with a relatively more robust IC (0.020) for the Economic pillar with a hit rate of 63%. Lastly, we draw attention to weakest performance associated with Environmental (0.05%), as well as its tendency as the weakest performer in the US (0.41%) and Europe (0.02%), which is interesting given the growing momentum for climate-related disclosures, as demonstrated by the formation of the Task Force on Climate-related Financial Disclosures (TCFD) in December 2015.

Table 3

## ESG Pillar 1-month performance, 30 Jun 2003 – 31 Mar 2019

Region	Pillar	D1-D10 spread		D1 excess return		D10 excess return		IC	
		Average	Hit rate	Average	Hit rate	Average	Hit rate	Average	Hit rate
US	Corporate Governance	0.67%	54%	0.36%	55%	-0.31%	45%	0.008	58%
	Economic	0.24%	52%	0.23%	50%	-0.01%	50%	0.011	52%
	Environmental	0.20%	52%	0.02%	52%	-0.17%	46%	0.011	61%
	Social	0.41%	51%	0.02%	54%	-0.39%	44%	0.011	56%
Europe	Corporate Governance	0.22%	54%	0.06%	46%	-0.16%	45%	0.004	52%
	Economic	0.10%	53%	-0.02%	53%	-0.13%	42%	0.012	58%
	Environmental	0.02%	52%	-0.01%	50%	-0.03%	45%	0.005	52%
	Social	-0.03%	51%	-0.07%	47%	-0.04%	47%	-0.001	48%
Pacific	Corporate Governance	0.21%	52%	0.17%	51%	-0.04%	47%	0.008	52%
	Economic	0.23%	56%	0.19%	57%	-0.05%	47%	0.020	63%
	Environmental	0.05%	49%	0.15%	49%	0.10%	52%	0.012	55%
	Social	0.18%	54%	0.09%	54%	-0.09%	48%	0.012	56%

Source: IHS Markit

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## Screening criteria

To help understand the interaction between ESG data and traditional modeling frameworks, we use the Research Signals Value Momentum Analyst model (VMA) as a proxy for conventional approaches to systematic investing. This model takes a balanced perspective for stock selection within the US, European and Pacific markets, and favors securities with high earnings quality, good valuation, strong balance sheets, positive momentum and earnings growth. The balanced VMA is ideal for investors looking for broad exposure to a variety of proven stock selection signals and a core approach to portfolio construction.

For reference, performance highlights of VMA over the US Total Cap, Europe 1000 and Developed Pacific STDCAP universes from 30 June 2003 to 31 March 2019 are included in the Appendix (see Table A1). Each rebalancing period we create equal weight decile portfolios based on VMA scores. To test the forecasting performance of the factor, we again report decile spreads in addition to ICs and hit rates.

First, we prototype a manager with a definitive social responsibility mandate. That is to say, this investor's portfolio construction process is constrained such that only securities with high ESG scores may be included. In consideration of this possibility, we first use the Integrated ESG Rating as a screening tool to establish an investible universe. In this instance, the top 50% of the ESG scores represents our filter criteria. Some managers may prefer a higher threshold, but we use the mid-point here to ensure a robust historical sample. Once the screen is complete, VMA ranks are calculated on the qualifying securities, thus ensuring that all top ranked VMA stocks have relatively high ESG scores as well. Since the original universe has been reduced by fifty percent due to the screen, we form quintile portfolios with the resulting VMA scores.

We summarize the annualized average quintile returns (Figure 5) and average IC and quintile spreads (Table 4) of VMA run over the ESG screened universes. First, we highlight that VMA retained its monotonic distribution of quintile returns in general across the top 50% ESG universes. The results also show marginally reduced outcomes for spreads, and to a lesser degree for ICs, compared with the stand-alone model across all holding periods; however, considering that we have filtered the top 50% of the universe based on highly ranked ESG stocks, those with inferior ESG scores were no longer a part of the bottom quintile. This would likely have an adverse impact in particular on the long-short spread for the overall

VMA strategy. On the whole, these results show that using ESG as a screening criterion still allows for the successful execution of a systematic stock selection strategy, although ICs and spreads are somewhat reduced.

Figure 5

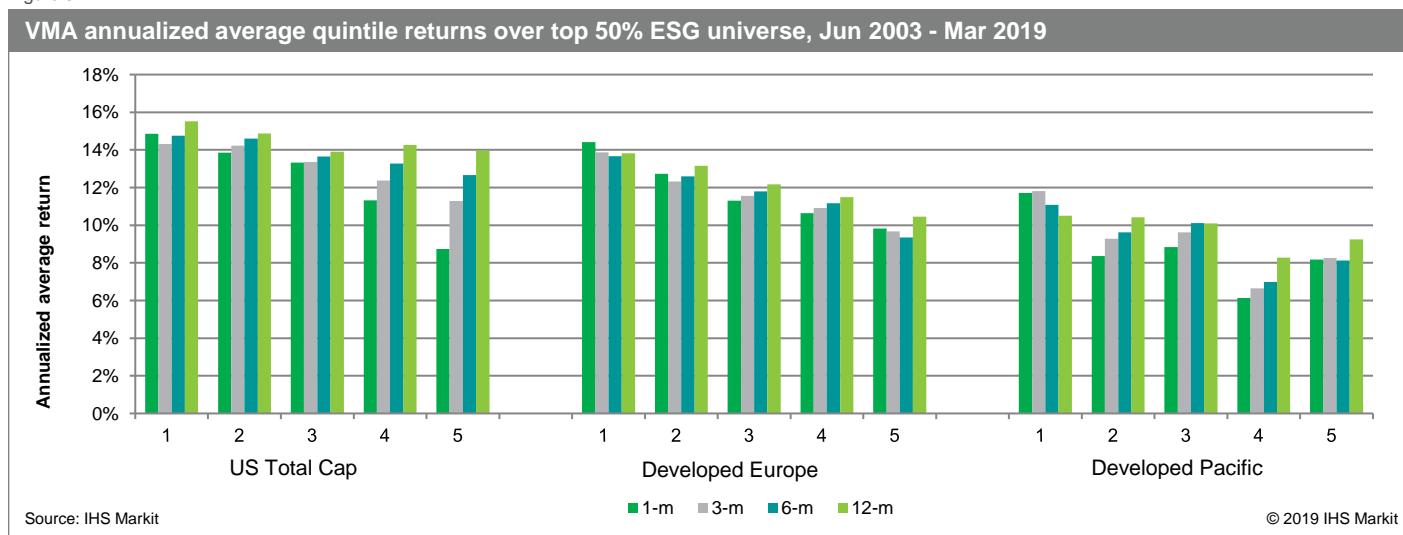


Table 4

**VMA average monthly performance comparison, 30 Jun 2003 – 31 Mar 2019**

Region	Holding period	Average count	Average IC		Average Q1-Q5 spread	
			Top 50% ESG universe	Full universe	Top 50% ESG universe	Full universe
US	1 month	521	0.035	0.046	0.51%	1.17%
	3 months	521	0.035	0.052	0.81%	2.29%
	6 months	521	0.047	0.067	1.41%	3.78%
	12 months	521	0.061	0.080	1.48%	5.18%
Europe	1 month	343	0.029	0.042	0.38%	0.89%
	3 months	343	0.039	0.054	1.05%	2.17%
	6 months	343	0.049	0.068	2.16%	4.42%
	12 months	343	0.050	0.079	3.38%	7.87%
Pacific	1 month	374	0.015	0.043	0.29%	1.44%
	3 months	374	0.021	0.064	0.89%	3.65%
	6 months	374	0.024	0.088	1.48%	6.89%
	12 months	374	0.012	0.112	1.26%	12.58%

Source: IHS Markit © 2019 IHS Markit

## Model interaction

For those managers focused solely on achieving the highest possible risk adjusted returns without specific consideration for the philosophical appeal of ESG data, the screening approach outlined above may be too limiting in nature. With this in mind, we next extend the analysis to include a more detailed study of the interaction between VMA signals and ESG rankings. While ESG data does a good job capturing the core values of a company, it does not hold a complete set of answers to many of the complex factors that influence financial performance. However, when combined with more traditional financial metrics, ESG data may offer an intuitively appealing compliment to earnings and price related signals.



To study these effects, we set up the following investment strategies:

1. Long intersection - Considers only those stocks simultaneously in the top 10% of VMA and top 25% of the ESG equal-weighted performance rankings
2. Long exclusion - Begins with all the stocks in the top 10% of VMA, and removes those names that are in the bottom 25% of the ESG equal-weighted performance rankings.

Both the intersection and exclusion parameters only apply to the top decile of the VMA rankings. Deciles 2-10 remain unchanged from the original VMA. The base universes are the US Total Cap, Europe 1000 and Developed Pacific STDCAP constituents. The test period is again 30 June 2003 to 31 March 2019 and the benchmark is the respective underlying universe.

The top decile results for the VMA, long intersection and exclusion strategies are summarized in Table 5 and the cumulative D1 monthly returns are displayed in Figures 6, 7 and 8. From these graphics, we see that the long intersection strategy registered an increase in monthly returns relative to those seen by the stand-alone VMA in the US and Pacific regions, outpacing the benchmark by 201 and 265 percentage points, respectively, on a cumulative basis. However, the concentrated nature of the results may limit its ability to provide a broadly diversified portfolio. The long exclusion strategy more closely tracked the stand-alone VMA in these two regions, which is not unexpected given the fact that the long exclusion strategy on average only removes a small number of stocks from the original results.

In Europe, the long intersection strategy also exceeded the long exclusion method, though we remark that the universe size of the former was limited to 28 stocks on average each month. While the stand-alone VMA outperformed the long intersection and exclusion strategies, they still attained healthy annualized 1-month returns of 17.76% and 16.76%, respectively. Overall, the aforementioned model interaction and both interaction strategies present viable applications of ESG factor overlays to a typical quantitative process for both long-only and long-short portfolio construction.

Table 5

D1 average monthly performance comparison, 30 Jun 2003 – 31 Mar 2019										
Region	Holding period	Long intersection			Long exclusion			VMA		
		Average count	Annualized return	Hit rate	Average count	Annualized return	Hit rate	Average count	Annualized return	Hit rate
US	1 month	98	18.62%	69%	259	17.52%	69%	322	17.57%	70%
	3 months	98	13.28%	72%	259	14.38%	74%	322	14.55%	74%
	6 months	98	13.03%	74%	259	13.87%	78%	322	14.02%	78%
	12 months	98	12.99%	78%	259	13.53%	82%	322	13.56%	82%
Europe	1 month	28	17.76%	67%	78	16.76%	67%	94	18.69%	68%
	3 months	28	17.13%	72%	78	15.89%	72%	94	16.51%	74%
	6 months	28	17.51%	78%	78	15.91%	76%	94	16.52%	79%
	12 months	28	18.08%	80%	78	16.13%	76%	94	17.08%	77%
Pacific	1 month	65	17.03%	64%	171	14.05%	64%	199	14.61%	64%
	3 months	65	14.46%	66%	171	13.40%	65%	199	13.79%	65%
	6 months	65	14.30%	66%	171	13.41%	64%	199	13.56%	64%
	12 months	65	14.06%	74%	171	12.99%	74%	199	12.99%	72%

Source: IHS Markit

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Figure 6

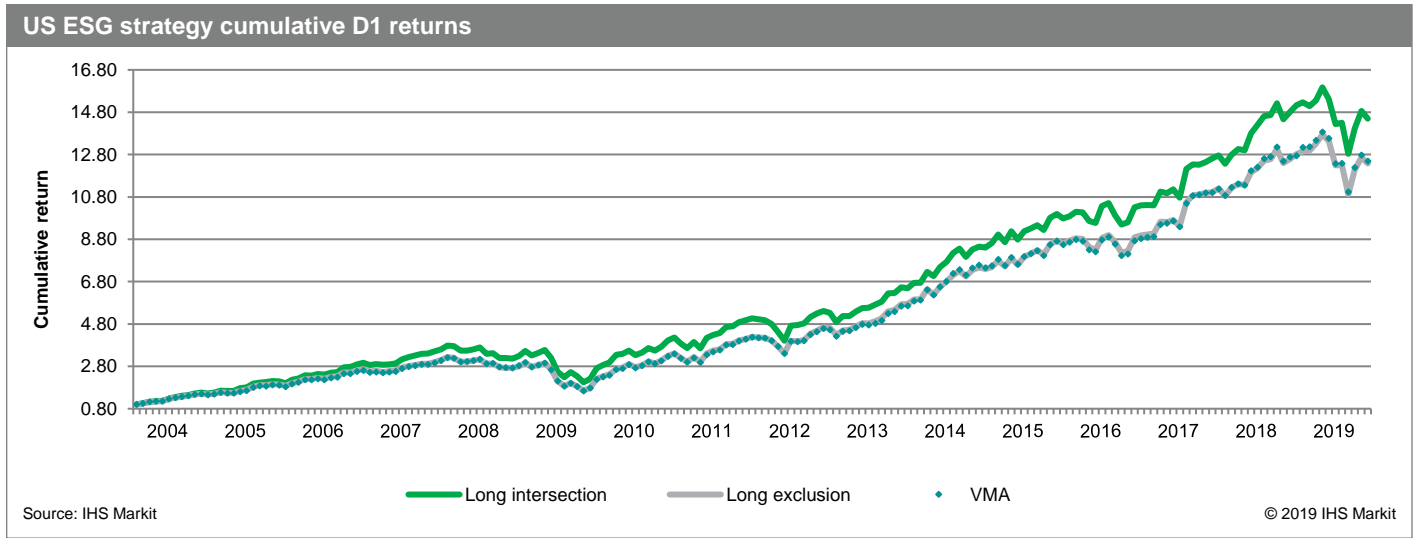


Figure 7

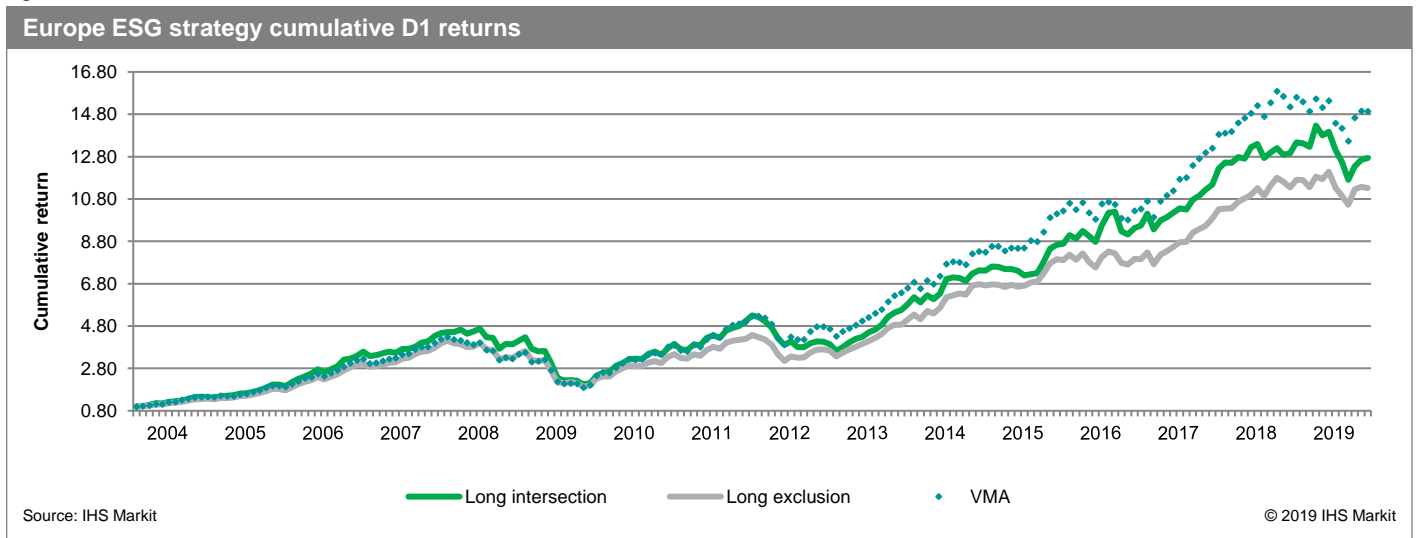
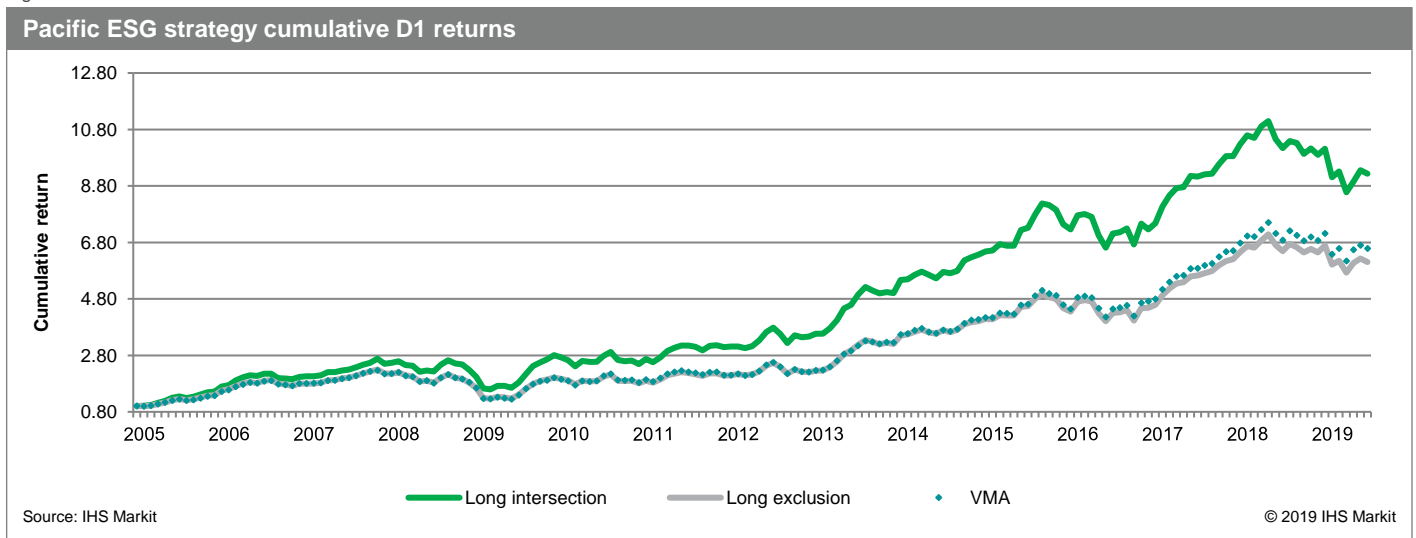


Figure 8



## Conclusion

Investment managers are incented to identify factors that drive financial performance and generate future excess returns. ESG signals have not historically been leveraged by most traditional portfolio construction models. Consequently, issues related to environmental, social and corporate governance behaviors have often been overlooked. Standard financial measures typically look backward and report on current successes. Intrinsically, ESG objectives and priorities are forward looking and reveal prospects for future achievement. In many cases, ESG performance can directly impact a corporation's ability to expand to new markets, attract talent and access key resources, all of which are important factors in considering prospects for future performance. From this perspective, ESG signals may provide a stable path to connect intangible estimates of company quality to tangible measures that facilitate intercompany comparisons.

Through our analysis of a robust set of ESG data, we report interesting performance results for both stand-alone and integrated ESG approaches. We confirmed that investment managers can blend qualitative and quantitative analyses by combining analytical modeling approaches with ESG information, where value is created from picking sustainable performance leaders and avoiding future laggards. Moreover, our longer term tests illustrate that the positive relationship between ESG factors and financial performance remains evident, and the factor return spreads are stronger over longer holding periods.

In light of the shifting priorities of consumers, governments and markets, we expect ESG factor analysis to continue to gain popularity in the future. Intangible signals that are important for long-term valuation expectations remain some of the most difficult factors to determine on the basis of financial reporting alone and ESG information may be an effective way to enhance this pursuit. Our analysis suggests that ESG signals may allow investors to position for the 'green' themes of the future, while harvesting enhanced returns today.

## Appendix

Table A1

VMA performance statistics					
Region	Holding period	Decile (1-10) spread		IC	
		Average	Hit rate	Average	Hit rate
US	1 month	1.17%	69%	0.046	75%
	3 months	2.29%	70%	0.052	74%
	6 months	3.78%	78%	0.067	87%
	12 months	5.18%	81%	0.080	93%
Europe	1 month	0.89%	70%	0.042	74%
	3 months	2.17%	72%	0.054	74%
	6 months	4.42%	83%	0.068	76%
	12 months	7.87%	83%	0.079	79%
Pacific	1 month	1.44%	63%	0.043	61%
	3 months	3.65%	69%	0.064	70%
	6 months	6.89%	77%	0.088	76%
	12 months	12.58%	80%	0.112	83%

Source: IHS Markit

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