A NEW QUALITY FACTOR: FINDING ALPHA WITH ASSET4 ESG DATA

STARMINE RESEARCH NOTE

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EXECUTIVE SUMMARY

On November 30, 2009, Thomson Reuters announced the acquisition of ASSET4, the leading provider of environmental, social, and corporate governance (ESG) data.   ASSET4 gathers extensive, objective, quantitative and qualitative ESG data on 3100 global companies (as of Q2 2010) and scores them on four pillars: Environmental, Social, Corporate Governance, and Economic. In turn, the pillar scores form the basis of an overall company score summarizing a company's strength in adhering to ESG principles.

With its origins in Socially Responsible Investing (SRI), the ideas behind ESG investing have been gaining more traction in the recent decade because of environmental issues surrounding global warming and corporate governance issues leading to the demise of several large firms. Yet, ESG information is still largely ignored by many investors and represents an untapped source for enhanced portfolio strategies.

We have undertaken a study to determine the efficacy of ASSET4 scores as equity selection factors. We find that in addition to displaying significant stand-alone performance, ASSET4 signals complement other quality factors such as StarMine Earnings Quality (EQ). Our results show the ASSET4 scores add value on an absolute basis as well as a risk-adjusted basis, and that their value-added generally increases with the investment holding period. These results are consistent with the theory that companies that score highly on ESG principles are focused on creating long-term shareholder value. The results are good news for fund managers who "invest with a conscience."

The entire history of ASSET4 ESG data, dating back to fiscal year 2002, is available to customers in .zip file format, in the AssetmasterProfessional[TM] system, and via Excel Add-In functionality. ASSET4 ESG data will soon be distributed through various Thomson Reuters platforms including Datastream, Market QA, Reuters 3000Xtra, Reuters Knowledge Direct, and Thomson ONE Analytics. The data are completely transparent for every security and can be viewed as scores or raw data at all levels in the ASSET4 data framework. The current universe includes complete coverage of the FTSE 250, MSCI Europe, MSCI World Index, Russell 1000, and S&P 500 and is continually being expanded to meet customer needs.

BACKGROUND

ESG INVESTING AND ASSET4

ESG investing has been around since at least the early 1980's in various guises. In its early stages ESG was referred to as Socially Responsible Investing and funds like Amy Domini's SRI fund steered clear of "sin" companies having any involvement with alcohol, gambling, tobacco, and defense. Today, SRI has morphed into ESG and encompasses a much wider agenda. Companies practicing good ESG policies decrease their environmental impact by reducing carbon emissions and water usage, are socially responsible in their treatment of employees and their role in the community, and establish corporate governance best practices for an independent, fairly compensated board that protects shareholders' rights.

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Recognizing the trend in ESG investing and responding to the need for transparent ESG data, ASSET4 was founded to become the leading provider of objective, comparable and auditable extra-financial information. ASSET4 provides professional investors and corporate executives access to the world's largest database of ESG information and the analysis tools to integrate that information into their everyday decision making. ASSET4 is a proud signatory of the UN's Principles for Responsible Investment and a contributing member to organizations and initiatives like: UNEP-FI, Eurosif, UKSIF, USSIF, Nachhaltiges Investment and the Ceres Coalition. Thomson Reuters acquired ASSET4 in late 2009 in order to offer this unique and transparent data set to its customers.

Proponents of ESG investing seek financial reward for investing in sustainable companies—dead companies can't earn profits—which are able to recruit top talent and are protective of shareholders' rights. The downside to following ESG principles is that it can be costly in the near term to install emissions scrubbers, create a safe and healthy workplace for employees, and establish a fairly compensated independent board. ESG investors take a long horizon view, choosing like-minded companies and company management who create long-term shareholder value rather than focusing on short-term gains and the next quarterly statement. In fact, many ESG investors view adherence to ESG principles as a proxy for good company management. Such managers have an awareness of the company's role in the community at-large and the global marketplace, have the bandwidth to address issues that aren't immediate to the bottom line, and manage for long-term value creation rather than short-term performance goals. From a risk mitigation point of view, ESG investors try to avoid companies at high risk of being subject to costly events such as environmental clean-ups and lawsuits or losses arising from corporate malfeasance and fraud. As such, incorporating ESG information into an investment process has the potential to reduce risk and minimize exposure to severe blow-ups.

As an example of the predictive power of extra-financial information, consider the ASSET4 ESG scores of Bear Stearns prior to its collapse in March 2008. As shown in Figure 1, Bear Stearns had alarmingly low ESG scores compared to its banking rivals Goldman Sachs and Morgan Stanley. Bear Stearns's Integrated Rating ranked near the twelfth percentile of global companies, and only 32 of 2258 companies had a worse Economic pillar score. In fact, Bear Stearns had received consistently poor ASSET4 ESG scores since coverage began in 2002, largely owing to its dearth of transparent reporting of extra-financial information. Bear Stearns never would have belonged to a portfolio being screened for ESG factors.
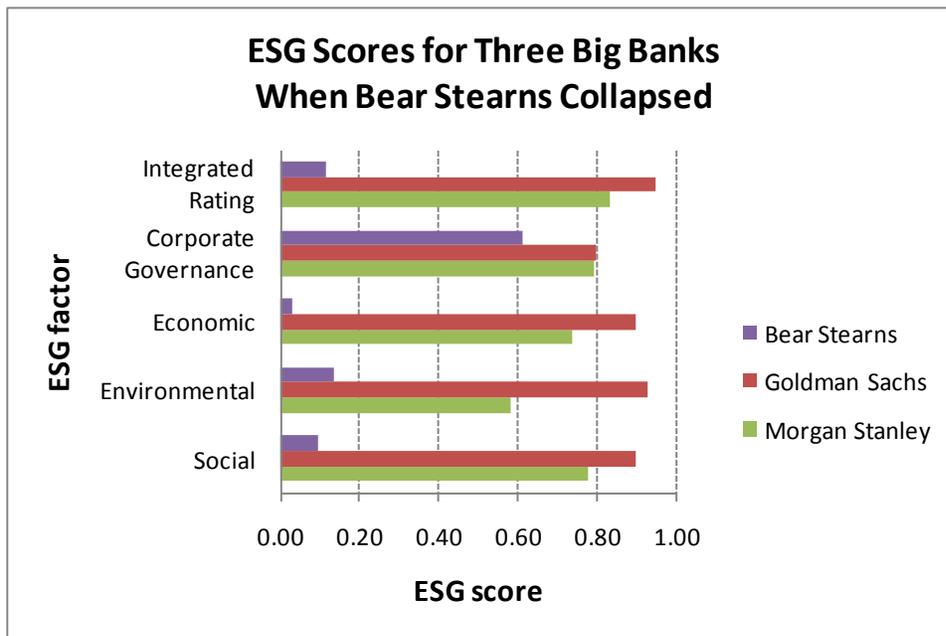

Figure 1: Comparison of ASSET4 ESG scores of Bear Stearns, Goldman Sachs, and Morgan Stanley in early 2008. ASSET4 scores for Bear Stearns were significantly lower than those of rivals Goldman Sachs and Morgan Stanley and had been for several years before Bear Stearns collapsed.

ESG INVESTING TRENDS AND THE DEBATE ON VALUE-ADDED

Dollar amounts committed to SRI and ESG investment vehicles continue to grow even while the debate persists whether these practices add value to the investing process. The Social Investment Forum (SIF) reports that the global market for SRI, shareholder activist, and ideological-based investing exceeded $5 trillion in the year 2007. In that year $2.7 trillion in assets, or 10.8% of the total U.S. investment market, was devoted to SRI, an 18% increase over the last time it was measured in 2005 (Social Investment Forum, 2007). At the end of 2009, a review of 160 socially responsible mutual funds representing 22 Forum members found that 65% of funds outperformed their benchmarks (Social Investment Forum, 2010). Without question, increasing demand from institutional and individual investors to incorporate ESG criteria into the investment process is driving more assets towards ESG funds.

Nonetheless, there exists debate whether the short-term costs of implementing ESG practices outweigh the long-term advantages. In its earlier stages, SRI and ESG investors presumed that they might pay a premium in the form of lower returns for principled investing. Today, many research reports find examples of ESG outperformance for pockets within a particular region, industry, or time period. For example, a Merrill Lynch Thematic Investing report on Values Based Investing (VBI) using ASSET4 ESG data finds outperformance among low beta stocks in all regions (Rasco et al., 2008). Two State Street Global Advisors reports have analyzed ESG data from multiple sources and concluded that ESG "predictive power actually tends to strengthen through time" (Ye, 2009) but "naïve, non-discriminating application is detrimental to investment returns" (Kennedy et al., 2008). Both the Merrill Lynch and State Street reports acknowledge the popularization of ESG investing and the resulting increase in fund flows.

In the past, performing a rigorous evaluation of ESG strategies has been difficult because the data are difficult to collect and quantify. First, most ESG data are made publically available by the companies themselves, and such reporting is voluntary. Only large corporations have the bandwidth to issue corporate social responsibility reports (CSRs), and those companies with the most to hide are the least likely to volunteer poor ESG practices. Second, there is no canonical measure, something akin to P/E, for rating a company's ESG performance. Third, the historical database of ESG data is relatively young. For testing the merits of ESG investing, we have a limited coverage universe of mostly large cap companies for a short history not covering an entire economic cycle.

ASSET4 ESG DATA

ASSET4 has collected data and scored companies on ESG principles since fiscal year 2002. Research analysts collect more than 600 data points per company, a labor intensive process that takes a single analyst one week per company. All data must be objective and publically available, though analysts are permitted to contact company investor relations offices to learn the location of public data. Typical sources include stock exchange filings, CSRs, annual reports, non-governmental organization websites, and news sources.

The raw data are rolled up into 278 key performance indicators, which are then combined into eighteen category scores, which serve as subcomponents of the four pillars. Each of the eighteen categories receives a score between 0 and 1, with high scores indicating strong performance in the category. Similarly, the overall company score, which ASSET4 calls the *Integrated Rating*, is computed by blending the four pillar scores. Because scores and data are provided transparently at all levels in the ASSET4 framework, investors have the option of using the final Integrated Rating, any of its components, or creating their own customizable rating on the basis of any combination and weighting of the underlying ESG indicators.

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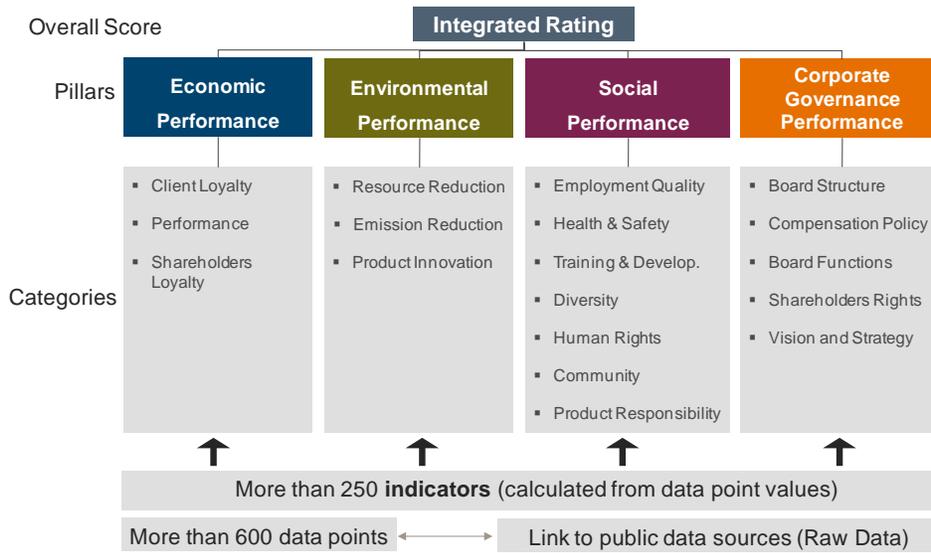
ASSET4 ESG Data and Framework

Figure 2: Overview of ASSET4 ESG data and framework. Over 250 indicators are rolled up into the category scores, which are subcomponents of the four pillars. The overall company score, called the *Integrated Rating*, is derived from a roughly equal-weighted blend of the four pillar scores.

Figure 3 shows ASSET4 coverage by year and region and displays global company counts above bar clusters for each fiscal year through 2008. Roughly 3100 active companies are being scored as of Q2 2010. As ASSET4 has managed to complete coverage of major world indices, emerging markets have begun to receive more coverage in the recent two years. Thomson Reuters plans to increase coverage going forward.
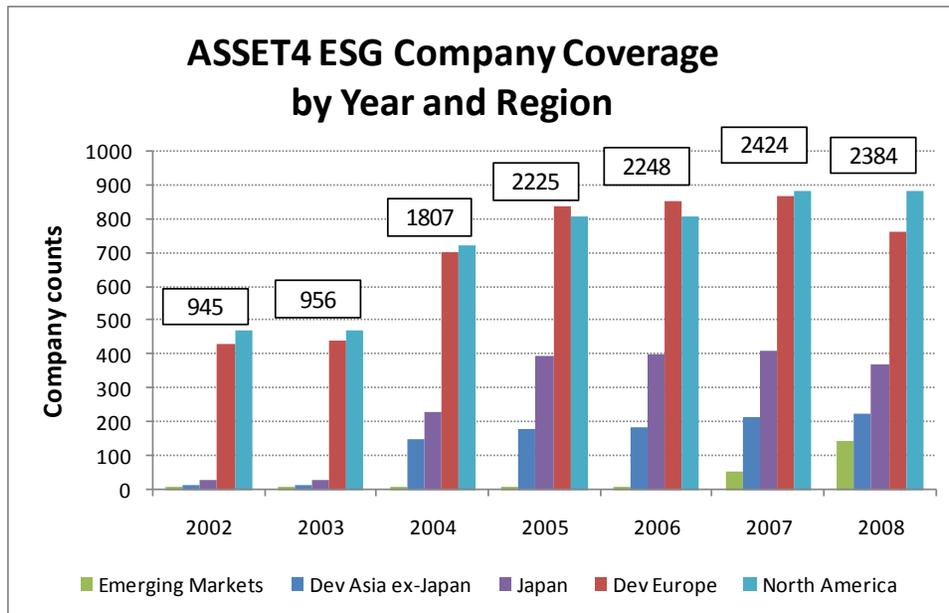

Figure 3: ASSET4 ESG global coverage by year and region through fiscal year 2008 shows recent increased coverage in emerging markets. Global company counts appear above bar clusters for each year.

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ESG coverage tends to focus on the larger, more prominent companies in each region. Large cap companies have the resources and bandwidth to issue CSRs and other public sources of ESG data. The market cap skew is the source of phantom outperformance/underperformance for some researchers who test ESG signals. Such reports discover returns differing from the benchmark but fail to adjust for market cap in times when large caps outperform/underperform the market as a whole. Researchers should also be aware of a more subtle reporting phenomenon that works against strong ESG companies. Since the companies with the most to hide are least likely to voluntarily report, some weak ESG companies don't make the coverage list, pulling down the relative rankings of covered companies.

RESEARCH RESULTS

ASSET4 ESG STAND-ALONE PERFORMANCE

To assess the power of ASSET4 ESG data as a stand-alone stock model, we compute information coefficients (ICs) during the 2003 to 2009 period. Information coefficients are defined as Spearman rank correlations of the factor scores with future returns; the ICs measure the degree to which the ESG scores predict the rank order of future returns. Anyone wishing to learn more about the Spearman rank correlation coefficient can see any number of elementary statistics textbooks, including (Kirk, 2007). We assume the ASSET4 ESG scores are available nine months subsequent to calendar year end.

The ICs for the Integrated Rating (overall company score) and four pillar scores are shown in Figure 4 at one, three, six, and twelve month horizons. The Integrated Rating, Environmental, and Social twelve month ICs are in the .05 to .06 range, on par with the efficacy of other long-term quantitative factors we have tested. The ICs are significantly positive and increasing with horizon for every score except Corporate Governance, whose ICs are not statistically different from zero. The signals' increasing strength with time horizon is consistent with the intent of ESG investing: sustainability for long-term returns.
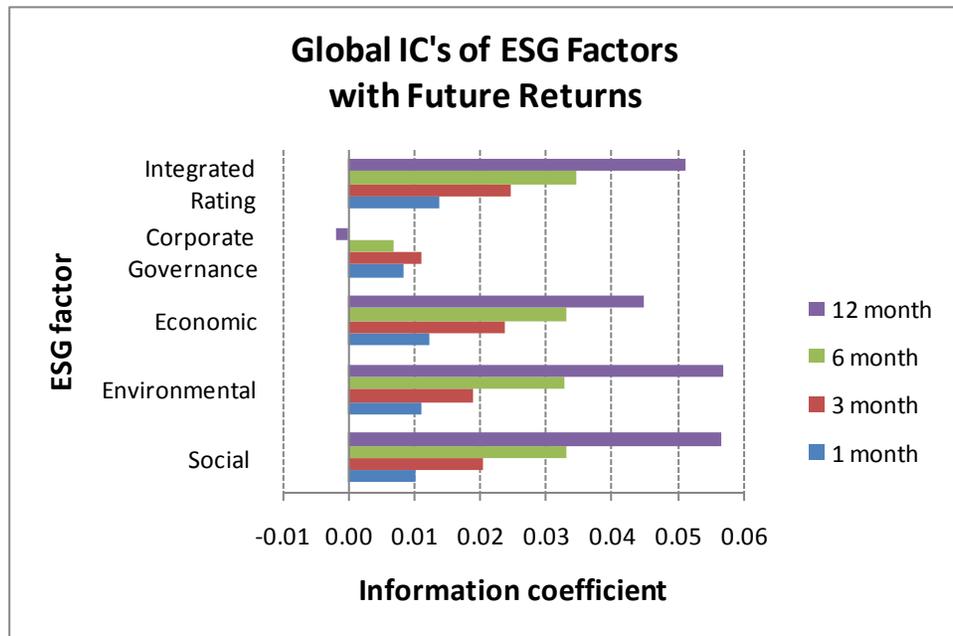

Figure 4: Information coefficients of the ESG Integrated Rating and ESG pillar scores at various return horizons. The power of the ASSET4 Integrated Rating and components increases with the holding period.

COMBINING ASSET4 SIGNALS WITH STARMINE EQ

To observe how ASSET4 ESG data work in conjunction with other stock ranking models, we test the ESG data in combination with StarMine Earnings Quality (EQ), the StarMine stock selection model that is most similar in style to the ASSET4 signal (Gaumer et al., 2009). StarMine EQ ranks companies based on a quantitative assessment of the degree to which their earnings are reliable and likely to persist. StarMine EQ identifies companies that are likely to experience especially high or low earnings sustainability over the subsequent twelve months, based on decompositions of past earnings into sustainable and non-sustainable components. StarMine EQ is also a natural complement because EQ is a low-turnover signal with medium-term to long-term horizon since it is driven by financial statement data. Fundamental managers who use earnings quality are likely interested in the company attributes that ESG data measure. Whereas the ASSET4 ESG data provide a quality factor for the sustainability and quality of business practices, StarMine EQ measures sustainability and quality of earnings.

Simple Linear Combos of ESG and StarMine Factors

For a first experiment we form simple linear combinations of the ASSET4 ESG signal with StarMine EQ and measure correlations with future returns during the 2003-2009 test period. That is, we form the signal

$$p \times StarMine\ EQ\ score + (1 - p) \times ASSET4\ ESG\ score$$

and sweep through the percentage weights p on StarMine EQ.

The results shown in Figure 5 indicate synergies are achieved when the ASSET4 ESG and StarMine EQ signals are combined. On the far left-hand side of the chart, where weight on StarMine EQ equals 0%, we are measuring a signal with 100% weight on ASSET4 ESG score. The 100% StarMine EQ signal is on the right. The ICs for ESG are generally higher (at the left) than the ICs for StarMine EQ over the test period, and the middle hump indicates that the signals work in tandem better than either one alone. The maximum ICs are achieved for a 50/50 mix of EQ/ESG at the one and three month horizons and for a 40/60 mix of EQ and ESG at the six and twelve month horizons. Hence, we have demonstrated a very simple method for fund managers to achieve a better stock picking model using ASSET4 ESG data in combination with StarMine EQ.
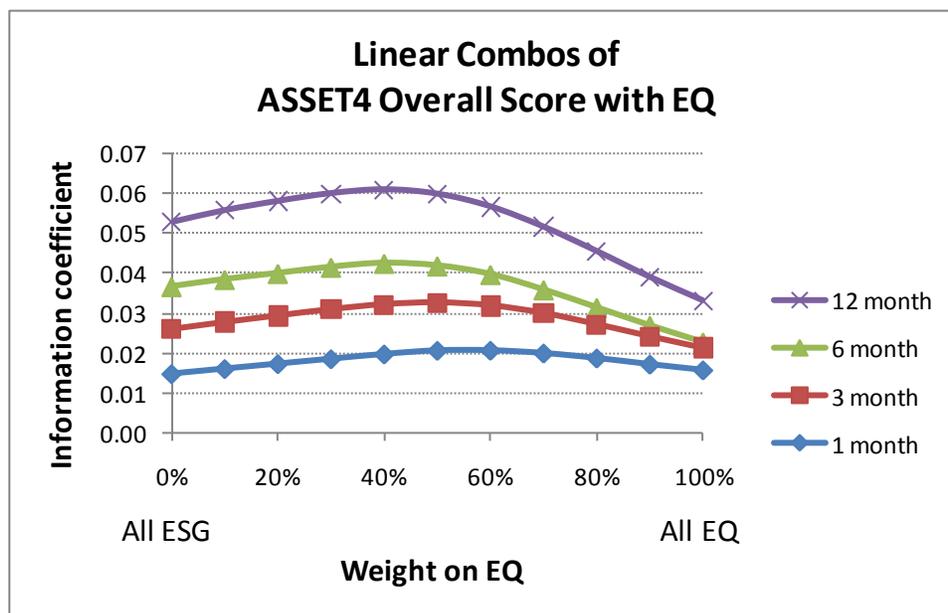

Figure 5: Synergies are achieved when StarMine's EQ signal is combined with the ASSET4 Integrated Rating. A 40/60 to 50/50 mix of StarMine's EQ and ASSET4's Integrated Rating is roughly the optimal blend in a simple linear combination framework.

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Loose screens: Filtering by ESG

We have shown in the previous sections that ASSET4 ESG signals have stock sorting ability on a stand-alone basis and in a multi-factor combination with StarMine EQ. For a second experiment, we evaluate the power of combining the ASSET4 Integrated Rating with StarMine EQ in a loose screening framework. That is, we discard some percentage of the investable universe based on extreme ESG scores and rank the remaining universe based on StarMine EQ score. Here we focus on risk-adjusted returns as our performance metric in order to evaluate the benefit of ASSET4 data as a risk mitigation tool.

In performing loose screens we focus on the ESG data from 2004-08, omitting years 2002-03 for which the company coverage is low. For the long side of the global portfolio, we first discard the bottom $x\%$ of ESG stocks, where x ranges from 0% to 30%. We then select the top n stocks by StarMine EQ score, where $n = 50, 100,$ or 200. We conduct the analogous procedure to form the short side of the portfolio: discard the top $x\%$ of ESG stocks and take the bottom n remaining stocks when ranked by StarMine EQ score. Hence, for $n = 50$ the portfolio consists of 50 long stocks and 50 short stocks chosen by first filtering on ESG score and then ranking by StarMine EQ score.

The risk-adjusted returns we measure are the averages of the long-short monthly portfolio returns divided by the standard deviation of those returns (the Sharpe ratio assuming the risk free rate is zero). Table 1 displays the percentage improvement in risk-adjusted returns over the baseline model where $x = 0\%$, the pure StarMine EQ signal where no stocks are discarded by ESG score. The results clearly show that filtering by ESG scores improves risk-adjusted returns, and this improvement is robust for varying portfolio sizes and up to 30% of the universe discarded by ESG scores. We see similar robustness in improvements of risk-adjusted returns on the long side only, though the raw risk-adjusted returns are smaller than for the spread portfolio. Therefore, we have shown in a second way that using ASSET4 ESG data in combination with StarMine's EQ model can improve portfolio performance.

Table 1: Risk-adjusted returns on a global long-short portfolio when StarMine EQ is first filtered for extreme ESG scores. The top table shows the raw risk-adjusted returns for the long-short portfolio, and the bottom table shows the improvement in the risk-adjusted returns over the baseline model (StarMine EQ alone). The positive improvement in risk-adjusted returns is robust up to 30% across varying portfolio sizes.

		Percent of universe eliminated by ESG score						
		0%	5%	10%	15%	20%	25%	30%
Number of	50	0.669	0.787	0.919	0.830	0.754	0.749	0.746
stocks in long	100	0.772	0.919	0.972	0.998	1.042	0.988	1.053
and short sides	200	0.957	1.054	1.079	1.115	1.182	1.292	1.156

Risk-adjusted returns of long-short portfolio

		Percent of universe eliminated by ESG score						
		0%	5%	10%	15%	20%	25%	30%
Number of	50	0.0%	17.6%	37.4%	24.1%	12.7%	12.0%	11.6%
stocks in long	100	0.0%	19.1%	25.9%	29.3%	35.0%	28.0%	36.5%
and short sides	200	0.0%	10.2%	12.8%	16.6%	23.5%	35.0%	20.8%

Percent improvements in risk-adjusted returns

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CONCLUSIONS

Environmental, social and corporate governance data are being used more frequently in the investment process. From the early stages of Socially Responsible Investing to its current incarnation as ESG investing, long-term investing in companies that "do the right thing" has grown tremendously in assets under management during recent years. We expect the demand for ESG information, reporting, and investment vehicles will continue to grow. To serve this need, ASSET4 has created the largest, most robust, objective and fully-transparent quantitative models of ESG information.

Our research shows that ASSET4's ESG overall score and pillar scores have significant value as stock selection factors with their value generally increasing with the duration of the investment horizon. Again, this is consistent with the theory that the ASSET4 ESG scores represent an overall measure of the quality of a company's business practices, identifying those companies that look beyond the next quarter and manage with an emphasis on creating long-term shareholder value. Moreover, the ASSET4 ESG data improve stock ranking performance when used in linear combination with StarMine EQ. We also find that ASSET4 signals can add value in a loose screening framework when used as a filter for long-short portfolios in conjunction with StarMine EQ.

There are many possibilities for combining ESG signals with orthogonal quant factors. We believe investors with moderate to long-term return horizons who focus on quality-type factors will find particular value in incorporating ASSET4 ESG signals into their strategies. Because of the value-added in collecting company-specific extra-financial information, the quantification of qualitative factors, the breadth of coverage, the transparency of scores at all levels and the demonstrated ability to work as both a stand-alone signal and in conjunction with other stock selection signals, the ASSET4 data are well-suited for incorporating ESG information into the investor's portfolio selection process.

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