



A Quant's Take on ESG

Jon Quigley believes the “men and women in lab coats, thick glasses and hats with propellers” can deliver successful ESG strategies

By Jon Quigley September 17th, 2009

When thinking of a quantitative investment firm, most immediately conjure images of men and women in lab coats, thick glasses and hats with propellers pouring over mountains of accounting and price data in an attempt to discover the causal relationships between these data points and excess stock returns. However, one should remember that “quants” have always reserved a special place for portfolio construction, particularly the essential link between client objectives and portfolio construction.

Unlike some of our esteemed colleagues in the ESG space, AIP was managing traditional equity strategies before a client approached us about customizing a socially responsible strategy which could be benchmarked to the S&P 500 Index®. The strategy would be able to anchor the US LargeCap allocation, rather than fit a smaller ESG niche.

Is there Gold in that Data Mine?

Philip Fisher, considered by many to be the pre-eminent Growth investor (including Warren Buffet, who credits Fisher with being second to Benjamin Graham as an influence), listed “Fifteen Points to Look for in a Common Stock.” Among these:

- > Point 7: Does the company have outstanding labor and personnel relations?
- > Point 8: Does the company have outstanding executive relations?
- > Point 9: Does the company have depth to its management?
- > Point 10: How good are the company's cost analysis and accounting controls?
- > Point 14: Does the management of the company talk freely to investors about its affairs when things are going well but “clam up” when troubles and disappointments occur?
- > Point 15: Does the company have a management of unquestionable integrity? As you can see, several of what Fisher considers important traits can be classified as Social or Governance concerns. Ignoring these characteristics is to miss important information.

However, while ESG data is rapidly improving, the data is very different from the data quants most often examine (price, volume, financial statement data, and macroeconomic data):

- > ESG data is updated with much lower frequency than price, volume, and even financial statement data. ESG data is often updated only on an annual basis.
- > The breadth of ESG data coverage is much narrower. Larger capitalization companies have more robust ESG coverage.
- > ESG data often has less distant history.

Lower frequency, narrower breadth, and less history make robust modeling more difficult. So while the ESG data may lend itself to general conclusions, statistically speaking, one must have substantially

lower confidence in conclusions drawn from a relatively small database (DBSSS = death by small sample size). As the frequency, breadth and depth of the data improves, we believe conclusive sources of alpha will be discovered.

Focus on Risk-Adjusted Returns

Setting the quest for ESG-sourced alpha aside, we turned our focus toward incorporating ESG data via the creation of a more robust portfolio construction process.

Pushing past the restraints of traditional negative screening, we found that ESG data had improved enough to become a more useful quantitative input – as a risk factor. ESG practitioners are well aware of the published research finding companies which rate high in the ESG spectrum are less risky. In fact, our research shows forecasted risk for the stocks of bottom quintile ESG companies is typically 20-30% higher than that of top-quintile ESG companies. The introduction of discrete scoring (rather than simple negative screening) comes with its own issues. ASSET4®'s Equal-Weighted Rating, for instance, derives one quarter of its weight from economic, environmental, social, and governance scores, respectively. However, with AIP's underlying forecasting process including fundamental analysis, our research showed the use of ASSET4®'s economic pillar to be redundant and ineffective. Therefore, we have stripped ASSET4®'s economic score out of their Equal-Weighted Rating and re-blended the three remaining components to better complement our proprietary stock forecasts.

For AIP, building core portfolios necessarily means avoiding systematic biases and focusing instead on pure stock selection as the primary source of active risk. However, our research shows that ESG data tends to be systematically biased. For example, the Services sector ranked lowest in ASSET4®'s equal-weighted scoring of environmental, social, and governance metrics, followed by the Financial sector. Conversely, sectors such as Consumer Staples and Utilities rank highest (see table at right for a full breakdown). In order to maintain the core nature of our sustainable strategies, we have normalized ASSET4®'s ESG scores within each economic sector and we have repeated that process for each industry as well. This enables us to implement a “best-in-class, best-of-breed” approach to SRI, wherein the companies with the best ESG ranks in any sector are favored and those in the bottom quintile of a given sector are avoided. Thus, AIP's sustainable portfolios remove any broad sector bias which might have been introduced via positive ESG scoring.

Implementation via Penalty Function

Once neutralized, ASSET4® scores are passed to the optimizer as a penalty within the optimization function. Instead of the simple binary or subjective screening process used by most SRI managers, AIP



implements an approach akin to positive scoring, wherein companies with higher ESG (or environmental) ratings are favored by the optimizer, and companies with lower rankings are penalized more heavily, ceteris paribus. In addition, we eliminate stocks ranked in the bottom quintile of ESG (or environmental) rating from purchase consideration.

Ensuring the Strategy remains Core LargeCap

We began by incorporating a methodology we'd successfully used in our Tax-Managed strategies: Dual Benchmark Implementation. We include both a primary and secondary benchmark in the optimization function. The Sustainable Responsible LargeCap (SRL) strategy maintains a similar active risk (3.5% to 4.5%) to the S&P 500 Index® as our flagship LargeCap strategy. Additionally, we wanted the SRL strategy to emulate the characteristics of our flagship LargeCap strategy. We accomplished this via the use of the LargeCap model portfolio as a secondary benchmark. Here, we targeted a tracking error versus the LargeCap model of 1.0 – 1.5% (see smaller orbit in PDF of chart, left). This ensured greater consistency of the two strategies. We've used very similar methodology to develop related strategies, such as Environmental and Faith-Based strategies.

ASSET - End 2007 Rankings*	
Consumer Staples	66.6%
Utilities	64.8%
Industrials	62.3%
Materials	61.8%
Technology	53.8%
Health Care	49.8%
Retail	49.1%
Energy	48.8%
Consumer Discretionary	48.7%
Financials	42.9%
Services	39.7%
AVERAGE	51.7%

*ASSET4 normalizes company ratings from 0 to 100, with 50 the median score. Higher scores are more desirable. (Source: ASSET4, AIP Research)

ASSET - End 2007 Rankings*			
	Highest ESG	Lowest ESG	% Difference
2001	24.18%	27.18%	12.4%
2002	26.65%	32.85%	23.3%
2003	21.53%	25.48%	18.3%
2004	19.90%	24.26%	21.9%
2005	19.75%	25.55%	29.3%
2006	19.85%	25.77%	29.8%
2007	19.12%	24.33%	27.2%
2008	22.90%	29.72%	29.8%

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Results

We are now five years into managing ESG strategies, and have indeed delivered a risk-controlled core US LargeCap strategy for our clients, all while ensuring a portfolio which exceeds the S&P 500 Index® weighted ESG score. The strategy has also delivered excess returns.

We expect to continue to evolve our process. As mentioned earlier, we continue to examine the data for causal relationships, and see the data as becoming robust enough to support such discoveries in the years ahead.

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