



## Reducing Portfolio Risk through Sustainable Investing

By Jon Quigley  
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Following the latest environmental disaster in the Gulf of Mexico, the socially responsible investment crowd divided into two camps: those who had held BP in their portfolios and those who now claimed that their environmental, social and governance (ESG) analysis led them to avoid the stock.

Statistically speaking, it is prudent to acknowledge the limits of ESG ratings with respect to predicting individual disasters, while acknowledging the importance of these ratings at the aggregate portfolio level. Due to the [Law of Large Numbers](#), as the number of outcomes increases, the average value settles closer to the expected outcome. Having avoided BP because of ESG concerns may be heralded as a triumph, but it does not necessarily indicate the effectiveness of ESG ratings.

Focusing on a single environmental disaster, moreover, ignores the central benefit of socially responsible investing – that by investing in companies with superior ESG characteristics, portfolios can achieve superior risk-adjusted returns. Rather than extrapolate from the isolated experience of BP, let's instead look to the aggregate evidence to find compelling reasons to incorporate positive ESG scoring in the investment process.

### **Understanding and analyzing environmental, social and governance ratings**

ASSET4 is Swiss company that collects environmental, social and governance data on over 3,000 global companies. I used ASSET4's ESG ratings, which incorporate a wide array of non-financial data:

- Environmental: Resource reduction, emission reduction, product innovation
- Social: Workforce and employment quality, workforce health and safety, workforce training and development, workforce diversity and opportunity, society/human rights, community, and customer/product responsibility
- Governance: Board function, board diversity, compensation policy, vision and strategy, and shareholder rights.



ESG data carry significant sector biases. For example, the technology, consumer staples, and industrial sectors are over-represented among highly rated companies relative to their proportion of the total investment universe, whereas financials and services are significantly under-represented.

Additionally, the ESG data carry significant biases with respect to common risk factor exposure. Companies with high ESG scores tend to have lower beta and far less earnings variability. By contrast, poorly rated companies have lower dividend yield and a higher P/E ratio on average.

Controlling ESG scores for sector biases by rating companies on a sector-by-sector basis is an effective means of correcting for most of the aforementioned biases. I analyzed the risk attributes of these sector-normalized ESG scores.

### **Why environmental, social and governance data are an effective risk indicator**

Companies with poor ESG practices are prone to higher litigation costs, and they are increasingly being forced to answer to activist shareholders. Risks to each respective area include:

- Companies with poor environmental practices may face significant fines for environmental impact or significantly higher future capital expenditures if they are caught off-guard by stringent new environmental regulations.
- Companies with poor social practices, such as questionable human rights practices (either in their direct business or in their supply chain) may suffer impaired demand and client loyalty because of product boycotts.
- Companies with poor governance practices, such as a lack of board diversity, are more likely to suffer mismanagement or fraud.

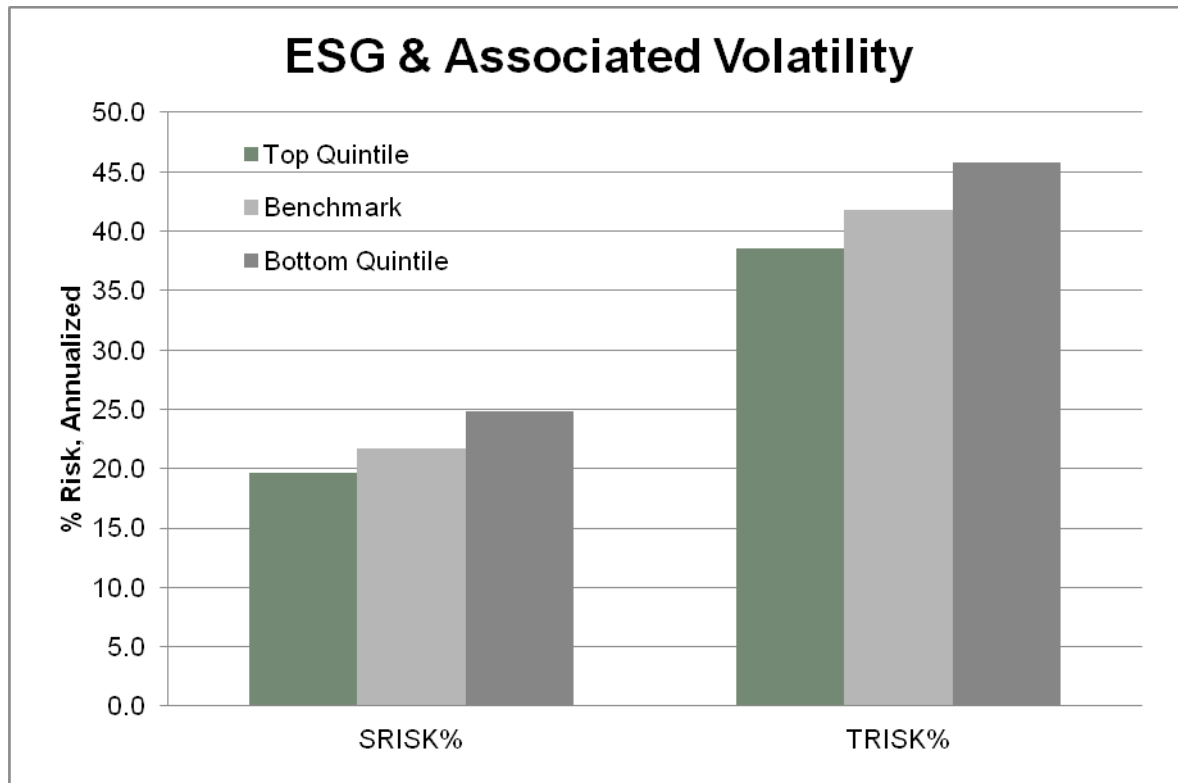
Again, it is difficult to predict with any precision when any of the above might impact any one given company, but each of these represents a real potential risk to business as usual.

### **Environmental, social and governance ratings and stock volatility**

I examined an equal-weighted blend of environmental, social and governance scores for all S&P 500 Index constituents as well as the 500 largest stocks in the Russell 1000 Index. After sorting the universe by sector-normalized ESG scores, I broke the universe into quintiles and examined the volatility characteristics of each group, focusing on the volatility of the highest- and lowest-rated quintiles.

The stocks of companies that have poor environmental, social and governance policies exhibit significantly higher total volatility than the stocks of companies with the best

environmental, social and governance ratings. This was true not only when measuring the average total volatility of the respective groups (TRISK%) but also after eliminating the portion of total volatility caused by common factor risk effects such as beta, P/E ratio, market cap, and earnings variability (SRISK% in the chart below).



**Source:** AIP Research, Asset4, MSCI Barra

### Modern Portfolio Theory and volatility

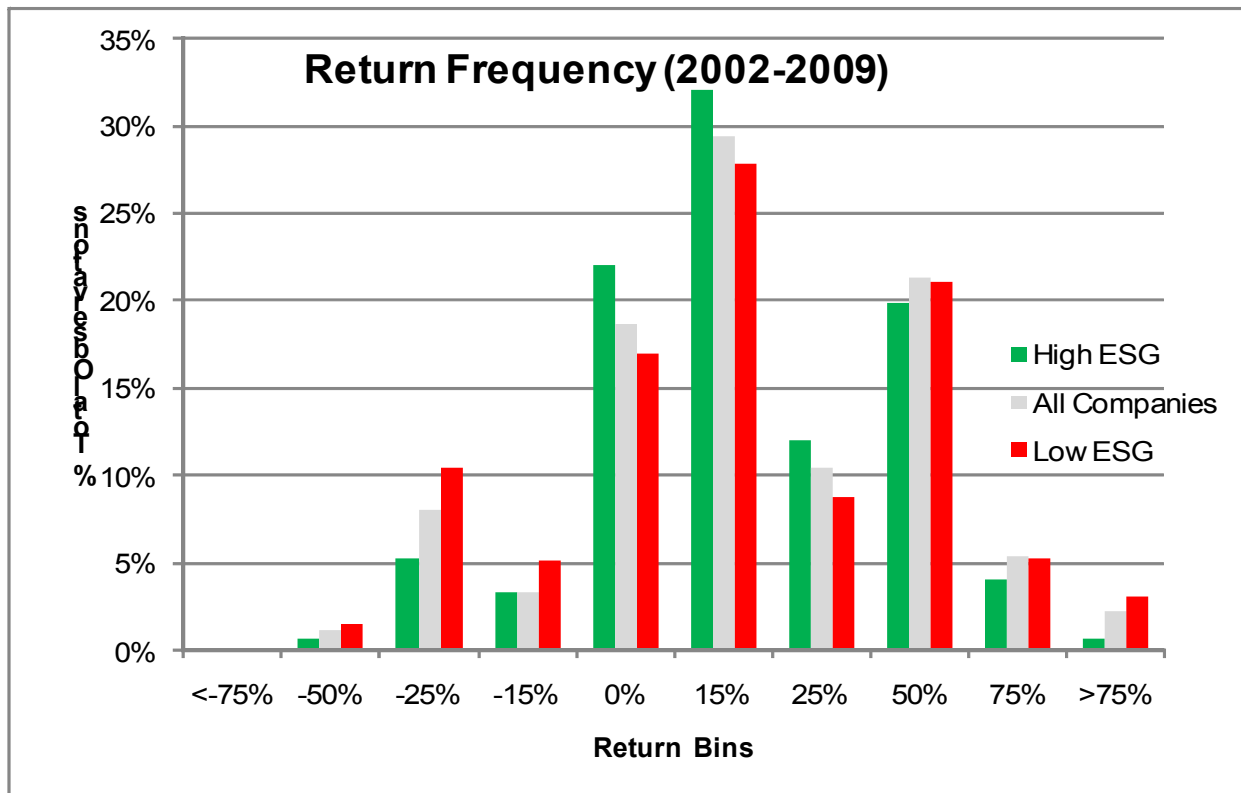
Modern Portfolio Theory (MPT) uses the terms “risk” and volatility (standard deviation of returns) interchangeably. Most investors, however, view risk as the possibility of significant capital loss. In other words, volatility can be higher entirely because of a few large positive observations, but that’s “risk” we’d all welcome!

While the results above show that the stocks of companies with poor ESG policies and practices do indeed exhibit higher volatility, it’s essential to understand the structure and composition of the return distribution. If the distribution of observed returns for stocks of companies with poor ESG policies has a higher incidence of extreme negative outcomes, these stocks should indeed be considered more risky by portfolio theorists and average investors alike.



I sorted all companies in our large-cap investment universe by their sector-normalized ESG score on a yearly basis. Scores were updated each August 31<sup>st</sup>, which is the date by which companies typically have released all extra-financial data for the previous calendar year. We calculated each company's one-year forward relative return (relative to that year's median return, measured from the day the ESG rating is updated) and binned the individual returns. Doing so allowed me to measure the frequency of extreme negative outcomes for the top-rated and lowest-rated companies, respectively.

The results of over 4,000 observations are highlighted below. Stocks of companies with poor ESG policies have a far higher propensity for extremely negative outcomes. In fact, stocks of low-rated companies are nearly twice as likely to have a relative return of -25% or worse when compared with highly rated companies.



**Source: AIP Research, ASSET4**

### Conclusion

There is no foolproof method for predicting the likelihood of a single company's chance of being saddled with an environmental disaster, fraudulent accounting practices, or human rights abuse. That said, by incorporating a broad swath of extra-financial data as a risk factor and tilting a portfolio away from companies with poor ESG policies, we can better reduce that portfolio's risk of extremely negative outcomes.



*Jon Quigley is a managing partner with Advanced Investment Partners, a Florida-based investment management firm specializing in active quantitative U.S. equity strategies. His colleague, Lyn Taylor, assisted in the research for this article.*

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