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INCORPORATING ESG PERFORMANCE IN EQUITY VALUATIONS

By **Nate Hesch** | Associate, Chicago

Environmental, social, and governance ("ESG") investments have seen significant growth over the past two decades. Research has suggested that ESG status has important implications for equity valuations. In this article, we examine several studies that provide the building blocks for analysts who might consider incorporating ESG factors into an equity valuation.

Introduction

Over the past decade, investments in environmental, social, and governance ("ESG") assets have seen explosive growth and are becoming an increasingly substantial portion of the average investment portfolio. The US SIF Foundation reported that portfolios actively using ESG criteria have increased assets under management ("AUM") to over $8 trillion in 2022.[1] Further, according to the Global Sustainable Investment Review, 35.9 percent of total AUM in 2020 could be defined as sustainable investments.[2] Portfolio managers are likely to continue this trend as the economy shifts in response to major ESG risks.

The concepts of corporate social responsibility and socially responsible investing originally became recognizable in the 1970s and continued to gain steam into the 1990s. At the time, these concepts primarily addressed issues such as human and labor rights, pollution, and waste management.

The concept of sustainability became popular in the 2000s. Manufacturing companies have shifted their perspectives from the local effect of their operations to the global effect of their expansive supply chains. Climate change, elevated concerns about natural resource efficiency, and issues of social equity are driving large investments into ESG and green-conscious investing over the past decade.

According to the US SIF Foundation, the top ESG issues as portfolio criteria that money managers reported (in asset-weighted terms) for 2022 were (1) climate change and carbon emissions ($3.45 trillion AUM), (2) avoidance of military weapons ($1.78 trillion AUM), (3) avoidance of tobacco ($1.70 trillion AUM), (4) fossil fuel divestment ($1.23 trillion AUM), and (5) anti-corruption ($1.02 trillion AUM).

In addition to the developing influx of capital subject to ESG screening criteria, some researchers and valuation experts have hypothesized that the green and ESG characteristics of a subject investment have a material effect on the market value of that investment. According to one McKinsey survey, a majority of business leaders and investment professionals attest that ESG programs

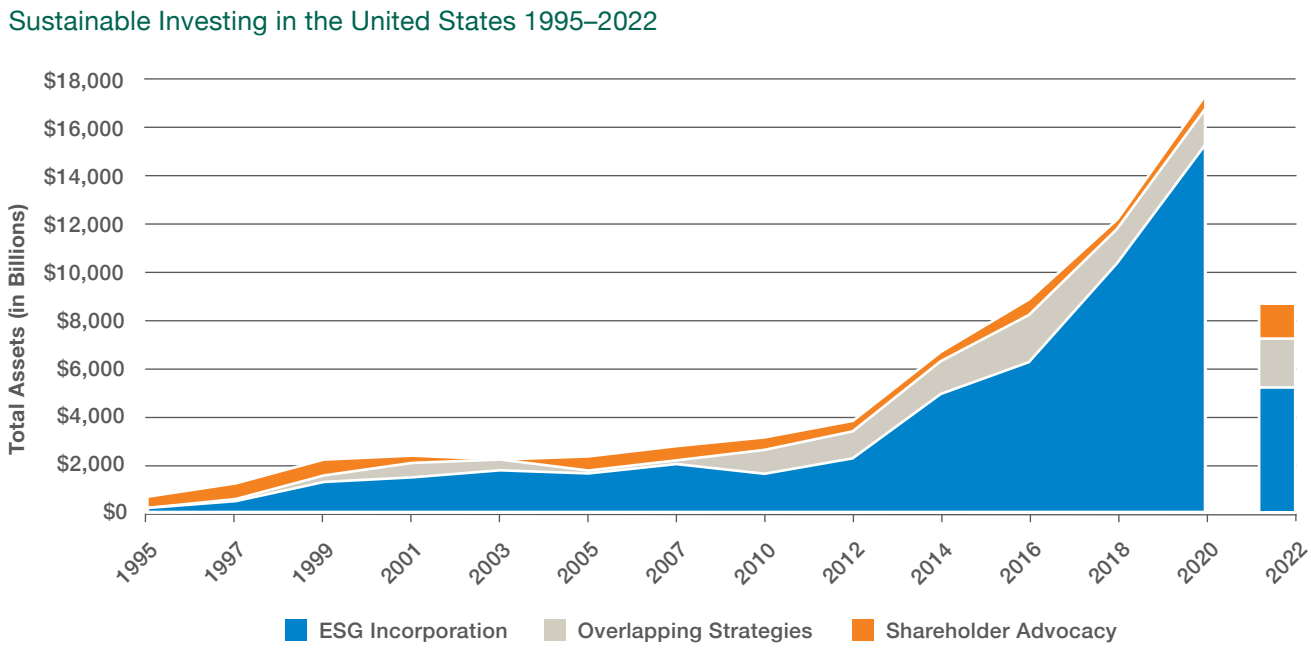

Figure 1: Sustainable investing strategies, including ESG strategies, saw a rapid rise in prominence from 1995 to 2022. Total assets in 2022 appear lower than in 2020 as a result of a change in measuring methodology by the US SIF Foundation.
Source: "Report on U.S. Sustainable and Impact Investing Trends 2022," US SIF Foundation: 2.

within companies create value over the short and long term for their shareholders.[3] One explanation for this perception is that responsible business practices can act as insurance against downside risk.

Further, a study by Bax, Sahin, Czado, and Peterlini published in 2021, summarizes a number of positive consequences that ESG policies may generate for companies that adopt them:[4]

- Decreased reputational, political, and regulatory risk
- Increased customer and employee loyalty
- Fewer adverse operational events
- Improved risk control and exposure
- Lower frequency of litigation
- Favorable loan interest terms and covenants
- Cost reductions from reduced energy use and water intake

In theory, these effects then can lead to favorable financial outcomes for ESG companies and investors:

- Lower volatility of cash flows and profitability
- Protection from unforeseen harmful events
- Better investment performance

For valuation professionals, this hypothesis that ESG policies can lead to positive financial performance poses important questions about whether and how they should integrate adjustments for ESG factors, not only in a company risk assessment, but also directly into their valuation calculations.

What might this development mean for the valuation professional today? Will an ESG analysis ever be considered a common component of a valuation analysis, and, if so, how do we measure the effect?

Defining ESG

The term ESG tends to gloss over much of the complexity that underlies its universe of investments. ESG is closely related to similar concepts such as "impact investments," "green investments," or "sustainable investment products."[5] Defining ESG investments can be a difficult topic due to the subjective nature of the term, conflicting attributes within investments, and the evolution of ESG methodologies over time.

For instance, in the environmental category alone, investments can include equities, debts, and a number of alternative investments. The criteria to qualify what is and is not an environmental investment, however, can be highly subjective and cannot always be agreed upon. Definitions usually agree on renewable energy, carbon credits, clean waste management, and energy-efficient technologies as qualifying investment areas, whereas the environmental effects of nuclear energy and large-scale hydro energy are more controversial.

Some sectors, such as agriculture, information technology ("IT"), and financial services, are more ambiguous. The industries themselves might not be considered ESG-positive, but individual companies might be based on the merits of their individual policies. In IT, for example, digitization has reduced paper waste and business efficiency, but large crypto-mining data centers now consume large amounts of energy and produce significant carbon emissions. An investment in the IT industry does not necessarily constitute an ESG investment.

DEFINING ESG INVESTMENTS CAN BE A DIFFICULT TOPIC DUE TO THE SUBJECTIVE NATURE OF THE TERM.

Subjectivity also comes up when experts cannot agree on the effectiveness or the materiality of specific practices within the ESG framework.

There are many ways that a company can meet ESG criteria, and the varying attributes of the company can send conflicting signals. For example, a company with internal policies that include employee safety, gender equality, and living wages generally will be considered a strongly qualified social ESG investment, but if that same company produces weapons or tobacco products, investors might question the company's net social effect, and money managers might screen the company out of their ESG portfolios.

Lastly, there is a temporal dimension to ESG criteria. As the ESG landscape continues to evolve, qualitative and quantitative criteria have changed over time. In the 1990s, socially conscious investors were concerned with South African apartheid, smog, and ozone pollution. Today, global issues and regulations have evolved, reducing the prevalence of these issues.

New challenges, such as the COVID-19 pandemic and climate change, have come into prominence and highlight the changing ways in which our investments can influence the quality of society.[6]

For a valuation professional, the complexity of these issues can be daunting when trying to determine whether a subject company or investment qualifies as an ESG investment. For this reason, the OECD recommends having an "open and dynamic stance towards definitions and standards." With respect to environmental factors alone, "the science and the general understanding of the environment, climate change, and resource scarcity are evolving as are clean technologies. . . . any green definitions, standards, and codes will therefore need to be adjusted over time."[7] Social and governance issues also evolve over time, and an open and dynamic stance is needed for these categories as well.

ESG ratings systems may offer the flexible and dynamic solution necessary for anyone grappling with changing ESG characteristics. Ratings systems, such as the MSCI ESG Score, Refinitiv ASSET4 database, and the VIGEO-EIRIS dataset (Moody's), among others, break down the E, S, and G categories into subcriteria and have extensive data they rely on to create aggregate scores for public equities. These scores ultimately attempt to indicate a level of ESG performance and apply an objective measurement, much like credit ratings aggregate multiple complex features of a debt issuer into a simplified rating score.

Each ratings system publishes its methodology for the more scrutinous analysts. Figure 2 presents the MSCI ESG Score criteria applied to the soft drinks subindustry.

While the ESG ratings systems may not adhere to every individual investor's personal priorities and values (e.g., a vegan will not find any criteria related to animal welfare among the MSCI key issues[8]), valuation professionals can refer to intrasystem ratings to (1) place investments within a common measurement system and (2) provide consistent sets of criteria and scoring methodologies for ESG measurements. Experienced professionals develop the ratings systems to provide objective measurements of ESG and, in doing so, reduce subjective conflicts between criteria.

In addition, the scoring criteria are updated over time as ESG risks and opportunities evolve. Scoring methodologies have changed dramatically since

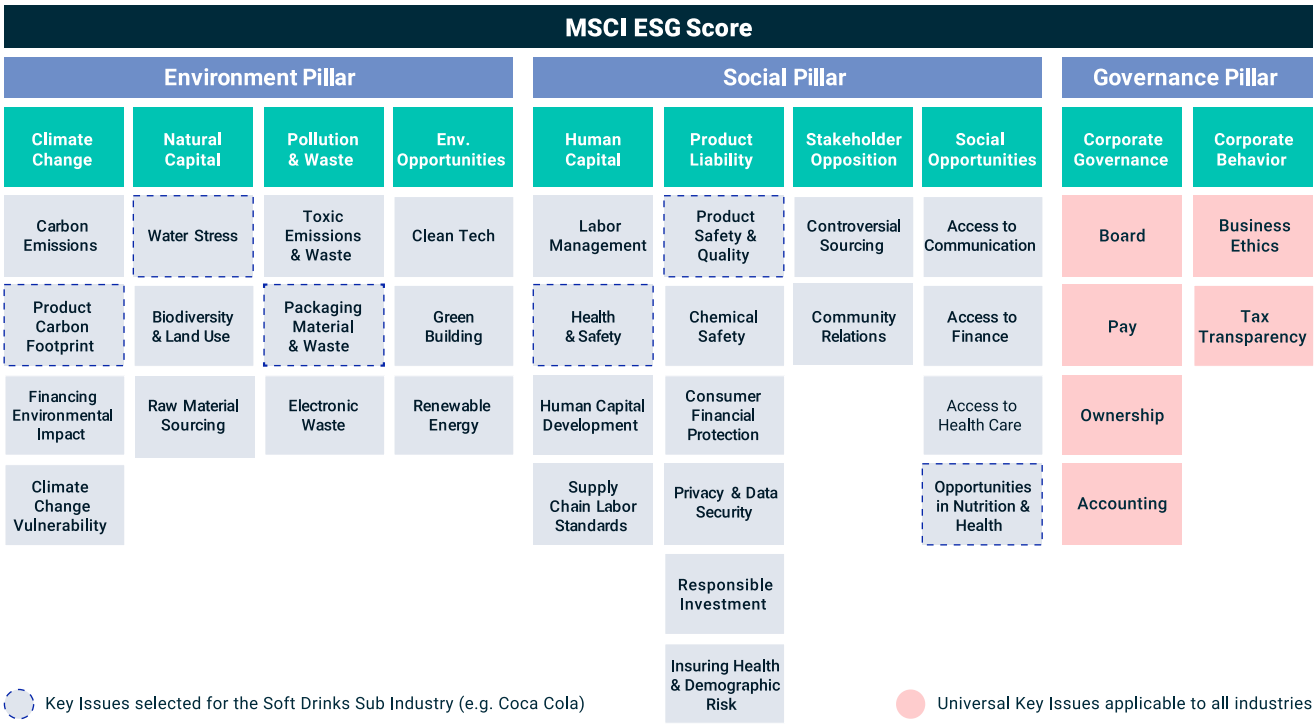

Figure 2: The MSCI ESG Scoring system for the Soft Drinks subindustry lists 35 issues and 6 key issues it relies on to derive an ESG score ranging from AAA (best) to CCC (worst).
Source: https://www.msci.com/our-solutions/esg-investing/esg-ratings/esg-ratings-key-issue-framework

the 1990s as more data becomes available and companies increasingly publish annual sustainability reports.

For valuations of privately held companies, a valuation analyst may be able to wholly reconstruct the ESG score for a subject company based on published methodologies. Alternatively, and perhaps far more simply, the analyst can create comparisons between guideline companies' ESG scores and make adjustments based on specific key issues for a subject company to determine an estimated ESG score. For instance, an analyst can evaluate a soft drink company based on available information to see how it compares with Coca Cola on the six "Key Issues" listed in Figure 2 and derive an adjusted score accordingly.

To return briefly to the measures of ESG market capitalization discussed earlier, it is important to recognize that different ESG ratings or screening criteria can result in widely disparate measures of the total market capitalization of ESG investments. Each marginal ESG screen applied to a list of companies will create a smaller subset of qualifying investments. Therefore, statistics claiming a certain market cap of ESG investments should be taken with a grain of salt, as even minor filtering considerations can have a large effect on market cap measures.

ESG Performance

Once an analyst is comfortable with determining the subject ESG score, it is then necessary to understand how ESG factors affect the value of ESG investments relative to non-ESG investments. To explore this, we can turn to theoretical explanations and experimental studies that attempt to illustrate the differences between ESG and non-ESG investments.

Implications in Portfolio Theory: The ESG-Efficient Frontier

In 2020, Pedersen, Fitzgibbons, and Pomorski theorized that questions about risk, return, and ESG can be reduced to two variables using an ESG-efficient frontier model: the Sharpe ratio (return/risk) and ESG performance.[9] This model is related to the efficient

frontier in modern portfolio theory, which is a method to calculate an optimal portfolio with the highest expected return for a defined level of risk.

The authors then conceptualize three types of investors to explore their model: type-U, investors who are unaware of ESG factors when determining their optimal portfolio; type-A, investors who are aware of ESG factors and use the information in their portfolio selection; and type-M, investors who are motivated by ESG factors and have a preference for high ESG scores, even if this may require a trade-off of financial performance.

Based on this conceptualization, the authors demonstrate that type-A investors using ESG information will identify an increased optimal Sharpe ratio relative to type-U investors who do not use ESG information, as demonstrated in Figure 3. Consistent with the efficient frontier theory, the incorporation of new information (e.g., ESG information) provides the type-A portfolio manager with a greater understanding of investments and their return factors, allowing them to further optimize their portfolio Sharpe ratio. Another study by Pollard, Sherwood, and Klobus, published in 2018, appears to provide empirical evidence for this effect. Portfolios that incorporated ESG information were able to generate higher returns with lower risk profiles.[10]

The theorization also suggests that type-M investors who prioritize high ESG ratings (even at the expense of a favorable risk and return profile) will identify an optimal portfolio with a lower Sharpe ratio relative to type-A investors who solely seek a maximized Sharpe ratio. With 35.9 percent of total global assets under management considering ESG factors,[11] it is fair to say that market-leading investors today are somewhere between ESG-aware and ESG-motivated.

The theory concludes that regardless of whether ESG investments have higher financial performance, type-M investors increase demand for them, resulting in higher prices and a lower required return or cost of capital. That is, regardless of any discussion around whether specific ESG policies at individual companies actually help provide financial benefits or manage downside risk from environmental and social risk events, overall demand from type-M investors alone drives less expensive financing and pushes market prices higher for highly rated ESG investments.

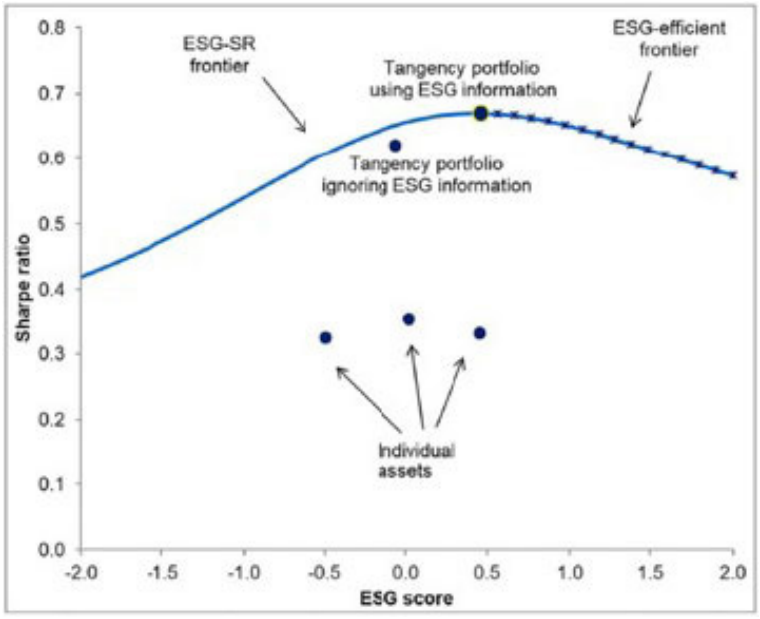

Figure 3: The Relationship between the Sharpe Ratios and ESG Scores of Diversified Portfolios Creates an "ESG-Efficient Frontier."
Source: Pedersen, Fitzgibbons, and Pomorski, "Responsible Investing: The ESG-Efficient Frontier," *Journal of Financial Economics,* 142, No. 2 (November 2021): 574.

A lower cost of capital for ESG investments could have important implications for valuation professionals using income approach valuation models. All things being equal, companies with lower costs of capital will have higher valuations. Based on the Pedersen et al. study conclusions, if companies have higher ESG scores, and therefore lower costs of capital, we can expect a higher valuation relative to an otherwise similar company with a low ESG score.

The paper ends with empirical evidence looking at E, S, and G categories individually based on proxy measures.

The authors found that higher scores in the governance categories predict higher returns on net operating assets, while environmental and social factors had no predictive power in the same metric. Additionally, higher governance factors predicted higher gross profitability, while environmental and social factors again had no predictive power.

Among the ESG factors, high governance factors, uniquely, have "historically offered ESG investors guiltless saintliness, perhaps because good G predicts strong future fundamentals, while attracting modest investor demand, leading to relatively cheap valuations and positive returns."[12]

Higher scores in E, S, and G factors together predicted higher demand for investments from institutional investors. Also, the authors found that investments with high environmental, social, and total ESG factors predict higher valuations and lower returns than investments with high governance factors.

The Pederson et al. study provides important nuance to the analysis of ESG investments and the interplay between E, S, and G factors individually. The most important takeaway for valuation professionals is the theoretical basis that suggests ESG investments will see higher relative valuations and lower relative costs of capital. Simply put, investors are willing to pay a premium in value for returns from high-scoring ESG investments.

Establishing ESG as Risk Premia

The Pollard et al. study looked at the relationship between an ESG-related cost of capital risk premium and several other established risk premia (size risk, value risk, profitability risk, investment risk, and market risk).[13]

Overall, the authors found no statistically significant correlations between the ESG risk premium and the other established risk premia. In other words, value risk, for instance, did not reflect the same underlying risk characteristics as ESG factors reflected. This study finding indicates that ESG ratings can generate a meaningful premium or discount to a company's calculated cost of capital, independent from other variables commonly used by valuation analysts.

Pollard et al. provided an important insight into ESG risk. The study affirms that an ESG premium can be appropriately applied to a valuation analyst's cost of capital calculations if the analyst is able to develop an appropriate measure of the magnitude of ESG ratings' effect on a company's cost of capital.

Figure 4: The cost of capital of companies in the MSCI World Index appear to have a negative relationship with the companies' ESG scores.
Source: Lodh, "ESG and the Cost of Capital," (February 25, 2020).
https://www.msci.com/www/blog-posts/esg-and-the-cost-of-capital/01726513589

ESG and the Cost of Capital

In 2020, Ashish Lodh, a vice president at MSCI Research, published a blog post that examined the relationship between MSCI ESG scores of companies included in the MSCI World Index and the cost of capital of those individual companies.[14] The post demonstrated that there is a negative correlation between ESG scores and the cost of capital in both the cost of equity and the cost of debt. Furthermore, the dataset that Lodh relied on showed a nearly 0.4-percentage-point difference in the costs of capital between companies with ESG scores in the lowest quintile and companies with ESG scores in the highest quintile.

Lodh's analysis may provide a starting point for valuation analysts who wish to apply a premium or discount to a subject company's cost of capital based on ESG factors.

Interestingly, Lodh's blog post also shows that there were small variations in the ESG costs of capital quintiles when looking at different international regions.

ESG, Risk, and Tail Dependence

Finally, Bax et al. looked at how ESG company performance changes during different ESG risk scenarios over time.[15] Further, the authors try to develop an understanding of the correlations between similarly ESG-rated assets across these time periods.

The study looked at ESG risk during the periods of 2006–2010, 2011–2015, and 2016–2018. The authors considered the first period to be an ESG "crisis" period due to the 2008 financial crisis, whereas the latter two periods were considered "calm" periods.

The study found that the magnitude of ESG risk was higher in times of crisis, or the 2006-2010 period.

In addition, that risk magnitude is exacerbated in both the "A" (companies ranked in the top quartile for ESG scores) and "D" (companies ranked in the bottom quartile for ESG scores) ESG classes. Companies in the "B" and "C" ESG classes did not experience this effect.

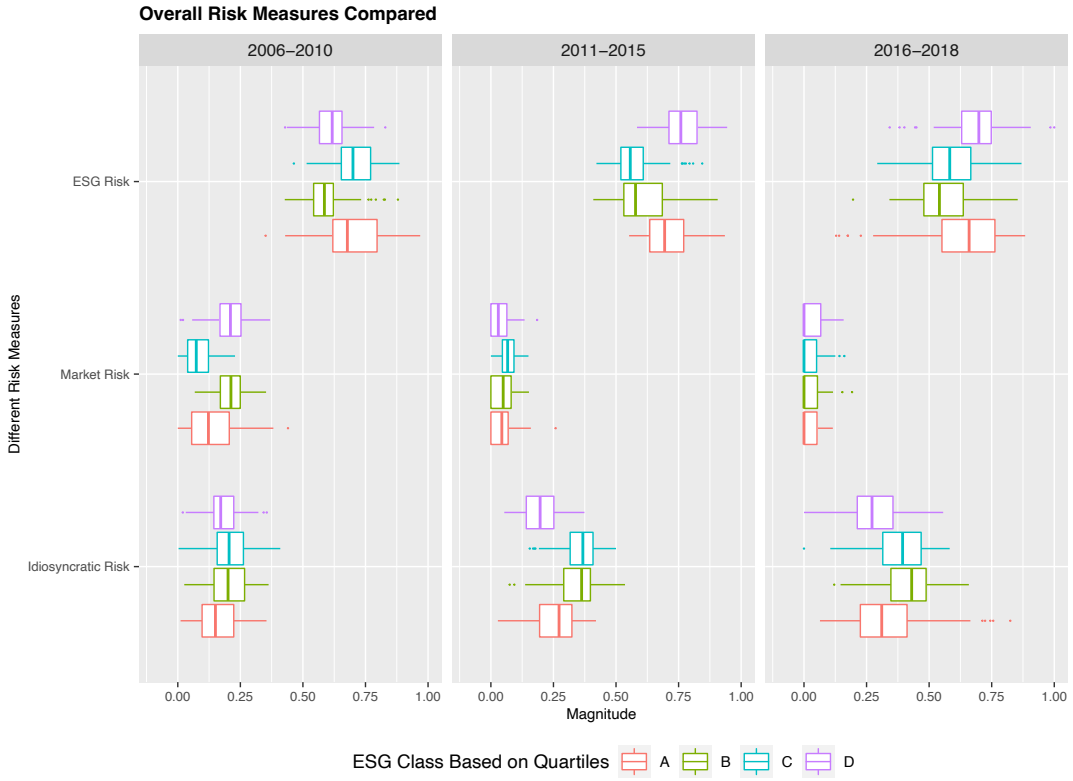

Figure 5: ESG risk materializes with different magnitudes in times of "crisis" (2006-2010) and "calm" (2011-2018).
Source: Bax, Sahin, Czado, and Paterlini, "ESG, Risk, and (Tail) Dependence," (2021): 15.

Stated another way, there is a nonlinear relationship between ESG classes and ESG risk.

The authors note that this higher risk in class "A" investments may be due to "high investment volume and popularity from investors [investing in ESG class "A"] who wrongly believe that ESG performance can make them resilient in times of crisis." They continue, "these findings are in line with Demers et al. (2021) who argue that ESG scores did not immunize stocks during the COVID-19 crisis and did, therefore, not protect the investors from unexpected losses."[16]

Conclusion

ESG risk and return is a rich area of study and continues to develop as investor demand and ESG scoring criteria continue to mature.

While Lodh's analysis provides a compelling confirmation of the theory that there is a consistent correlation between ESG and the cost of capital, and seemingly presents a measurement of the effect of this correlation, Lodh does not provide a clear roadmap for valuation analysts to apply these findings to a subject valuation.

For instance, based on the 0.4-percentage-point spread determined in Lodh's blog post, analysts may be tempted to conclude that a negative 0.2-percentage-point adjustment to the cost of capital for a company that would have a high ESG score, or, alternatively, a 0.2-percentage-point adjustment to the cost of capital for a company that would have a low ESG score.

However, the reality of ESG risk is more complex than that. First, the findings from Bax et al. demonstrate that a linear application of an ESG premium is not appropriate. Additionally, factors such as (1) changing investor demand over time, (2) whether an asset specializes in E, S, or G factors, (3) the international region of an asset, and (4) cyclical macroeconomic conditions have complicating interactions with any measures of an ESG risk premium or discount. For valuation analysts, discerning whether it is appropriate to apply a risk premium or discount based on ESG factors requires a thoughtful understanding of these issues and how the subject entity might score on ESG criteria.

Analyst resources and databases that measure risk premium factors, such as the Kroll Cost of Capital Navigator or Bloomberg, provide empirical measurements of historical premia, such as size risk and industry risk. These resources use complex regression models and massive amounts of financial data to compute the summary data that analysts rely on. It is conceivable that these resources may develop models that consider ESG risk and calculate ESG premium measurements in their reference tools in the future. Such measurements would help provide clarity and confidence to analysts regarding the application of ESG premiums or discounts in valuation analyses.

About the Author

Nate Hesch is an associate in our Chicago practice office. Nate can be reached at (773) 399-4312 or at nmhesch@willamette.com

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