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The Unreasonable Attractiveness of More ESG Data

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PanAgora

PanAgora Asset Management is a quantitative investment manager whose proprietary approach is designed to capitalize on inefficiencies across market cycles and to deliver relative and absolute returns through distinct and innovative Equity, Multi Asset and Risk Premia strategies. PanAgora's approach combines the firm's fundamental investment philosophy and original research with an advanced quantitative framework. These elements come together in an open, collaborative environment that builds upon the intellectual versatility of its team and leverages their complementary strengths — essential to serving the evolving objectives of institutional investors worldwide.

PanAgora was founded in 1989 and is based in Boston, MA. Shareholders include the Firm's employees and Great-West Life of Canada, a member of the Power Financial Corporation Group of Companies.

Mike Chen, Ph.D., Director, Head of Sustainable Investments

Dr. Chen is the Head of Sustainable Investments for PanAgora Asset Management. In this role he is responsible for leading the development of PanAgora's sustainability strategies, including ESG alpha research, portfolio management of dedicated sustainable investment strategies, and model and product development. He is also responsible for novel ML alpha research and model development in the Dynamic team and across the wider Equity group, and daily management of firm's Dynamic portfolios. Dr. Chen's research interests are in the areas of ESG, machine learning, and alternative datasets. In this capacity, Dr. Chen developed a novel ESG portfolio construction framework for which patent has been filed. Previously, he was a portfolio manager at PanAgora's Stock Selector team.

Prior to joining PanAgora, Dr. Chen was a Portfolio Manager at BlackRock's Scientific Active Equity (SAE) team, where his responsibilities include portfolio management and research into alpha insights for use across the entire SAE platform. While at SAE, Dr. Chen won "Signal of the Year" award for an alternative data signal he researched and developed. Prior to BlackRock, Dr. Chen worked at Google where he was a member of the team that managed Google's fixed income investment portfolio. Dr. Chen started his career at Morgan Stanley in New York where he traded exotic US rates derivatives. While at Morgan Stanley, Dr. Chen researched, developed and patented a framework that allowed for pricing of derivatives based on two rate curves with dynamic multiplicative spread, one of the first such models on the street.

Dr. Chen graduated from the University of Illinois in 2005 with a Ph.D. in Electrical and Computer Engineering and has 16 years of financial industry experience. He has published in leading engineering, applied mathematics, and finance practitioner journals, and had been invited to talk at numerous academic and industry conferences, and media outlets.

George D. Mussalli, CFA, Managing Director & Chief Investment Officer, Equity Investments

Mr. Mussalli is Managing Director, Head of Equity Research, and Chief Investment Officer of Equity Investments at PanAgora. He is responsible for the oversight of the firm's Dynamic and Stock Selector Equity strategies, as well as the Equity Trading & Implementation, Data Science, and Portfolio Strategy teams. He is also a member of the firm's Investment, Operating, Risk, and Directors' Committees.

As the Chief Investment Officer of Equity Investments, Mr. Mussalli directs innovative equity research used in the development of models implemented in PanAgora's equity strategies. Mr. Mussalli's current focus is centered on combining fundamental and quant investing using big data. As a leader in the field, he was appointed to the Editorial Board for The Journal of Financial Data Science as well as the AI and Data Science in Trading Advisory Board.

Prior to becoming Managing Director and Chief Investment Officer of Equity Investments, Mr. Mussalli served as Head of PanAgora's Stock Selector strategies. His work focuses on combining fundamental insights with sophisticated quantitative techniques to develop proprietary models designed to analyze companies across many dimensions. In addition to overseeing the management of the firm's Stock Selector strategies, he has significantly contributed to the proprietary pool of equity research leveraged across the entire firm during his tenure.

Before joining PanAgora, he was a Portfolio Manager on the Putnam Investments Structured Equity team, where he was responsible for Structured Equity portfolios. He contributed to quantitative research and analysis that supported all equity strategies, including International and Global strategies.

Prior to joining Putnam, Mr. Mussalli worked as a Senior Investment Analyst at John Hancock Funds.

Robert von Behren, Member of the Climate and Energy Group at Google Research

Mr von Behren is a Member of the Climate and Energy Group at Google Research. Part of his work for Google Research is working on using numeric simulations to study ways of mitigating climate change impacts. Rob has previously collaborated on finance projects with Google's Treasury group, and was a co-founder of Google Wallet.

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KEY FINDINGS

- The current state of ESG data is severely deficient. To get around ESG data challenges, people have come to rely on commercial ESG raters. However, commercial ESG ratings also exhibit various biases. The bias documented in this article is termed the *quantity bias*.
- The authors found this bias to be statistically significant; not only does it lead to higher commercial ESG ratings, but more importantly for corporations, it leads to lower cost of funding.
- The implication of this bias is twofold. For corporations, publishing more ESG data helps the bottom line. For investors, one must carefully examine what the ESG data say about the company's sustainability practices, rather than performing a simple box-ticking exercise.

ABSTRACT

Sustainable investing is of tremendous interest in both academia and the investment industry. However, despite the interest and the surge in assets under management (AUM) inflow, environment, social, and governance (ESG) data currently remain a fundamental challenge because they are deficient in quantity, consistency, and quality. In light of this data challenge, many investors and academics have come to rely on commercial ESG raters to assess the ESG quality of various corporations. However, the commercial ESG ratings still suffer some notable biases. This article documents one possible bias, termed *quantity bias*. The authors find that the amount of ESG data available for a given company is positively correlated with the commercial ESG rating of that company and the weighted average cost of its capital. The implication for investors is that they should do their homework and examine what the ESG data actually say rather than simply check the box. For corporations, it implies that they will get favorable treatment in the capital market if they publish more ESG data.

TOPICS

ESG investing, information providers/credit ratings, performance measurement*

*All articles are now categorized by topics and subtopics. **View at PM-Research.com**.

Sustainable investing[1] is all the rage in the investing world. According to the Forum for Sustainable Investing (US SIF), in the United States, $17 trillion of assets under management (AUM) are invested according to environment,

[1] Also called ESG, socially responsible investing, impact, thematic, and so on.

social, and governance (ESG) criteria, a 42% growth from the AUM disclosed in the US SIF's 2018 report.[2] Outside of the United States, the United Nations Principles for Responsible Investment (UNPRI) reports that its signatory has a combined AUM of $103 trillion as of March 31, 2020, growing 20% from the level in 2019.[3] Part of the reason for this has to do with generational change: Surveys show that Generation X and millennial investors overwhelmingly favor investments that have a social component (as long as returns are comparable) over those that do not.[4] Along with investor preference, the global economy has also undergone a tremendous change; in a mere generation, the proportion of intangible assets in the US stock market capitalization has gone from a small percentage to an overwhelming majority, as shown in Exhibit 1.

Over the past 40 years, the capital market and the global economy have changed dramatically, going from companies that are mostly making widgets to those creating ideas, communicating information, and making financial decisions.

For the most part, a large portion of the market cap of the biggest companies today can be attributed to their brand, the intellectual properties their employees create, how their various stakeholders view them, whether the corporate strategic decision to go after certain markets was the correct one, and so on. This information might be disclosed in the narrative sections of financial reports, but it is not recognized in financial statements. In particular, accounting rules do not allow capitalization of research and development investments to create these intangible assets (other than in mergers and acquisitions contexts); instead, they are expensed. Because ESG considerations can often provide insights into how a corporation generates intangible assets,[5] it has become important, not just due to asset owner preference but also because it is part of the investment process in and of itself. This confluence of factors has resulted in the explosive growth of ESG assets in recent years.

Exhibit 2 shows some a global ESG AUM breakdown by active and passive strategies. From the exhibit, we see that active funds dominate the ESG landscape, but passive funds are at a nonnegligible 23% of AUM, and their fraction grew by 10% over the past three years. For more than two years, net inflows into ESG funds annualize at close to 20%. Exhibit 2 illustrates the global monthly AUM by active and passive strategies, and Exhibit 3 shows the ESG fund flow versus the broader market.

The tremendous amount of ESG AUM growth, and the fact that this is a relatively new investment field, naturally brings challenges for professional asset managers. The biggest challenge they face in ESG investing is data (see Kotsantonis and Serafeim 2019 for more information about these challenges). ESG data, compared to other financial data, are deficient in the following areas:

- **Quantity:** Compared to the usual financial statement–based data, such as inventory and accounts receivable, the amount of publicly available ESG data is relatively low.
- **Consistency:** Those ESG data that are available are often not directly comparable across companies. For example, certain companies may publish data on employee benefits, whereas others may publish data on employee absentee rate. It is rare to find an ESG data category that is disclosed uniformly across a reasonably large investment universe such as the S&P 500.

[2] See: US SIF Trends Report 2020: https://www.ussif.org/files/US%20SIF%20Trends%20Report%202020%20Executive%20Summary.pdf.

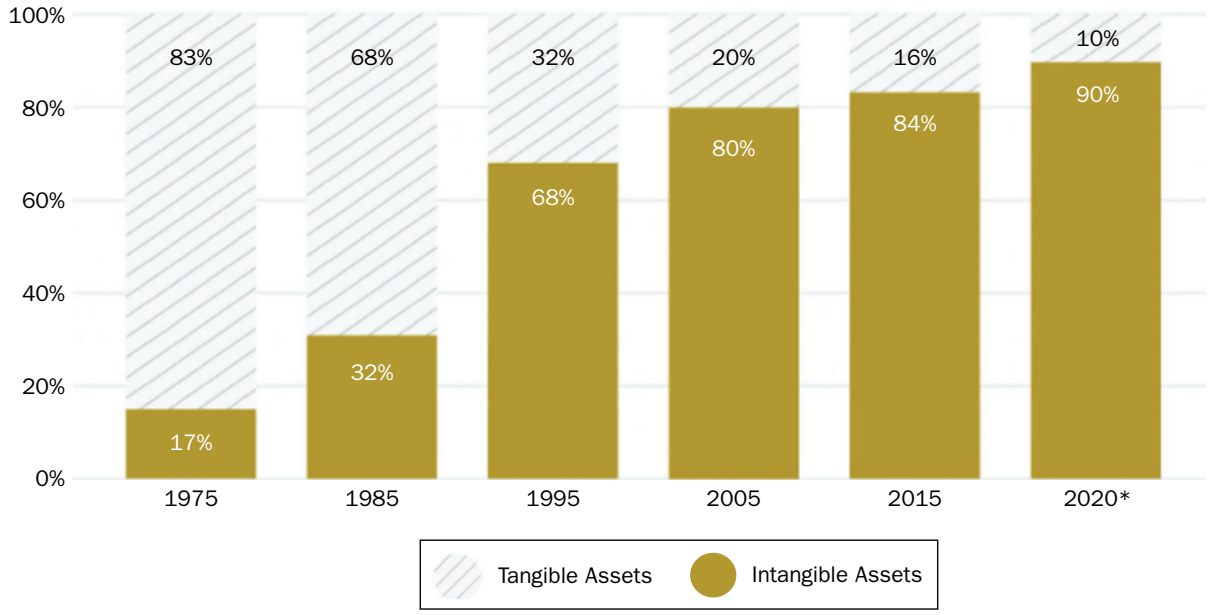
[3] See UNPRI 2020 annual report: https://www.unpri.org/annual-report-2020/how-we-work/building-our-effectiveness/enhance-our-global-footprint.

[4] See, for example, Holger (2019).

[5] For example, a happier workforce will tend to be more productive and produce higher-quality work, which ultimately leads to an increase in corporate valuation. For more examples of how ESG considerations can provide insight into the ability to create intangible assets, see the literature on materiality (i.e., the linkage between ESG considerations and corporate financial performance). Examples of this literature include work by Khan, Serafeim, and Yoon (2016) and Amel-Zadeh and Serafeim (2018).

EXHIBIT 1

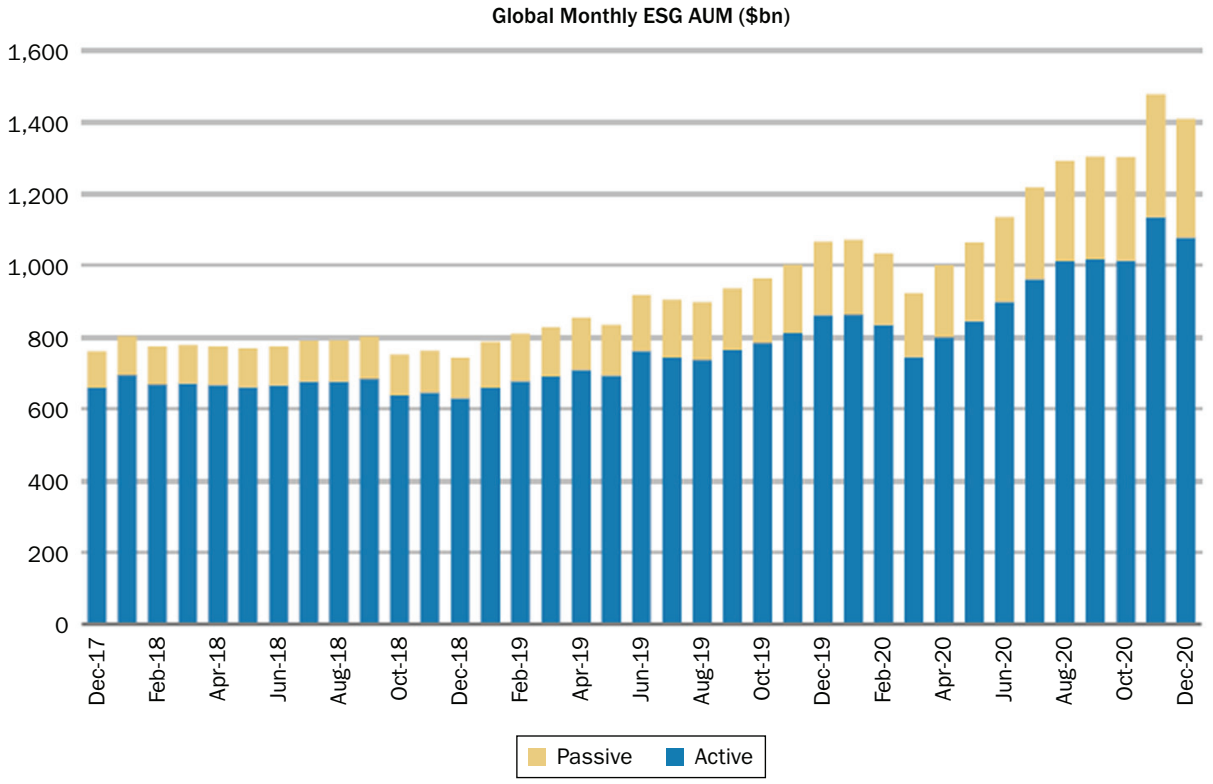
Components of S&P 500 Market Value



SOURCE: Ocean Tomo (https://www.oceantomo.com/intangible-asset-market-value-study/).

EXHIBIT 2

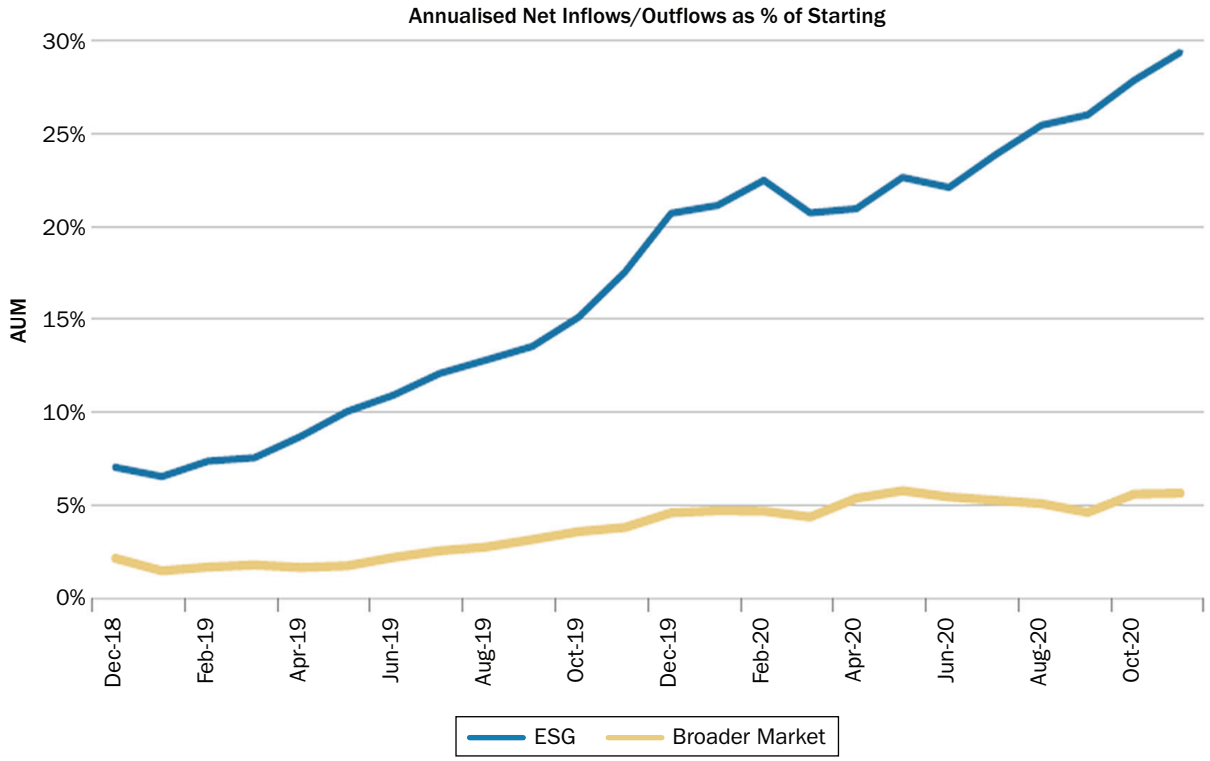
Global ESG AUM by Active/Passive



SOURCE: Morgan Stanley 2021.

EXHIBIT 3

Flows into ESG funds versus Broader Market



SOURCE: Morgan Stanley 2021.

- **Quality:** There are no global or national standards when it comes to ESG data like there are for accounting (e.g., generally accepted accounting principles). ESG data, even when they are published, may be derived from a variety of methods across different companies, even for the same ESG data category.

In light of this data challenge, many investors have turned to commercial ESG ratings from companies such as MSCI ESG Research and Sustainalytics to help them navigate the ESG data maze. Indeed, a recent report from MSCI shows that, as of early 2021, there are $106 billion of AUM following indexes based on MSCI ESG ratings for public-facing AUM. In addition, these commercial ESG ratings have significant influence in US mutual funds (see, e.g., Hartzmark and Sussman 2019) and private wealth asset allocations (see Amel-Zadeh, Lustermans, and Pieterse-Bloem 2020). However, even commercial ESG rating firms that devote substantial resources to collecting and analyzing their data can exhibit behavioral bias (for more information on behavioral bias in finance, see Hirschleifer 2001). In this article, we document a potential behavioral bias, for both ESG rating companies and the general investment community, related to ESG data and its implications for corporations publishing ESG data. Namely, we find that

1. the more ESG data for a given company that are available in the public domain, the higher the MSCI ESG rating tends to be for that company; and
2. the more ESG data for a given company that are available in the public domain, the lower the cost of funding tends to be for that company, which implies a higher equity value following the discounted cash flow valuation framework.

From a behavioral perspective, one possible explanation for these effects is what we term the *quantity bias* (for another example of use of the term, see Torras and Surie 2015). When a company does not disclose a large amount of ESG information, analysts and investors may presume that it has something to hide. Hence, these companies are given lower scores/smaller investment allocations than they would receive if they had disclosed more ESG metrics. Conversely, a company that discloses more than the average amount of ESG information may be perceived as having a good ESG rating, even if most of the ESG data disclosed do not rank among the top of the distribution.

An alternative explanation for these effects may be due to ratings methodology and how investors evaluate the ESG-ness of a company. For many ESG metrics, ratings providers and investors simply check whether a company follows a particular practice, such as having a stated human rights policy. When evaluating an ESG metric based on whether a policy is in place, this investigation becomes more of a box-ticking exercise. Given that most ESG scores are a mix of quantitative and qualitative assessment, simply disclosing more information ensures that the data item is scored, which leads to higher ESG scores and investment inflows.

In this article, we document a positive correlation between the amount of ESG data available and ESG ratings and, more importantly for companies, the negative correlation between the amount of ESG data and the cost for funding it. The ESG data we used in this study come from many sources, both from the company itself and from third-party sources, such as nongovernmental organizations (NGOs). From a corporation's perspective, a company has direct control over how much ESG data it puts out to the public and somewhat indirect control over the amount of ESG data an NGO or third-party data provider can obtain and publish. Of course, a company could publish more ESG data because it has more good things to report. However, because ESG data collection and dissemination have a cost, companies that publish fewer ESG data may simply have fewer resources and be unwilling to pay for this data disclosure.

Our article is related to research published by De Silanes, McCahery, and Pudschedl (2019), who found that firms with good ESG scores simply disclose more information. This article also contributes to the general stream of behavioral finance, in which we document a quantity bias associated with the amount of information available and analyst/market perception.

In this article, we will review the data, methodology, and the results obtained from our research. We will also illustrate the implication of this finding for firms, ESG rating providers, and the capital market.

DATA

The ESG data used in this research are collected from Bloomberg. Bloomberg collects its ESG data from publicly available sources such as companies' investor relations websites, from NGOs such as CDP, and other publicly available ESG data sources. (This information is available to those with a Bloomberg Terminal subscription.)

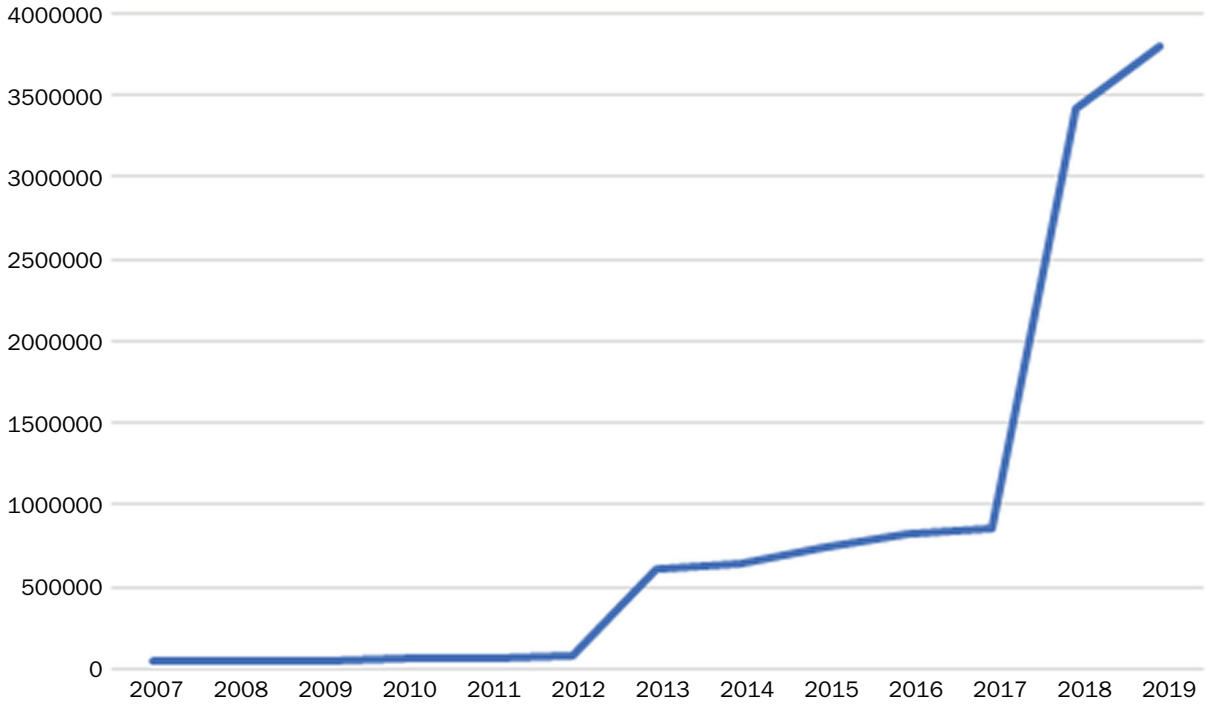
The metadata for the ESG data we have analyzed from Bloomberg can be summarized as follows:

- Period under study: January 2013 to December 2019[6]
- Count: 7,373,802 unique ESG data points across 654 different ESG metrics and 2,990 different firms. Appendix A lists the top five ESG data items in this dataset by the number of firms disclosing that data item.

[6] Bloomberg contains ESG data from as early as June 2005. However, MSCI ESG scores are only available from the late 2000s. Furthermore, MSCI revised its ESG scoring methodology in 2012. For consistency, we use the MSCI ESG rating (and Bloomberg's ESG data) from January 2013 onward.

EXHIBIT 4

Number of Bloomberg ESG Data Items, by Year

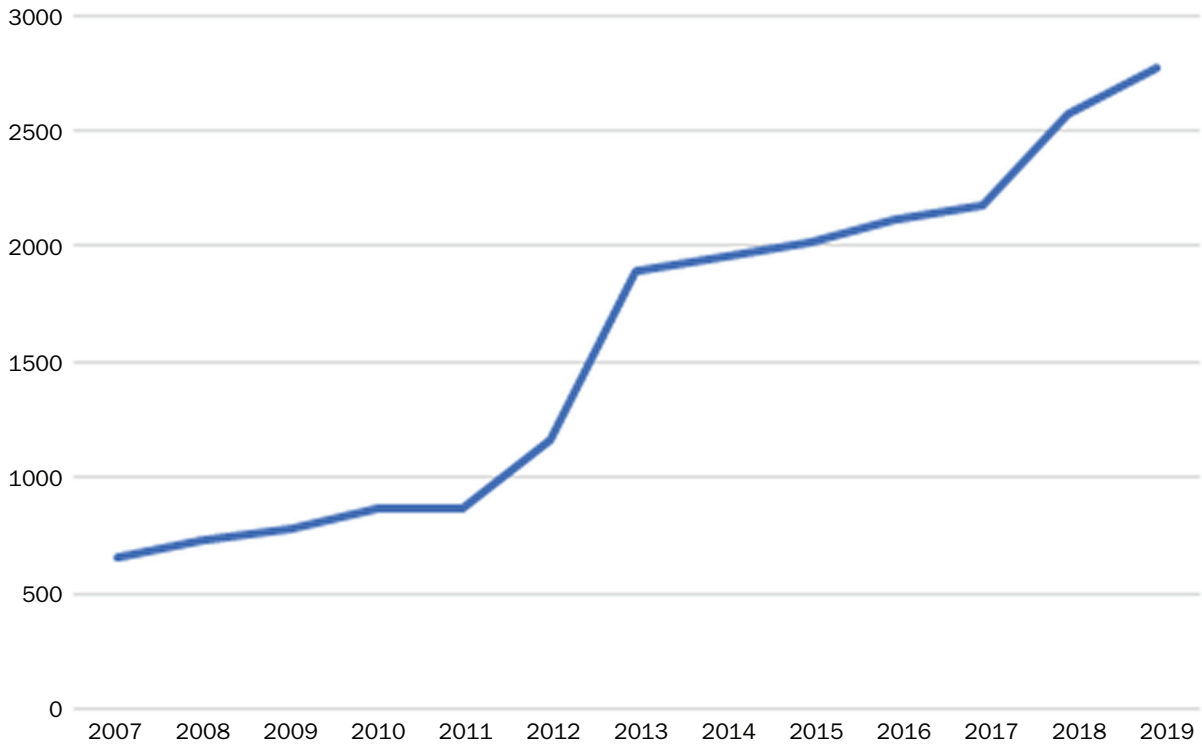


SOURCE: Bloomberg.

- Distribution: The range of available ESG data counts is wide, ranging from companies such as Avantor, Inc. (Bloomberg Ticker: AVTR US) with one ESG data item on the low end, to Larsen and Toubro, Ltd. (Bloomberg Ticker: LT IN) with 4,300 ESG data items on the high end. The average firm in the data sample studied has 2,459 ESG data items captured by Bloomberg across the period studied.
- Exhibit 4 shows the number of ESG data items by year. We see that the amount of data starts off small but increases annually, with a big jump in 2018.
- Exhibit 5 shows the number of firms, by year, for which Bloomberg has at least one ESG data point. Again, we see that this number increases through time.
- Exhibit 6 shows the mean and standard deviation of the number of ESG data items by firm and year. We see that the mean has steadily increased and standard deviation has decreased, meaning that companies in the dataset have disclosed more ESG data as time goes on. This indicates a potential convergence of ESG data per firm as ESG focus increases. This exhibit also gives the maximum and minimum number of ESG data items by firm and year.
- For commercial ESG providers, we used MSCI ESG scores in this study. We chose MSCI because it is a commercial ESG rating company with the biggest market share (for more information on commercial ESG ratings providers, see Berg, Koelbel, and Rigobon 2019 and Eccles and Stroehle 2018). MSCI ESG scores range between 0 and 10. Exhibit 7 gives the average company MSCI ESG score by year, and we see the average score across the years is fairly steady, between 4.7 and 5.5.

EXHIBIT 5

Number of Distinct Firms with ESG Data from Bloomberg, by Year



SOURCE: Bloomberg.

EXHIBIT 6

Mean and Standard Deviation of Number of Unique ESG Data Points, by Firm and Year

Year	Mean	Standard Deviation	Max	Min
2013	295.2	107.6	581	12
2014	303.7	100.5	583	12
2015	348.4	100.8	633	12
2016	371.9	98.4	684	12
2017	382.0	90.3	671	12
2018	390.1	82.4	658	1
2019	397.0	71.4	628	16

SOURCE: Bloomberg.

To calculate the cost of funding, we use data from Refinitiv to compute the weighted average cost of capital (WACC), using the formula

$$WACC = \frac{E}{V} * Re + \frac{D}{V} * Rd * (1 - Tc) \quad (1)$$

where

$$Re = Risk\ free\ rate + Beta * (Market\ rate\ of\ return - Risk\ free\ rate) = Cost\ of\ equity$$

$$Rd = Cost\ of\ debt$$

$$E = Market\ value\ of\ the\ firm's\ equity$$

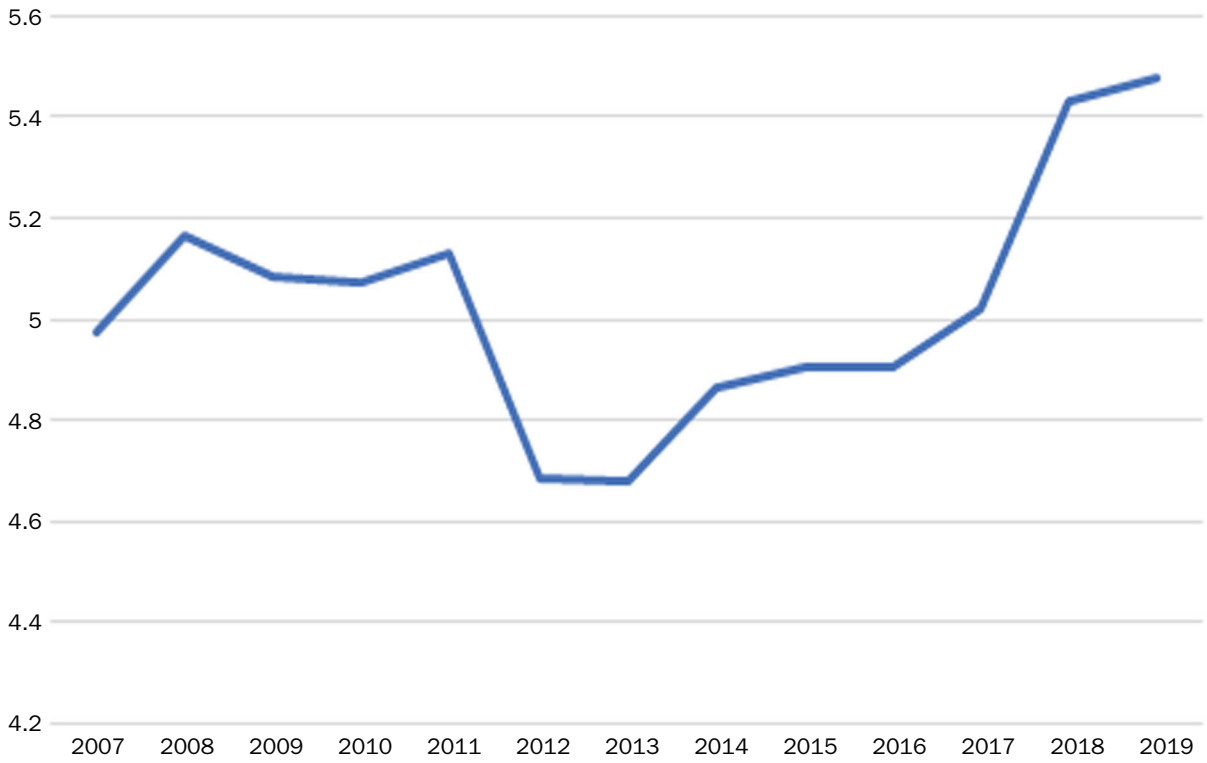
$$D = Market\ value\ of\ the\ firm's\ debt$$

$$V = E + D = Total\ market\ value\ of\ the\ firm's\ financing$$

$$Tc = Corporate\ tax\ rate$$

EXHIBIT 7

Average Company MSCI ESG Score, by Year



SOURCES: Bloomberg.

Finally, because company size can be a factor in the amount of ESG data published, to adjust for size exposure, we use data from MSCI Barra's risk model.[7] In particular, we use the global equity risk model, a multifactor model that measures the overall risk associated with a security relative to a universe of global equities.[8]

METHODOLOGY AND RESULTS

To find the relationship between MSCI ESG scores and the number of ESG data publicly available, we first create a panel of MSCI ESG scores, Barra size exposure, and number of available ESG data items on Bloomberg for all companies and years under study. We include Barra size exposure in the regression because it is well known that most commercial ESG ratings have a direct, positive relationship between the level of the corporation's ESG scores and the corporation's size in terms of market cap (see Doyle 2018 for a discussion of this relationship). By including size exposure as a regressor, we attempt to neutralize the size effect. In addition, we also create year dummies to control for time-series trends in the availability of ESG data in Bloomberg. As seen in Exhibits 4 and 6, more ESG data become available over time.

The regression we perform is

$$\Delta ESG\ score(t) \sim \beta_0 + \beta_1 Barra\ size(t) + \beta_2 \Delta ESG\ data\ items(t) + Year\ dummies + \varepsilon \quad (2)$$

[7] The MSCI Barra size risk factor is defined as the natural logarithm of a corporation's market cap.

[8] For more information on MSCI Barra's risk models, see: https://www.msci.com/www/research-paper/barra-s-risk-models/014972229.

EXHIBIT 8

Regression result for Equations 2 and 3

Independent Variables	Dependent Variables: Change in MSCI ESG Score	Dependent Variables: Change in WACC
Nbr_ESG_data_fields_Change	0.0496***	–0.0291***
	(0.174)	(0.011)
Barra Size Factor	–0.0366***	0.0001
	(0.011)	(0.001)
Barra Leverage Factor		0.0018***
		(0.001)
Intercept	–0.0443	0.006**
	(0.048)	(0.003)

SOURCE: PanAgora.

where

$$\Delta ESG\ score(t) = MSCI\ ESG\ score(t+1) - MSCI\ ESG\ score(t)$$

and

$$\Delta ESG\ data\ items(t) = Number\ of\ ESG\ data\ items(t+1) - Number\ of\ ESG\ data\ items(t)$$

for time increments of one year. The variables *Year dummies* are indicator functions, one for each year in the regression period. Because the scale of $\Delta ESG\ data\ items(t)$ is much larger than the dependent variable and other independent variables, we normalize it to be between 0 and 1 by applying an affine transform.

The regression result is shown in Exhibit 8, and we see that there is a statistically significant positive relationship between an increase in the quantity of ESG data and an increase in the level of MSCI ESG score.

The preceding regression is conducted with data from all sectors. We subsequently performed the same regression over different sectors to see if there are any different characteristics over these partitions. The results are shown in Exhibit B1 in Appendix B, in which we see that all sectors' regression coefficients have the sign one would expect.

The observation that ESG scores are positively related to the increase in ESG data is interesting but perhaps a bit academic from a corporation's perspective. After all, to collect and disseminate ESG data would require resources on the corporation's behalf. From a purely profit-oriented perspective, a higher ESG score, in and of itself, may not be a primary corporate interest.

Previously, MSCI published results indicating that higher MSCI ESG ratings correlate with a lower cost of funding (see Lodh 2020). Through the transitive property, can we observe a lower cost of funding when corporations publish more ESG data? A lower cost of funding would certainly be a core corporate interest.

To examine this question, we performed a similar regression to predict the WACC from the amount of ESG data. We used the regression to predict WACC, and we controlled for leverage via the Barra leverage risk factor because it is related to WACC. We again incorporate year dummies; in addition to controlling for increasing ESG data over time, for this regression they are also useful for controlling the trends of downward drifting cost of capital over the sample period.

The regression we performed is

$$\Delta WACC(t) \sim \beta_0 + \beta_1 Barra\ size(t) + \beta_2 \Delta ESG\ data\ items(t) + Year\ dummies + \varepsilon \quad (3)$$

where

$$\Delta WACC(t) = WACC(t+1) - WACC(t)\ .$$

The independent variable $\Delta ESG\ Data\ Items(t)$ is normalized between 0 and 1 as done previously. The result for this regression, over a global universe, is also given in Exhibit 8. From the exhibit, we see that increasing the amount of publicly

available ESG data also leads to lower future WACC, even after controlling for time via the year dummy. This result is again statistically significant. Appendix C shows the same regression conducted over different sector partitions. We also see that all sectors' regression coefficients have the sign one would expect, except for the consumer staples sector.

A COUNTERARGUMENT AND SOME EMPIRICAL OBSERVATIONS

At this point, one question that may be reasonably asked is whether those firms with higher ESG ratings have notably better ESG metrics than those with lower ESG ratings. That is, do firms with better ESG characteristics actually publish more ESG data? It is reasonable to believe that firms with better overall ESG characteristics would publish more ESG metrics because they have more good news to report. On the other hand, firms with worse overall ESG characteristics would rather keep their inadequacies private.

These are difficult questions to answer definitively because there is no standard set of ESG data, as discussed previously. To provide some empirical evidence, we sampled a few ESG metrics obtained from the Bloomberg ESG dataset (used in Exhibit 8) to determine whether there are any noticeable differences between firms with a higher ESG rating and those with a lower ESG rating.

Here is how we sampled the ESG metrics in the Bloomberg ESG data set:

1. We regressed the MSCI ESG rating with Barra size risk factor and took the residual.[9]
2. We put the MSCI ESG rating residual into 10 buckets of 10 deciles, from high (10) to low (1).
3. We randomly selected the ESG metrics to get a good representation from each of the E, S, and G categories. We then determined the decile bucket average for the particular Bloomberg ESG metric for the companies within each decile group.

We note that Bloomberg's ESG metrics tend to come in two categories, numerical and binary. In the numerical category, the answer is given in terms of numbers. Questions with numerical answers tend to be in the governance category, such as salary, composition of board, and number of executives. In the binary category, the answer is provided in yes or no terms. Questions with binary answers tend to be related to environmental or social categories and are often about whether the firm has a policy or product in place to address these concerns. The results of our research is illustrated in Exhibits 9 and 10; we treat No = 0 and Yes = 1.

We observe from these two exhibits that, for some of the ESG metrics examined, the highest rated decile (10) does indeed have better metrics than deciles 1 through 9, but this is not always true. Interestingly, the ESG metrics examined outside of the highest-rated decile, more likely than not, did not generally increase from lower-rated to higher-rated deciles. The samples would suggest it is not always the case that companies with a higher ESG rating have better ESG metrics to back up their higher rating.

[9] We regress out the size risk factors because, as noted previously, MSCI ESG ratings are biased toward larger companies.

EXHIBIT 9

Average Bloomberg ESG Metric by MSCI ESG Rating Residual, in Deciles, for the Numerical Answer Category

Decile	NUMBER_OF_ DIRECTORS_ON_BOARD	CEO_DUALITY	NUMBER_OF_ WOMEN_ON_BOARD	PCT_INDEPENDENT_ DIRECTORS	NUM_EXECUTIVE_ CHANGES
1	10.873	0.344	1.219	48.541	1.493
2	10.829	0.148	1.481	51.293	1.305
3	10.856	0.179	1.250	54.106	1.257
4	11.074	0.222	1.370	51.211	1.312
5	11.212	0.138	1.448	53.727	1.327
6	11.124	0.240	1.360	48.743	1.208
7	11.094	0.393	1.143	51.473	1.243
8	11.438	0.481	1.000	49.960	1.114
9	11.567	0.333	1.333	54.252	1.193
10	11.636	0.065	1.516	57.241	0.986

SOURCE: Bloomberg.

EXHIBIT 10

Average Bloomberg ESG Metric by MSCI ESG Rating Residual, in Deciles, for the Binary Answer Category

Decile	ETHICS_ POLICY	WASTE_ REDUCTION	CLIMATE_CHG_ PRODS	SUSTAIN_ PACKAGING	EMPLOYEE_CSR_ TRAINING	FAIR_REMUNERATION_ POLICY
1	0.724	0.759	0.138	0.103	0.103	0.000
2	0.692	0.808	0.154	0.115	0.000	0.000
3	0.760	0.731	0.000	0.280	0.040	0.000
4	0.800	0.760	0.040	0.280	0.120	0.000
5	0.852	0.786	0.000	0.296	0.037	0.037
6	0.875	0.792	0.000	0.208	0.042	0.042
7	0.840	0.840	0.000	0.200	0.000	0.000
8	0.680	0.846	0.000	0.160	0.040	0.000
9	0.692	0.846	0.000	0.346	0.154	0.038
10	0.931	0.966	0.000	0.345	0.071	0.000

SOURCE: Bloomberg.

IMPLICATIONS FOR CORPORATONS, RATING AGENCIES, AND THE CAPITAL MARKET

We believe the effect, observed from Exhibits 9 and 10, comes from cognitive bias on the part of ESG analysts. Analysts likely assume that if a firm discloses more ESG data, that firm is more forthcoming and more ESG oriented, even though the actual data might not justify this assumption. Observing this phenomenon in ESG ratings has a few implications for corporations, ratings, and the capital market.

For corporations, it is in their interest to publish more ESG data. As the investment world is flowing ever more into ESG investments, not only will analysts and investors demand this data, but the lack of such information may result in unnecessary penalties for the firm in the form of a higher WACC. A lack of ESG data may be construed by analysts and the market as a sign that the company has bad ESG practices and results, when the reality could be that the company lacks the resources (or awareness) to publish such data. In other words, the market could be in a guilty until proven innocent mode when it comes to ESG assessments. This is a flaw in how ESG scores are derived among ESG rating agencies.

For the ESG rating agencies, the result reported in this article points out a flaw in how ESG scores are derived. This bias is a result of how the human mind works, and being aware of this bias can help analysts to look for it. Furthermore, this quantitative bias suggests that a less qualitative/more quantitative approach to ESG ratings may be adopted going forward. This will help prevent human cognitive biases from unduly influencing ESG scores. At the very least, incorporating a mix of fundamental and quantitative approaches to ensure objectivity may be warranted.

Finally, for the capital market, the implication here is that any ESG rating may contain flaws and may not tell all that investors need to know about the ESG-ness of a given company. Berg, Koelbel, and Rigobon (2019) arrived at the now well-known result that agreement among ESG rating agencies is famously low, especially when compared to credit ratings. According to Berg, Koelbel, and Rigobon (2019), ESG score correlation among six of the most popular commercial ESG rating providers averages about 54%, in contrast to credit ratings, in which agreement among major providers stood at great than 95%. Others who have documented and discussed ESG rating disagreements include Dimson, Marsh, and Staunton (2020), Gibson, Krueger, and Schmidt (2019) and Serafeim and Yoon (2021). The findings of this and those studies mean that, although commercially available ESG ratings are certainly helpful, capital market participants should do their homework to understand how ratings are derived, how ratings from various ESG rating providers differ, and whether there are any structural biases in the way ratings are constructed. Participants should also evaluate whether it is necessary to augment or replace commercial ESG ratings with their self-collected ESG data and analysis.

CONCLUSION

In this article, we showed that although the ESG market is rapidly growing, it is a relatively new investment field, and, as a result, not all necessary data and disclosure standards are in place. The need to invest in this space and the lack of data have created a void that ESG rating companies are happy to fill. However, even ESG ratings from well-resourced ESG ratings providers contain deficiencies and bias. In this report, we documented one such bias. Namely, the more ESG data a company has in the public domain, the higher that company's MSCI ESG score tends to be. We also document that companies with more publicly available ESG data are likely to enjoy a lower WACC. This may be the result of a cognitive bias, in which companies with more published ESG data are perceived to be better from an ESG perspective, even though there is not enough data to justify this conclusion.

The bottom line: The implication here is that it is beneficial for companies to publish more ESG data, especially now that the investment community both expects and demands it. Companies that lack published ESG metrics may be construed as having something to hide.

APPENDIX A

THE TOP FIVE ESG DATA ITEMS IN THE DATASET BY THE NUMBER OF FIRMS DISCLOSING THAT DATA ITEM

Exhibit A1 gives the most populous ESG data item on Bloomberg over the period studies. All of these data items are related to governance.

EXHIBIT A1

Top Five Number of EST Data Items on Bloomberg

Top 5 Number of ESG data item on Bloomberg
NUMBER_OF_DIRECTORS_ON_BOARD
NUMBER_OF_EXECUTIVES
NUM_NONEXEC_BRD_MEM_3_OR_MOR_BDS
NUM_EMP_REPS_ON_BRD
NUMBER_OF_MEMBERS_OF_AUD_CMTE

APPENDIX B

RELATIONSHIP BETWEEN ESG SCORE AND ESG DATA OVER VARIOUS SECTORS[10]

Exhibit B1 shows the regression coefficient, *t*-value, and *p*-value of the regression coefficient β_2 in Equation 2, for various sectors.

EXHIBIT B1

Regression Coefficient, *t*-Value, and *p*-Value of Coefficient β_2 in Equation 2

	Regression Coefficient	*t*-Value	*p*-Value
Energy	0.386	0.581	0.561
Materials	0.355	0.754	0.451
Industrials	0.092	0.183	0.855
Consumer Discretionary	0.996	1.783	0.075
Consumer Staples	0.777	1.529	0.127
Health Care	1.254	1.819	0.069
Financials	0.780	1.783	0.075
Information Technology	0.097	0.184	0.854
Communication Services	0.348	0.437	0.663
Utilities	1.896	2.160	0.031

APPENDIX C

RELATIONSHIP BETWEEN WACC AND ESG DATA OVER VARIOUS SECTORS

Exhibit C1 shows the regression coefficient, *t*-value, and *p*-value of the regression coefficient β_2 in Equation 3 for various sectors.

[10] In this and the following exhibits in this Appendix, we do not perform regression on the real estate sector because it only became a standalone sector in August 2016. Therefore, it does not have the same amount of history as others.

EXHIBIT C1

Regression Coefficient, *t*-Value, and *p*-Value of Coefficient β_2 in Equation 3

	Regression Coefficient	*t*-Value	*p*-Value
Energy	–0.023	–0.331	0.741
Materials	–0.024	–0.668	0.504
Industrials	–0.069	–1.988	0.047
Consumer Discretionary	–0.003	–0.065	0.948
Consumer Staples	0.011	0.473	0.636
Health Care	–0.073	–1.855	0.064
Financials	–0.053	–2.691	0.007
Information Technology	–0.014	–0.450	0.653
Communication Services	–0.009	–0.296	0.767
Utilities	–0.055	–1.831	0.068

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Index Data

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