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E, S or G – What Drives Corporate Failure?

Colin Ellis
Hult International Business School, London

ABSTRACT

Sustainability issues have become a core part of financial analysis, particularly over the past decade. While governance has always been recognized as a key factor in driving corporate performance, environmental and social issues have risen in prominence over this time. A natural question is which of these three factors has been most important in determining corporate failure in recent years. This paper uses data on corporate defaults and ESG assessments from a major credit rating agency to examine the relationship between businesses being unable to keep the financial promises and different environmental, social and governance considerations. It finds little sign of environmental risk driving defaults – so far – but both social and governance factors are statistically significant. While the relationships between ESG factors and defaults are likely to change over time, this analysis offers early insights against which those changes can be benchmarked.

Keywords: Corporate defaults, ESG assessments, probit models.

INTRODUCTION

Over the past decade in particular, there has been a substantial and sustained increase in the role that Environmental, Social and Governance issues play in finance and the global economy. While governance has always been recognized as a key determinant of corporate performance, the grouping of these factors together – often summarized together as ESG – particularly rose to prominence after 2015. In particular, the so-called Paris Agreement (United Nations, 2015) in that year, which arose from the 21st Conference of the Parties, aimed to limit the rise in global surface temperatures to well below 2 degrees Celsius above pre-industrial levels.

Following the Paris Agreement, there was a renewed focus from governments, businesses and investors to focus on the environmental impact of their activities, which soon broadened to cover social and governance concerns as well. Thus far, much attention has been focused on the 'E' of ESG, with climate change still an existential threat for some countries. Social and governance concerns have not enjoyed the same degree of focus. For instance, in the European Union regulation supporting the EU's so-called 'green' taxonomy came into force in July 2020, focusing on climate change mitigation and adaptation. In contrast, while the *Final Report on Social Taxonomy* was published in early 2022 (Platform on Sustainable Finance, 2022), the social taxonomy has essentially been shelved since then.

In recent years there has also been some pushback against the ESG 'agenda' in parts of the world, notably in the US. Authorities in certain US states have taken measures to limit the consideration of ESG factors, such as the Florida Directive 1/23/23 that prohibits asset managers of Florida's deferred compensation program from investing in financial products associated with ESG standards, or the Indiana Attorney General Opinion that ESG investing is a

violation of fiduciary duties. In part, global events – including Russia's invasion of Ukraine, the associated impact on energy prices and the need to reduce dependence on Russian energy – have also re-focused attention away from ESG factors. The recent performance of some ESG-focused funds has also impacted on investor appetite. Despite these setbacks, it is likely that ESG is here to stay, even if more work remains to be done on both definitions and measurement of associated risks. And that is where this paper hopes to make a first contribution.

Using new data from an international Credit Rating Agency (CRA), this paper looks at the associated between ESG factors and corporate failure, defined here as default. The aim here is to provide an initial benchmark for how much the different components of E, S and G drive company performance – what the current corporate impact of E, S and G are. While the impact of these different factors is likely to change over time and by location, the aim of this piece is to offer a 'starting point' that future studies can be benchmarked against.

In order to do this, we need data on both ESG factors and corporate failures, which are discussed in the next section. Following that, the paper analyzes the linkages between ESG assessments and corporate financial performance, before offering some conclusions and thoughts on future research.

DATA ON ESG IMPACT AND ON CORPORATE FAILURE

With the ESG industry still in its first decade, if we date from the Paris agreement, there are a range of providers of different version of ESG assessments, scores and impacts. Products can range from holistic ESG frameworks to specific products aimed at individual factors, such as 'Net Zero Assessments' that offer a guide to the strength of a companies' carbon transition plan. One issue with this nascent market is that there is a lack of common standards across ESG providers and experts. Many firms have their own definitions and own approaches to making assessments about ESG; even in Europe, ESG data providers consciously choose to deviate from the EU's own green taxonomy in their own work. This variety in the very nature and aim of different approaches can make it difficult to find data that are comparable across companies, and more generally comparable with data on corporate failures, which is the aim of this paper. For these reasons, we focus on data provided by Moody's Ratings (hereafter Moody's), a major CRA, where the ESG and corporate failure data should be consistent by design. The following sections describe each in turn.

ESG: Issuer Profile Scores and Credit Impact Scores

Since the time of the COVID-19 pandemic, Moody's has published scores based on its assessment of ESG factors in its credit rating process. The stated aim of these scores was to provide more transparency to the market: Moody's believed that ESG risks were already appropriately factored into its credit ratings, but wanted to offer more guidance on how it thought about ESG risks and where those were most material.

The starting point was to publish separate Issuer Profile Scores (IPSs) for environmental, social and governance risks. These scores each range from 1 to 5: scores of 1 (for E and S) represent positive credit effects, or strong positioning (for G); while scores of 5 represent very high exposures to E, S or G risks from a credit perspective.

Alongside the IPSs, Moody's also started publishing an aggregate Credit Impact Score (CIS) for individual entities across all ESG factors. Again ranging from 1 to 5 (with 1 indicating positive impact, and 5 a pronounced negative impact), these CIS represent the aggregate effect of all ESG factors on the credit rating. One interesting feature of both the IPS and the CIS is that Moody's scale is non-linear, with '2' representing neutral (Exhibit A).

Score	Definition
E-1 S-1 G-1	Issuers or transactions with an issuer profile score of 1 typically have exposures to E or S issues that carry material credit benefits. For G, issuers or transactions typically have exposure to G considerations that, in the context of their sector, positions them strongly, with material credit benefits.
E-2 S-2 G-2	Issuers or transactions with an issuer profile score of 2 typically have exposures to E or S issues that are not material in differentiating credit quality. In other words, they could be overall slightly credit-positive, credit neutral, or slightly credit-negative. An issuer or transaction may have a IPS score of 2 because the exposure is not material or because there are mitigants specifically related to any E or S risks that are sufficient to offset those risks. Issuers or transactions with an issuer profile score of 2 typically have exposure to G considerations that, in the context of their sector, positions them as average, and the exposure is overall neither credit-positive nor negative.
E-3 S-3 G-3	Issuers or transactions with an issuer profile score of 3 typically have moderate credit exposures to E or S risks. These issuers may demonstrate some mitigants specifically related to the identified E or S risks, but they are not sufficiently material to fully offset the risks. Issuers or transactions with an issuer profile score of 3 typically have moderate credit exposure to G risks that, in the context of the sector, positions them below average.
E-4 S-4 G-4	Issuers or transactions with an issuer profile score of 4 typically have high credit exposures to E or S risks. These issuers may demonstrate some mitigants specifically tied to the E or S risks identified, but they generally have limited effect on the risks. Issuers or transactions with an issuer profile score of 4 typically have high credit exposure to G risks that, in the context of their sector, positions them more weakly than issuers with an issuer profile score of 3.
E-5 S-5 G-5	Issuers or transactions with an issuer profile score of 5 typically have very high credit exposures to E or S risks. While these issuers or transactions may demonstrate some mitigants specifically related to the identified E or S risks, they are not meaningful relative to the magnitude of the risks. Issuers or transactions with an issuer profile score of 5 typically have very high credit exposure to G risks that in the context of their sector, positions them more weakly than issuers with an issuer profile score of 4.

Exhibit A: Definitions of Moody's Credit Impact Scores
Source: Moody's Investors Service (2023).

It is important to notice the distinction that Moody's makes between the IPS and the CIS. The aggregate CIS is, in essence, a judgement about the credit impact of ESG – how much these factors move the rating overall. So on the basis of internal consistency, if nothing else, we should expect to see a strong relationship between the CIS and ratings or defaults. In contrast, the individual IPS for E, S and G speak to the specific risks in each of those areas that Moody's believe impact credit. So individual IPS scores may be less correlated with defaults or ratings. It is that avenue that we will explore later.

One obvious challenge with the IPS and CIS is that they are ultimately largely qualitative judgements. Due to a lack of standardized data – or even an outright lack of information in some instances – Moody's IPSs and CISs are necessarily based on judgements by analysts, rather than being reliant on quantitative data and the systematic processing of said quantitative metrics. While this has always been true to some degree for credit ratings, which incorporate both quantitative and qualitative factors, with ESG the balance shifts very much towards qualitative judgement. A clear caveat to this analysis is that the IPS and CIS represent Moody's opinions, which may change over time as more ESG-relevant data become available or as Moody's methodology changes. More details on Moody's ESG approach is available at Moody's (2023). While the CIS data are useful and are described fully later, the later analysis will focus more on the different IPS for Environmental, Social and Governance factors. This is in order to explore which of the three ESG categories has most impact.

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Data on Corporate Failure

For the purposes of this analysis, we also need data on corporate failure, to explore which of E, S or G are most associated with companies getting into financial difficulty. Credit ratings offer one possible assessment here. Ratings are CRAs' opinions on the relative riskiness of different companies and securities, and have a long track record of use in the US in particular. In principle, credit ratings should offer a guide to the potential for a company to experience financial distress in the future, as that would impact its ability to pay its creditors. And CRAs have a strong incentive for their ratings to be predictive, as they need to be credible with investors (and issuers) in order for their business to survive. Movements in ratings – and particularly downgrades by CRAs – could offer one indicator of corporate distress.

However, there have been past episodes where rating performance has not been particularly good. The Global Financial Crisis (GFC) in 2007/8 is a case in point, where several structured finance securities that were previously very highly rated saw significant defaults and losses. Defaults were also prevalent among so-called fundamental issuers, particularly in Europe, with numerous bank defaults and even sovereign defaults in the euro area. Exhibit B presents measures of rating performance published by Moody's called 'Average Position' (or AP), which measures where defaulters were ex ante in the rating distribution either one year or five years before the defaults occurred. A higher score indicates better rating performance (see Moody's Investor Service, 2015); so it is evident that, even on Moody's own metrics, rating performance deteriorated significantly during and in the aftermath of the GFC.

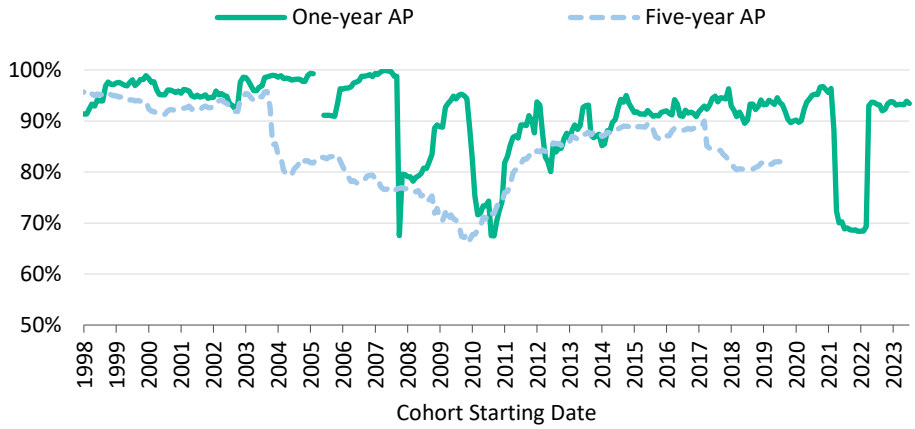

Exhibit B: Fundamental rating performance in Europe over time
Source: Moody's Ratings (2024).

While CRAs took significant steps to improve their performance post-GFC – often spurred by new regulation in a number of jurisdictions – the credibility of ratings remains an issue of debate for many.

In contrast, a much cleaner measure of corporate failure (than movements in ratings) is the incidence of default. Whenever a company does not have the ability or willingness to pay its debts on time and in full, that is a clear signal of corporate failure. We can observe the non-payment of interest or principal on the contractual date; and from this we can infer default and – at least a degree of – corporate failure. Even where defaults are not associated with outright

liquidations of businesses, they still represent the crystallization of credit risk, losses for investors, and a failure by those companies that default to met the contractual promises that they made.

In practice, gauging default is a little more complex than just observing non-payment when one had been scheduled. While Moody's definition of default includes such missing contractual payments, and bankruptcy, it also includes defaults due to sovereign actions, and something called distressed exchanges. Sovereign-imposed defaults are instances where companies perhaps had the ability and willingness to pay their debts on time, but were unable to do so due to constraints imposed on them by lawmakers. An obvious case in point is the series of Russian defaults in March 2022, following the invasion of Ukraine.

After Russian troops invaded Ukraine in February 2022, Ukraine's political allies took steps to impede the functioning of the Russian economy, including the freezing of assets held by the Central Bank of Russia. In return, President Putin signed a decree, enacted via the central bank, that prevented Russian issuers from sending coupon payments to nonresidents. Instead, coupon payments were held at the National Settlement Depository, which represented a default because the funds were not allowed to flow to nonresident creditors. Happily, such instances of sovereign-imposed defaults are relatively rare.

Distressed exchanges are different. This is when issuers swap pre-existing obligations held by credits with new paper that has a lower financial value. Whether this process is voluntary or enforced (eg via collective action clauses) is irrelevant; the critical feature is that creditors suffer a financial loss. Under Moody's definition of default, the exchange must also have taken place in order to prevent a future default; and in some instances, this means Moody's have not classified exchanges as defaults, even where creditors suffer losses, because the nominal amount or loss was immaterial relative to the company's overall debt. While sovereign-imposed defaults are rare in Moody's data, distressed exchanges are not. In 2023, around 60% of defaults recorded by Moody's were distressed exchanges (Exhibit C).

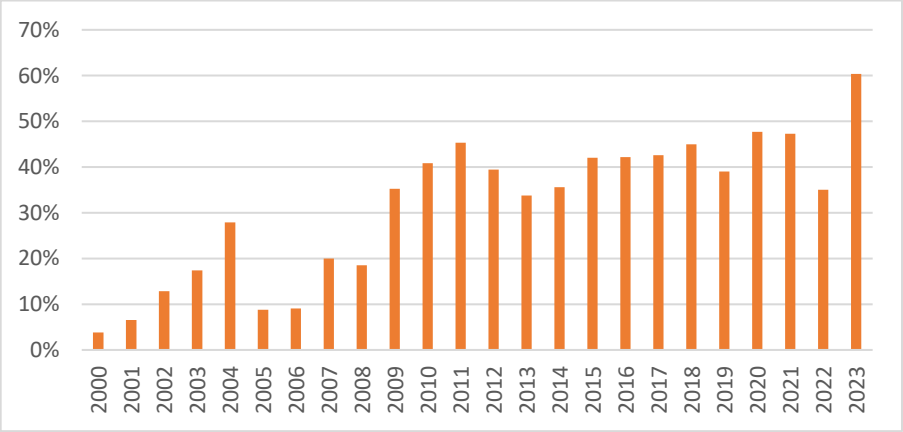

Exhibit C: Share of distressed exchanges in total corporate defaults
Source: Moody's Investors Service (2024).

This means that, even with defaults, there will be an element of analytic judgement in the data. However, from detailed examination of Moody's published data on defaults it appears as if most

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exchanges with a loss in financial value are classified as defaults, with only a few not classified as such.

Details on the Data Sample for This Analysis

Having introduced the ESG and default data that are the basis for this analysis, it is important also to specify the range and coverage of the data used.

As noted in the main text, Moody's began publishing ESG scores in 2021; but it took some time to get to widespread coverage across all rated issuers, which only happened in 2023. For that reason, the analysis here is based on the IPSs pulled in late 2023, when most corporate issuers had scores published.

One feature of the IPS is that few have changed since their initial publication; this is unsurprising given the short time they have been public. A very small number of IPS changed in 2022 or 2023; but it is difficult to know whether this reflected a re-calibration of starting scores by Moody's analysts as the sample expanded for a new product, rather than underlying changes in ESG factors, given these changes were not always associated with shifts in typical financial metrics for credit risk. For this analysis, only static IPS were used, although the broad results presented below were robust to incorporating this very limited number of changes.

Across a matched sample of ESG scores and defaults (or non-defaults), the analysis uses information for 8,902 rated companies, focusing on defaults that occurred between the start of 2022 and late 2023. In total, we observe 85 defaults across the issuers in our sample, which corresponds to a default rate of 0.95% in the sample. That is consistent with the default rate observed across the universe of Moody's ratings over that period. (One wrinkle here is that Moody's reports often focus on the default rate among lower-rated or so-called 'speculative grade' entities, which is a correspondingly higher number, as higher-rated entities rarely default.)

The spread of issuers across region broadly matched Moody's ratings coverage, concentrated in the US and then major European markets (the UK, Germany and France). But due to the relatively low default rate, geographical splits outside the US led to very small (default) sample sizes. As such, we report aggregate results across the whole sample in the analysis that follows.

RELATIONSHIP BETWEEN E, S AND G AND DEFAULTS

Comparing the CIS and default outcomes in our sample, it is immediately obvious that there is a strong relationship between Moody's CIS and defaults. In fact, 56% of defaulters had the highest – and most negative – CIS of 5, and a further 38% had a CIS of 4 (Exhibit D). This at least suggests that Moody's exercises a degree of internal consistency, as noted earlier.

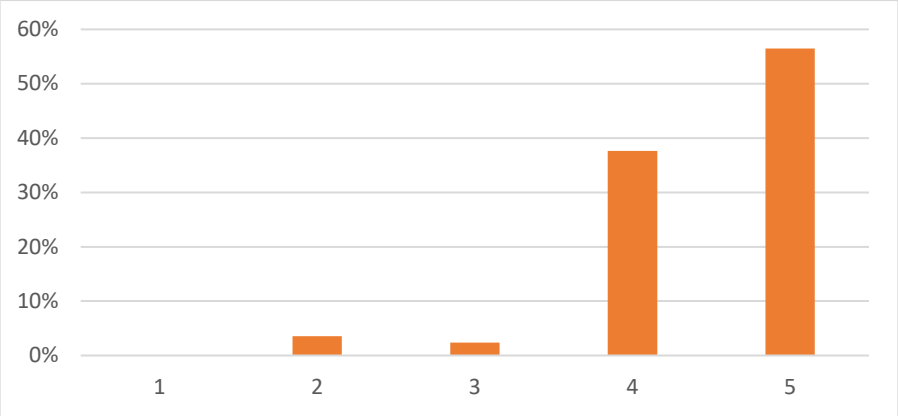

Exhibit D: Distribution of CIS scores across defaulters
Source: Moody's and author's calculations.

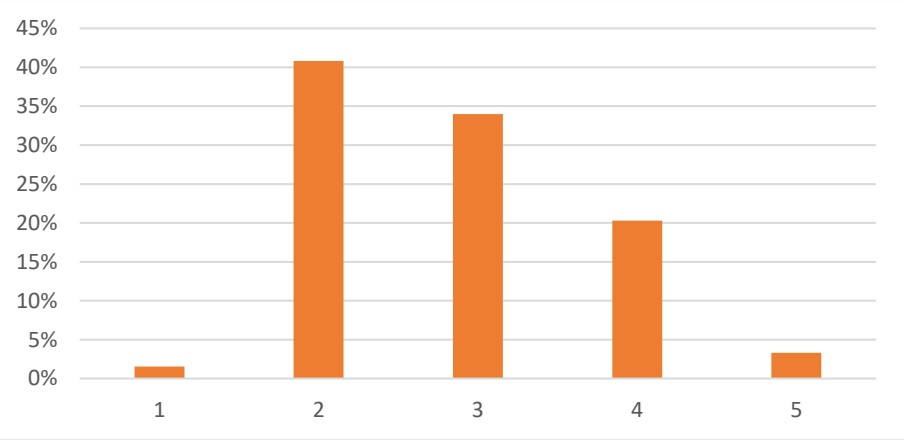

Exhibit E: Distribution of CIS scores across non-defaulters
Source: Moody's and author's calculations.

In contrast, the distribution of CIS scores across non-defaulters is more spread out. Interestingly, Moody's seems to assign very few CIS scores of 1. In general, non-defaulters were most likely to be rated CIS-2 or CIS-3 (Exhibit E), although 20% of non-defaulters had a CIS-4 score, indicating that "ESG considerations have a discernible impact on the current rating, which is lower than it would have been if ESG risks did not exist" (Moody's, 2023). Only 3% of non-defaulters had the highest CIS scores in the sample.

However, testing Moody's internal consistency is not the aim of this paper. Instead, that is to examine which of E, S and G risks are most associated with default and corporate failure. The relationship between different IPS and defaults is shown in Exhibit F.

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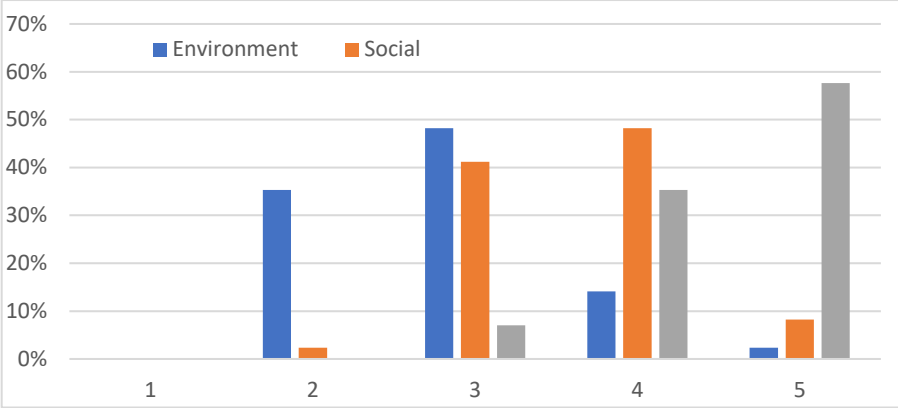

Exhibit F: Distribution of E, S and G scores across defaulters
Source: Moody's and author's calculations.

Across the three categories of ESG risk, there is are clear differences that jump out immediately. It is readily apparent that, in our sample, defaulters were not very exposed to environmental risks. Fully 83.5% of defaulters had an E score of 2 or 3, indicating no or low risk. Climate was not a key driver of defaults in our sample. Only 2% of defaulters had an E score of 5.

Social risks were more notable across the defaulters in the sample. Almost half of all defaulters had an S score of 4, indicating high credit exposures to social risks. But only 8% had a score of 5, indicating high risk.

Instead, G clearly dominates the impact of ESG factors among defaulters. Of the 85 defaults in our sample, 49 of them had the highest G score of 5, indicating significant risk. A further 35% of defaulters had a G score or 4; and none had a G score of 2 or higher.

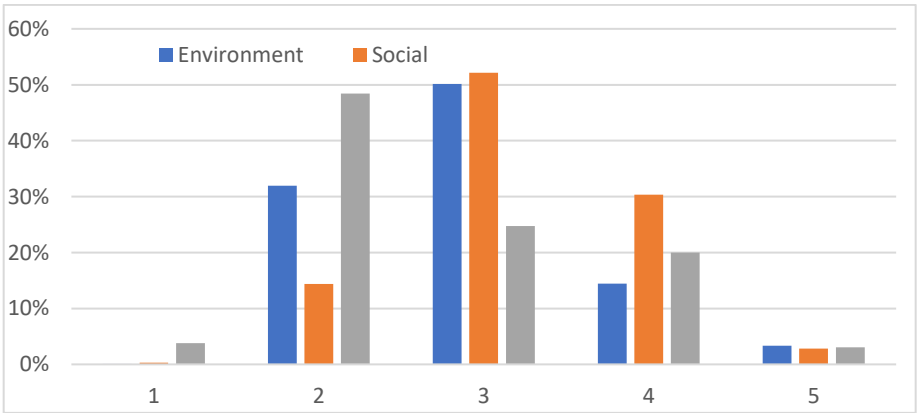

Exhibit G: Distribution of E, S and G scores across non-defaulters
Source: Moody's and author's calculations.

Across the non-defaulters in our sample, the distribution of E, S and G scores was decidedly mixed (Exhibit G). In all instances, scores of 2 or 3 accounted for the majority of these ratings, with relatively few scores at either end of the 5-point scale. However, graphical interpretation is a very limited way of assessing links between ESG and defaults. More quantitative analysis can also offer a formal statistical approach for testing the relationship between variables. In the

context of this analysis, an obvious step is to test the predictive power of ESG scores for defaults by running probit regressions.

In each instance, for E, S and G separately, we regress a binary indicator of default (1 for default, 0 for non-default) on the issuer-specific IPS using standard techniques. Results from these regressions are shown in Exhibit H below.

	Constant	IPS	McFadden R-squared
Environment	-2.243	-0.035	0.000
	0.000	*0.509a*	
Social	-3.355	0.298	0.029
	0.000	*0.000*	
Governance	-5.876	0.959	0.307
	0.000	*0.000*	

Exhibit H: Individual probit regression results for defaults using individual ESG scores
Source: Moody's Investors Service and author's calculations.

These statistical results offer new insight that the earlier graphical analysis missed. For environmental scores, there is no statistically significant relationship between the assigned scores and the incidence (or not) of default. Over the data sample, exposure to environmental risks was not related to the likelihood of default. However, despite the social scores seemingly having little relationship with defaults in earlier exhibits, these scores were statistically significant in probit regressions. The fit of the model is still very poor, but we cannot exclude some relationship between exposure to social factors and defaults. Perhaps unsurprisingly, the governance scores were most strongly related to default outcomes. The relationship is statistically significant and the fit of the model is significantly higher than for the social scores. This chimes with longstanding views even before ESG rose to prominence: the governance of a company is a critical factor in driving its success or failure.

As a final test, we also ran probit estimations using all three ESG scores: results from this approach are shown in Exhibit I. Interestingly, while the environmental scores were insignificant again, both the social and governance scores were significantly related to defaults. This suggests that, while governance is the most dominant ESG factor in driving defaults, social risks do add value in terms of explaining corporate failure above and beyond governance. This is a clear indication that different ESG factors are not simply reflections of similar underlying risks, and individual assessments of E, S and G can complement each other in terms of understanding corporate outcomes.

	Coefficient	P-value
Constant	-6.39	*0.00*
Environmental	-0.07	*0.29*
Social	0.22	*0.00*
Governance	0.94	*0.00*
McFadden R-squared		0.32

Exhibit I: Pooled probit regression results for defaults using all ESG scores
Source: Moody's and author's calculations.

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This analysis clearly indicates, that, within this sample at least, Governance dominates other ESG factors in terms of its relationship with default and corporate failure. Social factors do play a role; but environmental concerns have been orthogonal to defaults. While these relationships may change over time, in particular as climate risks develop and amplify, it reinforces the importance both of keeping sight of more longstanding corporate governance issues alongside newer focuses on environmental and social factors. It also demonstrates the importance of having a starting benchmark to compare ESG risks against over time, as they evolve.

CONCLUSIONS

Over the past decade, the role of Environmental, Social, and Governance (ESG) factors in corporate finance, funding and investment decisions has increased dramatically. However, there has been little formal analysis of how ESG assessments relate to corporate failures. This analysis examines this link, using data on ESG risks and recent defaults from Moody's.

Governance is the factor most strongly associated with recent corporate defaults, with 49 out of 85 defaulters having the highest governance risk score from Moody's. Perhaps surprisingly, social risks also exhibit significant correlation, with nearly half of defaulters having a high social risk score of 4 out of 5. But environmental factors show little correlation with defaults, with over 83% of defaulters having low to moderate environmental risk scores. More formal probit regression analysis confirms the dominance of governance and the significance of social factors, with environmental factors playing an insignificant role.

In part, these results will reflect the recent sample of defaults; it is likely, for instance, the environmental risks will play a larger role in corporate defaults over time as climate change effects become more pronounced. But this analysis still offers a useful starting benchmark, as both ESG risk factors and the measurement of them evolve over time.

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