

Executive Summary

This paper tackles the linkage between Environmental, Social, and Governance disclosure scores and the Weighted Average Cost of Capital for listed US firms in the S&P 500 between 2015 and 2019. The arising question is as to which extent firms react to those ESG themes and how they are addressed by them. My goal was to find an answer to the overall research question of whether a linkage between ESG disclosure scores and the cost of capital exists.

In a detailed introduction, I give a broad overview of the general ESG investment industry. With a market share of roughly 35.9%, sustainable investments have seen a tremendous increase over the last decades. In 2020, the United States itself had more than US\$17 trillion assets under management in this segment, underlining the importance of this sector (Global Sustainable Investment Alliance, 2021).

Investors are increasingly demanding firms to include ESG practices into their core businesses as they have defined ESG aspects as a relevant topic in their risk and return analyses. The current severe weather events have shown that immediate steps should be considered when tackling the climate change crisis. I clarify the differences between the terms ESG investing, impact investing, Socially Responsible Investing, and Corporate Social Responsibility. Furthermore, I shortly introduce the main regulations, guidelines, and taxonomies with a focus on the US market. The most prominent frameworks are the six Principles for Responsible Investing, the 10 principles of the UN Global Compact, and the 17 Sustainable Development Goals. Further standards are introduced not only by governments but also by NGOs and regulators. However, I conclude that many frameworks and guidelines are not legally binding and thus, more legally binding regulation is needed. Additionally, standardization of ESG reporting is needed to give clear guidelines to firms as well as transparency for investors.

Thereafter, I introduce the WACC framework and how it is derived, before coming to the literature review. The existing literature is limited in the way that to my knowledge, there is no investigation yet made in the US on the effect of ESG scores on the overall WACC. Until now, the researchers only focused on the cost of equity or cost of debt effects separately. Their overall findings show that an increase in the ESG awareness leads to risk reductions for both, equity and debt holders which can be seen in a decrease of the cost of capital. I transfer the approach by Johnson (2020), who analyzed the effect of ESG scores on the WACC for South African firms, to the US market. Her findings show no significant results for the overall WACC

and that the effects highly vary between the different sectors and industries the firms operate in.

For my analysis, I use data collected from Bloomberg. Similarly, Bloomberg's own ESG disclosure score is used for the regressions. Other control and explanatory variables in the regression equations are leverage, firm size, and credit ratings. Moreover, a dummy variable for each time period is included. The final data set used for regressions contains 1,621 data points over 5 years. Different regression models were employed, namely pooled ordinary least squares [OLS], fixed effects [FE], and random effects [RE]. Thereby, panel regressions were conducted on various aspects: on the combined ESG disclosure score and on individual E-, S-, and G- scores. Additionally, I ran regressions not only on the WACC but also on its individual cost of capital, namely the cost of equity and cost of debt. To select the appropriate regression models, F-test, Breusch-Pagan Lagrange multiplier test, and Hausman test were conducted.

My general findings of the data description show that the combined ESG score increases over the 5 years across all sectors. However, the level and pace of this increase highly vary between different industries. Additionally, it can be observed that the main drivers for the increase in the combined ESG score are the E- and S- scores whereas the G- score is on a much higher but rather constant level. The high discrepancies between the industries reveal two key findings: on the one hand, it is important to distinguish between industries when analyzing ESG scores. On the other hand, one should consider the general trend over time as the scores steadily increase. Therefore, one should rather assess how a single company performs relative to its peers within the same sector.

Looking at the mean WACC values from 2015 to 2019, a pattern can be observed. The WACC increases from 2015 to 2018 and drops in 2019 quite significantly. When analyzing the US bank prime loan rate, part of this trend can be explained by the Federal Reserve's monetary policy which reveals a similar pattern as the one for the WACC.

In the empirical analysis, I obtain some interesting results. In general, I cannot find significant results for the overall WACC across all industries. Solely for the cost of equity, I can find that an increase in the ESG score leads to a reduction of the cost of equity. Similarly, an increase in the credit rating leads to a lower cost of equity. Regressing the individual E-, S-, and G- scores on the cost of capital, I find significant inverse results for the E- and S- scores on the

WACC as well as the cost of equity. Nevertheless, all findings only show weak effects and are often not statistically significant with relatively low explanatory power of the regression models. Hence, I make an in-depth analysis of the individual sectors for selected sample industries. The findings show highly divergent results. For the consumer staples sector, a clear negative association between the combined ESG score and the cost of equity can be observed. Moreover, there is a significant inverse effect of the S- score on the cost of equity. Similarly, the utility sector's results display a significant negative relationship between the individual E-score and the cost of equity. However, the findings reveal a significant positive linkage between the G- score and the cost of capital. As most of the sectors depict that an increase in the credit rating results in a lower cost of capital, the energy sector catches someone's eye. Its model suggests that an increase in the credit rating by one notch leads to a significantly higher WACC that increases by over 48 basis points. A priori, one would expect the opposite: the better the credit rating the less risky the investment. A possible explanation for this interesting finding could be that the energy sector mainly contains oil & gas companies which provide solid credit fundamentals; but still, investors' willingness to invest in those environmental unfriendly companies shrinks, which in turn makes it difficult for those firms to raise capital at reasonable rates.

To summarize, ESG topics have increased in relevance over the last few years. The ESG market shows tremendous growth and firms are required by various stakeholders to act on ESG aspects. In fact, the ESG scores are steadily increasing during the analyzed time horizon from 2015 to 2019. Nevertheless, the provided ESG scores by various data providers lack transparency, objectiveness, and standardization. The regression results for the combined ESG score on the cost of capital only have shown weak or often insignificant results. However, a weak negative effect could be observed, especially for the E- and S- scores. The highly divergent results for the sector breakdown have shown the importance to distinguish between the individual industries and analyzing them separately. A generalization of the findings across industries is not recommended. The best approach to analyze a firm's ESG ambition is to compare its efforts made with the industry peers. Still, clear strong effects of increased ESG scores on the cost of capital cannot be seen.