

CHALLENGES IN ESG RATINGS: UNDERSTANDING ESG RATING DISAGREEMENT AND ITS EFFECTS ON FINANCIAL DECISION MAKING

HELENA NAFFA, FANNI DUDÁS

Corvinus University of Budapest, Budapest, Hungary
helena.naffa@uni-corvinus.hu, fanni.dudas@uni-corvinus.hu

Abstract The most widely applied indicators for sustainability are the Environmental, Social, and Governance (ESG) indicators, commonly used in academia and practice. However, these metrics lack standardization, resulting in potential discrepancies in performance assessments from different ESG rating agencies, referred to as ESG rating disagreement in the literature. Using ESG ratings from three different data providers for a sample of firms in the MSCI All Country Index for 2020, we calculated the ESG rating disagreement between Sustainalytics, Refinitiv, and MSCI ESG scores. We applied quantile regression and provided evidence of a positive relationship between ESG rating disagreement and firm financial performance. Our findings contribute to a better understanding companies' ESG performance and the relationship between ESG performance and financial performance.

Keywords:

ESG rating
disagreement,
quantile regression,
sustainability,
sustainable finance,
resilience

JEL:

C58, G15, G24

1 Introduction

Sustainable finance is one of today's important fields in economics. The best-known sustainability indicators are the Environmental, Social, and Governance indicators, collectively ESG indicators, which quantify the sustainability performance of companies or countries. According to Svanberg et al. (2022), measuring sustainability is one of today's most significant challenges for the finance industry: assessing a company's sustainability with validity and accuracy. Sustainability is an elusive factor that cannot be measured in one dimension. ESG indicators are standardized sustainability performance assessments provided by third-party market providers, such as MSCI, Bloomberg, or Sustainalytics, which are applied in investment processes by investors.

Despite their wide adaption, ESG ratings are receiving criticism about their disagreement, confirmed by evidence in the literature. Companies can get significantly disagreeing performance assessments from different rating agencies, which causes several problems in investor practice and examining ESG indicators and corporate performance (Jacobs & Levy, 2022). In Amel-Zadeh and Serafeim's (2018) study, the practitioner's perspective is clearly described in using ESG data: they examined the barriers to ESG data use in the investment decision process, among other ESG data-related questions. Based on their results, the investors believe comparing reported information across firms is the biggest challenge to using ESG information for investment decision-making.

So far, the ESG-related literature has concentrated on the relationship between the financial and ESG performance of the companies (Naffa & Fain, 2020). Several studies separately examine the relationship between environmental (E), social (S), and governance (G) factors (Berlinger et al., 2022; Keresztúri et al., 2022), while Kotró and Márkus (2020) researched the relationship between the risk of corporate bonds and ESG scores. In addition to companies, sustainability aspects and expectations have also appeared at the regulators, so it is necessary to change the previous practices at this level as well; this was researched by, among others, Gyura (2020) and Mihálovits and Tapaszi (2018). The ESG rating disagreement is less researched; researchers have started studying this area recently. This paper aims to present the relevant literature on ESG rating disagreement and bring empirical evidence on ESG rating disagreement by calculating the ESG rating disagreement

on a sample of the MSCI All Country Index using ESG data from Sustainalytics, Refinitiv, and MSCI. We also examined the effect of ESG rating disagreement on financial decision-making with quantile regression.

This paper is structured as follows: first, we present in detail the relevant literature in connection with ESG rating disagreement, followed by the presentation of the research design, where we present in detail the ESG data used, as well as present the empirical results. Finally, we summarize the study.

2 Literature Review

In the literature, several researchers have examined the issue of ESG disagreement in recent years. Some researchers, such as Berg et al. (2022), Capizzi et al. (2021), and Chatterji et al. (2016), described the definition of ESG disagreement and the phenomenon itself. Billio et al.'s (2021) study focused not only on ESG rating disagreement and its investigation but also examined the impact of disagreement on ESG portfolio performance, such other studies as Gibson Brandon et al. (2021), Liu (2022), who examined the relationship of ESG rating disagreement on the financial performance and ESG disclosure of companies. The theoretical background of the ESG rating disagreement and the related issue is provided by Avramov et al. (2020), and Avramov et al. (2022) researched in detail, supporting their results with empirical models.

One of the studies on this topic is the study of Chatterji et al. (2016). They described that ESG ratings are essential in assessing companies' sustainable performance. They approached the disagreement by measuring the convergent validity of ratings by examining the pairwise tetrachoric correlations between the six indexes. They documented a need for more agreement across social ratings from six well-established raters. According to their results, it is mainly because of the absence of a common theorization and lack of commensurability. Billio et al. (2021) also analyzed the phenomenon of ESG rating disagreement and examined if it affects financial performance. They found a lack of commonality in defining ESG characteristics, attributes, and standards in defining E, S, and G components. They found that heterogeneity in rating criteria can lead agencies to have opposite opinions on the same evaluated companies and that agreement across those providers is substantially low. Their empirical results showed no impact on financial

performances; however, the ESG rating disagreement disperses the effect of preferences of ESG investors on asset prices.

Gibson Brandon et al. (2021) examined the relationship between ESG rating disagreement and stock returns. They used ESG data from seven different providers to assess ESG rating disagreement. Then they used a different panel regression model to analyze the relationship between ESG rating disagreement and stock returns. They calculated ESG rating disagreement based on investment practice, using the standard deviation of the available ESG ratings from the seven different data providers for a given firm at a given time. They calculated the disagreement measure for the total ESG rating and separately for the E, S, and G dimensions. Their findings suggest that stock returns positively relate to ESG rating disagreement, suggesting a risk premium for firms with higher ESG rating disagreement. This relationship is mainly based on the disagreement about the environmental dimension.

Berg et al. (2022) also focused on the ESG rating disagreement; however, they focused on the sources of the disagreement. They examined the ESG rating disagreement based on six prominent ESG rating agencies. They described the rating disagreement and mapped the different methodologies onto a common taxonomy of categories. Their results revealed that the sources of the ESG rating disagreement are the scope, measurement, and weight. Their results suggest that measurement contributes 56% of the divergence, scope 38%, and weight 6%.

3 Methodology

In our study, we conducted our empirical investigations on a global sample. Based on the MSCI All-Country Index, our sample included 2,752 companies. We built our database for the year 2020 from various sources. We accessed the companies' financial data via Bloomberg, using Refinitiv, Sustainalytics, and Bloomberg for the ESG data. We proxied the companies' financial performance with the one-year return and the maximum drawdown. Among the control variables were various financial indicators of the companies, such as market capitalization, ROA, long and short-term debts, Tobin Q ratio, volatility, and the Amihud illiquidity ratio. To calculate ESG rating disagreement, we used ESG data from three providers in our work, Refinitiv's ESG score, Sustainalytics' ESG Risk score, and MSCI's ESG

ratings. Using these three ESG data, we calculated the ESG rating disagreement based on the work of Avramov et al. (2022). The calculation process is shown in Equations 1 and 2.

$$|ESG Rating_{i_A} - ESG Rating_{i_B}| / \sqrt{2} = ESG Rating disagreement_{i_{AB}} \quad (1)$$

where $ESG Rating_{i_A}$ company i is the ESG score given by rating company A, $ESG Rating_{i_B}$ company i is the ESG score given by rating company B, and $ESG Rating disagreement_{i_{AB}}$ ESG rating disagreement for company i.

$$\sum_j^n ESG rating disagreement_{i_{xy}} / n = Average ESG rating disagreement_i \quad (2)$$

Where $ESG Rating disagreement_{i_{xy}}$ the disagreement between X and Y ESG ratings of company i is $Average ESG rating disagreement_i$ the average of the pairwise ESG rating disagreement for company i. The smallest value for this variable means that the three ESG service providers agree on their assessment. The largest value shows a large difference or large differences between the individual classifications.

We used quantile regression for the empirical analysis. While the OLS regression only shows the investigated relationship between the variables in relation to the average values, in the case of the quantile regression, it also shows the arbitrary quantiles of the conditional distribution of the dependent variable. With quantile regression, we can determine how much the effect of the independent variable differs in some parts of the conditional distribution of our dependent variable (Hajdu & Hajdu, 2013).

Based on this, we examined the following equations.

$$Q_{\theta}(Max. drawdown_{qi} | X_i) = \beta_{0\theta} + \beta_{1\theta} Average ESG rating disagreement_i + \beta_{2\theta} Size_i + \beta_{3\theta} Leverage_i + \beta_{4\theta} Tobin Q_i + \beta_{5\theta} ROA_i + \beta_{6\theta} Liquidity_i + \beta_{7\theta} Volatility_i + \varepsilon_{\theta i} \quad (3)$$

$$Q_{\theta}(\text{One – year return}_{qi}|X_i) = \beta_{0\theta} + \beta_{1\theta}\text{Average ESG rating disagreement}_i + \beta_{2\theta}\text{Size}_i + \beta_{3\theta}\text{Leverage}_i + \beta_{4\theta}\text{Tobin } Q_i + \beta_{5\theta}\text{ROA}_i + \beta_{6\theta}\text{Liquidity}_i + \beta_{7\theta}\text{Volatility}_i + \varepsilon_{\theta i} \tag{4}$$

4 Results

The relationship between ESG rating disagreement and corporate financial performance was examined using quantile regression. Table 1-2 shows the slopes of the conditional distribution of the various financial performance proxies fitted to different percentiles in order. In Table 1, where maximum drawdown was the dependent variable, the first column shows the companies with the lowest value, i.e., the most resilient 5 percent, showing the effect of ESG rating disagreement on maximum drawdown. In Table 2, the first column (p 5 %), in contrast to the previous one, shows the impact of ESG rating disagreement on one-year return and so on for the worst-performing companies. When maximum drawdown was the dependent variable, there was no clear trend in the coefficients, and the coefficient was significant only at the 95% percentile. This means that for companies with the highest maximum drawdown value, there is a negative relationship between ESG rating disagreement and maximum drawdown, i.e., if the uncertainty surrounding the company’s ESG score increases by one unit, the maximum drawdown decreases by 0.164 units.

Table 1: Relationship between ESG rating disagreement and maximum drawdown, quantile regression

	(3)				
	p (5%)	p (25%)	p (50%)	p (75%)	p (95%)
ESG rating disagreement	-0.013	-0.003	-0.015	0.040	-0.164*
Bootstrap st. error	0.023	0.019	0.031	0.036	0.068
Control variables	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.09	0.1528	0.1782	0.2132	0.2969
N	2752	2752	2752	2752	2752

Note: Estimation procedure: Quantile regression, Dependent variable: Maximum drawdown, Control variables: Market capitalization(ln), Long and short-term debts (ln), Tobin Q ratio, ROA, Amihud liquidity ratio (ln), 1-year volatility, * p < 0.10, ** p < 0.05, *** p < 0.01.

Source: Authors' research.

In the case of the one-year return, we can already observe increasing coefficients as we move from the 5% percentile to the 95%. In this case, the coefficient of ESG rating disagreement was significant and had a positive sign in three cases. This means

that the uncertainty around the company’s ESG score increases the performance of those located at the top of the conditional distribution of the company’s financial performance.

Table 2. Relationship between ESG rating disagreement and one-year return, quantile regression

	(4)				
	p (5%)	p (25%)	p (50%)	p (75%)	p (95%)
ESG rating disagreement	2.421	5.108	8.273*	19.549**	51.886*
Bootstrap st. error	6.479	5.563	4.604	7.908	27.142
Control variables	Yes	Yes	Yes	Yes	Yes
Pseudo R²	0.220	0.092	0.038	0.022	0.079
N	2752	2752	2752	2752	2752

Notes: Estimation procedure: Quantile regression, Dependent variable: One-year return, Control variables: Market capitalization(ln), Long and short-term debts (ln), Tobin Q ratio, ROA, Amihud liquidity ratio (ln), 1-year volatility, * p < 0.10, ** p < 0.05, *** p < 0.01.

Source: Authors' research.

5 Discussion and Conclusion

Based on the results of quantile regressions, the relationship between ESG rating disagreement and corporate financial performance is not even; it is not the same throughout the entire conditional distribution. At the same time, the direction of the relationship is visible, even if the ESG rating disagreement coefficients are not significant in all cases. If the ESG rating disagreement increases, the company’s financial performance also moves positively.

Our results are consistent with the work of Gibson-Brandon et al. (2021), who explained the results with the theories of heterogeneous beliefs and Knightian uncertainty. On the one hand, based on the heterogeneous beliefs theory, the ESG rating disagreement is priced into the stock returns in addition to the market risk exposure of the shares. Based on this explanation, if we consider the ESG evaluation of several rating companies and thus want to get a complex picture of the sustainable performance of the given company, then a possible ESG rating disagreement means increasing uncertainty regarding the ESG performance of the given company. Thus investors perceive it as a separate source of risk, which entails a risk premium if the investors are risk averse. In addition, Gibson-Brandon et al. (2021) also argued with Knightian uncertainty in their explanation, which in this case means uncertainty about the ESG performance of the given company, i.e., ESG rating disagreement.

Knightian uncertainty generally states that we do not know all the factors related to a possible event; there is a certain degree of uncertainty related to the given event, which we cannot quantify against the identified risks. Viale et al. (2014) applied this theory to stock returns and concluded that uncertainty is priced into stock returns. Therefore, ESG rating disagreement is a proxy for the uncertainty related to companies' ESG performance, which appears as a positive premium in stock returns, and our results support this.

Our study may help academics, investors, financial advisors, policymakers and regulators, and firms better understand that beyond the sustainability performance captured by average ESG ratings. It is recommended to look behind the aggregated scores and set up a set of criteria according to investor preferences, based on which we can say that a company is sustainable and we can compare more company performance.

Acknowledgment

Helena Naffa and Fanni Dudás are grateful for the funding from National Research, Development and Innovation Office - NKFIH, K-138826.

References

- Amel-Zadeh, A., & Serafeim, G. (2018). Why and how investors use ESG information: Evidence from a global survey. *Financial Analysts Journal*, 74(3), 87-103. <https://doi.org/10.2469/faj.v74.n3.2>
- Avramov, D., Cheng, S., Lioui, A., & Tarelli, A. (2022). Sustainable investing with ESG rating uncertainty. *Journal of Financial Economics*, 145(2), 642-664. <https://doi.org/10.1016/j.jfineco.2021.09.009>
- Avramov, D., Cheng, S., Lioui, A., & Tarelli, A. (2020). *Investment and asset pricing with ESG disagreement*. <https://doi.org/10.2139/ssrn.3711218>
- Berg, F., Koelbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, 26(6), 1315-1344. <https://doi.org/10.1093/rof/rfac033>
- Berlinger, E., Keresztúri, J. L., Lublóy, Á., & Tamásné, Z. V. (2022). Press freedom and operational losses: The monitoring role of the media. *Journal of International Financial Markets, Institutions and Money*, 77, 101496. <https://doi.org/10.1016/j.intfin.2021.101496>
- Billio, M., Costola, M., Hristova, I., Latino, C., & Pelizzon, L. (2021). Inside the ESG Ratings:(Dis)agreement and performance. *Corporate Social Responsibility and Environmental Management*, 28(5), 1426-1445. <https://doi.org/10.1002/csr.2177>
- Capizzi, V., Gioia, E., Giudici, G., & Tenca, F. (2021). The Divergence of ESG Ratings: An Analysis of Italian Listed Companies. *Journal of Financial Management, Markets, and Institutions*, 9(02), 2150006. <https://doi.org/10.1142/s2282717x21500067>
- Chatterji, A. K., Durand, R., Levine, D. I., & Touboul, S. (2016). Do ratings of firms converge? Implications for managers, investors, and strategy researchers. *Strategic Management Journal*, 37(8), 1597-1614. <https://doi.org/10.1002/smj.2407>

- Christensen, D. M., Serafeim, G., & Sikochi, A. (2022). Why is corporate virtue in the eye of the beholder? The case of ESG ratings. *The Accounting Review*, 97(1), 147-175. <https://doi.org/10.2308/tar-2019-0506>
- Gibson Brandon, R., Krueger, P., & Schmidt, P. S. (2021). ESG rating disagreement and stock returns. *Financial Analysts Journal*, 77(4), 104–127. <https://doi.org/10.1080/0015198x.2021.1963186>
- Hajdu, T., & Hajdu, G. (2013). Szubjektív jóllét és anyagi helyzet: A kvantilis regresszió és az általánosított ordered probit modell eredményeinek összehasonlítása a standardelemzési módszerekkel (No. MT-DP-2013/28). *IEHAS Discussion Paper*.
- Jacobs, B. I., & Levy, K. N. (2022). The Challenge of Disparities in ESG Ratings. *The Journal of Impact and ESG Investing*, 2(3), 107–111. <https://doi.org/10.3905/jesg.2022.1.040>
- Latino, C., & Pelizzon, L. (2021). *The Power of ESG Ratings on Stock Markets*.
- Liu, M. (2022). Quantitative ESG disclosure and divergence of ESG ratings. *Frontiers in Psychology*, 4591. <https://doi.org/10.3389/fpsyg.2022.936798>
- Keresztúri, J. L., Berlinger, E., & Lublóy, Á. (2022). Blowing the whistle on corporate fraud: the role of regulators and journalists in the financial vs non-financial sectors. *Applied Economics*, 1-12. <https://doi.org/10.1080/00036846.2022.2096872>
- Kotró, B., & Márkus, M. (2020). The impact of ESG rating on corporate bond yields. *Economy and Finance: English-Language Edition of Gazdaság és Pénzügy*, 7(4), 474-488. <https://doi.org/10.33908/ef.2020.4.7>
- Naffá, H., & Fain, M. (2020). Performance measurement of ESG-themed megatrend investments in global equity markets using pure factor portfolios methodology. *PLoS one*, 15(12), e0244225. <https://doi.org/10.1371/journal.pone.0244225>
- Svanberg, J., Ardeshiri, T., Samsten, I., Öhman, P., Neidermeyer, P. E., Rana, T., ... & Danielson, M. (2022). Corporate governance performance ratings with machine learning. *Intelligent Systems in Accounting, Finance, and Management*, 29(1), 50-68. <https://doi.org/10.1002/isaf.1505>
- Viale, A. M., Garcia-Feijoo, L., & Giannetti, A. (2014). Safety first, learning under ambiguity, and the cross-section of stock returns. *The Review of Asset Pricing Studies*, 4(1), 118-159.

