

# **Material sustainability and stock return: faith is not enough**

**Luca Berchicci**

Rotterdam School of Management (RSM)  
Erasmus University Rotterdam  
lberchicci@rsm.nl

**Andrew A. King**

Questrom School of Business  
Boston University  
aaking@bu.edu

**Abstract:** Yoon and Serafeim (2022) provide a review of the history of materiality, a brief discussion of selected research, and a discourse on measurement noise. They do not address the results of our research, our critique of their analysis, or our evidence that the main finding of Khan, Yoon, and Serafeim (2016) is a statistical artifact. In total, their response illustrates the danger of placing excessive faith in the findings from a single study.

The issue debated in Khan, Serafeim, and Yoon (2016) and Berchicci and King (2022) is whether guidance on materiality from the Sustainable Accounting Standards Board (SASB) can be used to select ESG measures that reliably predict stock returns. Khan, Serafeim, and Yoon (2016) (hereafter “KSY”) estimate that had investors possessed SASB materiality data, they could have selected stock portfolios that delivered vastly higher returns, an additional 300 to 600 basis points per year for a period of 20 years. Berchicci and King (2022) (hereafter “BK”) contend that there is no evidence that SASB guidance could have provided a reliable advantage and contend that KSY’s findings are a statistical artifact.

In their defense of KSY, Yoon and Serafeim (2022) ignore the evidence provided in Berchicci and King and leave its main points unrefuted. Rather than make their case directly, they try to buttress their claim with a selective review of research on materiality. Yet a closer look at this literature reveals that little of it is relevant to the debate. Of the 28 articles cited, only two evaluate the connection between SASB materiality guidance and stock price, and both are self-citations.<sup>1</sup> Indeed, in other forums, Serafeim has made a contrasting argument, contending that KSY is a uniquely important study – a

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<sup>1</sup> Not considering KSY or our paper, one considers stock price synchronicity not stock return, and the other shows that certain news influences stock prices for approximately one day.

breakthrough that shifted decades of understanding (Porter, Serafeim, and Kramer, 2016). Surely, such an important study should be evaluated on its own merits.

In BK, we evaluate whether KSY's results are a fair representation of the true link between material sustainability and stock return. We evaluate over 400 ways that the relationship could be analyzed and reveal that 98% of the models result in estimates smaller than the one reported by KSY and that the median estimate was close to zero. We then show that KSY's estimate is not robust to simple changes in their model: such as the inclusion of better controls, the use of related measures, or the use of variables with alternative functional forms. Next, we evaluate the cause of KSY's strong estimate and uncover evidence that it is a statistical artifact. One form of their measure is conflated with sector membership, and it is this form and only this form that they use in their analysis. We prove the importance of this accidental conflation by showing that models using KSY's own variable, but better sector controls, do not return KSY's reported result. We then show that their measure also lacks face validity because it judges as materially sustainable firms that were (and continue to be) leading emitters of toxic pollution and greenhouse gasses. In some years, this included a large majority of the firms in extractive industries (e.g. oil, coal, cement, etc.). In summary, we find no evidence that SASB materiality guidance can unlock the predictive potential of ESG data.

KSY do not address any of these criticisms and instead rely on a belief that their measure and model are the only ones that should be considered. They do not disclose the source of their faith and indeed ignore empirical evidence from Bayesian analysis that other measures and models better fit the data. They spend the bulk of their response describing the potential problems created by noisy measures, but the issue they raise is moot. In the fall of 2020, they shared their actual measure with us, and it is their measure that we use when we demonstrate their result is not robust to the inclusion of better sector controls. Thus, noise in our measures simply cannot explain the fragility of their result, nor can it explain its conflation with highly polluting industries. Our contention that their result is an artifact is based on their measure, not ours.

Forty years ago, Ed Leamer suggested that we take the “con out of econometrics” (1983). He argued that “the fundamental problem of econometrics is how adequately to control the whimsical character of inference, how sensibly to base inferences on opinions when facts are unavailable” (1983: 38). He warned of the danger of placing excessive faith in any single result and encourage scholars to consider the epistemic uncertainty of their analysis before making confident statements. In response, scholars developed tools to map and evaluate the connection between assumptions and inference. Those tools form the foundation of the model uncertainty analysis used in our publication. It is time we heeded warnings about overconfidence in any single estimate and put these tools to broader use.

Finally, we would like to thank the editors and reviewers at JFR for their guidance and open-mindedness. In the early days of our work, we were told that replications were unpopular and hard to publish. We then heard this repeatedly from editors and reviewers at other journals. We recognize that we are fortunate that our article was eventually accepted for publication, and we gratefully acknowledge the assistance of the editors at JFR.

## References

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