

# BIG DATA & ALGORITHMIC FINANCE



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Gaëlle Le Fol is currently Professor of Finance at the Université Paris - Dauphine - PSL, where she is a researcher at DRM (Dauphine Recherche en Management) - Finance and CREST (Centre de Recherche en Economie et Statistique). She is also the director of the Research initiative QMI (Quantitative Management Initiative) at the Fondation du Risque. Her research focuses on the microstructure of financial markets, empirical asset pricing and financial econometrics. Her recent research focuses on investor behavior and its impact on trading patterns, market liquidity, contagion, systemic risk, risk premia, high-frequency trading strategies and the impact of ESG on security returns.

## UNDERSTANDING THE EFFECT OF ESG SCORES ON STOCK RETURNS USING MEDIATION THEORY

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In this paper, we investigate the impact of ESG scores on stock returns and examine the channels, if any, through which ESG information is transmitted. The literature on the ESG transmission mechanism has essentially identified two channels (the «investor demand channel» and the «fundamentals or profitability channel»), but these channels are empirically difficult to identify and quantify. We then use a causal mediation model to address this issue, analysing whether ESG scores can predict future returns and identifying which channels are at play. Our results show that current ESG scores have a negative real effect on future stock returns and that the transmission channels are not the same depending on the pillar - either E, S, G, we focus on. The «investor demand channel» explains a significant part of the effect we observe empirically. The direct -or fundamental- channel, which we would expect to be positive, is negative, except for G, leading in general to a negative impact of ESG scores on future stock returns. Such results prove that ESG scores do indeed contain information that can be exploited by asset managers in their portfolio choices.

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