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Management Implications of Data-Driven Decision-Making: An Entropy-Weighted Approach to Firm Performance

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Abstract

This paper deals with the increasing role that management plays in making decisions in modern organizations under conditions of having extensive financial, operational, and sustainable data. Specifically, a majority of currently available models for assessing company performance focus on either the financial or environmental, social, and governance (ESG) aspects but fail to capture the effects that management decision-making processes have on all these dimensions simultaneously. Therefore, the purpose of this paper is to develop an advanced data-driven model called the Managerial Performance Index (MPI) that would enable a holistic analysis of the effectiveness of management in translating its strategic vision into concrete results.

In line with the purpose of this research, the proposed performance evaluation model will be based on the integration of multidimensional indicators representing both financial and environmental factors, as well as governance indicators and market-based measures. Moreover, the weights of each indicator are obtained objectively through an entropy weighting algorithm. The empirical analysis will be performed with a cross-sectional sample of successful companies from Europe and elsewhere in the service sector (e.g., transport and tourism industry).

This study contributes to the management and business literature by introducing a transparent and scalable framework for benchmarking managerial effectiveness using multidimensional data. The MPI offers practical implications for managers and policymakers by supporting more informed, data-driven decision-making and enabling systematic evaluation of strategic performance across firms and industries.

Keywords: Corporate governance; Entropy weighting; ESG integration; Performance measurement; Strategic decision-making