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Why Sustainable Capital Allocation Requires a New Analytical Paradigm

From ESG Scores to Causal Finance

For sustainability to influence capital allocation, financial institutions need to understand not only what correlates with resilience, but what causes it.

AUTHORED BY



EDITOR'S NOTE

The ESG paradigm has made sustainability legible to markets. Causal finance asks the next question: how do climate, nature, policy, and technological changes actually reach balance sheets, asset values, and solvency?

1 The problem: correlation does not allocate capital

The integration of Environmental, Social, and Governance (ESG) criteria into financial markets has marked a significant step forward. It has elevated the discourse around sustainability, created a shared language for non-financial risks, and catalysed a wave of corporate disclosure and transparency. Frameworks such as the Task Force on Climate-related Financial Disclosures (TCFD) have helped standardise climate-risk reporting, providing investors with a baseline of information. This has led to a proliferation of data platforms, ratings, and scores intended to quantify firms' sustainability performance.

However, the progress remains incomplete. The current ESG paradigm has improved transparency, but it has not yet fundamentally changed how capital is allocated. Most ESG-related analytics remain retrospective, cross-sectional, and, most importantly, correlation-based. This is a structural limitation for financial institutions seeking to build genuinely resilient and sustainable portfolios for the long term.

THE CENTRAL DISTINCTION

Correlation tells us what has been observed. Causal analysis is what allows an institution to examine what may happen when it intervenes, invests, or faces a changed world.

Correlation can identify statistical relationships—for example, that firms with high ESG scores may have experienced lower stock-price volatility in certain periods—but it offers no insight into the underlying causal mechanisms. The distinction often described as “seeing” versus “doing” matters because capital allocation is an act of doing. Boards, CFOs, and risk committees need to answer questions about future action and exposure, not simply historical association.

THE QUESTIONS CORRELATION CANNOT ANSWER

What is the likely financial impact on a portfolio if a specific carbon tax is implemented?
How would a severe drought propagate through supply-chain financing and credit portfolios?

THE ALLOCATION QUESTION

Which operational investments—such as water efficiency or renewable energy—will have the greatest causal effect on reducing transition-risk exposure?

Relying on correlation to make allocation decisions is akin to driving while looking only in the rear-view mirror. For institutions navigating the complex, non-linear risks of climate change and biodiversity loss, that approach is becoming structurally insufficient.

2 What causal finance means

Causal finance is the systematic integration of cause-and-effect modelling into core financial decision-making. Instead of relying on statistical correlations, it builds explicit models of how sustainability factors—such as climate events, policy changes, or technological shifts—propagate through economic and financial systems to affect asset values, solvency, and risk profiles.

It has concrete applications across a financial institution. For transition-risk modelling, it can use scenario-based structural models, including those developed by the International Energy Agency (IEA), to trace how carbon pricing changes input costs, demand, cash flows, and valuation. For physical-risk assessment, it can model the effect of a flood on asset impairment, business interruption, and insurance liabilities, then integrate those effects into solvency frameworks. For capital allocation, it can identify which sustainability investments have the greatest causal effect on risk reduction and long-term returns.

WHAT CHANGES IN PRACTICE

Causal finance is not about creating more complex dashboards or ESG overlays. It is about embedding causal intelligence directly in valuation models, risk engines, capital frameworks, and actuarial projections.

3 Why this is technically possible now

The move to causal finance is not a futuristic fantasy. Financial institutions already run sophisticated stress tests and forward-looking models. The climate stress tests conducted by the European Central Bank (ECB) are an example of prudential frameworks already moving in this direction, even when the underlying models are not yet fully causal.

The analytical tools have matured significantly. Causal-inference approaches, including Bayesian networks and structural equation models, provide the mathematical foundation for building these systems. They are complemented by growing availability of granular data, from satellite imagery tracking deforestation to real-time supply-chain information. When combined with mature scenario frameworks from the Network for Greening the Financial System (NGFS), these inputs provide the raw materials for robust causal models. Several financial institutions are already experimenting with sustainability variables inside actuarial and risk models, moving beyond dashboards towards decision-grade intelligence.

4 The strategic implication for financial institutions

Moving from a correlation-based to a causal-based approach to sustainable finance is not merely a technical upgrade; it is a strategic imperative. In a world of tighter regulation, increasing climate volatility, and growing scrutiny of greenwashing, correlation-based risk management will become structurally insufficient for prudent solvency management, long-term asset allocation, and strategic portfolio construction.

Institutions that make the shift early can gain a significant competitive advantage. They can develop superior risk foresight, enabling them to anticipate and mitigate risks that competi-

tors may not see until it is too late. Their capital-allocation decisions can be more precise, defensible, and aligned with long-term value creation. Climate change poses systemic challenges that require new analytical tools, while emerging frameworks for nature-related risk underscore the urgency of building this capacity.

5 What the ecosystem needs now

The next chapter of green digital finance will not be written by better scores, but by better models. It will be defined not by more data, but by a deeper understanding of the causal relationships that govern risk and return in a rapidly changing world. Institutions that succeed will move beyond the comfort of correlation and embrace the intellectual rigour of causality. They will transform sustainability from a reporting exercise into a core driver of decision-making and resilience.

6 References

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