Are We in a New Investment Paradigm?

Modern finance theories can't account for systemic risk. Maybe ESG can.

NEW PARADIGM

Thomas Kuh

In his pathbreaking book, *The Structure of Scientific Revolutions*, Thomas Kuhn argued that science does not advance by the simple accretion of knowledge through experimentation and observation. There are periods when there is broad consensus that the current theories explain the phenomena they are intended to explain. "Normal science," as he calls it, is practiced in the context of the prevailing scientific paradigm. However, periodically anomalies lead scientists to change their understanding of the facts that shape their disciplines. Such ruptures—such as the discovery that the Earth revolves around the sun, not vice versa—pave the way for the emergence of new scientific theories. Kuhn dubbed these transformational moments "paradigm shifts."

Not surprisingly, the growing importance of sustainable investing has motivated practitioners and academics to grapple with questions about its implications for finance theory and our understanding of risk. Can it be assimilated into current theory? Is it explained by a different theory? Are we in the midst of a paradigm shift in our understanding of investment risk? We consider these questions from three distinct perspectives: Modern Portfolio Theory and the capital asset pricing model, behavioral finance, and system-level risk.

The Rise of Sustainable Investing

The publication of Amy Domini and Peter Kinder's *Ethical Investing* in 1986 and *Investing for Good: Making Money While Being Socially Responsible* (with Steven Lydenberg) in 1993 presaged what we now call *sustainable investing*. Known at the time as *ethical investing* or *socially responsible investing*, SRI, the authors advocated an approach that "examines the business interests and practices relating to such ethical concerns as minority hiring, environmental hazards, and weapons manufacturing, and explains how to make profitable investments without sacrificing personal ethics." So, SRI is about enabling individuals and financial advisors to align investment decisions with personal values associated with their vision for a better world.

In 2004, the United Nations Global Compact published a report endorsed by 20 major financial institutions, along with the World Bank and the International Finance Corp. "Who Cares, Wins: Connecting Financial Markets to a Changing World" articulated "guidelines and recommendations on how to better integrate environmental, social and corporate governance issues in asset management, securities brokerage services and associated research functions." The report reflected growing demand from global asset owners and asset managers and offered a blueprint for integrating these issues across different actors in the investment value chain.

Framed in the vocabulary of mainstream finance, the report was a catalyst in shifting the conversation from the values orientation of SRI to a focus on *value*—specifically, risk and opportunity associated with environmental, social, and governance factors in the context of the fiduciary duties of institutional investors. And it gave the world a new initialism, *ESG*.

Today, sustainable investing encompasses a range of strategies including ESG, climate, and impact investments. It is premised on the view that every investment has real-world effects, whether positive or negative. While diverse, these approaches share the objective of leveraging capital markets to generate more sustainable outcomes. They also acknowledge implicitly or explicitly that companies have an impact on the world at the same time as the world has an impact on companies.

What distinguishes sustainable investors from investors exclusively focused on financial considerations is their intention to integrate analysis of ESG risks and opportunities, address negative externalities of market activities, and achieve positive impacts. In short, they seek to change the framework and time horizon for investment decision-making, though achieving such ambitious aspirations remains a work in progress.

The Rise of Modern Finance Theory

Finance theory in the 20th century advanced the understanding of risk by differentiating market risk from the risk of individual securities and showing how to reduce stock-specific risk through diversification. It was founded on a set of simplifying assumptions about the motivations, behavior, and time horizon of investors, the availability and cost of borrowing and lending, and the efficiency of security markets.

In addition to offering a framework for managing risk through portfolio construction, the elegant theoretical framework enshrined broad market-capitalization-weighted indexes as the "market portfolio," providing the rationale for index-based investing. It elevated the role of indexes from solely being performance gauges to being an integral element of the investment value chain and fueling the rise of passive investing.

The pillars of finance theory are Modern Portfolio Theory, the capital asset pricing model, and the efficient market hypothesis.

Modern Portfolio Theory, or MPT, is based on the work of Harry Markowitz, which furnished the first rigorous theoretical justification for portfolio diversification. Developed independently by William Sharpe and others, the capital asset pricing model, or CAPM, builds on Markowitz's

MPT framework to explain how to construct portfolios within the constraints of the model's assumptions. Their contributions to modern finance theory earned Markowitz and Sharpe the 1990 Nobel Memorial Prize in economics.

The framework distinguished two types of risk: *systematic risk* (market risk or beta) and *specific risk* (risk associated with an individual stock). Systematic risk cannot be mitigated.[1] However, CAPM asserts that investors can reduce specific risk through diversification with a portfolio on the efficient frontier. Using mean-variance optimization, investors can determine the highest returns for a given level of risk.

The efficient market hypothesis, or EMH, attributed in its modern form to Eugene Fama, is a theory asserting that security prices reflect all relevant information. It implies that active investors cannot systematically outperform passive investors.

Together, CAPM and the EMH paved the way for passive investing using broad market-cap-weighted benchmarks (the "market portfolio"). Andrew Lo asserts that combining CAPM with the EMH "democratized personal investing by taking the reins of portfolio management from the active stock-picking gunslingers of the day and handing them over to a broadly diversified index fund, which served as a proxy for the market portfolio."[2]

This development had important implications. First, it advanced our understanding of risk and portfolio construction. The premise that investors can manage portfolio risk through diversification shifted the framework for risk and return from the level of individual securities to the portfolio level.

In addition, it provided a theoretical justification for index-based investments as an alternative to active management strategies, helping pave the way for the rise of passive investing and fueling the rise of exchange-traded funds.

Does ESG Investing Fit Finance Theory?

MPT, CAPM, and the EMH are criticized for their rarefied assumptions, real-world applicability, and empirical validity.[3] A growing number of authors are attempting to address these criticisms to reconcile MPT and CAPM with the practicalities and empirical results of ESG investing.[4] These efforts are intended to explain ESG investing by assimilating it into the prevailing theoretical framework.

Thomas Idzorek, Paul Kaplan, and Roger Ibbotson developed the popularity asset pricing model, or PAPM, based on insights from Fama and French that CAPM is missing two kinds of information that affect asset pricing: disagreement (heterogeneous expectations) and tastes (investor preference beyond risk tolerance). They describe PAPM as "a generalized asset pricing model that encompasses the CAPM as well as… new ESG-specific models, allowing for *any* number of asset characteristics and a wide range of investors with various expectations and tastes."[5]

To address ESG, the model encompasses the inherently nonpecuniary tastes and preferences of ESG investors. Because it accommodates investors' nonpecuniary *and* pecuniary tastes and preferences, the theory "embraces classical finance theory as well as behavioral finance."[6]

One of PAPM's surprising conclusions is that investors will each hold portfolios customized to their diverse expectations and tastes. This stands in stark contrast to the implications of MPT and CAPM that rational investors should hold the market portfolio. It is a provocative finding in light of advances in technology and data availability that facilitate direct indexing. As an enhancement of CAPM, PAPM has the virtue of providing the theoretical space for ESG investors. Yet it does not address the dynamic of *systemic risk*—risks to the entire economic system—that is of central importance to ESG investors.

The Rise of Behavioral Finance

Behavioral economists observe the cognitive biases of humans that contradict some of the CAPM's underlying assumptions. Behavioral finance offers an alternative to assumptions about the rationality of investors, using insights from psychology to explain how subjective thinking alters human judgment. Ultimately, the field analyzes how investor behavior reflects a mixture of psychological motivations and pecuniary considerations.

Meir Statman has written extensively on sustainable investing from the perspective of behavioral finance, analyzing how ESG offers investors the opportunity to address utilitarian and expressive impulses by aligning their portfolios with their values. In a recent article, he posits two archetypes of ESG investors:

"*Banner-minded investors might want the expressive and emotional benefits of staying true to their values, but they are unwilling to sacrifice any portion of their utilitarian returns for these benefits. [T]hey do no good, doing nothing to enhance the utilitarian, expressive, and emotional benefits of others.… Plow-minded investors want the expressive and emotional benefits of staying true to their values, and they are willing to sacrifice portions of their utilitarian returns for these benefits. [T]hey do much good, enhancing the utilitarian, expressive, and emotional benefits of others.*"[7]

This framework juxtaposes investors who are not willing to sacrifice returns to make a positive impact on the world with investors who are willing

1 Hedging and asset-allocation strategies can somewhat offset systematic risk.
2 Lo, A. 2015. "What Is an Index?" Massachusetts Institute of Technology Laboratory for Financial Engineering, Santa Fe Institute, P. 4, Oct. 12.
3 See Otuteye, E. & Siddiquee, M. 2017 "A Critique of Modern Portfolio Theory and Asset Pricing Models Based on Behavioral Insights from Benjamin Graham's Value Investing Paradigm." SSRN. Sept. 6, and Rockel, N. 2010. "Modern Portfolio Theory's Evolutionary Road." *Institutional Investor*. May 7.
4 For example, Pedersen, L.H., Fitzgibbons, S. & Pomorski, L. 2021. "Responsible Investing: The ESG-Efficient Frontier." *Journal of Financial Economics*. Vol. 142, Issue 2, PP. 572–597, November.
5 Idzorek, T.M., Kaplan, P.D., & Ibbotson, R.G. 2021. "The Popularity Asset Pricing Model." SSRN. Oct. 25.
6 Idzorek, T.M. & Kaplan. P.D. 2021. "A World of ESG Views and Preference: Personalized Portfolios for All Investors." *Morningstar*. Q4, PP. 6–7.
7 Statman, M. 2020. "ESG as Waving Banners and as Pulling Plows." *The Journal of Portfolio Management*. Vol. 46, Issue 3, PP. 16–25.

to sacrifice returns to benefit others. The formulation suggests ESG investors face an implied trade-off: They must take risk *and* sacrifice returns to have an impact.

A majority of studies show that ESG investors do not sacrifice risk-adjusted returns to invest in more-sustainable companies.[8] While there is debate about whether investments in ESG equity and bond funds generate better sustainability outcomes, many ESG investors complement core, broad market investments with allocations to impact investments like green bonds. They are willing to take risks to generate both returns *and* impact to realize their expressive objectives (sustainability, in this case). In other words, many ESG investors exhibit characteristics of both banner- and plow-minded behavior.

The Impact of Systemic Risk

Critics of modern finance also challenge finance theory for focusing solely on portfolio construction without acknowledging the impact of systemic risks such as climate change. The critique suggests that systemic risks have an impact on portfolio risk and may be made worse by portfolio-level decisions, so it is not appropriate to treat systemic risk as exogenous. In this sense, it reconceptualizes of risk by disputing the benign vision of the relationship between capital markets and the real economy in modern finance theory.

In their 2021 book, *Moving Beyond Modern Portfolio Theory*, Jon Lukomnik and James Hawley argue that MPT does not address systemic risks that affect capital markets, investors, and society. They describe the "MPT paradox" as a fundamental limitation: The theory explains how to mitigate specific risk through diversification but not systematic risk, which may account for as much as 94% of the variability in returns. So, MPT tells investors to treat systematic risk as given. As Lukomnik and Hawley put it, "MPT tells us that what you can affect is what matters least."[9]

Though MPT treats *systematic* risk as an element of risk, it is silent on *systemic* risk such as climate change. So, the framework of modern finance is unable to account for the effects of environmental, social, and governance factors on financial markets; i.e., risks to the financial system itself.

According to Robert Eccles, addressing systemic risks "involves an investor considering the negative externalities being created by its portfolio of assets, a portfolio that could be earning an attractive return. Over time, these externalities will make it hard for a large investor to earn the necessary returns for its beneficiaries. In other words, there are feedback loops between the real world, where value creation and value destruction occur, and the capital markets, where they are priced."[10]

This approach directs attention to the impacts and constraints of the real world in which investment takes place, not abstract models or investor psychology.

The Investment Integration Project offers a prominent expression of this perspective. Its mission is to "help investors understand how healthy environmental, social, and financial systems support long-term investment." The concept of system-level investing addresses global issues with impacts that are difficult to predict, such as climate change or income inequality—a dimension of risk that is outside of those associated with individual securities or portfolios.System-level risk is similar to the "double materiality" concept applied as part of the European Union's Non-Financial Reporting Directive:

"*The concept of double materiality describes how corporate information can be important both for its implications about a firm's financial value, and about a firm's impact on the world at large, particularly with regard to climate change and other environmental impacts. The idea of double materiality comes from a recognition that a company's impact on the world beyond finance can be material, and therefore worth disclosing, for reasons other than the effect on a firm's bottom line.*"[11]

EXHIBIT 1

Dimensions of Risk ESG investors seek to understand how their investments are affected by systemic risks such as climate change.

Source: Morningstar.

In the example of climate change, double materiality says that there are feedback loops between company-level financial materiality (the financial impact of climate change on companies) and system-level environmental materiality (the impact of corporate activities on the climate). It accounts for both the "outside-in" effect of financial materiality and the "inside-out" impacts of companies on the climate.

ESG, Materiality, and Risk

Benjamin Graham and David Dodd, in their seminal 1934 book *Security Analysis*, defined and analyzed risk at the security level (EXHIBIT 1).

8 Whelan, T. et al. 2021. "ESG and Financial Performance: Uncovering the Relationship Between ESG and Financial Performance Through Meta-Analysis of 1,000+ Studies." NYU Stern Center for Sustainable Business and Rockefeller Asset Management. February.
9 Lukomnik, J. & Hawley, J. 2019. "Modernizing Modern Portfolio Theory." High Meadows Institute. Aug 21.
10 Eccles, R.G. 2021. "Moving Beyond Modern Portfolio Theory: It's About Time!" *Forbes*. May 18.
11 Engler, H. 2022. "'Double Materiality': New Legal Concept Likely to Play in Debate Over SEC's Climate Plan." Thomson Reuters Regulatory Intelligence. April 12.

Survey Shows Politicization of ESG

The PitchBook 2022 Sustainable Investment Survey attracted a record number of respondents—up nearly 20% over 2021—with allocators, asset managers, and service providers weighing in on ESG and impact investing.

The increase in respondents appears to be at least partially attributable to a wave of people who, to put it politely, are skeptical of the merits of these topic areas.

Looking strictly at how the proportions have shifted from 2021 to 2022, a casual glance would indicate that there has been a drop-off in support for sustainable investing.

In 2021, only 9% of respondents said they have no plans to incorporate any sustainable-investment work. That number jumped to 13% this year.

When allocators were asked if they evaluate a fund manager's implementation of an ESG risk factor framework as part of their due diligence process, 22% said they have no plans to do so—up from 15% last year.

So, are the numbers of anti-ESG individuals truly growing? Are they convincing last year's supporters to shift?

I have my doubts.

Even going back to the first of these reports two years ago, I suspected that those who had taken the time to respond to this lengthy survey were those passionate or positively interested in learning more about the subject.

We now appear to be attracting a broader audience to our survey as those supporting anti-ESG initiatives, particularly in the U.S., feel compelled to register their views when they might have skipped the survey in years past.

Our North American limited partners, in particular, grew their proportionate representation in the negative camp, but in absolute numbers, those in the highly positive camp have also grown in our survey responses.

Attempting to represent various sides of the debate, as many look for a survey to do, we have always included quotes that represent both positive and negative thoughts about the sustainable-investment landscape.

This year, we had a much greater selection of negative open-ended responses to choose from.

In 2020, one person thought the need to register extremely negative views on the topic. This year, there were roughly 50 who did so. But in terms of overall responses, these are still a minority who are becoming more vocal.

I do not believe that this survey shows an indictment of sustainable investing. The numbers show continued support for the topic, even in the face of a pandemic, social movements, and financial stresses.

The negative views expressed were often stated in repetitive soundbites, not reasoned arguments.

This leaves hope for those with a deeper understanding of the movement that education might sway those who believe it is all—to use the words of some of our respondents—just a bunch of "woke socialistic virtue signaling."

Hilary Wiek, CFA, CAIA, is lead analyst, fund strategies and sustainable investing, at PitchBook.

1 The full report is available at https://files.pitchbook.com/website/files/pdf/2022_Sustainable_Investment_Survey.pdf.

While their framework provided the theoretical foundation for value investing, this work has continued relevance for the practice of security analysis. Sharpe's CAPM reconceptualized risk, distinguishing systematic and stock-specific risk. Diversification can mitigate stock-specific risk, so risk is ultimately addressable by investors at the portfolio level.

By contrast, the concepts of systemic risk suggest that there is an overarching context to investment and portfolio construction that links financial markets and the real economy. ESG investors seek to understand how company valuations are affected by system-level risks like climate change and how the activities of companies, in turn, contribute to those same system-level risks.

ESG investing is perhaps the most important investment trend of the past decade, though its roots go back much further. Notwithstanding attempts to politicize the field, it is gaining momentum and adherents because of its commitment to address complex, large-scale problems generated by economic activity.

On the premise that investing is more than simply a technical exercise in portfolio construction, investors are responding to the inability of a business-as-usual approach to help ameliorate these issues. Regulators across the globe are taking steps to ensure that a robust flow of actionable data on material ESG issues is available to support the development of best practices in the field and are taking steps to protect investors—both signs of a maturing discipline.

In this context, academics and investment professionals are considering how to frame a theory of finance that accounts for systemic risk, as suggested by ESG advocates. MPT and CAPM were instrumental in bringing rigor to portfolio construction in the 20th century. Are they still fit for purpose? Or are we moving into a post-MPT/CAPM world?

It's too early to declare that ESG investment is the 21st century framework for investment. But we may look back one day in the future and realize that the paradigm was shifting. MI

Thomas Kuh, Ph.D,, is head of ESG strategy, Morningstar Indexes.